



XIX World Congress on
Safety and Health at Work

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Abstracts

XIX World Congress on Safety and Health at Work

Building a Global Culture of Prevention for a Healthy and Safe Future

September 11 - 15, 2011
Haliç Congress Center, İstanbul, Turkey





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*XIX World Congress on
Safety and Health at Work*

The Programme in Detail

The Programme in Detail

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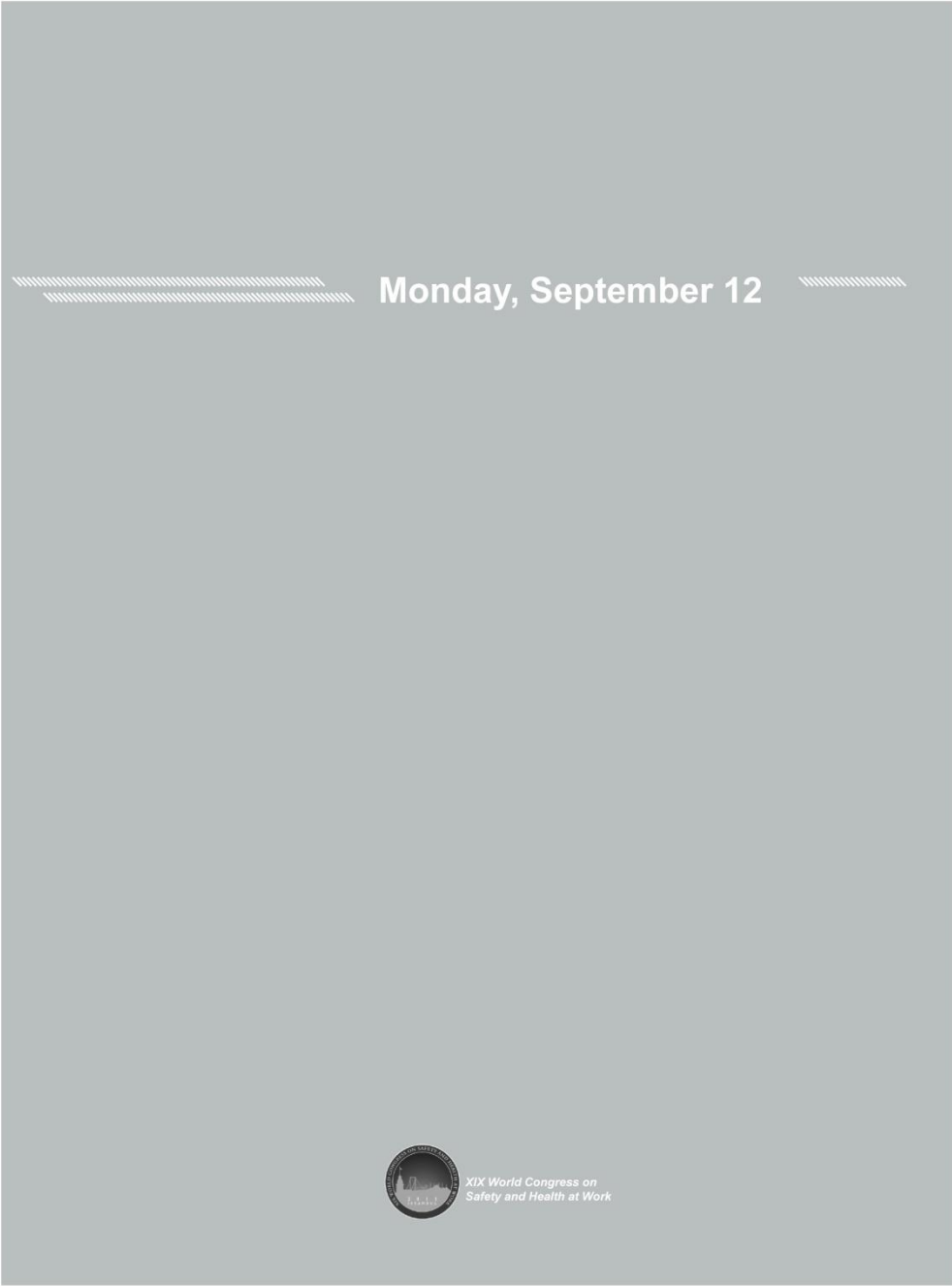
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*XIX World Congress on
Safety and Health at Work*

Abstracts



Monday, September 12



XIX World Congress on
Safety and Health at Work





Plenary



Plenary Session

Plenary Session : Topics 1 & 2

Moderator: Rüçhan Işık, Bilkent University, Turkey

Date: 12 September 2011

Venue: Haliç Hall

Time: 11:15 – 12:15

(PL: 1/1)

Comprehensive, Proactive and Preventative Approaches to Safety and Health at Work

Paula Risikko

Minister of Health and Social Services, Finland

The address covers the central elements that have contributed to creating a positive safety culture at work in Finland. The importance of cooperation at all levels is emphasized.

The Finnish OSH system is based on a tripartite model where the government, employers and employees work together. The broad-based co-operation between actors has improved their mutual understanding and the attitudes towards OSH have developed positively. There is now a widespread awareness that wellbeing at work forms a major part of the immaterial capital of all workplaces and as such correlates directly with productivity and profitability.

Good examples of tripartite efforts to promote good safety cultures on enterprise level are the safety campaigns arranged successfully during several years. The participants are mainly companies that are leading the way in their respective fields. It is expected that their safety efforts will foster practices among their subcontractors as well.

In addition to the important tripartite cooperation it is even more important to work together at the workplaces. One of the success stories in Finland is the Zero Accident Forum. It is voluntary network of Finnish workplaces. The Forum works at the enterprise level to promote positive safety culture and to reduce the amount of accidents.

The strengths of the Finnish OSH system is striving towards evidence based policy making. The Ministry of Social Affairs and Health guides the performance of several expert organizations, such as the Finnish Institute of Occupational Health. In addition, Finland takes an active part in international - especially EU level - co-operation in OSH planning, implementation and evaluation matters including up-to-date legislation and strategic planning. Finland has representatives in the EU Advisory Committee on Safety and Health and Work and in the Senior Labour Inspectors' Committee. The Ministry of Social Affairs and Health is also the Focal point of European Agency for Safety and Health at Work



In 2011 Finland adopted new strategic guidelines for the work environment and well-being at work until 2020. The vision of the guidelines state that “health, safety and well-being are important common values, which are put into practice in every workplace and for every employee”. Three main objectives are set in the strategic guidelines from the health and safety perspective: by the year 2020 the number of occupational diseases decreases by 10%, accident frequency reduces by 25% and work related harmful strain reduces so that perceived physical strain and psychic strain are each reduce by 20%.

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(PL: 1/2)

Strategic Approach to Creating Safe and Healthy Workplaces- The Singapore Experience

Hawazi Daipi

Senior Parliamentary Secretary, Singapore

Since 2005, Singapore has fundamentally reformed its Workplace Safety and Health (WSH) framework to an outcome-based and industry-led approach. This reform has brought about immense changes and enhancements to how safety and health is managed in Singapore’s workplaces. Through capability and partnership building efforts, enhancements to our regulatory framework, and outreach efforts to industry and other stakeholders, the country’s fatality rate fell by more than 50% since 2004 till date. Further progress was set in motion with a new national strategy named WSH 2018 which was launched in 2009 and aimed to bring Singapore on par with countries that have the best WSH safety records in the world. A key aspect of the strategy was the explicit need to establish a progressive and pervasive safety and health culture to ensure that improvements can be made in a sustainable manner, involving all stakeholders within the workforce. In 2011, the WSH Institute which is a key initiative to build strong WSH capabilities in Singapore was established. The Institute will be a leader in enhancing WSH through knowledge, innovations and solutions. On the international and regional front, Singapore has also always been very active in building strong networks to both keep abreast of the latest WSH development as well as enhance collaboration with other countries. This session will share Singapore’s strategic approach in developing WSH at the national level.

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The image shows a title card for a 'Technical Session'. It features a central grey rectangle with a black border containing the text 'Technical Session' in white. The card is set against a white background with a grey border. There are decorative horizontal lines with a fine, repeating pattern at the top and bottom of the white area, and smaller versions of these lines on the left and right sides of the grey rectangle.

Technical Session



Technical Session

Technical Session I: Benefits of Prevention, ISSA

Moderator: Hans-Horst Konkolewsky, International Social Security Association (ISSA)

Date: 12 September 2011

Venue: Galata Hall

Time: 13:45 – 15:45

Part I: Presentation of Different Approaches and Results on the Economic

Benefits of Prevention:- Introduction

Hans-Horst Konkolewsky

International Social Security Association (ISSA)

(TCS:1-1/1)

World: the International Study on the Return of Prevention

Walter Eichendorf

International Section of the International Social Security Association (ISSA)

Prevention measures belonging to occupational safety and health meet social and macroeconomic requirements. In addition, it is important to find out if they generate effects that support the companies in achieving their objectives. It proves to be necessary to distinguish direct and indirect effects. They increase productivity and improve competitiveness. Prevention accounting is required.

The former research project „Präventionsbilanzaustheoretischer und empirischer Sicht“ (Dietmar Bräunig and Katrin Mehnert, 2008) concentrated on prevention accounting for Germany. In 2007 and 2008, 39 companies were interviewed and asked to estimate qualitatively and quantitatively the single-economic costs and benefits of prevention measures with regard to occupational safety and health. Increased employee hazard awareness, better corporate image and better workplace culture could be identified as important factors of success. The Return on Prevention was assessed with 1.6. The ratio “Return on Prevention” illustrates an abstract economic potential.

In view of the results, strategic repositioning of occupational safety and health in the system of corporate objectives seems to be necessary. Thereby, it is important to take interdependencies with quality and environmental management into consideration. For the companies, the chance to increase efficiency opens with regard to prevention measures belonging to safety and health at the workplace. There should be a discussion about the



integration of future international occupational safety and health politics in an economic context.

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(TCS:1-1/2)

America: Occupational Hygiene Programs: a Strategy for Demonstrating the Value to Corporate Executives

Cord Jones

EU HSE Forum & Corporate Environmental Forum, Washington, USA

In today's business environment it is becoming increasingly critical that a strong value case is made to support OSH programs and activities so that they can compete successfully for limited resources. Occupational safety and health professionals must fully understand and effectively articulate the relationships between the work they do and the objectives of the enterprise in order to make the case to corporate executive management that critical occupational safety, industrial hygiene, or occupational hygiene programs are not only necessary, they are sound investments. Without compelling business value information, management is likely to view OSH programs and activities as efforts that, while important, are not as high a priority as projects with a clearer computer-based connection to the bottom line. This presentation describes a comprehensive methodology and tool to evaluate the business value of occupational safety and health activities and build a comprehensive business case. The tool will be user-friendly and will provide a flexible approach to determining the business value of the OSH activities of small, mid-size and large organizations. The tool also will use a step-by-step thought process to help the user make informed decisions and evaluate all potential areas of value within their OSH programs or activities.

(TCS: 1-1/3)

Europe: Economic Incentives in Occupational Safety and Health

Tim Tregenza

European Agency for Safety and Health at Work, Spain

The cost of accidents and ill-health at work has been estimated between 2.6% to 5.9% of GDP. The cost is not equally divided between society, employer, and victim. In 2012, EU-OSHA has scheduled a project to review the estimations of the economic costs arising from accidents and ill-health.

Various approaches are required to stimulate preventive action in Europe. Legal obligations exist to prevent harm to workers but this alone is not sufficient. Information is provided but may be effective largely with those already motivated to take action, and the "business case" for occupational safety and health (OSH) may not always pay on company level, even if it usually does so at a societal level.



External economic incentives can be considered as an additional approach to the stimulation of prevention, be directly linked to business performance, stimulate continuous improvement, and, by appearing to offer clear financial benefits to enterprises, can be a first step to get companies and managers to recognise that OSH is an issue that can and should be addressed.

The potential incentives are varied. For example, insurance premium variations can be used, based on OSH performance in comparison to the performance of similar enterprises, or if preventive actions are taken to address specific risks. Alternatively, financial support could be provided for prevention activities (e.g. training). Tax incentives for actions are also possible, as are state subsidies for innovative investments or achievement of certified OSH management systems (e.g. through reimbursement of certification fees).

Economic incentives are part of the toolbox of approaches available to achieve the prevention of harm to workers, alongside legislative, information, and other approaches. EU-OSHA (<http://osha.europa.eu>) has been active in identifying and disseminating economic approaches to preventive and continues to see this as an essential part of its work.

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(TCS: 1-1/4)

Benefits of Preventive Measures in Occupational Safety and Health -BENOSH Project

Marc de Greef

Prevent-Group, Belgium

The benOSH (Benefits of Occupational Safety and Health) project aimed at evaluating the costs of accidents at work and work-related ill health and at demonstrating the benefit to companies if they invest in OSH. The research project relied on a two-track approach comprising a desk research (scoping study/ literature review) and a field research based on multiple case studies. The research project, funded by the European Commission, was led by Prevent and conducted in collaboration with KOOP (Hamburg).

Providing companies an insight in the costs and benefits of OSH can contribute to healthy work but also to a healthy economy. According to the ILO the total costs of work-related accidents and ill-health amount to approximately 4 per cent of the world's GDP (ILO, 2006). A considerable loss that has a negative effect on economic growth and puts a burden on society. Thus preventing occupational accidents and diseases should make economic sense for society as well as being good business practice for companies.

In total 401 cases of accidents at work and work-related ill-health were analysed. For each of these accidents at work or cases of work-related ill-health the costs were calculated based on an analysis of the consequences. A cost-benefit analysis was carried out for 56 projects. The majority of the case studies have clearly demonstrated that health and safety interventions lead to positive economic indicators. By doing so, the cost-benefit analysis technique is useful to provide evidence for the profitability of a specific measure within the context of a specific company. It is a robust approach in support of OSH practitioners when making their case for management.



Based on the results of the literature review and of the case studies key messages are defined. The key messages support the communication of the findings of the benOSH study.

Part II : Looking into the Future - How to Extend the Concept of Economic Benefits to a More Holistic Approach

(TCS: 1-2/1)

Employer representative

Jan Twisk

Dow Chemical, Terneuzen, Benelux

(TCS: 1-2/2)

Worker representative

Nilton Freitas

CUT, Brasil

(TCS: 1-2/3)

Accident Insurance representative

Gonzalez Gaviola

Superintendente de Riesgos del Trabajo, Argentina

(TCS: 1-2/4)

Labour Inspection representative

Jens Jensen

National Working Environment Authority of Denmark, Denmark

(TCS: 1-2/5)

OSH Consultant representative

Advantages of OHS management systems with regard to raise up competitiveness

Bernd Siegemund

Team Prevent, Germany

In principle the aim of modern management systems is a structured and systematic support of a companies business to identify and to fulfil requirements and expectations of its stake and shareholders. Focal point is to achieve economic competitiveness on the market. Additionally, the capabilities and performance of a company should be kept up, developed further on and continuously improved.



Primary goals in establishing and implementing a management system are e.g. an increase in customer satisfaction and loyalty, improvement of processes to create high quality product or work results, savings of resources and reduction of waste management costs, to assure legal security, reduction of cost of failures and overhead and by these an enhancement of economic success. All those specific and precise requirements to a management system have to be defined and communicated individually for each company.

- Concluding remarks

Hans-Horst Konkolewsky

International Social Security Association (ISSA)

Technical Session II: National Systems Approach for an Effective Occupational Safety and Health Practice, ILO

Moderator: Michele Patterson, President, IALI

Date: 12 September 2011

Venue: Sadabad Hall

Time: 13:45 – 15:45

(TCS: 2/1)

Systems Approach to OSH - ILO Instruments and Experience

Seiji Machida

ILO SafeWork, Switzerland

Occupational Safety and Health (OSH) has been a central issue for the ILO ever since its creation in 1919 and continues to be a fundamental requirement for achieving the objectives of the Decent Work Agenda. However, it is estimated that about 2.3 million workers die each year from work-related accidents and diseases. The ILO has developed a number of OSH Conventions and Recommendations such as Occupational Safety and Health Convention (No.155), Occupational Health Services Convention (No.161) and Chemicals Convention (No.170). In 2003, the International Labour Conference reviewed the ILO standards and activities in the field of OSH and developed Global Strategy for OSH, which underlined the importance of creating preventative safety and health culture and the management systems approach which would support the full-functioning of the ILO instruments at the national level. Following the guidance of the Global Strategy, Promotional Framework for Occupational Safety and Health Convention (No.187) and Recommendation (No.197) were adopted in 2006. These new international standards aim at placing OSH high at national agendas and applying systems approach to OSH at the national level and promoting the application and ratification of other ILO Conventions on OSH. Key elements include development of national OSH policy, national OSH programmes and national OSH systems by the government in consultation with social partners.



The preparation and regular updating of national OSH profile (summary of national OSH situations) are important steps for a systematic review and reinforcement of national programmes and systems as well as for sharing experience nationally and internationally. Actions for strategic national approach to OSH would include expansion of training, information and advisory services and the reviewing and redesigning of legislation with a view to ensuring full coverage of legal protection and supporting the full functioning of the national OSH system. Such a national OSH system should include OSH legislation, compliance assurance mechanism including systems of inspection, national tripartite advisory body, national OSH data collection mechanism, OSH information and training network, and OSH support (advisory, medical surveillance, environment surveillance) mechanism.

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(TCS: 2/2)

Application of Systems Approach in OSH in Malaysia

Johari Basri

Ministry of Human Resources, Malaysia

Historically, safety had come a very long way in Malaysia. It had gone through three phases of evolution namely 1) Pre-independence (1876 – 1967) on which the development of legislation on safety progressed from Steam Boiler Ordinance to formation of 'proper' Machinery office during the British colonial period, 2) Post-independence (1967 – 1994) on which more legislations were gazette. These evolved the formation of Factories and Machinery Act (FMA) and other regulations made hereunder but very much prescriptive and authoritarian; safety aspect of factories and machinery were given a focus and then followed by health aspect of workers, 3) Growing Economic Era (1994 – 'till now) on which totally new approached in handling safety and health issue at establishments or national level. Occupational Safety and Health Act (OSHA) was enacted to create organization to implement effective safety and health measure through the self-regulation concept. In other word, until 1994, traditional way of ensuring safety was done through inspection and responsibility/accountability on safety is less own by the employers. By having OSHA, the government embarks on system approach which shifts the responsibility on OSH to the owner of the risk (employer). Self- regulation became the main 'object' and new terms such 'policy', 'arrangement', 'employee participation', 'responsibilities', 'communication' and 'as reasonable as possible' were instigated. At national level, National Council on OSH is set up to administer the administration of OSH in the country. Occupational Safety and Health Master Plan 2015 (OSH MP15) was launched by Deputy Prime Minister and safety is now a national agenda. OSH MP15 lists the roles and expectation from government, employer and employee, national strategies and programs. The cabinet (competent agency) is looking at way to escalating level of OSH in the country. Amongst other efforts include; the proposal of ratifying the C187, to regulate OSH Management System MS 1722: 2005 (Malaysian version of ILO 2001) and conducting Regulating Impact Assessment (RIA) to see how the new



proposed 'harmonize OSH legislation' will have an effect on Malaysian OSH landscape/profile.

Keywords: System approach, OSH MS, factories and machinery act (FMA), occupational safety and health act (OSHA), self-regulation

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(TCS: 2/3)

Systems Approach on Occupational Safety and Health - a Case of Malawi

Nyangulu Hlale Kelvin, Amelie Schmitt, Franklin Muchiri

Ministry of Labour, Malawi

The Ministry of Labour in Malawi has prepared the country's Decent Work Country Programme (DWCP). The DWCP provides a policy and operational framework to guide the Government, social partners and other stakeholders as well as development partners with regard to priority action towards the realization of the Decent Work Agenda in Malawi. Amongst others, the DCWP revealed that social protection is one of the most challenging decent work deficits in Malawi. Capacity problems and the lack of a policy, national system and national programme militate against the realization of an acceptable level of occupational safety, health and the environment. The Occupational Safety and Health Directorate in the Ministry in collaboration with the social partners and other stakeholders is in the process to develop a National Programme on Occupational Safety and Health. The National Profile on Occupational Safety and Health (OSH) has revealed a number of shortfalls in the area of occupational safety and health. Notably, the Country does not have a National Policy on occupational safety and health and the available legislation and enforcement mechanism are inadequate to fully address matters of safety and health. Furthermore, currently, Malawi has ratified only one convention dealing with Occupational Safety and Health (Convention 81) as such fundamental aspects of safety and health have not been domesticated and implemented in the country. Through a project on "Improving safety and health at work through a Decent Work agenda" funded by the European Union, Malawi with technical assistance from the International Labour Office embarked on an ambitious programme to step up national efforts in a systematic, focused way starting with the development of a national OSH profile and currently in the process of developing national programme on occupational safety and health. Amongst others, there is already national agreement to establish a national programme and a coordination mechanism for the elaboration and implementation of the programme.

(TCS: 2/4)

The Joint German OSH Strategy – a Systematic and Co-operative Approach for the Improvement of Safety and Health in Germany

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¹Federal Ministry of Labour and Social Affairs, Occupational Safety and Health Section, Germany



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The German Government, the 16 German federal states and the statutory accident insurance institutions with their lead organisation DGUV, supported by the Social Partners Confederations, have launched a Joint Occupational Safety and Health Strategy for Germany. This is a statutory strategic approach to performing tasks of occupational safety and health. The strategy requirements were put in force by law in 2008. It is in line with European and international requirements and examples such as the ones of the EU OSH Strategy 2007-2012 and ILO Convention 187 concerning the promotional framework for occupational safety and health of 2006. Germany signed the C187 in 2010.

Core elements of the first period 2008-2012 of the Joint German Occupational Safety and Health Strategy - against the background of a 125 year old, well-functioning but somewhat fragmented dualistic OSH system - were the development of joint objectives, the elaboration of joint fields of action and work programmes and their implementation according to uniform principles. Major elements are also the evaluation of objectives, joint fields of action and work programmes, the determination of concerted action by public occupational safety and health authorities and accident insurance institutions based on the division of labour and the establishment of a transparent, reasonable set of provisions and regulations without duplications.

The Joint Strategy's overarching target consists of maintaining, improving and promoting workers' safety and health through preventive and systematically implemented measures of occupational safety and health, supplemented by corporate health promotion measures.

In the presentation the iterative development of the strategy at large, of the related work programmes to be executed in different economic and societal sectors and of the results will be presented. Additionally an outlook on the next strategy period 2013-2017 will be given.

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(TCS: 2/5)

Advancement in Systems Approach in Brazil

Jofilo Mareira Lima Junior

National Institute on OSH, Ministry of Labour, Brazil

In 1993 GEISAT (Grupo Executivo Interinstitucional de Saúde do Trabalhador – Worker's health inter-institutional executive group) was created aiming at effectively unifying the efforts of the areas of Labor and Social Welfare with the area of Health in their search for a policy of integral attention to workers. In the following year, Brazil included into its judicial ordinance the 1981's ILO's Convention number 155 on worker's safety and health and work environment, which started to guide labor actions from then on. It was due to GEISAT that much work was carried out culminating with the publication in 2005 of a basic text for a draft document for public consultation on the national policy for worker's safety and health. In 2008, a Tripartite Safety and Health Commission– CT-SST was installed by means of an inter-ministerial governmental decree involving three Ministries: Labor and Employment;



Health; and Social Welfare. Its composition is tripartite and equal and its members, representing the government, the employers and workers, are able to revise and evaluate the proposal of the national policy for worker's safety and health previously elaborated, to comply with ILO's directives and WHO's global action plan for worker's health. CT-SST can also call for improvement in the national system on safety and health at work and formulate a national program for safety and health at work. It is coordinated by government delegates on an annual shift system. CT-SST's responsibilities included: the elaboration of its internal rules, the definition of its prioritizing sectors (Construction and Road Freight Transport) for a joining action between the government and the social actors, as well as the elaboration of a national policy for safety and health at work, which had its basic document approved by consensus in 2/23/2010. This was the starting point for the discussion on the implementation of a national plan for safety and health at work.

Keywords: National OSH policy, national profile, tripartite cooperation

Technical Session III: Experiences from the Construction, Mining, Metal, Agriculture, and Service Sectors, MoLSS

Moderator: Erhan Batur, MoLSS, Turkey

Date: 12 September 2011

Venue: Haliç Hall

Time: 13:45 – 15:45

(TCS: 3/1)

Comprehensive Preventive Approaches in Occupational Health and Safety

Nazmi Bilir

Hacettepe University, Turkey

The aim of occupational health and safety works is to protect health of the workers at every kind of workplaces. Some kinds of works have always been regarded as dangerous occupations such as construction, mining, metal industries and agricultural work. Therefore priority should be given to the workers employed in these occupations. Preventive approaches could be classified in two or three main categories; primary prevention and secondary prevention. A third one could be added as the treatment and rehabilitation of those having a disability due to a disease or an accident.

Primary prevention covers all kinds of measures of eliminating of the exposure to the causal factors. This can be done both by "selecting the proper person" for certain kind of work and also providing a "safe and healthy" work environment. Therefore, primary prevention approach employs medical and engineering measures hand in hand. Workers should be

evaluated regarding their demographic characteristics and general health conditions, and placed to a work suitable with their specifications. As the engineering measures, workplace risks are evaluated and protective methods are implemented when necessary.

Secondary preventive measures aim at “early diagnosis” of health problems, i.e. before clinical signs and symptoms appear. Development of some health problems can be anticipated based on the methods and materials used in the work environment. Using the proper medical examination and laboratory methods, most of the serious health problems or risk factors could be detected early. Early diagnosis provides opportunity of implementing necessary preventive measures at the workplace and better treatment for the patients.

In addition to these technical and medical measures, health education is another essential element of preventive approach. Both the workers and the employers should be informed about the possible health hazards in the workplace and ways of protecting themselves.

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(TCS: 3/2)

Training – an Effective Prevention Tool

Thomas Kohstall

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Training is one of the most important prevention measures in occupational safety and health. It forms an integral part of the range of prevention measures employed by the statutory accident insurers in Germany. Training is a prevention measure that is influenced by research and development, by discussion and by rules and regulations. It is also influenced by information learned from accidents and occupational illnesses as well as insights gained from regular observation of operating procedures within companies.

Training not only has a direct preventative effect on participants' companies but also indirectly via training of safety officers and company physicians.

The starting point for all training is to look at the goal of the training. The aim of training people is to provide them with the skills necessary to implement and promote OSH in their workplace.

As such, the primary function of training is not to teach facts but rather to improve the competency of participants when dealing with prevention. Here, competency refers to the aggregate of technical, methodological, social and personal competencies which a participant must acquire from a seminar in order to promote occupational safety and health effectively in their workplace.

In order to achieve a high level of transfer from seminar to workplace, a training model has been developed which will be presented in this lecture. This model consists of 4 main training/learning modules: face-to-face learning, workplace learning, self-directed learning and coaching.

Each of these training/learning modules has a role to play. Training measures must be designed by combining the individual elements so that the goals of the training measure are met.



This paper will present training as an effective prevention tool in OSH. However, training is only ever an effective prevention tool when used in close conjunction with other prevention instruments such as research, regulations and observations.

Research shows that training is a prevention tool that companies enjoy using due to its estimated high to very high preventative effectiveness.

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(TCS: 3/3)

Transforming Workplace Culture with Felt Leadership and Integrated Management Approach

Simon W. Herriott

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The most effective strategies aimed at improving workplace safety include components of behavior-based safety as well as other strategies that target the managing systems influencing safety behaviors and outcomes. Here we will examine the role of leaders, the choices they make and the behaviors that the most successful ones exhibit in improving the safety performance of their organizations.

If behavior-based efforts and other strategies are to produce sustainable results, employees must see their executives as an integral part of the safety process supported by a holistic approach to managing safety. In an important shift in the role of the leader, those in the highest performing organizations facilitate rather than direct, and achieve a self-sustaining culture in which employees choose to be safe as opposed to behaving safely because they are told to do so.

This session will discuss how felt leadership can be described, identified, coached and developed. Participants will also learn why it is a critical component in achieving this cultural move from direction to choice or from extrinsic to intrinsic motivation for safety.

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(TCS: 3/4)

Systematical and Radical Precautions in the Prevention of Mine Accidents and Professional Diseases

Tevfik Güyağüler

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The increasing demand for energy raw materials and various industrial minerals means that the importance of mining is, and will be on the rise in the near future. Mining, due to the risks it entails, requires domain specific knowledge, experience and continuous technical inspection.

It has been observed that recently the number of mine accidents and professional diseases are increasing. This trend can only be reversed by the application of systematical arrangements and radical reconstructions.

In this paper, the importance of technical inspection, application of accident preventing methods, approval of mining projects and the responsibilities in the occurrence of accidents and the related recommendation for the improvement will be discussed. In addition, the importance of developing a consistent health and safety policy, responsibilities of employers and employees, recommendations regarding inspection institutions, and description of procedures to ensure that the inspections are fully carried out, will also be discussed.

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(TCS: 3/5)

Sedat Murat

Istanbul University, Turkey



Symposia



Symposium

Symposium 1: The Gender Dimension in OSH Policies and Practices, ILO

Moderator: Valentina Forastieri, ILO

Date: September 12, 2011

Venue: Sadabad Hall

Time: 16.00-18.00

SMP: 1/1)

Gender and OSH Policies and Practice Some Experiences from the EU

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A recent EU-OSHA study demonstrated that female employment, while increasing, remains mainly in low paid, part-time and precarious jobs. European OSH statistics still do not cover women satisfactorily. Occupational diseases still mainly reflect male jobs and accident recording omits sectors where women work, e.g. education and health care. In Europe occupational segregation, gender discrimination, family responsibilities, women's multiple roles and jobs, disparity in pay and poverty, issues faced by younger and older women, the growth of service sectors, and increasingly diversified working time patterns all impact on OSH. It has been part of the European Community OSH strategy since 2002 to mainstream gender into OSH. European equality legislation also requires public services to demonstrate equal treatment, for example. But it is also important to integrate OSH into equality activities. However there exist interesting examples of gender-sensitive approaches in OSH in the EU. The Austrian Labour Inspectorate carried out a Total Quality Management project, which highlighted the need for a systematic approach to avoid gender stereotyping during inspection. A gender-mainstreaming framework and strategy were implemented, including tools and training. The UK Health and Safety Executive introduced a diversity programme for its services and staff. There are examples of framework guidance on equality plans that incorporate OSH and working conditions, e.g. from Navarra, Spain. A French ergonomic method takes account of how the job is done and wider issues such as career progression. In bus transport we see initiatives to improve women's working conditions, from mentoring to uniforms. There are workplace health promotion initiatives using new approaches to engage men. In all cases participation is an important part of the process, whether policy development or workplace interventions. The examples show not only improvements for women and men, but also business benefits.



Keywords: Gender, women, occupational safety and health, gender mainstreaming, statistics, policy, good practice

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(SMP: 1/2)

Considering Gender Differences in Building Healthy Workplaces

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A healthy workplace is one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety and well-being of all workers and the sustainability of the workplace by considering, based on identified needs, the health and safety concerns in the physical working environment, the health, safety and well-being concerns in the psychosocial working environment, the personal health resources provided by the employer and voluntary initiatives or responsible business practices that enterprises can engage in to improve the health and well-being of their employees, above and beyond the law. Gender requires attention, as men and women have different work experiences, are generally engaged in different types of work, and are exposed to different risks and health problems. From a global perspective, women are still at a disadvantage compared to men in the various spheres of society and, as a result, their issues including those of work have traditionally lacked visibility. Therefore, women's working conditions are less often researched, and their associated health problems less often diagnosed and compensated for than men's. Men and women have been hit hardly by the financial crisis and since the crisis began in 2008, job insecurity and work intensification, as well as compromises in health and safety provisions are a growing concern. Governments, employers, workers and researcher have their part to play in building healthy workplaces in order to safeguard the health of men and women. This presentation will provide an overview of the WHO healthy workplace model with respect to considering gender differences and to offer suggestions about actions that the main stakeholders may take in that endeavour.

Keywords: Healthy workplace model, stakeholder action, financial crisis, gender

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(SMP: 1/3)

OSH Policies and Institutional Models in EU Countries and Turkey

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It has been analyzed occupational health and safety (OSH) institutional structure and legislation modals of England, Sweden, Spain, Finland and Austria and also compared these findings with Turkey model. The key observation could be summarized that all countries adopted the best institutional model in accordance with their own policy development and

administrative role model; there are more than one institution that played role in OSH area; also there was a significant awareness about the importance of implementing legislation, determining strategies and policy in the field. Although Turkey had begun to prepare legislation early by considering that England has still implemented OSH legislation in 1970s and has set objectives strictly combined to these Acts; unfortunately it has been fall behind at policy and development of OSH strategies. The National OSH Committee is one of the concrete studies after the year of 2003 which was known as EU harmonization period. Another important headstone was OSH Act Draft of Turkey which covered all employees. It was observed that named above EU countries have their separate Acts in different ways and also determined their OSH institutional structure in the perspective of these Acts. This circumstance is very beneficial to support OSH institutions if these institutions have been established in Ministerial administrative. The restructuring according to province and regional systems in Turkey is not seemed suitable for, nonetheless we assumed that system can work more efficiently and bureaucracy can be eliminated if central administrations transfer some of their responsibilities and authorizations to regional offices. This implication bases the comparative successes of Sweden and Austria at the area of OSH.

Keywords: OSH, Turkey, EU, England, Sweden, Spain, Finland, Austria, policy, act, implementation, institution

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(SMP: 1/ 4)

Decent Work Country Programmes: Guidelines for the Integration of The Gender Dimension in OSH Policies

Amelie Schmitt

SafeWork, ILO

Recognition of the diversity of the workforce is essential in promoting safer workplaces and healthier outcomes for all workers. Women and men may be exposed to different physical and psychological risks at the workplace. In addition, exposure to the same risks may also impact women and men differently. The gender division of labour, biological differences, employment patterns, social roles and social structures can all contribute to gender-specific patterns of occupational hazard and risks. Therefore, to ensure that workplaces are safe for both men and women, gender differences must be taken into account in the design of occupational safety and health (OSH) policies, systems and preventive measures.

The ILO is developing policy guidelines for gender mainstreaming in occupational safety and health to support efforts among ILO member States in creating a preventive safety and health culture taking into account the needs of both women and men. The guidelines are expected to contribute to improve the competences and capacity of governments, employers' and workers' representatives to develop and implement gender sensitive policies and strategies on OSH in the framework of Decent Work Country Programmes. They will also be used as an advocacy tools to raise awareness among ILO member States and promote informed action.



The guidelines are intended for men and women workers, trade unions, employers and their organisations, and the relevant authorities responsible for OSH. They will rely on the provisions of ILO Occupational Safety and Health Convention, 1981 (C155), Promotional Framework for Occupational Safety and Health Convention, 2006 (C187), the ILO Global strategy on OSH and the Resolution concerning gender equality at the heart of decent work - ILC 2009 and scientific and technical knowledge to date.

These guidelines will present in a user friendly manner the necessary measures and mechanisms to incorporate the gender dimensions into OSH policy-making and preventive strategies at both national and workplace levels. The guidelines will be published at the end of 2011. In this symposium, I will present the key elements and their purpose.

Keywords: Gender, guideline, improving

(SMP: 1/ 5)

Tackling Gender Health Inequalities at Work by Use of Gender-disaggregated Data

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Health hazards at work are still a major determinant of poor health and injuries and are often related to the socioeconomic background of those performing the work. There is also evidence that health behaviours carry significant weight in shaping vulnerability to various conditions and that gender differences in such behaviours are important in helping to explain the gender gap in health. But insufficient attention is paid to gender inequities in occupational health and especially in company health policy. Workplace is a natural setting for a broad discussion on preventing diseases and promoting health, which in addition to addressing determinants of health directly related to the work environment, also addresses behavioural issues such as smoking, healthy diet or physical exercise. Following the recommendations of the WHO gender equality and gender equity can be addressed by using various approaches, including legislation, organizational processes and information gathering (informational approach). Identifying the health gap between men and women at work by the informational approach must include the collection, management and analysis of gender-disaggregated data - for planning and policy purposes as well as for monitoring and evaluating the impacts of interventions. North Rhine-Westphalia - one of the largest Federal States in Germany - will serve as an example to show how the informational approach has been applied in providing knowledge about gender inequities and developing gender-sensitive health indicators to identify key differences between women and men in relation to health and in the social determinants of health in order to support policy change at company level. Main data base is the NRW Observatory of Health Risks at Work which provides information on specific worker groups, exposures, health outcomes, and industrial sectors. The sources are a combination of administrative registers and statistics (occupational disease registers, exposure registers) as well as surveys. Analysis of gender-disaggregated data will be presented which helps to



generate evidence about the gender gap in health at work and facilitate change in approaches to health by setting new policy targets and identifying appropriate measures.

Keywords: Gender, health equity, gender-disaggregated data

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(SMP: 1/ 6)

Supportive, Inclusive and Equitable Health Strategies for Women in the Apparel Industry in Asia

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Addressing problems of global poverty remain enigmatic. Over 70% of people living in extreme poverty worldwide are female. Recent evidence has shown that employment and entrepreneurship opportunities empower women within households and within the public sphere, leading to significant benefits and improved health and well being for women and their families. Hence, investment in female employment opportunities in low and middle income countries through globalization and conveyance of international social systems innovations and standards theoretically holds promise for improving women's health. An important sector is the garment/apparel industry which has always been a key source of jobs for women. Yet the apparel industry has been characterized by poor working conditions, high workforce turnover, deregulation, insufficient monitoring and low job security. A new population health strategy is being conceptualized as a means to address these issues through building supportive local community settings for South Asian garment workers. A comprehensive review of the current literature revealed that the full extent of working life realities and associated local community health conditions of female garment workers have yet to be sufficiently described. To support development of better understanding, we recently completed two pilot studies (one qualitative and one quantitative) of garment workers in Karnataka, India, which provided insights into women's priorities and the limited capacity of underlying local institutions and community resources to address and reduce these barriers. This presentation will present a synthesis of findings and future directions.

Keywords: Garment/apparel workers, healthy settings, population health intervention, poverty, global health, ecosystem health

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Symposium 4: Return on Prevention: An International Study, ISSA Research Section

Moderator: Peter Vavken, Vice-Chairperson of the ISSA Special Commission on Prevention; General Director of the General Institute for Insurance against Employment Accidents and Occupational Diseases (AUVA), Austria

Date: September 12, 2011 Venue: Fener Hall Time: 16.00-18.00

(SMP: 4/ 1)

Calculating the International Return on Prevention for Companies: Costs and Benefits of Investments in Occupational Safety and Health

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Companies spend money on prevention work with regard to OSH in order to follow legal and/or social requirements. It is of interest whether the expenses for prevention work deliver single-economically a monetary return, and if so, to what extent the "Return on Prevention" comes up. Prevention accounting, morphologically representing a specific form of cost-benefit analysis, refers to empirical research based on interviews. The Return on Prevention illustrates the economic potential of investments in prevention work for companies. The interviews evaluate the non-monetary and monetary effects of prevention work. Normally, the companies calculate the prevention costs with the help of management accounting. To evaluate prevention benefits, an indirect approach seems to be appropriate. Firstly, companies estimate due to their experiences whether the prevention costs and the prevention benefits balance each other or whether the costs or the benefits outweigh. Secondly, they assess the ratio between prevention benefits and prevention costs. Afterward, it is possible to calculate the company's total monetary prevention benefit. Thirdly, companies mark the particular relevant categories of prevention benefit, so that the total monetary benefit can be allocated proportionally. Companies included in the survey should be experienced in occupational safety and health. The cross-survey in the form of standardized interviews is addressed abstractly to the companies. For practical reasons, experts of the companies are interviewed. Ideally, they express themselves as group and deliver a common and intra-coordinated answer. In 2010, the International Social Security Association, the German Social Accident Insurance and the German Social Accident Insurance Institution for the Energy, Textile, Electrical and Media Products Sectors decided to start a cross-country project to draw up prevention balance sheets for companies in different countries and to estimate the country-specific as well as the global return on prevention. The results of the project will be presented at the congress.

Keywords: Prevention accounting, costs and benefits, return on prevention

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(SMP: 4/2)

Prevention and Return on Investment: The Case of Manual Handling Risk for Healthcare Workers

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The European study NEXT shows that of the five causes lying behind the desire of care staff to leave their jobs, the physically demanding nature of the work, and in particular having to lift and move patients manually, is the main one. The statistics at the two hospitals chosen for that study show the same findings, and they have resulted in programmes being set up for preventing the manual handling risk.

Alongside the investment in handling assistance equipment and in training at the two hospitals, a cost-benefit assessment was conducted in order to determine the return on investment in prevention.

For the first hospital, the assessment shows that, with the assumption of a 60% reduction of injuries, prevention investment pays for itself in 3.3 years.

For the second hospital, with a 42% reduction in occupational accidents, the investment made does not pay for itself within the set period of 10 years, but the study shows that, at the end of that period, the expected benefits will offset 80% of the cost of the prevention.

The two studies highlight the advantage, when investing in prevention, of using cost-benefit assessment. Such an approach makes it possible to change the image of prevention, which is perceived as being merely a cost, by fitting it into the more positive vision of investment that can be partially or fully offset by financial savings in terms of accident reduction. In addition to those savings, we should include benefits such as improvement in productivity, in quality of working life. Furthermore, given that prevention follows a law of diminishing returns, the economic argument is even more of an incentive if the establishment has not yet invested very much in prevention, and is therefore likely to have a very short payback period.

Keywords: Return on prevention, cost of the prevention, benefits

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(SMP : 4/3)

Case Studies on Cost Benefits of Ergonomic Interventions in MSD Prevention

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In Germany, work-related musculoskeletal disorders (MSDs) are causing the highest direct and indirect costs. Ergonomic work designs can reduce the risks to work-related MSDs, but corresponding cost benefit studies are rarely conducted. Therefore it is very important to quantify the reduction of workload factors as well as the financial benefit to companies. Using three examples of case studies in the textile industry and in the field of luggage handling at airports, opportunities and limits of ergonomic interventions in combination with cost benefit analysis will be presented.

The differences in condition before and after ergonomic interventions were systematically quantified at sewing workplaces (11 female subjects), ironing workplaces (7 female subjects) and manual luggage handling workplaces at airports (10 male subjects). Biomechanical workload factors were measured continuously for the conventional and ergonomic redesigned workplaces using the CUELA measurement system. Intervention costs, productivity and quality rates were documented before and after the interventions. If possible, sick leaves due to MSDs were analysed.

The implementation of ergonomic sewing stations turned out to be thoroughly positive. Comparisons of the workload profiles before and after ergonomic redesign showed a significant reduction in biomechanical workloads. After one year, a reduction in sick leaves of 16% and an increase of productivity of 15 % was achieved. The return of invest (1500 € per workplace) after several months convinced the management of the companies.

For the ironing workplaces, neither a reduction in workloads nor an improvement in quality or productivity could be quantified.

For the manual luggage handling tasks improvements of the workload situation could be achieved that were accompanied with a decline in productivity.

The results confirm the complexity of cost benefit analysis in ergonomic interventions.

However, more investigations have to be carried out in order to give companies a solid basis for investment decisions.

(SMP: 4/4)

Health and Safety Smart Planner: A Cost-Benefit Tool for Workplaces

Emile Tompa

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The notion that health and safety pays is a key incentive for organizations and their managers to adopt effective occupational health and safety (OHS) interventions, yet there is little evidence on the cost and consequences associated with such interventions. The lack of evidence is largely due to the fact that few studies of such interventions undertake an economic evaluation. In general, economic evaluation is an under-developed component within the OHS literature. This presentation provides an overview of the state of economic evaluation of OHS interventions and several components of an evidence and methods initiative spearheaded by the Institute for Work & Health. Components of the evidence and methods initiative include a systematic review of workplace-based OHS studies with economic evaluations, a methods text for researchers, software for workplace parties, and training workshops for practitioners. The review made apparent the fact that there is a dearth of good evidence on the financial merits of OHS interventions and that there is a need for development of economic evaluation methods specifically for the OHS field. Though we were able to make substantive comments on the evidence in two clusters, overall we found that the quantity and quality of studies was modest. Development of guidance and tools for both researchers and practitioners is a means to advancing the evidence base. Our efforts are of value to researchers, workplace parties, OHS practitioners, and policymakers who are interested in knowing not only what interventions are effective, but also about the resource implications of interventions.

Keywords: OHS, economic evaluation

(SMP: 4/5)

The Savings of Safety: Leveraging Safety Excellence for Business Excellence

Simon W. Herriot

Safety Resources, DuPont, USA

Most economic discussions about safety focus on cost avoidance – direct costs saved and indirect savings related to the incident... but in addition to these and having looked inside a number of companies, DuPont is more and more convinced that there is a critical extra economic flywheel and this is the dividend gained from business excellence (from what effective management of safety does for the effective management of the enterprise, in other words business excellence). While investment is required to develop and maintain “World-Class” safety systems, inadequate systems can have a major, negative impact on your overall business performance. At DuPont, we believe that “World-Class” safety will improve your competitiveness as well as your safety reputation with key stakeholders. This session will help you understand why investing in enhanced Safety Management Programs is important – and something that your business cannot afford to ignore in today's market.

Symposium 7: Improving Occupational Safety and Health in Small and Medium-sized Enterprises, ISSA Metal Section, ISSA Machine and Safety Systems Section and ISSA Section on Electricity

Moderator: Hans-Jürgen Bischoff, Secretary General ISSA, Machine and Safety Systems Section, Director of the German Social Accident Insurance Institution for the Raw Materials and Chemical Industry, German

Date: September 12, 2011 Venue: Sütlüce-1 Hall Time: 16.00-18.00

(SMP: 7/ 1)

Analysis of Current OSH Situation and Training Needs of SMEs: a Case Study for Turkey

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The international reports and statistics show that there is major need and demand of the employees and employers for further training on OHS in order to prevent hazardous occupational incidents in the SMEs, especially the ones with financial difficulties in order to improve the OHS status of their premises. Also, statistics indicate that certain types of companies are more vulnerable (i.e., SMEs) and particular sectors namely manufacturing, construction, mining and quarrying are highly risky. Although this generalisation can also be applied to Turkey, a more detailed investigation with particular emphasis to occupational health and safety trainings might be of crucial importance for the decision makers in this country.

Therefore, in order to examine the current state and needs of SMEs in Turkey regarding OHS, a survey was conducted on participants of SMEs consisting of both employees and employers. The aim of this study is to present the results obtained through employing the survey on around 200 participants in Marmara Region, which has the highest percentage of SMEs in Turkey. The survey consists of crucial parts related to OHS management and training systems that currently take place in SMEs such as policies, procedures, difficulties in OHS applications, costs, and issues regarding training (eg. current status, difficulties, and needs). The survey results of Turkey in comparison with the ones of similar work of EU confirmed the previous work prepared by international and EU authorities in this area, and showed that there is still great need and demand on further training and lack of new learning applications. However, the findings of survey also indicate that with regard to some aspects of OHS management and training systems, there are some variations across the industries and that can be of potential use and benefit for the decision makers.

Keywords: Small and medium sized enterprises, occupational health and safety training
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(SMP: 7/ 2)

The 3 “e” to Support Workers Safety and Health: Education, Ergonomic and Equity – an Experience of Sesi, Bahia, Brazil

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The Industry Social Service (Serviço de Social da Indústria) – SESI, developed an educational project to promote workers safety and health in the masses and bakery enterprises / industries. The choice of these workers was due their economic importance, the magnitude of their numbers among all labor force, a cost analysis benefit showed how much lost the workers were suffering and being away of work due to accidents. Educational strategies were applied to reduce morbidity and improve workers conditions of labor, to reduce risks and iniquities in the labor process, improve workers security and health and consequently improve productivity. It was produced a “Booklet of Health Education to Workers: Ergonomic, Equity and Health” and an interactive distance course was addressed to supervisors and workers. It was taken in consideration epidemiological studies about morbidity, risks, knowledge, attitudes and perceptions of risks of these workers; theories of workers safety and health, ergonomic and security as well as education to prevent diseases and accidents to promote safety and health. The booklet contents focuses on an introduction what workers competences should be developed to avoid accidents, promote their security and health. What are the diseases, accidents and main problems affecting workers, how to organize the process of labor and its environment, contributions from the ergonomic to prevent and to promote equity among workers; the best practices, building a better and healthier workers environment – and finally, the contribution of education and health promotion. The course was developed between two SESI regional departments in Bahia and

Pernambuco states with around 250 workers participants. An effect evaluation is under process

Keywords: Education, workers safety, workers health, health promotion

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(SMP: 7/ 3)

Prevention Strategy in SMEs

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INRS, the National Research and Safety Institute, is the main OSH-research organisation in France. Its aim is to contribute to the prevention of occupational accidents and diseases and the improvement of working conditions. It operates on behalf of the employees and companies coming under the general Social Security scheme. Under the general scheme of Social Security, there are 1,700,000 companies in France. 98 % of these small companies have less than 50 employees. The staff of these companies is 7 million that is 40% of the salaried workers. Fostering prevention in small enterprises is a key challenge for INRS. Development of prevention in small companies has to take into account a few points, in particular the need to have a prevention message adapted to the occupational situation. This implies to adapt the OSH message to each occupation. Therefore partnerships with branch professional organisations are required to adapt the message and to broadcast it. This strategy can be applied to different kinds of action: training, awareness-raising campaigns, information, risk assessment. INRS will present some examples of partnership with different professional organisations related to the following occupations: hairdresser, builder, dental technician.

Keywords: SMEs, prevention strategy

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(SMP: 7/ 4)

Safety and Health as an Element of Competitive Small Enterprises and Effective Workers – Example of Catering Trade and Tourism in Venice

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The Bilateral Agency for tourism of Venice (EBT) is a no-profit vocational training organization founded in 1991. The main trade unions and the employers' organizations of the touristic sector are its members. About 18,000 workers are involved in EBT 's activities for a total of 3,000 enterprises. In this presentation we illustrate two of our most recent undertakings: the manual entitled "Working together in Safety", edited in collaboration with the Berufsgenossenschaft Nahrungsmittel und Gaststaetten (BGN) and the guidelines for the



management of health and safety at the workplace in the small and micro enterprises of the tourist sector. Taking into close consideration the health and safety risks in the sector, the manual sets out the safety precautions and correct behaviour for all the operators. It is a simple guide that can be used for training and information about occupational risks as requested by the Italian legislation. It is also a good guide on “new healthy lifestyles” aimed at the prevention of diseases due to a poor diet and physical inactivity. The manual is written both in Italian and in English in order to also reach people of other nationalities. The terminology and the syntax used in both languages are simple do not require any special education to understand the contents, which are illustrated with synthetic graphics. The guideline for the management of health and safety for small and micro enterprises of the sector is based on the assumption that sometimes it is difficult to apply management models for the small or very small companies. For this reason EBT has developed a simplified model with a specific path of qualification and validation to ensure better standards of safety and health, not only for workers but also for guests and visitors.

Keywords: Touristic sector, health and safety training, management of health and safety in small enterprises

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(SMP: 7/ 5)

Upgrade Programme of Moroccan Companies for Occupational Health and Safety

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Purpose In Casablanca, April 2008, a fire destroyed a factory and caused 55 deaths. An “Interministerial Commission” has then taken actions to promote the prevention of occupational risks: the creation of the National Institute of Occupational Life, a new framework law specific in Occupational Health and Safety, a pilot upgrade program. This program, coordinated by the National Institute of Occupational Life, provides an upgrading of firms with less than 50 employees in Casablanca, whatever the sector, in the Health and Safety field. A pre-selection of companies is established through the databases of ministries, professional associations based on the number of employees. These firms may volunteer to integrate this program. The program includes, for each beneficiary, a personalized mapping of occupational hazards and coaching for their control. To achieve these objectives, the National Institute of Occupational Life accredits experienced and knowledgeable consultants in occupational risk prevention. The process is designed as pilot operation in Casablanca for 1000 companies in 2011, and nationally, 2000 companies in 2012, 4500 in 2013 and 6000 in 2014. Preliminary results will be exploited in September 2011. The upgrade program should enable Small and Medium Enterprises (SME) to comply with national requirements for Occupational Health and Safety and to initiate a process of self-assessment and continuous improvement. Nationally, the exploitation of the results will highlight the difficulties of SME in the management of occupational hazards and to include targeted action in national politics.

Keywords: Upgrade small and medium enterprises, Morocco



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(SMP: 7/ 6)

The Relationship Between Small Businesses, Young Workers and Health and Safety

Paul Gordon

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There is widespread evidence to suggest that young people are more at risk of injury in the workplace than the average worker. A large proportion of all accidents involving young workers occur in small to medium sized enterprises, some of whom may offer inadequate training and supervision. In the UK young men working in small businesses within construction or agriculture are among those most at risk.

Most employers have a responsible attitude towards health and safety, but in some cases small businesses in particular may lack awareness of the regulations. Negative stories in the media and the perceived administrative burden of health and safety may compound these problems.

But in most cases health and safety need not be complicated, and small businesses need to adopt a sensible and proportionate stance. Since 2010 the response of the UK government has been to simplify the raft of regulations and ease the burden upon small businesses.

UK-based health and safety charity the British Safety Council has given priority to educating young workers and small businesses. Through its campaigning and influencing work, its research programmes, and its provision of free health and safety training and qualifications for young people it hopes to influence this agenda. Research has been conducted to observe young workers' knowledge, attitudes and behaviours in relation to workplace safety across a range of small businesses.

The British Safety Council is a member of the Joint ISSA project group to develop an international online tool which will offer guidance to small businesses to protect young workers, apprentices and new recruits.

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(SMP: 7/ 7)

Institutionalization of Social Dialogue in Ensuring Safety and Health Guarantees For Informal Workers in India

Supriya Routh

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Some scholars argue that occupational safety and health should have found mention as "core" labour right in the 1998 ILO Declaration on Fundamental Principles and Rights at Work because of the fundamental nature of such right in the well-being of workers. Even though the 1998 Declaration did not incorporate safety and health guarantees, the Decent Work Agenda (DWA) addresses such concern by taking a holistic view of worker well-being.



The DWA is a “core” rights plus principle. The pillars (principles) of the DWA are: employment, rights at work, social dialogue, and social protection. The ILO envisages DWA as a goal that combines fundamental (i.e., “core”) rights with other labour welfare guarantees, without mandating the adherence to specific labour standards. The DWA not only bridges the differences between developing and developed countries, it also permeates the formal and informal work continuum. In my paper, based on a case study in India, I argue that appropriate institutionalization of the social dialogue principle of the DWA in specific informal activities helps identify occupational safety and health concerns, and promotes innovation of adequate safety and health strategies in such informal activities. The stakeholders involved in my study are: waste-pickers, intermediaries (middlemen, who is the link between the informal waste-pickers and the formal recycling industry), organizers (labour unions and NGOs), and government officials (including government ministers). My case study suggests that informal workers (waste-pickers) are best assessors of the safety and health requirements in their work. Such first-hand understanding of informal workers could be effectively used in formulating innovative safety and health measures in non-traditional works through the mechanism of social dialogue amongst all the stakeholders related to such informal activities. It is in this respect that the principle of social dialogue needs to be institutionalised in specific informal activity context.

Keywords: Decent Work Agenda, social dialogue, safety and health, waste-pickers, India
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(SMP: 7/ 8)

Presentation of the Website, Safety and Work in Small Enterprises – The Keys to Success in Small and Medium Enterprises, A New Internet Approach to Reach SMEs and Their Partners

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The international website „Safety and work – health and safety in small enterprises” is developed by several partners from different countries belonging to non-commercial organisations like statutory accident insurances, organisations of employers or employees a. s. o., whose aim it is to promote health and safety at work.

The basic principles are the “10 keys to success for small and medium enterprises”, which enable SMEs to be successful in the field of prevention of occupational health and safety.

Usually, the exchange of information is very difficult for owners and consultants of small and medium enterprises. Therefore the focus of the website is the international distribution and exchange of experiences and the aim is to learn from good practice in other countries and the results of different stakeholders.

The website offers best practice examples and tools which can easily be used in SMEs. The target groups are entrepreneurs as well as employees, teachers and trainers in vocational



schools, young workers, a.s.o. Further target groups such as migrant workers or elder workers shall follow.

The structure of the Website, based on the TYPO3-technology, allows that national partners can put their contents on the website by themselves and adapt them to the needs of their own country. The contents are non-commercial, and the aim is to spread the information. All offerings are free of charge. At the moment the website is constructed in German, English, French, Italian and Spanish. The partners of the website cooperate with the special commission on prevention of ISSA.

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Symposium 11: The Roles of Social Partners in OSH Management Systems

(with special reference to small and medium sized enterprises), MoLSS/TİSK/TÜRK-İŞ

Moderator: Ömer Ekmekçi, İstanbul University, Turkey

Date: September 12, 2011 Venue: Kasımpaşa 4-5 Halls Time: 16.00-18.00

(SMP : 11/ 1)

The Activities of Turkish Confederation of Employer Associations (TİSK) with regard to OH&S and TİSK's Contribution to the improvement of Turkish OH&S Conditions

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As indicated by various sources, it is impossible for a country to develop a comprehensive and progressive occupational health and safety system without tripartism. In terms of governance, the active participation and collaboration of all social partners are essential if the system will function properly. The worker and employer organizations, which are directly affected by working environment has an influential role in shaping OH&S policies. As the only umbrella organization of Turkish employers in industrial relations TİSK gives health and safety a high priority since its establishment. Unique among business organisations in the Turkey, OH&S is a significant concern of TİSK for almost 50 years.

TİSK informs business community of the OH&S developments and develops business opinions in consultation with its member associations. This allows TİSK to produce a proactive approach in order to represent business in all aspects related to OH&S. Particularly the structure of TİSK as a multisectoral entity creates a valuable opportunity for business community to constitute expertise of several industries.

In recent years Turkey has seen a rapid change in terms of structure and legislation related to occupational health and safety in response to the international and national developments. EU accession and transposition of EU acuis gives an impetus for these changes. TİSK community used this political context to raise its expertise and project capacity in OH&S for

improving the productivity and quality of Turkish industry. Throughout this process several projects were implemented and new services and advisory institutions were established. The focal point of this presentation will be the activities of TISK with regard to OH&S and TISK's contribution to the improvement of Turkish OH&S conditions.

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(SMP: 11/2)

The Social Partners' Contributions in OSH Management

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Occupational safety and health management systems can only be effectively utilized by employers who are convinced of their utility and contribute to their improvement. The social partners share the responsibility to ensure the success of these systems. In this context, the main role of the government is to make the arrangements that reduce the burden of realizing the management systems, or even make the utilization of such systems mandatory. In addition to this primary role, the government should encourage the usage of such systems through a variety of means. The laws that would make the utilization of these systems mandatory should be codified. The burden of responsibility of the employers who use these systems should be reduced and the ones that do not should be inspected more thoroughly.

The government is also expected to form a well-organized and effective inspection bureau. A possible solution is to gather all the inspectors that report to different governmental organizations under one roof. In this way, all the inspectors that report to organizations such as municipalities, Ministry of Health, and Ministry of Defense would be coordinated by a single organization and inspection efficiency will be considerably increased.

The unions are also expected to assume an important role. Through the collective agreements, the unions have the capability to introduce norms related to issues that the law fails to address. Furthermore, they can enforce the formation a specific unit in the workplace dedicated to occupational safety and health. Enforcing the utilization of occupational safety and health management systems can be achieved through collective agreements as well. In this way, the unions can create solutions specific to different sectors of industry instead of a one-size-fits-all solution introduced by the government. Finally, the unions can provide important help to employers in terms of risk evaluation.

Keywords: Social Partners - total agreement

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(SMP: 11/3)

Improvement of Occupational Health and Safety Conditions at Construction Workplaces in Turkey

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This paper focuses on the partial outcomes of the ISGIP project, which is jointly funded by the European Union and the Turkish Government. The project strategy relies on choosing a number of SMEs from three different economic sectors (construction, mining and metal) where occupational accidents and ill-health are the highest, and introducing an occupational health and safety management system (OHS-MS) to help them improve working conditions. The paper focuses on three different perspectives. These are the OSH management system, the risk assessment methodology and the performance monitoring tool. Each perspective was developed specifically for the Turkish construction sector. The OSH management system was developed to be easily used by construction SMEs in ten easy steps, mainly concentrating on top management responsibilities in OHS-MS, business organization, OHS-MS functions and OHS organization. The developed risk assessment tool has distinct features. It is based on ready-made checklist that covers all different types of hazards that exist in construction sector. The method also differs from others in the literature by replacing traditional definition of probabilities with control levels, which, the authors think, is much easier to implement and leads to more accurate risk scores. The last perspective, performance monitoring is an easy-to-use and reliable method for measuring the safety level of a building site. The measurement is carried out by touring the entire site and making entries for correct/incorrect observations on the inspection sheet under six headings: 1) working, 2) scaffolding, catwalks and ladders, 3) machinery and equipment, 4) protection against falling, 5) electricity and lighting, and 6) orderliness and waste disposal. The construction sites were visited periodically for practical examination. The paper summarizes the outcomes of the three perspectives and the practical use of these tools on construction sites. The improvement stages for the construction SMEs are also graphically provided.

Keywords: Construction safety, SME, improvement of safety
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(SMP: 11/ 4)

JISHA OSHMS Standards Certification: How it Contributes to OSH Improvement

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In Japan, an occupational safety and health management system, OSHMS, has been given high priority in the government's Industrial Accidents Prevention Plan. The survey conducted by Japan Industrial Safety and Health Association, JISHA, indicates that introduction of an OSHMS brings about not only vitalization of safety and health activities and reduction of accident rates, but also enhancement of employee morale.

JISHA developed detailed JISHA OSHMS Standards Certification in 2003 in line with ILO's Guidelines on OSHMS and the Guidelines for OSHMS published by the Ministry of Health, Labour and Welfare of Japan in 1999, adding JISHA's original requirements. The number of certified enterprises has been steadily increasing, currently amounting to 364. JISHA OSHMS Standards feature requirement of establishing systems in which on-site workers also



participate in and cooperate with safety and health management. As specific activities, workplaces and employees are required to implement autonomous S&H activities such as morning meeting, hazard prediction activities, 4S (refers to Japanese terms meaning arrangement, orderliness, cleanliness and cleaning) activities, and near-miss reporting. JISHA OSHMS Standards incorporate these elements to further improve the effectiveness of S&H activities daily conducted at workplaces. Improvement of the OSH level is also demanded for certification.

As benefits of introducing the OSHMS, all OSH stakeholders refer to systematization of S&H activities in well thought-out framework, active provision of improvement ideas due to prioritizing risks, as well as elevation of individual safety awareness. It is also found that the accident rates of the certified companies have been further reduced. As future prospective, JISHA expects significant improvement of OSH in enterprises with comparatively low OSH level by promoting acquisition of JISHA OSHMS Standards Certification. We firmly believe that JISHA Standards Certification will make a great contribution to decrease in the number of industrial accidents in Asia and in the world at large.

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(SMP: 11/5)

The Role of Social Partners in Occupational Health & Safety

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The strong and weak points of OHS in Turkey were mentioned in the draft report entitled “National OHS System” prepared in the year 2003 by the Ministry of Labour and Social Security. When the draft text is analyzed we can see that the weak points are far more than the strong ones. The text reveals 10 strong points while identifies the weaknesses under 17 articles. The most important weaknesses are the coverage and the scattered structure of the legislation and the lack of its effective implementation. The developments (suspending the execution of the regulations by the Council of State, lack of enacting a different OHS Law, the problematic and absent articles in the 5th paragraph of Labour Act No: 4857) since the preparation of the report show that the national legislation is still scattered and there is a problem related with the coverage. Implementation and supervision is ineffective as the legislation is problematic. The report comments that when the EU concept of health and safety at work is taken into consideration, the institutions and organizations identified in the OHS system and who participate directly to OHS activities are disorganized in terms of communication, coordination and policy planning. Furthermore there is the lack of a complementary, contributing and encouraging structure. These comments still highly preserve their validity.

The fatal work accidents create a negative picture in Turkey. In the year 2009, 63% of all work accidents have occurred at the SME’s employing less than 50 workers. The negative picture with respect to OHS has a negative effect mainly over the workers, their employers and the state. The workers lose their health, face with fatal accidents and wage losses while



the employers face with loss of skilled workers, compensation, decrease in production and quality of products. Its cost on the Social Insurance Institute is health assistances, permanent or temporary disability payments, premium losses and aids to the beneficiaries. Furthermore the national economy faces with the loss of skilled labour force, loss of production and decrease in quality.

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(SMP: 11/ 6)

Basque Political Safety and Occupational Health in Small and Medium Enterprises

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Occupational health and safety in small and medium enterprises (SME's) is an issue of growing concern to Basque Government while SME's account for a large number of workers. Indeed, of the 171,491 businesses in the Basque Country in 2008, 171,239 are SMEs (0 to 249employees), which accounts for 99.85% of total enterprises in this region of Spain. The strategic plan 2011-2014 OSALAN, the Basque Institute for Occupational Health and Safety, plays an important role in promoting awareness, training and implementation of management systems agile and flexible in line with the reality of SMEs. The ultimate goal is to integrate the OSH in the management of SMEs as a strategic tool for business excellence, productivity and social welfare. This paper presents the actions designed to achieve this goal.

(SMP: 11/ 7)

The Role of Employees in Success of OHS Management Systems of Oyak-Renault

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Oyak-Renault is a high-performance production site of Renault with the annual production capacity of 360.000 automobiles and 450.000 motors. Production plants produces Clio III, Symbol, Fluence and Megane hatchback models, as well as engines and mechanical components such as gearboxes, front and rear axles.

Oyak-Renault is export champion of Turkey for the last two years while export turnover amounting to 3,2 billion dollars and has a total workforce of about 6000 people at the end of 2010. Occupational health and safety is one of the essential development axes of Oyak-Renault from top management to each employee at all levels. In order to encourage a safe work environment, mutual trust and confidence between management and workforce are necessary for the development of a strong health and safety culture. As a result, Oyak-Renault becomes one of the best performance sites among 38 production plants of Renault Group by the 80% decrease of the rates of accidents involving lost time more than 2 days in the last 15 years.

The main reason of this success is to promote members of the company to contribute by exchanging ideas and other different approaches to make sure that everyone in the



corporation possess OHS knowledge and have functional roles in the development and execution of safety procedures.

Intensive training programs are applied in order to make the employees to take notice of problems/risks and to generate solutions for such problems by giving recommendations. DOJO ergonomics and DOJO safety are examples of joyful interactive trainings.

Risk analyses are made for each work station and briefing is done in consultation with the operator, as well. A risk-hunting is performed every year during the occupational safety week.

Each department runs an appreciation system called 3 T ((Takdir, Taltif, Teşekkür, which means Appreciation, Recognition, Thanks). A team making the biggest contribution to occupational safety every 4 months is handed over a flag by their director at a specific ceremony. This flag is a matter of prestige within the company.

As a conclusion, occupational safety culture in Oyak-Renault is a result of the good partnership of employees, labor union representatives, managers and occupational safety experts.

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Symposium 14: Improvement of OSH Laboratories, ISGUM / AIDDI

Moderator: İsmail Gerim, Deputy Director General OHS, Turkey

Date: September 12, 2011

Venue: Balat Hall

Time: 16.00-18.00

(SMP: 14/1)

The Scope of Laboratory Analysis in Occupational Health and Safety Laboratories

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This paper describes a logical approach for the development of occupational health and safety laboratories to expand their scope of services to the major industrial sectors within a country. The approach includes a review of the chemical parameters likely to be of concern within an industry. The chosen example is the textile industry in Turkey. A discussion is presented of the types of analyses which laboratories would need to apply to service the textile industrial sector. Once the scope of analytical testing has been established in terms of analytes, a suggested list can be proposed of the types of equipment needed, as well as specifications to achieve analytical determinations at the concentrations of concern for the industrial sector of interest. The concentrations of concern for workplace exposure will be related to the toxicological properties of the chemicals and the risk tolerance set by a national regulatory authority.

The general approach contains the following steps. The types of analyses needed to be undertaken for an industrial sector are established as a first step. The analytical methods needed to achieve



determinations of the concentrations of chemicals of concern can then be established. Thereafter, the analytical equipment can be suggested based upon specifications required for the analytical detection limits. Subsequently, estimates of equipment costs can be prepared and the scope of accreditation assessed to support the analytical measurements.

Keywords: Accreditation, analytical equipment, analytical methods, chemicals of concern, ISGUM, Occupational Health and Safety (OHS).

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(SMP: 14/2)

The Accredited Testing Laboratories of the AUVA

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The Safety Technical Testing Laboratory (STP) is accredited according to the Accreditation Act as a body for testing, inspection and certification. As it is a EU notified body for PPE, its certificates and attestations are acknowledged in the whole EU as a prerequisite for CE label and market entry of PPE. The services offered to manufacturers (worldwide) comprise: Prototype testing of personal protective equipment, testing of ladders for stability and safety of design, determination of noise emissions of machinery and investigations of fire and explosion parameters of dust. Testing of lashing straps Furthermore the STP offers measurements to companies like chemical measurements, especially of hazardous substances, phonometrical and noise-level measurements and many others. The certification centre is accredited for certifying safety and health management systems (BS OHSAS 18001

and AUVA-SGM) and health and safety officers. The Austrian Dust Control Centre (ÖSBS) is an association, founded in 1949 to combat the silicosis caused by fine dust containing

quartz/silica. The ÖSBS consists of the management and the medical department in Vienna and the technical department in Leoben (Styria). The technical department of the ÖSBS is also an accredited testing laboratory for dust control equipment and measures and air-borne health hazards. The main service of the medical department is the examination of workers who are exposed to air borne contaminants like quartz-, asbestos-, hard metal -dusts as and welding fumes. Therefore X-ray examinations and lung function tests are made at the company's location in a special bus using state of the art equipment. The technical department offers measurements on workplaces to determine the exposure of workers against dusts and inorganic dust contents, welding fumes Diesel exhaust, fibres (e.g. Asbestos) and ultrafine particles (nanoparticles). Other fields are the measurement of emissions and material analysis.

Keywords: Testing laboratory, PPE, asbestos, nanoparticles

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(SMP: 14/3)

Proficiency Testing as a Tool for Comparability Improvement and Harmonization of Testing Results

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Proficiency Testing is the assessment of the technical competence of the laboratories by the use of their results produced in interlaboratory comparisons and provides an essential mechanism for increasing the confidence in the competence of testing and calibration laboratories. The importance of participation in an appropriate Proficiency Testing Scheme (PTS) is clearly recognized in the accreditation standard ISO/IEC 17025 and indeed many accreditation bodies use the results from participation in PTS as a part of the assessment process of a particular lab.

Industrial hygiene measurements are performed in Poland by several hundred laboratories. To control their analytical performance, the Nofer Institute of Occupational Medicine (Poland) organized a pilot study in a form of PTS as early as 1983. The performance of laboratories is evaluated for selected analytes representing the most common workplace pollutants. Initially, the range of analytes included organic solvents, toxic metals and some inorganic compounds. Over the years, this range has been extended to silica, mineral fibres at workplaces as well as basic atmospheric pollutants (inorganic gases). The samples are prepared using collecting media required in the appropriate sampling methods and sent to participants. The results reported by the participants are processed according to the ISO Guide 43: transformed into the z-score performance statistic and evaluated against adopted criteria. Since 1983 a considerable improvement of analytical performance has been observed, e.g. decreasing of standard deviation values and the number of laboratories classified as outliers or unsatisfactory.

There are several PTS in Europe. Despite methodological differences in their implementations, PTS should provide consistent data. NIOM has participated in a European Commission financed project aimed to study objectively the operation of several PTS in four different sectors, including industrial hygiene and to harmonize PTS procedures and assessment criteria. The organization of the project and its findings are also presented.

Keywords: Proficiency, comparability improvement

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(SMP: 14/4)

The Accreditation Process of an OSH Laboratory: İSGÜM

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Occupational health and safety laboratories have great importance in terms of improving the health and safety conditions at workplaces. They render determination of physical chemical and biological factors. Therefore, increasing the variety of test parameters of OHS laboratories parallel to the needs of the country's industry and also producing reliable results are quite essential. For the analysis and tests to have reliability, laboratory's technical proficiency should be ensured. Laboratory accreditation is evaluation, approval and assessing the technical proficiency in terms of performing specific tests. It disciplines the sustainability and reliability of the quality. It is a tool which proves the validity of the test reports of the laboratory both in national and international level. The accredited laboratory obtains respectability and commercial superiority in comparison to the other laboratories. "TS EN ISO/IEC 17025 General Requirements for Calibration and Test Laboratories" is an international standard which describes general requirements for a laboratory to be



recognized as being proficient in performing specific tests. The accreditation process of ISGUM Laboratory is described in this study.

Keywords: Accreditation, ISO/IEC 17025, occupational health and safety (OHS), quality assurance

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(SMP: 14/5)

The Contribution of OHS Laboratories in the Assessment of Chemical Risks in the Life and Work Environments

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The risk assessment allows for the evaluation of peoples and worker's exposure and definition of any level over and above the threshold limit that may increase the possibility of an adverse effect, representing an health risk. Very often the risk assessment is based on exposure measurement by air sampling, identification and quantification of chemical agents at workplace. The purposes for occupational air sampling are principally to characterize air quality for exposure control and for regulatory enforcement, to characterize process emissions and sources.

Last but not least there has been an increase in the demand to evaluate/measure the skin absorption as contribute to the exposure.

The Occupational Hygienists has also to deal with new challenges related to new risks (nanoparticles); the need to develop sampling and analysis instruments more and more specific and with the lowest limit of detection (crystalline silica); the need to characterize occupational from non-occupational exposure by statistically significant data and by simple to use sampling instruments (diffusive samplers).

The challenges over mentioned need of environmental and occupational health and hygiene professionals and dedicated analytical laboratories to develop, implement and review occupational air sampling strategies and methods.

The analytical laboratories that work in the field of the industrial hygiene should be well introduced in the problems arising with the needs of the risk assessment strategies to work out reliable and representative data. In this paper we represent the "points" of cooperation between Industrial Hygienists and Analytical Laboratories Chemists in working out the risk assessment procedure and the measurement of the exposure to chemical agents.

Keywords: Air sampling strategies, air monitoring, dermal exposure, exposure measurement.

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XIX World Congress on
Safety and Health at Work

Symposium 16: Occupational Health Services and Public Health Systems, WHO, ILO

Moderator: Ivan D. Ivanov, Global Occupational Health Programme, WHO

Igor Fedotov, SafeWork, ILO

Date: September 12, 2011

Venue: Eyüp Hall

Time: 16.00-18.00

(SMP: 16/ 1)

Occupational Skin Diseases-Challenges and Opportunities for Linking Occupational Health to Public Health Systems

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Occupational skin diseases are among the three most frequent groups of occupational diseases. In some sectors (agriculture, construction, hairdressing, health care) occupational skin diseases are a major health problem causing high rates of sickness absence and permanent disability, and as such pose an enormous burden to all countries also from an economic standpoint. However, public health systems in many countries have not adequately responded yet to these challenges. A recent global workshop convened by WHO and the European Academy of Dermatology and Venereology (EADV) revealed that occupational skin diseases are not sufficiently well prevented, detected, treated and compensated in both developed and developing countries. The presentation draws on the country experiences and the discussions at the WHO/EADV workshop and provides an analysis from the perspective of primary health care and public health systems. The conclusions are that primary health care providers have a crucial role to play when it comes to detecting work-related skin diseases, to reporting them, prescribing targeted interventions and applying adequate prevention strategies. General practitioners and nurses need to be well equipped in terms of acquiring sufficient skills not only with regard to acute treatment but also to preventive measures. Innovative approaches applied in some countries have shown that a relevant number of sickness cases can be averted with proper support. The intervention at primary health services level is therefore key to achieve better health outcomes.

Keywords: Prevention, intervention strategies, primary health care, role of general practitioners and nurses, occupational skin diseases

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(SMP: 16/ 2)

Effective Mechanisms for Sustaining Preventive Role of an Occupational Health Service

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High prevalence of occupational injuries resulting by old and new occupational health and safety (OSH) problems require state intervention for regulating the work environment as they are determined by human choices and interests related to social, economical and political

issues. In Brazil, workers' health services in the public health system were established along the 1990s, although a couple of units pioneered the process since early 1980s. However state economical shrinkage and changing political interests make policies and institutions unstable. In order to replicate effective actions elsewhere, the implementation of public policies shall be studied so that strategies and mechanisms created to overcome the variable reality can be identified. This study focused on the description and analyses of implemented actions derived from Brazilian Ministry of Health policies carried out by a specific local public service since its establishment in 1997 until 2008 when the study was performed. This case study was based on qualitative analysis of several interviews, documents and participatory observation. It was found that this OSH service performed its enforcing role and preventive actions upon ethical principles of transparency, technical development goals, and inter-institutional partnership. Since 1997, historical efforts have turned OSH problems and solutions into public, visible and objective issues, such as enterprises signatures to negotiated agreements for the implementation of preventive devices, equipment and procedures in several sectors such as Construction, Paper, Furniture, and Food Industry. In 2002, a remarkable mandatory order assured accurate notification for every occupational injury by health assistance institutions enabling proper action at the point of production, and immediate interdiction after a fatal injury. Partnership, social participation, continuous education and negotiation process was crucial for vigilance and intervention practice. It became notorious that implemented actions became more effective the broader social support was received. This support was achieved and sustained by horizontal and supra-institutional actions.

Keywords: worker's health service; state policies; occupational injuries prevention

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(SMP: 16/ 3)

How to Establish the National Public Health Network on Occupational Health Services: Lessons Learned

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In the frame of systematic changes in the national health policy in R. Macedonia, planned reform activities in the field of occupational health (OH) should provide the main goals: protection and promotion of workers' health and to build capacities to address OH risks. The past decade was characterized by the privatization of primary health care (PHC), including the transformation of relevant number of OH specialists to general practitioners, reduced number of occupational health services (OHS) and decrease of preventive OH activities. OHS within the Health Centers (PHC level), in major municipalities, with a special regulation, were excluded from this privatization process in order to keep specific function and infrastructure as a part of the public health (PH) system. It represents the basis for a national PH network of OHS coordinated by the Institute of Occupational Health. The network' value is recognized in the realization of the regularly preventive programs' activities on unemployed and agricultural workers. The new Safety and Health at Work Law, increased the number of private OHS. Some specific PH occupational health activities are performed within the Ministries, National IPH, Inspections and Health and Pension insurance funds. It was a crucial moment to organize and develop adequate new model of OHS, following the Basic OHS approach, based on the strategic national and international documents (WHO, ILO,



EU), keeping the public responsibility for workers' health. The proposed Law for Health Care supports further development of the National (PH) network and should ensure equity, quality and coverage in OHS provision to all workers. The achievement of this goal requires the involvement of all human resources and existing capacities, by integrating public and private OHS into a single national network. The network should provide strengthening of PH aspects of OHS as a segment of the national health system.

Keywords: Network, PH, OHS

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(SMP:16/ 4)

Strengthening Health Systems to Address Occupational Health Risks in Selected South-East European Countries

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Background and objective: WHO is implementing the Global Plan of Action on Workers' Health (GPA) in the WHO European Region by providing technical and policy supports to selected countries. One of the strategic objectives is to improve the quality of and access to occupational health services, especially for the vulnerable people. WHO/Europe promoted systematic integration of basic occupational health services into primary health care and public health operations tailored to the needs of the countries.

Methods: In Albania, occupational health sanitary inspectors were trained in the area of modern occupational medicine and industrial hygiene. In Croatia, occupational health information system was strengthened and capacity building was supported through various training and educational forms. In the FYR Macedonia, National public health network on occupational health services coordinated by the National Institute was founded and a public health programme on basic occupational health services for vulnerable group focused on unemployed and agricultural workers were established. In Montenegro, national strategy and action plan on health and safety at work were developed and implemented following the principle of providing basic occupational health services to the vulnerable groups through the public health system. In Turkey, pilot projects on integration of occupational health services into the community health centres were launched in collaboration between the Ministry of Health and the Ministry of Labour. Along with these developments, national profiles, situation analysis and recommendations on occupational health systems in south-east Europe were prepared, and the South East European Network for Workers' Health was established by the WHO collaborating centres and focal points. Conclusion and discussion: The national policies and capacities for the protection of workers' health had been strong until 1990s, but they were dramatically weakened during the transitional period in the past two decades in most south-east European countries. WHO's collaboration with the governments, experts and stakeholders strengthening occupational health systems in these countries is one of the achievements of implementing GPA in the Region.

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(SMP:16/5)

Health Problems and Health Services Demand Among Workers in Informal Sectors in Indonesia

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In 2010, Indonesian workers in informal sectors were 72 million or 67% of all workers. Meanwhile, 87% informal workers live in Sumatra, Java, and Bali islands. In 2007, we conducted a quantitative study of health problems and services demand among 704 workers in informal sectors, utilizing a combination of open and close format interview questionnaires. The study covered eight provinces in Sumatra, Java, and Bali Islands in Indonesia. Respondents were recruited using purposive sampling method that met criteria as “the dominant informal sectors” in each selected provinces. Researchers observed respondents’ type of hazards in their workplaces. We identified 71 types of informal sector jobs that were categorized into 12 main types of jobs related to their hazards exposures. Major health complaints among respondents were musculoskeletal disorders: 204 respondents (28.98%); respiratory disorders: 179 respondents (25.43%); headache: 166 respondents (23.58%); and backache: 133 respondents (18.89). Exposed workers to hot climate and un-ergonomics work posture had a highest number in health complaints: 171 (24%) workers. Highest proportion on injury/accident among age groups were workers ≥ 56 years old (47.5%) and under 18 years old (41.02%). Exposed workers to stone, brick, cement, hot climate, and dust experienced highest injury/accident: 52 (7.4%). Community health centers (PUSKESMAS) 492 respondents (96.5%) was the most preferred health care provider among respondents. In fact, male workers had higher percentage on their knowledge of Occupational Health Posts (POS UKK) than their female peers (84% vs. 24%). Almost 70% workers expressed that they needed free medication and treatment of sickness, 5% needed free personal protective equipments, while 15% did not know what they needed for occupational health services. This study suggests that there is a need to priority interventions among exposed workers to hot climate, un-ergonomics work posture, stone, brick, cement, dust, metals, and electrics.

Keywords: Occupational Health, informal Sectors, community health centers, Indonesia

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Symposium 17: Ergonomics and OSH Strategies in Relation to Governmental Activities, IEA

Moderator: Ralph Bruder, University of Technology Darmstadt Institute of Ergonomics, Germany

Date: September 12, 2011 Venue: Kasimpaşa-3 Hall Time: 16.00-18.00

(SMP: 17/1)

Occupation Health and Safety Initiatives without Legislation. How to get Interest from Business?

Jan Dul



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In Europe, during the last decades several European directives and mandated standards have been developed in order to improve health and safety at the workplace. Examples include directives and standards on reducing physical work load (e.g. working postures, heavy work) or reducing stress (e.g. working under time pressure). However statistics show no major results (yet). New approaches have been suggested to involve the social partners (employers and employees) more in further actions to improve health and safety. The basic assumption is that these parties have a high level of interest in improving working conditions and employee health and safety, which make them act. While the employees' interest is evident, this is not always true for the employers' interest. This paper emphasizes the need to focus on increasing employers' interest by identifying the link between working conditions for health and safety and working conditions for primary business goals. Consequences for occupational health and safety professionals and researchers, as well as for governmental organisations are discussed.

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(SMP: 17/2)

Communication Challenges Between Governments and Small Enterprises

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Ergonomics utilizes a systems analysis approach to assess workplace issues from the user or human perspective. Governments in developed countries provide guidance to workplaces on safety and health. They also regulate employers to meet specified legal obligations for their workers. Data is collected on illness and injury as well as legal enforcement as performance indicators for employers and their respective industry sector. The main categories of non fatal injury relate to the incidence of musculoskeletal disorders (40% of number and 50% of costs) and psychological stress (20% of number and 30% of costs).

Ergonomics provides theoretical and practical research outcomes as well as the systems approach to assess both of these injury types. Industry based programs have been funded by Governments to identify the key injury prevention guidance for these sectors. They also provide input to Regulations and Codes of Practice to assist with Enforcement. Examples of these programs illustrate the practical approach that uses a holistic understanding of the risk factors and innovative methods on how to communicate them to workplaces.

With 90% of workplaces employing 20 or less workers the approach to communication of ergonomics guidance presents challenges. Employers and workers in this sector were found to not read the many Guidance publications that had been produced by the Government except if they had a specific problem that required them to do so. Hence they were unaware of the technical advice on injury prevention and, often, their legal obligations. Research found that they responded more proactively when they were linked with persons who they trusted, who they could speak with, to give them practical advice rather than general information.

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(SMP: 17/3)

The Assessment and Management of Work Related Stress: An Integrated Approach According to the HSE Management Standards

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This study describes the implementation in the Italian context of the HSE Management Standards approach in order to give a contribution to the development of an effective model for the evaluation and management of the work-related stress. Methodology After an accurate benchmarking analysis of the various models to manage work stress problems adopted by other EU countries, it has been chosen to apply the Management Standards approach promoted by Health and Safety Executive (HSE) and validated in the UK and in the Irish Republic on over 26.000 workers. The Italian validation of the HSE Methodology included the translation of the user manual into Italian and its adaptation according to the Italian legislation; the translation and administration of the questionnaire on risk evaluation of the work-related stress to a representative sample of Italian enterprises; a statistical data analysis through SPSS 17.0 software; the production of guidelines for the management of focus groups; the implementation of an online software to record and process data that can be compared with both the benchmark data and the database of other explored cases. Results The Italian validation of the HSE Methodology has involved a representative sample of over 75 enterprises from different productive sectors for a total number of 8.533 workers. The returned questionnaires are 6.378 with a rate of response of 74.8%. The collected data has been statistically analysed. Calculating the Cronbach's alpha coefficient assessed the reliability of the questionnaire for the Italian sample. Conclusions Among the proposed strategies to assess and manage work-related stress, the Italian validation of the Management Standards approach (HSE) can be considered a reliable and user friendly method for employers and other prevention professionals to deal with work-related stress.

Keywords: Work related stress, HSE, approach

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(SMP: 17/4)

Assessing Nigerian Government Regulation in Promoting Ergonomics and Occupational Health & Safety Practice

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The factories decree 1987 was a landmark in legislation in occupational health in Nigeria. A substantial revision of the colonial legislation, Factories Act 1958, the 1987 decree changed the definition of a factory from an enterprise with 10 or more workers to a premise with one or more workers thereby providing oversight for the numerous small-scale enterprises that engage the majority of the workforce in Nigeria. The current legislation is the factories Act 1990 which in essence is the same as the 1987 legislation. Enforcement of legislation is carried out by the factory inspectorate of the ministry of labour. This Ministry produced a National Policy on safety and Health in 2006 which details the responsibilities of employers, workers, manufacturers and government agencies in the maintenance of the health and



safety of workers. However records of occupational diseases are poor, primarily because industries do not report cases to the relevant government agency. At the moment, Nigeria ergonomics, safety and health legislation requires urgent review while the enforcement and compliance with the law remain a major challenge. Often, violators go away with pittance fines and hence, they do not really care about violating rules and regulations. Government will never be able to deliver healthy and safe workplace in isolation due to the multi-participant and complex nature of workplace health and safety. Consequently, the value of stakeholder engagement is broad, ranging from seeking agreement on priority problems, encouraging buy-in and co-design of solutions, improving co-ordination across agencies and, at the lowest level, simple raising the awareness of the workplace ergonomics, health and safety.

Keywords: Ergonomics, safety and health, factories act, national policy and occupational diseases

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(SMP: 17/5)

Ergonomics in the Swedish Law and the Government's OSH Policies

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(SMP: 17/6)

Activities of a Specialist in Ergonomics Inside the Belgian Federal Ministry of Employment, Labour and Social Dialogue

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In Belgium, the transposition of the European framework directive (89/391/EEC) led in 1996 to a new legislation in health and safety called the WELL-BEING law. In the definition of well-being, the following themes were added to health and safety: psychosocial aspects, work hygiene and ergonomics. In this law were also defined five prevention advisors and among them, the ergonomist. The main reasons in 1996 to explicitly mention ergonomics in the law were probably to better take into account new emerging risks and also to deal with the European directives manual handling of loads (90/269/EEC) and work with display screen equipment (90/270/EEC).

But, at the ministry of labour, in 2011, 15 years after this law, there are several specialists in health and safety but only one ergonomists, me.

My main activities are:

- to promote prevention methods to help the companies to realise their risk analysis. The prevention SOBANE strategy (www.sobane.be), which were developed in my precedent department at the Belgium university UCL, was funded by the European Social Fund and by the Belgian government. This is the main reason of my arrival at the ministry



- to advise about ergonomic improvements realised by companies in the framework of our fund for ageing worker. The use of appropriate tools to find these ergonomics improvements is also important.

- to launch and fund research to help our Directorate-General for the Humanisation of Work to achieve its missions: to prepare, promote and implement the policy concerning well-being at work and raise awareness among the various actors in the social and economic world to the humanisation of work.

By our work on risk analysis and with the results of our research, we can better raise awareness on the importance of an ergonomic approach not only for WRMSD and work with display screen equipment, but also for all the OSH risks. The emerging of risks such as WRMSD risks and psychosocial risks with multi-factorial causes, urge the companies to call into question the classical way of OSH prevention.

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Symposium 18: Unions Make Work Safer, Trade Union Strategies for Tackling Unhealthy Workplaces, ITUC

Moderator: Anabella Rosemberg, Policy Officer, ITUC

Date: September 12, 2011 Venue: Hasköy Hall Time: 16.00-18.00

(SMP: 18/1)

Overview of Trade Union Strategies for Tackling Unhealthy Workplaces

Laurent Vogel

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Trade unions are a centrepiece in building safer workplaces. All too often, current production systems are organized in such a way that workers are expected to absorb pressures for higher productivity by accepting less protection and more job insecurity, often risking their health and lives for a wage. Acting collectively to combat this through trade unions is a first step towards a safer workplace. In addition, scientific evidence and workers' perception show that when workers are represented by trade unions on occupational health and safety issues, their working environment is significantly better than where they are left alone with their concerns.

Keywords: identify risks, collective solutions, unions build a culture

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(SMP: 18/2)

Union OSH Strategies in Latin America

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Occupational health and safety in the Iberoamerican region faces multiple challenges related to: labour market conditions (including limits to trade union organizing, insufficient development of collective bargaining, wealth inequality and weak control and oversight despite interesting legal frameworks, high rates of precarious work and size of the informal sector, among others), social protection (low rates of social protection coverage, low ratification and implementation of international standards, privatization of health, pensions and occupational risks systems, absence of progressive fiscal systems, deficits in maternity and child protection), health and safety (including extremely worrying rates of mortality, morbidity and accidents, absence or weakness of OHS public policies, weak public control and oversight, weak coverage of workers over occupational accidents and diseases). In order to transform this situation, trade unions have identified key pillars for an Iberoamerican strategy on Occupational Health and Safety. This strategy is based five pillars: - Creation of employment opportunities which respect labour rights and provide social protection, formalizing labour relationships. - Promotion of OHS as a State public policy - Strengthening of tripartitism and social dialogue (and collective bargaining) on OHS, including promoting a leadership role for trade unions in it. - Strengthening a prevention culture - Regional cooperation on OHS. The paper will describe the means by which the strategy is being implemented in the region and the union strategies that have been put in place to face the numerous challenges described above.

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(SMP: 18/3)

International Trade Union Campaign on Eliminating Asbestos Use and Preventing Asbestos Diseases

Fiona Murie

BWI, Switzerland

The Building and Woodworkers International is committed to promote the elimination of the use of all kinds of asbestos and asbestos containing materials, and the elimination of diseases caused by exposure to asbestos. In 2000, the BWI began a global campaign, which has gradually developed and gathered momentum, due to the activities of our affiliated trade unions in their respective countries. There are four action areas in our campaign: 1. The need to stop using asbestos world-wide as soon as possible 2. Alternatives to asbestos and re-conversion of the asbestos cement industry 3. Prevention of exposure to installed asbestos 4. Supporting those affected by asbestos diseases. Examples will be given of the trade union contribution to national strategies and workplace prevention initiatives.

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(SMP: 18/4)

Psychosocial Risks from a Unions Perspective

Willem Van Velen

Netherlands Federation of Trade Unions FNV, Netherlands

By Wim van Veelen, FNV Vakcentrale, the Netherlands Federation of Dutch Trade Unions FNV, with 1.3 million members. Workload and work related stress is an enormous social



problem in many countries. Governments, employers as well as Unions are searching for the best approach in tackling the problem. Illnesses like 'burnout' results in long periods of absence at work. Besides legislation, social partners have an important role in trying to minimize the risks. In this presentation I give a theoretical description on how the Dutch Trade Unions look at notions like stress and workload. The most important part of this presentation is a description of how the dutch unions succeeded putting stress at a number 1 priority on the social agenda and the role of the trade union instrument 'quick scan workload' in raising consciousness that the problem of stress at work can be tackled. In the last 4 years, in more then 150 sectors 'Working Conditions Catalogues' have been made by the social partners. In the Netherlands, there are some 250 sectors. In these catalogues the best ways in attacking the major sector-problems are written down. For example, lifting heavy loads, exposure to fume or exposure to work-related stress are examples of risks that are analysed and given a solution in these Catalogues. Ways that comply with the obligations in our Health and Safety act. Companies in a sector now can choose the most suitable solution and 'translate' this in their Risk-assessment. In many of these Working Conditions Catalogues work-related stress is one of the risks that have been described by the social partners. The instrument of the 'quick-scan workload' is an instrument that is used now in many companies all over the Netherlands as a tool to control the problem. This tool is made by the FNV.

Keywords: Unions, psychosocial risks

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(SMP:18/5)

Shipbreaking: Where OSH and Organizing are Needed Most

Kan Matsuzaki

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Shipbreaking yards, especially in South Asia Region (Bangladesh, India, and Pakistan) and Turkey are one of the most hazardous, unsafe and unhealthy workplaces in the Metal Industry around the world. For example, nearly 200 workers lost their lives in the world's largest shipbreaking yards, Alang, in the last two years alone. The shipbreaking workers often describe themselves as the worker "into the graveyard." In 2003-2010, International Metalworkers' Federation (IMF) has been carrying out an organizing project in India to establish basic human/worker's rights and OSH (Occupational Safety and Health) by providing basic and essential service such as water, sanitation and medical access. The project has achieved to organize nearly 10,000 workers in Shipbreaking yards, in India. Although there are many issues to overcome, the OSH conditions in the organized yards are getting better than before. On the other hands, shipbreaking yards are expanded to unorganized workplaces where find even lower low labour cost with inhuman working conditions. IMF will continue to expand its organizing project in shipbreaking yard, but at the same time, IMF will raise the issues of "real" implementation of international and domestic rules, regulations, guidelines, and practices that needed to be examine by international society

Keywords: Shipbreaking workers

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(SMP: 18/6)

Unions Strategies and Actions in Bangladesh Towards Making Work Safer

Repon Chowdury

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Unsafe and unhealthy workplaces are key obstacle of achieving central goal of decent work and major concerns for trade union. It needs to emphasize that safety and health is one of a fundamental right at work and non-negotiable item for the labour movement. The labour force of the Bangladesh is close to 56 million and half of it engaged in agriculture. The ratio between formal and informal sector is 20:80. The existing key labour law (Bangladesh Labour Act-2006) does not cover the enterprise having less than 5 workers as well as workers at informal economy. Whilst a lot of changes have occurred in the last decades in social, cultural, financial, industrial and other aspects of life, very few changes have been made to improve the safety and health conditions of workers in vulnerable work situations. According to ILO estimates, about twelve thousands workers suffer from fatal 'accidents' and a further twenty-four thousand die from work-related diseases in Bangladesh each year. It also estimates that a further eight million workers suffer from injuries at work – many of which will result in permanent disability. However, no acceptable official statistics exist at national level due to OSH underreporting practices. According to recent newspaper based monitoring report of the Bangladesh Occupational Safety, Health and Environment Foundation (OSHE), 2453 workers were killed and 1841 others injured in various work related incidents across the country on last year (1 January to 31 December, 2010). The top five sectors with high workplace death and injuries are: Construction, Ready Made Garments, and Ship breaking, Transport and day labourer (at informal economy). Collective Trade Union Action of Change: In order to effectively respond this important workplace issues, the labour movement of Bangladesh has been proactively for some times and working together in the area of development of strategies and actions for tackling unsafe and unhealthy workplaces in the country. The affiliates of the ITUC are playing a significant role of this process.

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Symposium 20: The Role of Labour Inspection on OSH, IALI

Moderator: Ho Siong Hin, IALI, Singapore

Date: September 12, 2011

Venue: Sütlüce-2 Hall

Time: 16.00-18.00

(SMP: 20/1)

Measuring the performance of OHS Inspectorates

Nils Petter WEDEGE, Helle TOSINE

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The most recent IALI Strategic Plan highlights the needs for improving the effectiveness of labour inspection. In February 2011, the Executive Committee of IALI made the decision to support the development of a handbook for measuring the performance of labour inspectorates. The authors will present an overview of the key concepts of performance measurement included in this handbook, specifically, explaining and applying performance



measurement concepts, simple models and procedures in the context of the work of labour inspectorates, and an overview of the important foundation pieces for LI measurement systems. A summary will be provided of best LI practices, by including case studies from selected IALI member countries, with a particular focus on the practical and specific tools that labour inspectorates use to measure the effectiveness of their performance.

Keywords: Labour, inspection

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(SMP: 20/2)

Inspection and Prevention (Optimizing Labour Inspection's Impact on Enterprise Prevention Culture Through Integration)

Wolfgang F. von Richthofen

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Functionally and structurally integrated labour inspection systems can provide better services to stakeholders, better value for money to Government, have a greater impact on developing an enterprise-level prevention culture, and thus help create a “triple win” situation: maintaining public order, enhancing competitiveness, and providing better social and OH&S protection. But many inspection systems are still segregated: dichotomies persist between OS and OH responsibilities; between OS&H and other Working Conditions; and between OS&H/WC on the one hand, and social relations/employment inspection functions on the other. However, modern day labour protection issues in enterprises are increasingly interconnected and inter-conditional; therefore their solution requires a holistic, integrated approach. If employers are expected to deal with all labour inspection issues as a single, important management responsibility, then their principal partners/supervisors on the government side must also adopt a holistic, integrated approach to maintaining and, wherever possible, improving labour protection standards. In most cases, this requires major organization changes, revision of the legal frame, and a new enforcement policy, preferably developed through tripartite social dialogue and thus supported by the main stakeholders. The presentation will underscore this position with reference to several successfully integrated, high-performance labour inspection systems from different parts of the world, demonstrate the need for integration when dealing with, in particular, small/medium enterprises and other critical issues, and also illustrate the difficulties that reformers in many countries still face when moving towards functional, structural and operational integration.

Keywords: Integrated Labour Inspection and Prevention Culture

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(SMP: 20/3)

Better Health and Safety for Suppliers – The Role of Labour Inspection

Gerd Albracht

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Effective management of the supply chain is vital in today's global economy, and buyers and suppliers need good relationships for their business to succeed. However, good working

conditions are also vital for business success. We know that there is a direct correlation between standards of safety and health on one hand, and productivity, competitiveness and worker's employability on the other. Good safety and health makes good humanitarian benefits and economic sense. But there is a significant difference between the average safety and health performance of MNE's and that of their suppliers. The global supply chain often comprises medium-,small or micro-enterprises. Recent studies have shown that rates of accidents and diseases amongst such suppliers can be 4-10 times higher than in the MNE's. Globally – the concept of promoting safety and health through the supply chain is still not well developed. But in the last years there has been increasing interest in promoting safe and healthy workplaces through the supply chain, recognizing the benefits that such conditions bring to everyone. One example has been the "Better Work" programme launched 2006 by the International Finance Corporation(IFC) in cooperation with the ILO to promote better working conditions at various industries. There is also the model project in for labour inspection and supply chain. This is the ILO/GTZ/Volkswagen project "Better health and safety for suppliers", with experiences in South Africa, Mexico and Brazil. Under such programmes, MNE's have worked with the national labour inspectorates in providing training and information for suppliers, improving standards of safety and health and working conditions in general, and increasing productivity. Labour inspectors have an important role to play in the Supply Chain, especially if they are well trained in OSH and working conditions.

Keywords: Suppliers, labour, inspection

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(SMP: 20/4)

The Effect of the Act on OSH Enforcement on Official Enforcement Carried by Inspectorate Authorities

Jorma Lappalainen¹, Riikka Ruotsala, Hanna Uusitalo, Päivi Piispanen and Tarja Mäkelä

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The tasks and use of authority by the Occupational Safety and Health (OHS) authorities are based on the revised 2006 Act on Occupational Safety and Health Enforcement and Cooperation on Occupational Safety and Health at Workplaces (44/2006). This investigation clarifies the effects of the Enforcement Act on enforcement by the OHS authorities seen from the perspective of the OHS inspectors. In addition, enforcement practices are examined from the perspective of their effectiveness and how the effectiveness of enforcement can be promoted. The investigation was carried out through a nationwide questionnaire survey directed towards OHS inspectors. Overall, the inspectors evaluated the Enforcement Act positively and said that the revised Act provided a good basis for enforcement. The main changes in the law were the new executive powers, written advice and improvement notices with time limits. They were seen as strengthening enforcement and increasing inspectors' opportunities to take action more effectively against illegal shortcomings in occupational health and safety. The monitoring of the time limits for improvement notices in particular was seen as making implementation of measures in the workplace more effective. However, the demarcation between written advice and an improvement notice was seen as a problem in applying the Act. Interpretation of the range of application of improvement notices (Section 13, paragraph 3) was also unclear. With regard to the effects of enforcement, there was a tension seen in the work of OHS inspectors between the quantitative results of the

inspector's work and the practical effects of enforcement work. 60 per cent of the respondents were of the opinion that they had to compromise the quality of the inspection in order to achieve the quantitative targets. Over half of the respondents were of the opinion that current enforcement practices were not sufficient to have an effect.

Keywords: Enforcement act, effect, occupational safety and health authority, inspector, effectiveness

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(SMP: 20/5)

Lessons Learned from the Finance Crisis for OSH Risk Assessment

Paul Weber

IALI, ITM, Luxembourg

It's all about attitude: global shift needed to avoid future work crisis As professionals working in the area of health and safety and security at the workplace, we are well aware of the impact the latest economic crisis has had upon the work environment. While we must certainly address the consequences of the recent financial crisis, trying only to 'fix' the resulting problems is a short-term remedy. If we want to avoid facing difficulties in the future, something must be done to eradicate the root causes of the crisis. The recent crisis has much deeper roots than the failed housing market in the US and the subsequent effect on financial markets around the world. One of the root causes of the crisis lies in our thinking about work itself, which has, to our detriment, radically changed over the past few decades. Whereas previously people tended toward conservatism, now people are encouraged to take big risks, even when by doing so they endanger their own livelihoods and those of others. Our implicit acceptance of a policy of growth at any cost is endangering not only jobs, but people's sense of belonging to a larger community and playing a useful role within that community. It engenders mistrust, alienation, greed and despair. Europe is starting to reassess the current norms and design a new blueprint for a sustainable future. The Roadmap Europe for 2020, which is about to be ratified, calls for action to make Europe the most dynamic knowledge based economy in the world. It is a plan that calls for intelligent growth that is lasting and inclusive. Roadmap Europe 2020 is a step in the right direction. New ideas for helping people to enjoy fulfilling lives will come to us when we become aware that a healthy economy depends upon maintaining a balance of people, resources and goods. A global shift in consciousness can indeed prevent global crisis in the future.

Keywords: OSH risk assessment, crisis

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(SMP: 20/6)

The Importance of Empathy in Labour Inspection System

Uğur Koç

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Towards the end of 19 century in Germany, studies in the field of psychology "einführung" concept have been arisen. According to psychologist Theodor Lipps, the first user of this



concept, this word means reflecting himself/herself to another one, feeling himself/herself in that body and by this way understanding with including the object into himself. In the beginning of XX. Century, this word passed to English as empathy benefited from Greek emphateia word. Empathy term in ancient Greek, consist of merger of “em”, means “into” and “patheia” means “perception”. Meaning and definition of the concept, to form empathy there should be 3 components. The first component is ability to look events from the point of view of another person by putting himself/herself instead of the other person. The second component is the ability to think and to feel the other person’s feelings and ideas like him/her. And the last component is to forward empathic apprehension to the other person.

In labour inspection system, bilateral relations and dialogue is very important and for this reason, the role of empathy is high level. In this study, which way empathy will affect labour inspection and the affect of the dialogues installed with empathy, on the health and safety of work will be discussed. In labour inspection, the psychology training beside vocational training given to labour inspectors will contribute to the inspectors' professional development in this direction and it will be possible to eliminate vocational difficulties partially. Today's inspection system, method of punishment later abandoned and the method of guidance and counseling becomes so the importance of empathy is increasing. The contact which made by empathy with workers, employers and social partners will facilitate their works and also will save time and will provide receiving better results.

Keywords: Labour inspection, empathy, labour inspector

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Symposium 23: The Implementation of the Seoul Declaration on Safety and Health at Work, KOSHA

Moderator: Bae, Gye-Wan, Secretary General KOSHA, Korea

Date: September 12, 2011 Venue: Kasımpaşa 1-2 Halls Time: 16.00-18.00

- Welcome and Opening Remarks

Hun Ki Baek

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(SMP: 23/1)

Activities and Accomplishment on Implementation of the Seoul Declaration

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(SMP: 23/2)

Report Summary and Evaluation on the Follow-up of the Seoul Declaration



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(SMP: 23/3)

Endorsement and Implementation of the Seoul Declaration since its Signature in Turkey 2008

Kasım Özer

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Occupational safety and health is one of the most important aspects of our working life. Common goals for everyone as well as the basics of Seoul Declaration are employees that are working according to occupational safety and health principles, employers providing a healthy and safe workplace for their employees and the governments establishing a strong legislation infrastructure.

I believe that the ones that did not have the opportunity to sign the Declaration also share the same feelings with the ones that signed the Declaration. In fact the meetings held and the statements signed supporting the Seoul Declaration during the following three years after the signature of the Declaration, clearly shows that everyone shares the same desire.

We declared Kayseri Statement endorsing the Seoul Declaration within OHS week activities which is organized every year in Turkey. Fifteen Confederations signed the Kayseri Statement on behalf of their members. Some of organizations that didn't sign stated that they support the Kayseri Statement.

No body can intentionally give up their life or demise a part of their body. The most valuable asset is life and body integrity for all of us. So the first task for all of us should be to protect and keep our these assets in top condition. None of us acquired our bodies randomly, we also didn't buy it. Being aware of the value and protecting these assets which is a divine gift is the most sacred duty for all of us. We shall take all necessary measures and allocate necessary financial resources and time to fulfill this duty.

Decision makers shouldn't ignore human being while designing regulations. Because, human and human assets cannot be brought back after they are lost. A bankrupted employer can have a chance to establish a new enterprise, but a died worker will never have a chance to gain his life again. A lost limb can not be brought back but lost money can be earned in another time and ambience.

I wish the establishment of a healthy and safe work environment, accident and disease-free days which is the common desire for the humankind.

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(SMP: 23/4)

The Role of Trade Unions in Promoting Safety and Health at Work

Raquel Gonzalez



International Trade Union Confederation, Belgium

Promoting safety and health at work remains a challenging task. To low quality and low application of standards in many countries one must add the growth of atypical forms of employment that have increased workers' exposure to occupational hazards and risks. Trade unions play an essential role in promoting workplaces in which workers' right to a safe and healthy working environment is fully respected and where prevention is given a central role. This implies respect for the right to organise and bargain collectively as enshrined in ILO Conventions 87 and 98 as well as other ILO standards on occupational safety and health. Trade unions ensure improvements in occupational safety and health in several areas including by identifying risks in the workplaces and ways to prevent them, by providing workers with information, education and training on occupational safety and health problems, by getting involved in all aspects of occupational safety and health at international, sectoral, national and enterprise levels and by promoting appropriate legislation and enforcement mechanisms. For such strategies to be successful they need to be matched with an active role of governments and employers to take their respective responsibilities in ensuring that workplaces are safe and healthy and that priority is given at national level to prevention of occupational accidents and diseases and the adoption, application and enforcement of adequate legislation.

(SMP: 23/5)

How the Objectives of the Seoul Declaration can be Promoted/Institutionalised

Pedro Tomas Pino Perez

Director General of Canary Island Government, Spain

The presentation will address the organizational context of the institutions that have signed the Declaration of Canary Islands on the Prevention of Occupational Risks in support of the Seoul Declaration. It will also present the activities carried out by the Government of Canary Islands to disseminate and promote these declarations in Spain and America. Finally, the presentation will show the official Web pages and explain the main characteristics of the International Observatory for Prevention Culture OBINTCP.

(SMP: 23/6)

Safety and Health and the Social Dialogue in Brazil

Domingos Lino, MPS Clovis Veloso de Queiroz Neto National Confederation Industry – CNI D

Ministry of Social Security, Brazil

The ILO Convention establishes the duty of each Member State, in consultation with the representative organizations of employers and workers, to formulate, implement and periodically review a National Health and Safety Policy at Work, with the objective of preventing accidents and illnesses related to work by reducing the health risks existing in the workplace. The ILO Convention deals with the Structure for the Promotion of Safety and Health at Work and the Recommendation concerning the Promotional Framework for Occupational safety and health at work, calls on countries to develop and implement a national policy that focuses on Safety and Health at Work, consistently and systematically, according to the principles and guidelines of the Organization. The World Health



Organization - WHO in 2007 adopted the "Global Plan of Action on Workers' Health", which reinforces the need for its Members to formulate a policy on occupational health. In Brazil, the Ministries of Social Security, Labor, and Health have established a Tripartite Commission on Health and Safety at Work, composed of 18 members, being six representatives from three Ministries of the Federal Government, six representatives of major labor unions and six representatives of major employers' organizations with the power to revise and extend the proposal on the National Health and Safety at Work Policy. In the scope of the Tripartite Commission it is the proposal of the improvement of the national system and the preparation of a National Program, defining strategies and action plans for their implementation, monitoring, evaluation and periodic review, promoting the investment in the practice of prevention, agreed between the various government organs and civil society, aiming at the articulation and extension of the actions of promotion, protection and repair of workers' health.

Keywords: Safety and health at work and social dialogue promotion, social security

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(SMP: 23/7)

Viet Nam's Implementation of the Seoul Declaration on Promoting Safety and Health Culture at Work

Bui Hong Linh

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The 18th World Congress on Safety and Health at Work was held by Korean Occupational Safety and Health Agency (KOSHA), International Labour Organization (ILO), International Social Security Association (ISSA) from 29 June to 2 July in 2008 in Seoul with over 4,000 participants from 120 countries and territories. The aim of the Congress was prevention of employment injuries and health protection for employees through exchange of information, knowledge and experiences relating to occupational safety and health, and cooperation projects on OSH.

The Seoul Joint Declaration with some following fundamental contents:

- Occupational accidents and diseases caused serious consequences to life and health of employees and significant damage on the economy.
- Affirmation of positive OSH impact on working condition and productivity and socio-economic development.
- Assurance of working environment with safety and health is the basic human right.
- Globalization must be in line with assurance of occupational safety and health for everyone at work.
- Priority should be given to preventive solutions on OSH, developing a safety and health culture in production.
- Affirmation of the important role of governments, social organizations, professional agencies, employers and employees on occupational safety and health.
- Emphasis of the international and national cooperation on OSH.



- Specification of the role, contribution, policies and activities of the International Labour Organization (ILO) and International Social Security Association (ISSA) on occupational safety and health.

On the basis of viewpoints as mentioned above, the Seoul Declaration put forward main points to promote OSH in the time to come as follows:

- Promoting high levels of safety and health at work is the responsibility of society as a whole, firstly of the Government, social organizations, employees and employers on OSH.
- Preventative safety and health culture is one in which the right to a safe and healthy working environment is respected in every national agenda, where the principle of prevention is accorded the highest priority.
- Taking into consideration the principles in the ILO Occupational Safety and Health Convention, 1981 (No. 155) to strengthen management on OSH.

(SMP: 23/8)

Sustaining World-Class Safety Performance

Robert S. Krzywicki

DuPont, USA

Organizations progress through four stages of safety culture – reactive, dependent, independent and interdependent – on the way toward world-class safety performance; however, achieving and sustaining an interdependent culture that produces world-class performance has its own special challenges.

The purpose of this presentation is to discuss the challenges associated with building and maintaining a proactive safety culture and share DuPont's learnings, best practices, practical tools and activities DuPont has carried out to continuously improve safety culture and performance over time. Specifically, attendees will hear how DuPont uses one tool effectively, the Safety Perception Survey, to gain better insights into what makes a world-class company and offer world-class benchmarks by which to measure future safety performance.

In addition, this presentation will highlight:

- How calculating Relative Culture Strength will help Businesses to compare safety performance across multiple organizations, identify quantifiable relationships, and make lasting changes to a company's safety culture.
- How Businesses can overcome the obstacles to enabling sustainable cultural improvements that lead to world-class performance.

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(SMP: 23/9)

Ways to Continue Promoting a Global Preventative Culture Relating to the Seoul Declaration

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The presentation will briefly describe the prevention strategy of the German Social Accident Insurance (DGUV) and its members with regard to OSH. Additionally the major elements and tasks within the Joint German OSH Strategy will be presented. Planned activities to further promote the Seoul Declaration (SD) are introduced.

The DGUV is the federation of the statutory accident insurance institutions for industry and trade (Berufsgenossenschaften; BGs) and the public (Unfallkassen; UKs) sector. DGUV takes over superior and common tasks and duties for all BGs and UKs, which are part of the social insurance scheme in Germany. In that context BGs and UKs are also playing a dominant role in occupational safety and health (OSH) in Germany. The accident insurance institutions' tasks range from deploying all suitable means to prevent occupational accidents and diseases as well as work-related health risks. The prevention approach is tailored according to the needs of the enterprises and detailed within a fundamental strategic position ("Vision Zero") of the self administration bodies of DGUV and its member BGs and UKs.

An overall coordination of nationwide German OSH strategic approaches and activities within its dual system is achieved through the Joint German OSH Strategy (GDA: see also Technical Session II). The GDA is a codified alliance of federal government, regional governments and accident insurance institutions, consulted by representatives of the social partners. Core issues of the GDA are: the development of common OSH goals, the agreement on priority fields of action and the cornerstones of an action. The GDA partners regularly exchange information with social insurance institutions (health, pension), professional associations, institutes and university departments dealing with OSH or training in OSH and other socio-political stakeholders (Arbeitsschutzforum). The inclusion of all relevant partners within the GDA processes is in line with the intention of the SD to establish a "culture of prevention".

In 2008, DGUV was among the first signatories of the Seoul Declaration during the summit at the 18th World Congress in South Korea. The SD is a public commitment or charter joined by countries, institutions and organisations and a strategic approach at the same time.

(SMP: 23/10)

Future Plan for Continuing the Implementation of the Seoul Declaration

Gye-Wan Bae

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During the 18th World Congress on Safety and Health at Work organized in Korea, "Safety and Health Summit" was held for the first time in the history of the Congress. As a result, all the summit participants unanimously reached a consensus to adopt Seoul Declaration on Safety and Health at Work (hereinafter, Seoul Declaration) and were committed to implementing the Declaration.

This year marks the 3rd anniversary of the adoption of the Seoul Declaration. On international level, many governments, professional safety and health organizations, and corporations are voluntarily practicing the key messages of the Seoul Declaration. All these efforts made by various members of society help to accelerate the spread of "Prevention Culture" around the world.



In July 2010, the representatives of KOSHA, ILO and ISSA discussed ways to implement the Seoul Declaration in more efficient and systemic manner. Also included in their discussions was on how to mobilize the networking of professional organizations worldwide.

What the three organizations came up with was the establishment of “Prevention Culture Section” in the Special Commission on Prevention of ISSA. The proposal for the new section was officially submitted to ISSA in October last year and was finally accepted through the board meeting of ISSA.

Through Prevention Culture Section of ISSA, which aims to promote the importance of prevention, systematic efforts will be made to raise the public awareness on safety and health on a global level.

KOSHA plans to put many efforts and resources into this Section and further strengthen our activities by encouraging many professionals and organizations to join as members. The Prevention Culture Section will play a leading role in promoting the importance of prevention through various activities and exchange of information.

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Speakers' Corner



Speakers' Corner

SPC 1

Moderator: S. Suna Ahioglu, MoLSS, Turkey

Date: September 12, 2011 Venue: SPC1 / Kasimpaşa-5 Hall Time: 12:15- 13:15

(SPC: 1/1)

Gender Dimension in OSH Policy and Practices: Reality and Challenges for Bangladesh

Farida Khanom

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The labour force of the Bangladesh is around 56 million and 50% of it engaged in agriculture. The ratio between formal and informal sector is 20:80. Half of the labour force of Bangladesh is female as well. The women workers intensive sectors are agriculture, readymade garments, rice mills, shrimp processing, construction, handloom factories, education and public health services, home based work and other different type of occupations at informal economy. According to recent newspaper based monitoring report of the Bangladesh Occupational Safety, Health and Environment Foundation (OSHE), 2453 workers were killed and 1841 others injured in various work related incidents across the country on 2010 (1 January to 31 December, 2010). The top five sectors with high workplace death and injuries are: Construction, Ready Made Garments, and Ship breaking, Transport and day labourer (at informal economy). The survey report showed that good numbers of occupational accident victims were female working at ready made garments, construction, rice mills. According to Bangladesh Garments Manufacturer and Exporters Association (BGMEA), 1.8 million Workers are directly involved in the RMG sector and 85% of them are female at 4,800 member enterprises (large, medium and small size factories). But at the same time, the sector is well known for bad working conditions and high rate of occupational accidents, workplace death and injury of workers, poor occupational health services and decent work deficits. According to compiled news paper based monitoring report of the OSHE (January 2006- June 2010), it revealed that 818 garments workers were killed and 3534 were critically injured at workplaces of Dhaka and Chittagong division with different occupational accidents. The Bangladesh Labour Act-2006 cover the health and safety issue and have few specific gender issues i.e. probation for paid maternity leave, probation for child care facilities, probation for separate wash room etc. But in reality, enforcement of those probations not up to the mark at workplaces level. These terrible conditions, and the high death and injury toll, reflect a number of significant failures.

Keywords: Gender, Bangladesh, agriculture, women

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(SPC: 1/2)

Gender Dimension in Work and Health

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More and more women have entered the economic work force in the first decade of 21st century. Often, they bear the responsibility of managing their house holds, bringing up the children, looking after the aged in the families and contributing to the family income. They are thus prone to suffer from work related diseases that are complicated by social, psychological and physiological issues. Roughly one out of 300 females is suffering from some occupation related disease and about same number of cases add on to existing cases each year. This paper examines the gender differences in occupational and environmental exposures vis-a-vis morbidity among Indian women and its implications on health policy.

Keywords: Women, work, morbity, policy

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(SPC: 1/3)

The Integration of the Gender Perspective in the OSH Policy of the Vask Region

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The aim of the present work of investigation is to study, compile and to communicate the policies and strategies based on the scientific knowledge in terms of Genre perspective and Safety and Health in the Work and to put them in relation with OSALAN's activity (SST's Basque service) in order to identify the opportunities and the lines of action for the integration of the perspective of Genre perspective \n A work of search of information has been done about Genre perspective and Safety and Health in the Work to different levels:1. Policies of Genre perspective based on the Safety and Health in the Work of the European Union. 2. Publications of scientific investigations, of last 5 years, published available in the databases of scientific publication worldwide. The engine chosen for the search in the world databases has been the IsiWeb of Knowledge of Institute for Scientific Information 3. Publications on Good Practices and recommendations on Genre perspective of the International Organization of Work 4. Statistics of Eurostat and of the National Institute of Statistics 5. From the selected documents, three topics have been discussed: policies of equality, security policies and health in the work, and the perspective of Genre perspective in the Safety and Health in the work. These three topics constitute the focus points for the identification of the opportunities of OSALAN's action for the integration of the perspective of Genre perspective in his strategic plan of Safety and Health in the Work.

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(SPC: 1/4)

Female Workers and Hazardous Work at FORD OTOSAN

Gürsel Gökmen



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Women in business life achieve being one of the important elements of social life as well as their productivity and contributions to the quality. In order to guarantee legal requirements and also in regard with “Continuation of Healthy Generations” principle; our female workers, who are evaluated as people with positive characteristics and protected against negative affects of the industry according to the legal legislations in Republic of Turkey, a special perspective and policy should be created and implemented for them. In this manner, evaluation of risks at working environment, determination of the areas which female works shall work, executing medical examinations accordingly, assessment of adaptation after employment, and also development of periodic examinations regularly and according to risky elements became more of an issue. In order to protect female workers from business risks in industry, as their third environment besides their social and family life, there are two basic elements existing; 1- Protecting female workers from risks, which may cause physical and mental traumas. 2-Protecting female worksers from chemical and biological risks, which may cause mutations and may affect reproductive health in substantially manner. As being Ford Otosan, our works on female workers according to above mentioned policies and current legal legislations are as follows: 1- medical examination and observations conform with sexual characteristic and risk factors, 2- Regular periodic examinations in each 6 months period, 3- Assessment of working area, 4- Continuous trainings for female workers, a- Training about importance of human milk – Baby-friendly business, b- Trainings on baby health and maternal, c- Trainings on cervical cancer and self-examination of breast 5-regulation of business life of pregnant and lactating mother, development of risk analysis method for pregnant women accordingly, 6- Emergency action plan in order to protect female workers against environmental risks, 7- Fulfillment of the requirements of baby friendly business works and breast-feeding rooms, 8- Occupational health representatives for female workers, 9- Implementation of protection of female workers in health unit, 10- Ergonomic studies for women, 11- Placement change criteria due to health problems for female workers are fundamental studies of Ford Otosan's female employees.

Keywords: Female worker, hazardous works

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(SPC: 1/5)

Poverty and the Challenge of Urban Environmental Health in Nigeria

Geoffrey Nwaka

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Poverty and rapid urbanization are two of the greatest challenges facing Africa today. UN-Habitat estimates that Sub-Saharan Africa cities have over 166 million slum dwellers most of who work in the informal sector where they simply do not earn enough to afford decent shelter and services. Health is a major urban policy issue in Nigeria because poverty and slum conditions pose a serious public health threat to the country's rapidly expanding urban population. In vast areas of Nigerian and other African cities inadequate sanitation and waste management, and the poor state of public health infrastructure have led to the spread of a wide variety of water-borne and other communicable disease. The paper considers ways to forestall the growth and spread of slums in the future, and ensure that the existing ones are upgraded and progressively integrated into the urban mainstream; how poverty which leads to slum conditions can be alleviated in order to reduce the worsening disparities in access to



health care. The central argument is that human development ought to be at the centre of the concern for sustainable urbanization in Africa. To achieve this, the paper considers how best to promote the growth of more inclusive and humane cities by reviewing discriminatory laws and codes which tend to inhibit the access of the poor to affordable land, healthcare and housing security. The concluding section cautions that the mere presence of health facilities in the cities should not be confused with these facilities being accessible to and affordable by the poor. It stresses the need for appropriate and well targeted urban health and other interventions by state and local authorities, the international development community, private sector and civil society organizations, and the urban poor themselves in a collaborative effort to build safer, healthier and more equitable cities.

Keywords :Urban poverty, environmental health, safety, Nigeria Africa

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SPC 2

Moderator: Hüseyin Sezek, MoLSS, Turkey

Date:September 12, 2011

Venue: SPC2 / Fener Hall

Time: 12:15- 13:15

(SPC: 2/1)

Polices and Regulations on Nanotechnology and Occupational Safety andHealth

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The enormous expectations created by the potential of wellbeing, innovation, and economic impact of nanotechnology is reflected in the growing public and past investment in R&D in all countries, continued scientific research, regulatory activity, development of alliances among major stakeholders in government, industry, and research. The impact of nanotechnology on occupational health and safety is currently under study. Appropriate rules/norms/ regulations and standards for naming, describing, specifying, measuring, and characterizing nanomaterials are fundamental to developing and applying appropriate regulation of nanotechnology products and processes to ensure human health and safety. However, we do not as yet possess the criteria for characterizing manufactured nanostructures, nor do we have the methods, instruments, and protocols for measuring and determining their toxicity. Given currently insufficient scientific knowledge on the one hand, and differing positions among international regulatory agencies on the other, it is unlikely that new legislation for nanotechnology will be introduced in the short-term. Demand is growing for solutions to these obstacles, and for further legislation. Recently the EU parliament approved a resolution based on the principle “no data, no market”, demanding stricter rules and regulation for manufactured nanomaterials. This paper reviews the national plans and policies to promote research in USA and in Europe on safety and health at work and nanotechnology with special reference to the policy and regulatory aspects.

Keywords: Nanotechnology, occupational health and safety, regulations, rules

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(SPC: 2/2)

The New German Risk Assessment Procedure for Carcinogenic Substances

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No workplace exposure limit can currently be derived for the vast majority of carcinogenic substances. For this reason, in Germany an overall concept for setting risk-based limit values for carcinogenic substances is being established as part of a social policy agreement. The resolution, developed and adopted by the German Committee on dangerous substances (AGS), an advisory committee affiliated with the ministry of labour, contains • the establishment of two limits of risks; • the justification thereof, including the description of a graduated concept of risk control measures, and • a guide for the quantification of cancer risk figures. AGS has adopted the limits of risks not associated with a specific substance with respect to activities involving carcinogenic hazardous substances below which a risk is accepted. Above these limits a risk will be tolerated if the measures specified in the catalogue of measures are complied with. The second risk limit adopted is the Tolerable risk of above which a risk is intolerable. The risks refer to a working lifetime of 40 years and continuous exposure every working day. Risk area I (concentration range from zero up to acceptable risk, “green area”) is referred to as a low-risk area. If the acceptable risk limit is reached, only the basic measures (hygienic measures, risk communication, service instructions as well as advisories and instructions) must be implemented. In risk area II (where measures are necessary; “yellow area”) the curve relating to the pressure to act rises much more sharply. As the acceptable risk is exceeded in this area, the implementation of exposure control measures has a high priority. On the background of socio-economic considerations, these risks are tolerated for a period of time. In risk area III (hazard area; “red area”), the tolerable risk is exceeded. Risk control measures must be immediately implemented because the risks corresponding to these exposures are not tolerable.

Keywords: German, risk assessment, carcinogenic substances

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(SPC: 2/3)

Risk Assessment of Saloon Cars Door Cover Producing Machine by FMEA Technique

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FMEA is a Risk Assessment technique which is used in System Safety for identification of Component's failures and their impacts on the system. In the present project, FMEA has been used to assess the risk of a High Frequency welding machine for producing the door cover of Peugeot 405. At first, a thorough study was carried out on the machine. All data such as failure modes, the causes of failures, probability of failures, their severity, and their detection probability were gathered. This was, due to lack of proper record keeping system in the company, done by aid of a questionnaire as well as group discussions and personal interviews. Totally 88 failures were identified and their risk priority number (RPN) was calculated. The maximum and minimum RPN were 432 and 20 respectively. Since the acceptable risk level of work place was unknown, the priority between failures (PBF) was



determined according to the order of highest to lowest RPN. There were two manuals on determination of PBF, which were belonged to two sub companies (Sapco and Renault Pars) of Iran Khodro enterprise. By analyzing the order of PBF which were determined by three above mentioned methods it was concluded that none of these two manuals indicating a sufficient degree of acceptability. The best way for determination of PBF would be achieved by estimating the company's acceptable level of risk.

Keywords: Risk Assessment, FMEA technique, system safety, saloon car's door cover, high frequency welding machine, Peugeot 405

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(SPC: 2/4)

An Assessment of Dust, Endotoxin, and Microorganism Exposure during Waste Collection and Sorting

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This study was conducted to assess inhalation exposure to dust, endotoxin, and microorganisms, including viable bacteria, Gram-negative bacteria (GNB), and fungi, during waste collection and sorting, to identify factors affecting this exposure, and to estimate the gastrointestinal exposure to microorganisms. A total of 49 or 48 workers involved in collecting and sorting waste from households or the street were studied. Each worker carried two personal samplers in which filters were placed in the breathing zone for estimation of inhalation exposure. To assess the possibility of gastrointestinal exposure, microorganisms on the worker's face were collected before and after work and compared to those collected from office workers. Inhalation exposure levels were categorized according to job title, waste type handled, and working conditions, and were compared using analysis of variance (ANOVA). Multiple regression models were developed to identify those factors that substantially affected inhalation exposure. The average exposure level to total dust was 0.9 mg/m^3 (range= 0.05 to 4.51 mg/m^3), and the average exposure to endotoxin was $1,123 \text{ EU/m}^3$. The average respective exposure levels to bacteria, GNB, and fungi each exceeded $104 \text{ colony forming units (CFU)/m}^3$. The multiple regression models found several factors that significantly explained the variation in levels of inhalation exposure to endotoxin and microorganisms; namely, sex (dust, bacteria, and GNB), job title (GNB and fungi), collection day (dust, bacteria, and GNB), temperature (endotoxin and GNB), humidity (endotoxin and fungi), and region (endotoxin) were significantly associated with exposure to these agents. In addition, the workers' faces were highly contaminated with microorganisms. In conclusion, inhalation exposure to endotoxin and microorganisms was high during waste collection and sorting, which may place workers at risk of developing various health problems, including respiratory complaints.

Keywords: Dust, endotoxin, exposure, waste collection

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(SPC: 2/5)

Mobbing as a Global Problem

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Mobbing, with its introduction to us in 1960s, has been understood to be more harmful than the other violence and sexual harassments in work place in respect to their scope and results in studies conducted.

Mobbing is an act that one or more people consciously and systematically harass generally a person who having no balance of power among them using injurious, humiliating derogatory, exclusionist manners which do not reach physical and sexual dimensions like.

This concept was first used to identify animals by Konrad Lorenz and then the behaviours of groups of children by Peter-Paul Heinemann. It's Heinz Leymann who associated Mobbing to psychological abuse in work place.

With respect to causes of mobbing;

Individualistic Causes: In respect to offender, people who were exposed to violence and molestation in the family during their childhood and extremely pushy, strict, selfish, jealous people

In respect to sufferer, creative, successful, favorable people

Organizational Causes: In organizations, having no institutional culture, being managed with the perception of single and powerful manager, not to use communication channels, not to include teamworks and ignore the reasons of conflict

The Causes which are not organizational: Predominantly economic crisis

With respect to results of mobbing;

Individualistic Results: Stress and stress-based disorders, losing friendships and status because of mental and physical disorders and expenses of these disorders, revenue loss due to walk-out

Organizational Results: Workers are demoralized, increasing disagreement and conflict in workplace, increasing absenteeism and severance, loss work quality and productivity

Economic and Social Results of Mobbing: Increase on the amount of Money paid for treatments of sufferer, unemployment, working life where there are sad individuals and families and no working serenity

An effective struggle on Mobbing is being carried out throughout the world. In struggling with Mobbing, employers have the ultimate function; besides, workers should be acknowledged about Mobbing and then laws on struggle with Mobbing should be put into action.

Syndicalism activity should be encouraged for collective struggle.

It should not be forgotten that healthy and conscious individuals give birth to civilized societies.

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SPC 3

Moderator: Burak Yasun, MoLSS, Turkey

Date: September 12, 2011

Venue: SPC 3/Kasimpaşa-1 Hall

Time: 12:15- 13:15

(SPC: 3/1)

Emerging Risk for Doctors: Possibility of Knee Joint Disorders

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Muscular pains affect 33.5% of the Turkish workforce (European Working Conditions Survey, EWCS, 2005). 24.3% of health professionals claim that they have muscular pains (i.e., pains in shoulders, neck and/or upper/lower limbs). This percentage is 24.7 in transport sector. Recent studies had shown that preosteoarthrotic condition was met in professional drivers. In order to assess the vibration exposure of doctors' knee, at work in an ambulance, three different tracks (asphalt road, AR, cobbled stone, CSR and AR having hump) is chosen and vibration transmitted to the left knee (head of fibula) of the doctor is measured in terms of accelerations. The measurements are done in three directions (x=fore-aft, y=lateral and z=vertical directions) and in three different (standing and intervening, STPI (knee angle, $\beta=142$) sitting and ready for intervention, SPI ($\beta=71$), and follow-up, SPF ($\beta=81$)) postures, on each of the afore-mentioned tracks. The speed of the ambulance was held constant ($v=30\text{km/h}$) during the measurements. The vibrations transmitted in z direction to the knee of the doctor in SPF posture, i.e., a_z max, was 1.7m/s^2 (r.m.s. a_z (floor)= 2.17 m/s^2) while crossing over the hump. Independent of the posture the power spectral density, PSD of knee was higher compared to waist. The highest PSD, for the knee of the doctor, which corresponded to SPI posture, was found to be $0.318(\text{m/s}^2)^2/\text{Hz}$ on CSR road. Even though the concurrency of the knee and low back pain render the problem difficult there is need for well established risk factors for knee pain. Sector based data is yet unavailable. Neither the probability of disability can be overlooked nor can the societal burden be ignored. It has to be recalled that joint replacement has increased considerably in recent years.

Keywords: Knee, doctor, vibration, ambulance

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(SPC: 3/2)

Tools for Better Understanding of Risks in a Network

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The new method of working in networks will increase the number of interfaces, hence introducing potentially new types of risks other than the traditional environmental ones. These new risks are related how the work is organized in a network. They may be internal, external or shared risks. For several years, our project has followed the required organizational and technical (IT systems, control systems etc.) changes in the rail traffic control network of Southern Finland. This continuously ongoing change is aimed at clarifying

the division of tasks and responsibilities between different organizations and organizational units. While transportation services, staff and rolling stock rotation are provided by the operators, passenger information and national and regional traffic control (more clearly separated into different organizational units) are tasks belonging to public services, i.e. authorities. Besides organizational changes, changes also occur in the work environment and the control system. The changes are relevant to the extent that the EU requires risk management processes. The Finnish Transport Agency is responsible for the maintenance and development of the rail network, and so has the main responsibility for these changes and for managing their risks. Our project arranged workshops with the network in which we analysed the disturbance situations that need the close collaboration of the entire network. We used the activity system model to analyse the disturbances. These workshops generated material which supports the ongoing risk management process. In our presentation, we will talk about the risks that the risk management process revealed related to working in the changing network, and what kind of benefits disturbance handling can bring to the risk management process.

Keywords: Risk management, network, disturbance handling

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(SPC: 3/3)

Results of Safety Culture, Occupational Health & Safety Practices in a Cement Factory

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Objective: This study aims at sharing the practices and outcomes of Occupational Health and Safety practices, as well as Safety Culture practices in a cement factory, which is one of most hazardous workplaces, and discussing these outcomes with relevant people and institutions.

Methods: Records of safety culture activities conducted in a cement factory located in Adana province, units and workers of the factory were assessed by a physician and an engineer between September-December 2010. Our study is a cross-sectional and descriptive study which was conducted on the basis of retrospective records and focus group interviews.

Findings: 712 workers (including the staff of subcontractor) work on three shift basis in this cement factory established on a area of 550.000 m² and manufacture approximately 900 tons of cement in a day with 7500 tons of clinker. Safety culture practices conducted with occupational health and safety practices have been present in the factory since 2004; and its objectives, prerequisites and practices were determined. Explanations were made in respect to the perceptions, beliefs, values and attitudes (at individual and group level) that are needed for the creation of a safety culture. The opinions collected through focus group interviews conducted with each unit in the factory were arranged under two categories: safety and management and turned into the written guarantee given by each unit. As a result of infrastructural organization conducted with support and application units affiliated to occupational health and safety board, accident severity rate was decreased to 0.06.

Results: The decrease in the number of occupational accidents and its percentages serves as an evidence of the preventability of occupational accidents and related injuries through safety culture practices. It was also determined that safety culture is one of co-priorities and that no other task is important enough to ignore safety culture in this workplace.



Keywords: Occupational health and safety, safety culture, cement, workplace management

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(SPC: 3/4)

General Perspective on OSH Problems

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(SPC: 3/5)

External OSH Services in Turkey

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In 2010 and 2011 TNO, a research institute on health & safety at work in The Netherlands, assisted the Directorate General of Occupational Health and Safety (DGOHS) of the Turkish Ministry of Labour and Social Security with the establishment of a renewed national policy on external OSH services to assist Turkish employers and workers. First a gap analysis was made which benchmarked the Turkish regulations and policies against the Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work and the ILO Convention (C-161, 1985) and an earlier Recommendation (R-112, 1959) on occupational health services. The following five clear gaps in Turkey were identified: 1. Not all workers are covered under OSH legislation, therefore this coverage should be arranged 2. Not all workers receive health surveillance, therefore this health surveillance should be arranged 3. Art. 18 in the Turkish 'Regulation on workplace health and safety units and joint health and safety units' does not mention explicitly preventive tasks, therefore more explicitly preventive tasks should be described in this regulation 4. Consultation of workers on OSH according to EU legislation is non existent in Turkey, therefore the EU Directive on Work Councils should be transposed to Turkish legislation and the Turkish OSH legislation should make reference to these work councils 5. The so called designated worker as prescribed in art. 7 of the EU Framework Directive is non existent in Turkish OSH legislation, therefore future Turkish OSH legislation should introduce the obligation for employers to designate a worker to assist him/her to comply with the law Several Turkish delegations visited four EU member states to identify best practices and solutions on these five specific gaps. This paper will reflect on the most important outcomes of this project.

Keywords: External OSH services

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SPC 4

Moderator: Adem Esen, İstanbul Sabahattin Zaim University, Turkey

Date: September 12, 2011

Venue: SPC 4/Eyüp Hall

Time: 12:15- 13:15

(SPC: 4/1)

Cost-Benefit Analysis of Prevention in Occupational Health and Safety in Turkey

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There are some expenses and investments that enterprises make for occupational health and safety due to both their social responsibility and legal obligations. It is important to put forth economic dimensions of occupational health and safety for both nations and enterprises at the point of decision making. However, there is not much evidence about the basis on which enterprises make their economic decisions in relation to health and safety at work. The purpose of the study is to justify the benefits of preventive work and also to approach to occupational health and safety with an economic reasoning for motivating enterprises to invest in occupational health and safety. In this study, as part of the international study Return on Prevention (ROP) which aims at focusing the economic effects of prevention work for enterprises, some results have been derived to represent the general situation in Turkey. The study, which enables making analysis on equal terms for soft (non-monetary) and hard (monetary) categories of data, introduces a new accounting terminology to health and safety at work; return on prevention. From the study it is possible to see how enterprises evaluate preventive approach in occupational health and safety and economic effects of preventive approach at company level. Some further results concerning national accounting combines together and summarizes all qualitative and quantitative data on a single balance sheet to make a comparison between aggregate prevention costs and aggregate prevention benefits. Hence a national return on prevention is derived to provide a basis for national appraisal at macro level.

Keywords: Cost-benefit analysis, occupational health and safety, economics of occupational health and safety, return on prevention

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(SPC: 4/2)

Attention Model for SMEs-Arp Sura

Adiela Castro

Arp Sura, Colombia

The SMEs have limitations in resources and technical capacity and are not always aware of the existence of health and safety regulations in the workplace or how to comply with. Our management has focused not only on intervention but also on the design of strategies. 93% of companies affiliated with ARP SURA are SMEs. OBJECTIVES • To increase the coverage of attention of the affiliated companies. • To offer the SMEs solutions according to their needs. • To understand the importance of implementing occupational health programmes

and creates a culture of prevention. METHODOLOGY ARP SURA supports the SMEs in the Management of Occupational Risk via a staggered process of attention which ranges from basic to well developed systems that guides the company in the taking of decisions regarding intervention. All support for education and training regarding the critical risks, intervention strategies and the development of social skills are carried out in accordance with the training plan. Understanding that the easiest and fastest way to reach all our clients is guaranteed via a solid and structured platform with the help of web based tools, ARP SURA created the Virtual Training Plan, a support tool that offers the opportunity to learn in an easy way without the need to travel, during the timetable that best suits their needs and with the possibility to record progress RESULTS ACHIEVED The coverage of attention to the SMEs in 2010 was:

- o On-site attention: 95%
- o Attention by telephone: 85%
- o Attention by internet: 67%

Nearly 70,000 workers from 15,100 companies in 24 Colombian cities were educated in technical topics of prevention and development of social and administrative skills. More than 19 technical, social and administrative skill topics were available via the Virtual training Plan, 4,520 companies were registered and more than 10,600 people were educated.

Keywords: Training, virtual training, web tools

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(SPC: 4/3)

Accident Cost Analysis and The Importance of Education in Accident Prevention

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The goal of this study was to identify different types of costs that make up the total cost of industrial accidents in Tehran and to identify any possible relationship between worker training and accidents. Background: occupational safety and health education is essential for accident prevention not just for new workers, but for existing workers especially when there is a change in machinery, equipment and methods used in manufacturing. Management may not want to invest in training programs unless they understand how it reduces cost in the workplace. This article will review the results from the machine manufacturing industry in Tehran. We used questionnaires to 1) identify and calculate the direct and indirect cost of accidents in the manufacturing industry, 2) identify the types of accidents, and 3) determine whether or not workers involved in accidents received job training. Total cost calculations included cost due to: damaged products and equipment, hospital expenses, fines, increase in insurance premiums, work slow down/contract cancellation or delay of production, replacement of injured workers, damaged reputation and a decline in worker morale due to accidents. As a result we found that indirect costs of industrial accidents comprised a higher percentage of the total cost compared to direct costs. Indirect costs of the machine manufacturing companies we studied ranged from 63.4% to 87.2% of the total cost. Workers with no job training were involved in accidents 80% more than trained workers Conclusion: the high indirect cost of industrial accidents in the machine manufacturing industries in Tehran may not be recognized by management. Job training can reduce occupational injuries. Companies should invest in training programs for workers before they start work and periodic training as long as they remain employed. Investment in the cost of training will drastically reduce the total cost of accidents in the workplace.

Keywords: Cost of accidents, indirect/direct cost, training an accident



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(SPC: 4/4)

Improvements in the Occupational Health and Safety System of an Automobile Factory

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Automotive industry is a very important sector with contributions to the growth of Turkey. This study aims at finding out and sharing the dimensions and impacts of occupational health and safety system in a automotive company located in Adana. Establishment of the occupational health and safety system, improvements made on the system, the contribution of the system to the culture of the corporation, development of workplace health and safety culture in the workplace and its impacts on the production process and the workers were evaluated on the basis of the occupational health and safety records between 2000–2010. It was seen that the factory, thanks to its occupational health and safety system, established structures and procedures concerning risk assessment, behavior based safety management, occupational hazard analysis, supplier inspection and OHSAS system inspections, trainings, observance of the legal requirements, emergency management system, fire safety, controls on the health of workers, work permissions, occupational equipment controls, monitoring internal environment conditions and the factory has been effectively using these procedures covered by the occupational health and safety system. While the factory was fulfilling its legal requirements concerning occupational health and safety in 2000, today it conducts practices aiming at arising the occupational health and safety culture in the workers, their families and the society at large, in addition to effectively applying the system. The units of occupational health and safety work increased the efficiency, achieved a decrease in the number of occupational accidents, occupational health problems caused by the workplace, non-attendance of the workers and concerned health expenditures by in coordination at the workplace. The factory now should pursue the objective of being one of the best practices in the field of occupational health and safety in the automotive sector, by eliminating small deficiencies in the practices of occupational health and safety system.

Keywords: Occupational health and safety, automotive, occupational accident, work-related diseases, absenteeism

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(SPC: 4/5)

Evaluating of Workers' Exposure to Metal Working Fluid (MWF) and the Effective Factors on its Dispersion in an Automobile Manufacturing Factory

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Introduction: Metalworking fluids (MWFs) are widely used in metal working operation to cool and lubricate the tool and work peaces for control the produced heat and reduction of frictions. Exposure to MWFs can cause different adverse effects like respiratory and skin disorders, cancer and reproductivity disorder. This study purposes were the evaluating of workers' exposure to MWF mist and the effective factors on its dispersion in an automobile plant. **Material & Method:** 75 out 300 workers involved in considered workshops were randomly selected. Total and thoracic dust concentrations as well as total and thoracic MWF concentrations were measured using NIOSH 5524 method. Air temperature and velocity were also determined as the predicted effective parameters on the exposure level. **Results:** The mean values of workers exposed to total and thoracic dust were 2.65 ± 1.3 and 1.64 ± 0.95 mg/m³ respectively. The above values for MWF mists were 2.19 ± 0.92 and 1.28 ± 0.88 mg/m³ respectively. The results indicated that, the workers exposure in Terimery workshop to MWF mists was higher than that in Danobat and Terimery Cylinder Head ($P < 0.05$). The findings also showed that temperature is the effective factor influencing on MWF mists dispersion ($P < 0.05$). **Discussion:** However almost all the workers had the exposure less than the TLV of 5 mg/m³, but they were more than the recommended value of NIOSH, 0.5 mg/m³. Air temperature is known as an effective factor on workers' exposure ($r = 0.576$).

Keywords: Metalworking fluid, occupational exposure, temperature, air velocity, total mist, thoracic mist

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SPC 5

Moderator: İsmail Çelik, MoLLS, Turkey

Date: September 12, 2011

Venue: SPC 5/Sütlüce-1 Hall

Time: 12:15- 13:15

(SPC: 5/1)

The Stairs of Well-Being at Work Model

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As the society and working life change, it is essential to realize that the human being, as a psycho-physiological entity, has changed very little over the centuries. The basic human needs remain constant. When considering such issues as why workers suffer from stress, burn-out and musculoskeletal diseases, or are accident-prone, or incapable of developing personally or being innovative, the answer may lie in deficiencies concerning the various levels of the hierarchy of human needs. The aim of this study was to examine The Theory of Basic Human Needs presented by Abraham Maslow in relation to work and life as a whole, and to find new methods and focal points to support the activities for maintaining work ability and promoting health and well-being at work. This WB -W- model "The Stairs of Well-Being at Work" (Rauramo 2004, Rauramo & Louhevaara 2005) was developed by comparing and combining the most well-known Finnish WHP- models therefore the model for activities to maintain work ability to the Maslow motivation theory. The idea was to create a model, which is intelligible, deep, practical and easy to understand and perceive. According to the Maslow

theory attaining the highest hierarchical level is impossible unless the lower level needs are satisfied. In the Stairs of Well-Being at Work model, each stair contains a number of factors affecting well-being at work both from the organizational and individual point of view as well as evaluation methods. According to this Well-being at Work –model it is very clear that well-being is built on the solid foundation of the first two stairs, the stairs of health and safety. The “Stairs of Well-being at Work” –model has been evaluated 2007: Promotion of Well being at Universities, Qualitative Study Thesis (P.Rauramo. The University of Kuopio, Finland 2007).

Keywords: Change, well-being at work, health, safety

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(SPC: 5/2)

Improving Safety and Health of Waste Collectors in Fiji – Promoting Cooperation Between Waste Collectors and the Community

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Waste collectors are playing an increasingly important role in recycling and managing waste and protecting our environment. Waste collectors, however, face safety and health risks associated with their collection work such as handling heavy and dangerous waste, traffic accidents, or hot and cold working environment. The community cooperation is essential in reducing many of these safety and health risks. The ILO and JICA (Japan International Cooperation Agency) have worked together in Fiji aiming at joint improvements in recycling waste and establishing safe and efficient waste collection systems, and developed a new participatory training programme to improve OSH of waste collectors, named WARM (Work Adjustment for Recycling and Managing Waste). In the course of the development of the WARM training programme, we visited waste collection sites and followed waste collectors to know their work. The following four technical areas were noted as priorities for action: (1) safe waste handling and community cooperation, (2) safety of waste collection trucks, (3) work environment and personal protective equipment, and (4) welfare facilities and work organization. Learning from their existing good practices, 27 action-checkpoints under the four priority technical areas to improve OSH of waste collectors were selected for the WARM training programme. Based on the 27 action-checkpoints, the WARM training manual was developed. Many clear-cut illustrations showing good OSH examples in Fiji were inserted to the WARM training manual for waste collectors and community representatives to understand the manual contents easily. By using the WARM training programme developed, a 2-day pilot training workshop was carried out in Fiji. The participants were representatives of waste collectors, their managers, the community and the city government. The training emphasized the following steps: a). Visiting a real waste collection area and applying the WARM action-checklist; b) Organize four technical sessions and group discussions to prioritize action for improvements; c). Developing improvement proposals and planning follow-up activities.

Keywords: Waste collectors, green Jobs, participatory approaches

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(SPC: 5/3)

Health and Safety Incident Management at Construction Works

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A health and safety (HS) incident is either a case of near miss or an undesirable event such as an occupational illness, a work related accident, an environmental impact or a road traffic accident. Documented emergency response plans must be available for use against sudden events occurring at workplaces. Besides, the incident management process deals with analysis and assessment of the HS accidents and near misses in order to find out the direct and root causes thereof. The assessment process should be completed through the active involvement of the employee in the “lessons to be learnt” from the incidents. The direct and root causes of the incidents as well as corrective and preventive actions for avoiding recurrence of such accidents must be determined also within this process. An appropriate incident management practice enables formation of a detailed comprehensive standard statistical HS data base. Furthermore, correlations can be established, with an adequate confidence, among the related HS parameters once sufficient data is available from the HS applications. The leading and lagging key performance indicators of the data base can be used for measurement and assessment of the prevailing HS performance. Further to that, the relationships between the corrective and preventive actions and risk reduction can be used for planning of continual improvement on the HS performance. A detailed comprehensive description of a typical incident management procedure applicable to construction works is introduced in the present paper in the following order: i. Definition and classification of incidents, ii. Liabilities and requirements for incident management, iii. Emergency response, iv. Notification, reporting and recording of incidents, v. Investigation of incidents, vi. Analysis and assessment of incidents; direct and root causes and lessons learnt, vii. Deviations and non-conformances, viii. Corrective and preventive action, ix. Feedback to HS Management System and x. Preparation of incident database.

Keywords: Construction safety incident management

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(SPC: 5/4)

The Effect of Safety Culture on Safety Behavior and Accidents

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The concept of safety culture has been the subject of much interest among researchers and safety practitioners over the last two decades. Safety culture is a sub-facet of organizational culture, which is thought to affect members' attitudes and behavior in relation to an organization's ongoing health and safety performance. Safety culture is an important concept that forms the environment within which individual safety attitudes develop and persist and safety behaviors are promoted.

This study aims to investigate the relationship between safety culture and the safety behaviors of the employees. The study sample consisted of 182 participants from a company in automotive supply industry in Turkey. A questionnaire methodology is used to measure

safety culture, safety behavior and accidents. The data are analyzed using correlation analysis and hierarchical multiple regression.

It is found that there is a positive correlation between managers' commitment, priority of safety, safety training, safety communication, safety awareness and competency, employees' involvement, reporting culture and safety behavior. Besides, there is a negative correlation between fatalism and safety behavior. Safety awareness and competency, employees' involvement and fatalism had important effects as a significant predictor of unsafe behavior. Fatalism and safety communication had important effects as a significant predictor of accidents. Results show the important role of managers in the promotion of employees' safe behavior through their attitudes and behaviors.

Keywords: Safety culture, safety behavior, accidents, occupational health and safety

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(SPC: 5/5)

How to be Successful in Implementing OH&S Management System

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Occupational incident, including ill health, is one of the organization's business risks that must be well managed in order not to turn it into organization's loss. Occupational health and safety (OH&S) management system is the appropriate tool to manage such a risk, and the implementation of it should not be a stand-alone program within the organization. Implementing OH&S management system cannot be separated from a network with and functions of other sub-systems within the organization's management system. Each sub-system is related to and affected by each other, and must work well and operate optimally to achieve the organization's objectives and goals.

OH&S management system requires the implementation of OH&S as a program that is measurable and achievable (SMART principles), similar to how a financial or production system is managed. There is a saying "you cannot manage what you cannot measure."

There are at least five (5) outstanding characteristics for an organization successfully implemented OH&S management system. They are as follows:

1. The organization has a clear process model of OH&S management system implementation. While the legal requirements are the basis for the implementation of it, P-D-C-A approach is widely used.
2. OH&S management system is considered as a sub-system within the organization's management system. One cannot be separated from the others.
3. Risk-based OH&S programs are the backbone of the overall OH&S programs implemented.
4. OH&S roles, responsibility and accountabilities are clearly defined, communicated, implemented and periodically measured.
5. Commitment from site management and active participation from stakeholders are widely observed on day-to-day basis of the OH&S management system implementation.



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SPC 6

Moderator: Adnan Ađır, MoLSS, Turkey

Date: September 12, 2011

Venue: SPC 6/Kasımpaşa-2 Hall

Time: 12.15- 13.15

(SPC: 6/1)

Mobile Learning for Lorry Driver

Ferdal Özçelik

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Professional drivers are often on the road for several days. Due to their job situation they are hardly available for traditional methods of training for safety and health at work. The project "Mobile Learning. Developing an electronic Information and Learning System for the Occupational Force of Professional Drivers" puts this so far neglected group in the centre of attention. The main objective of this project of the Institute Work and Health of the German Social Accident Insurance is to offer the truck drivers the opportunity to learn and access health and safety information with a modular and multimedia information and tutorial system on a mo-bile device at the workplace. Safety and health skills are no longer far away from the real job but available directly at the workplace. The probability that the acquired knowledge will be applied immediately after the learning phase thus increases. This project explores the benefits of mobile learning and its appli-cability in this profession. It is a joint project of the German Federal Ministry for Education and Research and the ESF in cooperation with the BG for registered vehicle users. Partners in the consortium are the Department of Media Education at the University of Hagen, the company handylearn and the logistic company Bode. The aim of my talk is the presentation of the current project. In addition to the Work Breakdown Structure I will present methods, steps and report some first results

Keywords: Mobile learning, lorry drivers

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(SPC: 6/2)

Occupational Health and Safety Conditions at Zonguldak Coal Mine During Obligatory Work Years

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The coal mining, has begun in 1820 in Zonguldak, and two obligatory work periods have been seen in the region. Occupational diseases haven't been taken into consideration during 1946-1960, and most of the work accidents were not recorded unless they were major mining accidents.



Between 1943 and 1945, the most important health problems of the workers were deaths related to measles, typhus, and variola, and epidemics of malaria, venereal diseases, leprosy, scabies, parasitosis, neurosis of miners, work accidents, and excessive or widespread alcohol use. In 1950s, the records on work accidents and occupational diseases were more detailed. According to these records, in 1951 and 1960, the total number of work accidents were 22937 and 63000; and the total number of occupational diseases were 248 and 425, respectively. According to the records in 1951, the most injured parts of the body were hand (36.3%), foot (21.8%), back (8.5%), head (6.6%) and eyes (5.7%). Of the cases, 7.8% were in 12-19 age group, 3.5% in 20-24 and 0.5% in 25-44. The occupational diseases were tuberculosis, silicotuberculosis, bronchitis, pneumonia, silicosis, anthracosis, and varicosis. The most common types of work accidents were falls and slips, (22.9%), splashes and crashes (20.1%), compressions (13.7%), cuts and pricking (9.1%) and muscle strains (5.8%).

The obligatory work law has been abolished in 1960. Working conditions in Zonguldak mines were not better neither before nor during the obligatory work years but obligatory work has put more pressure on the workers and caused more difficulty at work. Almost in every country, making an effort to maintain and increase production has always been one of the priorities during the extraordinary times like wars, and obligatory work law sometimes was brought into action. But occupational health approach never accepts “no matter how but production” strategy. According to the constitution of the Republic of Turkey “No one can be forced to work”.

Key words: Obligatory work, Coal mine workers, Rights, History, Occupational health and safety

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(SPC: 6/3)

Building a Culture of Prevention for a Healthy and Safe Future

Muhammad Khalid Pervaiz

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Abstract of presentation for Technical Session-III Pakistan is rich in natural resources including minerals.. Many metallic and industrial minerals; iron ore, copper, chromite, rock salt, gypsum, fireclay, bentonite, silica sand, dolomite, limestone, marble, granite, precious/semi-precious stones and energy minerals& coal. are being commercially worked. The level of mining operations ranges from small to large scale. The private sector covers about 90% of the lease-holds and shares more than 95% of mineral production. The mining industry is labour intensive with a capacity to absorb more. Mineral sector of Pakistan cannot boast of maintaining a good safety record as about 150 persons loose lives / per annum. The mining operations blend psyche of workers (maximizing the wages), supervisors (maximizing the safety & productivity) and operators/owner (maximizing the profit). Author has applied all the three modes i.e. deterrent measures, reformatory and preventive with varying response; prevention is the most appropriate. Sustainable efforts are needed to inculcate this sense of responsibility. Once the individuals embracing mining as their profession are inducted the full-dressed awareness, counseling through practical demonstration it becomes their second habit. This seems to be the most viable solution but is a long range process. It will in turn result into self-evoked responsibility emerging into a culture of prevention for a healthy and safe environment. Such enlightened persons will be dedicated workers of today and



managers of tomorrow. The preparation of a trained group at operational, sectoral and national level is a big challenge for ILO, OIC and member states. Unfortunately, prevention of occupational diseases is still not a accorded due priority in many developing countries and those in transition. This is largely due to the lack of data on occupational diseases. The author would like to share his life-long experience (more than 47 years) in mining and the results achieved in each mode.

Keywords: 150 lives lost in mines/year

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(SPC: 6/4)

Creating a Safety Culture in a Subcontracted Industry; Contractor H&S Management in Telecommunications Industry

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Telecommunications Industry is dependent on outsourced operations that requires various different specialist subcontractors. Especially, relocating the existing sites, installations for GSM network expansion and maintenance of base stations are highly dependent on subcontractors. Telecoms industry is unique with it's high number of different workplaces i.e. thousands of base station sites and the numerous hazards that poses safety risks in those workplaces. The operations in this unique industry involves high risk activities such as construction works, high tech equipment installations, driving & transporting, lifting, work at height, high/medium/low voltage electrical works, and so on... As the workplaces can be a tower on a mountain top, or a site on the facade of a building, the employees of subcontractors who carry out installation, maintenance and even survey works, are working in an environment which is open to external hazards and risks. Industry's dynamics such as employee turnover among subcontractor companies or low safety awareness and culture contributes the risks to become greater and very hard to control. Another challenge in the industry is that the hundreds of roll-out and maintenance operations are carried out at the same time in all around the country. This makes the contractor control and safe work practices very difficult to implement and monitor. In such a unique industry, creating a safety culture is very important however it is a great challenge. This challenge can only be achieved by a systematic, proactive and responsible approach from the main contractor or client. The client plays a very important role in this challenge by setting the policies and rules, ensuring that those policies and rules are actually implemented and monitoring the performance for possible improvements. This presentation discusses the subcontracting and outsourcing the operations in Telecoms industry, their impacts on OSH, and Vodafone's model in Contractor H&S management.

Keywords: Contractor management, vodafone, telecommunication, safety, OSH

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(SPC: 6/5)

Application of the PAOT Methodology to Occupational Health Training Programme in Korea

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This project was launched with the aim of enhancing the capability of occupational health activities of the workers and the managers in SMEs based on the PAOT methodology which is aiming to facilitate planning and implementing practical risk reduction measures by means of mobilizing locally available resources. The PAOT-GOHS programme has consisted of promotion of various workplace improvement strategies, small group activities with great emphasis on low-cost improvement, support for the PAOT facilitators and experts' follow-up activities. This programme yielded encouraging results. We may indicate the factors of successful conduct of the programme as follows: 1) The enterprises had a special rapport with the GOHS staffs who made regular visits and kept in close communication. The enterprises had continuous and steady support from the staffs of the GOHS, who worked together as a team not only as the GOHS but also as a facilitator for the PAOT programme. 2) The cooperation of the FKTU and the regional office of the Ministry of Labour in application of the PAOT programme encouraged both workers and employers to do their best to improve their working conditions.

Keywords: PAOT-GOHS Programme, Action Checklist, Low-Cost Improvement, Occupational Health Training

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SPC 7

Moderator: Nasip Gül İncekara, MoLSS, Turkey

Date: September 12, 2011 Venue: SPC 7/Kasımpaşa-3 Hall Time: 12.15- 13.15

(SPC: 7/1)

Interaction Between Employee Work Ability and Early Support at the Workplace

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Early support is needed at workplaces in order to promote employees' health and work ability. The ageing workforce needs tailored actions to maintain their well-being at a needs-based level. These actions should focus on promoting workers' health and work ability, and on achieving the necessary changes in working conditions, attitudes, and atmosphere at the workplace. The purpose of this survey was to determine the effect of individual support of employee work ability at workplaces. Material and methods The survey was carried out in the form of a controlled longitudinal study, and the material was gathered twice via a questionnaire. The initial questionnaire for the study sample (301 intervention and 235 control individuals) was mailed in 2008, and the final questionnaire in 2010. The response



rate of the intervention group was 45.1% and of the control group 45.4%. Logistic regression was used in statistical analysis. Results The odds of good work ability in the intervention group was nearly twice that of the controls (OR=1.8, 95% CL=1.0–3.3). Individual support and encouragement by supervisors increased the probability of maintaining good work ability (OR=1.4, 95% CL=1.1–1.8). The situation was same with occupational education and guidance (OR=1.6, 95% CL=1.0–2.7). Good functioning of work communities had a lesser effect on maintaining good employee work ability (OR=1.8, 95% CL=0.9–3.7), whereas re-arrangements of tasks at workplaces had no effect (OR=0.9, 95% CL=0.6–1.5). If work ability was good at the beginning of the study, the odds of maintaining good work ability was more than threefold (OR=3.6, 95% CL=2.5–5.1). Conclusions Individual support at workplaces was an important component in maintaining good employee work ability. Although workers' work ability was quite steady during the intervention period, supervisors' support and encouragement, and occupational education and guidance had significant effects on employee work ability. Work communities also affected good employee work ability.

Keywords: Work ability, well-being, early support

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(SPC: 7/2)

Sweating on the Job

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Climate models predict a significant increase in annual average temperatures in Germany in the forthcoming years as a result of climate change. Over the next years, the negative impact of climate change will increasingly be felt in Central Europe. Previous summers have already shown that even in Germany there have been more and more spells of extreme weather with prolonged heat waves and temperatures over 35 degree Celsius. The situation is further aggravated by the fact that workplaces in Germany, on account of the moderate Central European climate, have generally not been equipped with air conditioning. In the case of heat waves, workers, e.g. in production facilities and office buildings and, above all, outdoor workers, are exposed to additional health risks and stresses. At temperatures of 28 degrees Celsius workers' efficiency already decreases by 30 %, at temperatures above 33 degrees Celsius efficiency drops by as much as 50 %. Working in great heat impairs workers' concentration and endangers their health and safety at work. Moreover, high workplace temperatures cause thermal discomfort particularly for workers performing heavy physical work. Therefore, German health and safety legislation requires that measures be taken at an early stage to protect workers against heat stress from high temperatures at normal workplaces. In the light of the German Workplaces Ordinance which – in line with EU legislation - requires workplace temperatures in the comfort range a panel of experts developed a phased plan of action for ensuring the health and safety of workers and their comfort at work during prolonged summer heat waves. In developing this plan of action the underlying idea was to choose and provide for protective measures that do not involve technical climate control measures as far as possible.

Keywords: Climate, temperature, heat stress

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(SPC: 7/3)

Ischemic Heart Disease and Risk Factors Workplace (experience of Algeria)

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As the leading cause of mortality in Algeria, cardiovascular diseases cripple and kill. They threaten the development of the individual, family and society. Ischemic heart and brain, and heart failure have dominated the global cardiovascular disease. Ischemic heart disease, are favored by some risk factors: urbanization, stress, physical inactivity, high cholesterol, smoking and passive smoking, diabetes and hypertension. In this work, we have set ourselves targets to identify and study the relationship between occupational risk factors and coronary heart disease. Method: The sample of our case-control study consists of 287 employees' predominantly male occupant several sectors including agriculture, construction and public works, industries, activities liberal and tertiary. Results/Discussion: Analysis of socio-demographic factors related to the FCC shows that the risk of JPS is multiplied by 6.6 after the age of 45 years ($p=.00$), married men ($OR=6.3$) with more than 4 dependents ($OR=5.61$) with a low educational level ($OR=2.6$) was significantly more at risk of developing coronary artery disease. The risk is increased significantly by 3.2 among workers in agriculture sector and industry ($P=0.032$) by 1.75 in high-skilled worker coercion ($OR=4.5$) with an age > 20 years ($OR=1.72$) and reported having been exposed to noise ($OR=2.62$). Exposure to stress increases the risk of SCA 2.5. By analyzing the different components of the model of Sigrist (balanced effort/reward), we note that the average extrinsic and intrinsic effort is significantly higher among CAD patients than in controls ($p=0.00$), but the rewards are inversely proportional with the score, the more it is more important rewards are low, the difference is statistically significant ($p=0.026$). The percentage of ACS was found highest among smokers with a consumption of more than 10 cigarettes/day. That handed exposure to passive smoking was found in 27.62% of coronary patients with 26.8% in the workplace. Conclusion: These are multifactorial cardiovascular diseases and their risk factors are intertwined, their respective influences will vary and the disease often results from their combination or their combination as well as its often silent nature can delay care with risk estimation Global cardiometabolic that takes into account all risk factors could improve the therapeutic management preventive avoiding or delaying its severe complications is the risk of coronary heart disease.

Keywords: Ischemic heart disease, risk factors workplace, stress at work sedentary passive smoking

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(SPC: 7/4)

Impact of Cold Environment on Cardiovascular System Among Female Workers

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Meat processing sectors share the characteristic that they all handle commodities which are highly perishable and need to be processed in cold temperatures from the viewpoint of food safety. Numerous studies have reported an increased mortality from cardiovascular disease (CVD) during cold exposure. Increased CVD mortality has been related to thrombosis due to



haem-concentration in cold temperature. We aimed at studying the association of occupational cold exposure in meat industry and cardiovascular problems, together with clarifying some of the biochemical changes underlying these vascular manifestations. Subjects and methodology: All subjects involved in our study were evaluated by full clinical examination, resting ECG testing and the following investigations: complete blood picture, total lipid profile, plasma thrombin, plasma fibrinogen, platelete aggregability, cryoglobulin. Assessment of peripheral circulation for all examined subjects will be performed by Duplex for upper Rt. arm. Conclusion: Our work revealed disturbed biochemical parameters among occupationally cold exposed workers, increased symptoms of peripheral vascular diseases that were not confirmed by Duplex examination. Recommendations: A need for further investigation as nerve conduction velocity is recommended. We recommend the implementation of work place environmental control measures and an appropriate work/rest regime. Periodic screening tests for early detection of cardiovascular affection in high risk workers should be carried out regularly.

Keywords: food safety, cardiovascular disease, environmental control measures

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(SPC: 7/5)

Disclosure of Medical Errors

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Patients are often in vulnerable physical or psychological states, even with routine procedures. Therefore, when harm from an unexpected event occurs, especially from someone they trust, reactions can be severe and traumatic. A common human response to something going wrong is to ask: 'What happened?'. A health care provider goes through the same issues after an error and equally powerful emotions are felt, such as shame, humiliation, fear, panic, guilt, anger and self-doubt. In response to this stress, physicians employ several coping mechanisms, including denial and distancing. "Physicians felt upset and guilty about harming the patient, disappointed about failing to practice medicine to their own high standards, fearful about possible lawsuit, and anxious about the error's repercussions regarding their reputation" This is compounded by fear of litigation, which causes physicians to feel guarded in their dealings with patients following an error. A common perception among physicians is that good doctors don't make mistakes. Because of this, physicians learn to keep mistakes to themselves rather than risk the judgment of their peers. In fact, the pressure to be perfect is so great that doctors admit they would lie to colleagues or patients to cover up a mistake. Out of concern for liability exposure, some doctors have given up their practices, limited the kinds of procedures they perform, or restricted the types of patients they see. Helping to maintain a patient-provider relationship is an apology, and then personal, repeated attention to the needs of the patients and families. Patients need action taken quickly and confidently by providers. Quick action provides a sense of reassurance in the confusion. This action must be directed at answering the initial patient worries of 'what happened?', 'what is next?', 'is this fixable?' Provider support of the patient must follow quickly and continue as the process unfolds.

Keywords: Medical errors

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SPC 8

Moderator: Seçil Ceylan, MoLSS, Turkey

Date: September 12, 2011

Venue: SPC 8/Sütlüce-2 Hall

Time: 12.15- 13.15

(SPC: 8/1)

Worker Participation and Organization for Occupational Health and Safety

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An organization, by which workers are not only accepted as a component required to be trained and obeyed to the rules, but prevailed as active subjects participated to all decision and implementation processes of occupational health and safety, beginning from determining the occupational risks, comes necessary with the principles of democracy and social dialog. Occupational health and safety councils should be regulated by law as compulsory units for every workplace and subunits of a national organization constituted by the social sides. Many of the workers of small and medium sized enterprises whereas occupational accidents and diseases are mostly come up, can not have a voice about their own occupational health and safety conditions, because a minimum worker number and quality of work required for obliging to establish occupational health and safety councils according to the existing law. There is not any effective national organization basing on the representatives of labour either. The number of occupational accidents and diseases may be reduced by constituting that an organization chart for all country which comprises occupational health and safety units of workplaces connected directly with labour inspector organization of Ministry of Labour and Social Security, Social Security Institution, trade-unions and other related organizations, in order to determine the risks, to take necessary precautions and to control permanently. In this study, "organization" duty of the state for occupational health and safety is examined within the framework of international and national legislation first and the importance of participation by social sides and especially workers for an effective organization based on occupational health and security councils work with the collaboration by the state and related establishments is evaluated and a model is tried to be improved.

Keywords: Occupational health and safety, democratic participation, organization, regulation, social dialog

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(SPC: 8/2)

The Ergonomic Classroom: Helping to Make a Good and Healthy School

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The raising of awareness of health and safety issues cannot begin at too young an age. Anchoring these topics early in the childhood means even an easier impartment in the later work life. Against this background, the German Social Accident Insurance is conducting a number of projects under the heading "Good and healthy school". One of the projects addresses the design of the classroom. Experience in the ergonomic design of work places is transferred to the design of the classroom in order to support health and suitability for learning. In each of two schools, a classroom was structurally modified and analyzed with regard to four ergonomic aspects: 1. Lighting and colour 2. Thermal environment and ventilation 3.Noise 4.Furnishings and flooring. The analyses for these four aspects in the initial situation led to redesign requirements in the classrooms. The following measures and building modifications were implemented: (1) For artificial lighting, three scenarios were realized which - according to the teaching situation – differ in the illuminance and the colours/colour temperatures. The walls were painted in warm and well matching colours. (2) The installation of HVAC equipment leads to an improvement in the air quality: in particular, the CO₂content is reduced. (3) A soundproofed ceiling reduces the noise exposure. (4) Chairs and individual desks with height adjustment give consideration to different children's heights. A flexible system of blackboards and pin boards permits various didactic concepts. Using a test control group design the effects attained by modification of these four aspects are evaluated with regard to their impact upon health and learning. The pre-measurement as well as the four post-measurements were conducted with the schoolchildren in the modified classroom, with a parallel class serving as the control group. The paper will present the solutions implemented in the classrooms and the results of evaluation.

Keywords: Ergonomics, classroom, healthy school

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(SPC: 8/3)

Ergonomic Evaluation of Filling in a Food Company

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The objective was to evaluate the work in the filling position casting of a food company in Venezuela. We designed an intervention study that applies the ergonomic approach focused on the analysis of work. The techniques used were individual interviews, group (Method DEPARIS), observation tasks. Evaluation of the bids with the REBA method, anthropometric assessments of workers and dimensions of their jobs was selected intentionally casting filling station at the request of the company and workers in the office because of complaints by the presence of heat in the work areas. As a the principal activity of the job is to operate, control and manage filling casting machine, as well as complete reports and micro-stops stops, manufacturing, inspection and all mechanical and electrical failures this computer. It works round the clock. The areas of work, organization alignment between jobs and job site were detected inadequacy of the system used to collect the product rejection and lack of emergency communication mechanisms. The chair is not adjustable. The work requires constant attention, not complex. The positions observed were negligible at low risk according to the REBA method. The noise is continuous; the continuous equivalent level (Leq) was 91.6 dBA. WBGT index (WBGT) was 28.8 ° C. The proximity of other machines in the area generates heat and steam increases the thermal discomfort in the workers. As a conclusion the design of the workspace has inadequacies. The risk factors that compromise the health



of workers are environmental. Exposure to noise at exceeds the permitted limits and levels of heat needed work break scheme is implemented based on the Technical Standards Venezuelan.

Keywords: Ergonomics, heat, noise

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(SPC: 8/4)

Analysis of Working Postures that Cause Strain on Workers that Work in Dangerous and Heavy Works

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Ergonomics mostly studied about postures in labor depended production systems. The main aims of ergonomics and work study are decrease cost, idle times and eliminates valueless activities. Decreasing work stress and fatigue will affect efficiency and costs. These will increase the importance of working postures. In academic environment there are a lot of studies about these subjects because this is very important for both human health and efficiency. In this study OWAS and REBA methods are explained. In this research five sector are chosen which are called as dangerous and heavy works. These sectors are metal goods production, metallurgy, construction, wood goods production, stone process. In all this sectors workers have been recorded and by using these records postures are analyzed by using REBA and OWAS methods and there is a survey about workers health. In this study two methods are compared and the results are also compared with survey results. And also for risky postures there are suggestions. The worst working postures are in metallurgy sector because it has 22% category four working postures. If both fourth and third categories are considered together the metal goods production with ratio 34% and metallurgy with ratio 32% are found.

Keywords: Ergonomics, REBA, OWAS, working postures

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(SPC: 8/5)

Brazilian Safety and Occupational Health at Work Management System - NBR 18801

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This Brazilian Standard specifies the pre-requisites of the SST MANAGEMENT SYSTEM which allows the organization to control the respective risks and to improve its performance in OSH , however, it does not indicate the specific criteria of performance, nor the detailed specifications of a management system. This Standard applicable to any organization that intends to) the present Policy is applicable to any organization that intends to) establish the OSH management system to eliminate or minimize the risks to the workers and other parties interested who can be exposed, associated to each one's respective activities;) implement, maintain and improve continually the OSH management system;) assured conformity to the



policy of OSH) demonstrate the conformity of the current Policy through) doing a self-evaluation and a self-declaration, o) confirmation of the agreement of the interested parties in the organization, such as clients, o) seek confirmation of the respective self-declaration through an external entity to the organization) seek certification/registration of the respective OSH management system by na external entity. The pre-requisites of the current Policy are destined to any OSH MANAGEMENT SYSTEM. The extension of the application will depend on factors such as: the policy of the OSH of the organization, the nature of its activities, the risks and the complexity of their operations. This Policy is exclusively focused on OSH and not in other areas of safety and health, especially: programs promoting health and well being of the worker, safety of the product, damage to the patrimony, environment, etc..

Keywords: OSH management system

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SPC 9

Moderator: Kenan Yavuz, MoLSS, Turkey

Date: September 12, 2011 Venue: SPC 9/Kasımpaşa-4 Hall Time: 12.15- 13.15

(SPC: 9/1)

The Importance of Integrated EHS and Quality Systems in a University Toxicological Laboratory

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For an analytical laboratory, one of the most important requirements is the reliability of results which can be evidenced by having accredited assays. Besides, nowadays aspects such us safety and health at work and environmental management are becoming important and they should be integrated in the everyday tasks of the laboratory. Objective The aim of this work is to emphasize the importance of the integration of EHS and Quality systems in an analytical toxicology laboratory from the University, while describes the main aspects that should be integrated and how could this be done. Development The integration process starts from the policy of the laboratory and the objectives for continuous improvement that should be aligned taking into account quality, safety, health and environment issues. Regarding the standard work procedures, they should be modified to include aspects such as accidents prevention measures, personal protection equipments required and chemical incompatibilities among others. Maybe new standard work procedures must be developed (e.g. procedures for spills) as well as changes in the lay out of the premises may be considered for safety work assurance. Referring to environmental management, it should be developed a Waste Management Plan, which is also shown in this work. This study also shows a list of the additional work procedures that should be developed in a laboratory that



has a quality management system and wants to incorporate safety, health and environmental aspects. Another important aspect to consider is the developing of integrated check list for performing the internal audits. After all the documentation is adjusted integrating EHS and Quality, drills must be conducted (accidents, emergency response) to check that the integrated system is effective. This work shows a practical way of integration EHS and Quality, by adopting easy steps that could be extrapolated to any analytical laboratory.

Keywords: EHS, quality, toxicological laboratory

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(SPC: 9/2)

The Confidence Level of Analytical Data in Occupational Health and Safety

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The generation of scientifically supportable laboratory test data is pivotal to its interpretation whether the end use is occupational health and safety, environmental concerns or a wide range of other activities. The basis for decisions with significant economic impact in industry are sometimes made with assumptions concerning the veracity of analytical data which are unfounded. It is no longer sufficient for a decision making manager to be unaware of the limitations of the data upon which decisions are made. Hence, both the laboratory generating the data, and the user of the data, must understand the confidence level of the measured results. Good or bad quality is commonplace, but qualitative, terms while analytical data quality must be assured to be meaningful. The quality of chemical data is judged on the basis of two fundamental aspects: the accuracy of identification of the parameter measured and the numerical accuracy of the quantitation. In addition, the data must have a defined confidence level. The ISO/IEC 17025 standard contains all of the requirements that a laboratory must meet to demonstrate a management system, is technically competent, and is able to generate technically valid results. The achievement of demonstrated competence at an international level will enable laboratory services to expand in both the number, and types, of measurements offered to industry. This paper will illustrate the development of quality systems which have led to the implementation of decisions that have had internationally significant economic impacts on industrial sectors from occupational health and safety concerns to the environment. In particular, applications are discussed of analytical statistics to the interpretation of quality assured measurements with a known level of confidence.

Keywords: Accreditation, analytical statistics, confidence interval, ISO/IEC 17025, occupational health and safety (OHS), quality assurance, uncertainty

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(SPC: 9/3)

Determination of Measurement Uncertainty at Analysis of Lead in Air by Using Atomic Absorption Spectrometry

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Heavy metals had been used by humans for various purposes until today. Industrialization has increased rapidly along with the use of heavy metals and hence the effect on humans has reached dangerous values. A wide range of heavy metals adversely affect human health and show toxic effects when exceed the concentration limit. Lead has a very large area in the industry and is very harmful in terms of the toxicological effects of a heavy metal. Therefore, it is very important to determine the concentration of lead at working environment. The determination of heavy metals concentration in working environment by atomic absorption spectrometry (AAS) is a common and well-established technique in many occupational health and safety laboratories. However, the evaluation of measurement uncertainty results is not systematically implemented. Measurement uncertainty is important part of the ISO 17025. Our study presents an easy step-by-step example leading to the evaluation of the combined standard uncertainty of lead determination in air using AAS. The practical aspects how the traceability of lead concentration in air can be established and demonstrated are also pointed out. The measurement uncertainty estimation associated with low-medium and high levels of concentration (these values were selected according to legal regulations) determined by atomic absorption spectrometry (AAS) depends on the correct identification and quantification of the main sources of uncertainty. Some of them concern the reference materials used in the analytical process, the calibration of analytical procedure, instrumental performances, etc. In our study, "The Guide to the Expression of Uncertainty in Measurement and Quantifying Uncertainty in Analytical Measurement" were the reference documents used for the evaluation and expression of uncertainty. This transparent way to evaluate the measurement uncertainty of lead measurements in air sample by atomic absorption spectrometry (AAS) can serve as a useful exercise for occupational health and safety laboratories. Our laboratory identifies and is awarded on the effect of different input quantities and is able to quantify the major contributions to the overall measurement uncertainty. The approach developed in this paper for uncertainty evaluation and establishing traceability of lead concentration in air can be easily generated for other heavy metal determinations by AAS.

Keywords: Measurement uncertainty, occupational health and safety laboratory, spectrometric method

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(SPC: 9/4)

Monitoring Unemployment as a Social Determinant of Health Inequalities

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The economic crisis of 2008 has threatened population health and health inequalities by increasing unemployment level, a key social determinant of health (SDH). Unemployment has been found to be negatively associated with several health outcomes. Despite such evidence, few surveillance initiatives related to SDH have incorporated unemployment indicators into routine data collection procedures. In cases where unemployment is

monitored, it often appears as a population average or disaggregated only along gender and age, thereby overlooking other important social mechanisms of inequality, possible interactions, and contributory risk factors. Thus, we face a pressing need to address how to develop and select indicators for monitoring unemployment, to decide how to disaggregate them and to determine which specific groups should be followed over time. In order to fill this knowledge gap, we first designed a set of unemployment theory-based indicators by reviewing the literature on unemployment and health inequalities and interviewing several experts. Afterwards, we carried out a cross-sectional study to empirically test which were the most vulnerable groups. To test this, we investigated the impact of unemployment on mental health outcomes among vulnerable groups using the 2006 Catalonian Health Survey (N = 8,591). We estimated the prevalence ratio and difference (excess of prevalence) of poor mental health between the unemployed and employed. After taking into account the interactions among social mechanisms of inequality and related factors, seven vulnerable groups to monitor were identified. Findings indicate that unemployment has a more damaging impact on the mental health of male manual workers, lone mothers, female main-earners, and manual workers without unemployment benefits for both sexes. Findings support the need to devote more research on the surveillance of unemployment to identify additional unemployment indicators and on considering how various social mechanisms of inequality interact with each other to produce health inequalities among vulnerable groups.

(SPC: 9/5)

A Method of Evaluation of Relationship Between the Safety Management and Overall Safety Performance in Construction Industry

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Safety is crucial in construction industry. From beginning to end, the construction process is complex and characterized by a number of uncertainties and a high fatality rate. But despite its high fatality rate constructions can be a safe occupation when there is an effective safety management and workers and employers are aware of hazards and prevent the probable risks. In this context, the objective of this study is to propose a new methodology that determines the overall safety performance of the construction site by including safety management performance and on-site safety performance assessment to improve construction safety. The study is particularly based on getting data from the construction sites via developed questionnaire and checklist and creating software called SME (safety management Evaluator) working on the basis of fuzzy logic approach that has the capability to evaluate construction contractors' safety management performance and on-site safety performance and notify the safety management deficiencies. The survey data were collected from a sample size of 30 on-going building type construction firms and the responders of the questionnaire were safety managers. Checklist was applied on-site by author in order to observe the real situation of safety. The study includes factor analysis and correlation of safety management components and descriptive statistics in order to uncover the correlation patterns among the different variables. The purpose of this evaluation is to establish a base point against which construction contractors can be classified by an index of safety developed for the Turkish construction sector. By developing an index of safety, which includes safety management and on-site performance "defectiveness of the safety management and the overall safety performance of a specific construction company regarding the safety index scale for Turkey" is determined.



Keywords: Safety management, construction, fuzzy logic, safety index

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SPC 10

Moderator: Esin Aytaç Kürkçü, MoLSS, Turkey

Date: September 12, 2011 **Venue:** SPC 10 / Hasköy Hall **Time:** 12.15- 13.15

(SPC: 10/1)

Georeferenced Occupational Risk Map of Rondônia in the Brazilian Amazon

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Develop a map of occupational risk georeferend, identify the companies and the real distribution of the productive sectors, classify and get to know the degrees of risk to the Health Surveillance Labour HSL and to the environment. Evaluate the productive sectors vulnerable to accidents and occupational diseases. Method – Was presented a map with cartographic basis from 2005, scale 1:1.000.000, Geographic Coordinate System, Datum SAD-69, digital file on ESRI Shape file, municipal boundaries; with of the register from taxpayers companies, register of economical activity and levels of hazard. Finding: The distribution of the companies according to the economic productive sector showed a great state tendency in the agropecuary production totaling 72.95%; following the commerce 19.18%; The industrial is on third 4.30% and the services only 3.56% of economical participation. The establishment of beef cattle and milk represents 53.99% of companies. In third we see the coffee cultivation with 10.75% of the companies. The prevalence of level risk 3 which reaches 78.57%, present in all the municipalities. The work morbimortality on Brazil reaches levels of a true epidemic generating a great impact to the medical and previdential services. There is need of the incorporation of techniques of geoprocessing reuniting a social-economical and a heath database, and environmental in special bases, improving the understanding of the harms that the workers are exposed and providing information about the epidemiology of morbid events relevant to the HSL. The magnitude of the agropastoral sector, two thirds of corporate taxpayers, e observe high rates of harms to the farm worker health and the child labor. The health politics should redirect the actions for the agropastoral segment on Rural HSL and the Eradication of Child Labor, prioritizing the deployment of municipal on emphasizing the continuing education on diseases of the countryside

Keywords: Geoprocessing, occupational risk; worker's health, environmental health; epidemiology

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(SPC: 10/2)

Inspection Project of Safety Working at Height in Constructions

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Being evaluated work accidents number, fatal accidents and accidents resulted with disabilities which are occurred in our country, construction sector takes place from the frontier ranks of all sectors. The sector's labour-intensive structure which provides high employment, the deficit of workers' education, the muchness of workers' circulation, the changeable work circumstances and undeveloped safety culture of employers and small enterprises are the main factors which build up high work accident fact. According to the statistics of fatal accidents, construction sector is 35 percent of total working sectors. And also 30-40 percent of construction accident occurs because of falling down from a higher place. As understood from these percentages, working at height is one of the most important risks at construction sector. It is thought appropriate that, to put the preventive methods in circuit and to improve the conditions of working at height in constructions fast, effectively and permanently, in the frame of Inspection Project of Safety Working at Height in constructions which has been put in practice by Labour Inspection Board since 2009, to focus to the safety points of risky scaffolds and risky spaces in the constructions that are installed in cities where intensive fatal accidents happen and consistent constructions exist, to maintain effective risk based inspections about restricted specific subjects and to make forceful inspection process with closing and stopping events. As part of this project the constructions which are closed and stopped are opened as a result of taking precautions. This event indicates the project is successful.

Keywords: Constructions, inspection, safety and health at work, safety working at height

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(SPC: 10/3)

Management of Labour Safety Inspections - New Methodology of Evaluating Inspection

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CEMIG, a concessionaire electric energy supplier, has developed an innovative methodology of safety labor inspection that allows quantitative assessment of how security is performed in the company. Through a software, this new methodology permits total management of inspections. In this methodology, the inspections are divided into four categories: people, vehicles, work environment, and tools/equipment. This is done in order to provide a detailed look into the checked items, thus, make the inspections more effective. The method considers the severity of the actions (which range from very serious, serious, mild) carried out by staff, vehicles, work environment and tools/equipment in a given period, obtaining an index called Observed Safety Index – OSI, which measures how employees are performing the activities in accordance to safety standards established by the company. Through the software called SIMASP, (System of Monitoring and Audit for Analysis of the Safety Observed), it is possible to control and follow the inspections conducted on employees and

contractors, as well as on the treatment of found non-conformities and monitoring of the action plan. In addition, the SIMASP has other characteristics such as integration with other corporate IT systems, automatic email message for those responsible for the action plans, insertion of pictures, schedule inspections and several different types of reports. The SIMASP has an audit mode which makes viable to create audit guides and its databank in addition, allows the verification of how users are applying the program aiming to avoid its incorrect use. Moreover it has a qualification mode through which one can manage all safety-related training undertaken by employees and contractors. Through this new inspection approach, alongside with the implementation of SIMASP, it is feasible to reduce risky situations that workers are exposed to through the treatment of non-conformities and consequently, the reduction of accidents.

Keywords: Labour inspection, assessment, software methodology

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(SPC: 10/4)

Towards a Greater Role of Health and Safety Inspectors: Contribution to the Design of Innovative Training Programs Based on the Work Activity Analysis of Construction Site Safety Inspectors in Switzerland

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During fielding interventions on construction sites, health and safety inspectors must face the constantly changing work environment and conditions which make it difficult to identify the occupational risks and to follow up the preventive measures implemented. Their interlocutors very often consider that preventative measures represent a disproportionate cost considering the transient nature of hazards on these sites. On the one hand these inspectors should raise the rule compliance and the level of awareness of safety and health regulations. On the other they should develop and maintain a positive relationship with their interlocutors. The results of their interventions are partially dependent on their ability to reduce or bypass this reluctance. Therefore, we consider that the effectiveness of the activity of each inspector is determined by local articulation of his actions and those of his interlocutors. Thirteen OSH inspectors volunteered to participate in this study. The activity of the inspectors and their interlocutors was analyzed through an activity-centered approach according to Theureau's semiological theory of course-of-action. The data was obtained from their self-confrontation to the video record of their activity during field interventions, linked to data obtained from the observation of individual and inter-individual activity. Results showed that i) depending on the dynamic articulation between the inspectors' individual actions and those of their interlocutors during an intervention, there is a constant oscillation between advising and imposing enforcement measures or penalties; ii) the individual activity of each inspector is mediated by artifacts which operate as cognitive tools, favouring evaluation and comprehension of the field situation and as interactions' media with their interlocutors. A recent emphasis in OSH inspectorates on occupational health promotion stresses their pedagogical role and their ability to establish a cooperative dialogue with others social actors. We discuss the contribution of our findings to the design of innovative training programs.

Keywords: OSH inspectors, work activity analysis, interventions on construction sites, training programs, activity-centered approach



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(SPC: 10/5)

Information on Fatal Cases Resulting from Work-Related Accidents in Mining and Construction Industry in Brazil: Issues on Proposals to Integrate Official Registers

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Objective: The purpose of this study is to compare trends and differentials of fatal cases resulting from work-related accidents in the Brazilian mining and construction industry from 2000 to 2009. The present work is comprised of two related aspects of a question: By an overview, a critical appraisal of the official registers of mortality from work, and the arrangement of some proposals orientated to achieve better information and also to support interventions for this matter of great concern. **Methods:** At first, it aims to analyze the figures as well as the variability in the profiles of death at work in the beginning of this century according to the official information that cover the whole relation correspondent to health, labor and social security for these two sectors of activity in Brazil. Thereafter, besides some difficulties in qualifying round fatal occupational accidents among the set of external causes of mortality, profiles of them are made according to the three class categorization of the violence at the workplace: 'Typical workplace accidents', 'transport accidents', and 'work related diseases'. **Results:** In addition to specific statistics and rates, some proposals are suggested to improve both effective identification and new characterization of mortality in both sectoral workplaces entirely as a condition to overcome the risk of major violence against the worker. That way mortality resulting from accidents in the informal labor market is considered as well as some hypothesis to overcome this gap on information. **Conclusions:** By reason of the emergence of high social and economic costs involving work accidents in Brazil, this study searches to provide input for the comprehension of this issue as well as for the government to draw specific policies towards advances in OSH information, capable of minimizing the violence of the fatal risks in the workplace in mining and construction industry.

Keywords: Mortality from work-related accidents, information and data sources, Brazilian mining and construction industry

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SPC 11

Moderator: Hatice Sağlam, MoLSS, Turkey

Date: September 12, 2011 Venue: SPC 11 / Balat Hall Time: 12.15- 13.15

(SPC: 11/1)

Obligation to Introduce Occupational Health and Safety Organisation

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The primary obligation of an employer is to take measures for occupational health and safety. The employer fulfils this obligation by encouraging the establishment of occupational health and organisation in the workplace, which includes taking measures on occupational health and safety by the employer, as well as the execution and supervision of those measures. The scope of the obligation for introducing occupational health and safety is determined by the responsibility of the employer for instituting and governing an occupational health and safety management system. The obligation to introduce an organisation initially incorporates the planning and execution of measures. According to the Framework Directive the employer is held responsible for the provision of the necessary organisation that warrants the process of taking the measures necessary for the health and safety of the workers, supervision of the activities and adaptation wherever necessary. In the Framework Directive there are two aspects to the obligation on the provision of organisation. Initially, this obligation covers the preparation and the implementation of measures on occupational health and safety. The second aspect of the obligation consists of the responsibility for the realisation of the principle of vertical and horizontal integration that concerns the provision of necessary means for the workers' rights and obligations for participation to occupational health and safety. By the principle of integration, a sub-responsibility of an employer's responsibility to introduce an organisation is regulated. In this context, the principle of integration arranges the particular obligation to introduce an organisation, which is a special version of the obligation to introduce an organisation. Introducing an organisation in labour law can be described as a complementary function or means in fulfilling all the responsibilities on occupational health and safety complying with conditions of division of labour. Employers' have an instrumental responsibility in introducing of the organisation of occupational health and safety.

Keywords: Occupational health and safety, obligation to introduce occupational health and safety organisation, responsibility for occupational health and safety management system

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(SPC: 11/2)

Hazards of Transportation Petroleum Products by Tank Trucks in Jordan

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In Jordan most of crude oil and petroleum products are transported by tank trucks. Many hazards such as hose rupture, spill, release, Fire, and road accidents happened during loading, un-loading or transporting petroleum products. These hazards cost a lot of money to Jordan economy and results in death and serious injuries. In this paper we are going to discuss the problems facing transporting petroleum products by tank truck in Jordan, either during loading, un-loading, or driving tank truck, regulation related to transporting hazardous materials, tank truck accidents, and the recommendation to solve these problems. It is important to follow the operating procedures and work practices needed to perform the job safely during loading and unloading petroleum products. Persons engaged in delivery and unloading operations should have a basic understanding of the material hazards and the operating procedures needed to perform the job safely and remain in the vicinity at all times and know what to do in an emergency, including notification, stopping product flow, cleaning spills and when to leave the area. Fires and explosions at top and bottom tank truck loading racks may occur from causes such as electrostatic build-up and incendiary spark discharge



in a flammable atmosphere. Electrostatic charges generated during loading petroleum products, and these charges have to be dissipated. Loading racks may be equipped with portable fire extinguishers and manually or automatically operated foam, water or dry chemical fire extinguishing systems.

Keywords: Safety and health on oil sector

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(SPC: 11/3)

Developments Towards the International Recognition of Occupational Safety and Health Professionals

Phil Lovelock

International Network of Safety and Health Practitioner Organizations (INSHPO), United States Industrial Toxicology Research Centre (ITRC), India

INSHPO is a global voice for the occupational safety and health profession. It acts as a forum for international collaboration among professional organisations to improve safety and health at work. INSHPO started from an appreciation that occupational safety and health issues and concerns are not limited by national borders. With the increasing worldwide distribution of products and provision of services, the widespread migration of workers, and the conduct of international corporate activities, almost every issue that occupational safety and health professionals face is global in scope. For years, men and women around the world have been working to make workplaces safer. In some countries, safety people are referred to as practitioners. In others, they are professionals. To refer to ourselves as professionals, we need to be part of a recognised profession. INSHPO will discuss its following efforts to further OSH as a profession by defining the characteristics of a profession, discussing how to achieve professionalisation, and current moves to professionalise OSH - including the following: - The work being done in Australia, the United States, the United Kingdom, Canada, and others to create an OSH Body of Knowledge; - Current INSHPO working party papers: 'Body of Knowledge,' 'Codes of Conduct,' 'Minimum Service Standards,' and 'Passport to Practise' - all steps toward an international certification system; - The work being done in Australia, the United States, the United Kingdom, Canada, and others to accredit University Courses in OSH.

(SPC: 11/4)

Hairdressers' Working Conditions and Occupational Health Problems

Meral Türk¹, Gülengül Mermer¹, Raika Durusoy¹

¹Department of Public Health, Ege University Medical School, Turkey

Hairdressers work in closed environments, constantly standing up and in an intense pace of work. The aim of this study is to determine the working conditions and occupational health problems of hairdressers registered to the chamber of commerce in Bornova, Izmir. For this descriptive study, 90.5% of the 211 establishments registered to the chamber of commerce were contacted. 191 hairdressers were interviewed in November-December 2009. The questionnaire included a total of 89 questions concerning socio-demographic characteristics, working conditions, professional experience, their current health status and their health



status before starting hairdressing. The mean age of hairdressers was 26.5 ± 7.2 , 53.9% were women, 58.1% were graduated from primary school and 22.5% did not have social security. They were working as hairdressers since 11.3 ± 8.3 years. Among the group, 50.8% were shop owners/shareholders. 24.6% were working seven days per week. 92.1% had prolongation of their working hours, of which 86.9% did not receive extra payments, 18.3% did not have lunch breaks, 81.7% worked constantly standing up. Among participants, 5.8% currently had dermatologic problems, 38.7% had conjunctivitis. 57.7% had pain in the shoulders, 19.2% at the elbow, 42.6% at the wrist, 59.1% at the neck, 51.2% in the legs and 40.2% had varicose veins. 60.2% of hairdressers felt stressful, 62.1% had fatigue, 35.8% sleeping problems and 16.2% had frequent rhinitis. Among participants, 80.1% used either gloves or moisturizing cream to protect their hands, 15.8% used protective equipment when shampooing, 57.5% for permanent wave, 93.2% when dying hair, 89.0% used gloves for protection and 44.5% were not vaccinated against hepatitis B. Hairdressers were especially exposed to chemical, ergonomic, psychosocial hazards and they encountered orthopedic problems and stress. Awareness should be increased and ergonomic assessments should be conducted with the collaboration of universities and trade unions. The safety of hairdressers' working conditions should be improved.

Keywords: Hairdresser, working conditions, health problems

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Tuesday, September 13



XIX World Congress on
Safety and Health at Work



Plenary



Plenary Session

Plenary Session : Topics 3 & 4

Moderator: Philippe Conus, Director Suva Lausanne, ISSA Treasurer

Date: 13 September 2011

Venue: Haliç Hall

Time: 09:00 – 10:00

(PL: 2/1)

Social Dialogue, Partnerships and Innovation on Occupational Safety and Health

Judith Hackitt

HSE, United Kingdom

The Health and Safety Executive (HSE) is the organisation responsible for regulating health and safety in practically all workplaces in Great Britain. Since its creation in 1974, it has been able to fulfil this duty throughout the full spectrum and rich diversity of organisations and meet the demands created by the introduction of new technologies and work practices by adopting a framework based on the two key principles:

- that the person who is best placed to manage risk in the workplace is the person who creates that risk – which in most cases means the employer; and
- that employees have a duty to act in a manner that does not put themselves or fellow employees in danger.

For this non-prescriptive, goal-setting approach to be successful, it requires every employer to understand and address the specific risks in their business, but it also works best when there is collaboration and cooperation between everyone in the system. In this presentation, Judith Hackitt, CBE, Chair of the HSE, will cite HSE's strategy that calls on all those who form part of the health and safety system in Great Britain to be '*Part of the Solution*' and several case studies of initiatives that HSE has successfully rolled out, to demonstrate the different methods – including modern communication techniques – that HSE uses to inform, influence and empower individuals, organisations and multifunctional groups, to play their part in driving up health and safety performance.

The presentation will consider the specific role that leaders of organisations must play. They must create a culture where health and safety becomes an integral part of the way their organisation operates but also establish a spirit of engagement and good practice sharing within the whole workforce and across industry sectors.

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(PL: 2/2)

Challenges, Trends and Solutions in Europe and Beyond

Jukka Takala



EU-OSHA, Spain

Background and Objective: This paper and related presentation reviews the latest information on occupational risks, recent strategies, indicators and tools for making workplaces and countries safe, healthy, competitive and productive.

Methods: Employment figures, mortality rates, analyses of the occupational burden of disease and injury, reported accident figures, surveys on self-reported occupational illnesses and injuries, attributable fractions, recently published information, and international electronic data sources and public websites have been reviewed. Programs and strategies to reduce the work-related negative outcomes at various levels were identified and analysed.

Results: Work-related illnesses that have a long latency period and are linked to ageing are clearly on the increase, while the number of occupational accidents has gone down in industrialized countries thanks to prevention and structural changes. Globally there are 2.3 million deaths annually for reasons attributed to work. In Europe we have estimated that 168 000 deaths are work-related. Long-term health aspects and related occupational exposures need much more attention as traditional safety issues have been taken over by “new” health problems at work. We refer to prevention methods as a “toolbox” and categorize the following as “individual tools”: legislation and enforcement, information on the existing state of problems and capacities (profile), knowledge of solutions and good practices, communication and promotion to increase awareness, and collaboration and networking for exchange of good practice. Global, regional, national, and sectoral strategies and systems cover these issues, reflecting their respective priorities.

Discussion: In the current social, economic and political situation, legal measures need to be supplemented with economic justification and convincing arguments to reduce corner-cutting and avoid the removal from the labour market of potential workers through long-term disabilities or premature retirement. Sustainable working life should be made not only a survival strategy but a successful business and society strategy at all levels.

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The image shows a title card for a 'Technical Session'. The text 'Technical Session' is centered in a white, bold, sans-serif font within a black rectangular border. This border is set against a light gray background. The entire design is framed by a white border, which is itself surrounded by a thick gray border. There are decorative horizontal lines at the top and bottom of the white frame, and two sets of short, parallel white lines on the left and right sides of the gray background.

Technical Session



Technical Session

Technical Session IV: OSH Services and Management Systems in SMEs, MoLSS

Moderator: Sameera Al- Tuwaijri, ILO, Switzerland

Date: 13 September 2011

Venue: Haliç Hall

Time: 10:15 – 12:15

(TCS: 4/1)

System Approach on Occupational Health and Safety

Sıddık Topalođlu

MoLSS, Turkey

According to Social Security Institution statistics, 99,7% of workplaces consist of SME`s that have 1-249 employees and 83.8% percent of employees are hired in those SME`s.

According to these statistics, it can be seen that SME`s are the target group in OSH and studies on this subject have large influence on the whole scene. It is hard for the SME`s to take precautions by ruling OSH because of poor knowledge, educational and economical reasons. However employer is responsible for conducting OSH operations according to the national and international regulations the 50 employee limit stated in the labor law seemed to lighten the legal responsibility over the employer however employer is responsible for conducting OSH operations according to the national and international regulations. According to the new OSH law which will be ready with some minor adjustments, all employers are being held responsible for providing OSH services regardless of employee count or OSH.

SMEs need various tools which appropriate their business structures and sectors that they operate and help to approaching in a systematic way to subject for carry out activities in the field of OHS effectively. Many specific OHS management systems for satisfy SMEs` needs has been developed in the world which take business functions as a whole and connect the relationship that they have by organizing in a meaningful way. OHS management systems provide great convenience, particularly SMEs, to use their own resources and to carry out the activities of OHS affordably. Specific OHS management systems are developing for SMEs which operates in mining, construction and metal industries by Ministry's European Union (EU) funded "Project for Improvement of Occupational Health and Safety Conditions at Workplaces in Turkey (ISGIP)". Collecting measurements, inspection reports, annual evaluation reports, data of personal protective equipment, statistics of occupational accidents and occupational diseases belong to enterprises, especially SMEs, data of OHS professionals was aimed to support decision makers effectively by database of OHS Management Information System developed under this project.

Key words: SME, system approach, OHS management system

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(TCS: 4/2)

Promoting Occupational Safety and Health Good Practices in Small-scale Workplaces

Kazutaka Kogi

ICOH, Japan

A prominent international trend in occupational safety and health (OSH) is to emphasize good practices as feasible goals. The trend is particularly important for promoting effective risk management in small-scale workplaces. It is useful to discuss the support measures commonly effective for promoting risk-reducing good practices in diverse work situations.

Two typical types of guidance presented by good practices reported from different regions are for (a) promoting proactive multifaceted risk management procedures and (b) securing active participation of employers and workers in improving workplace conditions. These two aspects are mutually interactive. Recent experiences in applying participatory workplace improvement programmes, as exemplified by WISE (work improvement in small enterprises) and WIND (work improvement in neighbourhood development in agriculture) projects, indicate that in promoting good practices in both these aspects, a clear focus on locally feasible measures that have real impact, including simple improvements, is important.

Constraints for applying good practices in small-scale workplaces centre around the lack of technical expertise and available resources. Workplace programmes effective in these workplaces therefore commonly emphasize the use of action-oriented tools for planning, implementing and reviewing risk identification and reduction. These tools can at the same time facilitate consensus building leading to immediate improvement actions. The locally adjusted design and use of action checklists and how-to guides addressing significant risks in each local situation have proven useful. Action-oriented toolkits widely used in WISE, WIND and similar activities as well as in Basic Occupational Health Services (BOHS) thus rely on basic OSH principles and simple procedures adjusted to small-scale workplaces.

These recent experiences suggest the importance of facilitating participatory steps adjusted to diverse workplace conditions. It is vital to link the promotion of good practices with the use of locally adjusted risk management procedures and toolkits.

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(TCS: 4/3)

Joan Benach

University of Pompeu Fabra, Spain

(TCS: 4/4)

Systems-Based Approach to Health and Safety in Small to Medium Size Companies

Mahmut Eksioğlu

Boğaziçi University, Turkey

In today's competitive and aggressive business environment, small or large, many companies are migrating toward states of high risk of health and safety under cost and



productivity pressures. In contrary, health and safety performance is often a competitive differentiator for any size company. Understanding the business value of health and safety can be significant contributor to the achievements of a company's productivity and cost goals. Though this a fact regardless of the size of the company, developing and implementing an occupational health and safety (OHS) program is not as easy for small to medium size companies (SMCs) as it is for large companies. The main OHS issues with SMCs can be summarized as follows: (1) lack of necessary legislation, (2) lack of enforcement of available legislation, (3) lack of resources and motivation, (4) lack of management commitment, and (5) lack of expertise. Developing and implementing an effective systems-based OHS program for SMCs is required to tackle with the issues stated above. The systems-based approach to health and safety, requires the application of scientific, technical and managerial skills to hazard identification, hazard analysis, elimination, control, or management of hazards throughout the life-cycle of a system, program, project or an activity or a product. It is a planned approach to safety. At the very core of the safety system is the need to identify potential hazards and then analyze risk. After that, the next steps are to rank hazards and assess risk, and then identify mitigation options. In this article, a framework is provided toward this aim for SMCs.

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(TCS: 4/5)

As workplace Organisation Unit, Effectiveness of Occupational Health and Safety (OHS) Committees: the Case of Bursa

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According the ILO's basic approach - joint responsibility must be taken by all concerned parties for the provision of occupational health and safety - in workplaces workplace OH&S Committees are the most effective units. There is a strong connection between OH&S Committees' effectiveness and success of OH&S policies. Indeed, the Labour Law No. 4857 came into force in 2003 have several regulations as binding decisions to enforce the decisions of OH&S committees.

In Turkey, relation to OH & S policies two important developments occurred in 2010. First, the Ministry of Labour and Social Security has begun preparatory of "National Occupational Health and Safety Strategy" in order to determine the next period of OH&S policies. One of the four main headings in the Strategy Plan is to underline the effectiveness of OH & S boards. Secondly, The Ministry of Labour and Social Security has launched preparations for an independent Health and Safety Law. Research of OH&S Committees effectiveness since Law No. 4857 will contribute to disposing the right steps for new OH&S act regulations.

There is very few academic studies are performed on OH&S committees effectiveness in Turkey yet. In this study, the effectiveness of OHS Committees; the formation of committees, the parties' participation in decision-making process, implementation of board decisions, binding, enforceable, and the results have been identified through the movement. This study is performed on leading sectors of automotive, textile and food industries in Bursa. The research was carried out by performing all OH&S members in workplaces by using our "prepared questionnaire".

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(TCS: 4/6)

Occupational Health and Safety and SME's

Ahmet Cevat Acar

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One of the functions of Human Resources Management is occupational health and safety including topics about employees health and safety at work. Occupational safety is defined as the ensurance of a safe workplace for all employees and protect them from injuries and deaths due to work related accidents. Occupational health deals with all aspects of health in the workplace and has a strong focus on primary prevention of hazards. Work-related accidents and occupational illness, which also have negative effects for the employees themselves and their families, should be considered in the case of a major load of the country's economy and social security system. Expenditure in this area should be seen as investment, not as a cost, and to prevent accidents and illness, creating "occupational health and safety" culture is beneficial.

Essential components of economics and competitive power are small and medium enterprises. In Turkey 99% of the enterprises employ less than fifty workers. In Turkish Economy, SMEs had a contribution of around 70 percent. When compared with large companies, they have advantages such as of offering personalized services, greater flexibility to adapt to market changes, also have a lean structure. However SMEs have some disadvantages such as greater difficulty in obtaining financing, less ability to access to technology, less bargaining power with suppliers and organizational/managerial weaknesses. In addition to that, one of the disadvantages is work related accidents and occupational illness that cause ineffectiveness and inferiority at SME's. According to 2009 statistics, both in EU and Turkey, 80 percent of total work related accidents and 70 percent of total occupational illness and 90 percent of fatal accidents occur at SMEs. It is known that off-the-record accidents are also high in number in small enterprises.

The reasons of work related accidents occurring more often in SMEs is that; they have limited capital, use outdated technology, do not have sufficient technical knowledge and qualified personnel and are not able to comprehend the importance of occupational safety and health. In addition to those mentioned above, there is lack of legislation and poor supervisions about occupational safety and health that increase work related accidents and occupational illness.

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Technical Session V: Social Dialogue, Partnership and Innovation in Occupational Safety and Health, ILO

Moderator: Judith Hackitt, Health and Safety Commission, UK

Date: 13 September 2011

Venue: Galata Hall

Time: 10:15 – 12:15

(TCS: 5/1)

Prevention of Work-related Stress Needs Shop Floor Initiatives and Obligatory Regulation

Klaus Pickshaus



IG Metall, Germany

Work-related stress is “one of the biggest health problem in the 21st century” (WHO). After the great financial and economic crises, enterprise restructuring accelerates and as a result work intensification and work-related stress are increasing.

The European social partners’ Framework Agreement on Work-related Stress of 2004 argues: “Work-related stress can be caused by different factors such as work content, work organization, work environment, poor communication. If a problem of work-related stress is identified, action must be taken to prevent, eliminate or reduce it.”

The European Survey of Enterprises on New and Emerging Risks (ESENER) noticed that 79% of European managers are concerned by work-related stress, but less than a third of companies have set procedures ready to deal with it. Especially in Germany, the establishment of procedure to deal with work-related stress is unfulfilled.

If we look what are the main drivers for better prevention, the ESENER Survey gives the following answers: The major reasons for addressing psychosocial risks in the establishment are at first (63 %) the fulfillment of legal obligations and secondly (36 %) the requests of employees or their representatives.

But the range of shop floor initiatives will remain limited if there is not enough pressure by obligatory regulation. The Report of the European Commission on the implementation of the Framework Agreement on Work-related Stress in February 2011 shows that many EU-member states improved the national regulation on work-related stress.

My conclusion is: We need better and more obligatory regulation to force and support shop floor initiatives for prevention.

(TCS: 5/2)

Occupational Health and Safety at the Core of the Social Policy of Veolia Environment

Antoine Frérot

Veolia Environmet, France

Aware that the labour environment is changing, that work methods are increasingly complex, that work conditions are constantly evolving, that modifications in or appearance of new types of risk are present, Veolia Environment has been committed, for several years now, in a participative occupational, health and safety management approach.

Veolia Environment is committed to guaranteeing the physical integrity and maintaining the health of its employees, while taking into account geographical, cultural and social contexts. This level of requirement, which targets excellence, is part of the social policy and positions of health and safety at work as one of its foundations.

The ambition of Veolia Environment also consists in controlling the impact of its activities on third parties and outside companies (subcontractors, suppliers, etc.)

Risk assessment, which it has positioned at the heart of its occupational risk prevention policy, is a means of defining objectives and action plans - periodically and continuously - in terms of work organization, material resources, personnel training and information.



Veolia Environment's references in Health and Safety are taken from local regulations and requirements imposed by standards developed in-house on the basis of the International Labour Organization.

These obligations are an integral part of the business and the results obtained contribute to individual and collective performance assessment.

As a solidarity-oriented company, Veolia Environment supports employees in difficulties and, as such, steers through specific actions in the health field.

The whole Veolia Environment payroll is involved by integrating these Health and Safety actions in its everyday operations through their regular assessment and adjustment.

(TCS: 5/3)

Tripartite Social Dialogue on Occupational Safety and Health in the Construction Sector

Maria Narducci

Ministry of Labour, Uruguay

In the construction industry Uruguay has a rich history in the practice of tripartism that begins (in matters of safety and occupational health) in 1987 but even before for the salary negotiation.

The construction was the first sector of productive activity that adopted the practice of tripartism as the backbone of all aspects and agreements related to health and security. In the period considered from its installation, we can point to as highlights the enactment of a specific regulatory framework for the prevention of occupational accidents, permanent training for the workers' delegates, conferences to discuss with employers and institutional representatives the issues of concern to promote better conditions and a better working environment, etc.

However, the most prominent example, because of its significance, has been without doubt the creation of a specific tripartite commission to monitor the health and safety in the construction of a Finnish pulp mill installed in our country and built between the years 2006 to 2008.

The depth of the agreements reached by employers, workers and institutional representatives will be subject to further comment.

(TCS: 5/4)

Ten Years of Positive Results in Safety and Health at Work by Means of Coordinated Policies with Social Agents

Concepción Pascual

INSHT, Ministry of Labour, Spain

The number of notified work accidents with sick leave in Spain, from 2000 to 2009, was reduced in absolute and also in relative terms; while in 2000 the total number of notified work-related accidents was approaching one million, in 2009 it was 617.000. The incidence rate of occupational accidents was reduced in this period, 2000-2009, by 45, 9% and this



reduction affected all economic sectors and industries, although the population affiliated with social security contingencies covered was increased in this period from 12, 3 to 15, 7 million workers of average. The decrease has been constant and significant, even in the periods of maximum economic activity and maximum occupation in sectors of higher risk, as in Construction sector, that reached 13% of working population, and, in which the incidence rate was reduced by 43%. This same trend continued in 2010 with a number of 553.000 accidents in working day and a 8,9% reduction of the incidence rate. Occupational Health and Safety national policies, arranged and agreed by workers and employers organizations, started with preferential National Action Plans and they have continued with Spanish National Strategy on Health and Safety at Work (2007-2012), and are one of the main reasons of the reduction of incidence rate. The agreement with social agents to study the diagnosis of the problems and, also, to set the measures to solve them, has made it possible to achieve the initial aims agreed during this period, and at the same time this allows us to face more ambitious challenges and targets in order to reduce work-related injuries during this decade.

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(TCS: 5/5)

Building Social Dialogue and Local Capacity in Occupational Safety and Health in CIS Countries

Wiking Husberg

ILO Decent Work Team for Eastern Europe and Central Asia

The OSH Team in ILO Moscow works to build social dialogue and local capacity at several levels.

National level – tri-partite preparation of national OSH profiles and programmes in seven countries based on the ILO Promotional Framework for OSH Convention 187 and creation of tri-partite OSH councils. Profiles and programmes have already been developed in six regions of the Russian Federation.

The OSH Team has developed three comprehensive training modules to build local capacity in OSH management systems, risk assessment, costs of poor working conditions and social dialogue in OSH. The training is provided for promotional purposes, practical basic training at the enterprise and training of trainers mostly for OSH centres - for the countries to build their own training capacity.

The upgrading of the legislation on OSH including labour inspection, which is supported with the Interstate GOST standard 12.0.230-2007 that is identical with the ILO-OSH 2001, provides the legal base for national tri-partite capability to modernise the national OSH system.

Tens of pilot enterprises are demonstrating best practices for the systematic improvement of working conditions through social dialogue. Over 70 enterprises in NW Russia have introduced elements of OSH MS and routine procedures based on a zero accident approach.

The CIS countries are going through a paradigm shift from hazard pay and search for who is guilty towards a modern preventive and systematic approach.

Uzbekistan is using a four step approach - information, instructions, creation of an OSH system and introduction of preventive risk assessment - for practical interventions in



industrial sectors and big enterprises. Over 30 events with 2000 participants annually cover enterprises representing around 800,000 workers.

Interactive self-improvement programmes are extensively carried out in informal agricultural areas (WIND in Kyrgyzstan, Tajikistan) and SMEs (WISE in Armenia).

The OSH Team activities have been supported by Finland and Korea. All produced materials are available in Russian and partly in English at www.ilo.ru

Technical Session VI: The Role of Prevention in Managing the Risks and Opportunities of Demographic Change, ISSA

Moderator: Peter Vavken, General Institute for Insurance against Employment Accidents and Occupational Diseases (AUVA), Austria

Date: 13 September 2011

Venue: Sadabad Hall

Time: 10:15 – 12:15

(TCS: 6/1)

Keynote

Jorma Rantanen

University of Jyväskylä, Finland

The work life of the world is experiencing demographic change due to new population dynamics, such as lowering birth rates, ageing populations, migration, changes in participation rates and reforms of schooling, employment and retirement policies.

Safety and health policies and practices need to be adjusted to such new dynamics by taking into consideration the growing mobility of workers, fragmentation of workplaces to smaller units and special needs of various groups of workers, including aged workers, young workers, migrant workers and several other special groups.

Some countries have conducted for decades systematic research on ageing workers and transferred new research knowledge into everyday workplace practices. The most important lesson of such research is that the ageing workers and several other special groups in the modern work life have numerous special needs and also several special strengths, which should be taken into account and considered in the development of working conditions, health and safety. If appropriately addressed, such groups can conduct successful work life and the measures for adjustment of their working conditions often turn out to be productive in the view of health, safety, economy and social policy.

For all this, new services are needed. As a result of the extensive research, new paradigms on promotion and maintenance of work ability, PMWA have been generated and tested in practice. The results from such new approaches have been encouraging and similar paradigms can be applied for several types of workers, such as young workers, migrants, handicapped etc. The new comprehensive approach takes into consideration not only traditional prevention in safety and health, but also promotion of all the other aspects of the working individual, including among others, psychosocial aspects of work, age management and leadership, competence development and sustainable promotion and maintenance of work ability in all stages and during the whole working career of the employee.

(TCS: 6/2)

Preventing Risks to Young Workers as Seen in Initiatives in European Workplaces

Sarah Copsey

European Agency for Safety and Health at Work (EU-OSHA), Spain

According to EU statistics young workers under 25 are more likely to suffer non-fatal work accidents than other age groups. Those starting a new job are especially vulnerable. Young workers need to be placed in safe and suitable jobs that are matched to their abilities and given adequate training and supervision. EU-OSHA has collected and analysed examples of good practices from workplaces and has also examined good practices for including OSH in education.

Innovative features of the cases included: more experienced young workers sharing their OSH experiences newer recruits and acting as mentors; using competitions to stimulate interest and motivate work; feeding the results of student work back into workplace risk assessments; linking the training to a recognised diploma. Several examples were developed in partnership with various agencies. Lessons and points of interest include: mainstreaming a youth dimension into all prevention actions; ensuring the consultation and active engagement of young workers – listening to them and taking account of their suggestions; the value of mentoring both to the older workers acting as mentors and young workers; using active, participatory methods to solve real work problems and feed the results back into the risk assessment process; covering ‘female’ and ‘male’ jobs; apply the methods being developed by educators in schools to teach risk education in the workplace.

A two-way strategy is needed to combat risks to young workers: a prevention culture needs to be promoted among new recruits, but also at all levels of education. Both at work and school active learning methods should be used, keeping close relevance to real work and circumstances. But training will only be effective if it takes place within the context of an effective safety culture and management system to prevent risks, with top-level commitment and where actions are based on risk assessment.

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(TCS: 6/3)

ENETOSH- Implementing OSH into Lifelong Learning

Ulrike Bollmann

Institute of Work and Health of the German Social Accident Insurance, Germany

One of the strategic objectives of the European Network Education and Training in Occupational Safety and Health (ENETOSH) is to integrate occupational safety and health into possibly all spheres of life. The central medium for that purpose is the concept of lifelong learning.

What perception of learning is the basis for the concept of lifelong learning? What kind of learning do occupational safety and health require? In a first step and loosely based on Thomas Morus, the utopia of a transgenerational learning culture for safety and health protection will be described. A second step will outline what plays a role in learning regarding safety and health protection. This will be supported by practical examples.

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(TCS: 6/4)

Demographic Change in the World of Work: Challenges for Prevention

Sigfried Sandner

ISSA Special Commission on Prevention, Switzerland

In many countries workers over 45 years of age will soon be forming the majority of workforces. These demographic changes are a great challenge for the stability and continued existence of social security systems. The ISSA Special Commission on Prevention has examined which concrete contributions occupational health and safety measures can make and how the relevant conditions for these can be created to overcome the demographic problems.

The aim for all people to participate in the life of society as actively and for as long as possible throughout their working life is absolutely indisputable. This not only takes a burden off social security systems and stabilizes them, it is also worthwhile on medical and ethical-humanitarian grounds. Preventive measures to improve occupational health and safety take on a key role in this context.

A person's ability to work does not automatically decline with advancing age, but it does change. Older employees have skills and potentials that are less developed in younger workers. Then again, there is an age-specific decline in primary physical abilities.

The following five spheres of activity were identified for the ageing-appropriate and age-appropriate prevention:

1. Social, socio-political and economic context
2. Leadership and personnel management
3. Work design and organization
4. Promoting and preserving the health of employees
5. Staff training and further training

Occupational health and safety for older workers is high-quality prevention. Prevention optimized in this way and established in companies and enterprises creates the conditions for a careful and considerate approach to health from an early age thus, benefiting younger employees as well. Young employees need to be protected through working conditions that are conducive to good health so that they stay healthy and active in their later working life. Prevention is taking on a key role in overcoming demographic change in the world of work through increasing the ability to work and employability of an ageing population by effective prevention in all phases of working life.

These findings and conclusions were collated into a brochure of information and recommendations. With this publication the ISSA Special Commission on Prevention wishes to disseminate important principles for an ageing-appropriate and age-appropriate design of working life.

(TCS: 6/5)

Demographic Change and Work Ability/Employment (Fit for the Future- the Austrian Programme to Maintain Work Ability)



Irene Kloimüller

General Institute for Insurance against Employment Accidents and Occupational Diseases (AUVA), Austria

In 2008 the Austrian General Accident Insurance Institute (AUVA) and the Austrian Pension Insurance Institute jointly started to develop a prevention programme to reduce illness-related early retirement and maintain workability up to regular retirement age. On the whole 20 companies in highly demanding industries with about 12,500 employees are participating. The programme's targets are to prove that workability can be maintained or even enhanced, to develop a tool kit with successful measures and methods and to publish the results as encouragement to other companies.

By using standardised methods the employees' work ability status is analysed. The analysis is primarily based on the *Work Ability Index Plus*[™], an extended version of the Work Ability Index. The companies are fully evaluated with the WAI Plus three times. The key part of the questionnaire is the WAI (2nd edition; Tuomi K, Ilmarinen J, Jahkola A, et al; 1998), the Freiburg Complaints List (Fahrenberg; 1975) and additional tested questions covering various new dimensions along the model "house of workability". Scales for dimensions as leadership, co-operation, scope of action (autonomy), attitudes, competence, work condition and work strains show the correlation to workability (dependent variable).

7.700 employees evaluated showed rather good average WAI scores of 40.84 (f: 40.52; m: 41.23). WAI scores decreased with age, low qualification, night work, length of working hours, lack of support and negative social relationships. Along the results of the house of work ability tailor-made measures were implemented in the pilot companies. They aim at corporate culture, structures and processes as well as staff behaviour. In all companies trainings of the management and workers council were obligatory. On the whole over 300 interventions were set up to now.

In my presentation I will show successful interventions for maintaining workability, introduce the WAI Plus and draw first conclusions.

(TCS: 6/6)

Abloy's Age Master Programme

Kari Härkönen

Abloy Oy, Finland

Abloy Oy has developed a programme called Agemasters. The program was started in 2001 to improve and maintain ageing workers' health and work ability.

The target group consists of all personnel aged 55 years and over.

The background issues for the program are

- a) need for managing the age structure of employees
- b) maximizing the well-being of older workers
- c) harnessing know-how exchanges between employees

The Agemasters programme contains among other things age management, medical check-ups and personal fitness tests, personal fitness programme planning, free use of a special fitness club for elderly people, ageing seminars, participation in sporting events, The

Agemasters' Club for peer interaction and Agemasters days-off. Agemasters get 6 - 14 extra days-off annually when they are 59 years or over. Number of days rise every year from 6 days to maximum of 14 days for Agemasters 63 years or over.

The Agemasters programme contains:

- Age management: The managers are being trained to pay attention to the requirements of different periods of life.
- Medical check-up and personal fitness test
- Personal fitness programme planning
- Free use of a special fitness club for elderly people
- Ageing seminars, for example about healthy lifestyle
- Participating in sporting events, such as hiking and cross-country-skiing
- Massage
- The Agemasters' Club for peer interaction
- Agemasters days-off

Results of the Agemasters program

- The average retirement age among Abloy employees has risen from 59,5 years to 63 years.
- Respect for older workers contribution has risen.
- Self-esteem of the aged employees has increased.

Abloy's company doctor, Mr Rainer Icén, has gotten feedback from agemasters that they feel that their control over their own life has improved. The time that the aged employees spend outside work isn't totally spent on resting. They also have energy for hobbies. In other words the quality of working life and the quality of personal life has improved.

In the future, one important target for the Agemasters programme is to improve the transfer of tacit knowledge. Older employees have accumulated knowledge and skills through their working experience, and transferring that knowledge to their younger colleagues will be a crucial success factor for the company.

(TCS: 6/7)

Worker Representative

Fiona Murie

Building Wood Workers International

(TCS: 6/8)

Social Insurance Representative

Gerhard Kraus

German Social Accident Insurance Institution for the Energy, Textile, Electrical and Media Production Sectors (BG ETEM), Germany



XIX World Congress on
Safety and Health at Work

- Final Remarks

Peter Vavken

General Institute for Insurance against Employment Accidents and Occupational Diseases
(AUVA), Austria



Regional Meeting



Regional Meeting

Regional Meeting 1: Regional Meeting ALO/ Arab Labour Organization

Modaretor: HE. Ahmed Luqman, Arab Labour Organisation

Date: Tuesday September 13, 2011

Venue: Hasköy Hall

Time: 13:45-15:45

(REG: 1/1)

The Situation of the National Legislations of Occupational Health & Safety

Khalil Abo Khurma

Arab Labour Organization,

In the Middle East, Around 19000 work-related deaths were estimated in 2005, despite ALO efforts to improve working conditions. To tackle this problem, ALO is holding this regional meeting on "challenges facing the Arab countries in building a culture of prevention", which aims to:

- present what have been achieved at the Arab level in promoting a culture of prevention according to Seoul Declaration (Korea 2008) and the recommendations of the third Arab conference for occupational health and safety(Bahrain 2008).

- discuss the challenges encountered in building the national preventive culture.
- propose solutions and appropriate mechanisms to overcome these challenges.

To review and assess the situation of preventive safety & health culture, ALO has addressed tripartite constituents in the Arab countries to prepare reports based on the following three main topics:

- 1-The situation of enforcing and developing the national legislations of occupational health and safety.
- 2- The reality of training and raising awareness of OSH issues at work.
- 3- Current programmes and future plans to promote a culture of prevention.

My presentation highlights the first topic" The situation of enforcing and developing the national legislations of occupational health and safety" by reviewing the responses of the Arab countries, focusing on the reality of the ratification of the International and Arab labor conventions as well as the enforcement and development of the national legislations on occupational health and safety, analyzing the potentials, obstacles and challenges, investigating the strength and weakness points, proposing alternative solutions, opportunities and risks to be included in the Arab report on the " challenges facing the Arab countries in building a culture of prevention".

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(REG: 1/2)

Challenges Facing The Arab Countries In Building a Culture of Prevention

Rania Rushdie

Arab Labour Organization/Arab Institute for OSH, Syria

In the Middle East, around 19000 work-related deaths were estimated in 2005. To prevent the dangerous exposures of Arab workers and reduce the mortality rate, ALO has been working on spreading awareness and building a culture of prevention throughout Arab countries.

The objectives:

- To present what have been achieved at the Arab level in promoting a culture of prevention according to Seoul Declaration (Korea 2008) and the recommendations of the third Arab conference for occupational health and safety (Bahrain 2008).
- To discuss the challenges encountered in building the national preventive culture.
- To propose solutions and appropriate mechanisms to overcome these challenges.

By reviewing and assessing the reports from most of Arab countries which based on the following three main topics:

- The situation of enforcing and developing the national legislations of occupational health and safety.
- The reality of training and raising awareness of OSH issues at work.
- Current programmes and future plans to promote a culture of prevention.

To conclude in issuing an Arab report on the "challenges facing the Arab countries in building a culture of prevention" by reading the current situation, investigating the strength and weakness points and analyzing the obstacles hindering building the culture of prevention to find the appropriate alternatives and shape the Arab plan of action to determine the procedures and basic steps to be followed.

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(REG:1/3)

The Role of Arab Labor Organization in Promoting a Culture of Prevention in the Arab Countries

Dina Said

Arab Labour Organization

Arab labor organization, founded in 1965, is one of the specialized organizations of Arab league. Its unique tripartite structure in the Arab world gives an opportunity to (workers, employers and governments of 21 Arab countries) to freely debate , elaborate and shape labor standards ,policies, plans and programs .Alo plays a key role in coordinating the partnership between them in addition to provide a platform for dialogue in order to exchange good experiences and information. One of its main objectives is to improve working conditions throughout the member countries by Arab labor conventions, recommendations and strategies as well as by Arab Institute for Occupational Health and Safety, it was established in 1983 as an executive institute subsidiary to ALO, which its main goals are: promoting OSH preventive awareness and developing technical skills in Arab countries; by



training , awareness and publishing, technical support and advice and collaboration and coordination with Arab, regional and international bodies and organizations.

Alo and Arab Institute for Occupational Health and Safety have a significant impact on promoting the culture of prevention in Arab countries and this regional meeting on (challenges facing the Arab countries in building a culture of prevention) is only one of their activities in this regard.

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(REG: 1/4)

Why I Moved from Engineering towards HSE?

Mohammad Hussein

Emirates Aluminium, United Arab Emirates

Why I moved from engineering towards HSE? The misconception understanding of the role of the safety officer within the Arabic cultures is a major challenge, most of Arabic nations deal with the safety officer as he is a police man, “implement, and then argue” We would like the role of safety officer to change to be similar to “customer care” rather policing the organizations, to do so we need to look at different experiences and learn from it. At an advance stage, the safety or HSE officer could play major enforcement role within the governments, but that is only achievable when we reach a well-established Safety Cultures at all nations’ levels. The presentation will talk about the following points - Definitions of Safety Officer, Supervisor and manager - Roles and Responsibilities - Qualifications - Back-grounds - Development - Management skills with the work-force- Fair usage of the authority - Success stories - Q&A

Keywords: Arabic HSE professional

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(REG: 1/5)

Evolution of the Legislation and Regulations of Occupational Safety and Health in Morocco

Loubna Tahri, Kahlain Kenza, El Kholti Abdeljalil

National Institute for Working Life (INCVT), Morocco

Morocco has adopted occupational health, safety and hygiene legislation since 1913. The legal arsenal has known, since, an evolution in response to political and economic development. Our goal is to situate the relevance of the Moroccan legal system in relation to national needs and international developments in this field. Instrument – method. Our work is based on critical analysis of the evolution of Moroccan legislation by comparing it to the regional and international regulations. It is also an analysis of the adaptation of texts to the current Moroccan context. After waiting for 20 years, the new Labour Code came into force in 2004, accommodating employers’ obligations and workers’ rights regarding Occupational Health and Safety (OHS). This code performs an advanced course in OSH by collecting and organizing a number of texts. However, some issues are still marginalized: general principles of prevention, technical role of the occupational physician and occupational risk assessment.



Faced with the considerable progress of the Moroccan economic fabric, inadequate OSH coverage (3%) and low involvement of companies (10%), the need to organize occupational risks prevention is becoming more and more necessary. For this, the government decided to enact a new specific OSH framework law and the creation of the National Institute of Occupational Life responsible for leading the national policy on OSH. The experience of Morocco, as an emerging country, is interesting to study because it demonstrates a real willingness to meet the challenge of OSH in our country.

Keywords: Occupational health, safety, legislation, Morocco

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Regional Meeting 2: Regional Meeting ALASEHT/ Latin American Assoc. of Safety and Health at Work

Modaretor: Renan Alfonso Rojas Gutierrez, ALASEHT, Colombia

Date: Tuesday September 13, 2011

Venue: Balat Hall

Time: 13:45-15:45

(REG: 2/1)

Health and Safety Management, Culture and Leadership

Roger Marks

National Safety Council, USA

- Motivators and Benefits for Managing Safety
 - Financial
 - Humanistic
 - Regulatory
 - Public relations
 - Employee/labor relations
- Reactive vs. Proactive Safety Management System
- Six Phases of Safety Excellence as Organizations Develop a Positive Safety Culture
- Model for Organizational Culture—How Safety Excellence Becomes a Part of an Organization's Culture
- Creating a Positive Safety Culture
- Difference Between Authority and Leadership
- Assessing One's Leadership Skills

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(REG: 2/2)

Self-Management Safety and Health at Work in the Mines

Jose Ignacio Villanueva

Director General Safety and Health at Work Ministry of Labor and Social Welfare, Mexico

The “National Development Plan 2007- 2012” considers the prevention of risks at work as one of the principal priorities in the labor policy. The “Sectorial Labor and Social Welfare Program 2007-2012” foresees as one of its main objectives, the creation of a self-evaluation culture, through which provides orientation and advice to employers about the most effective way to comply with the labor regulation. For such purpose, within the framework of the Public Policy on Safety and Health at Work 2007- 2012, approved at the National Advisory Commission on Safety and Health at Work, it was proposed to boost the Self-management Program on Safety and Health at Work (PASST, in Spanish). This program is designed to promote the implementation of management systems on safety and health at work, in order to facilitate the operation of safety and healthy workplaces. In order to support the establishment of the PASST, the Ministry of Labor and Social Welfare has made available to the obligated various computer aids, through which it is systematized the different processes of the program. In April the 2nd of 2008, an agreement was made with the Mexican Mine Chamber to promote the *PASST* at those workplaces affiliated with that organization.

Gradually, since the subscription, the principal mine entities in our country have been implementing this program and have observed significant reductions on the accidents rate.

In our presentation you will find the principal characteristics of *PASST*; of the tools available for those who are interested, and the results obtained on those mine enterprises that have gained the “Safety Company Award”, within the framework of this program.

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(REG: 2/3)

Improvement of Occupational Safety and Hygiene Conditions in the Construction Sector in Costa Rica

Maria Lourdes Medina Escobar

Technological Institute, Costa Rica

Construction industry is a complex work environment: large number of workers, temporary and rapidly changing work sites, hazardous materials, heavy duty machinery and equipment and different job tasks, which can result in occupational accidents and health related problems. There are many known carcinogens occurring in the construction industry, including fibers, wood dust, welding fumes, silica, solvents, etc., but it is difficult to estimate exposures and thus the impact of these risks. Physical agents such as heat stress, noise and vibration can also have an effect on the worker’s health. In Costa Rica, the percentage of accidents between 1997 and 2006 increased from 9.5 to 15.1 and the lack of safety measures has proved to be one of the mayor causes of accidents in construction sites due most likely to poor work practices, insufficient training and absence of prevention guidelines to manage the risks. The aim of this research is to develop information about chemical, physical, ergonomic and safety risks that may lead to changes of the working conditions in construction activities in Costa Rica. This partial report includes the analysis of information

generated from the application of different data collection and assessment tools for proposed agents. To date, a total of 400 samples of chemical contaminants, 136 evaluations for physical agents, 95 for ergonomics and 42 for safety issues had been processed. The outcome of the study, for participating companies will be: developed capacities in prevention assessment, work practices and methods to reduce the main detected risk factors.

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(REG: 2/4)

Leadership Training Workers in Management of Improving the Conditions of Safety and Health in the Workplace

Enrique Perez Mendoza

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In the context of developing a culture of prevention in the workplace and the promotion of decent and productive work, it is essential to involve the workers. Workers must establish mechanisms to improve their participation in risk prevention and provide the technical skills that allow managing the adoption of preventive measures to protect their safety and health in workplaces. In this context, the 2009 Labor Inspection implemented the "Leadership Training Program in Management Workers Improvement of Living and Working Environment" which was assisted by the Assistant Secretary of Labor and technical assistance ILO. The Leadership Training Workers' program aimed to teach the skills to organize and manage the safety and health at work and core labor standards, which took place in two stages, whose characteristics were:

- First Stage. Through the ILO's technical assistance provided by Valentina Foratieri and Giuseppe Baffert, 25 trainers were trained in the methodology of the Risk Map- ACTRAV Turin - ILO. This methodology is characterized as didactic, flexible, participatory, knowledge-building part of the experience of working and adapting to the realities present in the work.
- Second Stage. At this stage each of the participants had to make a course in their respective trade unions, using the methodology learned, counting on technical support from the Labor Inspection.

The results of the program were:

- 1) 67 trainers were trained in the methodology Risk Map - ACTRAV ILO Turin.
- 2) 70% of the leaders trained (union officials and members of joint committees) joined to work on issues of Safety and Health at Work in their unions and workplaces.
- 3) La Risk Map methodology ACTRAV-ILO Turin, is adopted by the National Tripartite Committee of Construction, which implements the "Fundamental Skills Training Safety and Health in the Construction Sector - Building Chile", whose characteristics are:
 - This course is designed to generate basic skills in construction workers to perform a safe and healthy working.
 - Unify a training program in safety and health at work, both in methodology and content, which must be dictated by any administrative authority of the insurance of occupational accidents and diseases.

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(REG: 2/5)

Implementation of Risk Profiles In Mexican Sugar Mills

Dagoberto Rojas, Leonard Mertens

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This article is based on the modernization labor process of the sugar industry in Mexico to confront the gaps of a decent and productive work, specially the notable high level of accidents (2 to 3 times higher than the national average). The development of a sector competence profile which highlights the issue of security, health at work and the implementation of Risk Profiles in 14 sugar mills since 2009 is a change with demonstrative effect for developing and strengthening the management of safety prevention and health of a responsible company.

The Mexican sugar agricultural industry has direct impact in 12 million people and their families; the modernization process is caused by a loss of competitiveness and the consequences of labor relations historically conflictive.

This is a change that creates a virtuous circle where the political will of the actors in the sector learns from the rigorous standards and technical innovation required which emphasizes the health and safety issue on the agenda of the sector. The proposal is to develop a management in security prevention and health in a comprehensive way that does not only depend on the occupational health and safety specialist but also on all the members where social dialogue plays a preponderant role.

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(REG: 2/6)

Developing Prevention Strategies for in Critical Economic Sectors in the Latin America: Construction, Mining and Agriculture

Renan Alfonso Rojas Gutierrez

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Representing the Latinamerican Association of Occupational Health and Safety at Work (ALASEHT) the paper develops a statistical information sub-collection of occupational accidents and diseases, also including a review of prevention programs and a series of findings that show the current reality and the projection of the region for the sectors of construction, mining and agriculture.

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(REG: 2/7)

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Regional Meeting 3: Regional Meeting INRS/French Speaking African Countries

Modaretor: Stephane Pimbert, INRS, France

Date: Tuesday September 13, 2011 Venue: Sütlüce-1 Hall Time: 13:45-15:45

(REG: 3/1)

The New Moroccan Project for Promoting Occupational Safety and Health

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(REG: 3/5)

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Regional Meeting 4: 6th International OSH Regional Conference (Session 1) /The Role of Labour Inspection in OSH/ (MoLSS)

Modaretor: Vedat Reha Mert, MoLSS, Turkey

Date: Tuesday September 13, 2011

Venue: Sadabad Hall

Time: 13:45-15:45

(REG: 4/1)

Role of OHS on the Labour Inspection

Zeki Kömürcü

Ministry of Labour and Social Security, Turkey

Labour Inspection, to ensure compliance with all national labor laws, and thus endangering the health and safety risks to people and conditions of employment for all businesses is properly under control by keeping a fair, safe, healthy, consistent and efficient work environment will ensure the provision.

Business Supervision, at the enterprise level in the field of occupational health and safety advice to ensure compliance with the legislation, giving the role of preventing and correcting.

Labor inspection, both in the field of occupational health and safety, and improving working conditions, bridges the gap between the social partners and contributes to work peace.

In addition, about the working life of employers, workers and other stakeholders to increase awareness of working life and brought the catalyst for the fulfillment of mutual obligations.

Ensuring and protecting work peace the most important goal for Labour Inspectors who carry out employee-employer-government triangle. For this reason, labor inspectors who are responsible for monitoring, checking and inspecting working life, have the authority to, businesses, and plug-ins, running a business style and related documents, tools and materials, equipment and machinery, raw and processed materials, the material needed for a job if necessary, and investigate the coordinations and facilities related to the workers lives, health, safety, training arrangements and accommodation of rest or sleep, and prevent criminal activities that encountered, in the terms of the Labour Law. Labour inspectors are not only punitive educational, but also informative and act a guiding approach when in an effort to detect and eliminate the risks which existing in workplace and stem from working environments and conditions.

One of the most significant challenges facing organizations today, because investors are not employees safe and healthy work environment. Whereas, organizations reach a better competitive conditions, only possible when the employees carry out in a planned and systematic studies on occupational health and safety.

Occupational health and safety actions to be compatible with the organizations overall strategy of continuous improvement by taking a systematic approach need to be resolved within the framework.

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(REG: 4/2)

Field Leadership: A Method Used in Çayeli Copper Company to Reduce at Risk Behaviors

Iain Anderson, Erkan Erkaya

Çayeli Copper Enterprises, Turkey

If occupational health and safety is valued by the management of an organisation then it is likely that this will be reflected in the organisations culture. Safety excellence is a journey and it requires the direction of management to move from a reactive state to interdependency. Achieving excellence in health and safety requires more than the mere application of policies, rules and procedures, to achieve greatness requires commitment to the belief that all accidents are preventable from an organisations leadership. Çayeli Bakır İşletmeleri A.Ş. (CBI) has recognised that to reduce injury rates further at risk behaviours of employees and contractors must be systematically addressed. Field Leadership is a method employed at CBI to promote the reduction of at risk behaviours leading to injuries.

Key Words: Leadership, behaviour, audits, inspections, meeting

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(REG: 4/3)

Muhammed İqbal

Labour Inspection and Occupational Safety & Health Compliance, Pakistan.

Inspection and monitoring of labour standards particularly that of occupational safety and health at workplace play an important role for their implementation, recognition and ensuring that how State takes care of its working class. Realizing the importance of inspection, Islamic Republic of Pakistan ratified the Labour Inspection Convention, 1947 (C81). Laws containing provisions on occupational safety and health were promulgated and labour inspection system was accordingly put in place for industrial and commercial undertakings, mines and dock workings. This presentation gives account of the international standards for labour inspection and occupational safety and health; Constitutional and enabling legal provisions of the country on these subjects; and detailed analysis of local labour inspection system for enforcement with regard to objectives, institutional arrangements, structure, methodology and capacity. The relevant statistics, practical experiences of regulatory agencies and system limitations will also be shared alongwith suggestions for enhancing system effectiveness and efficiency and expanding its scope for extending the needed services to the grey areas in the light of international instruments.

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(REG: 4/4)

Falls from a hight → A Huge Task for Labour Inspection !

Karl Heinz Noetel

German Social Accident Insurance Institution for the Building Trade, Germany

The lecture will focus on the developments in the area of falls. During all the seminars, symposias and conferences in the last years we got a lot of information about new solutions and technologies which could help to improve the accident situation in the falls area especially in the Small and Medium sized Companies. To get a feeling about the accident situation in this field statistical datas from several countries will be introduced and interpretations will be given.

Based on accident examples the lecture will focus on the following questions:

- what changed in the last 20 years,
- why do we still have different regulations in the countries for fall protection,
- why are we still doing the similar mistakes
- are we using the right methods to change the situation?

Some possible solutions / ideas will be introduced and the lecture will end with a sequence of pictures emphasizing all participants of this congress to cooperate for improving the situation.

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(REG: 4/5)

Benzene Exposure Assessment in Oil Platforms

Luiz Sergio Brandao Oliveira

Ministry of Labour, Brazil

The main source of Brazilian petroleum comes from oil wells laid in high sea by oil platforms. As a complex work places the main risks classified can be identified, and due to work regimen, the exposures to harmful agents, especially chemical ones, are supposed to be larger than to those of the onshore workers. Exposures to Benzene were a special concern for the workers and after a tripartite negotiation carried on by the National Committee of Benzene the enterprise (PETROBRAS), agreed to make an assessment of occupational and environmental concentrations of the substance in five oil platforms representative of the whole process of production. We adopted the methodology used by the HSE in the Offshore Technology Report – OTO 1999 088, but expanding it and including, short-term and instantaneously exposures assessments as so as indoor environmental assessment and biological monitoring of exposed workers (urinary ttM-A). An analysis of hematological series of the exposed was also performed. We used diffusive sampling tubes (SKC®) for the time weighted exposure assessment, but for the short-term exposure assessment tubes of active charcoal adapted to an adjustable flowing pump. Results are presented in details and showed low values. The urinary ttM-A concentrations pointed out a good correlation with the environmental assessment values and thue hematological series disclosed no significant alterations. Instantaneously and environmental indoor assessments were done in a second phase and revealed mean results lower than 3 ppb. We concluded that Benzene exposure in Brazilian oil platforms does exist but in a lower profile than in those assessed in the HSE study and in accordance with the national standard of exposure, the Technical Reference Value of 1 ppm, but considering its harmfulness and cancerigenous potential, continuous monitoring of those workplaces are essential.

Keywords: Benzene, oil platforms, occupational, environmental, assessmente



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Regional Meeting 6: Regional Meeting ASEAN OHSNET / Best Practices on OSH in Asia/ ASEAN OSHNET

Modaretor: Ma. Teresita S. Cucueco, Occupational Safety and Health Center(OSHC), Department of Labour and Employment (DOLE) and ASEAN OSHNET Executive

Secretariat, Philippines

Date: Tuesday September 13, 2011 Venue: Sütlüce-2 Hall Time: 13:45-15:45

(REG: 6/1)

Supporting Grassroots Action in Improving OSH in Informal Economy Workplaces in Cambodia_ Impact on National OSH Policy

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Introduction: Cambodia places a high priority on improving safety, health and working conditions of informal economy workplaces. Home workers, farmers and small construction workers, many of whom are women, are typical informal economy workers who receive little safety and health protection. The hard-to-reach and informal workplaces are often the most hazardous and normally operate outside the regulatory system in the poor working condition, which are needed to be improved. The Ministry of Labour and Vocational Training of Cambodia, in cooperation with the ILO, has assisted home workers, farmers and construction workers in improving working conditions and productivity by using participatory training methodologies. **Methods:** The following steps were taken to train home workers, farmers and construction workers: (1) to build collaborative networks with the government agencies, workers' and employers' organizations and NGOs; (2) to visit home workplaces, rice fields and small construction sites and collect good examples in safety and health; and (3) to develop a participatory training programme for home workers, farmers and construction workers by adapting ILO's WISE (Work Improvements in Small Enterprises) programme, and (4) to train representatives of the government, workers, employers and NGOs as safety and health trainers to support home workers, farmers and construction workers. **Results:** 3 participatory training programmes for home workers named WISH (Work Improvements for Safe Home), for farmers named WIND (Work Improvement for Neighbourhood Development) and for construction workers called WISCON (Work Improvement for Small Construction) were developed learning from the WISE programme. The each WISH, WIND and WISCON programmes consisted of a 30-item action-checklist, good example illustrations and texts explaining practical, low-cost improvement measures. The trained safety and health trainers visited and trained many home workers, farmers and small construction workers by using the WISH, WIND and WISCON training manuals. The trainers, after conducting the initial WISH, WIND and WISCON trainings, made follow-up visits to the trained home workers, farmers



and construction workers for the sustainable improvement actions. The Ministry carried out achievement workshops for the trainers and trained home workers to exchange experiences.

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(REG: 6/2)

Workplace Safety and Health Enhancement in China

Shi Yanping

State Administration of Work Safety, China

Vast and densely populated as China is, can you imagine how challenging it is to better the performance in workplace safety and health under this circumstance? Challenging as it has always been, for years and years the Chinese government has been striving hard for promoting safety and health in workplace. This presentation deals with the recent achievements and challenges of workplace safety and health in China, from which you will gain some insight to what the Chinese government has been trying to do to promote workplace safety and health in the country.

Keywords: Legislation framework, team building, technological and policy measures, improvement

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(REG: 6/3)

Regional Cooperation in Raising OSH Standards

Silas Sng

Workplace Safety and Health Council, Singapore

Regional cooperation can be a useful lever in strengthening OSH standards. ASEAN OSHNET has introduced numerous initiatives in recent years to accelerate ASEAN's progress towards better OSH performance. Singapore is an active participant in the ASEAN OSHNET activities. In particular, as the country coordinator for OSH inspection in ASEAN OSHNET, Singapore have conducted numerous training and workshops on OSH inspection which remains a key lever in raising OSH standards. Our efforts are aligned with the ASEAN OSHNET Plan of Action and we have seen some positive outcomes as a result of the implementation of the Plan of Action. Moving forward, ASEAN OSHNET has reviewed and introduced a new Plan of Action to take a more action-oriented approach in raising regional OSH standards, including OSH inspection standards.

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(REG: 6/4)

Developing Safety Officer System in Thailand-Practical Measure to Reduce Occupational Accidents in the Workplace

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Safety Officers can have a positive impact on the OSH capabilities of the enterprises for which they work. In Thailand, the employment of safety officers has been mandated in certain industries since 1985. The coverage of the requirements was expanded in 1997 and 2006 to several types of industries such as mining, quarries, petrochemical, petroleum, manufacturing, construction, transportation, gas station, etc. which were required by legislation to employ safety officers. The safety officers are differentiated by the education or training they receive: there are five types of safety officers-supervisor, management, technical, higher technical and professional. The type of safety officers to be employed is based on the type and size of industry. Some safety officers are graduated from the universities, some are trained by the training providers. The Department of Labour Protection and Welfare within the Ministry of Labour implemented an eight-step reform of the safety officer system in 2006 to meet the demand for more safety officers. These eight-step are (1) ensure that a training provider has a quality management system certification before approving the provider to conduct safety officer training, (2) require training providers to meet minimum standards on training arrangements, (3) set up a system to monitor the quality of the training providers, (4) establish minimum trainer qualifications for each level of safety officer courses, (5) organize an annual seminar for training providers to inform them of the latest OSH developments, (6) outline the duties and responsibilities of safety officers to clarify their roles, (7) mandate that safety officers attend a refresher training annually, and (8) produce brochures and internet materials on useful OSH information to guide safety officer towards better performance. Since 1997, there has been a gradual decrease in occupational accident rate. Safety officers have involved in contributing to an improvement in occupational accident rate.

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(REG: 6/5)

The Best Practices in the Implementation of the Seoul Declaration on OSH “Development of OSH in Viet Nam”

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Protecting workers from occupational accidents and diseases and promoting safe and healthy work environments are an increasingly important agenda of the Decent Work Country Programme (DWCP) in Vietnam. The reported occupational accidents have increased annually about 2,45% during 2006-2009. In 2009, 6.250 occupational accidents occurred, 550 workers died and 1.221 got injured seriously. These reported cases are mostly from large enterprises. It is believed that more accidents and fatalities have taken place in smaller workplaces without being reported to the government. There is an acute need to strengthen OSH protection in small enterprises and informal economy workplaces in Vietnam. The First National OSH Programme 2006 - 010 have being implemented successfully and the second National OSH Programme period 2011-2015 was approved in December 2010. It should be noted that extending OSH protection into small enterprises is still described as one of the seven priority action areas of the second National OSH Programme. The National OSH Programme, referring to the ILO Promotional Framework for OSH Convention (No. 187, 2006), intends to strengthen national OSH systems and provide adequate OSH protection for all workplaces. The seven priority action areas of the national OSH programme are: (1) capacity building of the state administration on labour protection,



(2) mining and construction and safe use of electricity, (3) agriculture and rural occupations, (4) small and medium-sized enterprises, (5) prevention of occupational diseases, (6) information, training and public awareness raising, and (7) application of scientific and technological advances. Vietnam already ratified ILO Occupational Safety and Health Convention (No. 155, 1981) and needs to implement the Convention effectively. Other key ILO OSH instruments, for instance, ILO Promotional Framework for OSH Convention (No. 187, 2006), Occupational Health Services Convention (No.161, 1985), or ILO Guidelines on OSH Management Systems (ILO-OSH 2001), provide sound guidance for strengthening national OSH systems of Vietnam. Vietnam is the focal country to enhance the National OSH Programmes in ASEAN-OSHNET. This regional collaboration will contribute to further implementation of the prioritized activities in the Decent Work Country Programme (DWCP) of Vietnam.

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(REG: 6/6)

ILO Technical Cooperation in Developing National OSH Policy Frameworks

-Practical Examples from Asia-

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The ILO has been working with member states to promote the National OSH Policy Frameworks to strengthen national OSH systems in line with ILO's Promotional Framework for OSH Convention (No 187, 2006). Many countries in Asia have taken common, practical steps to develop national OSH programmes reflecting the views from workers' and employers' representatives as well as from government agencies responsible for OSH. The first step was to organize national tripartite OSH workshops to gather diverse views on the national OSH situation and discuss priority national actions. The second step was to set up tripartite and inter-ministerial taskforces to prepare the national OSH programme. The third step was for the taskforces to analyze the national OSH profiles, identify the national priority OSH actions and targets, and draft national OSH programmes. The draft national OSH programmes were circulated to ministries concerned and workers' and employers' organizations for their comments before finalization. The exercises to design national OSH programmes opened up practical opportunities for different ministries, and workers' and employers' organizations to work together. In ASEAN, for example, Cambodia, Indonesia, Lao PDR, Malaysia, the Philippines, Singapore, Thailand, and Vietnam have launched their national OSH programmes with clear targets referring to the new ILO Convention. These new national OSH programmes in Asia have common important goals. They are: (1) building clear OSH legal frameworks for workers and employers, (2) improving law compliance and performance of enforcement, (3) establishing practical workplace OSH mechanisms (OSH management systems approaches, safety officers, active safety and health committees, etc.), (4) special programmes to address construction, mining and other hazardous occupations, (5) reinforcing occupational accident and disease reporting systems, and (6) extending OSH protection to small enterprises, informal economy workplaces and rural sectors. Regional technical cooperation on national OSH programme developments is advancing, in particular, through the ASEAN-OSHNET initiative. Regional and international



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cooperation and exchanges focusing on countries' emerging OSH needs will further accelerate the improvement of OSH performance in Asia.

Keywords: ILO OSH standards, national OSH systems, tripartite cooperation

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Symposia



Symposium

Symposium 3 : Nanotechnology: Benefits and Risks, ISSA Chemistry Section, NIOSH, UNITAR, IFA

Moderator : Thomas H. Brock, BGRCI, Germany,

: Raymond Vincent, National Research and Safety Institute for
Occupational Accidents Prevention (INRS), France

Date: September 13, 2011 **Venue:** Hasköy Hall **Time:** 16.00 - 18.00

(SMP: 3/1)

Nanotechnology: A Review to Risks and Safety Implementation

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The area of nanotechnology has become increasingly important both in Turkey and across the world. This issue has been receiving growing attention from various industrial fields, scientific studies and mostly from academic research. Every technology brings along its own advantages with it, but at the same time is accompanied by a few drawbacks as well. Exposure to nanoparticles has been identified as the top risks in the scope of occupational health and safety. This is a collective study that dwells on the effects of nanoparticles on occupational health and safety. The following issues have been handled in this scope: nanomaterial use in the world and in Turkey, exposure due to nanomaterial use, stages of exposure, nanoparticle measurement methods, general protection methods, organizations operating in the field of occupational health and safety for nanotechnology and legislation and standards regarding nanotechnology. All in all, exposure to nanoparticles can be caused in three different ways: skin contact, inhalation and ingestion. The recent studies point out that this kind of exposure causes severe damage to the respiratory system especially to the lungs. In addition, it is indicated that process development, ventilation and personal protective equipment use are the most common methods applied for protection against exposure. Our objective in this study is to point out the significance of risks and hazards related to nanotechnology. In addition, we aim to provide guidance for the alignment of Turkish legislation with that of the E.U. and the U.S.

Keywords: Nanotechnology, risk, prevention methods

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(SMP: 3/2)

A Brief Overview of Lessons Learned in Knowledge Translation: A Focus on Nanotechnology

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This paper provides a brief preliminary report on a NIOSH knowledge translation effort to disseminate and expand the scope and efforts necessary to move the results of NANO research into practice.

In 2003 NIOSH launched the research to practice (r2p) initiative to ensure that research conducted or funded by NIOSH acknowledges the need for evidence-based policy and practice; is relevant and has a high probability for impact; and is fully utilizable and accessible to those who have the power to improve the safety and health of workers. The focus on r2p also ensures that research results are effectively transferred from the researcher to the practitioner and diffused to opinion leaders, early industry innovators, and interventionists, which research has shown is critical in getting new ideas adopted (Howard, 2009).

Knowledge translation, a component of research translation, is defined by some as the synthesis exchange and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people's health and safety. Research translation is not research. It is about creating, transferring, and transforming knowledge from one organizational or social unit to another in a value-creating chain. (WHO, 2006) It is a complex interactive process that depends on knowledge, people and context.

NIOSH in collaboration with multiple partners Approaches developed a print document entitled Safe Nanotechnology: Managing the Health and Safety Concerns with Engineered Nanomaterials. The document has been widely reviewed and cited throughout the world including guidance issued by Japan, Australia and the United Kingdom. The ISO Technical Committee on Nanomaterials used the document as the basis for a major technical standard on health and safety practices in occupational settings relevant to nanotechnologies. The document has also been identified by the Director of the U.S National Nanotechnology Coordinating Office as a key contribution to national and international activities focused on addressing health and safety concerns of nanotechnology.

Keywords: Nanotechnology, lessons

(SMP: 3/3)

AUVA Study: Nanotechnology – Exposure Profile in Industrial Sectors Producing and Utilizing Nanoparticles and Nanotubes, Toxicological Effects on Human Cells

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The principal aim of the present study was an in vitro evaluation of the potential toxicity of multi-walled carbon nanotubes (MWCNT) for human lung cells under well-defined laboratory conditions and under working conditions. Number concentration of nanoparticles was measured with Scanning Mobility Particle Sizer (SMPS). The number concentration was 1000 fold higher in the laboratory (469.000 – 7.370.000 n/cm³) compared with the concentration measured under working conditions (1.910 - 7.170 n/cm³). A significant reduction in cellular viability, the induction of oxidative stress and DNA damage was found under laboratory conditions. Under condition of occupational atmosphere these endpoints



were negative, with the exception of a slight induction of oxidative stress when handling the open product

Keywords: nano particals, exposure, industrial sector

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(SMP: 3/4)

Global Perspectives and Capacity Building

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(SMP: 3/5)

Risks at the Workplace

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Nanotechnology is now a major economic and technological challenge. The nanoscale can indeed give materials singular physical, chemical and biological properties leading to various applications. Nanotechnology has a growing impact on recent and emerging industries such as computing, electronics and aerospace as well as traditional industries such as automotive, food processing, pharmaceuticals and cosmetics. This growing sector could represent around 10% of manufacturing jobs by 2015. This probably explains why huge budgets are dedicated to research and development worldwide. Given the prevailing rush and competition as well as low safety culture in many areas of research, funding has been mainly oriented towards applications, and little towards hygiene and safety issues. However, the range of industrial achievements suggests that situations of occupational exposure to nanomaterials already exist, whether in research laboratories, manufacturing facilities or end-user companies.

The industrial revolution that is beginning therefore requires considering the hazards of these technologies of the infinitesimally small. What risks do they pose to health and safety of employees who manufacture or use them? What preventive measures should be implemented to protect workers?

Knowledge about the toxicity of manufactured nanomaterials is still scarce, although risks of human toxicity of ultrafine particles from air pollution are already documented. Most toxicological data results from studies, usually of limited scope, on cells or animals, and is therefore difficult to extrapolate to humans. Nevertheless, these initial results, although sometimes contradictory, raise many questions about the risks following exposure to nanomaterials, including compounds known inert at the micro and macroscopic scales. It is, indeed, found that at equivalent mass, the nanoscale materials show greater toxicity and cause more serious inflammatory effects than the micro and macroscopic materials with the same chemical nature and morphology.



Given the many unknowns remaining about the potential effects of these new chemicals on employees' health and safety, specific risk prevention procedures should be set up in all occupational environments involving nanomaterials all along the product life-cycle.

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(SMP: 3/6)

Protection Measures: The STOP Strategy

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There is much concern about the potential risk associated with the possible exposure of employers to engineered nanomaterials.

Since 1998 the IFA, in conjunction with the German institutions for statutory accident insurance and prevention, carries out a measurement programme at selected workplaces. The initial aim was to gather and catalogue information on ultrafine particles occurring at different workplaces. In the last five years the focus shifted on the measurement of nanoparticles.

Health based occupational exposure limits (OEL) are regarded as a common and convenient instrument of risk management. However, up to now there are no OEL for nanoobjects at workplaces implemented. Therefore the application of the precautionary approach is viewed as a prudent approach in as much that the hierarchy of control measures should result in a minimization of the exposure of the workers.

Here we outline technical control measures and personal protective equipment commonly employed and discuss their efficiency in view of available measurement results and laboratory studies. Based on considerations of the performance of given analytical measurement techniques IFA proposed benchmark limits for the assessment of the effectiveness of protective measures

(<http://www.dguv.de/ifa/en/fac/nanopartikel/beurteilungsmassstaebe/index.jsp>).

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(SMP: 3/7)

Perspectives in Research and Prevention in Nanotechnology

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Exposure to nanoparticles concerns an increasing number of workers. Considering the dramatic increase of nanotechnologies during the last decade and the new goals linked to the different activities like energy, electronics, medicine... it is necessary to anticipate the risks generated by occupational exposure and to improve our knowledge of hazards and the prevention measures which could protect workers. There are many different situations involving employee exposure to nanomaterials, but current knowledge on the toxicity of these chemicals remains sketchy. Assessment of the effects of nanoparticles on worker health is



at the core of the concerns of OSH specialists, both nationally and internationally and it is one of the priority programme of the French Research and Safety Institute for the prevention of occupational accidents and diseases (INRS). Our priority plan, adopted in 2008, focuses on three objectives: assessing the effects of nanoparticles on health, improving knowledge about occupational exposure and designing practical prevention tools and methods.

Currently available data on the health effects of nanoparticules suggest we should proceed carefully. Research in the field of nanotechnologies is progressing significantly, by means of the synergies developed within the networks and partnerships like the ISSA Chemistry Section. But many unknown remain: effects on health, exposure of humans at work, limits to the effectiveness of collective and personal protective devices for protecting against nanoparticules. We must, together, continue research, with the aim of better estimating these new risks, and of acting effectively to protect worker health and safety.

International cooperation is even more essential for this field in which the risks are not yet well-known. Identify the key remaining research to be done on nanoparticles and recommending the most appropriate prevention measures is a major challenge for occupational health today.

(SMP: 3/8)

Steps to Harmonization: A History and Overview

Rex Hoy

Safe Work Australia, Australia

Safe Work Australia is an Australian Government statutory agency with the primary responsibility of improving work health and safety and workers' compensation arrangements across Australia. Its membership includes representatives of all Australian governments, the Australian Council of Trade Unions (ACTU), the Australian Chamber of Commerce and Industry (ACCI) and the Australian Industry Group. Safe Work Australia has been responsible for the development of a Model Work Health and Safety Act, Regulations and Codes of Practice for adoption by Australian commonwealth, state and territory governments by January 2012. This presentation will provide a history of previous attempts at harmonization, outline the current process of achieving uniform work health and safety laws in a country with nine separate work health and safety jurisdictions and discuss some of the political and administrative difficulties faced and how these have been addressed.

Keywords: Australia, common wealth

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(SMP: 3/9)

Work Health and Safety Harmonization in Australia: a Union Perspective

Michael Borowick

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The Australian Council of Trade Unions (ACTU) is the single peak union organization in Australia. It represents 2 million union members and their families, and advocates on behalf of all Australian workers. The ACTU has represented Australian workers on occupational health and safety matters at national forums since they were first established in the 1980's.



Currently Australia has disparate OHS laws across the 8 jurisdictions. In July 2008, the Australian Government, and each of the Australian States and Territories reached an historic agreement to harmonize their OHS laws. This agreement provides for the commencement of a harmonized system of laws to come into force on 1 January 2012. The ACTU has supported and has been involved in this process. The main thrust of the involvement of the ACTU has been to ensure provided standards weren't compromised and that the highest standards in any State or Territory would form the benchmark for a national system.

Keywords: Harmonize, ACTU

**Symposium 6: The Three Life Cycles of The Construction Industry, ISSA
Construction Section**

Moderator: J.M. Warning

Date: September 13, 2011 Venue: Kasımpaşa 1-2 Halls Time: 16.00 - 18.00

(SMP: 6/1)

Reducing Occupational Risks All Along the Construction Life Cycle

Gérard Ropert

ISSA Construction Section, France

The construction industry has a higher level of occupational risks than the average. Among well-known occupational risks falls from heights are quite significant for the profession and they very often cover other (chemical, electrical...) risks. For similar reasons occupational risks of this branch of industry are perceived by enterprises, owners/clients, general public, as also by too many institutional decision-makers and even prevention experts like being exclusively linked with the building phase. This risk perception of the construction is certainly true but however somewhat partial. Moreover, it represents a problem, indeed an obstacle preventing us to efficiently take action against risk determinants. It is necessary to fight against this simplistic vision of risk sources that is too closely associated with the execution stage of the project. Showing the importance of each phase on the next one must constitute one of the important avenues of the prevention approach. It is desirable to create or to improve collaboration between designers/planners (architects, engineers of research departments,...) and project supervisors, in all countries, in order to be able to minimize risks in optimum conditions during execution/building and use phases of the project. Most of the time there is just a poor, even no communication at all between designers/planners. If design choices influence the cost-in-use (production cost) of the project the risks they generate on the subsequent maintenance are also quite neglected or ignored. We also see recent constructions leaving behind them after demolition work, especially in highly urbanized areas, unusable grounds/lands that must be first redeveloped / cleaned up or consolidated/secured in order to be prepared for subsequent re-use. Each stage of life passes to the next one its part of difficulty in avoiding or minimizing risks. The contribution will aim to present the current state of knowledge and existing measures and to propose collective improvement actions.

Keywords: Construction, occupational risk

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(SMP: 6/2)

Declaration of Brussels

Carl Heyrman

ISSA Construction Section Chairman, Belgium

The 29th International Symposium of the ISSA Construction Section took place in Brussels from November 23 to November 25, 2009 and was hosted by navb-cnac Constructive, the Prevention Institute of the Belgian Construction Industry.

At the end of this Symposium, participants decided to sign the Declaration of Brussels to jointly address the needs imposed by the ageing of the population of construction workers and by the rapidly emerging globalization of many aspects of the construction industry.

The full text of the Declaration of Brussels can be found at

<http://www.issa.int/Resursy/Resources/The-Declaration-of-Brussels>

Almost two years have passed now and the time has come to gather information on initiatives taken since and to determine what the situation is like at this time. Therefore a survey has been conducted amongst the participants of the Brussels' Symposium and the stakeholders of the Construction Industry.

In this survey we have asked feedback on the impact of the Declaration of Brussels, on the implementation and organization of concrete actions as a result of the Declaration of Brussels in companies and on regional and national levels. We have not only inquired after realizations so far, but have also asked if any further initiatives will be planned or programmed in this context. From the filled out surveys we will have received, we will be able to detect results and thus be able to present good practices in the context created by the Declaration of Brussels.

The analysis and results of this survey will be presented at the ISSA World Congress in Istanbul this September. Furthermore, these will be used as input for the 30th International Symposium of the ISSA Construction Section, which will be held in Boston, USA from 16 to 18 October 2012. (www.issaboston2012.org)

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(SMP: 6/3)

30th International Symposium of the ISSA Construction Section: Strategies for Integrating Occupational Safety and Health in the Construction Process

Knut Ringen

The Center for Construction Research and Training

The 30th International Symposium of the ISSA Construction Section will be held in Boston, USA, 16-18 October 2012. This Symposium will be hosted by CPWR: the Center for Construction Research and Training. This Symposium is in follow-up to the Declaration of Brussels, which was adopted in 2009 during the 29th International Symposium of the ISSA Construction Section. The goal is to show how the Declaration is and can be implemented. The Declaration can be found at:

<http://www.issa.int/Resources/Resources/The-Declaration-of-Brussels>



The main theme of the 30th Symposium is *Strategies for Integrating Safety and Health in the Construction Process: Research, Innovation and Best Practices*. There are two sub-themes:

- Safety and health throughout the life-cycle of construction. This sub-theme will cover the following topics:
 - Pre-construction phase: Roles and responsibilities of owners, designers, producers/suppliers, authorities, insurance; *and* procedures for design, training, scheduling/planning, budgeting, optimizing life-cycle maintenance;
 - Construction phase: safety and health management, worksite coordination, culture, safer construction methods; *and* temporary structures, subcontracting, temporary workers, unskilled workers;
 - Post-construction phase: hazard characterization, sector-specific procedures, handling of hazardous substances/waste, demolition.
- Requirements for safety and health training. This subtheme will cover the following topics:
 - Best practices: examples of theoretical and hands-on training programs and procedures;
 - Evidence of training effectiveness: process evaluation and outcomes/impact evaluation.

The Symposium will be organized around eight plenary sessions. Each will have two evidence-based presentations, with a roundtable of 4-6 industry decision makers responding to the presentations. The Symposium is designed to be highly interactive with extensive audience participation in lively discussion sessions. In addition, there will be breaks and receptions where participants can interact. There will be an extensive social program and activities for accompanying persons. For more information, please see the Symposium website: www.issaboston2012.org.

Keywords: Research, innovation, best practices

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(SMP: 6/4)

An Approach to Design Safety Analysis for Smaller-scale Construction Projects

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In the various life cycles of the construction industry designers' play a pivotal role in ensure the development of inherently safe(r) designs and the delivery of the objective that designs should be such that they can be built, used, maintained and eventually demolished safely. Behind any construction project there are fundamental principles that are universally applicable and which the designers must keep to the fore from the outset, not least of which are the requirement to eliminate or reduce the risks that arise during construction work. Since the earliest design decisions can fundamentally affect safety and health and early intervention may be called for to ensure that all of the necessary safety and health issues have been appropriately addressed.



Directive 92/57/EEC - temporary or mobile construction sites lays down “...*minimum safety and health requirements for temporary or mobile construction sites i.e. any construction site at which building or civil engineering works are carried out and intends to prevent risks by establishing a chain of responsibility linking all the parties involved*”. And while it takes National laws to enact the directive’s requirements each EU Member State, potentially interprets it slightly differently. Consequently, while there are requirements to co-ordinate safety and health matters in the design process there can be a tendency for smaller-scale

projects to ‘fly under the radar’. The possibility that they may be missed is the driver behind the checklist approach, which incorporates the general principles of prevention concerning safety and health during the various stages of designing and preparing the project; referred to in Directive 89/391/EEC.

The checklist process is initiated when the designer has confirmed that the project is estimated to last less than 30 working days or to involve less than 500 man days (i.e. small-scale). It involves both the designer and the contractor in the safety and health decision making process at pre-construction, construction and post-construction phases of the project. Prior to project start;

Keywords: Design safety analysis, method statements, designers, contractors

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(SMP: 6/5)

Recent Developments in Occupational Health and Safety Field in Vocational High Schools

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In general, “safety culture” among a society affects the level of occupational health and safety directly. Statistical data shows that “lack of knowledge and unawareness” holds among the most frequent reasons in work accidents and occupational diseases. In development of safety culture and improvement of work quality, it is apparent that “training and education” are critical. So, education should be used as a tool as needed to catch a continuity in occupational health and safety and to raise safety standards. In especially vocational high schools where first productions at micro level are realized prior to working life, a systematic approach to occupational health and safety is crucial and there are efforts in Turkey, in this direction. In this study, fundamental steps in Turkey for integration of occupational safety and health into education, the process of transformation of occupational health and safety activities into an institutional program, the content of this program and major milestones are given. In addition to this, in line with the “Whole school approach” in EU, trainings within the framework of legislation, safety culture and risk assessment are briefed besides presenting a generic model with the assistance of a health and safety guide developed for vocational high schools. At the end, through this study, the system to monitor and record occupational health and safety at schools which will be established through e-occupational health and safety module, how basic requirements of a management system will be fulfilled, risk awareness that will be developed in school individuals and hence how development of safety culture will be helped in this regard will be visible.



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Keywords: Vocational high schools, occupational health and safety, management system, safety culture

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Symposium 8: Primary Prevention in Basic Occupational Health and Safety Services at the Workplace, ICOH/ ISSA Health Section

Moderator: Toru Itani, ICOH, Japan, John Henshaw, Senior Vice President - Managing Principal, IH and Safety, ChermRisk, Inc., USA

Date: September 13, 2011 **Venue:** Sadabad Hall **Time:** 16.00 - 18.00

(SMP: 8/1)

The New Moroccan Project for Promoting Occupational Safety and Health

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Enshrined in a new and extensive dynamic of economic and social policies, Morocco has launched in the course of the last decade a wide spectrum of sectoral and regional projects that make of it a country determinedly moving towards the future and towards further openness. The promotion of occupational safety and health (OSH) is part of this dynamic.

Occupational health has never been a major governmental concern. In 2008, on a royal statement, due to a succession of disasters at the workplace with important losses particularly a serious fire in a mattress factory where 55 employees died, an interdepartmental commission on prevention and safety has been created to handle health and safety working conditions.

In total, the Commission's diagnosis is characterized by the importance of the size of the concerned population, an insufficient coverage by occupational health, several excluded sectors of medical coverage (construction, public sector, agriculture, small businesses, informal sector), epidemiological situation badly known for occupational mortality and morbidity, insufficient interest in occupational health, a poor labor legislation shortly adapted and applied, a lack of intersectoral collaboration to protect the workers' health, a shortage in skilled occupational health professional, lack in medical and technical staff (over 3,000 occupational doctors, more nurses, ergonomists, hygienists, epidemiologists...) and lack of control and advisory staff (labor inspection and medical labor inspection).

The Commission has developed an integrated action plan whose provisions will help make safer workplaces by the development of a specific framework on OSH Act, of operating and control permissions and procedures, of companies (training, coaching and awareness actions and creation of the National Institute for Working Life) and of intervention capacity (intervention and equipment program for regional levels).

Keywords: Promoting, moroccan, occupational safety and health

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(SMP: 8/2)

Group Occupational Health Service (GOHS) System in Korea and Application of Participatory Action Oriented Approach to Small & Medium-sized Enterprises

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For the maintenance and promotion of all workers' health, it is essential that comprehensive occupational health services is based on the team-work approach and spontaneous participation of employers and employees. In 1988, related law and regulation so called Group GOHS system was made by the Ministry of Labour, and revised in 1990. This GOHS system is unique in Korea. It is characterized that this program is led by well-trained occupational health nurses in the first line and occupational health physician and industrial hygienists back them up technically. In 2010, 101 Occupational Health Institutions participate GOHS which covers about 10,000 industries with less than 300 workers. To promote the prevention of work-related musculoskeletal disorders (MSD), We adopted the principle of the Participatory Action Oriented Training (PAOT) for the prevention of MSDs. KOSHA has been spreading PAOAP-MSD prevention activities since 2003. We conducted several times of PAOAP workshops, which was Korean version of WISE program for the improvement of working conditions, occupational safety and health & higher productivity. We, Soonchunhyang Univ. and KIHA also had PAOT Facilitator Training Program with PAOAP workshops every year in Gumi and Chungju etc. We tried to apply PAOT concept continuously to creating health and safety culture. For the MSD prevention of Health care workers, we developed Action checklist for them and have conducted a TOT workshop in Euijungbu Hospital. And for the farmers' MSD prevention, we also conducted several times of PAOT Facilitator Training Program with WIND workshops in corporation with Rural Development Administration. For the reduction of job stress, we try to apply participatory approach method developed by Dr Kogi et al since 2009. In conclusion, PAOT is a very important component not only to improve working conditions and productivity, but also to create health and safety culture in Korea.

Keywords: Group occupational health service system, participatory action oriented training (PAOT), small & medium-sized enterprises, occupational safety and health, work improvement

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(SMP: 8/3)

An Implementation of Primary Prevention in Participatory Oriented Action Training (PAOT) in Occupational Health and Safety Services in Vietnam

Toai Phuong Nguyen, Thomas Sorahan

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Seeking better ways to improve health and safety in 'Small and Medium Scale Enterprises' (SMEs) is a key target for national authorities and international agencies. Aims To apply and evaluate the effectiveness of an occupational health intervention called 'Participatory Action Oriented Training' (PAOT). Methods An intervention study was performed for one year at 20 volunteer SMEs. The PAOT programme was applied in 10 factories and traditional local health and safety methods were applied to the 10 'control' factories. Two cross-sectional



studies (pre- and post-intervention) consisted of questionnaire data and environmental measurements (personal dust (n=360), static dust (n=360), toxic gases (n=72), noise (n=540), lighting (n=900), air temperature (n=720), air humidity (n=720), air velocity (n=720)). Data were also collected on the number of factory improvements, productivity, workers' income, accidents, sickness absence, health visits, and health costs. Results There were significant improvements among intervention factories after one year in terms of environmental measurements as judged by the ratio of geometric means for pre- and post-intervention phases (personal dust 0.69, static dust 0.75, noise 0.98, and lighting 1.44). Similar improvements were not seen in the corresponding ratios of geometric means for control factories (personal dust 1.16, static dust 2.21, noise 1.01, and lighting 1.08). Conclusions The finding of the intervention study support the idea that a PAOT programme produces better outcomes in SMEs than a local traditional occupational programme. A fuller examination could be obtained with more environmental measurements taken over a much longer period of time, together with data on sickness absence and accidents that have been independently validated. Recommendation An international and regional network including PAOT facilitators and Occupational Health experts should be set up to improve working conditions for workers in SMEs, especially where lack of Laws enforcement and health resources.

Keywords: Participatory, intervention, good practice, low-cost, ergonomics, oriented training, small and medium scales enterprises

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(SMP: 8/4)

The Resurgence of Occupational Hygiene: Growing the Profession and Creating a Safer Global Workforce

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As our economies continue to grow and manufacturing opportunities expand to all regions of the world, the need for skilled occupational/industrial hygiene practitioners has never been greater. Traditional manufacturing and service functions continue to be relocated from countries that have progressively improved worker health and safety by implementing health and safety regulations and deploying skilled professionals to countries that do not have strong health and safety regulations or skilled safety and health professional who can advise companies, workers and governments on how best to assess worker health and safety risk and properly protect the new workforce. In order to sustain our global economy and the workforce that drive it, it is imperative that the global professional occupational hygiene community grow the number of qualified professionals and improve the quality of the practice of occupational hygiene in all parts of the world. For this growth to be realized we must encourage and recognize occupational hygiene education/training and intermediate level certification to develop occupational hygienist. This presentation will discuss the need for professional occupational hygienist in developed and developing countries alike, professional societies that tend to drive the quality of the professional practice and the growth opportunities for occupational hygienist in other parts of the world, specifically countries with developing economies.

Keywords: Occupational hygiene, industrial hygiene



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(SMP: 8/5)

Lasting Culture of Prevention Through Specialists in Occupational Medicine in Germany

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A study of the Federal Institute for Occupational Safety and Health (BAuA) analyzed the preventive occupational health care in six countries of the European Union. The demand of precaution is subjected to a broad change due to a structural alteration in the working environment and also due to the efforts of legal harmony within the European Union. The aim of an efficient health care at the workplace is to maintain and aid the health, also to avoid damaging effects of the work situation, to recognize and preferably avoid sickness and damages caused to health. Besides this it is an important target in Germany to ensure the employability in a medical sense. The demographic change necessitates a long lasting culture of prevention and a more intensive occupational medical care in order to make an extended working life possible. Prevention has to be applied very early and has also to deal with widespread diseases. Employability is more detracted from these diseases than from the conventional occupational diseases. Therefore interdisciplinary treatment options through medical specialists, health professionals, skilled personnel and assistants are necessary. Doctors may delegate duties to other specialists, but they always bear the full responsibility for the health care. Under these qualitative functional aspects the maintenance of about 40 million persons employed in Germany, the aims can only be realized with doctors as the medical specialists who are keeping the full therapeutically responsibility. An important precondition therefore is the medical specialist-standard. In Germany specialists in occupational health ensure a long lasting culture of prevention and pass duties down to others without disregarding the overall responsibility.

(SMP: 8/6)

Addressing Inequality in Occupational Health: Integrating Occupational Health Services in Primary Health Care in Latin America and the Caribbean

Orielle Solar

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Latin America and the Caribbean have a long tradition in the development of primary care at local and community level. At the same time is one of the regions with the highest level of income inequality, coupled with low coverage of social security and limited access to occupational health services by the working population. Add to this a large number of populations that performs labor in the informal sector. This reality has led the region to promote the integration of occupational health in the work of primary care, understanding this as the approach to quality of life of workers. There are 5 principles that drive this initiative at the level of primary care: (1) the comprehensiveness or integrality, (2) Territoriality, (3) the preventive and promotional emphasis versus the damage, (4) Participation of workers, (5) intersectional action . These principles underpin the strategies that has promoted , such to develop diagnostics over health workers from a territorial approach, the inclusion of labor as



a variable that runs through all the health programs, the screening and investigation of occupational disease and the development of epidemiological surveillance systems at the local level, the occupation health counseling that includes the rights of workers and the team's responsibility to manage the health problems of workers to access the benefits and rights established. These elements are presented from specific cases performed at the level of countries and municipalities in Brazil, Colombia, Venezuela, Chile, among others. The example include rural and urban areas and informal sector It additionally submit the results of the regional meeting of experts on occupational health training for PHC team conducted in May 2011 as well as the strategies to raise and monitor the reality of the working population from population surveys conducted in 2010-2011.

Keywords: Caribbean, Latin America, Chile

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Symposium 13 : Subcontracting, Outsourcing and Their Impact on OSH, HASUDER (Turkish Society of Public Health Specialist) / Association of Labour Inspectors

Moderator : Mustafa N. İlhan, HASUDER, Turkey

Date: September 13, 2011 Venue: Balat Hall Time: 16.00 - 18.00

(SMP: 13/1)

The Challenge for OSH of Temporary Agency Work

Bernhard Brückner

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There is a need for action for a variety of reasons: A study of EU-OSHA from 2002 indicates high levels of risk for occupational accidents for workers with temporary working contracts, for temporary agency workers. In general increase in flexibility of working conditions goes along with a general increase in risk for accidents. Studies from Finland (2003) gave hints that temporary employment was associated with higher mortality than permanent employment but with lower mortality than unemployment.

Studies in Germany from 2007/2008 reveal the high level of injuries among temporary workers and the fact that the numbers have been increasing again since 2005. The number of reportable occupational injuries per 1,000 workers insured was 34.5 in 2008, which is of similar size as the number of accidents in high risk economic branches like construction industry. For comparison: the average of all industries amounts to about 25! The layout of workplaces for temporary workers falls under the primary responsibility of the relevant companies and their HR and OSH experts who are in charge of effective prevention. At the same time, however, the legal responsibilities of the temporary employment firms as the direct employers of temporary workers and their senior staff cannot be ignored.

The German Labour Inspectorate is running two-years campaign on accidents prevention in temporary workers business. The primary objective is to make a substantial contribution to the reduction of occupational injuries by 25% in Germany that is enshrined in the Community Strategy on Health and Safety at Work (2007 – 2012). If the number of occupational injuries among temporary workers in the companies under review were actually reduced by 50% on



the basis of this programme, we would reduce the number of occupational injuries in the field of temporary work by 5% (taking into account most recent statistics on injuries of 51,800 injuries in 2008).

Main indicator is temporary work being properly considered in the risk assessment of the businesses employing temporary workers. The starting point for any preventive measures is the organization for occupational safety and health focusing on temporary workers. If cooperation in the field of occupational safety and health for temporary work is improved we can ensure that the OSH organization of the business employing temporary workers takes into account the special character of temporary work. The competences and qualifications of employers and employees in the field of temporary work are optimized.

First results of this national campaign will be presented.

Keywords: Temporary, agency

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(SMP: 13/2)

Subcontracting Concerning Occupational Health and Safety

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The assessments concerning subcontracting were focused primarily on the obstacles on trade unions and collective bargaining. Also the evaluation of the problems encountered on workers claims, especially those related to seniority, is another major topic. Workplace practices are special sources of Labour Legislation and those applications are being covered under general working conditions. Although it is not enforced by the law or contract, if employers begin processing and proceed the applications which are beneficial for the employees, then those applications which are within the scope of employment contract, are called workplace practices. Even though there have been occupational health and safety evaluations on subcontracting, concerning the accidents on shipyards no thorough investigation was held. Main function of workplace practices is to settle and regulate the work system of a business. Thus, workplace practices include occupational health and safety applications as well, although this aspect has not been mentioned. This work, not only focuses on subcontracting regarding the occupational health and safety legislations but also emphasizes how it interferes with the development of workplace practices therefore the settling of the work system of a business.

Keywords: Subcontracting, occupational health and safety, workplace applications

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(SMP: 13/3)

Subcontracting/Outsourcing in Health Care Services and Its Effects To Occupational Health and Safety

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Health care services, being wide range of professional services, are concerned by whole community. Services given by the competent persons in the subject or institutional service providers, is essential in ensuring the adequacy of services. These services, relatively expensive to ensure, service providers try to meet the needs of staff through subcontracting and outsourcing. Works done by the health care workers include physical, chemical, biological, psychosocial many risks, together and are heavy and dangerous works. Work risks with existing and potential health problems are tried to be identified and eliminated by monitoring (examination, training etc.) the workers at the beginning and throughout the work. Basic approach in monitoring health in workplace is the inveterate of the workers, prerequisite to benefit from the Basic Occupational Health Care is workers do their tasks as own personnel of the institution. Certainly, Basic Occupational Health Care is possible; if basic approaches of occupational health and safety are complied in health facilities and if workers are evaluated entirely, not as subcontracting and outsourcing by institutions and with monitoring health and making arrangements needed to be done by risk evaluation due to the work conditions.

Keywords: Subcontracting, outsourcing, health workers, occupational health and safety

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(SMP: 13/4)

Subcontracting and Problems of OHS Organizations

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A subcontractor is a person who shares the work and the workplace of an employer. In this some other people's workplace, he/she has an obligation for establishing the organization of health and safety for his own employees. Being under such an obligation, the subcontractor must have a certain numbers of employees. If there are a lot of subcontractors and they employ less worker than required numbers for organizing health and safety, subcontractors has no such obligation. This situation leads to significant problems in terms of occupational health and safety. Examples can be given from ship building and construction industry. This paper will focus on legal aspects of this issue and propose some solutions. In this context, if both main employer and the subcontractor have separate health and safety organizations, it will be argued that the health and safety organization in such workplaces should be under the authority of the main employer for overcoming problems occurring from having two separate health and safety service.

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(SMP: 13/5)

Subcontracting as an Occupational Risk Factor

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Risk assessment, as a key factor of prevention within the enterprise, requires a previous knowledge of the actual conditions of the execution of work at the company. It implies taking into account the possible concurrency of different employers in the same workplace, and



specially, the possibility of certain tasks had been subcontracted. Existing data regarding this fact, according to studies performed by the National Institute for Safety and Health in Spain, are revealing. As a general matter, 18.6% of the companies require support from external companies to carry out part of their activity. This practice is particularly important in the sector of construction, where 39% of the companies subcontract activities on a regular basis, followed by industry, with 18.2%. Furthermore, surveys show that workers from subcontractors have a perception of higher lack of safety and more occupational accidents than their colleagues from the principle employer. The fact beyond this perception could lead to believe that subcontracting is, by itself, a risk factor, or more over, a factor of accidents at work and occupational illness. Nevertheless, to reach this conclusion would be necessary to have more detailed information in order to establish a cause-effect link between accidents and health damages at subcontractors and the subcontracting itself. This presentation aims to tackle this fact, analyzing with the existing data, if it is possible to establish this link, or the causes of more work-related accidents in subcontracted activities must be search in the existence of more precarious conditions of the workers of this companies. On the other hand, it is a question of determining the way of considering subcontracting from the preventive policy perspective at the company: as a risk factor itself, and therefore as an element of the risk assessment, or as a productive organization element, which causes duties of cooperation and collaboration among employers and, in this case, of responsibility for the preventive non-fulfillments.

Keywords: Subcontracting, risk

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Symposium 15 : Chemical Exposures and Occupational Diseases, Ministry of Health (Ankara Occupational Diseases Hospital) / Turkish Society of Toxicology (TST)

Moderator : Ali Esat Karakaya, Gazi Üniversitesi, Turkey

Date: September 13, 2011 Venue: Eyüp Hall Time: 16.00 - 18.00

(SMP: 15/1)

Evaluation of Admissions to the Ministry of Health Occupational Diseases' Hospital in Turkey

Hınc Yılmaz

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The official statistics about OHS datas in Turkey show that the number of registered workers in social security system is over 10.300.000 and the number of detected occupational disease is 429. When compared with the countries that are developed in OHS issues, the incidence of occupational diseases is very low in Turkey.

Each year, approximately 2 million men and women lose their lives because of occupational accidents and work-related diseases. There are many factors in this issue. Poor monitorization of small and medium-scale enterprises, insufficient number of labor inspectors, unawareness of physicians about occupational diseases, under-reporting of occupational diseases are the main factors. The existing monitoring systems in the



industrialized countries show the main patterns of occupational diseases. In these countries, statistics in the past show that diseases caused by chemical and physical exposures were at the top of occupational diseases statistics. But in recent times, work-related musculoskeletal diseases and mental illnesses are the main category in statistical evaluation. This is an important parameter that shows the improved conditions in occupational hygiene and monitorization and OHS culture and good practices. This also implies the need for present monitoring systems in our country.

The estimated number of occupational and work-related diseases for every 1000 workers is 4-12. When these ratios were projected to Turkey, the number of undiagnosed occupational diseases seem to be over 50.000 per year. Also, statistics provided by the formal security system points out that the primary occupational disease is work-related lung disease, such as pneumoconiosis, work-related asthma etc in Turkey.

In our hospital statistics; industrial chemical exposures, work-related lung diseases, occupational dermatosis and musculoskeletal diseases are the main categories, respectively.

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(SMP: 15/2)

Is Occupational Lead Exposure Still a Problem?

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Lead toxicity has been known from ancient times. Numerous studies have explored the mechanisms and symptoms of this toxicity through the years. Diagnosis and the treatment of lead poisoning are also well-documented. However, it is still an important health problem by environmental exposure of children and by occupational exposure of adults.

In adults, occupational exposure is the main cause of "lead poisoning". Lead miners and smelters (as well as zinc and copper smelters), battery manufacturers and recyclers, plumbers, auto mechanics, glass manufacturers, plastic, paint and pigment manufacturers are all at risk for occupational lead exposure. In developed countries, strict controls and improved working conditions have helped to reduce the risk of occupational lead poisoning. However in many developing countries it is still an important health problem because of poor monitoring and lack of reinforced regulations.

Sources of occupational exposure may also change among countries/regions. Although many countries phased out leaded gasoline, traffic policemen are facing high concentrations of lead via leaded gasoline and suffering from lead poisoning in countries where leaded gasoline is still in use.

Another aspect of occupational lead exposure is the indirect exposure of children via transfer of lead to the fetus in utero and transport of lead into houses on cloths of the worker parents.

In addition, child labourers are still present especially in underdeveloped countries. Children exposed to occupational lead are usually the same population that is at risk of nutritional deficiencies because of socioeconomic status, which increases the absorption of lead and eventually enhances the adverse effects.



The current status of global occupational lead problem will be discussed with latest statistics and data.

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(SMP: 15/3)

INAIL Activities about Health and Safety in Site Reclamation

Simona Berardi, Elisabetta Bemporad, Alessandro Ledda, Paolo Pittiglio

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In the European Union (EU) more than 500,000 sites, often former industrial sites, are contaminated by organic pollutants and/or heavy metals. In Italy, in recent years, the number of contaminated sites has multiplied disproportionately. These sites pose risks to the human health and environment, hence the need of their remediation. Site reclamation involves some problems, about health, safety and hygiene at work similar to that posed by typical building and construction activities, but also specific and particular ones, that are not yet standardized because of the recent identification of the field. The most obvious issue is linked to the presence of chemical substances in soil, groundwater and, sometimes, of waste. Moreover, contaminated sites are often located near urban settlements, so during reclamation activities it's necessary to take into account not only the workers' safety, but also health protection of the population living around them.

Recently the Italian Workers' Compensation Authority (INAIL), and in particular the Department of Production Plants and Human Settlements (DIPIA), set up a working group (WG) in order to develop guidelines, standards and tools to identify procedures, measures and actions useful to protect health and safety of all human receptors involved in site reclamation.

The working group is composed by experts of University, Ministries and Institutes for environment and human health, National Fire Brigade, National Research Centre, Local Health Agencies, and private Companies.

The first aim of the WG was to draw up a document regarding the "basic criteria to protect the health and safety of the workers involved in remediation of contaminated sites". It's intended for project managers, designers, supervisors, contractors, safety officers, environmental health officers and professional advisors.

The present paper reports the framework and the main issues of the above mentioned document. It's organized in order to provide an overall view of the national and international regulations. Also it puts in evidence the responsibilities and obligations of all operators involved in site reclamation activities, a statistical analysis of Italian accidents at work in the specific site reclamation field, the identification of the risks associated to every phase or tools of the site reclamation activities (from the characterization to the final monitoring and environmental restoration), the collective prevention and protection measures, the personal protective equipments, and the first aid and emergency measures.

Keywords: inail activities, in site reclamation

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(SMP: 15/4)

The New OEL Proposed for Chromium (VI) and Compounds

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The French Agency for Food, Environmental and Occupational Health & Safety was asked to recommend new occupational exposure limits for hexavalent chromium (Cr(VI)). Based upon the most conclusive evidence currently available, ANSES has determined that at the current French OEL for Cr(VI) (50 µg/m³), asthma, damage to the nasal epithelia and skin irritation may occur in exposed workers. In addition, the workers are at an increased risk of developing lung cancer. Cr(VI) compounds are widely used in the chemical industry in pigments, metal plating and chemical synthesis as ingredients and catalysts. Chromates are used as high-quality pigments for textile dyes, paints, inks, glass, and plastics. Occupational exposures to Cr(VI) can occur from inhalation of mists (e.g. chrome plating, painting), dusts (e.g. inorganic pigments), or fumes (e.g. stainless steel welding), and from dermal contact (e.g. cement workers). The new proposed OEL was established based on the assumption that no threshold exists for the carcinogenic effects of chromium VI. Extrapolation to the lower doses at which workers might be exposed is performed to predict an excess risk of cancer. The observed relationship between lifetime dose and lung tumor incidence is fitted to a mathematical model to predict the incidence at low doses. Based on a life expectancy of 75 years, including 45 years of work (from 20 to 65 years old) and assuming 48 working weeks per year, the results lead to consideration of an additional case, deaths by lung cancer per 1000 workers exposed to a concentration of 0.1 µg/m³ of Cr VI. However, as measuring methods can quantify only a concentration of 1 µg/m³ of Cr VI in the workplace, ANSES recommends this level as an OEL. In addition, ANSES recommends substituting Cr(VI) by less harmful substances or processes and applying the ALARA (as low as reasonably achievable) concept in the workplace.

Keywords: Chromium (VI), carcinogen, OEL, lung cancer

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(SMP: 15/5)

Opportunities and Obstacles in Collaboration in Occupational Health Between Developed and Developing Countries- the Potential Role of Emerging Technologies

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The more than 2.5 billion working people in the developing countries often have to work in conditions not meeting basic occupational safety and health (OSH) standards. The lack of work safety, excessive work loads, and occupational exposures result in occupational diseases, injuries and more than 1.2 million fatalities each year. Only 15 % of workers in developing countries have access to OSH services. Collaboration between industrialized and developing countries in the OSH has been conducted more than 40 years, but its volume has remained modest compared with the needs, and other sectors of development assistance. The lessons from these 40 years are that the most important OSH improving factors include legal and policy instruments, national OSH infrastructure and programs for OSH



implementation, and OSH services. The establishment of OSH resources, including centers serving as engines for research, training, and information and registration systems, belongs to key factors in such collaboration. A reliable government OSH policy, and close cooperation between social partners and the government are critical to guarantee sustainable OSH. An increasingly important issue is to encourage national technology initiatives, such as nano- or biotechnologies, to support the national attempts to use their own resource to build social stability and social wellbeing. In the era of growing globalization, support in a given country may not be enough, and the diversity of these countries, and their potential to solve social challenges, including OSH, may vary markedly. The least developed countries face hardships in tackling with daily challenges and especially with natural disasters having impact also on workplaces. They need global support for the whole society, OSH as a part of it. There are also success stories one example being South Africa whose richness has allowed the country to develop the society and emerging technologies, such as nanotechnologies, to improve the prosperity of the country and to make investments to social systems including OSH.

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Symposium 24 : Monitoring and Evaluation on OSH: Quantitative and Qualitative Indicators FIOH

Moderator : Hannu Anttonen, FIOH Max R. Lum, NIOSH

Date: September 13, 2011

Venue: Fener Hall

Time: 16.00 - 18.00

(SMP: 24/1)

Development of Indicators for Monitoring and Evaluation in Workplace Health Promotion and Prevention

Karl Kuhn

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A Health Information System can be defined as a dynamic and flexible infrastructure for monitoring health activities and population health outcomes that is active at the national or sub-national level. The system encompasses the collection, analysis, storage, transmission, display, dissemination and further utilisation of data and information. It covers a wide range of information relevant to different user groups. On the one hand, health information systems contain an enormous amount of medical information for individuals who want to learn about diseases, diagnostics and treatments. On the other

hand, they also provide information related to public health issues for the interested public and stakeholders. The goal of these systems is to allow all professional and lay users within and outside the health sector to use, interpret and share information in order to transform it into knowledge.

Throughout the industrialized world the basic requirements for health, safety and environment have been stipulated by legislation, including the Directives on Safety and Health at Work by the European Union. The further development of policies for occupational health and safety and those for environment and health are nevertheless increasingly based on information steering. Such a policy is critically dependent on up-to-date information



describing the current status of health and safety, the exposures and risks threatening health, and information on the consequences of such exposures at individual and population levels. This is the base for target oriented intervention in OSH. The monitoring and the evaluation of promotion and prevention is faced with a lot of difficulties.

The comparability of data requires the harmonization of concepts, definitions and methods for data compilation. This is a difficult task due to many differences, for example, in the legal systems of different countries. Therefore, the construction of profiles requires not only the mechanical compilation of registered data, but full knowledge and understanding of the principles on which the data are collected and how they should be interpreted.

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(SMP: 24/2)

Indicators to Assess the Impact of Supranational OSH Strategies

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To assess the impact of national OSH strategies several types of indicators have been developed as indicators to assess risks (e.g. accident risks) and exposures (e.g. noise or chemicals) at work places, indicators to assess the health situation of workers or indicators to describe the prevention level in enterprises. Up to the present, no evaluation of supranational OSH strategies has been carried out. In our paper we will argue that additionally to the above mentioned, supranational evaluations require a set of specific indicators. This set of indicators might comprise:

- Impact of the supranational strategies on the initiative and motivation of national actors
- Content analogies between supranational strategies and national OSH strategies or other policies
- Approach analogies between supranational strategies and national OSH strategies or other policies (e.g. main actors, main instruments etc.)
- Benchmarking impact of the supranational (target drifting)
- Promotion exchange between national actors
- Provision of suitable or recommended indicators and monitoring approaches

Starting from some methodological prerequisites, the presentation will deliberate on the applicability of the identified categories and, in consequence, point out the scope and limitations of evaluating supranational strategies.

Keywords: OSH-Strategies, indicators

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(SMP: 24/3)

Developing Profiles and Indicators in Prioritizing National

Max Lum

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This paper reports on a NIOSH evaluation activity conducted between the years 2005-2009. The evaluation activity applied newly developed numeric program indicators to make determinations of research impact and relevance

Eight Separate evaluation panels composed of subject matter experts were impaneled to review 8 distinct NIOSH research programs. Before the reviews began a framework



committee developed a series of impact indicators. These indicators were used to evaluate each research programs inputs, activities, outputs, and outcomes, impact on improving workers safety and health, and relevance in identifying emerging issues. In addition, recommendations were provided to improve or significantly modify the existing program. Recommendations and noted accomplishments varied greatly between NIOSH program reviews. Areas for improvement often focused on partnerships and collaborations, surveillance and dissemination and research transfer activities. Noted accomplishments included the implementation of relevant training programs, identifying high priority research, and positively affecting workforce conditions.

A major highlight of this activity was developing indicators of outcome that when applied resulted in sector specific research profiles and suggested improvements in research translation, partnership development and implementation.

The evaluation process assessed program relevance and impact using a five point score scale (where 5 is the highest). These numerical scores while controversial provided sector and program profiles of relevance and impact across research areas. As NIOSH looks to improving its research relevance and impact in a shrinking resource environment it is critical to examine program impact, look to new and more dynamic ways to keep workers safe and healthy while contributing to the efficiency, quality of service and effectiveness of its research translation programs and strategies.

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(SMP: 24/4)

Indicators of OSH and Well-being at Work in Workplace Level

Hannu Anttonen

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At workplaces we have for a long time used the indicators based on laws like risk assessment. But during last ten years a new type of indicators have been started to use in evaluation of OSH. Two typical concepts have been work ability and well-being at work. The first one describes the character of individuals and the results of analysis of this concept are often related to economical benefits of the workplace. The wellbeing at work relates better to work community and creation of value of the OHS in a holistic way. Does the risk management function in the work places? According to the results of the research the commitment for risk assessment is high enough. The important tasks in this culture are commitment to the safety culture and analysis of safety management, not only risks at workplaces. In those enterprises, where OSH management was at an acceptable level, there were also more varied and more successfully accomplished actions to remove or reduce the risks than in enterprises, where OSH management was in lower level.

The concept and actions of "Well-being at Work" was earlier generally described on different EU countries. Later, Quality of Working Life and the concept of the "Healthy Enterprise" have been developed to cover the domain. We have also analysed the various categories of work activities related to well-being at work. The main categories are: 1) Work environment and assuring business activities 2) Functioning of work community, management and communication 3) Organization of work 4) Promotion of work ability and health at the workplace 5) Competence development 6) Productivity. This evaluation method has been very promising not only in informing the risks but also in development of empowerment of



workers and workplaces like increasing factors resulting attractiveness, competitiveness, and productivity of work places.

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(SMP: 24/5)

Economical Indicators and Social Responsibility

Guy Ahonen

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The basic economic logic of OSH measures starts from the facts that health and safety strongly affects the amount of productive work. Several studies show that early retirement reduces significantly the productive potential of highly developed countries. The OECD average is 6,3 % of GDP (Herbertsson et.al. 2001). Recent calculations in Finland show that the annual loss of early retirement is 13 % of the GDP. Some estimates are even higher (Herbertsson et.al.2001). The productive loss caused by sickness absenteeism is smaller (about 4 %) but much more observed (European foundation 2007). Also the hidden costs of occupational accidents are many times bigger than their direct cost (Johanson 2007). Altogether the total cost burden of poor health and safety is enormous, and those costs will one way or the other affect the competitiveness of individual companies. Considering the economic relevance of health and safety it should be of interest to look at the investments in OSH. On a macro-level the economic return of investing in health has been estimated to vary between 47% and 252 % (Suhrcke et.al 2005). Attempts to estimate the total investments in work-ability and well-being are scarce. In 2009 the first national estimate of magnitude of the direct investments in work well-being was made in Finland (Aura et.al. 2010). It was found to be 1,9 Bill Euro

In the industrial era the cost reducing strategy was dominating. Moving towards more knowledge intensive production and consumption (Sveiby 1997) the basis of competition has changed. Knowledge as the basis of business puts the main focus on the three main forms of intangible assets: Human Capital, including the knowledge and skills of the employees, Structureal Capital, including the work community and the production processes, and Relational Capital, including the perceptions of the company held by the its relevant stakeholders, including those of the customers, suppliers and competitors (Ahonen 2008). All aspects of intangible assets are related to OSH. Safety affects directly the amount of available Human Capital. All forms of OSH activity affects the quantity, quality and effectiveness of Human Capital.

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(SMP: 24/6)

Global Indicators on Evaluation of OSH

Jukka Takala

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Global indicators are vital for estimating the disease and injury burden caused by work. This in turn can be used for setting priorities on strategies, policies, programmes, legislation,



enforcement, promotional and other tools for eliminating, reducing and managing the working life problems.

The indicators need to be harmonised and used systematically in various settings. Indicators attributable to work that are commonly used are presented and examples of latest results are explained.

Globally, attributable fractions of work-related mortality range from 0 to more than 30 % depending on disease, gender, geographical region and, of course, the level of quantitative and qualitative exposure. Every year, 2.3 million fatalities are caused by work-related factors, out of which about 2 million are caused by work-related diseases and the rest by occupational accidents. Non-fatal outcomes include more than 300 million occupational accidents and some 200 million work-related diseases. The estimates of the economic burden range from 4% (ILO) to 5.9% of the GDP (Australia). The annual loss of GDP caused by premature retirement in Europe (EU27) is, depending of the estimation method, some 2 400 billion (=10⁹) euro, when counting that average number of lost work is 6.9 years for an individual.

Decision makers are poorly aware of the indicators and magnitude of the human and material loss, and the potential of protection, prevention and promotion of inclusive job market, quality jobs and decent and safe work.

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Symposium 27: International Partnership in OSH Training SESRIC/İSGÜM

Moderator: M. Fatih Serenli, Fuat Sezgin, Research Foundation for the History of Science in Islam, Turkey

Date: September 13, 2011

Venue: Kasımpaşa- 3 Hall

Time: 16:00 – 18:00

(SMP: 27/1)

Crossing Borders: How to Ensure the Effectiveness and Sustainability of OSH Training

Ulrike Bollmann

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An important condition for effective and sustainable training in occupational safety and health (OSH) is crossing borders, hence, the title of this article. Firstly, there will be a discussion of what exactly is meant here by borders: the border between the seminar room and the real working environment; the border between OSH systems and education systems; and national borders which limit the ability of OSH professionals to implement OSH. This will be followed by showing how these borders can be overcome, for example, through targeted intervention directly in the workplace, through cooperation between OSH experts and educators, and through internationalisation of OSH training. This will be done using practical examples and trends including: an example of lifelong learning resulting in lifelong safe and healthy work practices; an example of the successful integration of OSH into a national education system; and finally, an example of current work being done to compare and acknowledge OSH qualifications in Europe and beyond. The goal of this article is to illustrate



why and how OSH and OSH training must extend beyond its own system in order to create a sustainable culture of prevention which includes all levels of society.

Keywords: effectiveness and sustainability of training; culture of prevention; education system; cooperation between OSH and education experts; internationalisation of OSH training;

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(SMP: 27/2)

International Partnerships in OSH Training: Maximizing Combined Strengths

Janet Froetscher

NSC, USA

Occupational Safety and Health is a global initiative driven by a complex, worldwide economy and a shared belief that protecting workers' safety and health is a necessary practice that leads to financial success. Organizational excellence requires continued training and education.

Uniting strengths helps to maximize the relevancy and efficacy of safety training. Combining the strengths of global safety leaders spreads the delivery of safety training, helps shape the training course design, and uncovers new delivery strategies such as blending classroom with virtual. NSC has found that partnerships aid our progress as a global organization when they uncover and test new refinements to our vision of safety training. Partners share their research and knowledge about local regulations and cultural insights. They also contribute capital and human resources to increase the value of every training session.

Pursuing international partnerships to strengthen workplace safety training has tremendous economic value. Most organizations face financial limits that require focusing on priorities and successful companies that aspire to achieve world-class safety performance understand that leveraging international partnerships is a key strategy to expand their workplace safety training capabilities.

Partnerships do not need to be formalized or complex relationships. The relationship can take many forms depending on the relative strengths of each partner. After delivering NSC training and consulting services in more than 100 countries, NSC has discovered the benefits of flexibility. NSC partners often provide the training facilities, but the instructor or course refinements can vary to maximize the relevance of the safety training. However, when we translate course content into a new language with all of its cultural nuances, we require a formal licensing arrangement with our partners to ensure training quality.

A committed search for international partners that can effectively maximize a combination of strengths offers many benefits to global safety training.

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(SMP: 27/3)

Training - An Essential Part of The Prevention Approach

Tim Tregenza

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To achieve a reduction in the risks to workers, a multi-faceted or “toolbox” approach is required to ensure that all aspects of prevention are covered by a policy or strategy. Training is an essential part of this approach, and is required at all levels in an occupational safety and health system.

Those in need of training into occupational safety and health can perhaps be split into two; those who are occupational safety and health professionals – i.e. their job is “health and safety”, and those who have a role in prevention but health and safety is not their primary concern. In the former group are occupational physicians, labour inspectors, ergonomists and others. In the latter are the managers and workers who need to be trained in the identification of hazards and risks, in the process of risk assessment, and in effective measures of prevention. In addition, there are also many professional persons, such as designers, engineers, or procurement officials, whose decision-making directly affects the safety and health of workers.

The European Agency for Safety and Health at Work (<http://osha.europa.eu>) disseminates practical information on how prevention measures, always including training can be implemented in the workplace or as part of a policy or strategy. These case studies are transferable and offer the opportunity for learning about approaches to problems from a range of States. EU-OSHA also offers much information that can be incorporated into training programmes.

Of particular importance is the EU-OSHA project that looks to integrate (or “mainstream”) occupational safety and health into the education system. This approach starts at primary school level and continues through to tertiary vocational education. Such approaches may be concerned with educating architects, engineers, or other professionals to take occupational safety and health issues into account during the design, planning, and implementation of activities in the workplace.

In summary, by sharing approaches in training, EU-OSHA contributes to the development of prevention systems and culture across Europe and beyond.

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(SMP: 27/4)

İSGÜM - SESRIC Collaboration as a Model for Regional Partnership in the Field of Occupational Health and Safety

Nihat Eğri¹, S. Suna Ahioğlu¹, Ahmet Ersoy¹, H. Melek Ateş Taşçı², Ahmet Serdar Sevinç¹, Funda Şentürk¹, Begüm Gören¹, M.Salih Akpolat¹

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Occupational health and safety (OHS) issue has been on the agenda of many developing countries during the past half century. In this regard, İSGÜM and SESRIC have organized several meetings in order to explore possible ways and means of cooperation and collaboration in the area of OHS in OIC Member Countries. As a result of these meetings, İSGÜM and SESRIC have identified several areas for possible collaboration and exchanged views and proposals for joint projects. The major outputs of this study were to design such



study visits on a permanent basis; design capacity building programmes for OHS; establish a network among OHS institutions in OIC Member Countries (OIC-OSHNET); establish a trainer database in the field of OHS; and encourage SESRIC and OSH institutions for future cooperation in organising related events in the field of OHS. SESRIC, in collaboration with ISGUM, has developed OIC Capacity Building Programme for OSH and started a survey in order to identify the needs and capacities of OSH institutions in Member Countries for organising short term training programmes. The start of OIC Network for Occupational Safety and Health (OIC-OSHNET) will be given by a kick-off meeting among similar local, national and regional institutions in OIC Member Countries with the aim of establishing closer cooperation for sharing knowledge and best practices, sharing of innovative training materials and increasing the quality of service in the field, in May 2011.

Keywords: Regional partnership, occupational health and safety

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(SMP: 27/5)

Using Modern Educational Techniques to Achieve Higher Levels of Awareness in Occupational Safety and Health

David Gold

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The use of training and education as a means to address safety and health at work is not new. Historically, the ILO Constitution reaffirms that a fundamental principle of the ILO is the adequate protection for the life and health of workers in all occupations. Training and education, in part, is traditionally seen as a means to address this principle.

There are many different approaches to training and education in safety and health. However, even today where training and education is enhanced by high technology and effective communications, there continues to be unacceptable levels of workplace accidents. Are the social partners are effective in not only getting their message out, but also assuring that the message is internalized by each worker?

There are traditional and creative methods using different media by which this can be accomplished. There are also challenges. Are we crafting the right messages in the mother tongue of the target audience? Are we addressing the necessary cultural bridges and barriers that impede the internalization of the messages? Can we use social media to allow for adequate sharing of prevention information?

In times when the social partners are suffering from inadequate resources, are there means of educational action that can break from the traditional classroom and move towards different tools? Blended learning, for example, capitalizes on traditional classroom learning mixed with e-learning, allowing workers to work at their own pace. Can we be more effective in using public education to create an early awareness about safety and health at work? Can we be more effective in using existing structures such as public health workers in rural villages?

For more than 30 years in training and education, the author continues to be deeply involved in developing, adapting, implementing and evaluating education and training methodologies



around the world. This paper not only calls for sharing but working to assure a qualitative approach.

Keywords: Awareness in occupational safety and health

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(SMP: 27/6)

An International Perspective on Occupational Safety and Health Training

Felix Martin Daza

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An adequate education and training of the main actors at the enterprise level is a precondition for good performance on occupational safety and health (OSH), and hence a progressive reduction of occupational accidents and diseases. For many years the International Labour Organization has been promoting, through international labour standards, the need of OSH training for those with OSH responsibilities (managers, supervisors, workers and their representatives, inspectors, etc.). Although many countries have already included legal requirements in this regard, there are still many countries without legal basis for the OSH training. Often times when it does exist, there is not enough national capacity (reflecting quantity and quality) to ensure adequate training opportunities on OSH. However, the experiences of some countries demonstrate that in a relatively short period of time improvements are possible, using different approaches and alternatives. Public authorities and stakeholders should reflect on the best way to build a system providing OSH training to those with OSH responsibilities, which is both effective and sustainable. This presentation has the purpose of exploring national capacity needs regarding OSH training and some of the most important challenges for the training of different groups on OSH, especially in developing countries. It also proposes valid ideas, national experiences and international guidelines that could improve this situation.

Keywords: National capacity, training, experiences, international guidelines

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(SMP: 27/7)

A Global View of Safety: Putting Technology to Work to Protect more People from more Hazards

Thomas G. Powell

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The world's population will reach 9 billion by 2050. Urbanization in developing countries will mean ever more crowded living conditions. This crowded, densely populated world will also face new environmental challenges. Protecting the world's people in the coming decades will require a determined effort. There are three keys to making that effort successful. Applying science to develop new technologies: In the 20th century, great advances were made in guarding human life by applying science to the development of new protective materials. In the coming decades, we must devote technological resources to the development of "next generation" materials that will safeguard people and their environments even more



effectively, while also better protecting products human life depends on, such as packaging for medicines. Renewing a focus on global safety standards: The development of protective technologies that can be easily and broadly deployed will depend to a great degree on the establishment of global safety standards. For if industries and nations continually implement individual safety standards, the companies committed to developing improved technologies will lack economic incentive to do so. Safety managers and frontline workers across all industries must help cut through the confusion and agree upon standards reform to ensure that the best equipment, developed using advanced technologies, is available worldwide. Collaborating across companies, across borders: Collaboration must go beyond creating global safety standards. We must find ways to share advancements in materials technology more effectively to get protective products to market more quickly. But this must be done in a fashion that guarantees the integrity of intellectual property rights. Developing a workable mechanism to achieve both goals will require collaboration with companies, organizations, industry groups, academia, governments and NGOs, among others.

Keywords: Global safety, technology, innovation, standards

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Symposium 28: Successful Participatory Practices to Improve Health and Safety IEA/ICOH

Moderator: Andrew S. Imada, President, International Ergonomics Association, USA

Date: September 13, 2011 Venue: Sütlüce- 2 Hall Time: 16:00 – 18:00

(SMP: 28/1)

Safework's Programme: ILO's successful participatory training methods to improve Occupational Safety and Health

Valentina Forastieri

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The purpose of this presentation is to highlight the importance of participatory methods in the development of training programmes on safety and health at work for those with OSH responsibilities in the improvement of working conditions and the working environment.

These methodologies address in particular, small scale enterprises, operators in the informal economy, home workers, farmers and representatives from OSH committees. Therefore, they are designed for those in need of practical and easy to apply methods to identify hazards and risks and develop the necessary low-cost solutions.

They foresee a participatory approach through the voluntary participation of employers and workers building-up on their local wisdom for the joint improvement of their working conditions; they are also intended to show the added value of safety and health to improve productivity and the well-being of all those involved.

ILO participatory approach based on Participatory Action Oriented Training (PAOT) started in the 1980's in Asia and expanded successfully to developing countries in Latin America, Africa, Central Asia and Easter Europe through ILO technical cooperation, and more recently



Decent Work Country Programmes (DWCPs). An assessment of these training tools has shown their usefulness in providing relevant stakeholders, with practical, easy to apply and low-cost means to deal with occupational hazards and risks in small scale enterprises, households, farmers' cooperatives and community structures both in the urban and rural sectors.

In some countries, the ILO has combined these methodologies with a Train of Trainers approach (TOT) to consolidate the competences of employers, managers, supervisors, physicians, technical personnel, worker's representatives and labour inspectors to contribute in overcoming the lack of expertise and resources to intervene at workplace level in the field of OSH.

The following training programmes with a participatory approach will be presented: WISE (work improvement in small enterprises); WIND (work improvement in neighbourhood development), WARM (Work adjustment for recycling and managing waste); WISH (Work improvement for a safe home); WICOM (work improvement in small construction sites) and SOLVE (integrating health promotion into workplace safety and health).

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(SMP: 28/2)

Participatory Strategies in Reducing Injuries in Laboratories

Ira Janowitz

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Participatory ergonomics was the key to transforming a biotech organization with numerous worker complaints and injuries into a highly responsive and effective system. New technology and equipment had been introduced in a piecemeal fashion, creating 'islands of automation' connected by humans performing highly repetitive activities, some with high force in awkward postures. This resulted in over 200 distinct ergonomics problems that were approached one at a time, in a way that could not possibly respond quickly or comprehensively enough to make a significant impact during a period in which the injury rate was climbing rapidly. When a crisis materialized, the Production Manager called in a Macroergonomics Consultant. The consultant brought together management, labor, and organizational ergonomics specialists to develop a participatory approach. During a month-long 'safety stand-down', all production was halted. At the initiation of the process, production, supervisory, and engineering staff were assembled in meetings led by the Production Manager and the Macroergonomics Consultant, who addressed the reality that the current system had been ineffective in addressing the ergonomics problems or the broader management-labor issues. Later in the process, small groups of production workers, with assistance from ergonomics and engineering professionals, worked to identify ergonomics problems in their areas and develop technical, training, and work practices changes to reduce ergonomics risk factors. At the same time, the organization underwent a cultural transformation that involved its organizational structure, throughput model, use of staff resources, change management and rotation on the production floor. Over a four-year period (2007-2010) the annual number of recordable injuries for the production line were reduced from 12 to zero. In this presentation, specific examples will be used to illustrate the process of transformation and the changes in tools, equipment, training, and work practices implemented during this period.



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(SMP: 28/3)

Networking for Facilitating Participatory Practices to Improve Health and Safety in Small-Scale Workplaces

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(SMP: 28/4)

Participatory Approach to Improving Coffee Harvesting in Nicaragua

Barbara Silverstein

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Coffee, the world's second largest commodity, employs and provides a livelihood for thousands in Central America. Unfortunately, harvesting baskets can cause debilitating harm to backs and shoulders of harvesters. Families suffer loss of necessary income for adequate housing, healthcare, food and education.

Current harvesting baskets typically consist of a large, wide bamboo or plastic basket held in front of the body by a rag tied behind the waist. Harvesters often work on steep uneven terrain. A basket full of coffee cherries weighs about 28 pounds and minimally 20" in diameter, resulting in excessive biomechanical loads on harvesters' spine and shoulders, increasing likelihood of a life changing injury.

We visited many coffee farms and talked with owners and harvesters soliciting opinions about the baskets currently being used and possible design changes. Both owners and harvesters resoundingly wanted improvements. Most expressed enthusiasm to participate in a harvesting design change project.

Symptoms/feedback questionnaires were used to assess worker perceptions. Electromyography was used to estimate muscle loads. We modified and tested a harvesting bag which can handle more volume of coffee cherries but with less biomechanical load on the spine and shoulders. The bag had shoulder straps, padded waist belt, and smaller diameter fitting body contour. The tubular bag opens at the bottom to ease dumping cherries into large shipping bags. It *saves time, wasted cherries, and reduces back strain and unnecessary work*. Workers (19) at two coffee farms participated in testing the bags and provided lots of feedback on ways to improve the bag further. Their feedback was used to modify the bags. The workers are eager to test the new bags. This iterative process improves the biomechanical load on the body and gives a strong sense of user ownership.

If successful in significantly reducing stressful loads on coffee pickers in this project, we would like to disseminate this information throughout the world's coffee growing regions.

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(SMP: 28/5)

Using the Employee's Know How of Near Accidents and Health Risks at Work

Frank Wattendorff

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Using the employee's know how of near accidents and health risks at work-Moderated briefing workshop, a concept analysing critical work situations“

1. Usually based on an expert-risk analysis a briefing of all employees is compulsory at least once a year
2. Thus the briefing is usually on normal labour processes, risks arising out of a specific situation are often unaccounted. However, dysfunctional processes can lead to technological and men-made failure conditional on situations alienating the employee.
3. During these moderated workshop, employees can describe their experience during such situations. This knowledge can be used for the development of risk-reducing measures
4. Use the experience of each single employee for the stability of processes in your organisation.
5. Win-win-Situation for the employed and the company because solid processes imply lower costs and reduce the employee`s workload.

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(SMP: 28/6)

Participatory Strategies to Improve Occupational Safety and Health

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In improving occupational safety and health in various industries, an increasing emphasis is placed on participatory action-oriented approaches (PAOA) by voluntary initiative of employers and workers. The aim of these approaches is to achieve comprehensive risk management practicable in each local situation through serial participatory steps. Recent experiences from participatory work environment improvement programmes are reviewed to know effective support measures for promoting preventive culture at the workplace. These included the participatory action-oriented training (PAOT) in improving occupational health and safety for migrant workers working in a manufacturing factory in Japan, health care workers in Burundi, trade union members in Asia. The other PAOT programmes including risk management of psychosocial factors at workplaces and needlestick injuries in health care settings etc. were also reviewed.

A prominent trend found in these programmes is to focus on local good practices as workable goals for managing risks from occupational safety, health and ergonomics points of view. Locally achieved occupational safety and health good practices are used extensively for keeping a broad scope and for involving workplace people in the planning and implementation of risk-reducing improvements in multiple aspects. Usually, musculoskeletal,



operational and psychosocial risks are involved. In the serial procedures of involving workplace people, group work methods for prioritizing improvements including many simple ergonomics solutions are generally applied. Therefore, work environment assessment tools need to be adjusted to local conditions. This is realized by incorporating local good examples in the tools, such as workplace action checklists, illustrated guides and group work sheets. Particular attention is drawn to the presentation of feasible options addressing multiple aspects.

In conclusion, these experiences confirm the need to make effective use of local good practices in promoting participatory strategies. Group work tools incorporating multifaceted good practices can offer concrete opportunities to improve work environment and job content.

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Symposium 29: Designing out the Risk: Identifying Risks and Opportunities in Design, IOSH

Moderator: Malcolm McIntyre, Lend Lease, Scotland

Date: September 13, 2011 Venue: Sütlüce-1 Hall Time: 16:00 – 18:00

(SMP: 29/1)

Influence of Communications & Competences

David Evans

Chair IOSH International Group, United Kingdom

Project risk control has to be a continuous process; which, if not implemented properly and maintained to a high standard, can at any moment fail catastrophically. A successful project is often defined by the early decisions, actions and omissions of the project team, often made at a time when the impacts of potential hazards seem to be a long time in the future. This paper explores a range of factors relating to risk management which can be influenced during the early phases of a project and which can pay dividends when the hard work really starts.

Central to the themes which are developed are the need for interaction, information sharing competence and communications as key factors which are often overlooked in the rush for delivery.

Projects by their very nature create unique issues for the management of people and of risk, they are collaborative enterprises planned and designed to achieve an aim. They bring together people who are not use to being part of the same team and in many circumstances will have different cultural backgrounds as well as experience of a variety of different management systems and styles.

Approaches taken to problem solving will not be aligned and there will often be a significant variation in the experience of hazard identification and risk awareness. Such situation can lead to conflict between key individual resulting in pressures on acceptance of risk.



Projects create a complex interaction between technological needs, social and cultural structures which when coupled with financial and time pressures and the associated business demands present a serious challenge that should not be ignored and need to be addressed through effective team working and communications.

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(SMP: 29/2)

Incorporating Health & Safety in Design-Building Teams (The UK and Global Perspective)

Paul Popescu, David Evans, Malcolm McIntyre

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The foundations of health and safety for a successful project are laid during the design phase. This paper examines the important role that communications, leadership and decision making play in achieving the highest standards. Too often little attention is paid to the importance of ensuring the design teams remain committed to delivering safe projects. The overwhelming focus on time, resources quality, finance and client expectation become the key drivers. Added to which are cultural pressures and expectations to deliver, all of which serve to be task focused rather than people focused. The importance of coordination and communication is recognized in the European Council Directive 92/57/EEC of 24 June 1992 on the implementation of minimum safety and health requirements at temporary or mobile construction sites. Transposed in the United Kingdom into the Construction Design and Management (CDM) regulations they place duties on to certain roles e.g. designers and clients have a duty to design buildings and schools by trying to reduce risks during construction works but also eliminate risks by design during the lifetime of the building that they have designed. By consideration of health and safety, the whole project team can provide the Client with a project that is focused on design risk management and the health and safety needs of those constructing, maintaining and using the buildings and structures. Safe design is a process that reduces health and safety hazards and minimizes potential health & safety risk by involving all decision makers that are part of the life cycle of the designed product. Health and Safety management principles (incorporating eliminating or reducing risks principles) must be adopted by the whole team when addressing safe design in the concept phase - it is imperative that the whole consultant team attempts to bring a fresh approach/change in mindset in the process to improve our traditional approach to safety on construction projects. Design risk and opportunity reviews (ROAD – Risk and Opportunity At Design) are commenced at the start of the concept design phase of a project and updated at monthly design reviews with the status of each item reviewed until actioned and closed out.

Keywords: Design, safety and health, risks, management systems, EU directive, Europe, UK, global

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(SMP: 29/3)

Opportunities to Improve Health and Safety in Designs Within Eastern Europe and Russia Case Study

Derran Williams

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Designing out hazards to eliminate risks prior to the physical construction of buildings has long been understood and aspired by many as the way forward to ensure maximum health and safety protection to workers and third parties. Designers hold a unique role which provides them the opportunity to increase health and safety protection by reducing the risks that arise throughout the life cycle of a project. Good design will not just minimise injury and ill health during the construction phase but can also play a significant part during the operation phase and ultimately the final demolition. In the UK this is achieved by the use of legal rules introduced into national law to ensure due attention is exercised during the design phase of project. Where enforcement agencies identify risks which could have been avoided, designers can be proactively prosecuted regardless if no loss has been suffered. Extending such a diligent approach in countries in transition which may lag behind with goal setting occupational health and safety laws, can be somewhat problematic. Therefore how can designers of projects within these countries be influenced to eliminate hazards and reduce risks during the design stage. This paper intends to explore and discuss the experiences of one Multilateral Development Bank who attempts to influence clients to ensure the incorporation of good health and safety within the designs of buildings to reduce the risks to workers and third parties. It will discuss how, with the lack of sufficient national laws or a relaxed approach to proactive enforcement, the EBRD can place legal obligations by means of covenants contained within loan agreements to require clients to achieve certain standards to reduce risks.

Keywords: Health Safety Building Design EBRD

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(SMP: 29/4)

Redesigning Maintenance Management Systems to Deliver Improved Business and Safety Performance: A Heavy Engineering Case Study

Rakesh Maharaj, Suleymanova Kihalida

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Often Occupational Safety and Health (OSH) is singled out as an independent management process in organisations with the prime objective being to ensure compliance. This results in OSH performance rarely being treated integral to overall business management. Current research contends that occupational safety specialists need to go beyond linking of occupational safety performance to regulatory compliance; and seek out opportunities to correlate safety with business performance (Veltri et al. 2007). From a business systems perspective, (Ackoff, 1998; Maharaj, 2010), OSH is an element of organisational and operational systems. For organisations to achieve desired performance, it is important that OSH is not isolated from other core elements of the system such as finance, human resources, supply-chain, operations, and others. Progressive organisations seek to establish firm relationships between these elements through effective operational and organisational



integration. The objective of this paper is to demonstrate how the redesign of a Maintenance Management System within a heavy engineering company contributed not only to improved operational and organisational performance but also OSH performance. Precipitate by a double fatality, the authors have conducted a root and branch analysis of the organisations' Maintenance Management and Supply Chain procurement process resulting in the creation of a business change programme to re-organise people and redesign maintenance management processes leading to greater effectiveness and operational control. This study demonstrates the interdependence of organisational systems and OSH performance. Re-engineering the maintenance function, its systems and people has brought about collective improvements in OSH and business performance. This paper will explore the methodology employed and results achieved using an integrated approach to organisational and operational redesign, providing delegates with practical ideas to conduct similar interventions in their own organisations.

Keywords: Business process, occupational health and safety performance, business performance, re-engineering management systems, maintenance management

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Symposium 30 : Perspectives for the Elimination of Asbestos-Related Diseases

University of Occupational and Environmental Health, OSHRI (Japan), KOSHA

Moderator: Seong-Kyu Kang, Korea Occupational Safety and Health Agency (KOSHA), Korea

Date: September 13, 2011

Venue: Kasımpaşa-4 Hall

Time: 16.00 - 18.00

(SMP: 30/1)

Maximizing the Future of Community Building: A Case Study in How New Media Opportunities can be Used to Significantly Advance Worker Safety and Health

Linda Reinstein

ADAO, USA

After losing her husband to mesothelioma, Linda Reinstein co-founded the Asbestos Disease Awareness Organization, and now serves as President/ CEO. As part of the organization's education, advocacy, and community initiatives, Reinstein is a prolific international speaker, advocate for public health and a ban on asbestos, and passionate new media innovator.

The evolution of the internet and the proliferation of social networks for sharing information have changed the face of modern interaction. New media forums including websites, blogs, social networking sites, mobile communications, and more, have given organizations powerful and dynamic opportunities to interact with the public, share information, and grow. The benefits are numerous: the ability to reach a larger and more diverse audience faster, easier, and cheaper; the centralization of educational information and resources; the transition from one-sided messaging to public interaction; the empowering of individuals to take action; and the ability for individuals to be a part of a larger community of hope and support.



This presentation will examine how the Asbestos Disease Awareness Organization (ADAO), a leading asbestos victims' voice worldwide, has harnessed this power to further education, advocacy, and community initiatives around the world, to prevent exposure and also, to help increase worker safety and health. Examples will include simple, effective, affordable, and replicable methods of communication and collaboration using new media, and how these kinds of initiatives are giving organizations revolutionary advancements in the ability to reach, educate, and help as many people as possible.

Describe the importance of new media outlets in communicating an organization's education and advocacy efforts; provide examples of how these tools have been used successfully by ADAO; recommend a number of initiatives for international agencies and organizations to take in order to maximize new media and solidify a connection with the public.

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(SMP: 30/2)

ILO Action to Eliminate of Asbestos-Related Diseases

Igor Fedotov

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Asbestos hazards represent serious risks for the health of workers, the public and the environment. All types of asbestos are classified as agents carcinogenic to humans by the International Agency on Research for Cancer (IARC). It is an important occupational carcinogen that causes more than 107,000 deaths every year according to the estimates of the World Health Organization (WHO). No threshold has been identified for the carcinogenic risks of asbestos and there is a dose-response relationship between hazardous asbestos exposures and the appearance of asbestos-related diseases. Safer substitute materials exist for all uses of asbestos and they should be used whenever this is possible.

The ILO action towards the elimination of asbestos-related diseases is aimed at the establishment of comprehensive national action programmes and is based on the relevant ILO international instruments, namely, the Occupational Cancer Convention No.139, Asbestos Convention No.162, and the Resolution on Asbestos, 2006. The ILO action is convergent with the WHO strategy on the elimination of asbestos-related diseases and the two organizations are actively collaborating to address the challenges of asbestos.

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(SMP: 30/3)

The Role of WHO in the Elimination of Asbestos-Related Diseases

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According to WHO estimates about 125 million people in the world are exposed to asbestos at the workplace and more than 107,000 people die each year from asbestos-related lung cancer, mesothelioma and asbestosis resulting from occupational exposure to asbestos. In addition, it is estimated that several thousands of deaths can be attributed annually to exposure to asbestos in the living environment. In 2010 IARC reviewed the most recent



evidence on carcinogenicity of asbestos fibers and concluded that all forms of asbestos cause lung cancer, mesothelioma and cancers of the ovaries and the larynx.

For these reasons, in 2007 the World Health Assembly requested WHO to carry out "a global campaign for elimination of asbestos-related diseases - bearing in mind a differentiated approach to regulating its various forms - in line with the relevant international legal instruments and the latest evidence for effective interventions..." WHO's assistance to eliminate asbestos-related diseases is therefore particularly targeted to those countries that still use chrysotile asbestos, in addition to assistance in relation to exposures arising from historical use of all forms of asbestos.

WHO, in collaboration with ILO and with other intergovernmental organizations and civil society, works with countries towards elimination of asbestos-related diseases in the following strategic directions:

- by recognizing that the most efficient way to eliminate asbestos-related diseases is to stop the use of all types of asbestos;
- by providing information about solutions for replacing asbestos with safer substitutes and developing economic and technological mechanisms to stimulate its replacement;
- by taking measures to prevent exposure to asbestos in place and during asbestos removal (abatement);
- by improving early diagnosis, treatment, social and medical rehabilitation of asbestos-related diseases and by establishing registries of people with past and/or current exposures to asbestos.

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(SMP: 30/4)

Asbestos Use, Occupational Exposure and Malignant Mesothelioma in Korea

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Although importation of asbestos to Korea has decreased, there are growing concerns of its hazardous effects. This paper describes the use and occupational exposure to asbestos, and the incidence and mortality of malignant mesotheliomas in Korea. Asbestos raw material imports from other countries peaked between 1990 and 1995, but importation of asbestos-containing and -processed materials has steadily increased until now. A comprehensive exposure survey was conducted in Korea between 1995 and 2006. The average airborne asbestos concentration was lower than from other countries and steadily decreased during the study period. And incidence of malignant mesothelioma in Korea was 450 between 2002 and 2007. Male was 282 cases (mean age: 60.4) and female was 168 cases (mean age: 60.8). There were 504 deaths due to malignant mesothelioma and an average of 30.9 deaths per year between 1997 and 2009. The number of deaths attributed to malignant mesothelioma ranged from 16 cases in 1999 to 65 cases in 2008. The magnitude of asbestos-related health problems in Korea has been underestimated due to underdiagnosis, incomplete reports, and shorter duration of exposure. A nationwide surveillance system for asbestos exposure and malignant mesothelioma should therefore be implemented.

Keywords: Asbestos, malignant mesothelioma



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(SMP: 30/5)

Activities at OSHRI, KOSHA Towards Elimination of Asbestos-Related Diseases

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Korea has totally banned asbestos use in 2009. Any production, use, import and export of asbestos are not allowed. Korea has used approximately 2 million tons of asbestos from the early 1970s to early 2000s. The use of asbestos reached its peak up to 100 thousand tons in 1992, and decreased sharply after recognizing the first official case of mesothelioma because the government regulated asbestos industries in various ways.

Korea has taken three steps toward banning asbestos. First, the Ministry of Employment and Labor (MOEL) intensified its inspection of asbestos industries in the 1990s. The Korea Occupational Safety and Health Agency (KOSHA) has also visited workplaces to help them do work environment management. From this practical guideline, asbestos use has rapidly decreased. Second, the MOEL reinforced the Occupational Exposure Limit of asbestos from 2 fibers/ m³ to 0.1 fibers/ m³ in 2002. Crocidolite and amosite were banned in 2000 and all asbestos except chrysotile, were banned in 2003. Removal or demolition of asbestos containing buildings was required to be reported to the MOEL. Finally, chrysotile had been banned in 2007 except under certain conditions, and its use was eventually eliminated in 2009.

Remaining issues is the management of pre-existing asbestos containing buildings. Permitted agencies are allowed to perform the removal or demolitions of asbestos containing buildings. At the same time, independent authorized agencies are only allowed to do pre-investigation for the removal of asbestos containing buildings. Occupational Safety and Health Research Institute (OSHRI) of KOSHA certified the organization for the proficiency of analyzing asbestos by light microscope. Also, OSHRI provides complimentary health surveillance to retired workers, who have been exposed to asbestos during work.

Keywords: Asbestos, asbestos related diseases, Korea

Symposium 31: The Four Pillars Model of Accident Prevention in Austria, AUVA

Moderator: Peter Vavken, AUVA, Austria

Date: September 13, 2011 Venue: Kasımpaşa-5 Hall Time: 16:00 – 18:00

(SMP: 31/1)

Insurance Against Accidents at Work and Occupational Diseases in Austria

Peter Vavken

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The AUVA (Allgemeine Unfallversicherungsanstalt - the Austrian Workers' Compensation Board) is the Austrian social insurance for occupational risks for more than 3 million employed persons and 1.3 million school children and students. It was founded in 1889 and is the main social insurance institution against accidents at work and occupational diseases in Austria. The AUVA is the social insurance against accidents at work and occupational diseases for 3.2 million employees, 1.3 million school children and students as well as many first aid organisations. The AUVA offers all benefits – from prevention through medical treatment and rehabilitation after accidents at work or in case of an occupational disease to the financial compensation of accident victims, all “from a single source”. These main benefits - namely prevention, medical treatment, rehabilitation and compensation - constitute the Four Pillars of Action of the AUVA. In order to fulfil its tasks, the AUVA has set up regional offices and treatment facilities – seven trauma centres and four rehabilitation centres – all over Austria. This interactive, integral model offering all benefits “from a single source” allows for maximum efficiency in fulfilling our tasks and offers the possibility of using the findings from one field to improve work in one of the others. This system will be presented more in detail in the presentations of medical, legal and prevention experts of the AUVA.

Keywords: Accident insurance, four-pillar model, all-in-one concept

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(SMP: 31/2)

The Portfolio of AUVA Prevention

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The AUVA is part of the Austrian Social Insurance system. Its duties in prevention are laid down in the General Social Insurance Act (ASVG) as well as in the Workers Protection Act (ASchG). The statutory tasks are the prevention of work accidents and occupational diseases as well as the reduction of work-related health hazards. The ASVG sets the general framework for the AUVA prevention. It includes the following tasks: • Promotion of the idea of prevention • Consulting and training for employers and employees • Cooperation with companies • Research on the causes of occupational accidents and diseases and their evaluation for the purpose of preventing • Preventive care of the employees affected by occupational diseases • Cooperation with rescue services The establishment of individual measures is under the responsibility of AUVA. It is governed by strategic considerations that are based on the principles of the Balanced Scorecard, namely: the customer's perspective, the process perspective, the employee perspective and the financial perspective. As the requirements change over the years, it is necessary to adapt the portfolio from time to time. A second major area of AUVA prevention relates to the safety and occupational health care for small businesses. It is implemented in the program “AUVAsicher”. This task was assigned to AUVA with the adoption of the EU Framework Directive into Austrian law. To support the companies in fulfilling the EU requirements in product testing, AUVA runs two accredited laboratories namely STP and OSBS. The STP has the emphasis on testing equipments, determination of burning and explosion characteristics of dusts and recording of workplace conditions. OSBS is testing with the emphasis on dust measurement and protection. More information about AUVAsicher and the testing labs STP and OSBS will be given in separate contributions.

Keywords: Prevention, accidents, diseases, insurance

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(SMP: 31/3)

How Patients Benefit from Highly Sophisticated Trauma Care in the Austiran Workers' Compensation Board

Patrick Weninger

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Treating any kind of trauma patients is one of the principle strategies of the Austrian Workers' Compensation Board (AUVA) to provide a substantial contribution to occupational health care. During the last decades the spectrum of occupational accidents substantially changed due to prevention strategies and consequent safety improvement. Nevertheless, seriously injured patients are admitted and require urgent care at the beginning and high-quality rehabilitation at the end of their treatment protocol. Care of the multiply injured patient always is very demanding and challenging. The tight cooperation between clinical trauma care and experimental medicine in our research facilities allows to directly transfer research findings from bench to bedside. In case of seriously injured patients, modern diagnostic tools are routinely used at our institution. To consistently monitor patients with severe head injuries, brain-specific protein S-100b has prognostic value. Furthermore it is a diagnostic tool which allows non-invasive monitoring and which also is helpful to optimally plan further diagnostic and treatment decisions. IL6 is a biomarker increased in seriously injured patients more likely to die or to develop serious organ failure. We use it routinely as prognostic marker and to determine the optimal timing for further surgical interventions. A major effort was the establishment of a modern trauma emergency room strategy using immediate computed tomography to shorten the diagnostic interval in seriously injured patients. We found significant improvement of patient care and outcome after this diagnostic tool was established. Trauma care provided in a dedicated trauma hospital run by the AUVA is a excellent example for highly sophisticated acute medicine which improves patient safety and outcome.

Keywords: Trauma care, biomarkers, trauma emergency room, outcome

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(SMP: 31/4)

The Austrian Asbestos Screening Program

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According to Austrian legislation, occupational health check-ups for the effect of harmful substances are only carried out on employees who are actively working. Taking into account the long latency periods of up to 40 years and more, the Austrian Workers' Compensation Board in cooperation with the BBRZ initiated a nationwide pilot program for former asbestos workers in 2004. The primary objective of the program was the early detection of lung cancer and the assessment of lung cancer prevalence in high-risk asbestos workers. Due to the poor prognosis, which is largely independent of the time of the diagnosis, mesothelioma was not the primary focus of the present program. The secondary objectives of the program were

the detection of other asbestos-induced diseases and to establish an Austrian register of former asbestos workers and asbestos companies. In addition, a psychosocial care system for cancer and mesothelioma patients (case management) and their families as well as prevention programmes for smoking cessation were implemented in the program. The implementation of the program was organised by the BBRZ and consisted of two parts. The first part contained a cumulative asbestos exposure evaluation and screening examinations at two-yearly intervals. The examinations were carried out by occupational medicine doctors. The examinations included medical history, clinical examinations, lung function and chest x-rays using high-kilovoltage technique in large format (PA and lateral view). According to a model which takes age, cumulative asbestos exposure and smoking habits into account, 814 former asbestos workers were characterized as having a high risk of lung cancer and were examined annually using low-dose computer tomography. Lung cancer screening in the high risk group exhibited a significant higher prevalence of 1.35% compared to whole program prevalence of 0.71 %. 38 % of all diagnosed lung carcinomas were diagnosed in stage I.

Keywords: Asbestos, screening, lung cancer

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(SMP: 31/5)

Cost-Benefit-Analysis as a Tool for the Derivation of Prevention Priorities from Liability Cases

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The Austrian General Workers' Compensation Board (AUVA) aims at selecting cost-effective prevention strategies targeted towards certain risk groups.

Therefore a decision support system for the investigation of occupational injuries is being developed by an Austrian research team commissioned and financed by AUVA. The core of this system is a database consisting of the costs of occupational accidents for the companies, the AUVA and the national economy. The main AUVA costs cover pension payments, allowances, hospitalization costs, costs for prostheses and rehabilitation costs. All costs of the past, present and future (= lifetime costs) can be calculated by using individual injury data from the year 2010. These costs of these occupational accidents cannot be specified at the time of writing this abstract. But the results of the study will be available in Sep. 2011 at the world congress.

The results of this investigation help the AUVA not only to allocate its prevention budgets optimally, but also to politically argue that its prevention budget should not be reduced for the purpose of subsidizing other social security institutions.

Finally I would like to thank our project partners for carrying out this investigation: Marion S. Rauner, PhD; Michaela Schaffhauser-Linzatti, PhD; Bernhard Schwarz, MD; Franz Gansterer.

Keywords: Prevention priorities, cost-benefit analysis, resource allocation

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(SMP: 31/6)

Analysis of Accident Cause and Redress and their Use in Prevention

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After an accident at work, the question that immediately comes up is always why. The authorities, courts and social security institutions are keen to know, each for their own reasons, why and how the work accident occurred. The presentation outlines the consequences that a work accident may trigger and also illustrates how the redress, in combination with the newly developed accident investigation tools, can contribute to preventing future accidents. The statutory accident insurer is often required to provide expensive services to the insured party following a work accident. Basically, the liability privilege of the employer prevents enforcement of claims for damages in these cases. However, the liability amounts are limited to gross negligence on the grounds of prevention, so that in this instance services provided following a work accident must be redressed. The accident insurance therefore is pursuing not only these accidents that particularly frequently occur for example in order to prevent similar claims in the future, but also accidents caused by gross negligence. In both instances, a successful outcome is dependent on a precise accident claim. Up till now, there have often been problems due to lacking standards, the wrong questions and judgments, which have led to undesirable outcomes. The shared desire of the Prevention Division and the Legal Department of the AUVA to handle accident claims more systematically and in a more targeted way has led to the development of a tailor-made accident claim tool. With an accurate accident report using this claims tool, from now on it is possible to conduct a standardised accident analysis. As a consequence, preventive measures can be derived, both for actual specific cases and for general measures. At the same time, in terms of redress, it also offers the ability of rendering the chain of events leading to the accident and the failures clearly visible.

Keywords: Analysis, accident, redress, prevention

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(SMP: 31/7)

Balance Training for the Reduction of Occupational Accidents, the Application in the Prevention and Rehabilitation

Michaela Strel

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Trips and falls are the largest cause of occupational accidents in Austria. Apart from huge compensation payments which have to be made by the Austrian Workers Compensation Board (AUVA), nearly half of all fall patients are highly restricted in physical activity for months. Causes for falls are to be distinguished in extrinsic (ground conditions, temperature) and intrinsic parameters (age, muscular fatigue, physical condition,..), whereas the ability of postural control and balance plays a significant role. Postural control is based on a complex sensomotoric function, which is responsible for motion control and reaction, determining parameters in accident prevention. Specific balance training is supposed to increase postural stability and further helps to prevent occupational accidents. This effect could be shown and statistically verified in an investigation, which was done by the Vienna General Hospital in



cooperation with the AUVA. An unstable platform was used to show that balance training increases postural stability. Young, healthy subjects were used for this investigation. As the balance system is subjected to a natural ageing process, it can be assumed that the training effects are higher amongst older groups of persons. Balance training is successfully integrated in patient therapy in the AUVA rehabilitation centers. An improvement of the Balance system allows the conclusion, that a risk of fall at the work place and the connected injuries can be reduced. As part of the workplace health promotion the AUVA takes measures which prevent occupational accidents and reduce the risk of falls through dynamical balance training respectively sensomotoric training. To prevent accidents at work it therefore needs safety related standards and behaviours as much as effective physical interventions such as balance training to keep workers in a physically good condition.

Keywords: Balance training, falls, occupational accidents, prevention, rehabilitation

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Speakers' Corner



Speakers' Corner

SPC 12

Moderator: İlknur Çakar, MoLSS, Turkey

Date: September 13, 2011 Venue: SPC 12 / Kasımpaşa-4 Hall Time: 12.15- 13.15

(SPC: 12/1)

A Glance to Care Givers of the Elderly in Turkey: Social Needs, Characteristics of Workers and Working Conditions

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Purpose and Method: The rapid rise in elderly population in Turkey, which has a younger demographic profile than Europe, is significant. Nursing services for elderly should be developed accordingly. We aimed to explain the need and perspective of the society for elderly care, characteristics of workers and working conditions in the light of current studies. **Findings:** It is generally known that the responsibility of caring for the elderly within the society falls on family members, particularly daughters, spouses or other female relatives. However, professional caregivers are increasingly required owing to the changing family structure and the elders' preferences. They usually deem vocational education necessary. There are numerous on-going local education programs, new college departments and EU projects for this. Although social needs and education opportunities has increased, local labor force is not sufficient. A significant number of foreign female caregivers work at home in bedridden patient care particularly in metropolitans. The primary reason for choosing this profession is stated as 'necessities'. Caregivers tend to work in other fields for similar wages due to social judgmental view, security problems especially for females working at home, and workload affecting their physical and mental health negatively. **Discussion:** The society holds skeptical, judgmental and negative prejudice despite the needs of Turkey. Besides, difficulties and risks in particularly dependent elderly care, inappropriate working conditions and difficulties in providing social security clearly avert choosing and maintaining this profession. **Conclusion:** The demand for mentally healthy, highly motivated and educated caregivers of the elderly is increasing in Turkey. This should be prioritized in developing projects for providing services to elders. It is necessary to increase vocational education opportunities and professional prestige, improve working conditions, maintain working security, improve care services and activate care insurance.

Keywords: elderly people, social needs, working condition

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(SPC:12/2)

Safety and Health Effects of Shift Work Being Executed in an Automotive Plant

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Introduction: Occupational health, as a discipline consisting of medical and technical dimensions, is a substantial component of medical education. It is crucial that all medical students receive education on occupational health issues, since it is mostly non-occupational health physicians, that diagnose and treat occupation-related health problems. In Turkey, occupational health education (OHE) in medical faculties are mainly carried out by Public Health Departments. In this study, it was aimed to assess undergraduate and graduate OHE in Public Health Departments. **Method:** Data of the study was collected in May, 2009 through an online questionnaire on OHE, which were sent by e-mail to 42 Public Health Departments. Online reminders were sent to those departments with non-response. Overall, 25 out of 42 Departments (59.5%) have responded to the survey. Descriptive statistics were used in data analysis. **Results:** The survey revealed all Public Health Departments to have an undergraduate OHE. Number of academic years, in which OHE was delivered throughout the six years of medical education, was one year in nine Departments, two years in ten Departments, three years in four Departments and four years in one Department. Mean value for the total education time was 8.1 hours (min-max. value: 1-16 hours). Most of the courses were carried out as class lectures or small group work. Practical sessions were conducted in 11 Departments. Out of those, workplace visits were paid once in six Departments and twice in two Departments. One Department responded as to have a workplace visit at the third grade and 1-week workplace internship at the sixth grade. In another Department, sixth year students were found to work in "delivery of primary health care services in farms". Students in one Department were found to visit a hospital specialized in occupational health. 16 Departments out of 25 responded as to cover occupational health topics in their public health residency training programmes. Two Departments were found to have a masters programme, whereas three Departments were found to have a PhD programme in occupational health.

Keywords: Occupational health education, public medical faculties

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(SPC:12/3)

Safe Outsourcing/Sub-Contracting in the Residential Property Sector

Antony Murphy

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Grainger Background Established in Newcastle, UK in 1912, Grainger directly owns £2.1bn of residential property and £2.8bn of residential property under management. Grainger is the residential property manager for 26,400 properties in the UK and Europe. Grainger has a unique position as a leading residential property specialist with mixed portfolios of properties with integrated and outsourced services and skills Grainger Health & Safety Management System • Deliverables and Risks • HSG 65 • OHSAS18001 • Internal and External Management System Outsourcing Outsourcing is where 'an external contractor provides, on a recurring basis, a service that has been performed within the organisation'. Outsourcing is a process in which a company concentrates on aspects of the business that gives it a competitive advantage (core-business) and outsource the more peripheral or non-core aspects to other suppliers. Why Outsource • Competence • Cost • Cultures • Competition • Drivers • Matrix Outsourcing Procurement Project • Added value • Driver change • Continuous Improvement Managing Agents • Manage a proportion of residential property • Health and Safety Competence • Assessment and audit and review CDM Regulations •



Client, Contractor and Coordinator responsibilities • UK Regulation Contractor Management • SSIP • CHAS • Assessing Competence Asbestos Management • Control of Asbestos Regulations in Domestic Property • Asbestos Survey Guidance Gas and Electrical Management • Inspection and Testing Methods • First Party Assessment / Info • Second Party Assessment • Third Party Assessment • Procurement Standards • Legal Requests Impacts • Improved performance • Increased value added • Improved profitability • Experts employed in specialist areas • Competence assessed and assured Conclusion Competent external suppliers delivering their expert product/service in order to further mitigate risk, add value and improve organisational performance.

Keywords: Safe outsourcing in the residential property sector

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(SPC:12/4)

A Proposal for Sub-Contractor Health and Safety (Hs) Performance Evaluation System

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Health and safety (HS) performance evaluation of sub-contractors is an evolving issue nowadays, since many of the works are sub-contracted or outsourced as a result of global working practices. However, different methods or tools are used by different enterprises or sectors to bring solutions to this complex issue. It is generally difficult to provide an effective method to evaluate the performance of the sub-contractor depending on the legal and contract requirements. In some cases, sub-contractors are lack of awareness of HS issues. In this paper, a new evaluation model is proposed within a structured system supported with quantitative and qualitative (both proactive and reactive) indicators so that the employers can benefit from this while conducting their business with the sub-contractors. The evaluation model consists of three phases: - HS performance evaluation during selection/tender process of the sub-contractor - HS performance evaluation during production/implementation phase - Overall performance evaluation by certain periods and/or by the completion of the work. In the paper; the objectives, scope and the utilized evaluation techniques are explained for each phase in detail. The outputs of each phase are demonstrated within an example case so as to introduce the features and the benefits of the model. Proposed check-lists, utilized statistical techniques and score cards are also introduced related to the mentioned example case for further discussions. The selected performance criteria are linked to score cards so that an alert system will be in charge by means of an objective evaluation to improve the performance of the sub-contractor. It is important to sustain a cooperative environment with the sub-contractors on HS issues. This model is believed to help to create a safer and healthier workplace within the context of continual improvement.

Keywords: Sub-contractor evaluation, score card, statistics, improvement

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(SPC:12/5)

Estimation and Analysis of Costs Associated with Fatal Occupational Accidents in a Manufacturing Company in Iran

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Statement of problem: Human capital is one of the most important factors in manufacturing. Therefore investment in human capital is the fundamental basic of economic growth. Estimation of costs associated with accidents will result in optimum allocation of limited resources, persuasion of society, governments and employers to investment in health and safety topics and reduction of losses from accidents. This study was aimed to evaluate costs associated with fatal occupational accidents in a manufacturing company over a period of ten years. Material and methods: This descriptive-analytical study was performed in 1387 on personnel of a manufacturing company who died because of occupational accidents in a period of time between 1377 and 1387. The method used for estimation of costs related to accidents was Human Capital Method. Results: According to findings, most of personnel who died because of occupational accidents were in the 26- to 30-year old age group (30.5 percent). The average age of personnel who died because of occupational accidents was 35. Each fatal occupational accident ruins approximately 40 years of life and 30 years of economic activity. Conclusion: Because of violent losses of organizational resources due to fatal occupational accidents, design and implementation of a strategic planning and management to improve safety level of organizations is Prerequisite to continuity of organizations.

Keywords: Costs of accidents, human capital, safety

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SPC 13

Moderator: Ahmet Ersoy, MoLSS, Turkey

Date: September 13, 2011 Venue: SPC 13 / Eyüp Hall Time: 12.15- 13.15

(SPC:13/1)

Sound Occupational Safety and Health (Osh) Awareness and Training for the Petroleum Sector

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Employee awareness on health, safety, security, and environment (HSSE) is a recurring issue for petroleum sector in addressing policies on HSSE, quality and environment management systems. These issues should permeate all parts of the petroleum sector to protect and promote employees health and safety. Promotional frame work for Occupational Safety and Health (OSH) of International Labor Office (ILO) outlined imparting awareness and training without undermining business performance is one instrument to mitigate occupational hazards at workplace. The International Petroleum Industry Environment



Conservation Association (IPIECA) and the International Association of Oil and Gas producers (OGP) are constantly working to increase awareness on occupational safety and health (OSH) issues to promote good work practices and guidance for oil and gas industry. The European Agency for Safety and Health at Work (EU-OSHA) has contributed for safer, healthier and better workplaces through famous “Napo films” with a prime objective of “Safety with a smile”. It is a fact that, training boosts the confidence so that all the co-workers are fully aware and trained in all HSSE measures, that leads to petroleum sector is the safest place to work. The role of OSH professionals (Industrial hygienist, Occupational health physician, Occupational health advisor, Occupational health nurse and occupational toxicologist) is crucial in educating workforce to create healthy work environments that are conducive to more active life styles. Hear (H) the views of the employees, Survey (S) current training needs, Share (S) the results and Enforce (E) training programs to target workforce in the petroleum industry to ensure HSSE success in the business. The employers can avail international resources available for free of cost to impart awareness and training to job performers for sustainable growth of oil and gas industry. It should be continuous and on-going approach in optimizing the employee’s knowledge on OSH issues.

Keywords: Occupational safety and health, OSH professionals, awareness and training

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(SPC:13/2)

Iraqi National Campaign to Promote the OHS at Work

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As an implementation of the Seoul Declaration on OSH, the NCOHS part of MOLSA in Iraq signed a partnership agreement to organize a special celebration to mark the world day of OHS in April 28th./2010 in addition to an OHS National Campaign & workshops to promote the education of OSH at work. The activities consisted of delivering educational sessions to employees, workers & employers at the same time by training teams of NCOHS to promote the culture of OHS. The OHS delivered 331 educational sessions in 13 governorates; they were attended by 10364 workers, employees & employers included 2738 females (26.4%) & (7626) males (73.6) in public, private & mixed sectors. The media, moreover, published the news & goals of the campaign along with OHS concepts. Many public & official websites published the activities of the campaign in links below: The materials of the campaign were redesigned & printed by Relief Institution (RI) to be distributed to the participants.

Keywords: Iraq,OHS

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(SPC:13/3)

The Role of Health and Safety (HS) Professionals in the Implementation of the Seoul Declaration on OSH

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“Seoul Declaration on Safety and Health at Work” was signed on 29 June 2008 by 46 opinion leaders on the occasion of XVII World Congress on Safety and Health at Word organized in

Seoul-Korea. Following this, on 10 September 2008, a more comprehensive document named "Commentary for the Seoul Declaration" is published. This paper focuses on the role of health and safety (HS) professionals in the implementation of the Seoul Declaration. In various projects, HS professionals; like job physicians, experts, consultants, trainers, and etc. work very closely with governments, employers and employees and have certain impact on development of preventive culture and implementation of the HS strategies in the enterprise level. In this respect, if the HS professional is well oriented to the Seoul Declaration, then he can perform more in line with the objective and scope of it. In this paper, a structured frame, a document, called "Guideline for HS Professionals for the Implementation of the Seoul Declaration" is introduced. The Guideline specifically aims to challenge some methods to constitute strategies in compliance with the Declaration. The Guideline consists of seven sections: - A summary of the Declaration and the Commentary - The role of HS Professional and how he can promote the Declaration - Prevention strategies in the context of "high HS standards and good business" - HS management systems to be tailored for the organization in the context of prevention and improvement - Close relationship with workers and their representatives; developing involvement and cooperation strategies - Emphasizing the importance of worker for the job; social and physiological context; training and awareness activities - Documentation and reporting methods It is believed that the Guideline will help HS professional to put the fundamentals of the Declaration into practice and will contribute to increase the awareness on the Declaration

Keywords: Seoul Declaration, HS professional, guideline

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(SPC:13/4)

The Young Report - A Negation on the Advances in the Seoul Declaration

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At the 2008 launch of the Seoul Declaration speakers warned of the impending threat to the safety of workers throughout the world especially in underdeveloped and developing countries in the face of globalization and recession (which was then just beginning). Whilst it was recognized that few would escape the recession unscathed it was not envisaged that the legislative and professional advances in the developed countries would have to be defended against retrogressive policies of their governments, but in 2010 workers in the UK were and continue to be faced with the prospect of erosion of the legislation that guarantees their right to a safe and healthy workplace. The incoming UK Government launched a review of health and safety laws and the growth of a 'compensation culture' (one that did not exist, other than as a perception in the media and some political think tanks). The Young Report equates a compensation culture and legislation with the problems that, apparently, beset H&S; it holds H&S legislation and H&S professionals responsible for the development of red-tape that hinders employers from creativity and innovation but in so doing relies on media sensationalism to support his case rather than substantive empirical evidence. The Prime Minister has accepted the review and states that his government fully supports the recommendations (in the absence of public discussion or parliamentary debate). The report, containing many errors and contradictions and lacking in evidentiary support nonetheless proposes tight and restrictive regulation of consultants and the curtailing of insurers and solicitors in respect of requiring clients to access professional advice or from taking personal



injury cases to court. The report sent 'shock waves' through enlightened sections of the safety profession from America to Australia with some likening the recommendations to a return to 19th century Victorian times. If implemented, many consultants will be prevented from providing their expert advice, solely on the basis that they do not belong to specified bodies and therefore are ineligible to be on a restricted register for employers to select from.

Keywords: Young report, Seoul Declaration, safety professions

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(SPC:13/5)

Major OHS Challenges Facing the Mining Industry within Quebec

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The mining sector in Quebec is currently experiencing major growth owing to high demand for ores and raw materials in emerging countries. Over the next three years, it is expected that several new mines will open within the province. Increased activity in the mining sector is accompanied by a high demand for qualified workers in a context that several of them are currently planning their retirement. While the number of accidents has been in constant decline in Quebec mines over the past 20 years, the perspective of new workers joining the workforce in the mining sector poses several challenges with regard to occupational health and safety. What needs to be done to ensure that these workers with potentially lacking experience in mining acquire the necessary skills to ensure that their work is conducted in a safe manner? Through a portrayal of the major OHS risks facing the mining industry within Quebec, this presentation will outline the main requirements that should guide the implementation of safe working practices, particularly for new workers entering the workforce.

Keywords: Mining, occupational health and safety risks, training, safe work practices

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SPC 14

Moderator: İsmail Yavuzdemir, MoLSS, Turkey

Date: September 13, 2011

Venue: SPC 14 / Fener Hall

Time: 12.15- 13.15

(SPC:14/1)

The Best Practises in Implementing of Seoul Declaration on OSH in Indonesia

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The Seoul Declaration calls for a preventative safety and health culture, which gives the right to a safe and healthy environment and which is respected at all national level. To implement the declaration, Since 2009 the Indonesia Government has developed a national framework

and programs on cultivating occupational safety and health at work places. The national framework and programs have objective to enhance cultivating on occupational safety and health in 2015 as effort to reduce and prevent working accident and work related disease. It also contents a guideline to promote, establish, develop and supervise the implementation of occupational safety and health. The national programs involve the official government, employer, employee and social community. Since 2009, a lot of activities as the implementation of national program have been conducted such as campaigning a national occupational safety and health month, ceremony of national occupational safety and health day, establishing occupational safety and health management system on workplaces, worker medical examination, training safety behavior for employee, seminar, occupational safety and health exhibition, and give the occupational safety and health management system and zero accident awards. Those will be improved and increased so that the occupational safety and health becomes a part of behavior of employee, employer and social community. These activities ultimately increase the awareness of occupational and safety stakeholders which is shown by the increase of the willingness to attend and participate in seminar, training and the compliance of the occupational safety and health regulation and standards.

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(SPC:14/2)

Monitoring OHS Performance in the Finnish and Turkish Metal Product Manufacturing Companies

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Monitoring OHS Performance in the Finnish and Turkish metal product manufacturing companies This paper focuses on the methods and outcomes of monitoring OHS performance of Finnish and Turkish metal companies. The standardised Elmeri observation method (Laitinen et al. 1999) has been used in both countries. Technology Industries of Finland organised a safety contest together with trade unions and Finnish Occupational Safety and Health Administration. The monitoring method is a crucial element in the OHS Management System that has been developed for Turkish SMEs in metal sector by the ISGIP project (Project on Improvement of Occupational Health and Safety Conditions at Workplaces in Turkey), which is jointly funded by the European Union and the Turkish Government. The Finnish data has shown that this uncomplicated method is valid in predicting accident rate of workplaces. Correlation between accident rate and observed safety index has been statistically highly significant, and also notable in practice. The accident rate of low index companies has been three times higher than that of high index companies. The contest also showed to be an effective technique; observed shortcomings in safety decreased by 33 per cent and accident rate by 30 per cent in four years. 62 metal workplaces participate in the ISGIP project in Turkey. The baseline monitoring round was started in September 2010. The companies have already actively implemented improvements after the baseline monitoring. Evaluation rounds will show the impact of the project. The paper summarizes both the Turkish and Finnish results and experiences. Laitinen, H., Rasa P-L., Räsänen, T., Lankinen, T., Nykyri, E., 1999. ELMERI Observation Method for Predicting the Accident Rate and the Absence Due to Sick Leaves". American Journal of Industrial Medicine, Supplement 1, 86-88.



Keywords: Work environment, safety behaviour, observation, contest, indicator, monitoring, metal, SME

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(SPC:14/3)

The Potential of Online Osh-Training Programs for Capacity Building in Developing Countries - Experiences of A Two-Year Global Training Program

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BACKGROUND: Globally, there is a great need for trained personnel in Occupational Safety & Health (OSH). Only 5-10% of workers in developing countries and 20-50% of workers in industrialized countries (with a very few exceptions) have access to occupational health services. Obstacles include lack of in-country training programs and high cost of travel. Companies and governments often employ OH personnel with no formal training by necessity. To close this training gap, University of Illinois Chicago has developed an online training to reach professionals in developing countries worldwide without cost of travel. It is designed for OSH service providers in companies or governments without prior formal training. It teaches competencies focusing on practical, immediately usable skills for prevention. **METHODS:** The global "International Certificate in Occupational Health Practice" is an online training program for nurses and doctors in developing countries who work in OH without formal training (<http://www.uic.edu/sph/glakes/ce/IntPrgOHP.html>). It provides three on-line, asynchronous, instructor-led courses over nine months (total 340 hours). Teaching is in English, communication possible in French, Spanish, German. Impact and experiences were assessed. **FINDINGS:** Two full programs since August 2009 are completed; over 46 participants worldwide from 23 countries: Asia 32%, Africa 20%, Latin & Central Americas 34%, USA & Europe 12% with 37% from companies, 32% government or semi-governmental organizations, 10% trade unions; nurses (17%), doctors (64%). Feedback indicates good acceptance, high impact and technical difficulties. Participants use course material after training for workplace inspections, training, scientific projects and presentations at scientific conferences. **DISCUSSION:** Challenges include cultural diversity of learning styles, poor internet connections, prohibitive cost of books & shipping, inherent limits of online delivery mode. Nurses seem to have less support from employers and less access to online education than medical doctors. Computer literacy is a still a problem.

Keywords: Education, online teaching, occupational health, global health

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(SPC:14/4)

Excellence on Safety through a Culture and Behavior Based Program

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CPFL Energia is the biggest private company of Electric Energy Distribution in Brazil. Since the privatization (1997) the occupational accidents increased. A project was designed to improve the safety culture and to reduce the accidents. The culture changed from the stage



where all safety issues were developed by safety people to a culture with high level of consciousness on safety. Today the lost time accident frequency rates are reference in Brazil, considering the electrical companies. CPFL Board has decided to go on and to apply a behavior based safety program (2009). A customized and educative BBS program is now being implemented in a pilot project (5 cities) with contribution of DNV. The purpose is to implement an interdependent culture. The presentation will show results, the tools customized to electrical sector and also the use of ABC model with focus on education, positive reinforcement, and over the antecedents of behaviors.

Keywords: Safety culture; behavior based program

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SPC 15

Moderator: Esra Yılmaz, MoLSS, Turkey

Date: September 13, 2011 Venue: SPC 15 / Kasımpaşa-1 Hall Time: 12.15-13.15

(SPC: 15 /1)

Welding of Aluminium Alloys:Health Hazards of Lung and Airways

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Aim of the Study:Aluminium (Al) is becoming more and more popular in the construction of boilers, vessels, railway and motor cars and others. Al as powder is known to cause lung fibrosis. This study is to find out, whether also Al welders are subject of lung damage by welding fumes.

Subjects and methods: We investigated 46 Al- welders from five enterprises (railway waggon, vessel and container fabrication)with a long term welding history (welding total: 22 years; Al welding: 10 ys in the average) and a control group over 5 years. Ambient and biological monitoring, pulmonary function tests and high resolution computertomography (HRCT) of the lungs were performed.

Results: Ambient Monitoring: Respirable dust concentrations in the breathing zone (Personal Air Sampling) behind the welders' mask: Median = 6.2 mg / m³ (range: 0.5 - 17.3).

Biological Monitoring of urinary aluminium post shift: Median = 86 µg / g creatinine (range: 18 - 399).

Ozone in the breathing zone: short term values during arc time: range = 0.02 – 0.7 ppm.

In the first cross section in 7 of the 46 welders (13 %) the HRCT revealed symptoms of inflammation, in the course of the follow-up studies another 2 cases.



The lung function showed (in the average) a decrease of vital capacity of 35 ml per year of welding experience beyond the expected age-controlled reference values as well as in comparison with a control group.

Conclusions: Al welders in various industries may be exposed to high concentrations of Al containing fumes and to a high internal Al load of the organism.

The welders seem at higher risk of early stages of alveolitis and bronchiolitis. After longer latency periods these impairments may result in lung fibrosis (aluminosis).

An improvement of the preventive measures at these workplaces and medical examinations of the welders are needed.

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(SPC: 15 /2)

How Epidemiology Helped to Enlarge the Concept of Work-Relatedness and the Lists of Work-Related Diseases in Brazil

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The concept of “occupational disease” in Brazil has, historically, followed the ILO minimum list, attached to Convention 121 (164), which has a strong bias towards legal focus, compensation purposes and formal recognition by the Ministry of Labour and the Social Security. The historical and narrow concept has been always closely linked to the idea of “work accident”, having in mind a direct relationship between cause and effect. However, since the late 1990’s, both the social movement in Brazil (including Trade Unions but not limited to them) and Public Health/Workers’ Health professionals pushed forwards the concept of co-factors and/or epidemiological evidences and multiple causation of a broader understanding of “work relatedness”, based on the “Schilling Classification” of how work may adversely impact health. Consequently, a new list of “work related diseases” was enacted in 1999, simultaneously by the Ministry of Health and the Ministry of Social Security, with about 200 entities, organized in a “List A” (based on occupational risk factors) and a “List B” (organized according to ICD-10). Both and complementary lists fully adopted the three possibilities proposed by Prof. Richard Schilling (UK), in the 1980’s, i.e.: work as a necessary cause; work as an additional risk factor for multifactorial disorders; and, work as a trigger of previous disorders or an aggravator of existing morbid conditions. In fact, the important change was the adoption of the concept of “epidemiological link”, or “Schilling II”, which includes morbid conditions of adults, like cardiovascular disorders and cancer – among others -, which may be epidemiologically work related in some professions and/or occupational sectors. After 2007, the concept of “epidemiological work relatedness” was also adopted and enlarged by the Brazilian Institute of Social Security (INSS), based on the profiles of morbidity that generates disability compensation paid by the Institute, in different economic sectors and branches.

Keywords: Occupational diseases; Epidemiology; legislation; Brazil

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(SPC: 15 /3)

Health Disorders Among Workers in the Wool Manufacturing Company in Bagdat

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Aim : The study aimed to reveal some occ. health disorders among workers in the wool manuf. Company & to put solutions to decrease the prevalence of such health disorders among these workers. **Materials & methods :** 142 permanent male & female workers from the textile & spinning departments of 2 wool manufacturing factories in Baghdad were allowed to participate in this study. All participants were personally interviewed by the study team. Visual acuity , auditory hearing levels & lung function tests for each of them was done , by using : visual acuity chart, audiometer & spirometer respectively. Some physical environmental pollutants in work place like noise & luminance were measured by using sound level meters & luxmeter. **Data collection :** 142 male & female workers were allowed to participate in the study. But of these 40 were excluded because of the exclusion criteria of the study & only 102 volunteers were accepted; 63 male & 39 female. **Data analysis :** The data were collected & analyzed to reveal the basic properties of the participants & the relation between exposure to work environmental pollution & appearances of different health disorders among exposed workers. **Results :** Tables & graphs showed that : The mean age of participants was 41.46 y in the spinning department & 41.13 y in the textile department. The mean time of exposure to work pollutants was 15.51 y & 16.25 y among workers in the spinning & textile departments respectively. The male participants were %51.62 & %77.5 from the spinning & textile departments respectively. %50.79 of the total males worked in the spinning department. The study revealed reduced illumination levels in most work places. The noise was above the permissible levels in almost all work places in both departments. %18.6 of the whole participants had auditory defects, these included %14.5 of the spinning department & %25 of the textile department participants. %8.8 of the whole volunteers had pulmonary function disturbances where these made %12.5 & %6.45 of the textile & spinning departments respectively. Also %22.54 of participants had visual acuity deficits, including %20 & %24.19 of volunteers from the textile & spinning departments respectively. **Conclusion:** The study concluded that the persistent neglecting of keeping a healthy workplace in addition to persistent exposure of workers to occupational hazards, both resulted in occurrence of many health disorders.

Keywords: Wool manufacturing, health disorders, occupational hazards

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(SPC: 15 /4)

Improvement Of Health and Safety in The Coal Mines of Fuxin City Mining Area, North-East China: the Sino-Italian Cooperation Experience in the Implementation of Occupational Diseases Prevention

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Introduction Coal mining is one of the first China's productive sectors, certainly being the most dangerous one, with the highest number of accidents and a relevant incidence of occupational diseases affecting the respiratory system. The Directorate General for



Development Cooperation of the Italian Ministry of Foreign Affairs, on the basis of bilateral cooperation agreements with the Chinese Government, through the technical field offices of the Italian Embassy in Beijing, developed an international cooperation project on the "Improvement of the Health Services in Fuxin City Mining Area" involving the former Italian National Institute for Occupational Safety and Prevention (now INAIL). Materials and Methods Close contacts were built between OSH Authorities in Fuxin City Mining Area and Italian occupational safety and prevention institutions, to develop a joint research plan in the field of safety and prevention of work accidents and occupational diseases in Fuxin Mining Area. Chinese professionals engaged in the management of coal mines' health and safety and Italian experts in Occupational Medicine and Safety Engineering have been involved in study tours to Italy and, respectively, in field visits to the Fuxin City coal mines, to collate and conduct studies of each other's OSH and social security systems and to assess local working conditions in underground mines and open-air quarries. Results Field assessments allowed the proposal of measures for implementing occupational diseases' prevention and practical interventions in the social security and medical assistance programmes for aged and retired coal miners with respiratory tract diseases in the Fuxin City Mining Area. Discussion International cooperation projects can contribute to a much more fair development supporting sustainable growth processes that meet the international standards, especially in those countries with fast growing economies and poor human development's indicators. Based on the results achieved, the Sino-Italian cooperation experience could represent a basic model of networking to improve prevention in the mining field.

Keywords: Prevention, health and safety, mining, international cooperation

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SPC 16

Moderator: Ayşe Öztürk, MoLSS, Turkey

Date: September 13, 2011 Venue: SPC 16 / Kasımpaşa-5 Hall Time: 12.15- 13.15

(SPC: 16 /1)

Lymphocyte Dna Damage in Turkish Asphalt Workers Detected by the Comet Assay

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Asphalt is highly complex and contains several organic compounds, including polycyclic aromatic hydrocarbons (PAHs) and heterocyclic compounds. According to International Agency for Research on Cancer (IARC), PAHs in the asphalt fumes are either known or suspected to be human carcinogens. Comet assay has been widely used for genotoxic studies and rapid technique that shows evidence of DNA damage in exposed population. In this study, comet assay was used to detect the DNA damage in blood lymphocyte of 30 workers exposed to asphalt fumes and 30 non-exposed individuals for control group. DNA damage was evaluated in terms of four image-analysis parameters, tail intensity (TI), tail DNA (DNAt), tail moment (TM), and olive tail moment (OTM). According to our results, mean of TI, DNAt, TM and OTM in exposed group had higher than in control group and statistically



significant association found between the asphalt workers and control group ($p < 0.01$). Smoker-exposed group had significantly higher DNA damage than smoker-control groups ($p < 0.01$). Mean of TI, DNAt, TM and OTM in non-smoker exposed group had higher than in non-smoker control group but only TI and TM were statistically significant ($p < 0.01$). The study showed that the comet assay is a suitable biomarker in the determination of DNA damage in asphalt workers and a significantly increased DNA damage was observed in the exposed group according to the controls.

Keywords: Comet assay; asphalt workers; lymphocyte DNA damage

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(SPC: 16 /2)

Nephrotoxic Effect of Tetrachloroethylene: Influence of Oxidative Stress and Possibility of Using Isopyl Level as a Biomarker

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This research focuses on the influence and importance of oxidative stress in tetrachloroethylene nephrotoxicity and the possibility that the substances being produced could be used as biomarkers of exposure. For that purpose, random urine specimens of 79 male dry cleaners during their working hours were collected. The levels of trichloroacetic acid (TCA) as metabolite, IsopF2 α , δ ALA and uric acid as oxydative stres and, α 1M and β 2M were evaluated as determinants of chronic renal toxicity. The study group has TCA level of 38,144 \pm 13,127 μ mol/L. Their random urine IsopF2 α level is 386,013 \pm 58,657 pg/ml (92%>400 pg/ml), δ -ALA level is 32,974 \pm 13,489 μ mol/L (27%>42 μ mol/L), α 1M level is 14,234 \pm 13,736 (47%>12 mg/L) and β 2M level is 0,201 \pm 0,529 (14%>0,25 mg/L). The higher percentage of IsopF2 α and δ -ALA levels, and the correlations between themselves ($r=0,400$, $p=0,000$) and with TCA levels (IsopF2 α ; $r=0,355$, $p=0,001$, δ -ALA; $r=0,251$, $p=0,026$) indicates that, tetrachloroethylene causes oxydative stres which has a part in its toxicity on kidney and bone marrow. According to our results, α 1M levels have positive correlations with, not only the TCA levels ($p=0,010$) but IsopF2 α ($p=0,003$), δ -ALA ($p=0,006$) and uric acid levels ($p=0,002$) as well. On the other hand, β 2M levels have correlations with α 1M ($p=0,001$) and uric acid levels ($p=0,011$) only. These results lead to the conclusion that, α 1M is superior to β 2M in evaluation of tetrachloroethylene induced oxidative stres and renal toxicity. The research has also revealed that TCA levels have positive correlations with age ($p=0,018$) and BMI ($p=0,012$). These results are explained by secestration and accumulation tendency of the substance towards the adipose tissue. Dry cleaners should have renal function tests including the measurements of α 1M levels (pre-employment, periodic examinations). This research was supported by Hacettepe University Scientific Research Center (Project No: 07 DO6 106 001).

Keywords: Occupational health, trichloroacetic acid, oxidative stress, F2-isoprostane, δ -aminolevulinic acid, alfa1 microglobulin

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(SPC: 16 /3)

The Role of Cytokine Gene Polymorphisms on Development of Occupational Pneumoconiotic Diseases

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Mineral dusts can be produced naturally or by human activities such as mining. Exposures to mineral dusts such as silica, coal and asbestos can lead to adverse respiratory health effects. The inhalation of these dusts can cause several different diseases like silicosis, coal workers' pneumoconiosis (CWP), asbestosis and lung cancer. The pathogenesis of fibrotic lung diseases involves activation of inflammatory cells, fibroblast cell proliferation and the enhanced synthesis and/or breakdown of extracellular matrix components. Cytokines, chemokines and growth factors play a crucial role in the onset, progression and terminations of these reactions. Cytokines, playing role in a wide spectrum of biological processes, especially in inflammation and immune response, are important mediators of the toxic and pathogenic effects observed in humans exposed to mineral dusts such as silica and coal dust. Macrophage-derived cytokines such as tumor necrosis factor-alpha (TNF-alpha), interleukin-1 (IL-1) and interleukin-6 (IL-6) play an important role in coal dust-induced inflammation. Existence of persistent stimulus and chronic release of cytokines may result in autoimmune and inflammatory diseases such as silicosis and CWP. As cytokines are key regulators of homeostatic mechanisms, possible variations in their levels or their structures may be associated with the disease process. Therefore, polymorphisms in cytokine genes have been reported to contribute with the inflammatory diseases. Epidemiological studies have pointed out that single nucleotide polymorphisms (SNPs) occurring in cytokine genes are associated with chronic inflammatory or immune-mediated diseases.

Keywords: Mineral dusts, cytokine, cytokine genes polymorphisms, inflammatory diseases

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(SPC: 16 /4)

The National Register of Occupational Morbidity in Bulgaria a Systematic Approach to

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In recent years national register of occupational morbidity in Bulgaria uses systematic approach to study workplace health and safety. The register contains current and comprehensive information on occupational diseases since 1975 for the whole country. Since 2001 it is based on the statistical system, including common methodology and nomenclatures, harmonized with the requirements of EUROSTAT. Data on occupational morbidity are referred to as individual companies, employers and workers, as well as industries with high professional risk, that determined the high temporary and permanent disability, a large number of occupational accidents and occupational diseases in workers. These consequences lead to significant economic damages. The information with subsequent analysis and forecast of registered and recognized occupational diseases as well as the health occupational assessment of the expertise of working capacity are aimed to prevent occupational diseases, accidents and other health problems associated with high risk workplace. However, the Register is a modern training facility for undergraduate and



graduate students on issues of health and safety information. The reports and academic expert assessments support the organization, communication and management of occupational medicine in Bulgaria. Essentially the work in the Register consists in collecting, processing, registration, analysis and evaluation of occupational diseases registered by the national health network of expertise in work capacity. It provides official data EUROSTAT (on schedule) to 2008 containing personal data on all patients registered with their professional work conditions, health history and their relationship to the workplace, and their percentage of permanent disability with the contraindicated working conditions. On this basis, currently our Department and the Faculty of Public Health are members of working group on working conditions in the EU countries, Directorate "Social Statistics and Information Society".

Keywords: Occupational health, statistics, prevention, morbidity

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SPC 17

Moderator: Fahrettin Korkmaz, Atatürk University, Turkey

Date: September 13, 2011 Venue: SPC 17 / Balat Hall Time: 12.15- 13.15

(SPC: 17/1)

The Role of Labour Inspection for Development of OSH Culture

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Development and statement of OSH culture is a time dependent process. Education, informing, regulations and inspection can be listed as basic factors for developing the OSH culture.

Any industrial process is subjected to planning, processing, controlling and approve steps. By the same token, development of OSH culture is based on four steps as; stating the OSH rules by government, practicing the rules by employer, controlling by labor inspector and discussion of results. There is a major role of labor inspection as one of the four corners for developing OSH culture. Indeed, labor inspection includes training, as well as increases the efficiency of OSH rules by controlling the field. Moreover, labor inspection echoes at the background as a driving force for employers to follow OSH rules accurately.

Occupational accidents and diseases come up every country in the world; however, the statistics show that in developing countries the number and rates of occupational failures are higher than that of developed countries. In developed countries, with the effect of serious losses for a long term industrialization period, the OSH culture rose though out the whole society. Especially, the large industrial plants achieve long term accident free days statistics with comprehensive safety precautions.

On the contrary, in certain sectors and mostly in developing countries, still large number of occupational accidents and diseases occur, which shows the OSH culture is not developed enough. Referring to the four steps for development of OSH culture; at first OSH rules turns out to be inadequate, at practicing step these rules are not applied effectively, the third step



of controlling deficient number of personnel cannot accomplish a wide spread labor inspection and finally the result comes out as occupational accidents and diseases.

In conclusion, effective labor inspection coordinating with internal control of OSH rules would raise the OSH culture and decrease occupational losses.

Keywords: Labour inspection, OSH culture

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(SPC: 17 /2)

The Worker's Health Card

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The following paragraphs aim at presenting the project that has been introduced by SESI-RJ, hoping to carry out a Health Care and Work Safety system through the WORKER'S HEALTH CARD. The strategy of the project consists in offering to the industries of the State of Rio de Janeiro, the SESI-RJ Occupational Health Program, abiding by the Ministry of Labor's Regulatory Norms, (focusing mainly on the Regulatory Norms 7 and 9) that state the companies' duty to elaborate and to introduce the Occupational Health Care Medical Control Program (PCMSO) and the Workplace Risk Prevention Program (PPRA). The SESI-RJ Health Care and Job Safety Management System is extensively based on a computer information system, in which the following features stand out: First of all, there is the sole identification of the worker, by means of a dynamic occupational and social-sanitary register form. Second, to establish an Electronic Single Registry, in which the data about his health state is entered; as in the case of admission, change of job description, back-to-work, dismissal or periodic exams required by law, or at any other clinical intercurrent or workplace accidents; as well as in specific programs that could be established concerning this worker. Third, based on these records, a database can be created, and it will allow the planning and operation of actions aiming at the health care of each individual worker-user, as well as the health care of the entire community of workers and their workplace conditions. By doing so, SESI-RJ integrates the Brazilian Quality and Productivity Program (PBQP), at the National Mobilization Goal in the Work Area of Projects n. 9 and 10, called the Health Care and Job Safety Information and Research System and the Notification of Job-Related Accidents and Diseases System, respectively. Note: Currently the database accounts for 1.8 million lives.

Keywords: Worker, health, safety and card

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(SPC: 17 /3)

Job Stress Among the Nursing Staff of Kashan Hospital

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Job stress is among the basic factors involved in decreasing the organizational efficiency, leading to psychosomatic disorders in personnel. Nowadays, work-induced stress among the

health care professionals involved in health care is very common .the aim of present study was to evaluate job stress among the nursing staff of Kashan medical sciences hospitals. This cross-sectional descriptive study was conducted on 190 nurses using the Osipow questionnaire. The questionnaire was consisted two parts: demographic characteristics and job stress criteria designed in six dimensions. In addition job stress was divided into four levels: subnormal, normal, moderate and severe. Collected data were analyzed using SPSS software and descriptive / inferential statistics. The finding showed that job stress level among the majority of nurses was normal while there was statistically significant relation between the total job stress and sex but no direct correlation was seen between some dimensions and sex. In addition a relation was seen between total job stress and some factors (age, education marital status, income and hospitals) the most apparent differences between male and female was the inadequacy of role ($p < 0.003$)

Keywords: Job stress, Osipow job stress questionnaire, nursing, hospital

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(SPC: 17 /4)

Position of Russian Labour Unions on Chrysotile Use

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Russian Labour Unions are deeply concerned about the problem of possible prospects under global ban on chrysotile; those social, medical, economic and political consequences which had appeared in the countries, that had already banned chrysotile, and those countries which are going to do it in the future. It is evident that it is impossible just simply copy the experience of the EU countries and to project it to the developing countries. Serious scientific studies are necessary in social, economic, medical spheres in order to: on the one hand clearly see social economic consequences of possible global chrysotile ban for developing countries and on the other hand to be absolutely sure that suggested artificial chemical substitutes will never bring much more hazard for people's health and possess all useful technological qualities and properties which chrysotile possesses. Panic in EU countries about asbestos is a subject of special concern. The reason for this panic is that dangerous properties of amphibole asbestos group have been projected on chrysotile. That panic is based on a fundamental scientific confusion which has cost businesses, homeowners, insurance companies and other companies truly astronomic sums. Scientists in many countries today due to the latest serious scientific studies came to the mutual consensus about different level of influence to people's health of chrysotile and amphibole asbestos group. As a result WHO in its official paper, which was adopted at the 60th World Health Assembly in May 2007 "The global plan of action on workers' health 2008-2017" reflected the differentiated approach to regulating chrysotile and amphibole asbestos group.

Keywords: Labour Unions

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(SPC: 17 /5)

Training on ILO International Pneumoconioses Classification 2000 in Turkey



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According to the Social Security Institution Statistics, Pneumoconiosis is the most common occupational disease in Turkey. Thus, the Ministry of Labour and Social Security asked for the help of ILO on that issue and so that the training programmes for occupational physicians on ILO International Pneumoconioses Classification were planned and organized in cooperation with ILO for two times, 1995 and 2005. Total 60 physicians participated in these programs.

Afterwards, within the framework of the “National Action Plan for Prevention of Pneumoconioses in Turkey” prepared in the light of the “ILO/WHO Global Prevention Programme for Silicosis” and confirmed by the National Commission on Struggle Against Dust on 7th December 2006, it was planned to organize training workshops for physicians on ILO International Pneumoconioses Classification 2000 by the Directorate General of OHS affiliated by the Ministry of Labour and Social Security for 2009 and 2010. As a result, total 74 physicians participated in the latter training programmes which were realized by national sources in cooperation with ILO.

Besides, in this context “Guidelines on ILO International Pneumoconioses Classification 2000” was translated into Turkish language by confirmation of ILO and it has been distributed to the physicians during the training.

This study aims Turkey’s experience on the training programme of occupational physicians for ILO International Pneumoconioses Classification 2000 would be explained and shared.

Keywords: ILO International pneumoconioses classification, training of readers for pneumoconioses

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SPC 18

Moderator: Ali Rıza Ergun, MoLSS, Turkey

Date: September 13, 2011 Venue: SPC 18 / Sütlüce-2 Hall Time: 12.15- 13.15

(SPC: 18 /1)

Sleep Quality of the Residences Working at Erciyes University Medical Faculty

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Purpose. This investigation was performed in order to determine sleep quality level of the residents who work at Erciyes University Medical Faculty and its correlates. Material and Methods. The study was performed in Erciyes University Medical Faculty in 2011. It was planned to take all of 424 residents who work at Erciyes University Medical Faculty. A total of 260 residents were interviewed and a socio–demographic questionnaire including 30 questions and Pittsburgh Sleep Quality Index (PSQI) were applied. Total sleep quality scores were classified as good sleep quality (0 – 5 points) and poor sleep quality (6 and over

points). Pearson Chi Square test, unpaired t test and one way ANOVA test (post hoc Scheffe) were used for statistical analyses. Results. Mean age of the residents was found 29.3 ± 2.3 years and mean duration of residency 30.3 ± 17.4 months. It was found out that mean of total sleep quality score was 5.5 ± 2.7 points and sleep quality of 54.6% of the residents was evaluated as poor. No significant effects were found of gender, age, marital status, and working at the surgical departments on the sleep quality. However it was found out that, having a child, obesity, sleeping in the daytime, frequency of night duty, and eating before going to bed may affect the sleep quality in the negative direction. Conclusion. Most of the residents have poor sleep quality. More duty hours, irregular sleeping and irregular eating habits affect the sleep quality in the negative direction. If duty hours of the residents are organized better and if they can rest after the duty hours, their sleep quality and so their performance and productivity may improve.

Keywords: Medical faculty, resident, sleep quality, Pittsburgh sleep quality index

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(SPC: 18 /2)

Prevention of Exposure to Wood Dust in ASL 10 of Florence: the Role of Occupational Health Public Services

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Institutions Department of Public Health – Florence (Italy) Purpose The Occupational Health Public Services in Florence (PISLL: prevention, hygiene, safety work place) started in 2009, a project in the woodworking sector, with the objective of facilitating the containment of the exposure to hardwood dust. Method: The project includes the upgrade of the companies in the area through links with available databases, the writing of a check list for review of prevention and protection measures implemented by the employer, an information campaign on good practices, inspection visits and sampling in the workplace to determine the present exposure. The project involves the use of a specific check list in order : a first self-assessment by companies, a further assessment by PISLL during the inspection in workplaces to be able to grade companies in risk on the basis of preventive measures that they have been put in place and any improvement Findings: we were surveyed 440 companies, mostly little companies (384/440) with 2108 workers, mainly working is the production of furniture and frames. 100% of the companies used hardwoods especially pine, poplar, oak and chestnut. In any companies, the exposure levels sampled directly by PISLL, were higher than the national limit value (TLV). We found not appropriate technical measures (ex, the intake air filtration systems from within the workplace), not appropriate organizational measures and health surveillance is not performed according to scientific information and finally insufficient information on the carcinogenicity of wood dust Discussion and Conclusion. Exposure to hard wood dust, an occupational carcinogen, is still highest, So it's important to continue by a campaign of information about legislation, measures of good practices and specific self-assessment checklist. PISLL play the role of reference and coordination for business associations, consultants and occupational physicians in implementing practical solutions of solving problems References



http://www.ispesl.it/linee_guida/comparto_o_settore/legno/index.htm;
http://www.ispesl.it/buonepratiche/legno_polveri/index.asp

Keywords: Wood dust, asl 10, florence, occupational health public services

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(SPC: 18 /3)

Safety of Pressure Vessels & Isdemir A.Ş. Practices

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Substantially gases are using compressedly, liquified and dissolved under pressure in many variety type industrial plants. Many different pressure vessels are using for transportation and storage of these gases. It should be defect and damage during working in pressure vessels, this defect is cause very dangerous risk for working personels and equipment. Due to the defect and damage matters; Equipments are exposed to corrosion, erosion and cavitation, High pressure, temperature, vibration, equipment fatigue effect to cause decrease of material resistance. Due to reasons safety control and controller systems bind. Due to the reasons listed the pressure vessels periodical control must be doing for prevent these dangerous risks according to Occupational Safety and Health Regulation (Artical 223) In this study, Participants will be obtain information about pressure vessels control and testing by systematically, sustainably. Within the scope of the study; About pressure vessels descripcitons, Classification of pressure equipment, Hydrostatic test and other periyodical tests, Controls and controller records, Risks caused by all kind of pressure vessels usage, To obtain information about applicable laws. To give information about at İsdemir A.Ş. pressure vessel identified risks and working for risk avoidance.

Keywords: Safety, pressure vessels

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(SPC: 18 /4)

How a Specified Exercise Programme Influences the Strength and Resistance

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Background Epidemiological studies relate the incidence of low back pain on industrial workers. The importance of rehabilitating the trunk muscles is unremarkable and more relevance has been given to all interventions performed in workplaces. Aims The aim of this study was to verify the influence of low back specified exercise program (LBSEP) on the strength and resistance levels of the flexor and extensor lumbar muscles in warehouse workers. Study design A quasi-experimental study was conducted in ninety-eight (n=98) male workers, 57 to the experimental and 41 to the control group. Methods The voluntary strength and resistance of the trunk muscles were measured through the isometric electronic dynamometer (Ergo Meter®, Globus, Italy) at baseline, and after eleven months. The LBSEP was performed once a day for 8 minutes. The data were analyzed using the SPSS® version 17.0 for Windows®. The student's t tests for independent and paired samples were used with



95% significance level. Results After 11 months of a specified exercise programme, we verified, an increase in all variables in the experimental group, especially in the trunk extensors strength ($p=0.014$) and resistance ($p=0.006$), as well in the ratio strength flexor/extensor muscles ($p=0.037$). In the control group we verify a significant decrease of strength level of the trunk flexors ($p=0.009$). In the control group we verified decrease of the strength ratio. Conclusion After one year of intervention the results might suggest that a specified exercise intervention programme can improved the strength and resistance of the trunk's extensor.

Keywords: Strength, resistance, trunk muscles, exercise, workers

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(SPC: 18/5)

The Risk Analysis in Metal Sector Where Laser Cutting is Used

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Laser cutting is the process of using a laser to cut materials, usually in metal sector. Laser cutting is being used for an increasing number of applications in metal processing and represents a unique quality. The high level of production flexibility and the almost unlimited diversity of materials and shapes explains its worldwide recognition as an indispensable basic technology. The key benefits of laser cutting include: Applicability to a wide range of materials and thickness, high speeds, very high repeatability, very high reliability, easily automated and programmable, flexibility in changeovers, reduced tooling costs and reduced setup times, non-contact process, versatility, capacity for high degree of beam manipulation. Laser usage expands rapidly in metal sector because of the technology. However, it could be very harmful if it is not used appropriate methods. In metal sector, the importance of laser-associated injuries are underestimated and the incidence underreported in the research setting. Injuries include. Eye injury occurs because of the high degree of beam collimation even permanent blindness can be the result. Also thermal injure occurs in nature where the tissue proteins are denatured due to the temperature rise following absorption of laser energy. Furthermore, with the expanding use of higher-power laser systems, the unprotected skin of personnel may be exposed to extremely hazardous levels of the beam power if used in an unenclosed system design. In Turkey, nowadays laser cutting is a very common process. Chamber of Physics Engineers reported that only in Ankara and İstanbul there are about 650 workplaces of metal industry which has processes of laser cutting. Apparently, huge numbers of workers are exposed to these risks. This paper will highlight how these risk factors are analyzed and how they are wiped out in metal sector. It is aimed that this paper will be used as a guide for the harmonization of 2006/25/EEC Directive into the Turkish Occupational Health and Safety legislation via pilot area researches.

Keywords: Laser risk analysis, metal sector, laser cutting

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SPC 19

Moderator: H. Özgen Timuçin

Date: September 13, 2011 Venue: SPC 19 / Hasköy Hall Time: 12.15- 13.15

(SPC: 19/1)

The Evaluation of Health Surveillance of Occupants Working in Afşin- Elbistan High Voltage Sub-Stations

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Currently, there are many studies to understand how the electromagnetic fields affect cells and tissues of biological systems. There are a lot of experimental and epidemiological studies about possible physiologic and biologic effects of 50-60 Hz power frequency fields on the human, animal and plants that are exposed to those fields, for a long time. The occupational epidemiological literature on extremely low frequency electric and magnetic fields (EMF) and health encompasses a large number of studies of varying design and quality that have addressed many health outcomes, including various cancers, cardiovascular disease, depression and suicide, and neurodegenerative diseases, such as Alzheimer disease and amyotrophic lateral sclerosis (ALS). In our study, we developed a questionnaire which includes 30 questions, to explore the health problems of the people who are occupationally exposed to electromagnetic fields for a long time. The questionnaire has been applied to 105 occupants working in Afşin- Elbistan High-Power Substations. The answers have been analyzed by using SPSS program for age, working time and occupation variables. After that, the results have been statistically evaluated about headache, articulation ache, neurological problems, hearth problems, blood pressures, sleep problems, with special attention to their occupations. The results of the analysis showed us that, some of the health problems like depression, cataract, weakness in the muscles, attention deficit and amnesia could be occurred because of the EM radiation from high power sub-stations.

Keywords: Electromagnetic fields, extremely low frequency high power sub-stations, occupational health problems, occupational exposure

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(SPC: 19/2)

Designing Zero Harm

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The importance of the design phase in prevention of mining occupational illnesses and injuries of the future. This paper will examine exposure control projects for current health risks in the open cut coal mining sector. Occupational illnesses are cumulative from a myriad of sources and hence require a range of solutions rather than just one control. The health risks focused on are the effect of both vibration (whole body and hand arm vibration) and human factors on the fruition of musculoskeletal disorders. The paper will look at



multidimensional participative strategies for prevention of these musculoskeletal disorders. A focus on partnership of those making the equipment, those buying the equipment and those who are using the equipment are to find solutions. Manufacturers create our equipment and hence can play a pivotal role in designing out the health risks of the future. A role for industry to purchase equipment that will optimise worker health and for worker's to utilise the equipment in the best way for their health. This paper will look at strategies piloted at Poitrel coal mine in Queensland, Australia with a view for transferable solutions for others in industry. The role of prevention starts early on in the design phase towards zero harm.

Keywords: Mining, prevention

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(SPC: 19/3)

The Occupational Health Services in Public Health Romanian System

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The Ministry of Health is the coordinator and financier of the Public Health Programs. Within the PH Program, the OH subprogram (managing the evaluation of the workers' health status and risk factors) includes objectives and activities as regards to occupational health. Under the National Institute of Public Health – National Centre for Monitoring Risk, Occupational Health and Working Environment, the programs (with their objectives, activities, methodology, and indicators for monitoring and evaluation, national and local responsibilities) are implemented by Directorates of PH – OH Offices. The main objectives are established every year through a ministerial order. For 2010-2011, the reports will focus on: 1. management of information system of occupational diseases morbidity and the absenteeism rate – National Registry 2. management of risk profiles: through monitoring of data concerning new substances, new technologies, new hazards and risks link with specific strategies for promoting the workers' health. The necessity of fighting against accidents and occupational diseases forced the social partners to establish a system for healthy workers by extending the medical approach of occupational medicine to health and safety at work and occupational health, which added the social dimension for the medical science and the principle of competition for the occupational health services providers. These OH/medicine providers are: *41 county directorates of PH – OH offices *7 clinics of occupational medicine financed by National Fund for occupational accidents and diseases under the Pension House *certificated private occupational health providers financed by employers under the market mechanism. According to the Romanian legislation that fully transposed European directives concerning safety and health, the employers have to organize an appropriate occupational health/medicine services access for their healthy or disabled employees, in equal bases approach. These OH services providers are the main sanitary units which can be the source of data for building the workers' health national profile.

Keywords: Occupational health, data, public health

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(SPC: 19/4)

The Development of Workers Health and Safety System in Montenegro

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The Government of Montenegro adopted the Strategy on improving workers health and safety in Montenegro 2010-2014, with an Implementation Action Plan, on January 2010. The Strategy and Action Plan were developed by the national experts and stakeholders with the technical and policy support of WHO in 2009. This document is the basis for future legislative, financial and organizational framework, as well as for capacity building and information system development. The first strategic task is strengthening the policy dealing with workers health and safety and the implementation of relevant regulations. This new approach has many expected outcomes: to provide healthy work environment, to develop healthy ways of work, to promote health at work, to prevent and control occupational accidents and diseases. The way to achieve improvement of occupational health services is the adoption of the model of Basic Occupational Health Services (BOHS) with its multilevel approach, adapted to Montenegrin specific circumstances, according to the possibilities and needs. The intend is to cover a wide range of working population with special attention to vulnerable groups of workers. The founding of the Occupational Health Institute of Montenegro, planned for this year, is the pre-condition for the development of the modern standards based on the risk assessments, the development of human resources, and promoting the multidisciplinary aspect of workers health and safety. The new approach to workers health and safety will encourage educational, research and scientific activities. It will also raise awareness on the significance of these topics through public information.

Keywords: OHS development, strategy, outcomes, model of organization

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(SPC: 19/5)

The Role of Local Governments in Occupational Health and Safety (OHS)

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The role of local governments in terms of OHS could be examined under three headings:

1. Employer Responsibility of Occupational Health and Safety: Local governments as employers have to obey the Labor Act.
2. General Responsibilities of Local Governments: OHS is covered under law in various places. In the opening of a business, it is the responsibility of local governments to check whether the workplace complies with the regulations of OHS in order to issue a certificate to it.

According to the municipal fire department regulations, the duties of fire departments include the designation of the places of flammable and explosive substances, etc. in terms of the measures taken against fire, and issuing them licenses according to fire regulations.

Zoning Code was passed to regulate the housing in the residential areas by surveying them in terms of planning, construction, health and environmental conditions. The same code



covers the building of healthy Concierge Suites, the destruction of too dangerous building to live and the measures to be taken in other areas such as lands, houses and ruins, deposits, pits in order to secure the public safety. A significant portion of occupational and labor accidents happens in construction sector. The responsibility of OHS belongs to the constructor.

3. The duty of Local Governments as the nearest public service unit in the encouragement of private sector in OHS Works: The reason why labor accidents and occupational disease rate is high in our country could be because of the lack of OHS culture besides ineffective inspection, the problems of small-scale business and unregistered business.

Key Words: Local Governments, OHS, OHS culture.

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SPC 20

Moderator: Coşkun Demirci: MoLSS, Turkey

Date: September 13, 2011 Venue: SPC 20 / Kasımpaşa-2 Hall Time: 12.15- 13.15

(SPC: 20/1)

New Approaches for the Protection of Truck Drivers' Safety and Health

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Trucking industry in Brazil still has a high rate of occupational accidents and diseases, compared to other branches of economic activities. In Brazil a Tripartite Occupational Health and Safety Commission had elected, face to ILO Convention 187, the area of truck load transportation as a priority action for the government, considering as criteria the seriousness of injuries and economic importance to country sustainable development. The objective was to study the working conditions and relationships of the drivers of freight vehicles in urban and rural areas of the Southeast and Midwest of Brazil, initially. The methodology consisted of documental analysis and application of a tested and validated questionnaire for 300 load truck drivers. Among other things, 74% of truckers do not smoke, 50% don't perform physical activities, 48% eat at irregular hours, 52% feel stressed being away from family, 67% feel stressed for working at night, 32% feel stressed for making long trips, 50% feel stressed when working long hours continuously, 12% suffer from hypertension, 50% disagree with the deadlines for delivery of merchandise, 50% use alternative routes to reduce distances, even when they are not safe, 55% consider they don't have access to toilets, 70% don't sleep enough hours needed to rest, 65% use chemicals to deal with long journeys, 48% use alcohol, 53% are employees, 51% don't participate in training on OSH in the workplace, drive on average 11h a day, sleep on average 6 hours per day, performing on average 10 trips per month, covering 1500 kilometers on each trip, 75% listen to radio daily. The study results show that broad public policies are required, through integrated actions of the various institutional actors involved in the tripartite model suggested by ILO, seeking to enhance social dialogue and implementing more effective actions to guarantee driver's work conditions improvement .



Keywords: Truck drivers, journey, working condition, stress

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(SPC: 20/2)

The Best Practices and Technologies for Preventing Occupational Exposure to Benzene of a Brazilian Oil Refinery

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This paper aims to introduce the benefits to safety and health of workers and the environment arising from the implementation of best practices of the Program for the Prevention of Occupational Exposure to Benzene in a Brazilian oil refinery producing benzene. Will present the main legal and regulatory requirements for safety, health and environment adopted in Brazil in relation to benzene and relevant information on best prevention practices and technologies in place between the years 2005 and 2011 that include: a) management practices to relationship with employee representatives; b) requirements for design of process units, laboratories, systems, machinery, equipment and accessories of existing pipelines and new projects aimed at reducing emissions of benzene; c) the development of improved performance of the reduction of fugitive emissions of benzene and substances containing it; d) the development of improved results in reduction of occupational exposure of workers; e) personal and environmental monitoring of workers exposed to benzene; f) monitoring and treatment of areas potentially contaminated by benzene; g) monitoring of industrial waste liquids; h) monitoring of industrial solid waste and paste; i) monitoring of drinking water; j) the awareness of workers about the risks from benzene; k) the management of contractors that have employees potentially exposed to benzene and liquid mixtures containing it; l) the use of personal protective equipment; m) Sampling of benzene; n) operational procedures; o) emergency procedures and equipment; p) investments involved in prevention activities implemented; This work may subsidize programs for preventing occupational exposure to benzene in most oil refineries, chemical plants and laboratories in the world that produce or use benzene.

Keywords: Safety, health, benzene, refinery

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(SPC: 20/3)

WIKIPREBIA a Tool for Prevention Advisors and Prevention Workers

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Wikipedia has 365 million readers, 17 million articles (over 3.5 million in English) and it's the biggest online, multilingual encyclopedia. The great thing is that it is written collaboratively by volunteers around the world, and almost all of its articles can be edited by anyone with access to the site. As a consequence of the open structure, Wikipedia "makes no guarantee of validity" of its content, since no one is ultimately responsible for any claims appearing in it. Concerns have been raised regarding the lack of accountability that results from users' anonymity, although an investigation in Nature in 2005 indicated that for scientific articles



Wikipedia came close to the level of accuracy of the Encyclopedia Britannica. Building on the success of Wikipedia one of our employees created WikiPreBia (a portmanteau of Wikipedia and PreBes). The site became active in December 2009. WikiPreBia is an online encyclopedia by and for the prevention advisors. Access is restricted to our 4700 Flemish members, all active in the world of health safety and to a certain extent also environment (HSE), ensuring a high professionalism. Since the area of HSE is getting wider and wider it becomes impossible to be an expert in all areas. Access to practical, hands-on information is getting more and more important. Our 4700 members are prevention advisors from all types of companies, organizations and services having different backgrounds and expertise. WikiPreBia is giving them a platform to post valuable information but also to build upon this information. The stored information is growing every day and includes various articles, safety instructions, legislation, toolbox information, useful downloads, links, etc. It's a great way of combining the knowledge of our 4700 members. This initiative can be of interest for various countries.

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(SPC: 20/4)

Spanish Public Support Service to Microenterprises

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Prevencion10.es is the new public support service to microenterprises in occupational safety and health that has been set up by the Spanish Minister of Labour and Immigration with the support of the Autonomous Communities. This new public service is framed into two of the strategic working areas in Spain, on one hand, the reduction of administrative burdens and the promotion of the economic activity in enterprises, and, on the other hand, the constant and significative reduction of occupational accidents and diseases rate as well as the on-going and progressive improvement of occupational safety and health, in line with the objectives detailed in the Spanish Occupational Safety and Health Strategy (2007-2012). Prevención10.es is a heavily bet of the Spanish Public Administration to support OSH, considering prevention as more desirable than rehabilitation. In this line, this new service will :

- Facilitate to the employers training, information and technical assistance needed to fulfil their legal requirements.
- Facilitate to the employers free, simple and attractive e-tools, that comply with the security and accessibly standards, which aid him/her to efficiently manage OSH in his/her enterprise, simplifying the administrative and documental burden.
- Develop a technical infrastructure that helps the integration of national and regional authorities in the service performance respecting the competence legal regime set up in the Spanish Constitution, assuring a unique answer of the public administrations and enhancing the development of a common know-how base in the field of OSH.
- Facilitate a common place to exchange good practices and information among the different actors with relevant roles in risk prevention.

To sum up, Prevencion10.es is an aid to consolidate the risk prevention culture in Spanish microenterprises.

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SPC 21

Moderator: Garip Erel, MoLSS, Turkey

Date: September 13, 2011 Venue: SPC 21 / Sütlüce-1 Hall Time: 12.15- 13.15

(SPC: 21/1)

Being Women and Being Workers in the Context of Occupational Health and Safety: the Case of Homebased Work in Turkey

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Why occupational illnesses and work accidents of us who are women homebased workers? Why we have to work in unhealthy conditions and without any social security programme? Why we are unionising? And why we are not contented with just having a job but organising for decent work? Here, we discuss these questions in related with state politics on care work and health and safety in recent years. For this aim, we associate recent legal regulations in Turkey with homebased work and occupational health and safety. Our data are: texts and practices of legal regulations related with care work and health and safety in recent years; reports of workshops and mapping activities of us (as several groups and Initiative before 2009 and as the Union after 2009); records of membership meetings; our observations as women homebased workers who are deeply involved in the unionisation process in our daily lives and in organising process; notes of discussion meetings within the Union. We discuss analyse all these data with benefiting Paulo Freire's philosophy which is outlined in the Pedagogy of Oppressed; actually the writing process of this presentation is itself a part of liberatory education process. In this presentation, after we associate the unionisation of homebased workers and their demands with state policies in the context of occupational health and safety, we try to develop some policy suggestions.

Keywords: Unionisation, homebased work, care work, health and safety, decent work

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(SPC: 21/2)

Positive Social Impact of SURA Workers Compensation Administration, working for the Social Security of Colombia

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Hernández Páez

Arp Sura, Colombia

A leading bottler in Colombia, thinking of the people in this Emerging Market, asked ARP Sura, for help in exploring new strategies to provide social security coverage, guaranteeing the welfare of its indirect workers and their families. Objective To implement an integral strategy that allows the affiliation of a group of informal workers and their families to the social security system. Description This relates to 3,463 workers grouped in small companies, who at the start of the process were not fully linked to the social security system. Over a 9 month period the bottler and ARP Sura, defined the following strategies: For



Business Process Outsourcing company to participate in the process. Review and modification of ARP Sura processes for recruiting workers on time and meeting current regulations. The implementation in ARP Sura of a commercial strategy that enables the timely enrolment of the dealers. Service agreements between the operational and commercial areas to disseminate on a national level the methodology, training 60 people in charge of the process. Diagnosis of risk of the operation (potential and expressed risk), that allows the definition of the work risks to be prioritised for intervention. To design strategies of intervention that allow coverage and impact for 100% of the population and reduce the probability of priority risks happening. Definition of a process of electronic transfers through trusts for the payment of benefits. Care coverage for accidents or occupational diseases throughout Colombia. Results Approximately 7,200 people, including workers and their families, benefited from being affiliated to the social security system in Colombia. Culture of Prevention and Health Care. Improved productivity through the control of accidents. National coverage with 4,503 hours of relevant training in one year (91.41% of total scheduled hours), to 70.45% of the members involved in this strategy. An employee evaluation gave a satisfaction rating score of over 85% related to the implementation of the strategy.

Keywords: Emerging markets, social security system, inclusion

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(SPC: 21/3)

Health Inc. Reaching the (human) Heart of Small and Medium Enterprises

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Background The ever increasing ageing of the population leaves its mark on the labour market. One of the underlying causes of early retirement of the work force (age 50 and over) is a poor physical condition. A healthy lifestyle is an important precondition for high productivity and low absenteeism from work. Workplace health promotion tries to find an answer by supporting workers in maintaining a healthy lifestyle. Research shows that still too few SME's are actually convinced of its advantages and possibilities. Purpose & approach These problems show the need for tools that enable SME's to invest in health promotion. The goal of this unique concept is to stimulate SME's to start up health activities together with other SME's located on the same industrial estate. As a result of those common health activities, SME's can start making changes in their own company. 'nv gezond' (in English: 'Health Inc.') combines the principles of interorganizational cooperation, sustainable entrepreneurship and workplace health promotion. The methodology is tested on two Belgian industrial estates, Duwijckpark and De Prijckels. Tools are available for employers, human resource managers, health and safety managers, trade unions, management, occupational health advisors and workers themselves. In summary, this methodology stimulates a healthy lifestyle policy on two levels: the individual company and the company associations on industrial estates. Results The concept is transformed into a toolbox on the interactive website www.nvgezond.be. The toolbox contains a road map for common health activities (7 steps), a roadmap for the own company (also 7 steps) and a lifestyle guide. Partnership This project is a realisation of the Flemish Institute for Health Promotion and Disease Prevention (VIGeZ). This project is financed by the European Social Fund (ESF) and the Flemish Co financing Fund.



Keywords: Interorganizational cooperation, sustainable entrepreneurship and workplace health promotion

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(SPC: 21/4)

Impact of Healty Workplace on Competitiveness in Small and Medium Enterprises (Examples from Bulgaria)

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Employers and business owners face the key challenges of productivity and market competitiveness. In Bulgaria there are about 215 000 small and medium enterprises (SMEs) with 72% of all the employees in active labour age. One of the issues facing managers is to provide safe and healthy working conditions. Healthier employees have a direct influence on a healthier bottom line for corporations and business owners. Personnel costs for salary and benefits are among the highest areas of expense for many companies; they are often the highest area of expense by a significant margin. Businesses and industries invest in employees through salary, training, and various benefits with the expectation of a profitable return on their investment. When those employees are absent or non-productive, that investment is compromised. Purpose of the study: analysis of the role of occupational medicine to achieve higher competitiveness and implementation of a program for better health and safety at work. Main tasks: - Analysis of cost structure in SMEs, including the contract with the occupational health service; - approaches to reduce absenteeism due to illness or accident; - A program for health and safety at work - the foundation and prerequisite for competitive SMEs. Main results. Through the program employers and employees will focus their efforts on establishing and improving the working environment. Authors have elaborated approaches to healthy lifestyle at the workplace (active physical regime, smoking cessation, healthy diet, regular medical check-ups), considering that this is where employees spend 8-10 hours a day. Public policy must acknowledge that healthy work environments contribute to economic success by supporting learning and adaptability. A healthy workplace is a prerequisite for business innovation.

Keywords: small and medium enterprises, occupational health, analysis, competitiveness

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SPC 22

Moderator: Nuri Vidinli, MoLSS, Turkey

Date: September 13, 2011 Venue: SPC 22 / Kasımpaşa-3 Hall Time: 12.15- 13.15

(SPC: 22/1)

A Gadget Against Msds - Protect Your Workers Against Msds Using This Gadget

George Daniel Tanasievýci, Andrei George Albulescu, Gabriela Căldărescu, Corina Papaghiuc



Labour Inspectorate of County Iasi, Romania

European Union studies currently show that one of the most frequent labor-health issues is represented by musculoskeletal disorders (MSDs). A team of Romanian specialists has performed research activities in 9 main fields. The research activity aims to find means of identifying, monitoring and preventing MSDs occurrence. Research conclusions have revealed the need to create an information instrument that is available to all workers, regardless of their qualification level. Such an instrument has been created as a gadget. The instrument is made of four disks revolving around the same axis. The first three disks are divided in 12 circle sectors each, with different colours. The first disk contains information about the symptoms of MSDs. The second disk informs workers about the causes that generate those symptoms. The third disk presents information related to the 12 MSDs - and profession-related diseases. The last disk, the fourth one is a detachable disk and it represents a pictogram indicating a particular profession or activity. The recommendations for the elimination or the reduction of the risks leading to the occurrence of symptoms generating diseases related to the presented MSDs are on the back of the gadget. The instrument may be used by any worker who can easily recognize the symptoms described on the disk. As he reads the symptoms, he focuses on a particular circle sector on the disk, identifies the colour and, aligning the other disks on the same colour, he may identify the causes that have generated those symptoms and the corresponding disease. We can state that, as a consequence of this study about the prevention of MSDs, we have obtained an "equation" for "Integrated Management", apart from an extremely useful instrument: The Integrated Management of OSH = management involvement in OSH + consulting workers + implementation of new information forms and instruments.

Keywords: MSDS, labor, health, workers, information, gadget

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(SPC: 22/2)

Training in Organisational Medicine - an Extension of Occupational Medicine and a New Holistic Approach for the Prevention of Work Related Risks

Brigitte John-Reiter

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(SPC: 22/3)

Asbestos Exposure and Hygiene Conditions at Work in Ship Dismantling

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Ministry of Labour and Social Security (MoLLS), Turkey

Ship dismantling sector whose workers are encountered to many hazards, is naturally arising many chemicals especially asbestos. In the perspective of legislation in force and technical information specific prevention measures should also be implied. Especially, exposure to asbestos cause workers fall in fatal diseases. The most known in these diseases is asbestosis that is a type of pneumoconiosis. Observations proved that pulmonary functionality collapse very fast after an extent period of exposure to asbestos. In 1981, a research reported that 20 percent of 655 patients which were suffering from asbestosis died

for restrictive pulmonary syndrome, 30 percent of all died for lung cancer and also 10 percent of total died for mesothelioma. In our research, without negligence of problems in technical and administrative means ship dismantling enterprises will be assessed in the view of occupational health and safety improvements and developments occupational hygiene. Our reference in theory is ILO guidelines in this area. The determinant elements are the Labour Inspectorate Board reports in Aliağa Dismantling Area and declarations of the sector. It will be implied the legislation provisions. It can be easily comment that there is a significant improvement of occupational health and safety conditions in collaboration of both private sector and public institutions with great efforts.

Keywords: Occupational Health and Safety, pneumoconiosis, ship dismantling sector, occupational Hygiene, asbestos, mesothelioma, Aliağa, ILO

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(SPC: 22/4)

Analysis of Gst Genes Polymorphism Association With Risk Development of Asbestosis and Chronic Nonspecific Lungs Diseases in Workers of Asbestos-Cement Production in Ukraine

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The most of occupational diseases are multi-factorial diseases (MFD), where hereditary predisposition plays an important role. To this group, among others, occupational and work-related diseases can be referred diseases due to asbestos exposure. New technologies of molecular genetics allow to reveal genetic markers, which can point to human resistance or susceptibility to development of disease, that can open the new possibility for prevention of disease. Materials and methods: The ratio between the polymorphic alleles of the genes encoding glutathion-S-transferases M1 (GSTM1) and T1(GSTM1) were investigated in 157 healthy asbestos-cement production workers, 71 patients with asbestosis signs and 45 patients with chronic non-specific lung disease (CNLD) using PCR. Results: When studying the frequency of genotypes GSTT1(+), GSTT1(-/-), GSTM1(+), GSTM1(-/-) and their combinations in workers, an association between some allele variants of the combined genotypes and the risk of asbestos-related pathology development have been found. The significant difference has been established for the combined genotype GSTT1(+);GSTM1(+) between groups of persons with asbestosis symptoms (49,3±3,0 %), and persons of the control group (9,9±1,8 %) ($p<0,05$) and also for genotype GSTT1(+);GSTM1(-/-) (35,2±2,9 %, and 56,2±3,0 %, respectively) ($p<0,05$). It is proved that the genotype GSTT1(+);GSTM1(+) is a risk factor for asbestosis development in workers of asbestos-cement production ($p<0,05$). The availability of the genotype GSTT1(+);GSTM1(-/-) is associated with resistance to development of such pathology ($p<0,05$). In comparison of the frequency of the combined genotype GSTT1;GSTM1 between patients with CNLD and the control group a significant difference has been revealed for the genotype GSTT1(-/-);GSTM1(-/-) (13,3±2,0 % and 2,2±0,9 % respectively, $p<0,05$). Its availability is a risk factor for CNLD development. By other genotypes, which are formed in combination of alleles of genes GSTT1 and GSTM1, the significant difference has not been established. Studying the role of the genetic factor in the development of respiratory diseases in asbestos-cement production workers, exposed to chrysotile asbestos dust, opens new possibilities for primary prophylaxis of asbestos-related pathology by informing workers on the probable risk development of occupational diseases.



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Keywords: Asbestos-cement production, chrysotile asbestos dust, hereditary predisposition

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Wednesday, September 14



XIX World Congress on
Safety and Health at Work



Regional Meeting



Regional Meeting

Regional Meeting 5: 6th International OSH Regional Conference (Session 2)/The Impact of the Global Economy on OSH / MoLSS

Modaretor: Kadir Arıcı, Gazi University, Turkey

Date: Wednesday September 14, 2011 Venue: Sadabad Hall Time: 09:00-11:00

(REG: 5/1)

The Impact of the Global Economy on Occupational Health and Safety (OSH)

Burcu Çağlar Pınar

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Globalisation shifts labour-intensive production to the developing countries; this is also where OSH systems are not yet established. Here the labour inspection is not sufficient and the labour law and its scope of practice are limited. These result in unsafe production where the old technologies are used, working hours are long and labour force is mostly unqualified. Developing countries accept foreign investment for its influence in labour market through employment levels and structures. However, with accelerated industry activities and growing number of the labour force in industry, occupational accident and disease figures increase accordingly. This process shows similarities in almost every developing country. Reasons are mainly because of the Small and Medium Sized Enterprise (SME) dominance in the labour market in these countries. In most of the developing countries SMEs are not subject to the strict laws according to OSH regulations, as large enterprises are. This problem can be resolved with general and particular actions, such as unionisation of labour force, improving working conditions, increasing labour inspectorate and widening the scope of laws to SMEs and micro sized enterprises. In other words: government intervention should be enhanced and the incumbent firms play an important role, as well. They should transport their OSH culture to the host country. The cycle of the OSH problematic can be tackled with the actions in the area of legislation, inspection and generating reliable statistical data.

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(REG: 5/2)

Safety and Health at Work as a Factor of Competitiveness of Organizations

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The Health and Safety at Work (HSW) is a key factor in the competitiveness of organizations, what for was developed by a research work, in Portugal, covering the full range of enterprise and public administration. The population was divided into micro, small, medium and large organizations, and has chosen by a stratified probability sample. By approximation, the number of companies studied was calculated to be 899. Was decided to contact all the organizations that had the field on the e-mail address filled in a total of about 17,240

companies. In addition, were also contacted "The 500 Biggest of 2009" and "The 85 Best to work of 2009" as well as the services of Public Administration. In total, about 18,800 were sent messages.

Were also carried out interviews with individuals involved in the world of work that allowed concluding that the HSW is a theme that cuts across any type of organization and the services they contribute to the same HSW an added value, being a factor in competitiveness. So far, it was not carried out any work of this nature, based on the following assumptions:

1. H1 - Action of HSW Services contributes to Decrease Occupational Accidents;
2. H2 - Action of HSW Services helps to reduce absenteeism;
3. H3 - The working conditions contribute to increased competitiveness;
4. H4 - HSW Services are an investment, not a cost.

HSW Services contribute to the improvement of working conditions. As a result, accidents at work and absenteeism decrease, resulting in greater productivity, competitiveness is a factor of any organization. This work was also contributing to an overview of the organizational fabric Portuguese and the degree of implementation of HSW Services.

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(REG: 5/3)

Analysis of the Workdays Lost Dependent on Occupational Accidents in Turkish Coal Enterprise (TKİ) Coal Mines

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According to World Health Organization Turkey is the 1st place of occupational accidents among Europe. In Turkey yearly average of accidents is 170 thousands and the death workers in those accidents are 1140 and injured workers are 2850. According to these figures there is an accident every 43 seconds and there is a deadly accident in every 110 minutes.

Mining sector especially coal mining has the most risk of accidents in all sectors. It is not possible to remove all accidents but first of all the reasons of the accidents should be cleared and then should be take measures to remove those reasons.

In this study the accidents in TKİ coal mines are determined statically, workdays lost and the costs of the accidents are studied. In addition to those, occupational disease might happen on workers who work in coal mines are determined by statistically and the precautions of those diseases stated here. The researches about the costs caused by whether occupational accidents or occupational diseases will be guide for the enterprise.

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(REG: 5/4)

The Role of Social Partners in Occupational Health and Safety Management

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Appreciation of workers, to make the working life and working environment humanitarian, improving quality of life are among the basic purposes on International Labour Organization(ILO), World Health Organization(WHO) and European Union(AB) documents.

Contrary to aforementioned countries, work accidents and deaths occurred in Turkey, has been increasing. In our country, for the development of OHS scene in a positive direction, OHS policies and strategies must be implemented effectively with the participation of social partners.

Ministry of Labor and Social Security is responsible for effective implementation of OHS policies and strategies, and also regulating and controlling the legislation in the OHS field. Moreover, employees and employers are the indispensable parties with their rights and obligations.

In order to make the occupational health and safety issue public for common solution of social partners and to provide the health and social welfare of workers, National Occupational Health and Safety Council was established by Ministry of Labour in accordance with the 8th Five-Year Development Plan and ILO Convention No. 155 for Occupational Safety and Health in 2005. Council is constituted of trade unions- public employee unions, employer unions, trade associations and non-governmental organizations.

The "Workplace Health and Safety Units" and "Common Health and Safety Units" regulation, arranged according to The ILO Convention No. 161 which is about occupational health services and to the articles about occupational health and safety of Labour Law No. 4857, make possible social partners join in workplace health organizations and services.

In the organizing of occupational health services, one of the tools that enable the participation of social partners is Occupational Health and Safety Boards which is compulsory to be established in workplaces in accordance with 80th article of Labour Law No. 4857. Board consists of the representative of the employer, occupational health and safety professionals and the employees.

The requirement of risk assessment in workplaces provide a new tool to social partners in conducting the occupational health services with a participatory approach. Within the new legislation, responsibility for risk assessment largely is under the obligation of the employer.

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(REG: 5/5)

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Ministry of Health, Oman

The Sultanate of Oman is witnessing a continuous and rapid growth in its various social and economic aspects. As such, the country has to keep up with these developments in terms of provision of comparable occupational health and safety services in order to effectively deal with any possible effects on workers' health. The latest statistics show that the total manpower in the sultanate is 42 % and that the total number of workers in the government isreaching more than one million where 20% of them areOmani (Ministry of National Economy in 2008). The preliminary data show that occupational accidents and diseases are a real burden on the shoulders of economic and social and healthcare services. Therefore,

the strategic vision of occupational health and safety program in the MOH focuses on health promotion in workplaces through building collaboration between all concerned parties.

The occupational and health safety committee was established in the Sultanate according to the ministerial decree number 145 / 2004 issued by the Ministry of Manpower in 2004. The committee has been restructured in 2007 according to the ministerial decree number 368 / 2007. This committee is composed of representatives from both governmental and private sectors. The national Occupational health and Safety strategy was formulated in 2008 along with OHS regulation for private sector. Al though of these tremendous achievements, Oman still facing many challenges in many aspects related to occupational health and safety in term of human resources development, infrastructure.

This paper highlighted the major achievements in Occupational Safety and Health in Sultanate of Oman. It will also point out the efforts toward development of the national Occupational Health and Safety System and major challenges faced.

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(REG: 5/6)

Globalisation, Global Economy and Their Relations with Occupational Health and Safety

Fatih Uşan

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The Notion of globalisation can be simply defined as the increase in the mobility of money and assets in the world. But, in spite of this fact, mobility at the global level has gained a very high increase in the fields of goods, service, trade and finance. However; contrary to what is believed, levels of very high increase could not be provided on the global economy subsequent to globalization. Besides, the global economic crisis encountered, has caused to an ever-growing unemployment instead of employment increase.

Certainly, global economy and globalization have direct relations with occupational health and safety. In this context, new risks have emerged in occupational life in addition to the existing ones. The variations observed in the types of production and employment has made it difficult for employees to gain access to the protection mechanism introduced by the system of occupational health and safety. New types of employment have also gained functionality just after the economic globalization. Flexible working types which are considered as the type A employment; especially part time work, temporary work, work at home and sub-production appear as serious and significant risks in terms of occupational health and safety. In addition to these, subcontracting and occupational health and safety problems arisen from this, and the problems we still encounter at the employment of children and female workers are the issues to be particularly emphasized in this process. Besides, the unfavourable working conditions of the immigrant workers emerge as another problem.

In spite of these, there are also some benefits which globalisation has brought into the field of working health and safety. Before all else, the efforts of harmonizing the working health



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and security standards implemented among countries have gained acceleration. Thus, it is possible to harmonize the fundamental standards related to working health and safety in working places. Especially the International Labour Organization (ILO) and European Union have some efforts to provide this harmonization. The aforementioned problems arising in working health and the safety can be minimized upon the approval and enforcement of international contracts. In addition to the legislation, again, maximum efforts must be made with the purpose of creating a culture of working health and safety.

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Symposia



Symposium

Symposium 2: Occupational Safety and Health in Agriculture, ISSA Agriculture Section

Moderator: Piotr Glowka, ISSA Agriculture

Date: September 14, 2011

Venue: Balat Hall

Time: 09.00-11.00

(SMP:2/1)

European Guide on the Protection of Workers in Agriculture

Pedro Delgado Cobos

Instituto Nacional de Seguridad e Higiene en el Trabajo, Centro Nacional de Medios de Protección, Spain

At present there is no single European-level Directive that specifically deals with the protection of the health and safety of workers in agriculture. The Framework Directive (89/391/EEC), however, and several individual Directives pursuant thereto are applicable in this sector of activity. The particular features of agriculture – such as working in the open air and with heavy machinery and animals, isolation at the place of work, low levels of training, use of chemical and plant protection products etc. – increase the risks facing the workers, as reflected in an accident rate that is higher than the average for other sectors.

For these reasons, the EC considered that the drafting of a non-binding modular guide specific to the protection of workers in agriculture and forestry would contribute to improved understanding and application of the Community Directives in the sector in question, and hence a reduction in the number of accidents and occupational illnesses.

The Guide is a 200-page document, comprising of 21 chapters and 11 appendices. It addresses owners, managers and workers in the agriculture, horticulture, livestock farming and forestry sectors. Its main purpose is to assist the user in understanding the basic concepts of occupational health and safety, carrying out his/her own risk assessments, improving his infrastructure and workplace conditions, and putting into place procedures that increase the level of safety and health in the establishment.

One of the most important chapters is devoted to risk assessment explaining the need and importance, providing background information and illustrating practical tools and models so that the reader can carry out his/her own risk assessment for his/her activity. This chapter makes reference to the interactive risk assessment provided on a CD as additional material.

It is expected that the Commission makes this guide available in all EU languages.



(SMP:2/2)

Children Safety in Agriculture

Filomena Teixeira

Authority for Working Conditions, Portugal

Concerning farming, children and other member of their families are prone to accidents and injuries as a result of the related activities.

Legislation, regulations, prohibitions, and so on, is not enough to change behaviour.

Such changes require the design and the implementation of information campaigns carried out as early as possible during childhood, when basic reflexes are acquired, postures and attitudes are consolidated and behaviours are developed.

Therefore, children must be aware of danger and be able to understand the basis of a methodology that will certainly allow them to avoid it during lifetime. Within the family, at school, in the street and later on in the workplace

First danger situations and first accidents happen mainly within the family, when children begin to discover and explore the world around them. It is exactly at that age that one must provide them with notions of safety, develop their abilities to evaluate risk and make them understand the consequences of dangerous behaviours.

We propose the introduction of safety subjects in current teaching methods – an approach to and assimilation of safety practices through entertainment activities, such as games, video, running and other activities in an inter and transdisciplinary perspective.

(SMP:2/3)

Health Promotion in Agriculture

Johann Spiess

Austrian Social Insurance Institution for Farmers (SVB), Austria

It is a great pleasure and honor for me to talk to you today, at this year's World Congress, on the topic of 'Health Promotion in Agriculture'.

I will address the following issues:

- health promotion as a mandatory task of a health insurance fund
- fields of action in health promotion
- realignment of the 'Active Health Week' program (Gesundheits-Aktiv-Woche)
- health actions

To start with, let me give you some basic information on the Austrian Social Insurance Institution for Farmers (SVB):

In Austria, the SVB is the accident, health and retirement insurance provider and care benefit and child-care allowance authority for persons self-employed in agriculture and forestry and their family members.

The motto of the SVB is to act as a 'one-stop social security provider'.



Since 1992, health promotion has been a mandatory task of the SVB in its function as a health insurance provider. The responsibilities of the SVB in this field are to provide people with information on health risks and the prevention of illnesses and non-occupational accidents and to advise them on how to avoid such health risks and how to prevent illnesses and non-occupational accidents.

This calls for action in the following fields:

- diet,
- exercise,
- accident prevention,
- stress reduction and relaxation, and
- medical prevention

There is one particularly successful SVB program, which I would like to dwell on in greater detail, namely the 'active health week'. This program was introduced back in 1996 in order to maintain the health of the insured farmers and to strengthen their resources. Every year some 400 insureds avail themselves of this program. An evaluation of this action showed a particularly positive result: No less than 94.8% of the insureds who participated in an active health week continued to lead a healthier life. A particularly positive influence could be witnessed on eating and drinking habits, exercise behavior, work-specific motions and stress management.

Keywords: Agriculture, health promotion

(SMP:2/4)

Protection of the Skin (your skin - the most important 2 m² of your life)

Martin Hartenbach

German Association of the Agricultural Social Insurance, Germany

Diseases of the skin play an enormous role on private as well as on professional area and this has serious economic and social consequences.

Agriculture, Forestry and Horticulture comprehend a multiplicity of activities at which the skin of the insured persons is exposed to diverse influence. By joining the two year's Prevention Campaign Skin of the Legal Accident Insurance and Sickness Funds in the years 2007 and 2008, the Social Insurance in Agriculture (Landwirtschaftliche Sozialversicherung - LSV) has made actively publicity for a more conscious skin behaviour.

By targeted information, actions and practical aid, ways were shown for a self-evident use of skin- and hand-protection in Agriculture, Forestry and Horticulture.

(SMP: 2/5)

Safe Operation of Machinery – Machines Show Their Teeth

Rudy Burgherr

BUL, Prevention Agriculture, Switzerland

Related to 1000 employees, agriculture is the branch with the third-highest accident frequency. In the last 10 years there occurred totally 462 registered fatal accidents in agriculture. At least half of this concerned the operation of machines and vehicles. Causes of accidents are increasingly the wrong handling of safe vehicles and machines. At operational disturbances and stress situations the simplest safety rules are ignored. Farmers and private contractors are exposed to a high success pressure. This is caused by both factors, weather and income conditions. Everything should be done simultaneously. This pressure increases the hurry and thus the accident risk. Many drivers allow high risks with their vehicles, in particular at the slope. An important aspect of the campaign covers the driver protection and the seat belt. With an info-mix of print products, technical exhibitions, training of multipliers, event training for farmers, for trainees and for farmer's wives there shall be achieved a lasting effect during at least 5 years.

The new campaign addresses itself to all persons, who operate agricultural vehicles and machines. In addition, also the multipliers are included into the agricultural education and training.

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(SMP:2/6)

Integration of Health and Security in Agricultural Education

Eric Van Daele

MSA Caisse Centrale Bagnolet Cedex, France

French global situation: The Organisation for Economic Co-operation and Development (OECD) indicators show that 70% of french high school students are engaged in a pre-vocational or vocational school program.

Figures show that younger workers are at significantly higher risk of suffering work-related accidents or illnesses, and therefore they can particularly benefit from education and training in prevention.

Prevention aims to make risk management principles and 'OSH thinking' an intrinsic part of the way decisions are made and actions are taken in the workplace. It is easier to achieve this if workers and employers already come to the workplace well qualified with an understanding of OSH, and a developed culture of 'risk prevention'.

The MSA has set up initiatives as part of a global movement to abolish this trend and shrink the generation gap.

Promoting OSH in agricultural education has been a major concern and working axis since the 80's for the MSA, which invests financial and human resources to accomplish this mission. Some OSH advice engineer and occupational physicians are involved in some activities related to agricultural and health education. They are in charge of evaluations of the working environment, endorsement of preventive measures and information.

In relation with a 2005 national survey about Integration of health and security in the field of agricultural education, the Ministry for Agriculture and Fisheries together with the social insurance authority (MSA) carried out a national convention to improve the integration of OSH into vocational education of tomorrow's farmers, gardeners and forestry workers.

This national convention is dealing with three main topics:



- IV. the education dispensed to the pupils, to students and to apprentices of agricultural education,
- V. improvement of the awareness and training of the institution staff in health and safety at work,
- VI. education of training and apprenticeship mentors.

Nationally implemented work: Government and social partners consider the development of measures improving work conditions as a priority through the integration of OSH content in general and technical education curricula. The MSA has been involved in the elaboration of these curricula since 2004.

Keywords: Agriculture education, integration, safety and health

(SMP:2/7)

Vibration Values of Chainsaws Powered by Engines of Different Power

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Chainsaw is portable machine which is used widely in agriculture and forestry.. It is possible to use them at any time of a day in every season of the year. Chainsaw is placed in group of high-risky machines and operators must be very careful during working with chainsaw. While the operator is working with chainsaw, both hands should be used at the same time. Two different jobs are carried out by both hands and must work compatibly with each other. While working with chainsaw, vibration is transferred to hands and arms of operator. The most well known two disorders due to the vibration are white finger syndrome (WFS) and Carpal Tunnel Syndrome (CTS). Duration for exposing WFS on % 10 of the operators can be calculated by vibration values measured in real time and some special equations.

In this study, vibration values of chainsaws with 3.8, 4.1, 4.6 HP were measured.. Daily exposure to vibration of the front hand (the hand on the front side of chainsaw)of the operator was found more than the back hand. The total vibration values of front and back hand were calculated as 6.6, 9.3 , 10.9 ms⁻² and 4.8, 6.6, 8.6 ms⁻² respectively.

Exposure time before finger blanching (WFS) on % 10 of population were calculated for chainsaws with 3.8, 4.1, 4.6 HP as 6.1-5.4 years, 3.8 year and 4.8-3.4 years respectively. When the engine power of chainsaw increase, the possibility of WFS on 10 percent population increase.

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(SMP:2/8)

Prevention and Occupational Safeness in Polish Agriculture

Kasa Rolniczego

KRUS, Poland



Symposium 5: The Implementation of the Model "From School to Work" in Sifferent Countries, ISSA Education and Training Section

Moderator: Philippe Jandrot, INRS, France

Date: September 14, 2011 Venue: Kasımpaşa-3 Hall Time: 09.00-11.00

(SMP:5/1)

The German Concept of "Good Healthy School"

Jutta Busch

German Social Accident Insurance (DGUV), Germany

The ISSA Section on Education and Training for Prevention " focuses on formulating the key points for developing a culture of prevention.

The "Berlin Declaration for the Development of a Culture of Prevention in health and safety: From School to Work" (September 2006) takes into account children and young people in education or vocational training and young professionals as important target groups.

Unlike many other countries in Germany children in day care centers, pupils and students (about 17.4 million) are covered by the statutory accident insurance, which has the mandate to prevent accidents and work/school related diseases. At the 2008 Members' Meeting, the accident insurance institutions adopted a position paper on prevention. With it, they committed themselves to promote the raising of awareness among children, teenagers and young adults for safety and health. In order to achieve this they promote the model of "good and healthy school", and continuously develop them.

The "good healthy school": without healthy students and teachers within a healthy environment education cannot be successful. Therefore it is necessary that all aspects relevant for health and safety in the entire school are taken into account.

The main actors in this field are headmasters and the teaching staff. As those responsible for the pupils they have to learn to recognize risks and to promote resources. Therefore new concepts for teacher training and the training of school principals are to be elaborated and tested.

Following topics are relevant for the accident insurance institutions:

- Health promotion (including safety promotion)
- Occupational safety and accident prevention
- Crisis and emergency management
- Integration of health and safety in education and training (issues of safety and health in curricula and lessons).

In order to develop "good health schools" the cooperation between the ministries of education and the accident insurance institutions is very important.

All measures in health and safety taken up to now are still useful in this new context.

Keywords: Healthy schools, Germany

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(SMP:5/2)

The Implementation of the Model “From school to work” in Spain

Mercedes Tejedor

INSHT, Spain

With respect to education and training in risk prevention, the Spanish Strategy on Health and Safety at Work (2007-2012) presents different objectives, many of them aimed at the integration of risk prevention in the education system. In order to rationally organize the necessary actions to achieve these goals, the Strategy includes the development of a National Plan for Education and Training in Occupational Safety and Health and the Strategy provides that this Plan will be prepared and approved by the National Commission on Safety and Health Work (a tripartite and inter-institutional body with advisory status).

The fundamental part of the National Plan was approved December 2010 and includes, among others, the actions necessary to integrate risk prevention in:

- Basic education (until 16 years)
- Vocational Qualifications in the Education System
- Professional Training for Employment
- University education

The first of these actions aims to promote the "culture of risk prevention" from the earliest stages of education. The remaining three aim to integrate risk prevention into professional skills. It is intended that the company's prevention training of any professional starting in a new post will be complementary and not in place of the prevention training that he should have received in the training process to acquire his professional skills and competences.

Keywords: Spain, school to work

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(SMP:5/3)

The British Safety Council Campaign for Young Workers

Paul Gordon

British Safety Council, United Kingdom

Evidence from across the world shows that young people are more at risk of injury in the workplace than the average worker. This may be due to a reduced awareness of hazards resulting from a lack of experience and training, a higher likelihood of undertaking physically demanding work, a higher frequency of irregular working arrangements, and an increased willingness to take risks.

UK-based health and safety charity the British Safety Council has made the protection of young workers its priority through its campaigning, its research programme, and its provision of free health and safety training and qualifications for young people.

Elements of health and safety are taught in some academic subjects, but in the UK there is an absence of accredited health and safety training in the school curriculum. The British Safety Council's free qualifications are available to all 14-19 year olds in full time education, as well as to those not in employment, education or training. More than 100,000 young people have received a qualification since the programme was launched in 2007.

The British Safety Council also reaches out to young people through online and social media. Through its *Speak Up, Stay Safe* campaign it communicates with teenagers on their own platforms, in their own environment. The campaign encourages young people to speak out if they feel unsafe at work. Our research programme has included an investigation into the impact of our qualifications. A thousand students were surveyed before and after having taken the qualification to assess the impact on their knowledge and likely behaviours. A significant proportion said that they would be more likely to raise safety concerns with a supervisor having undergone the qualification. 88% felt that the qualification would help to keep them safe when they enter the workplace.

Keywords: Young worker safety

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(SMP:5/4)

The French Partnership for Teaching Health and Safety at Work

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Under national agreements signed between the *Caisse Nationale de l'Assurance Maladie* (National Health Insurance Fund) and the French Ministry for National Education with a view to providing Occupational Health and Safety Education, INRS (INRS is a French Institute competent in the area of occupational risk prevention: protecting workers' health and safety and preventing occupational accidents or diseases) has integrated occupational Health and Safety skills in nearly 80% of the Vocational Education degrees in France since 1993.

To enhance this new teaching, teachers and trainers in vocational education are trained by joint teams of professionals specialising in occupational risk prevention and training of trainers.

To evaluate this teaching, INRS has put on-line a management tool for Occupational Health and Safety training paths both for teaching staff and students.

Today, this training management system monitors the training routes of over 15,000 teachers and the training routes of over 250,000 students and apprentices per year.

The training proposed includes 6 modules: occupational risk prevention methods and approaches, first aid, working movements and postures, authorisation for doing electrical work, safe driving and safe operation of lifting and building vehicles and machinery, and working at height.

Most of the training is validated by a certificate recognised in industry.

This system of management via the Internet enables the various partners in initial occupational training (education districts, regions, *Caisses Régionales d'Assurance Maladie* (Regional Health Insurance Funds), and teaching establishments) to manage the skills of the teaching staff and to cascade the training down to pupils, students, and apprentices.

A similar strategy is underway in higher education. From a common standard of skills, vocational schools of higher education gradually integrate management of health and safety at work into their curricula. This new strategy is supported by a cooperative website providing open-access educational resources.

Keywords: Partnership, French education

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(SMP:5/5)

Social Status and Health of Adolescents at an Early Labour Activity

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500 adolescents were asked. It consisted of 279 students (55.8%) from 10 and 11 grades of middle speciality school, 221 students (44.2%) from the first and secondary courses of professional lyceums. Statistic processing of received facts was held with the help of SPSS16 program. The result of researchs showed that 22.7% of questioned adolescents periodically work up. 38.9% of students from lyceums are among them. The analysis of social-economic reason at an early labour activity showed that 51% of working class is from incomplete families. In families of working adolescents number of non-working parents is 3.5 times more than families of non-working adolescents. The first reason for working of adolescent was the wish to help his parents (41.7%), in second reason was to earn own money (32.9%). The analysis of working place showed that adolescents mainly work in the trade, as a courier, as advertising agent. There are also some working students at auto-service and furniture industry. The analysis of material showed that labour business breaks the regime of the day of working adolescents and reduces his lasting rest. The length of sleeping time of 22.3% working adolescents is less than 7 hours. 45.7% of working adolescents had 6 hours for sleeping in a day. Among non-working adolescents having a days sleep were those who had sleep two times lees than 7 hours. Estimation of health showed that working adolescents very often complained of bad health. Good health had 27.7% of working adolescents, 81.2% of non-working adolescents. The result of analysis proves that more skilled adolescents have poor health. 42.7% of working adolescents health was different, they had chronic ailment. The poor health of non-working adolescents was two times lees in 19.9%. As we know, working adolescents, schoolchildren smoke 2 times more than non-working ones.

Keywords: Adolescents, health, social status

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(SMP:5/6)

Work Safety Awareness and Practices of Vocational High School Students

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Work Safety Awareness and Practices of Vocational High School Students H.Z. Ozek, M. Taskın, G. Turan, O. Geyiktepe Namık Kemal University, Turkey A survey was taken among students of Cerkezkoç Vocational High School at the Namık Kemal University. The main aim of the study is to measure the differences between the students of Work Safety and Health programme and students of other programs. Students of various programmes completed a questionnaire composed of 15 items related to safe practices and 20 items related to safety values. This study explored the effect that vocational field, gender, class standing, age and geographic region had on the participants safe practices and safety values. It was clearly observed that the field of education significantly affected the work safety awareness and practices of students. The students attending work safety programme and firefighting programme have a better understanding and consequently awareness of work safety issues. But this difference was not so critical in case of safety practices. As confirmed in earlier studies, females appear more safety conscious than males. Further, class standing significantly affected the safety values of the participants, but had no significant effect on their safe practices. Geographic region and age did not have any significant influence on either the safe practices or the safety values of the participants. The study confirms that the safety values are a better predictor of a person's safe practices than the other factors (gender, age, class standing, and geographic region) combined.

Keywords: Work safety education

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Syposium 9: Challenges of Integrating Basic Occupational Health Services in Primary Health Care, ISGUM / Ministry of Health, Turkey

Moderator: Rana Güven, MoLSS, Turkey

Date: September 14, 2011

Venue: Hasköy Hall

Time: 09.00-11.00

(SMP:9/ 1)

Providing Primary Health and Safety at Work to Micro and Small Size Enterprises in Turkey

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The 98.1% of enterprises who employ covered employees are micro and small size enterprises and they are out of context of legal provisions concerning Occupational Health and Safety (OHS). The 60.5% of occupational accidents happens predominantly in these types of enterprises. Many of the researches show that the majority of unregistered employees work in these types of enterprises.



For the purpose of protecting employees' health during performance process and developing of their status of well being, capacity of performances and of their health, awareness on detection and evaluation of elements on health hazards and also informing sides on the importance of OHS should be needed to increase.

In the project, we purpose to develop model for integrating occupational health services to existing provision of health services on the point of obtaining effective, widespread and accessible primary occupational health services.

This study has just been initiated since April 2011 and was targeted to maintain during 2 years. Our study will be carried out in different regions in the form of three separate projects.

- To deliver the primary occupational health services to mostly micro and small service enterprises 2.323 work place in Ankara Mamak Community Health Centre region,
- To deliver the occupational health services to 282 small enterprises in Bursa Nilüfer Industrial Zone via community health centre,
- To deliver the primary occupational health services to 573 micro enterprices in Ata Industry Site through Izmir Cigli Community Health Centre.

All workplaces in the study region have been registered by the community health centre (TSM) by developing a detection form. In the beginning of the study, all work environments in all workplaces will have been evaluated. Besides knowledge, attitude and behaviours of employees on occupational health and safety are going to be monitored. It has been also planned that all tasked personnel of the study including physicians and other health professionals will be educated on occupational health and safety.

Keywords: Primary health care services, small and medium size enterprizes, community health center

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(SMP :9/ 2)

Applicability of Basic Occupational Health Services in Turkey

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Of the total 3 billion workers in the world over 80 % work and live without having access to occupational health services (OHS). The ILO Convention No. 161 on Occupational Health Services and the WHO Global Strategy on Occupational call for organization of services to all working people of the world.

Basic Occupational Health Services (BOHS) are an application of the Alma Ata principles in occupational health to provide access to OHS to the so far underserved majority of the workers of the world. A particular challenge is to organize services for the so far underserved sectors and sectors which have no services.

The beneficiaries for BOHS are mainly SMEs and self-employed, farmers and informal workers. In the countries where the public primary health care units provide BOHS for SMEs and the self-employed, they may cover a substantial proportion (up to 40%) of total OHS provision.



In general, several models for the provision of OHS are available; primary health services model, big company model with in-company services, group services organized jointly by SMEs, social security institution as a service provider, private OHS centre.

BOHS should be accessible to all working people, available to all according to their needs, equitable in access and relevant in content in view of needs, effective in health provision, cost-effective in service provision, guaranteed by public authority and an integrated part of the social policy of work life.

In parallel with general situation, also in Turkey, the widest coverage of BOHS is possible to achieve through primary health services for SMEs, self-employed, farmers and informal workers. Therefore, BOHS should be provided as integrated OHS approach by public authority, supported by all stakeholders, linked to national health policy for these underserved sectors.

In conclusion, firstly a national policy and programme on OHS should be created in close cooperation and coordination with all related parties, primarily Ministry of Labour and Ministry of Health. Following the policy, immediately enacting a OHS Law would lead a essential role in order to implement BOHS effectively in Turkey.

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(SMP:9/ 3)

Transition of Work Life and Basic Occupational Health Services

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Today diminishing social protection is a global problem along with only 15% access to occupational health services within developing countries. On the other hand even in richest countries 100% access to occupational health services is not reached. Basic Occupational Health Services (BOHS) model, which was developed by Rantanen in 1993, is a very effective tool for both developed and developing countries, particularly for the working people in small scale enterprises, agricultural sector and for self employed who have limited or no access to occupational health services. BOHS model relies on presumption that each country, region and different working groups would have different needs and expectations in terms of occupational health; and proposes a multistage planning. In that way it would enable parties to set up new set of goals for each level. Consequences and effects of globalization on the tripartite structure of capitalist work life model should be taken into consideration in the process of implication of this important tool, BOHS. Those outcomes are not limited with tripartite structure, states functions, manufacture, market and work itself also might have affected by them. The results mentioned above should be directed by political, strategic, managerial and operational decisions which would aim to overcome with such transformation. In presence of determined and strong social policies BOHS model could be an effective tool to fulfill the needs of workforce in the small-scale enterprises, agriculture and even informal sector; and might provide a great support the battle with inequalities in the Turkish work life.

Keywords: Transition of work life

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(SMP: 9/ 4)

Difficulties Encountered with Integration of Basic Occupational Health Services to Primary Health Care

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Occupational Health Services (OHS) are peculiar from the point of its site and subjects view. Basic OHS Services (BOHS) in essence, should be provided at primary care and be integrated with this step. The very first obstacle is accepting this nude fact. But, pretexting the subject as worker and the site of service as industrial plants should not shadow the reality that the main attribute of these services are in fact health services. So, responsible actor for OHS is, no doubt, Ministry of Health universally, in terms of national health authority (Turkish Constitution art. 56). Therefore, under this article, all public hospitals including Hospitals for Occupational Diseases (exc. Universities & Defense Dept.) were handed over to Turkish Ministry of Health in 2005. The basic problem in Turkey within this field is double headedness; as of Health Ministry and Ministry of Labor. The conflict of authority, unnecessary duplications in organizing and service giving are due to such double organization. Due to insufficient training on OHS during undergraduate education, health personnel should be supported via pre and in service certificate courses at different levels; same for the technical staff as well.

Keywords: Basic occupational health services, occupational health at primary care

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(SMP:9/ 5)

Assesment of Need of Basic Occupational Health Services for High Risk Sectors and Vulnerable Groups of Workers in R.Macedonia: a Questionnaire-based Study

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In the national policy efforts for occupational health development in Republic of Macedonia (RM), should be given priority to the vulnerable groups of workers/sectors by provision of at least the basic occupational health services (BOHS). The aim of this questionnaire-based study, carried out by the Institute of Occupational Health of RM, WHO Collaborating Centre, was to identify high risk sectors, vulnerable groups and underserved populations in the country and availability of BOHS. The specially designated questionnaire using key informant approach, was completed by the selected study subjects (N=200) as a key stakeholders in occupational health and safety (f ormal, informal leaders or experts) providing important data for basic situational analysis. The informal sector, the unemployed, female workers, workers aged less than 18 years, workers aged over 55 years, construction, agriculture, textile industry, and the health care sector were selected as target groups of workers. For most of the questions, the Likert scale method was used, and responses were statistically evaluated. All examined groups/sectors were assessed to have high risk for occupationally related health problems by over 70% of the responders. Construction, aging workers and agriculture were assessed to have the highest risk for such problems, as well as low health status. All study subjects, reported the good availability of primary health care services and at the same time, they indicated the poor availability of occupational health services in agriculture,



unemployed, the informal sector and young workers. The Basic Occupational Health Services, incorporated in the frame of primary health care through the public health approach, promoted by the WHO Global Plan of Action on Workers Health was recommended by over 90% of the responders as a good concept in national occupational health policy for the benefit of the identified target groups of workers.

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(SMP:9/ 6)

Occupational and Environmental Health in Primary Health Care in the National Health System (SUS) Brazil

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The development of OSH actions in Primary Health Care (PHC) has been understood as a major solution for the challenge of providing comprehensive Workers' Health care, taking into account the nature of the insertion of workers within productive processes. As expressions of the current processes of productive restructuring and globalization of economy, production and markets, several technological and organizational changes have been introduced in the world of production, generating new patterns and profiles of workers morbidity and new environmental damages. As part of such a process (also as an outcome) an increase of the proportion of informal workers and workers who carry out their tasks at home has been observed, aggravated by the fact that they usually are not protected by social security schemes, neither by OSH actions and programs. In Brazil, PHC has been taken as the core organizer of the state and public National Health System (SUS), using the Family Health approach as the main strategy for its implementation. In fact, such a public policy covers about 60% of the whole population (about 96 million people in 2010). According to the Brazilian constitution and health law, the National Health System (SUS) must provide comprehensive health care to workers, including health promotion and protection, health surveillance, health care and rehabilitation. For such a purpose, the National Coordination of Workers' Health (GGSAT), of the Ministry of Health, jointly with some universities, research centers and workers' organizations, is in the process of development and implementation of a comprehensive and nationwide program of training PHC providers. This paper has the purpose of presenting the first outcomes of these efforts, a description of the basic model, the core actions developed at territorial bases, the tasks assignments for each member of PHC teams, as well as the pedagogical material that has been developed.

Keywords: Occupational and environmental health, primary health care, national health system

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Symposium 10: Emerging Risks and Occupational Diseases, TTB (Turkish Medical Association)

Moderator: Bülent Aslanhan, TTB, Turkey

Date: September 14, 2011

Venue: Fener Hall

Time: 09.00-11.00



(SMP:10/1)

Working Conditions and Musculoskeletal Pain: Is There a Relationship/Association with Overweight?

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Musculoskeletal pain is a public health problem worldwide due to its high prevalence, high cost and negative impact on life quality of the worker. People who are overweight and / or obese may be more sensitive to pain than eutrophic people. This study aimed to investigate whether the onset of musculoskeletal pain in the ragpickers (informal workers who collect recyclable materials to earn a small wage) in a Southeast City of Brazil is associated with overweight and with working conditions. In a previous contact with the ragpickers, they reported feeling bodily pain while performing their activities, arousing interest in performing this study more broadly, considering the intrinsic factors (age, sex, nutritional state, site and intensity of musculoskeletal pain) and extrinsic factors (work environment, lifestyle and physical activity) to the employee. The methodology was developed in five stages: collecting the population profile in the garbage sorting plant, assess the nutritional state of ragpickers, implementation of a protocol for bodily pain, ergonomic analysis and statistical analysis. The site of more reported pain intensity was back pain (51%). The excess weight, assessed by Body Mass Index (BMI), showed no statistically significant association with musculoskeletal pain ($p = 0.829$), however, the percentage of body fat was associated ($p = 0.041$), along with age ($p = 0.0084$) and sex worker ($p = 0.0009$). There was a higher prevalence of pain in the female staff, aged between 19 and 45 years and who had high body fat percentage. Although there is no association between working time and musculoskeletal pain ($p = 0.2987$), but observed that the work environment also influences the development of these injuries, since the work ergonomic analysis showed unsafe working conditions in a garbage sorting plant that can cause negative impact on health and quality of life for ragpickers.

Keywords: Musculoskeletal pain, working conditions, overweight, ragpickers

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(SMP:10/2)

Evaluation of Musculoskeletal System Exposure in Women Who Pick Tea

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Musculoskeletal System exposure is evaluated by LMM 3 method (Leitmerkmal-methode für manuelle prozesse; Bundesanstalt für Arbeitsschutz und Arbeitsmedizin) in the research made depending on 50 women who pick tea in Madenli Village of Çayeli District in Rize.

By applying Occupational Exposure Subjective Evaluation Survey (SLESİNA) the levels of sensing / perceiving the exposure by the women who pick tea are measured, and through Nordic questionnaire (Nordischer Fragebogen) it is detected in what area / areas of the Musculoskeletal System, the complaints are generally concentrated.

By using traffic lamp method, recommended by “ Rückenkompass”, which is one of the İNQA (Initiative Neue Qualität der Arbeit) projects <http://www.inqa.de/>, through objective

observation method (LMM 3) the results of SLESINA and Nordischer Fragebogen are coupled, in the light of the obtained data suggestions for solution are developed.

The most important of the suggestions is to make the usage of tea picking scissors easier through a more ergonomic design, yet this problem cannot be solved by us.

We believe that this research will shed light on the works to be done on this issue.

Keywords: Leitmerkmalmethode 3, nordischer fragebogen, slesina, women who pick tea

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(SMP:10/3)

Effects of Work Related Psychosocial Factors on Coal Miners

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Coal mining is very dangerous activity involving many risks such as gas explosions, suffocation, roof collapses, and gas poisoning. Besides these main risks, workers are dealing with the mandatory working environments for example working in narrow fields, poor illuminated, noisy conditions which may cause stress and affect the quality of work life. So, miners are prone to work-related stress because of working conditions, workplace environment, mine accidents and occupational diseases, etc. In this paper, it is aimed to examine the psychosocial factors that affect the mental and social health of the coal miners. In Turkey, there is not enough academic research or activity about this issue, while it is very important to improve and maintain healthy and safety working conditions. In the study, 1000 coal mine workers were interviewed and a questionnaire module was applied, the goal was to measure the relationship between job characteristics and occupational health and safety, and identifying targets for health and safety preventive interventions. The questionnaire consists of 5 categories which are; job level, culture, health outcomes, working environment, and work-family relations. The results were classified into the regions where the coal mining activities exist which can give a comparison between the areas and types of coal production related with the working environment. The results gave some recommendations to the mining employers about how to improve the work life quality in their workplace especially job design, including how jobs are and human resource policies are structured. In the study, it is understood that there should be an awareness of the importance of these macro-level variables in determining the conditions of work, and thus their impact on worker safety, health and well-being, the study can provide an efficient way to identify organizational assessment tools or instruments for use in the workplaces occupational health studies.

Keywords: Psychosocial, coal mining, health, workplace quality

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(SMP:10/4)

Spanish Actions for Improving the Surveillance on Occupational Diseases: Recent Efforts and Challenges for Future

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In Spain four features concerning our Occupational Disease (OD) surveillance system have played an important role in the scarce incidence shown in the national statistics. First of all, the OD system was based on a closed list which linked some damages derived from agents exposure to a catalogue of activities or jobs; secondly workers with an occupational disease receive a higher level of benefits paid by a separate system; thirdly the OD recognition leans on Social Security scope, separately from healthcare system; and finally, the definition of OD was hardly able to detect long-latency OD or those which symptoms emerge upon retired workers.

Apart from these characteristics, there was other external factor which obstructs a proper OD recognition. Frequently, workers choose the general healthcare system assistance for work-related illnesses which are finally labelled and misclassified as common diseases. All these factors define the low sensibility and a high specificity of the Spanish OD surveillance system.

In the last five years Spanish Labour and Health Administrations have been working to improve these poor attributes. Legislation has been launched to develop a more efficient OD recognition system. The OD list was updated in 2006 and it has been opened to include, in the future, emerging diseases. On the other hand, the legislation enforces to create information systems for general practitioners to declare work-related diseases. Apart from the specific OD legislation, and regarding long-latency effects derived from occupational exposures, a specific law includes a compulsory mandate to ensure the health surveillance for those retired worker exposed to asbestos.

Finally, it would be underlined and highlighted, the role and usefulness of the working conditions and health surveys, as information and surveillance tool. This epidemiology resource provides a situation analysis, defines current indicators and gathers information about new risks and damages arising in a changing world of work.

Keywords: Occupational disease, Spain

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(SMP:10/5)

Worker's Health and Work Stress

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Labour which is collective, initiative, includes creative elements, has multitude structure but meaning has lost its characteristics in historical process and revealed its transformation effect on the mental and physical health of individuals participating in production process.

Whilst the use of new technologies and the changes in economical and social conditions have turned work life into something else, they have also brought new risks and threats with themselves. Emerging risks present a wide range of features. New threats may not only be due to new technologies (nanotechnology, GDO), but also may be caused by new working time policy or by the different approach of the society to handle existing risks by deepening knowledge, perception and susceptibility.



The most basic characteristic of changes experienced in industry beginning from the second half of the century is to discipline the production and organize the work according to them. The results of the changes aforementioned above are unqualified labour necessary for work and employee's reduction of control over the work. The principal cause for unfavorable mental, physical and social conditions in worker is losing the control over his or her own work. One out of five workers in Europe mentions complaints concerning work stress. It affects everyone with no sector difference observed from manager to employee. Relative to work-worker-stress relations, social psychologist Gardel from Sweden determined that work process is identified by machine, work activates only a part of overall skills of a human, the nature of work is monotone and repetitive, it has no relation opportunity with other individuals, detailed authoritarian supervision which is not based on individuality has negative effects on workers.

The economies in production sector have changed into service industry due to the developments in information and communication technology in conjunction with globalization. The competition element in service industry is based on customer satisfaction, that is; keeping them satisfied and increasing their numbers via the services offered.

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(SMP:10/6)

Employment status and occupational health

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The contract of employment (permanent or precarious) and the full-time / part-time distinction can be used to describe of employment status. Precarious work is a term used to describe non-standard employment which is poorly paid, insecure, unprotected, and cannot support a household. Last three decades there has been a dramatic increase in precarious work basically due to globalization. Globalization has created a new economy which demands flexibility in the workplace. Governments and employers argue that flexibility is an employment opportunity, but too often this result in precarious employment.

It is well known that exposure to precarious employment has negative effects on health. People who worked precarious jobs have worse self-rated physical health and an increase in some clinical symptoms like fatigue, backache and muscular pains.

Precariously employed workers have some risks related with occupational health issues like fear of job loss, high level of workplace stress and lack of access to health/pension insurance. Precarious employment is a source of stress due to a lack of income and meaningful work, uncertain prospects for the future, and its potential to undermine social support networks. High levels of workplace stress have been linked to an increased risk of physical injuries at work, high blood pressure, cardiovascular disease, depression and other mental health conditions, and increases in negative personal health practices such as smoking and drinking. The lack of collective agreements is one of the basic problems in the precarious labor market. Trade union organizations as it is known are also very difficult depending on the non-permanent employment status.

The variety of studies shows that the working class should carry out more effective struggle against precarious employment.



Keywords : Employment status, working class, precarious employment, health, occupational health

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Symposium 12: Vision 2020 - A One World Approach for a Global Preventive Network in Mining, MoLSS / Hacettepe University (HU) / ISSA Mining Section

Moderator: Kasım ÖZER, Director General OHS, Ministry of Labour and Social Security (MoLSS), Turkey

Date: September 14, 2001

Venue: Eyüp Hall

Time: 09.00-11.00

(SMP:12/1)

Safe Mining Everywhere-Yes We can!

Helmut Ehnes

ISSA Mining, Germany

Over 330 million accidents at work happen world wide every year, only counting those leading to more than four days absence. More than 350,000 end fatal. Two million people more die every year due to work-related diseases.

Let me sum this up: around 2.4 million people die every year because of work conditions.

Among many risky industries, mining stands out. “37 miners killed in explosion”. “Twelve miners dead, four still missing”. “No trace of trapped miners yet”. Do those headlines sound familiar? I am afraid they do.

While mining represents just 1% of employees globally, it unfortunately represents 8% of all occupational fatalities.

Thousands of miners die at work every year. Many more get severely hurt.

What does this mean?

- It means a tremendous loss of productivity and extremely high costs.
- It means enormous problems in quality.
- It means a lack of motivation due to unsafe work conditions.
- It means a disastrous public image of the whole trade.

And, most of all, it means human suffering, families loosing their loved ones – and their suppliers!

Yes, mining operations go along with a variety of hazards. And I am not only talking about the risks in large operations, as they first come to mind, but also about the manifold small scale mines, with an estimated 13 million labourers worldwide exposed to substances such as dust, mercury and other chemicals, while also dealing with poor ventilation, inadequate space and overexertion. But is the number of severe accidents and diseases inevitable or can we change this situation?



The clear answer is: Yes we can - if we want the change!

I am very positive that we can make mining safer. I say it is not over ambitious to cut mining accidents in half within ten years, if we all work together and if CEO's, employers and all managers take their responsibility.

Ladies and Gentlemen –

The vast majority of accidents during the previous years could have been avoided. There are many tried and tested methods that will improve safety significantly. Efficient prevention will not only make mining safer, but increase productivity beyond the investment.

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(SMP: 12/2)

The New Approach to OHS and Inspection in USA

Güner Gürtunca

NIOSH, USA

The US mining industry has experienced number of serious accidents which caused multiple fatalities since 2006. These accidents put significant pressure on the US congress, government Safety and Health departments, mining companies and unions to introduce new approaches to improve safety on coal mines. These approaches included the introduction of new legislation (i.e. MINER Act.), new safety and health regulations and new technologies.

The presentation will describe the current Mining Safety and Health practice in the US together with the roles of various stakeholders and relationship between them. The stakeholders are; the US government, including Mine Safety and Health Administration (MSHA) and National Institute for Occupational Safety and Health (NIOSH), National Mining association with mining companies and the United Mine Workers Union (UMWA).

A brief history of the accidents and changes happened since 2006 will be presented. This includes the introduction and implementation of MINER Act, and some key technologies developed to improve response and prevention from mine disasters. Finally, the new approaches which include better inspection of mines, technologies and solutions will be briefly presented.

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(SMP:12/3)

Four Steps to Behaviour Change: The Role of Management

Mark Fuellemann

Holcim Cement Group, Switzerland

Changes in a safety culture are the results of changed behaviors of employees and workers. Quite frequently it is said that training is needed in order to change behaviors. Training indeed is necessary but not yet sufficient. This presentation shows that training only addresses the know-how part of a new behavior and as such represents a first step. It must be followed by understanding the theory taught, by accepting the new way of working and - as the fourth step - by actually applying it in practice, the "to do " step. In all four steps



managers at all levels play a crucial part and none of the four steps can entirely be delegated to safety specialists or outside agencies. For each of the four steps the roles and responsibilities of top/senior and of middle/first line managers are given with practical examples.

Keywords: Safety culture, training, safety specialist

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(SMP:12/4)

Make it Important-Behavioural Aspects and Measures of Improving OHS in SME Mines

Bettina Nickel

Johannes Nickel GmbH & Co. KG, Germany

It is undisputed that the installation of technical measures is one of the strongest factors in improving health and safety in the working world. Nevertheless technical measures can not cover all aspects of that complex issue. The minute humans are involved in production and service processes, social and behavioural aspects get a particular and important relevance. This presentation will demonstrate a campaign and measures referring to organisational communication and behaviour change to strengthen the importance of OHS in a middle-sized mining company in Germany. The measures were installed between 2007 und 2011. The project was guided by the conviction that communication and behavioural change can only have a lasting effect when OHS is communicated as an important part of the organisational philosophy. The presentation illustrates the activities in detail and the methods how they can be installed in the operational daily routine.

Keywords: Behaviour change, communication

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(SMP:12/5)

Methane Management in Coal Mines

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Methane has created lots of problems to underground coal miners for centuries. Depending on the amount of methane contained in the coal and surrounding strata, a significant amount of methane is emitted to the mine atmosphere due to pressure drop during and after production activities. When methane concentration is reached to certain levels explosion might occur leading to disasters.. Therefore, when especially methane content of the coal bearing strata is high, methane drainage is a must to maintain safe working. Coal mine methane, a byproduct of mining operations, can be recovered to provide various types of benefits to a mining company. These benefits include, but are not limited to, reduced ventilation costs, downtime costs, and production costs; and the ability to use the recovered gas as an energy source, either at or near the mine site or by injecting it into a commercial gas pipeline system.

Methane released to atmosphere is also hazardous as it contributes to formation of green house effect . Therefore methane during coal production will have to be captured in the near future.

Virtual reality can be considered as a powerful tool on training of mine staff and workers. Various scenarios related to methane problem can be visually experienced by means of virtual reality.

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(SMP:12/6)

OHS in Turkish Mining Industry

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Mining is a major industry that provides a great number of jobs to a wide range of people and sub-industries. Also a significant percentage of the global GPD is a result of the mining industry. However, due to the nature of the mining, it is one of the most risky and dangerous sectors in Turkey, like in the case of most countries in the world, the first need for occupational health and safety appeared in coal mines. In 1865 the first legal regulations was published as Dilaver Pasha Regulations in this field, and then in 1869 the Maadin Mine Regulations entered in force. Today, related regulations about mining industry are provided by the Mining Law. Since the establishment of the Ministry of Labour and Social Security, it has been attributed special importance to the mining industry because of its unique properties. In addition, a lot of activities have been carried out for this sector and some of them are presented in this study:

Occupational Health and Safety Center (İSGÜM) and Labour Inspection Board (İTK)

periodically carries out inspections, measurements and analyzes for all mines across

Turkey. In 2007-2008, with the cooperation of Chamber of Mining Engineers of Turkey (Turkish Union of Chambers of Engineers and Architects), a Mining Campaign was conducted in 10 centers of the country. In addition to the trainings given to the workforce, sector oriented written and visual educational materials was prepared and distributed.

The ISGIP Project “Improvement of Occupational Health and Safety Conditions at Workplaces in Turkey” is an Instrument for EU’s Pre-Accession Assistance (IPA) for Turkey. One of the purposes of the Project is to upgrade OHS conditions in the mining sector based on the design and use of OHS Management System models, and improve record keeping system.

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(SMP:12/7)

The Decreasing of Mine Accident Frequency Rate in Indonesia

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Mining plays an important and strategic role in economic development. Based on World Bank's data, over 50 countries are significantly depended on mining which provides at least 6% of exports or plays an important role in the domestic economy. In Indonesia, mining contributes about 4.4% of Indonesia's total revenue. One of the characteristics of mining industry is capital-intensive, technology-intensive and high risk. One of the risks is mine accident. Every year, thousands of miners die caused by mine accidents. Within five years, Indonesia has succeeded to reduce significantly the frequency rate (FR) of mine accident. In 2006, FR of Indonesian Mine Accident amounted to 1.00, then, fell gradually to 0.70 in 2007, 0.68 in 2008, 0.69 in 2009 and 0.40 in 2010. On the other hand, coal and mineral production increased significantly. One of key success of Indonesian FR decreasing is improvement in supervisor competency, both government supervisor (Mine Inspector) and supervisors in mining company. From 2002 until 2010, 307 government officials in the central, provincial and district levels have passed the Mine Inspector Competency Training. For mining company, since 2003 has developed the Operational Supervisor Competency in stages: First Operational Supervisor (Pengawas Operasional Pertama/ POP) for frontline supervisors, Middle Operational Supervisor (Pengawas Operasional Madya/ POM) for middle managements and Top Operational Supervisor (Pengawas Operasional Utama/ POU) for top managements. Then, beside shall pass in POU Competency, Mine Manager, someone who leads and responsible for Occupational Health and Safety Regulations implementation and compliance on mining operations, should be people who are at the highest position structurally at mine site project. From 2004 until 2010, 13,522 frontline supervisors have passed the POP Competency, 3,258 middle managements have passed the POM Competency and 823 top managements have passed the POU Competency.

Keywords: Mining safety, mine accident

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Symposium 19: Business Engagement on OSH: A Driver to Sustainable Enterprises, IOE / TISK

Moderator: Janet L. Asherson, IOE, Switzerland

Date: September 14, 2011

Venue: Sütlüce-1 Hall

Time: 09.00-11.00

(SMP:19/1)

Establishing Clear Safety Communications in Times of Organizational Change

Andrew Sharman

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Change is a certainty for every organization – whether as a result of economic downturn, the impact of globalization, or simply due to a competitive landscape. Whatever the source or catalyst for change, undoubtedly it will impact organizational behavior as we strive for corporate survival in turbulent times. Occupational Safety & Health may often be perceived as a dry subject, so, in a changing world of work, how can we attain and sustain the attention of our business colleagues – whether in the Board Room or on the Shop Floor?



This presentation will explain how delegates can communicate the OSH agenda clearly and with impact – helping to raise awareness develop capability, and improve safety connectivity across their organizations – now!

A systematic approach will be taken to explore the challenges to effective communication, in order to understand the barriers to clear safety communications in the workplace. 7 ‘New Rules’ of employee engagement will be presented and discussed in order to provide delegates with a new perspective and a practical ‘toolkit’ of approaches that can be used back in their own workplaces. Real-life case studies and examples will be shared to illustrate key points.

This is a high energy session and the presenter will use a radio microphone to deliver the session from within the delegate area – as well as from the lectern / stage – encouraging delegates to think, share and participate. Delegates will engage proactively in the session through simple real-time voting, invited contribution, and the use of visual and physical ‘surprises’ to provoke reaction, stimulate critical thinking, and consideration of both personal and organizational style of communication of OSH issues.

Whether from a small business, or a large ‘blue chip’ multinational, this presentation is designed for those tasked with managing, improving or delivering OSH programmes and strategies in all organizations in every industry sector – from Safety Officers, Advisors, Technicians and Engineers to Safety Managers and Directors; from Trainers and Lecturers to Operational Managers and Leaders who wish to improve and enhance their communications on safety related topics.

Keywords: Changing world of work, proactive approach, safety, challenge, engagement, practical solutions, occupational safety & health (‘OSH’), globalization, economy.

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(SMP:19/2)

The Value of a Standardized Approach in a Global Organization to Ensure Good Occupational Health Service Outcomes

Tharien Van Eck

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Johnson & Johnson, through its operating companies, is the world’s most comprehensive and broadly based manufacturer of healthcare products, as well as a provider of related services, for the consumer, pharmaceutical, and medical devices and diagnostics markets. More than 250 Johnson & Johnson operating companies employ approximately 119,000 men and women in 57 countries and sell products throughout the world. J&J has manufacturing capabilities in 14 EMEA countries, and Sales and Marketing in another 20 countries. Health care service provision for the manufacturing companies is mostly rendered on site, but by outsourced providers. Service delivery in terms of nursing is carried out by nurses with a variety of educational backgrounds, varying from well qualified occupational health nurses, to emergency or medically qualified nurses. This is compounded by the fact that occupational health education is not available in all European countries. Having Johnson & Johnson representation in a number of European countries offers us a unique perspective on the regional variability of occupational health services in European countries. The concern



therefore exists that health service delivery may vary from country to country, and may be influenced by the educational level of the service provider.

Consequently, in order to achieve the expected outcome in terms of the set corporate goals, certain procedures were put in place to ensure the required outcome. • Development of a set of standards and guidelines • Regular audits performed by an external organization to measure adherence to the standards • Provision of regional OH Advisors to provide support and expert guidance where required • Development of a global set of core OH competencies
The value of these processes is reflected in: • Consistent OH audit outcomes • The achievement of Corporate goals.

Keywords: Value, OHN, auditing process, standardized health programs

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(SMP:19/3)

A Business Case for Equitable SHW Standards

Amanda Owen

Group Head of Safety, Health and Wellbeing, The Royal Bank of Scotland, UK

Global Safety, Health and Wellbeing strategies, policies and standards have become common parlance within the senior SHW community. Large, international organisations are investing considerable resources in implementing common policies, standards, products and services across their organisations. But what are the drivers and benefits of doing so and can equitable standards ever be achieved across different legal and cultural backgrounds? Is the alternative position of working within local legal requirements sufficient or is there a middle ground and if so, what is the business value. Drawing on RBS's experience, this presentation will consider the benefits and challenges of implementing a global SHW strategy.

Keywords: Global, standards, business value

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(SMP:19/4)

A Commitment to Total Safety Performance

Danny Martland, Mike Gee

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BAE Systems is a global defence and security company with approximately 100,000 employees worldwide. The Company delivers a full range of products and services for air, land and naval forces, as well as advanced electronics, security, information technology solutions and support services. The company's mission is to deliver sustainable growth in shareholder value through its commitment to Total Performance. One element of Total Performance is responsible behaviour which encompasses health, safety and environment. The Company has set itself the target of substantially improving its global safety performance to a level comparable with the best performing companies. This presentation will identify the steps taken to introduce a common approach across our businesses, summarise the benefits and to outline what we will be doing in the future.



Keywords: Commitment, behaviour, global, improvement

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(SMP:19/5)

Turkish Employers, Approach on Occupational Health and Safety

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In recent years, Turkey reached a strong growth performance and became world's 15th largest economy. Turkey achieved this level by boosting its goods export and by improving the quality and competitiveness of its products.

Being aware of the fact that occupational health and safety is a must for successful enterprises, occupational health and safety policies became one of the key items of the business agenda in Turkey. In accordance with global trends, Turkish Employers have initiated measures like introducing health and safety management systems and implementing joint projects for training.

As the only umbrella organization of Turkish employers in industrial relations, TISK and its member associations pioneered health and safety initiatives and gave strong support for the national policies adopted by the government.

Keywords: Turkish, employers, safety

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(SMP:19/6)

The Investigation of a Relationship Between Occupational Safety and Productivity

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The Occupational Safety is today's one of the most important subjects in industry. Together with industrialization, the occupational accidents are increasing in the workplaces. Specific laws and regulations are adopted by the countries aim to provide safer working conditions to prevent such kind of occupational accidents. The workers, faced with occupational accidents, can lose their work capability partially or totally, temporary or permanently. Since the occupational accidents cause the manufacturing flow and production rate stop or slow down, the manufacturing quantity and the productivity are decreased. Workers have got higher motivation when they work in the workplaces which have sufficient management of the occupational safety precautions. By this way, the employees work in a better psychologically and mentally manner. Therefore higher productivity and efficiency can be achieved by the way of betterments of workplaces and taking precautions for workers, machines, materials, products and hazardous conditions to eliminate the factors stop manufacturing. In this paper, the relation between occupational safety and productivity is investigated. It's been determined the precautions related with occupational safety lead to



decrease the costs and to increase the production quality and quantity. It also affects positively the competitive power of the manufacturers.

Keywords: Occupational safety, productivity

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(SMP:19/7)

Mental Health and Wellbeing - a Business Imperative

David Wallington

Group Safety Adviser, BT Group PLC, United Kingdom

BT will present a case study outlining the use of health and wellbeing interventions to help manage absenteeism, presenteeism and employee engagement. The talk will cover the initiatives that have been developed and used throughout BT to manage the health and wellbeing of its employees. These include education, assessment and treatment programs to promote resilience and where necessary deliver rehabilitation so that we support our people to deliver in a time of rapid change and increased competition.

Symposium 21: OSH in the Petroleum Sector, ALO

Moderator: Mahmoud Ibrahim, ALO

Date: September 14,2011

Venue: Kasımpaşa-4 Hall

Time: 09.00-11.00

(SMP:21/1)

Occupational Health Indices in Gas Industries of Iran

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Healthy employees are requisite of industrial activities. This matter has been considered specially, since development of health, safety and environment management system (HSEMS) in Iranian petroleum and gas companies. By organizing health units in these industries, the occupational health condition of employees has been monitored contentiously. The purpose of this study is to introduce the Occupational Health Indices (OHIs) in Iranian gas industries; describe and compare the state of OHIs in Iranian gas industries and determine the effective factors on improvement of OHIs. Instrument and Method: The studied gas companies consist of 7 refineries, 10 pipeline areas and 12 provincial companies. Statistic data's of OHIs reports of 2010 for all of official and contractor employees of Iranian gas industries were analyzed. OHIs include protection and correction indices of harmful occupational factors (physical, chemical, biological and ergonomics agents), public health, occupational diseases and occupational cares. Findings: The analysis of OHIs reports show that Gas refineries had highest score in noise, heat stress and dust protection and occupational health care. Gas pipeline areas were best in lighting and ergonomic correction. Provincial gas companies and pipeline areas had high scores in gas and vapors protection.



Gas refineries and pipeline areas had highest scores in non ionizing protection. Also the refineries and provincial companies had best scores in public health and TROIF. Conclusion: The reports findings determine that occupational health condition is satisfactory in Iranian gas industries. This study shows that health culture and existence of occupational hygienist have direct effect on OHIs improvement. In the other hand, increasing of health culture and recruiting the occupational hygienists lead to high health function. So it is recommended that HSE units in oil and gas industries to do regular inspections, present suitable training, establish culture at all levels and also supply experienced occupational hygienists.

Keywords: Occupational, health, index, gas, industry, culture

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(SMP:21/2)

Is the Thermal Work Limit a Better Heat Stress Indicator than the Wbgt for the Middle East Oil and Gas Industry?

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A number of different indices have been proposed to assess worker exposure to heat stress. In evaluating heat stress among oil and gas industry workers in Abu Dhabi, a comparison was made between two of the indices: the Wet-Bulb Globe Temperature (WBGT) and the Thermal Work Limit (TWL). The WBGT is the index used for the ACGIH Threshold Limit Values (TLVs), and was referenced in the Codes of Practice established by the parent company of the firms where the assessment was conducted. The TWL is based on research conducted in Australia, and is referenced in the recommendations of the Health Authority of Abu Dhabi (HAAD). Comparisons between the two indices indicated that they can yield very different measures of acceptability for the same set of environmental conditions. The TWL places more emphasis on wind speed than does the WBGT and takes a different approach to clothing factors. Acclimatized workers were able to cope with thermal conditions that exceeded the WBGT TLV, but were in acceptable TWL zones. Anecdotal information provided by workers indicated that their subjective experience was more closely aligned with the TWL than the WBGT. The conclusion of this case study is that the TWL may be a more appropriate index for use under thermal conditions that occur frequently in Middle Eastern oil and gas firms.

Keywords: Thermal, stress indicator, gas industry

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(SMP:21/3)

Risk Assessment – A Tool for Building Safety Culture in the Oil Sector

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Managing Health and Safety in any sectors may it be manufacturing, oil and gas, logistics, steel, chemicals, and transport and even in the construction business differs on the maturity of the organization and the commonly used term “Safety Culture”. Most of the top



management in the organization bothers most on how to prevent accident and ill-health and other form of losses as a result of their complicated operations. This is because directors and managers can be personally liable for every failure in the Health and Safety aspect. Effective Health and Safety Management comprises with Policy, Roles and Responsibility, Planning and Setting of Standards, Measuring Performance and Establishing Systems of Audit and Review. With all the elements the organization can not guarantee for the successful Health and Safety Management System, it is mostly measured on the maturity of addressing its hazards and risk as well as the built Safety Culture across the organization. Planning and Setting Standards is the key. It involves undertaking and reviewing of risk assessments. Risk assessment sometimes is neglected because of the belief that it is a complicated task. It is not! It is a time consuming but there is nothing complicated on doing Risk Assessment. All what is needed is established the Risk Assessment Procedures, assigned someone with a degree of competence in the activity, get owner department, job owner involved and communicate the main findings, control measures being important to reduce risk. Periodic review of the risk assessment must be done by owner department to ensure it is still relevant. Risk Assessment activity creates more involvement of staff of organization that can enhance their Health and Safety commitment as well as building the Safety Culture of the organization.

Keywords: Risk assessment-planning, setting standards

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(SMP:21/4)

Within the Context of Seveso II, Importance of Risk-Based Inspection in Oil, Gas and Petrochemical Industry

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The Control of Major Accident Hazards Regulations (COMAH or Seveso II) cover the control of major accident hazards at installations as a whole. Such installations may include atmospheric storage tanks, process pipework and other equipment containing flammable or toxic and other hazardous materials.

Preventing the loss of containment of hazardous substances is often key to preventing major accidents. It is therefore necessary to take appropriate measures to achieve and demonstrate adequate continuing integrity of containment equipment (vessels, tanks, pipework etc). A suitable scheme of in-service examination can therefore be an important part of the measures necessary to prevent major accidents, but is not an explicit requirement of the Seveso regulations.

The Oil, Gas and Petrochemical Industry is facing tough challenges regarding risk mitigation to improve safety and reliability on one hand and cost pressure on the other. However, in most cases the highest risk is mostly associated with a small percentage of plant items. These potential high-risk components require a greater degree of attention than others. Knowing which areas to prioritize becomes paramount. Therefore it is essential to balance inspection costs and risk through the use of an appropriate technology for inspection and maintenance planning. One of the best methodologies for providing an effective inspection and maintenance program is Risk Based Inspection (RBI).



Risk-based inspection refers to the application of risk analysis principles to manage inspection programs for plant equipment. RBI has been used in the nuclear power generation industry for some time and is also employed in refineries and petrochemical plant. The ultimate goal of RBI is to develop a cost-effective inspection and maintenance program that provides assurance of acceptable mechanical integrity and reliability.

RBI provides a logical, documented, repeatable methodology for determining the optimum combination of inspection frequencies and inspection scopes. RBI objective is to ensure focus of inspection to areas with high risk, while inspection in areas with low risk will be reduced or excluded from the normal inspection program and therefore result in significant inspection and maintenance cost reduction.

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(SMP:21/5)

Managing Industrial Hygiene Exposures at Offshore Oil and Gas Platforms

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Offshore Oil&Gas platforms are much like land-based Oil&Gas installation, only extremers. Many of the H&S concerns found offshore can be greater, with severer consequences for failure, when operations shift to a floating or seabed-founded environment. These differences mean that IH issues may be magnified when it comes to offshore operations. Now, there is awareness that: IH is not as much about emergency plans but provide for employees' long-term health and wellbeing and the importance of the IH risk assessments and plans (some of the larger Oil&Gas companies have well-developed it yet). However, where many companies fall short in their IH obligations offshore is often around detailed and systematic assessments of IH risks. The result may be increased: employee injuries, or latent health conditions and bad reputation for the company, which makes the already-difficult task of recruiting skilled employees to work offshore, even more challenging. Assessing offshore environment IH risks and developing a well-considered plan of action to manage them has many benefits, i.e.: long-term reduction of illness/injury, better employee morale or reduced liability exposure. Some offshore aspects amplify IH-related risks, experience indicates that: isolation and distance, small spaces and tight confines, and overall stressful environment are three of the major differences that must be taken into account. While the offshore environment contains many unique IH risks, the steps for their managing are no different from other work environments, particularly the use of qualitative IH Risk Assessments. This tool evaluates the risk of exposure to chemical and physical hazards in the workplace and set the priority of action by identifying the most serious ones. It goes beyond routine observation-based occupational exposure assessments to systematically review the workplace hazards. The result is a safer workplace, which leads to greater employee confidence in their employers' willingness and ability to help safeguard their H&S.

Keywords: Offshore oil&gas platforms industrial hygiene

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(SMP:21/6)

Influence of Maintenance Management to OHS in the Petroleum Sector



Hana Pacaiova¹, Juraj Sinay¹, Juraj Glatz¹

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Maintenance Management requires to create functional system based on customer requirements, i.e. company management. Classical perception of Maintenance as a supportive process in the frame of Quality Management System often limits the space for creation of functional and effective Maintenance System Management. Major Accidents in the petrochemical, metallurgical, chemical, and mining but also in other areas of industry suggest the necessity to monitor the status of the technical unit using effective methods and tools of monitoring based on the right management decisions making in Maintenance Management. Under the right decision is the whole range of tools and concepts such as the RCM, (RCMCost), RBI, RCFA etc. Their goals are to create tools through a set of methods for effective decision-making, i.e. strategy allocation and maintenance activities so, as to minimize the risks in all areas, which management of the company or public sector requires. This contribution based on practical experience analyzes the advantages and disadvantages of implementation the different concepts of maintenance management in the petrochemical company in Slovakia.

Keywords: Maintenance management, risk assessment, RBI, RCM

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Symposium 22: Vision Zero: A Fundamental Strategic Approach in Health and Safety, DGUV

Moderator: Walter Eichendorf, Dep. Director General, Deputy Director General, German Social Accident Insurance(DGUV), Germany

Date: September 14, 2011

Venue: Sütlüce-2 Hall

Time: 09:00-11:00

(SMP:22/1)

WSH 2018 Commitment in Singapore

Akbel Kader

Workplace Safety and Health Council, Singapore

In 2006, Singapore launched its first National Workplace Safety and Health Strategy. This strategy galvanised the efforts of all stakeholders in Singapore work towards our target to lowering our workplace fatality rate to half the fatalities rate by 2015. It does so by outlining a shared vision of "A safe and healthy workplace for everyone; and a country renowned for best practices in workplace safety and health". Three strategic outcomes and four strategies were also identified. These efforts contributed to a rapid improvement in our work-related fatality rate which dropped from 4.9 fatalities per 100,000 workers to 2.8 fatalities per 100,000 workers in 2008. This prompted the Prime Minister to set a more aggressive target in lowering our work-related fatality and to achieve a safety performance that is one of the best in the world. Accordingly, a new strategy - WSH2018 were launched in 2009. This new strategy has an additional area of focus, which is in engendering a progressive and pervasive WSH culture in Singapore. This is identified as an key strategic outcome that will ensure that our WSH gains are sustained and built upon. Preliminary results have indicated

that the strategy is working as Singapore achieved a record low workplace fatality rate of 2.2 fatalities per 100,000 workers in 2010.

(SMP:22/2)

Vision Zero and Road Safety

Christian Kellner¹, Jochen Lau¹

¹German Road Safety Council-DVR, Germany

Traffic safety has been very successful in Germany over the past years, but the current figures for road deaths and injuries still remain unacceptable. For this reason, the Executive Board of the German Road Safety Council (DVR) adopted in October 2007 a resolution containing the commitment to implement in its future road safety activities the "Vision Zero" safety strategy approach.

The essence of this strategy is the understanding that human beings are not exempted from committing errors in traffic. Without releasing the road users from their responsibility, this system needs to be designed in such a way that mistakes do not provoke any fatal consequences - as far as this is ever feasible. Mobility needs to be designed in a way that it satisfies people's demand for safety. It is therefore necessary not only to address and remove a number of high risk sites, but, with a view to Vision Zero, to consistently improve the entire system. The core issues of our work are topics like "How can we create road systems and vehicles that are more forgiving and able to cope with human errors?", "How can road users be motivated to interact more like partners and in a more cooperative way?" and finally "What is the basic and overall approach to make traffic safer?"

The aim is to develop a long-term and overall strategy alongside with a detailed meta-level package of measures seeking to reach the Vision Zero goal "Nobody is killed. Everybody arrives." Along the lines of its guiding principle "Traffic safety is everybody's right and duty", DVR will integrate Vision Zero into its work over the next years by supporting the responsible stakeholders for designing the road traffic system and by strengthening the individual road user in his/her responsibility for himself/herself and others in road traffic.

First results will be presented and put up for discussion at the symposium.

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(SMP:22/3)

OSH and Road Safety - What Kind of Communication is Needed to Make Vision Zero a Success

Gregor Doepke

DGUV, Germany

All over the world an estimated 2.3 million people die due to occupational accidents and occupational diseases annually. An additional 1.2 million die in traffic accidents.

Still a lot of people consider work related accidents and diseases as well as traffic accidents as "normal companions" of work and mobility. Accidents are often accepted as normal in our social and economic existence. In addition the global trend of *more risk – more fun* has increasingly become a part of our daily life - especially that of young people.

Risks will always be a part of life but we can work towards a world where mistakes do not necessarily lead to catastrophes. People should not be harmed.

Vision zero could become a global mission statement for the prevention in the area of occupational accidents and diseases or traffic accidents

How can we communicate this goal to convince employees and road users of all ages, sex or qualification, to take the road less risky? The same applies to employers, political and economic decision-makers.

We have to instil the desire for safety. *No risk – more fun* should be the prevalent sentiment. Consequently the culture of *more risk – more fun* can be exposed for what it is: inhuman.

This requires a comprehensive social discourse beyond the circle of OSH experts and experts for road safety. We have to get the media as partners for vision zero, away from the role of an observant, only commenting media toward an active participant. Equally important as partners are celebrities like artists, athletes, entrepreneurs, and scientists.

Five strategies will illustrate how to achieve vision zero in order to bring about a change of mind as a requirement for a sustainable reduction of accidents.

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(SMP:22/4)

Safety-Turning the Event into a Process: 15 Years on

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Legislation within the European Union (EU) is driven by directives. Member States are bound to comply with EU directives within a specified time frame. UK legislation has a clear requirement for employers to manage health and safety through the development of valid and effective risk assessments and associated risk control measures. In the USA safety management systems are identified as one of the key elements necessary to meet the goals of the Occupational Safety and Health Act of 1970. OSHA's strategy is to pursue the following four strands; Voluntary Protection Programs (safety management system), consultation survey, full-service area offices, and effective enforcement. And while trans-global terminology may differ, the message and the spirit of enforcement remains the same.

In 1997 the OAC methodology was first introduced to a N. Ireland government agency with circa 2,000 employees. At the time the Agency had six Safety Advisory Officers and a Senior Safety Advisor. A widely held feeling at that time was that they were the 'safety guys', the inference being that they were responsible for ensuring safe and healthy working conditions. The changing emphasis, post 1997, was an acknowledgement that all its employees, from members of the Board to operatives out on the ground had responsibility to ensure safe and healthy working conditions, within their sphere of control and influence. To make this transition as smooth as possible safety advisors were gradually reduced in numbers, assuming a more appropriate role of providing technical assistance when requested by management and staff. Two key requirements were central to the success of this approach;

- The Board define their priorities with health and safety an integral element of the business strategy,
- Competence is a principal requirement for employees; noting that competence extends



to having adequate resources, responsibility to achieve and the authority to act within their sphere of control.

The effectiveness of the OAC approach is in its management, through controls assurance, senior management interventions, and a robust procurement process. In order to ensure consistency the control measures are defined and provided through worker-led operational safety control sheets.

Keywords: Operation analysis and control, hazard, control, prevention

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(SMP:22/5)

Pursuing Zero by Building a Safety Leadership Culture

Ken Flechler

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Today, leadership is more critical than ever and is also more challenging. People are the ultimate source of competitive advantage. Therefore, safety leadership is an essential skill that must be mastered at all levels in order to be successful. In 2008, Pike launched safety leadership training initiative to focus our management and employees on two priorities: build trust and achieve results. Both are essential for effective leadership but one without the other will not produce peak performance. Within the two priorities, there are six elements that combine and interact to produce high impact safety leadership. • Achieve Results: Leaders achieve results by providing people and teams with clarity, accountability, and support. • Build Trust: Leaders build trust through character, competence, and connection. All six elements are necessary to ensure the effectiveness and impact of the program. When leaders practice all six elements with discipline and consistency, the stage is set for extraordinary results. Every person in an organization has an impact on performance and personally influences the “20 square feet” around them through their action and attitude. This presentation focuses on a mix of core skills, leadership competencies and decision making techniques that can be used within an organization to engage equip and energize people to maximize their impact. The following principles are targeted through this session: • Build a strong foundation. • Develop self-awareness. • Think strategically. • Manage your emotions. • Act with focus and discipline. • Connect with others. Since implementing the program, Pike has become an industry leader in safety and achieved a reduction in the accident rate greater than 50% in just two years. These accomplishments have reshaped the performance throughout our organization in the attitude and behavior our employees.

Keywords: Safety leadership

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(SMP:22/6)

Safe Maintenance Practices on Equipment, Machinery and Systems in a Manufacturing Site (OSHA2010 National Best Practice - Turkey)

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As committed in its Health & Safety Policy, the management of a pharmaceutical site focused on reduction of occupational incidents, started analysing the accident statistics between 2001-2006 years and discovered that % 57 of major incidents have happened during maintenance work such as repair, fitting, adjustment and cleaning of equipment and systems. Major causes were identified as failure in locking and tagging out of equipment and hazardous energy, absence of safety measures on devices, use of unsafe tools, low level of safety awareness among employees and deficiencies in personal protective equipment. As soon as the statistics analysis was completed, aggressive goals were set out, some improvement projects were determined and initiated in order to prevent occupational accidents. The initiated projects were specific equipment risk assessment, permit to work, lock-out tag out, hazard/nearmiss reporting systems, employee health & safety oriented programs, proactive and periodic maintenance practices. All above listed projects were integrated with the health & safety management system. Health & safety performance surveillance has shown that the projects have achieved their goals. Maintenance related lost work day cases have reduced to "0" between 2008-2010. The survey results have shown that the motivation of employees has increased and the results have positively affected the company image. The integration of all mentioned projects which were carried out concurrently has ensured a rapid and concrete result. The significant factors which have affected this positive result can be summarised as the commitment of top management in health&safety, closed risk assessment actions, proactive maintenance and controls, active involvement of employees in the health & safety practices, implementation of new safety rules defined in procedures with the same motivation and discipline by the management team and employees.

Keywords: Safe maintenance, best practice, equipment, machinery and systems, 0 accident, proactive practices, integrated health&safety management system

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Symposium 25: Prevention in Small and Micro Enterprises, EU-OSHA (EASHW)

Moderator: Armindo Silva, European Commission, Belgium

Date: September 14, 2011 Venue: Kasımpaşa 1-2 Halls Time: 09:00-11:00

(SMP:25/1)

Worker Protection in Small and Medium Enterprises

David Michaels

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The world of work is constantly changing in the modern globalised economy. Increasingly, SMEs are being seen as the source of innovation and economic drive. In the United States, 99% of all enterprises employ fewer than 500 people and these employ over 50% of all workers. Nearly 87 percent of US firms employ fewer than 20 workers; 33.5 million people work in these firms Worker protection is sometimes seen as a burden on business when in fact good safety and health management is good business. The US BLS estimates that approximately 3.3 million serious work-related injuries and about 4,300 fatalities occurred in 2009 in the US. The human cost of preventable workplace injuries and deaths is incalculable.



However, according to the 2010 Liberty Mutual Workplace Safety Index, the direct cost of the most disabling workplace injuries and illnesses in 2008 amounted to \$53.42 billion in US workers' compensation costs. The true cost in the US is certainly much higher, and the world-wide cost of workplace injuries is staggering. This money would be better spent on job creation and innovation which is the strength of small businesses. A key to good safety and health in SMEs is an effective and appropriate risk assessment and management system that allows everyone to know the hazards and risks, what measures are in place to protect the workers and that they are working properly, and what to do if working conditions change. In the United States, both OSHA and NIOSH provide support for small businesses in their efforts to protect their workers. The vitality of SMEs is a global issue and there is a need for all parties involved in occupational safety and health bodies to collaborate in an effort to identify cost effective methods of protecting the workers in these economically important enterprises.

Keywords: OSHA, small businesses, prevention, risk assessment

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(SMP:25/2)

European Action to Reduce Risks in SMEs and Micro-Enterprises

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EU policy for safety and health at work aims at improving the protection of all workers against the risks of accidents at the workplace and work-related illnesses. It is based on a solid corpus of legislation with its legal basis in the EU Treaty (Articles 151-154). Underpinned by the principles laid down in the framework Directive 89/391, the EU legislative acquis on health and safety has since then been developed and today encompasses more than 20 directives covering a large range of specific risks and activities. In accordance with the principles of smarter regulation, the acquis is regularly subject to evaluation, simplification and dissemination to make its implementation easier for businesses, workers and authorities. Community action is not limited to legislation. The Commission, and in particular the DG for Employment, Social Affairs and Inclusion, widened the scope of its activities, in cooperation with EU-OSHA, in favour of information, guidance and promotion of a healthy working environment with a particular attention to small and medium-size enterprises. The EU, through its Community Strategy 2007 – 2012 on health and safety at work has identified the challenges facing the EU in the field of OSH, puts in place measures to improve performance, and sets targets to evaluate progress. The strategy notes that occupational hazards in Europe are not being reduced uniformly. SMEs, in particular, have fewer resources to put complex systems of worker protection in place. To address this challenge, the European Commission has been supporting the activities of EU-OSHA in the development of practical information to improve prevention in the workplace including the creation of a tool to facilitate the task of companies to provide documented risk-assessment. The On-line Interactive Risk Assessment Tool (OiRA), shall not require excessive resources especially for small companies and yet is expected to ensure effective prevention of workplace hazards.

Keywords: European Commission, European Union, SMEs, risk assessment, prevention

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(SMP:25/3)

Online Risk Assessment in the Netherlands

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In the Netherlands, the need to help micro and small enterprises to manage safety and health has been recognised and acted upon. The online interactive risk assessment tool (OiRA) will work because it is built upon a successful predecessor at national level. It is based on the Dutch RA-instrument (<http://www.rie.nl>) which, financed by the Dutch government, was initially developed by TNO in collaboration with the employers organisation for small and medium-sized enterprises MKB-Nederland and the Dutch Ministry for Employment. The Dutch tool has more than 100 sectoral variants, each tailored to the needs of a particular industry sector. The RI&E was generously put at the disposal of the Agency with the idea to internationalise the tool: to give the opportunity to Member States and social partners at EU and at national level to benefit from this tool. The development of OiRA is exactly in line with the mission of EU-OSHA his proposal fits well with the Agency's mission to: "collect, analyse and disseminate technical, scientific and economic information in the Member States in order to pass it on to the Community bodies, Member States and interested parties; this collection shall take place to identify risks and good practices as well as existing national priorities and programmes and provide the necessary input to the priorities and programmes of the Community".

Keywords: Risk assessment, Netherlands, SMEs, micro-enterprises

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(SMP:25/4)

The Need for Prevention Tools in Small and Micro-Enterprises

Kris De Meester

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(SMP:25/5)

Assisting SMEs in Risk Prevention

Helen Hoffman

UEAPME, Belgium

Today's work environment is rapidly changing. Employers need to be aware of occupational safety and health risks arising from multiple contractors working on a shared site or new topics like nanotechnology. In addition, workers are becoming more diverse, due to demography and migration, and work processes are intensifying and thus changing the nature of hazards and risks workers are faced with. Clearly employers are being challenged to remain competitive and to protect the EU's workforce appropriately. The European Association of Craft, Small and Medium-sized Enterprises, UEAPME, is the employers' organisation representing the interests of European crafts, trades and SMEs at EU level. As the European SME umbrella organisation, UEAPME has over 80 member organisations consisting of national cross-sectoral SME federations, European branch federations and

other associate members, which support the SME family. Across the whole of Europe, UEAPME represents over 12 million enterprises with nearly 55 million employees. It is recognised in the 2007 – 2012 European Community Strategy on Occupational Safety and Health that small and medium enterprises need to be supported “in the implementation of the legislation in force”. SMEs may need assistance to ensure they can meet the existing requirements of the 89/391/EEC “framework” Directive and those related and transposed into national law, in a non-burdensome way. While the principles of risk assessment and prevention are clear, managers notably of small companies with limited financial and human resources are not usually health and safety experts so the application in practice can be challenging. The Online Interactive Risk Assessment Tool as identified in the Community strategy is a good example for assisting small and medium enterprises with the implementation of legislation in a practical way and should be adapted according to sectoral specificities. Last but not least, the “Think Small First” principle as advocated in the Small Business Act should be better implemented at all levels by simplifying existing legislation, promoting guidance and a culture of risk prevention.

Keywords: OIRA online tool, small business act

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(SMP:25/6)

Meeting the Challenge of Worker Protection in SMEs

Laurent Vogel

ETUI, Belgium

Workplace risk assessment is too often treated as a simple tick-box exercise farmed out to outside consultants. It tends to look only at the traditional, visible risks and does not lead on to an ongoing social dialogue to improve working conditions. A survey of safety reps done in the United Kingdom found that fewer than 30% thought they were adequately involved in risk assessment, 44% were not at all involved and 27% were not involved enough. Risk assessment is often better in firms where workers’ reps actively participate in it. In such cases, it covers a wider range of risks and results in more systematic preventive activities. A participatory approach is more productive than an officialistic, rulebook-bound risk assessment. Working conditions contribute significantly to wide health inequalities. Workers with least control over their working conditions are more apt to face multiple risks. Participatory assessment can help to turn that trend around by giving a voice to those that currently lack one. They can inform changes to working conditions from their knowledge of what they are really like. Systematic participation by workers and workers’ reps at all stages of risk assessment ensures that all risks will be properly considered and makes it easier to draw up a workable prevention plan.

Keywords: workers participation; trade unions; risk assessment

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(SMP:25/7)

The INRS Approach to Prevention in SMEs

Stephane Pimbart



National Research and Safety Institute for Occupational Accidents Prevention, France

INRS, the National Research and Safety Institute, is the main OSH-research organisation in France. Its aim is to contribute to the prevention of occupational accidents and diseases and the improvement of working conditions.

It operates on behalf of the employees and companies coming under the general Social Security scheme. Under this scheme, there are 1,700,000 companies in France. 98% of them have less than 50 employees and hire 7 million people, that is 40% of the salaried workers. Fostering prevention in small enterprises is a key challenge for INRS. According to a study carried out in France, approximately 30% of small firms don't have any single risk assessment document; half of others have an unsatisfactory document. This is why INRS has recognised the potential value of the Online Interactive Risk Assessment Tool (OiRA), and has been actively engaged in piloting it. The pilot is being run on a particularly difficult area with many micro enterprises; that of road transport. This presentation will focus on the approach developed at INRS and will give examples of French experiences dealing with small and medium-sized enterprises.

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**Symposium 26: Steps to Harmonization: a History and Overview Safework
Australia**

Moderator: Richard Johnstone, Griffith University, Australia

Date: September 14, 2011

Venue: Kasımpaşa-5 Hall

Time: 09.00-11.00

(SMP:26/1)

Steps to Harmonization: A History and Overview

Rex Hoy

Work Australia, Australia

Safe Work Australia is an Australian Government statutory agency with the primary responsibility of improving work health and safety and workers' compensation arrangements across Australia. Its membership includes representatives of all Australian governments, the Australian Council of Trade Unions (ACTU), the Australian Chamber of Commerce and Industry (ACCI) and the Australian Industry Group. Safe Work Australia has been responsible for the development of a Model Work Health and Safety Act, Regulations and Codes of Practice for adoption by Australian commonwealth, state and territory governments by January 2012. This presentation will provide a history of previous attempts at harmonisation, outline the current process of achieving uniform work health and safety laws in a country with nine separate work health and safety jurisdictions and discuss some of the political and administrative difficulties faced and how these have been addressed.

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(SMP:26/2)

Due Diligence: Entrenching Safety Leadership at the Heart of Australia's Work Health and Safety Legislation

Alena Titterton

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A quiet revolution in safety is taking place in Australia. As of 1 January 2012, its OHS legislation will be harmonised, with 9 jurisdictions (the Commonwealth and 8 States and Territories) replacing their existing varying legislation with model legislation developed by Safe Work Australia.

Much of the public discussion in the lead-up to the laws' introduction has focused on efforts to maximise business benefits in reduced compliance costs by adopting a "best of" existing legislative arrangements approach. However, in one critical area – officers' liability – Australia is adopting an approach which is entirely new.

While personal liability provisions in the OHS context are not new in Australia or indeed in other countries such as the United Kingdom, Singapore and Hong Kong, the idea of placing OHS duties on officers in an entirely proactive way is an evolutionary step in the area. Rather than requiring a breach of the OHS legislation to have occurred or some degree of consent, connivance or negligence to have taken place for the officers' liability provisions to be triggered, officers in Australia will be required to take certain proactive steps including acquiring safety knowledge, providing safety resources, ensuring legal compliance and verifying OHS system implementation.

These laws have the capacity to change the safety landscape in Australia – enshrining as a direct legal obligation senior management safety leadership which has long been known to safety professionals and supported by best practice academic literature internationally as a critical driver on workplace safety performance.

With personal liability provisions featuring prominently on the global agenda following the Deepwater Horizon disaster and the US set to introduce criminal liability for top management through the Protecting America's Workers Bill, this presentation will be of interest to anyone participating in the debate as it will provide lessons from the Australian experience of these laws.

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(SMP:26/3)

A Regulator's Journey to Harmonization

John Watson

Work Cover NSW, Australia

The development of harmonized model work health and safety legislation across all jurisdictions in Australia presents challenging opportunities for safety regulators.

To meet these challenges, WorkCover NSW had implemented new ways of undertaking its regulatory role that will translate the new Model Work Health and Safety (WHS) legislation into practical operational approaches which not only result in legislative compliance, but also in reduced workplace fatalities, injuries, and illnesses.



This session will showcase how WorkCover has implemented a number of strategies in preparation for the new laws, which will leverage the benefits of harmonized legislation, and assist in increasing the competitiveness of the New South Wales economy through productive, healthy and safe workplaces

These strategies enhance the agencies traditional core prevention and deterrence functions by promoting consistent cross-jurisdictional compliance and enforcement approaches, and offer increased opportunities for cooperation and collaboration between regulators and stakeholders, including the sharing of information, tactics, resources, and expertise.

This cooperation, undertaken in line with national targets and priorities, further supports WorkCover's use of enhanced data analysis techniques and evidence-based decision making to identify emerging trends and problem areas. These priority areas, which comprise the highest risk industries, injuries, and illnesses, are tasked to multi-disciplinary teams who work with and support key influencers and co-producers (such as industry associations and business leaders) to identify and apply practical risk control solutions that are both effective and sustainable.

With the new laws set to take effect on January 1, 2012, this presentation is a timely insight into how a regulator can be forward-thinking, responsive and adaptable.

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(SMP:26/4)

Regulatory Reform- at What Cost?

Toula Papadopoulos

Australian Chamber of Commerce and Industry, Australia

Australian business continues to support the process of putting in place harmonised national workplace health and safety laws, however this needs to be balanced and should not be implemented at any cost.

For than 30 years ACCI and its member organisations have worked in national forums to promote better health and safety outcomes in Australian workplaces. Developing harmonised laws again provides a unique opportunity to promote this fundamental objective. It is crucial now that we don't discount this opportunity by accepting a compromised or second best outcome.

The clear objective must be to put in place a framework that delivers improved health and safety outcomes in Australian workplaces. Employers are totally committed to that outcome.

ACCI continues to emphasise that the primary objective must be to work toward better health and safety outcomes in Australian workplaces. This is best achieved by a workplace culture based around clear and shared responsibilities, accompanied by a supportive framework of credible laws, regulations, codes or practice and industry based guidance materials.

The model laws should take into account the different nature and types of business they apply to. Small and medium businesses make up the overwhelming majority of Australian businesses and employ the majority of Australian employees. Many of these businesses don't operate across different jurisdictions and so have little to gain from harmonised national laws. The new framework must give SME's that practical ability to understand the nature of their legal obligations and what compliance requires. Complex regulation imposes unfair

burdens on business and more importantly does nothing to deliver better health and safety outcomes.

The danger is Australia could end up with WHS regulations that are finalised quickly but see business suffocating in red tape without better safety outcomes. In order to assist in achieving good harmonisation of WHS laws, ACCI together with its member organisations and industry in general will continue to be a part of this vital process of review. ACCI will continue to advocate for guidance that is industry specific and practical which would enable a more credible package that is easily understood by all.

(SMP:26/5)

A 'Rights Based' Approach

Michael Borowick

Australian Council of Trade Unions, Australia

The Australian Council of Trade Unions (ACTU) is the single peak union organisation in Australia. It represents 2 million union members and their families, and advocates on behalf of all Australian workers. The ACTU has represented Australian workers on occupational health and safety matters at national forums since they were first established in the 1980's.

Currently Australia has disparate OHS laws across the 8 jurisdictions. In July 2008, the Australian Government, and each of the Australian States and Territories reached an historic agreement to harmonise their OHS laws. This agreement provides for the commencement of a harmonised system of laws to come into force on 1 January 2012.

The ACTU has supported and has been involved in this process. The main thrust of the involvement of the ACTU has been to ensure provided standards weren't compromised and that the highest standards in any State or Territory would form the benchmark for a national system.

The ACTU seeks a "rights based" approach legislation development, implementation and application.

Employees should have:

A right to a safe and healthy working environment.

A right to know what hazards they are exposed to.

A right to refuse to do unsafe work.

A right to be involved in how hazards at work are identified, assessed, eliminated or controlled, monitored and reviewed.

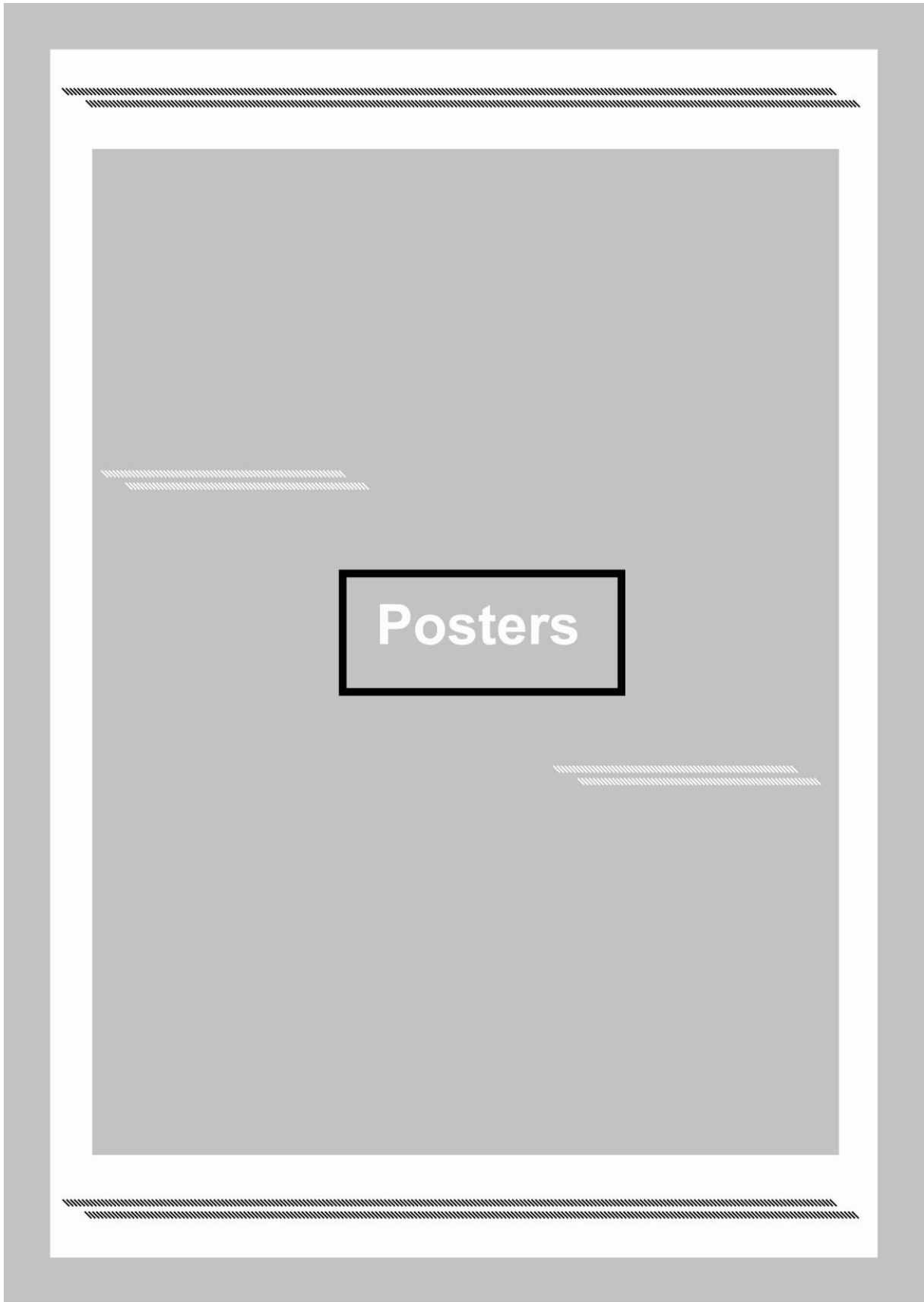
A right to act to protect their health and safety at work - including deciding who represents them. Our 30 years experience shows that the best results come from a tripartite and independent approach to these three pillars.

Tripartism should not be confined to any one of these three important areas. Unions together with representatives of employers and governments must be involved in the development of laws. Governing boards and advisory forums of regulations should be based on tri-partite principles. Individual workplace structures must include workers and their representatives.



XIX World Congress on
Safety and Health at Work

This presentation will detail the important representation and consultative provisions of Australia's new OHS laws and will expand on the 'rights based' approach that is vital to protecting workers health and safety.



Posters



Posters

(P: 1)

Standardised Approach for Evaluating Prevention Campaigns

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The backers of prevention campaigns such as the government, administration boards or private business are increasingly demanding evidence that the effort invested has been effective. However, campaign effectiveness is rarely assessed. There are several reasons for this: Firstly, there is a lack of time and financial resources. Secondly, prevention campaigns are complex in nature and finding appropriate ways of evaluating them is a methodological challenge because they use a variety of preventive techniques, they have multiple goals and they target different groups. Nevertheless, an evaluation can answer the question of how well the campaign has reached the target groups. It can also show what effects have resulted and even which are particularly good and which are not so good. Furthermore, an evaluation can help to identify areas of improvement for future campaigns. Therefore, this presentation gives a comprehensive, standardised evaluation model based on eight different tiers. The evaluation model is comprehensive because it not only assesses campaign presence and media resonance, but also the level of awareness and any changes in the target groups and businesses (behaviour and workplace conditions). Additionally, the evaluation aims to optimise the internal processes of the campaign coordinators. This tiered model was first used to evaluate the German "Healthy Skin" campaign conducted in 2007/2008 by the German statutory insurance providers in conjunction with other partners. Currently, the model is being used to evaluate the "Fight the Risk" prevention campaign which is being run over 2010/2011 and which aims to increase safety in driving and transportation. The tiered model for evaluating prevention campaigns has been worked upon with other European countries including Switzerland and Austria. It has also been published extensively using a number of examples. Furthermore, the German statutory insurance providers have made it an obligatory process for the standardised evaluation of future campaigns.

Keywords: Prevention campaigns, evaluation of future campaigns

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(P: 2)

Absenteeism Due to ILI in a Work Place in Ankara-Turkey

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Background: Influenza is a prevalent and highly contagious disease and morbidity and mortality due to influenza increased worldwide every year. Because of the widespread nature

of this disease, annual influenza epidemics cause substantial workplace absenteeism, and the associated cost of lost productivity is a significant component of the considerable financial burden this disease places on employers and on society. The aim of the study was to quantify the association between lost workdays and influenza-like-illness (ILI) and to investigate underlying causes for absenteeism. Methodology: We performed a prospective study to follow-up. Information on ILI and other chronic health conditions was collected from all employees who were employed during the survey period. Employed subjects were then asked to report the number of days missed from work related to these health condition and we calculated how many days lost are due to a specific health condition by using questionnaire. Also in questionnaire we included some sociodemographic variables, influenza vaccination history. Results: Of the 613 study participants, 267 (43,1%) reported an ILI during the influenza season. Persons with ILI were sick for 3.8 ± 6.4 days. Totally 1,101 days were lost due to ILI. Conclusion: ILIs were common among our study participants, accounting for a large portion of illness, work loss, and impaired work performance during the influenza season. Vaccination against influenza could be substantial health and productivity benefits.

Keywords: Absenteeism, ILI

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(P: 3)

Screening on Varicosis at TCDD Behiçbey Region

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Aim: To determine the level of venous insufficiency in workers in TCDD Behiçbey region. Investigation setting : TCDD Behiçbey is the region of the study. In this region, overall 12 workplaces, including 3 ateliers and 2 factories are found, employing 1100 workers and 700 civil servants.

Method.: This is descriptive epidemiological investigation. Advertisements were put on all work places stating that all people with the complaints of venous insufficiency (in leg, pain, cramp, swelling, tingling sensation, fatigue, in anus, pain, bleeding, itch, and feeling of mass) will be submitted to screening with Doppler device. Those who referred to health center during one month for this purpose constitute investigation group. Those diagnosed with the disease were referred to secondary health institution.

Results : 102 subjects were included in the study. (98 male, 4 female). Venous insufficiency was established in 34 of the 102 participating subjects (% 33.3). Among these, 17 had varice, 12 hemorrhoid and 5 had both of them.

Of the participants, 20 were diagnosed and treated previously. 9 of them were diagnosed with venous sufficiency again.

All diagnoses were confirmed in a Secondary health institution and treatment was planned together. In 25 subjects new venous insufficiency and in 9 former venous insufficiency was found. In addition, 4 subjects were diagnosed with restless leg syndrome, 3 with irritable bowel syndrome and 1 with anal fissure. .



Although no correlation was found between hemorrhoid and their occupation, it was observed that almost all varice cases were those spending the majority of their work day (9 hours) in standing position (5-6 hours)

Conclusion and recommendations : It should be kept in mind that this sample is not representative of the region since those with complaints were invited and people sensitive to the issue referred. It is thought that working in standing position for along time may be influential in the development of varice, and through ergonomic studies this situation can be alleviated.

Key words : worker, venous insufficiency, metal sector

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(P: 4)

Railway Workers, Hypertension Screening and Treatment Responses

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Aim: The determination of the prevalence of hypertension in workers in TCDD Behiçbey region. Investigation setting : TCDD Behiçbey is the region of the study. In this region, overall 12 workplaces, including 3 ateliers and 2 factories are found, employing 1100 workers and 700 civil servants. Method: this is a descriptive epidemiological study. In five large work places in the region, 2 screenings were carried out one year apart. In 2004, 2 nurses and institution physicians performed blood pressure readings at noons for five days at the cafeteria of work places. In 2005, blood pressure reading was performed at places where workers are employed, for 3 full work days. Of the participants, % 36 was between the age of 41-45 % 80 between 36-50. In both studies, blood pressure reading was made from left arm after five minutes rest. Measurement results were evaluated according to JNC-VII. Results: 427 workers participated in the study in 2004. Of the participants, % 21.5 was found to be stage I hypertensive and % 12.4 stage II hypertensive. 583 subjects participated in the study in 2005. In the study, % 11.32 was found to be stage I hypertensive and 2.92% stage II hypertensive. During investigation, it was established that of 64 patients diagnosed with hypertension previously and who underwent treatment, % 51.56 had values within normal range (21 subjects, %32.81-normotensive; 12 subjects, % 18,75 prehypertensive) and, % 48.44 remained hypertensive (17, % 26.56 stage-I, 14, % 21,88 stage-II hypertensive). It is thought that the reason why the rate of hypertension was found to be 33.9% in 2004 may be the fact that measurement was carried out after lunch. In various studies conducted in 1992, 1995 and 1996, results were found to be respectively; % 19.6; % 21.2 and % 23.2. Conclusion and recommendations: It will be useful to repeat similar studies in the region and to support more planned studies with laboratory investigations. In addition, 10 day follow up results should also be incorporated in the evaluation.

Key words: hypertension, worker, metal sector

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(P: 5)

Evaluation of Office Workers Participation at Exercise and Ergonomics Information Program (ErgoFNSS) and its Effect on Musculoskeletal Complaints

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The informing programme on ErgoFNSS office exercise and musculoskeletal system aims at encouraging exercises among the office workers for avoiding them from musculoskeletal diseases and at increasing their knowledge about it. The programme was implemented 2 times in a day -for 1 minute- with the help of the computers of office workers for 8 months. A survey was made at the beginning and the end of the programme; the results of it were evaluated statistically. At the end of the study, it was seen that the workers have resistance at participating at the office exercises. It was also detected that the programme implemented for 8 months provided a significant change at computer usage, partially though and that there is a decrease at the complaints on musculoskeletal system.

Keywords: Office exercise, participating at the office exercises, musculoskeletal system complaints

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(P: 6)

Identification and Safety Assessment of the Hazardous Zones (Unwanted Energy Flows) in a Construction Project at the National Petrochemical Company by Application of ET&BA Method

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In this study, the safety assessment has been conducted qualitatively with the goal of determining the potential existing hazards in construction sites, with the application of ET&BA technique and assessment of the identified risks. In other words, in order to determine the risk factor, the possibilities of conversion of potential hazards into accidents and the risk factor standards were classified qualitatively. For this purpose, the risk matrix presented in MIL-STD-882E standard (The 5th Version of U.S. Military Standard) was used. According to the results of this study, a total of 144 hazardous zones were identified. Based on the MIL-STD-882E Standard, 68% of the cases were in the high-risk zone, 30% were in the important risk zone and 2% were in the average risk zone. Meanwhile, working on scaffoldings has had the most number of high risks (23 cases) and the other sections including excavation, electrical, welding and cutting operations are placed in the next level of importance with respectively 21, 13 and 11 high-risk cases. With due to the results, nearly the majority of identified points are in the high-risk zone (68%), and important zone (30%), which is unacceptable according to the MIL-STD-822E. Hence, the necessity of conducting appropriate controlling measures including the establishment of supervision and inspection systems, preventive repairing, and applying standard and safe techniques and methods are some of the proposals which leads to a drop in the possible risks. By comparing the results of this research with other similar projects, including the study which was conducted by the



Ugandan Employment Office in 2005, one can realize similar results in developing countries, especially regarding high risks and control-related priorities.

Keywords: Construction, ET & BA, risk assessment and accidents

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(P: 7)

Drafting the Quantitative and Comprehensive Checklist for Construction Phase of Industries and its Extension as a Strong Quantitative Method for Assessment of Ongoing Projects

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In this study, the goal is to prepare comprehensive and quantitative checklists to determine the potential hazards in construction sites. For this purpose, after the inspection and field study of more than 50 construction projects, two types of technical and managerial checklists were designed. The managerial checklists have been drafted with seven major criteria, which would include three parts of: interviews with operational personnel and managements; observance of the site, installations and conditions of personnel conduct; and study of the related documents. The checklists for technical inspection and qualitative control have also been drafted in 32 important and major subjects. The drafted checklists were quantified by applying a blend of two methods of scoring and “yes, no” technique. Moreover, in order to judge the acceptance or non-acceptance of the risk factor, in each of the studied subjects, four criteria for judgment and decision-making were presented. What’s more, in order to judge the safety status of the whole studied system, an equation was determined to calculate the safety score. Meanwhile, in order to approve the potentials of this method, the results were compared with the results of the ET&BA technique, which according to the experts is one of the best methods for assessment of the safety of construction projects. Following the study and comparison of this method’s results with the results of the ET&BA technique, the final viewpoint of this study was confirmed. In other words, the drafted checklist method is a capable technique in analyses of such systems and it observes different hardware, managerial and drafting risks and human errors in the least amount of time and cost. It will be a rival of ET&BA technique and other methods, and will be a capable replacement for them. Therefore, one can introduce this technique as one of the strongest risk assessment methods in construction phases.

Keywords: Checklist, accidents, risk assessment, construction

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(P: 8)

Examining the Determinants of Occurrence of Accidents at the Construction Phase in Oil, Gas and Petrochemical Projects

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In this study, a count-data regression is presented to estimate and analyze the effects of determinant factors affecting the accidents leading to death, through negative binomial regression. For this purpose the structure of 50 accidents that led to death and another 2700 accidents in the Construction Phase in Oil, Gas and Petrochemical Projects (a case study of Assaloyeh)¹ during 2003-2005 has been studied. Along with total accidents, unsafe conditions, human errors, management faults and using nonstandard equipments, were considered as the main independent variables affecting the job accidents leading to death, as the dependent variable. By employing the method of developing abstract variables and taking values (codes) one and zero (zero for lack of quality and one for its existence), the variables were quantified. EViews software has been employed, because it provides support for the estimation of several models of count data. The findings of the study show that for each number increase in the unsafe conditions, human errors and either nonstandard equipments or management faults, the expected number of deadly accident increases by a factor of 0.2982 and 0.1137 as well as 0.0259, respectively. If the number of total accidents increases by one unit, the difference in the logs of expected counts would be expected to increase by 0.0025 unit, while holding the other variables in the model constant. Apart from such predictors, the log of the expected count for deadly accidents is 0.0023.

Keywords: Count data regression, negative binomial model, deadly accidents, Assaloyeh

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The Use of Ergonomic Solutions in Industrial Safety

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Ergonomic optimization of working conditions is necessary and more often used in industry, trade, communication, office work and households. The subject matter of ergonomic verification is relations between a human, a technical structure of work environment and a type of activities performed. The most fragile link of the system is a human, whose productivity is restricted by psychophysical capacities. Thus, ergonomic requirements are very important, and decide that space, environment and work organization are adjusted to human needs. This article characterizes basic guidelines for the use of macroergonomic principles in manufacturing enterprises. Influence of ergonomic criteria on the level of accidentality was also presented. Special attention was focused on factors which belong to material work environment and on technical-organizational factors. Their role and tasks in shaping the level of industrial safety were presented on the basis of automotive industry.

Keywords: Ergonomics, health protection at work, safety, accidentality

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Safety Climate as an Index to Evaluate the Performance of Occupational Safety and Health Management System

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Safety Climate is the product of individual and group values, attitudes and beliefs, qualifications and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's safety and health management. The Occupational Safety and Health Management System (OSHMS) is also an established system in the organization which has a specific performance of its own. The purpose of this study was examining the relations between OSHMS performance and the results of safety climate measurement in an industrial organization. For assessing the OSHMS performance, AS/NZS-4804- based OSHMS Audit Tool was used. The tool contains 21 sections with 117 criteria, each of which gets a score of 0 to 5. The safety climate was measured by use of the safety climate assessment toolkit - Loughborough University, in which 17 dimensions are considered. The score of every dimension in safety climate showed a good consistency with the scores of the OSHMS performance evaluation. The mean scores of these measurements did not show a significant difference. It was therefore concluded that the organization's safety climate is under the influence of the OSHMS performance and can be considered as an index for evaluating the OSHMS performance.

Keywords: Safety climate, industrial organization, occupational safety and health management system performance

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A New Model for Occupational Safety and Health Service Providing “External OSH Services”

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Occupational health and safety is all along one of the indispensable elements of working life. The optimum level of the health and safety conditions and existence of occupational safety administration systems in an enterprise makes contribution to the productivity of that enterprise.

In Turkey, health and safety services for workplaces are designed separately and implemented in the same way for a long time. One big reason for this situation is, the “only health” perspective of occupational physicians and the “only safety” perspective of occupational safety experts.

Another reason for the perception of separated health and safety services is arising from the legislation and inspection system approach.

Both 89/391 numbered EU Directive and 4857 number Turkish Labor Law, there is an alternative selection opportunity for the employers ensuring the implementation of occupational health and safety services. This opportunity is, an employer can ensure those services via employees in his workplace or can ensure those services completely or partly via joint health and safety units which are authorized by the Ministry.

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Analysis of Training Centers for Occupational Physicians and Safety Experts in Turkey

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In spite of certification trainings for occupational physicians and safety experts in Turkey has been performed from the early 1980s, legal basis of those trainings has been set by the amendments in the articles 2 and 81 of 4857 numbered Labor Law and in the article 12 of 3146 numbered Law.

With the Implementing Regulations about “Duties, Authority, Responsibilities and Training of Occupational Safety Experts” and “Duties, Authority, Responsibilities and Training of Occupational Physicians” that take the above articles as legal basis, the trainings of occupational physicians and safety experts are organized, in the same Regulations the staff and location requirements, for the trainings centers that perform those training programmes, are determined.

Basic certification trainings for occupational physicians and safety experts are at least 220 hours-training which composed of 180 hours teoritical and 40 hours practical parts and the renewal training for occupational physicians is at least 30 hours practical training. The syllabus of those trainings are determined by the Ministry of Labor and Social Security via a commission according to the related articles of the relevant legislation.

The training centers in Turkey for occupational physicians and safety experts are founded by the universities, public bodies and private sector enterprises. There are totally 38 training centers and they are located in 15 cities mainly in big ones like Ankara, İstanbul and İzmir.

In this poster presentation, existing and required numbers of occupational physicians and safety experts, information about trainers for those programmes and location based efficiency reports of training centers are considered.

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Comparision of Country Based Case About Occupational Nurse Implementations

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One of the basic principles in continuity of occupational health and safety (OHS) services is teamwork. The indispensable members of the team are occupational doctors, nurses and safety experts. Among this all, considering OHS is a multi-disciplinary field, occupational nurse is the most proper professional to observe working environment and modifications of employees, and also to attempt some actions to exposures.

Occupational nurse also implement nursery principles besides protecting health of employees. Early diagnosis, therapy of patients, rehabilitations are another duties of



occupational nurses. In addition to this, they support health training, environmental health services, improving social communications in workplaces.

In developed countries, a nurse gives services to 300 employees in order to support quality health service. In Korea, it is recommended that occupational nurses and hygienists visit regularly four times per a year for the enterprises which has under 50 employees.

In Turkey, it is defines as “Other health personnel: means nurses, health officer, emergency medicine technician and environmental health technician” in the legislation which was come into force at 2010. Considering realities of Turkey, human resources planning, health personnel was explained. It became obligatory to hire these personnel in collective health and safety units and public health centers.

In European countries, occupational nursery trainings are sometimes a part of university education, sometimes license based and course based. In Turkey, there is Public Health Nursery Programme which covers license based occupational health nursery education. It differs according to different universities but 3-11 implementation day period besides 5-10 hours theoretical lessons. There are also master and doctored programme to expertise.

In developed countries case, conclusions from the programmes which has developed for occupational nurses and implemented via occupational health for long periods has been assessed; reduction in cost of health maintenance and health risks , increase in the quality of maintenance, employee morale and productivity have been defined.

Keywords: Occupational nurse, OHS, public health nursery, occupational health and safety services

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Management System Approach and Human Element

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The authors point out human element as fundamental factor to manage within organization. All those different risk factors that affect involvement and participation of workers, their risk's awareness should be managed by systemic approach that can help to control one of the main inter-relation disorder risk factors: work-related stress. No doubt this risk factor has assumed meaningful value and Italian laws underline that risk assessment has to evaluate all risk factors and “...those risk factors connected work-related stress” inclusive and provide with instructions to assess them. Moreover in Italy the law concerning -List of diseases which working cause is limited probability- includes “Mental and psychosomatic diseases caused work organization holdups”. This paper points out how the implementation of occupational health and safety management system can be an efficient tool to control but above all to prevent those factors that we can call “organizational errors” that affect wellbeing at work and as a consequence productivity of labour.

Keywords: Work related stres, risk factors, OHSMS

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Stress from the Perspective of Psychoanalysis and its Role in Health and Safety Person

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Stress is one of the phenomena that a decisive role in the evolution of human health has. Also in explaining the formation of human personality and her social relations, stress factors, one of the fundamental component is considered the true measure of its role in psychology and psychoanalysis as well as individual growth and development in the community is very important. Stress or fear as much as reasonably necessary for human life is to feel pain. Pain is a warning to us that our bodies functioning organism caused Khilly. And hence are warning that if it is considering, it can be treated and mental health was achieved. One way to treat stress treatment (cognitive coping) is a time of fear and emotional stress while at the same intensity is captured and diverted it for other activities makes. This treatment is a way in front of a very wide field opens us that not only enables us to control stress, fears, but for all the negative feelings that are emotional times health and somehow threaten individual we work.

Keywords: Stress, fear, fear of logic, mental health, immune

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Environmental Health and Global Security

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Twenty-first century, a century full of rapid and unprecedented changes in the global environment has been. Human influence on nature, which has been around the place and nature of global importance and impact of speed, unfortunately this also enjoyed has been steeply. Almost no natural habitat or ecosystem in the ground there is not been changed at least slightly. But changes to the environmental health risks are thrown that is born from human activities long since existed. According to the power of human thought and contemplation, so that man was expected any day over the past that can be converted to power a valuable health and environmental standards to protect and improve Lks but that seems increasingly to human strong force becomes even create turmoil in their environment is health and global health security, the result will suffer from stress. This article tries to communicate with an emphasis on health global security environment and the economy and poverty corner of the importance of expression and politicians pay more attention to science HSE key issue to focus world today has been proven in practice how the international reaction against the environmental problems of understanding the amount and nature of problems caused by human activities that depend on them are causing the reactions according to the conditions and type of problem there is different.

Keywords: Health, environment, safety, HSE, poverty

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Analyzation of Work Accidents and Occupational Diseases in Turkey in Respect of Professions: an Evaluation

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Work accidents and occupational diseases continue to be important issues of business life in Turkey as in the world. Employees, employers and society are affected negatively from death, continuous disability and injury which occur as a result of a work accident. In this paper which takes work accidents as a subject; in respect of professions, work accidents suffered by employees who work at various scope of business in Turkey and their occupational diseases are evaluated. Legislators, top level executives, managers, professional occupation members, subsidiary professional occupation members, staff members working in office and customer services, service and sales staff members, well-qualified agriculture, animal husbandry, forestry and fishery employees, artisans and employees working in related businesses, facility and machinery operators and fitters, employees working in unqualified works are all included in the research and the said main occupational groups are investigated in terms of work accidents and occupational diseases by basing on years of 2007, 2008 and 2009. In the research; subgroups of main occupational groups are analyzed from the point of work accidents and occupational diseases by years. Obtained findings are presented with the assistance of tables, analyzed and commented.

Keywords: Turkey, work accident, occupational diseases, professions

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Error Reduction in Man-Machine Systems

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The performance of human being in Man-Machine systems depends on physiological, anathomical, psyco-social, engineering, medical, law etc. factors. To reduce human stress and strain factors which depend on work and human characteristics are an important tool to reduce work accidents in every kind of Man-Machine systems: Education, experience, responsibility, work system design, every kind of tools, environmental design are the basic parameters which determine the level of accident risk. In this paper, taking into consideration of Turkish conditions each parameter is disscussed from human factors and ergonomics point of view. In Turkey, the ratio of work accidents to total accidents is rather high, compared with some similar countries. Developing a mathematical model, it is necessary to differentiate the following items: Accident parameters and related ergonomical rules. Besides, to determine measuring priorities, to determine error functions, testing the relaibility of these functions are final aim of these paper to prevent errors and to achieve some concrete results. It is also aimed; to discuss the main ideas of this paper with some experts from different countries.

Keywords: Work accidents, man-machine systems, ergonomics, mathematical modelling



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OHS Development for Construction Sector

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The construction sector has a special importance for our country's economy, whereas the sector ranks first among the sectors because of the high prevalence of work-related accidents. Regarding to reduce occupational accidents and diseases in continuous and sustainable way, "Construction Occupational Health and Safety Campaign" has been decided to start with the cooperation Yol-Is and Intes Union, involved in activities related to the sector, in 2006. This campaign with the slogan of "Let's build safety together" was launched with a press conference in the field of Esenboga Airport New Domestic-International Terminal and Storey Car Park Construction on 29.03.2006. Within the scope of the campaign, education is given nearly 3300 employees in the sector in 8 cities and 1 promotional poster, 1 promotional brochure, 3 informational poster, 4 informational brochure distributed to the social partners as free.

Keywords: Occupational health and safety, construction, campaign, cooperation

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Occupational Exposure to Power Frequency Electromagnetic Radiation

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Electromagnetic radiation (EMR) exist in the working environment as a result of the use of various electrical devices and wireless communication systems. Due to the possible health effects of the EMR, upper limits for occupational exposure have defined by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). In near future, all employers in the European Union (EU) will be required to assess the levels of EMR to which their workers are exposed. The most common sources of exposure to EMR are electrical power systems. In this study, occupational exposure to EMR in the test areas at an uninterruptible power supply (UPS) manufacturing facility was investigated. The electric field strength and magnetic flux density were measured in the power frequency band at various locations where workers have to perform their tasks during UPS tests. The measurement results compared with the reference levels for electric field strength and magnetic flux density for occupational exposure identified by ICNIRP.

Keywords: Electromagnetic radiation (EMR), power frequency, electric and magnetic field measurements, occupational exposure limits, exposure assessment, uninterruptible power supply (UPS)

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Health and Safety for the Construction Industry in Mexico

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In order to compliance with labour standards on safety and health at work and training contained in the Constitution of the United Mexican States, the Federal Labour Law, Regulations and Official Mexican Standards applicable include companies in the construction industry, The Ministry of Labour and Social Welfare has implemented inspection visits. The construction industry is the economic activity with the highest number of accidents in the world. Only in 2008, Mexico occurred at a rate of 3.21 cases per 100 workers. The economic impact accounted for 5.093 million pesos, and the social cost is incalculable. The safe work practices enable employers and employees to have complete and useful information regarding recommendations for effective management and of course to implement preventive measures in machinery, tools and work processes of the different activities developed in that industry. The study consider the National Standards that apply to the construction industry and the results obtained during the years 2007, 2008 and 2009 in workers accidents. This document shows graphics and statistics reduction rates f accidents by economic division, reduction in accidents rate by type of risk and reduction in the accidents rate per level of recognition of self-management program. The associated risks has been reviewed, as well as preventive measures in building construction, open pits, digging ditches and wells of service, stuffed, manufacturing and handling of formwork, management and placement of concrete, paint application and management With this program the Ministry of Labour and Social Prevision provides recommendations on contractual requirements for managing safety and health at work in the works, from the enforcement of legislation on the subject, identification and risk control, organization and structure of detention, the budgeting for the implementation of preventive measures, and reasons for termination of contract enforcement and lack of attention to these concepts

Keywords: Construction industry, accident, rates, accidents

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Neuro-Psychological Disorders Associated with Solvents in 75 workers of a Printing Unit for Flexible Packaging

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Introduction: The area of printing on flexible packaging is growing in Tunisia. To this end, there is widespread use of organic solvents, whose effects on health are multiple and include neuropsychiatric effects. Objectives: To evaluate the effects of neuro-psychiatric workers exposed to solvents and objectively assess the degree of exposure to solvents by an environmental study. Materials and methods: Our study is based on a medical section itself based on a set questionnaire based on that of Q16 to investigate the effects on neuro-psychological solvent and an environmental study qualitative and semiquantitative Ave atmospheric samples atmospheric level of risk positions. Results: This is a series with a



mean age of 40.6 years comprised primarily of multi-purpose workers (60.2%) with an average age of 13.62 years. This study identified 8 cases of which 4 psychosyndrome have benefited from a neuro-psychological assessment, 6 cases of psychological dependence syndrome and 2 cases of acquired intolerance syndrome solvents. The analysis of safety data sheets revealed the presence of several types of solvents in the composition of inks and adhesives. Although measures of collective and individual prevention were absent, the values recorded by measuring atmospheric solvents were substandard. Conclusion: The difference between the results of assays air standards and frequency of neuropsychiatric manifestations in exposed us to reflect on the role of low doses in causing toxic effects related to exposure to organic solvents

Keywords: Solvent, health, neuropsychology, work, exposure

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Evaluation of Occupational Exposure to Metallic Pigments and Health of 200 Workers of a Ceramics Industry

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The ceramic industry is a traditional activity in our country which has a remarkable industrial development. It is characterized by co-exposure to several metals, some of which may have pathological effects including allergies. Objectives: Qualitative and quantitative assessment of exposure to metallic pigments in the ceramics sector and an assessment of the impact of this exposure on the health of workers. Methods: Our study is based on a medical section itself based on a pre-established questionnaire and a qualitative and semi-quantitative environmental study. Results: Our population has an average age of 40.46 years and an average tenure in the company of 15.64 years. Only 14% of the study population is directly exposed to metallic pigments and 21.5% have an indirect exposure. In addition, respiratory events were reported in 30.5% of employees including allergic rhinitis (72.13%). The study of the frequency of these events according to levels of exposure to pigments showed that more the risk is higher, more these events are frequent. Furthermore, 12% of employees reported cutaneous manifestations including 4 cases of allergic contact dermatitis. On the other hand, 8.22% of employees reported fertility disorders, including 2 cases of oligospermia. Finally, neuropsychiatric manifestations were noted in 52% of the population studied. Conclusion: These results justify the establishment of a preventive strategy of exposure to metallic pigments. This is based on results of metal atmospheric assay.

Keywords: Pigment, metal, exposure, ceramics, health, work

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The Multiple Professional Allergies in the Jeans Fading Industry

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Introduction: The jeans fading industry is a growing sector in Tunisia. It appeals to many detergents such as quaternary ammonium compounds and proteolytic enzymes. **Objectives:** To study the environmental determinants of 8 cases of occupational allergy occurred in 3 units of fading jeans. **Material and Methods:** Anamnestic, allergy and environmental study of 8 cases of skin and respiratory allergy occurred in 3 units of fading jeans. **Results:** We report a series of 4 cases of immediate hypersensitivity occurring in an atopic underlying. They are one case of hypersensitivity pneumonitis, one case of asthma and 2 cases of rhinitis. We do also part of a second series of 4 cases of allergic contact dermatitis occurred in the same industry and sitting in on the hands with negative patch tests with quaternium 15 and formaldehyde. The survey work has revealed an exposure to proteolytic enzymes for workers suffering from respiratory and other exposure of 4 workers carry the allergic contact dermatitis to a product basis of quaternary ammonium introduced a few months ago. Moreover, all forms of events are punctuated with occupational exposure to incriminated allergens. **Conclusion:** The jeans fading industry is characterized by the multiplicity of treatment stages of jeans using different products. This is a highly sensitizing activity. For this purpose, some recommendations have been proposed in the two companies including improved industrial hygiene.

Keywords: Allergy, dermatitis, asthma, work

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Musculoskeletal Disorders in 143 Women of a Wiring Unit of a Wiring Unit

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The industry wiring is experiencing an unprecedented boom in Tunisia. Parallel to this development, this sector has become a provider of musculoskeletal disorders that represent the most common occupational diseases in this industry. **Objectives:** Determine the prevalence of musculoskeletal disorders in the wiring unit, study their risk factors, assess their occupational impact. **Method:** Descriptive epidemiological survey conducted in 2010 in a wiring unit. It was based on a predetermined questionnaire inspired from Nordic and INRS questionnaires and supplemented by an ergonomic analysis of workstations with video recording. **Results:** It looks like a population of 143 women with a mean age of 26.74 years and average tenure of 3.08 years. The majority of workers are versatile (98.6%). They hold or have held the position for wrapping cables. The work pace is considered very high by 76.9% of workers and the required strength is described as very important by 52.4% of cases. Moreover, extreme posture was reported by 52.3% of cases and static muscle strength for 34.3% of the workers. In addition to these biomechanical risk factors, most workers (95.8%) reported a state of stress. Finally, the prevalence of musculoskeletal disorders among these workers was 90.2% and the bulk of complaints is localized in the shoulder (85.3%). **Conclusion:** These results justify the establishment of a preventive strategy for musculoskeletal disorders that can be achieved only within the framework of a project involving the various stakeholders of the company. It will be based on the results of the study of ergonomic workstations.

Keywords: Work, ergonomics, risk factors, posture, upper limb, back, tendinopathy

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Assessment of Exposure to Pesticides and Health Status of 54 Case Workers in an Agricultural Area

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The list of pesticides permitted in Tunisia is constantly changing as new introductions or withdrawals. Objectives: Qualitative evaluation of pesticide exposure, evaluation of the impact of pesticide exposure on health workers, proposal of a preventive strategy adapted. Material and Methods: Descriptive cross-sectional epidemiological survey, conducted among 54 employees in four farms in 2010. It is based on two parts: - Qualitative environmental assessment - Medical Study based on a predetermined questionnaire Results: Our population is relatively aged (49 years) and almost exclusively male with an average tenure of 23 years. The occupations most at risk are those versatile workers (65%). The inventory of pesticides handled revealed 67 active ingredients. Working conditions are generally unsatisfactory. The lack of individual and collective prevention, lack of general hygiene, and failure to follow rules for handling and waste management are at the forefront. The exposure assessment is synthesized as three levels of risk taking into account the method, frequency and duration of exposure. The medical study has revealed the importance of toxic chronic effects related to pesticide exposure (respiratory, skin and neuropsychological) in particular, the organic psychosyndrome noted in 7 employees. Conclusion: The level of risk associated with pesticide use is even higher than the exposure is greater. However, the failure of preventive measures is an aggravating factor. The adoption of a prevention strategy could decrease the appropriate level of risk and limit the environmental and health impact of pesticides.

Keywords: Pesticide, exposure, health, work, agriculture

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Assessment of Physical Load in 95 Workers of a University Hospital in Tunisia

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Our hospital is characterized by its architecture and its non-suburban location on a hill. It then constitutes a very particular workplace provider of physical load for the class of workers. Objectives: To evaluate the physical load among the workers, describe the impact of the physical burden on their health status, describing their perception of occupation. Method: Descriptive cross-sectional study conducted about 95 workers of a university hospital in Tunis in 2010 and based on predetermined questionnaire associated with a measure of heart rate with heart rate monitor. Results: Our series has an average age of 41.8 years and average tenure of 12.32 years. The workers are responsible in particular for handling bags for clothes (33.7%) and patients (67.4%), rehabilitation beds (42.1%). The 2/3 of workers (69, 5%) report being concerned about the occurrence of health problems related to physical workload and in particular low back pain (41.4%). The majority of workers (80%) described their work as difficult. Despite this hardship, the work is recognized at fair value in the



hierarchy than 63% of cases. Finally, 19% of workers are somewhat or not satisfied with their work mainly because of the poor working conditions. Conclusion: The physical workload of nursing staff is mainly linked to operations of carried out without ergonomic handling charges but also to the distances covered by workers outside services especially since the design of the building is unsuited to the done work. Thus, a preventive approach should be proposed based on the results of the rate monitor.

Keywords: Load work, heart rate hospital, care

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Investigation of the Measurements of Respirable Dust Between 1996-2010 in Turkish Hardcoal Enterprises Mines

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Turkish Hardcoal Enterprises routinely keeps on studies of respirable dust measurement in all underground work places since 1978. In this study, the measured respirable dust concentrations in galleries, main gates, coal faces and transportation workplace between 1996 and 2010 were examined. This measurements, were firstly classified in collieries, districts and then main gates, coal faces and transportation workplace. Geometric mean and standard deviations of the classified respirable dust concentration data were determined by using the cumulative frequency method. Moreover the average respirable dust concentration values, between 1996-2000, 2001-2005 and 2006-2010 were compared with each other at three sequence 5-years period. In addition, underground work place were grouped in terms of respirable dust concentration according to their risk levels. The purpose of this study is to shed light on the study of occupational health and safety which is carried out by Turkish Hardcoal Enterprises and also contribute to the precautions for minimizing the number of workers' who exposed to the pneumoconiosis disease.

Keywords: Respirable dust, underground work place, dust concentration, cumulative frequency method

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Work and Mental Health: Explaining Psychological Distress, Depression and Burnout

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The prevention of mental health problems in the workforce is one of the most important challenges of the upcoming years. The psychosocial work environment emerges at one on the leading cause of mental health problems as it could promote the experience of stress in the workplace. However, choosing mental health instruments that best capture mental health and further studying how workplace factors relate to the outcome is still a matter of debate. In this study, we report results obtained from a sample of 410 municipal employees of the

province of Quebec (Canada). Mental health was measured with three instruments: The General Health Questionnaire short-form 12 items (GHQ-12), the Beck Depression inventory (BDI-21) 21 items, and the three component of the Maslach Burnout Inventory 16 items general survey (MBI-16). Karasek's Job Content Questionnaire (JCQ) was used to measure skill utilisation, decision authority, psychological demands and social support from colleagues and supervisor. Work schedule and the number of working hours were also used in the analysis. Correlation analysis reveals small to moderate positive associations between mental health instruments. Further analyses show stronger associations between the three components of MBI-16 and workplace factors. In separate regression analysis adjusting for sex and age, JQC, work schedule and the number of working explained 9% of the variance in the GHQ-12, 20% in the BDI-21 and 22%-37% of the three of the MBI-16 components. Emotional exhaustion was best predicted. Overall, these results suggest that work may contribute differently on workers mental health depending on the instrument used to evaluate what is going wrong in the worker' psyche. If workplaces turn out to be a target for interventions, choosing one of the workers mental health screening instruments must be carefully evaluated and tested.

Keywords: Mental health, stress, workplace, measurement

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The Contribution of Work and Non-Work Factors to Occupational Injuries: A 14-year Longitudinal Study of Canadian Workers

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This study aimed at evaluating the presence of causal associations between work and non-work stressors on the incidence of occupational injuries, and to specify the mediating role of psychological distress. Data came from Statistic Canada National Population Health Survey (NPHS), which is a biannual multistage survey started in 1994-1995 and representative of the Canadian population. A subsample of 9465 employed individual and aged 18-65 years old is prospectively followed throughout the eight cycles of the NPHS (cycle 1= 1994-1995 to cycle 8=2008-2009). Occupational injuries are measured with an affirmative answer to two questions (Not counting repetitive strain injuries, in the past 12 months, were you injured? Was this a work-related injury?). Psychological distress was measured using Kesler's K-6 scale. Occupations are measured using Statistic Canada Standard occupational classification (4 digits). Work stressors include aspects of the psychosocial work environment (i.e. physical and psychological demands, decision latitude, rewards, social support for colleague and supervisor), and the work contract (i.e. hours worked, rotating shifts). Non-work factors pertain to marital and children strains, and social support from the network outside the workplace. Discrete-time multilevel survival regression models are performed to evaluate the contribution of work and non-factors, as well as the mediating role of psychological distress, controlling for gender and age. The results that will be presented provide crucial insights as to the specific role of occupations as an objective risk factor to the incidence of occupational injuries. Moreover, they will add critical information as to the psychosocial pathways implicated in the production of occupational injuries, that is those implicated by work and non work stress exposure, as well as workers' antecedent mental health conditions as concomitant risk factors to occupational injuries.



Keywords: Injuries, occupations, psychosocial factors, mental health

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Gender Medicine and Occupational Health: A New Perspective in the Risk Assessment

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"To belong to the male or female is one of the major determinants of human health" with this sentence Eero Kajantie, a Finnish epidemiologist, explained in a simple yet comprehensive, the need for traditional medicine in a variable so far not considered, such as gender difference. In fact, most studies have described the human diseases relies almost exclusively on case studies of one kind, with a prevalence of attention to the man. It 'very important to realize however, that the occurrence of diseases, their evolution, treatment and prevention are very different in the two genders and that preventive action, clinical and therapeutic can not fail to take into account this aspect. That's why the birth and the necessity of gender medicine. Gender Medicine is a multidisciplinary science that studies the influence of sex and gender on the physiology, pathophysiology and clinical of all diseases in order to reach treatment decisions based on evidence both in man and the woman, and aims to assess the health as a state of complete physical mental and social, involving over all medical specialties including the humanities such as psychology, sociology, etc.. The aim of "Gender medicine" is: • describe the anatomical and physiological differences at the level of all organs and systems in men and women; • identify differences in the pathophysiology of disease; • describe the clinical manifestations may be different in the two sexes; • evaluate the effectiveness of diagnostic and therapeutic and preventive measures; • develop research to transfer the results in the workplace particularly for the risk assessment. The validity and necessity of this new science, is confirmed with the enactment of Legislative Decree no. 81/2008, where the approach to the gender is becoming mandatory for all those who work in safety and prevention in the workplace.

Keywords: Gender medicine, risk assessment

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Mesothelioma Surveillance as a Tool to Prevent Asbestos Related Diseases

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The awareness of asbestos-related diseases (ARDs) increase together with the spreading asbestos uses, urge systematic monitoring and measures to contrast the risk from asbestos exposure. An approach for the management of ARDs is here recommended, following the Italian experience of malignant mesothelioma surveillance that took place in 1993 by means of a National Mesothelioma Register (ReNaM), with the aim of estimating mesothelioma



incidence in Italy, investigating occurrences of asbestos exposure, identifying sources of asbestos contamination and promoting research. The Register reports 9,544 mesothelioma cases between 1993 and 2004, with modalities of exposure to asbestos investigated for 7,044 of them. The standardised National incidence rates for pleural mesothelioma in 2004 are 3.49 (cases per 100,000 inhabitants) for men and 1.25 for women. Asbestos exposures are occupational in 74.1% of subjects, household (by living with someone occupationally exposed) in 3.8%, environmental in 5.4% and caused by leisure activities in 1.6%. The analysis of occupational exposures by industrial sector has evidenced a decreasing trend for those traditionally "at risk" (asbestos-cement industry, shipbuilding and repair, railway carriages maintenance) and an increasing trend for the building construction sector. The territorial organization of the Register and the National Guidelines (including standardised methods of cases collection, diagnostic criteria, standardised questionnaire for retrieving occupational and residential histories and lifestyle habits, and catalogue of economic sectors with asbestos exposure) are key elements in the ARDs surveillance system. Specific indicators for analytical studies of ARDs could be estimated (incidence, mortality, latency, survival), as well as the distribution of ARDs risks by occupations, economic sectors and non-occupational circumstances. Predictions of ARDs epidemics are strongly recommended to implement population-based surveillance programs. The systematic surveillance of mesothelioma cases in Italy has identified a large number of unexpected sources of asbestos exposure, some of which are still extent, representing a fundamental tool for prevention.

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The Factors of Risk and Psychological Impact of Medical Error in the Intensive Care Units

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The safety of the care has become a public health priority in the industrialized countries. In France, 120.000 to 190.000 serious undesirable events occurring during the hospitalization could be avoid each year (Michel et al., 2005). The intensive care units belong to the high-risk services of occurred of undesirable events, and that for various reasons: The importance in quantity and quality of the activities carried out; the complexity of the diagnostic and therapeutic procedures carried out; the precarious statute of the in-patients. Facing the medical error, the patients are the first victims, but the medical staff are the secondary victims and many of them don't get through psychologically. On the basis of the professional workers life experience, we propose to identify the factors of risk of a medical error in the intensive care units, to study its psychological impact on the professionals and finally to identify the strategies of adjustment in bond with the medical error. Two medical intensive care units are concerned with this study, recording 200 professional workers: The medical staff, the paramedical staff and the students, involved in the reanimation cares. Our research device involves a qualitative study based on the clinical consultation in order to understand the professional workers life experience facing the error and the risk of the error, to identify the factors of vulnerability and defensive strategies, and a quantitative study of the risk of the error in the service (Questionnaire "measure of the safety of the care's culture in the hospital", Occeci et al., 2010) of burnout (MBI) and strategies of coping (CISS). We will



expose the first results and we will wonder about the prevention axis to set up in order to prevent the risk of the error in the intensive care units.

Keywords: Medical error, stress, burnout, psychosocial risks, strategy of coping

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Economic Analysis of Safety Risks in Construction

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The objective of this study revolves around the analysis of the safety risks involved with one construction project, and the respective economic effects of risk prevention and safety management. As a result of the co-ordination of systems, and harmonising of work between the Project Leader, Safety Co-ordinator and Contractor, an adequate strategy was developed for the safety of the project a Big Dam in the North of Portugal. The Big Dam in the North of Portugal is located nearby the confluence with the river Douro, basin, with a storage strategic role added to the electricity generation. It comprises two storage-pumped plants equipped with reversible units. The construction volume covers around 700.000 m³ of concrete, 600.000 m³ of excavation and an installed power of 170 MW. These Dam presents a strategic value, once, it allow water supply reserves for domestic and industrial use and the biggest reserve of water in Portugal, and help to improve flow modulation control. The safety risk evaluation on construction is carried out in simulated form, and task by task, introduced into the work programme. This gives a history of risk evaluation over the course of the project. The simulation allows peaks of risk to be identified, which will then lead to additional proposals of prevention measures. These prevention measures will serve to reduce risk and consequently lead to a curve on the risk chart. They consist not only of on-site measures, but also of the integrated implementation of working safety policies. We should be aware that risk can be reduced, but is difficult to eliminate altogether. The implementation of prevention systems and working safety policies has its own cost, but what we intend to prove, by attributing costs to risks, is that safety has lower costs than a lack of safety.

Keywords: Construction, economic analysis, Portugal

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Ventilation for Occupational Health and Safety

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Humanbeings spend approximately 90% of their time indoors. Therefore, it is important to look at sources within the building that may emit particulates, gases and fumes harmful to health for long periods of time. More studies need to be done in the area before conclusions may be made since a great of uncertainty remains regarding the concentrations and length of exposure required to produce adverse health effects from exposure to indoor air pollutants.

Improving indoor air quality in the work place with respect to the occupational health and safety is very important. Poor indoor air quality (IAQ) has been tied to symptoms like headaches, fatigue, trouble concentrating, and irritation of the eyes, nose, throat and lungs. And also poor indoor air quality increase in downtime, decrease motivation and decrease in efficiency of the working output. All in all, this is a collective study that dwells on the effects of ventilation on occupational health and safety. In this scope; the aim of this research to suggest a ventilation system for working places that doesn't have a ventilation system in an engineering manner.

Keywords: Ventilation, indoor air quality, industry ventilation, thermal comfort

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How to Improve HSE Sensitivity in Small Enterprises Work Places?

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Employers are responsible for providing a safe and healthful workplace for their employees but employers not able to do so if employees not fully cooperate in this issue. In spite of setting and enforcing suitable HSE standards in work places, there are still some problems in achieving the HSE goals in small enterprises. Finding the methods to encourage workers working in small enterprises are issues which not solved completely yet and any effort in the path is worth to survey. In the paper authors try to elaborate some simple practices which are useful to enhance safety and health in small enterprises. This include methods which derived to: Incomes are protected, family lives are not hampered by injury, reduced medical expenditures, lower workers' compensation insurance costs, fewer faulty products, increased productivity, better use of human resources. In the process we should identify some items such as: • The number of employees in your workplace in details of any employees working for sub contractors; • Finding on family culture and his/her view about HSE issues; • Details of how many injuries and accidents have occurred in the past year in a workplace; • What other parts have members and safety representatives; Employers should know that managing health and safety in work places is little different from managing any other aspect of your business. You need to do a risk assessment to find out about the risks in your workplace, put sensible measures in place to control them, and make sure they stay controlled. In this regard we should find the decent way which can more efficient on HSE issues in small enterprises. In order to find suitable way to help workers in small enterprises we have to find their family culture first and then try to improve the safety behavior on their job.

Keywords: Small enterprises, HSE culture, employer, employee

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Occupational Health Training at Public Health Departments of Medical Faculties

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Introduction: Occupational health, as a discipline consisting of medical and technical dimensions, is a substantial component of medical education. It is crucial that all medical students receive education on occupational health issues, since it is mostly non-occupational health physicians, that diagnose and treat occupation-related health problems. In Turkey, occupational health education (OHE) in medical faculties are mainly carried out by Public Health Departments. In this study, it was aimed to assess undergraduate and graduate OHE in Public Health Departments. **Method:** Data of the study was collected in May, 2009 through an online questionnaire on OHE, which were sent by e-mail to 42 Public Health Departments. Online reminders were sent to those departments with non-response. Overall, 25 out of 42 Departments (59.5%) have responded to the survey. Descriptive statistics were used in data analysis. **Results:** The survey revealed all Public Health Departments to have an undergraduate OHE. Number of academic years, in which OHE was delivered throughout the six years of medical education, was one year in nine Departments, two years in ten Departments, three years in four Departments and four years in one Department. Mean value for the total education time was 8.1 hours (min-max. value: 1-16 hours). Most of the courses were carried out as class lectures or small group work. Practical sessions were conducted in 11 Departments. Out of those, workplace visits were paid once in six Departments and twice in two Departments. One Department responded as to have a workplace visit at the third grade and 1-week workplace internship at the sixth grade. In another Department, sixth year students were found to work in “delivery of primary health care services in farms”. Students in one Department were found to visit a hospital specialized in occupational health. 16 Departments out of 25 responded as to cover occupational health topics in their public health residency training programmes. Two Departments were found to have a masters programme, whereas three Departments were found to have a PhD programme in occupational health.

Keywords: Occupational health education, public medical faculties

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Implementation Integrity of OHS Services

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In our country, the legal regulations related to occupational health and safety are designed to brought responsibilities to the employers which is in line with the other countries in the world. With that approach; to ensure health and safety in the workplaces taking all necessary measures and providing all needed tools and equipments are given to the employers as a liability. In meeting his obligation in this regard, it is sure that occupational safety expert and occupational physician will be the ultimate support to the employers.

In the date 27 November 2010 three Implementing Regulations were published and entered in to force to configure this filed. With these three implementing regulations; integrity has been provided in the field of occupational health and safety service suppliers and service procurement in the workplaces. Also parallel to the legislations, with a new database for controlling these service procurement and people working in service suppliers, the efficiency of both individuals and institutions as well as beneficiaries of services are started to monitor effectively.

Multi-issue like training, certification and authorizations of occupational physicians and occupational safety experts, who can be named as occupational health and safety professionals, were covered and regulated with these legislations and also working time and manner of these professionals are laid out in details.

With the application of these new regulations, which bring significant improvements in terms of National application, improvements in occupational health and safety conditions in our country can easily be followed and occupational health and safety level of our country will be raised.

Keywords: Occupational health and safety, OHS services, legislation, application integrity

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Risk Assessment Implementation on İzmir Aliğa Ship Recycling Region

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Ship recycling processes which has implementation in a few countries around the world is assessed so risky business from the occupational health and safety (OHS) point of view. Turkey is one of expert countries at this sector and İzmir Aliğa is well-known about ship recycling. According to occupational accidents numbers, metal industry that covers ship dismantling. has higher numbers and because of this, the sector needs a special treatment in the meaning of OHS.

The purpose of this study is analyzing the existing situation of activities in ship dismantling and observing the positive and negative variations in working conditions. For these purposes, two workplaces were selected as pilot workplace, and “ELMERİ” method which is specially developed for metal sector was implemented. Both in department and in whole workplace, OHS scores were defined by dividing working areas via ELMERİ that gives possibility to detailed examination.

After analyzing the existing situation, weaknesses and necessary measures were identified by “3T” Risk assessment method and these conclusions were reported to selected SMEs. Then, duration of 4 months was given to these SMEs for following technical assistances for OHS measures. Selected SMEs were visited after this duration, both in department and in whole workplace OHS scores were redefined.

At our study, all activities which were implemented in selected SMEs for improving OHS and technical methods that were used for these activities are defined in details. The effects of analyzing the existing situation before and after risk assessment are tested. Comparing by both their own departments and each others, the conclusions are verified.

Keywords: Occupational health and safety, ship recycling, risk assessment, Aliğa

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Design the Theoretical Health Spatial Pattern for Villagers Ali Shahdadi Khaieh Askari, Abdolreza Roknaldin Eftekhari, Mehdi pour Taheri

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Human health and sustainable development are inextricably linked. The United Nations program of action on sustainable development - comprises a framework for action for sustainable development that focuses on economic, environmental, socio demographic and health factors. With emphasis on the lack of such a pattern for health planning, this research will design the Health Spatial Pattern of the Villagers. Methods in this research are descriptive and analytical. Gathering of data will do with quantitative and qualitative methods such as focus group, survey and ect. The exploring model of this research has three major stages: 1-Exploring the determinant factors of villagers health 2-Select and weight the important indexes 3-Design the Theoretical Health Spatial Pattern for Villagers.

Keywords: Design-theoretical health spatial pattern-villagers

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The Interference of Work Conditions in the High Rate of Accidentes at Work in a Metal Graphic Company

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This study aimed to analyze the relationship between the high rate of accidents at work in a company metal graphic and the working conditions through ergonomic work analysis. The information for the analyzis was collected in different ways: Initially an observation research at this company was conducted in oeder to map the production process and how the workers develop and perform their tasks and deily activities. The group also interviewed workers, the human resource manager and the work safety responsible, and also considered information from internal papers and previous studies related to occupational accidents and diseades. By analyzing the operator's activity in the can seamer, where most of the accidents happened, it was observed that he performs three activities simultaneously: Feeds the machine, cheks if the component was placed correctly in the feeding device and performs quality control of the cans from the previous stage, what compromises his task that should only be feeding the machine. The requirement to do several tasks simultaneously increases the risk of accidents and incidents, because the operator's attention is distributed to different focuses. This given machine presented has low confidence versus the expected result, meaning that the components come out easily from the feeding system, and when entering the machine incorrectly they are trapped in the machine causing delays and increasing the risk of accidents as he will need to take out the component manually. As a result, the machine kilter requires constant attention from the operator durind the process. Through program Actogram Kronos the video recordings were analysed and it was possible to gather enough material to prove the proposed hipotesys and conclude that the high rates of accidnets involving this company is directly related to inadequate working conditions and that transformations suggested by ergonomic analysis should be taken to reduce the accidents.

Keywords: Ergonomic work analysis, accidents at work, working conditions



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Awareness among Barbers about Blood Borne Diseases

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The barbers may be a potential source of infectious diseases' transmission. The objective of this study is to determine the effect of health education on the knowledge of blood borne diseases. In this study, 1284 barbers in Izmir were given an occupational safety seminar. The mean age of individuals was 29.44 ± 10.28 (12 – 77). Of the participants 59.9 % were men; the education level was elementary school in 40.8 %. The mean length of time they work was 12.88 ± 9.28 years (1 – 55). Of the subjects, 58.4 % were reported that they were working in women hairdressers, 31.5 % in beauty centers and 10.1 % in barbers. 56.1 % of the participants were employers. Their pre-and-post-training knowledge levels are significantly different. They were less aware of their occupational risk for hepatitis in the beginning of the training. The awareness about health hazards among barbers is vital in prevention and control of bloodborne diseases.

Keywords: Barber, education, infectious diseases

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Hearing Impairment Caused by the Industrial Noise

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Introduction: Textile industry represents an important field of activity where the workers are exposed to various occupational hazards, such as elevated levels of noise. Chronic acoustic trauma, typical of industrial noise is the most common cause of hearing impairment. Objective: Examination of the effect of noise in the workplace on the occurrence of hearing impairment. Methods of work: Epidemiological-retrospective and partly prospective. The study was conducted in a textile factory in Bijelo Polje, for a period of 10 years. Our study group included 1665 workers. Work results: The respondents were of average age of 47.5 years, men representing 54% and women 46% of respondents, while the average exposure to increased levels of noise is 24.2 years. The noise levels of weaving preparation and weaving workers is 108dB, spinning 92dB, painters 90dB and auxiliary drive 86dB. 44% of respondents have hearing impairment. Respondents with hearing impairment and greater exposure to noise are more frequently male, unskilled workers with shift working hours, alcohol consumers and with subjective hearing disability. Significantly larger number of respondents with hearing impairment belongs to the group of respondents exposed to noise, compared to non-exposed (48%:38%). Hearing impairments according to F.S. to 29% has 92% of workers, from 30-50% has 5.9% works and from 51-100% has 1.7% workers. After 10 years of exposure to elevated noise levels, number of workers with hearing loss is increased by 4.5 times. Analysis of predictors of death of our respondents showed great importance of noise exposure. Conclusion: Results demonstrate that the workplace noise



represents important risk factor for hearing impairment, where preventive measures are of great importance.

Keywords: Hearing impairment, workplace, noise, prevention, occupational hazard

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Occupational Injury in Turkey: 1988 Through 2008

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Work-related fatalities are a significant public health problem in Turkey. During 1988-2008, total of 26.521 insured workers were fatal injured at work in Turkey. Many more were seriously injured, some with life-long disabilities. An average of more than 24 workers die each week in 1988-2008.

The objective of this study was to estimate the death rates from occupational injuries in Turkey between 1988 - 2008.

Injury data were obtained from The social Insurance Institution and ILO.

According to the national data for 1988 through 2008, the number of insured workers increased by 2.6 fold. The occupational deaths rate in Turkey was declined by %77, from 43.2 per 100.000 insured workers in 1988 to 9.8 in 2008. The highest fatality rate was in 1992, 43.9 per 100.000 insured workers. These values are 2-fold of USA, Poland, Spain, England and 5-fold of Norway and Sweden. Occupational injury and illness incidence was decreased from 45,21 in 1988 to 8,35 in 2008 per 1000 insured workers. In 1988, 8.55 per thousand of injuries were resulted in death and in 2008, it was increased to 11.78 per thousand. The highest death ratio in 2006 was 20.11 per thousand injury and illness.

The construction sector had the highest total fatality cases in 1988 %30,8 to %34,3 in 2008. During 1988-2008, the industry with highest fatality rates were mining and quarrying, transport, storage and communication and construction. Fatal injuries rates of mining and Quarrying declined from 332,3 per 100000 insured workers in 1988 to 57 in 2008.

A total of 43 million days were lost by cases of temporary in capacity during 1988-2008. Manufacturing days lost by cases of temporary incapacity were decreased more than 50% in intersectoral share in 2008 for the first time. The other interesting finding was that the activities not adequately defined was increased to 15.1% for the first time in 2008.

Fatal injuries were more than 90% in men. During 1988-2008, The statistics of the Turkish Social Security Institution demonstrate that the rate of occupational injury and rates of occupational death has decreased rapidly, but death ratios have not declined at the expected rate. It was thought that the registrations of injury and illness were inadequate.

Keywords: Occupational injuries, occupational accident, work-day lost

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Safety Approach in Excavation Works

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Excavations made in the construction sector is one of the most dangerous and serious works. Excavation will vary between each other according to its project details, changing environmental conditions and applied techniques. Therefore, workers with a high level of experience and knowledge, occupational safety controls become more important. And, due to inappropriate excavation work, heavy work accident becomes. As is known, supervisors and managers in the workplace to prevent accidents and occupational diseases must be adhered directly responsible for the legal and technical regulations. Before starting the excavation; environmental conditions, excavated soil characteristics, related technical projects or drawings should be reviewed. And a realistic risk analysis must be done. So, environmental conditions, soil characteristics, related technical projects or drawings should be reviewed before starting the excavation. And a realistic risk analysis must be done.

All conditions which will affect the job safety must be reviewed during the excavation. Permission should be established systematics, and a toolbox talk should be organized with the participation of employees who will work and responsible managers. In this regard, work permit is applied since 2007 with "Infrastructure Work Procedure" and "Infrastructure Work Permit Form" in İsdemir. Preventing the work accidents and damages is aimed by this procedure in İsdemir property area. By analyzing the environmental conditions and the job, it is essential to prevent possible accidents and damages that will affect the business and to show proactive behaviour. Location and boundaries of the excavation, slope / shoring systems, the depth of excavation, construction equipment and operators to work, the ground type, excavation time, atmospheric conditions, the other sub-structures within the limits of the excavation, workers and responsible managers, the traffic flow in and out of the excavation, adjacent structures and other related safety issues with the work are analyzed by this form and the procedure. And the excavation work is started with the signing the form as mutual.

With this method, work permit form was prepared 225 times in İsdemir since 2007. In this way, only one work accident lived.

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Quality of Laboral Life in Workers Health

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The Quality of Working Life is a complex phenomenon related to work activity and economically productive, integrated with objective and subjective elements, is multidimensional and relates not only to the worker's health, but other aspects of work such as motivation. The quality of life of workers, little is known in Mexico, much less programs exist for improvement. For entrepreneurs and leaders of institutions, the concept still does not appear in the language of your organization and labor law this area is still empty. Objective: This study aims to identify the most sensitive and significant dimensions, providing a profile of the CVL of this group of workers, in keeping with the international proposal of the

Program in Occupational Health Millennium "(OIT 2009). Material and Methods: A cross-sectional analytical study. Target population: 10 872, random sample of 372 workers representing the operational branches: Medical, paramedical and administrative. Were used a questionnaire of socio-occupational composed of 12 items and Instrument for measuring the quality of work life-GOHISALO CVT. Results: Group aged between 25-55 years, 45% training licensure. 26% have two jobs and 10% reported absenteeism. Showing workers dissatisfied with work processes, low motivation, low job satisfaction and security. Without opportunities for career ladder advancement. Come unfair remuneration. Reported health problems related to work, have poor time management and labor free, no rest or recreation schedule that affect their health. Conclusions: "This study represents the first attempt to diagnose the satisfaction with the quality of working life in public health workers in Mexico. Perceptions of these, labor is a reality that could affect the goals of the institution, the quality of its services to users and the possibility of demonstrations of discontent in the near future unless they detect the causes of dissatisfaction and are progressively resolved through an intervention program.

Keywords: Quality, workers health, Mexico

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Influence of Shift Work and Night Shifts in the Onset of the Burnout Syndrome in Doctors and Nurses

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Today's society that operates 24 hours a day, requires organizations and thus subject their employees to work schedules that go against the natural rhythm of life. Hours per shift and on-call outside normal hours a day, is an issue that becomes important, since many of the implications that this results in physical and mental health of those who realizan. Objective: Analyze the scientific evidence the influence of shift work and night shifts in the onset of the burnout syndrome among physicians and nurses. Method: Several databases have been analyzed (Desc, Medline, Pubmed, etc.), with specific descriptors as inclusion criteria was obtained in the literature. Results: We found 40 items. In 16 (40%) has been studied nurses, 24 (60%) doctors, mainly doctors. There is sufficient evidence for the influence of shift work and night shifts in the onset of the burnout syndrome in doctors and nurses. Conclusion: The identification of psychosocial risk factors that may be exposed to allow doctors to take preventive measures that can be used to improve health and quality of life of this professional group.

Keywords: Shift work, night work, hour night, syndrome burnout, sleep disorders

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Systemic Sclerosis Due to Occupational Solvent Exposure; a Case Report

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Introduction: Systemic sclerosis (SSc) is an uncommon autoimmune disorder of the connective tissue, discriminated by skin fibrosis, vascular dysfunction and gastrointestinal tract, lungs and kidneys involvement. Its mechanism is apparently multifactorial such as intrinsic and extrinsic factors. Occupational agents may play essential and developing role. Occupational exposure to solvents has been reported to increase the risk of SSc. We report a case of SSc in a patient working in the chemical manufacture industry where he was exposed to solvents. **Case presentation:** A 49-years old male patient had worked in chemical manufactory appointed to a duty where he was deal with several organic solvents derived from benzene. He was referred for Reynolds phenomenon. The patient progressed to lung involvement as dyspnea. Clinical and laboratory findings were suggestive of SSc. An environmental chemical mixtures investigation was performed within the factory, supplemented by a quantitative meteorological assessment to estimate the average level of exposure to different solvents. The levels of dimethylbenzene, xylene, trimethylbenzene and naphthalene were found to be several times higher than the norm at the place. The patient exposure was cut off and he was treated for SSc hence, the therapeutic response was favorable. **Conclusion:** Considering cases of SSc in individuals occupationally exposed to solvents suggests that environmental agents apparently have a role in the pathophysiology of this disease. Benzene and its derivates have been incriminated previously in the literature as a cause of this illness. In fact, the excitation of SSc by solvents is biologically acceptable, and it could include an immunological process, maybe through alteration of cellular proteins by solvents. The aim is to conclude occupational SSc due to prolonged exposure to Benzene derivates widely used in industry and implicated in the etiology of our patient's disease, and we recommend a possible preventive scheme and the worker must be observing closely.

Keywords: Systemic sclerosis, solvents; benzene derivates

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Indoor Aerosols HPLC Analysis

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Workplace atmosphere is an important distribution of various pollutants, resulting from the handled products and concerned processes. The fate of these pollutants in the air (transport, deposition, degradation), is determined by their distribution between atmospheric particles and gas phase (Lohmann et al. 1998). Harmfulness of particles in workplace atmosphere and the disease hazards that they present are related to their chemical nature and size. The production of one kilogram rigid polyurethane foam releases nearly 7362 milligrams of solid particles in the air. In this work, we used the personal aerosol sampler CIP10-R (Courbon et al. 1988) and filters for evaluation of respirable (Gorner et al. 1996) and total fractions of particles during clean of casts after injection of the polyurethane foam (PU). HPLC was used for detection of MDI. Obtained Results reveal that MDI in alveolar fraction prevail the total collected particles, this can be allotted to the process used for cleaning and to the quality of formulated foam. Lohmann, R., Jones, K.C. (1998). Dioxins and furans in air and deposition: a review of levels, behaviour and processes. *Science of the Total Environment* 219, 53-81. Courbon P., Wrobel R., Fabries J.F. (1988). A new individual respirable dust sampler: the Cip 10. *Annals of Occupational Hygiene*, 32pp. 129 -143. Gorner P., Fabries J.F. (1996).



Industrial aerosol measurement according to the new sampling convention. Occupational Hygiene, 3, pp 361 –376

Keywords: Workplace atmosphere, particles, polyurethane

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Calls for Integrating Environmental and Occupational Medicine into Medical School Curricula: Challenges and Opportunities for Iranian Medical Education

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Introduction In most countries General Practitioners (GPs) are the primary care physicians who are the first level of the screening, diagnosis, and treatment. The curriculum set forth in the medical schools barely touches public health issues regarding environmental and occupational diseases. In our case study, we study the status of occupational and environmental health in Iran to illustrate the necessity of GP's training for environmental and occupational diseases. **Discussion** Iran economy is dominated by oil and natural gas production and export. Data suggest that the damage caused by occupational accidents rose from \$4.5 million in 1991 to \$42.5 million in 2000. On the other hand, air pollution poses a major urban environmental concern. Per World Bank five million tons pollutants release into the atmosphere by motor vehicles annually .Water pollution problem has also posed a threat to the Caspian Sea and the surrounding areas. It is estimated that 20,000 GPs are working in Iran's health care system. The majority of the GPs are working in the country's efficient primary health care network which functions based on referral system and is distributed in all parts of the country. However, beside the internship period in medical school which will introduce future physicians to the issue of environmental and occupational health services, the percentage of the occupational and environmental medicine training is insignificant. **Conclusion** Integration of occupational and environmental medicine subjects into medical school curriculum could create expedient capacity building. Medical school curriculum needs to be amended in order to fulfill the need of obtaining knowledge and skills to deal effectively with environmental and occupational health issues.

Keywords: Medical school curriculum, general practitioners, primary health care, occupational and environmental diseases

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Occupational Health Hazards in Economy of the Republic of Croatia

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Purpose: Identification of occupational health hazards is crucial for successful health protection at work. The survey of working conditions in Croatia aims to provide an overview of occupational hazards and to identify major working factors affecting the workers' health at



national level. Methods: Occupational health hazards survey was carried out on a representative sample of working population of the Republic of Croatia consisting of 12% of all employed workers, evenly allocated in all economic activities. The survey was based on the questionnaire containing detailed classification of occupational hazards. The questionnaire was sent to 3,930 companies, i.e. 1,500 large companies (LC) employing more than 50 employees and 2,430 small enterprises (SE) employing less than 50 employees. The response rate for LC was 42% and for SE 7%. Findings: Each Croatian worker is averagely exposed to 4.5 occupational hazards. The most heavily exposed to hazardous working conditions are workers in fishing (7.0 hazards per worker), mining and quarrying (6.9), construction (5.7) and manufacturing (5.0). Croatian working population is exposed to psychosocial and organizational factors (82.8% of workers), heavy loads and static posture (80.4%), mechanical hazards (69.5%), falling and crashing (58.5%), climate conditions (33.4%), chemicals (25.0%), electric hazards (22.9%) and noise (21.7%). Exposures to occupational hazards are significantly less reported in SE than in LC, presumably due to the lack of interest and knowledge of small employers in health and safety issues. Discussion and conclusion: The survey results show high frequency of risks resulting from »new« technologies (such as psychosocial and organizational factors) and at the same time the presence of hazards produced by »old« technologies (such as mechanical hazards). The survey findings can be the basis for policy planning of work-related matters and implementation of the occupational health and safety measures for protection of worker's health at the national level.

Keywords: Occupational hazards survey, economic activities, health and safety at work

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Social Inequality and Health: The Impact of Social Inequality and Working Conditions in the Workers Health

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Evidence illuminate links between social circumstances and health of individuals both in developed and developing countries. The disadvantages with regard to people's health, although they have multiple forms and specificities tend to be concentrated among socially vulnerable groups and have cumulative effects. Low educational influence family decisions about food, body care and disease prevention and tends thus to have a profound impact on health conditions. The occupational experience that requires physical and emotional stress often is associated with reduced expectations and increased stress is closely related to the incidence of cardiovascular diseases. Unemployment as a situation that compromises the access to income, goods and services, and also undermines self-esteem, social interaction and personal identity, has profound effects on health. Social inequality in health should be regarded as differences in health observed among different social subgroups, being multidimensional and influencing the health of individuals from fertilization to death, through generations. Thus takes on contours that pass from the process of distribution of health indices among different population groups to the inequity of access to health services. In turn, the inequity is materialized in unequal access to health services among social strata. The combination of these factors results in worsening of the health of populations made



vulnerable by social and economic conditions, leading to a framework of epidemiological differences and consumption of services among the population. Accompanying the large differences in social and economic development of different regions of the country, the characteristics of workers' health and injuries and work-related diseases show a mixed pattern, featuring a double burden of disease. The combination of traditional and new forms of work organization determine high levels of exposure to chemical and physical hazards, repetitive tasks, excessive use of force postures, exposure to stress and psychosocial factors, causing pain and temporary disability and long term.

Keywords: Social inequality, worker health, and health inequality

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Work Conditions of Brazilian Construction Workers in Massachusetts, USA

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Brazilians are one of the biggest immigrant communities in Massachusetts over the last 25 years. COBWEB Project was an initiative started in 2003, funded by National Institute of Environmental Health Sciences (NIEHS), characterized as a Community-based participatory research project that worked with the Brazilian workers to promote better health and safety conditions in the work environment. The Project happened through partnerships among University (UMASS Lowell), Community Organizations, Health Services and governmental agencies (OSHA; Massachusetts Department of Public Health). This study aimed to describe the work conditions of Brazilian construction workers in Massachusetts and use this information to put the situation in evidence. As part of the project, a survey with 626 workers was conducted. Most of the male Brazilian immigrants in Massachusetts work in the construction industry, specifically residential construction. From the total of interviewees, 163 (26%) were construction workers. The mean age was 32.7 years. Only 5.5% has access to higher education (complete college). Most of them were painters, roofers and carpenters. The mean number of working hours per week was 49.9. About 71% responded that they hadn't received safety training. On the subject of hazards exposure 55.8% said they were exposed to chemicals and toxic substances, 68.1% to dangerous tools, machines and equipment, 57.1% to vibration from hand tools or machinery, 67.5% to lifting heavy objects and uncomfortable and tiring working postures. Only 31.9% received adequate protective clothing and equipment. Most of the construction workers described their health status as good (44.2%) or very good (27.6%) despite the fact that more than 50% of them complained about back pain (59.5%) and muscular pain in arms (57.1%) and legs (60.7%). There is a necessity to know more information about safety and health of minority groups, specifically Brazilians in Massachusetts, to help to promote better occupational and health conditions.

Keywords: Immigrants, Brazilians, work, conditions

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Comparative Health Profile of Two Industrial Sector Workers Assisted by SESI During Occupational Consultations In 2008

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SESI Regional Department of Bahia, in its performance line of articulated services, assists enterprises and employees of Industry in Occupational Hazards Prevention Programs and Occupational Health Surveillance Programs. The Construction Industry (CI) and Food and Beverage Industry (FBI) have a high frequency of assistance in SESI-BA units. This study aims to analyze comparatively the health profile of workers belonging to these two sectors. The data was collected from medical charts of employees of Construction and Food and Beverage Industry attended in occupational consultations during the year of 2008. 15,181 workers were attended in the two selected sectors, 65.7% from the CI and 34.3% from the FBI. Most workers were in the age group of 30-39 years, although there was a higher concentration of workers over 40 in the CI (30.4%) than in the FBI (19.3%). There was a predominance of male workers, even though the inclusion of women was higher in the FBI (22.7%) than in the CI (5.9%). Approximately 6% of workers in each sector reported being hypertensive, although during the measurement, 19.5% of workers in the CI and 14% of workers in the FBI had high blood pressure. Diabetes was reported by 1% of workers of both industrial sectors. The musculoskeletal system showed the highest frequency of abnormalities during physical examination: 66.2% in the CI and 48.3% in the FBI. It is extremely important for SESI to identify the health profile of workers assisted by its services to enable the planning of policies and actions of prevention and assistance directed to problems commonly found in sectors of industry in which the assistance is most frequent. Knowing the similarities and differences in the health profiles of these groups of workers may allow the development of specific interventions for each sector.

Keywords: Medical Surveillance; Occupational Health; Health Profile

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Program of Muscular Reinforcement

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The Physical Preparation Center appeared of a proposal of the Occupational Health Service in assisting the Company Direction request for work conditions improvements in the production line. The mark of this demand was to prevent muscular lesions in the workers and increase their disposition to work. An innovative idea that allowed the company to provoke a cultural and conceptual change in the automobile industry. An increment in the competitiveness because of the improvement in the work's life quality and in the excellence in to make their activities. Besides, also a significant progress in the worker's pride in relation to the company that promoted a great valorization in the mark image. The concept of looking

the worker as a one "Athlete of the Work" and not as an industry operator, it brought a new image to the worker. The explanation of the need to take care of the body, because it is through their best physical and mental condition that he will obtain a better acting in their activities. Certainly, the risk of happening a lesion stays due to the physical demand for the exercise of their activities, as well as it happens with the athletes. This risk can be softened before a recovery service and of appropriate muscular invigoration. Like this, the best prevention form is the increase of their physical training before the exhibition to the risk. With the results obtained on those years of activities, the Physical Preparation Center can enroll that the applied investment in this work already demonstrated to be profitable and quite productive for the company and for the collaborators. Those with the Muscular Reinforcement Program perfected their physical capacities and they reduced the risk of lesions significantly, being still added the contribution in the psychosocial side as the improvement of the motivation and satisfaction and the relationship of the company with their collaborators.

Keywords: Competitiveness, life quality, physical preparation, muscular reinforcement

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First Portuguese Meeting on OSH in Archaeology: Social Partners Role

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It was organized in Portugal, in the month of November 2010, for the first time a seminar on occupational safety and health for archaeological works. The seminar was the result of an urgent need to unite employers, professionals of archaeology and education institutions in a common purpose: To start the discussion of occupational safety and health in Portuguese archaeology, starting, this way, the building of an answer to the needs identified in a study conducted in 2009. Structured in five sessions, the Seminar was, despite the reduced number of participants, clearly positive. The seminar began with a general framework on occupational safety and health and continued during two days with interventions of all social partners with responsibilities in the sector. On other hand, the seminar had a diverse program and gathered a group of technicians from both the field of archeology, as in the field o OSH, having served to create a stronger link between the professionals in these areas and simultaneously was a good starting point for development for more concrete actions in the future. Finally it was stressed the need for close cooperation between all social partners to solve this issue and to improve health and safety conditions in archaeological works conducted in Portugal.

Keywords: Social partners, occupational safety and health, archaeology, Portugal

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Health and Safety in Portuguese Archaeology: Results of 2009

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Concerns about the safety of workers are currently a priority area of work. As the archaeological activity is an occupation of high risk it is fundamental to know what are the conditions of health and safety in which the proceedings are conducted in Portugal. In this sense we analyzed the existing information in an attempt to characterize the sector and applied a set of questionnaires directed to Occupational Safety and Health analysis of the conditions in which archaeological works are performed in Portugal. The presentation of results on health and safety conditions in Portuguese archaeology has revealed a disturbing picture, where 19% of professionals surveyed have been victim of accident at work and 44% of professionals surveyed report that they have witnessed accidents during the course of their work. In an activity where, according to data collected, 85% of the professionals surveyed considers to carry a risk professional activity with high risk associated, where only 31% of professionals surveyed had any type of training in health and safety at work, it is urgent to intervene in legislation field, in training strategies and in cooperation between different actors.

Keywords: Health and safety at work, Portugal, 2009 results

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Improvements in Assembly Lines Based on Ergonomic Assessment Strategies

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Introduction: Musculoskeletal disorders are a major problem at the workplace; the implementation of ergonomic improvements is a need. Objectives: To propose design improvements in an assembly line area of an electric motor assembly company, based on the analysis of rotation strategies and active breaks. Methodology: It was designed an ergonomic intervention study. REBA and OCRA methods were used, and also the document review (morbidity), interviews and observations. Results: There were problems of design jobs. Postural commitment showed medium to high risk in 64% of the seats. Job rotation instrumented in the assembly line studied, proved to be inadequate due to the characteristics of the work. The active breaks program proved to be beneficial in reducing the frequency of musculoskeletal disorders in 75%. It was made proposals of improvements in relation to the work furniture (tables, chairs and footrest) and the space available for work. Regarding the organization of work it was proposed to include new breaks to existing ones. Conclusion: The program for active breaks was well accepted by the workers and these helped to reduce musculoskeletal injuries in them. The strategy of job rotation did not contribute to improving the workers wellness due to the similarities of the tasks and requirements on posts; on the contrary, in several cases increased the risk of musculoskeletal injuries.

Keywords: Intervention, active breaks, job rotation

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The Role of Trade Union in the Elimination of Asbestos-Related Diseases

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In accordance with the article 15 of the Russian Federation constitution, in the Russian labour legislation, international principles and norms are more often implemented in the field of regulating safety at work: Conventions and Recommendations of ILO, ISO standards, etc. Within the framework of the agreement about partnership and cooperation with the European Union came into force since 1997, Russia aspires to compatibility of its legislation with that of the European Union, including occupational safety and medicine. It acquires much more importance in connection with the processes of globalization of the economy and prospects of joining Russia to the World Trade Organization (WTO). At the 60th World Health Assembly, held on 13-23 May 2007, "The global plan of action on workers' health 2008-2017" was adopted. Preventive medicine at enterprises fulfils the tasks of workers' health safety, medical sanitary support of industrial manufacture, diseases prevention and rehabilitation of workers' health condition, ensuring system co-ordinated action of subdivisions in solving problems of safety at work and health of the personnel. The participants of Moscow International conference "Trade unions and chrysotile", the representatives of the trade unions organizations from different parts of the world, having listened the world leading specialists on medical-biological problems of chrysotile, exchanged their experience on ensuring safety working conditions at this industry and came to the unanimous opinion about controlled use of chrysotile. Scientific studies confirm the possibility of decreasing occupational asbestos-related diseases with the help of prevention. The position of trade unions is based on a wide spectrum of the international and Russian scientific studies, confirming the possibility of the controlled use of chrysotile.

Keywords: Trade unions and asbestos-related diseases

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Burnout Syndrome, Working Conditions and Health: A Reality among Public High School Teachers in Brazil

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The objective of the study was to evaluate the occurrence of Burnout Syndrome in 100 teachers of 06 public high schools and its correlation with working condition in a southeast city of Brazil. Characterization of the sample occurred after application of a socio-demographic questionnaire. Evaluation of the working conditions was done by means of an Ergonomic Working Analysis. The presence of Burnout Syndrome was evaluated by means of the Maslach Burnout Inventory. The sample presented the predominance of women, with an average age of 40.4 and the majority married with children. Roughly 50% had less than 10 years of service, and more than half of teachers ministered more than 18 classes per week. Hoarseness after work was principally reported among women, which used many days off for health treatment. Environmental conditions reflect inadequacy in relation to noise, light, humidity and temperature. Presence of pain in the upper limbs was especially high among women. Risk of musculoskeletal disorders in the upper limbs predominated as



moderately important and at the significant level. We also identified an average distance walked by teachers of 1.5 Km and they carry on average 4.2 Kg of school supplies between a class and another. The Burnout Syndrome presented a high score for depersonalization principally among men, but it has association with both sexes. Emotional exhaustion has correlation with noise, with depersonalization and personal fulfillment, in addition to the high number of weekly lessons. It can be concluded that burnout syndrome is present among teachers, principally in terms of depersonalization, deserving the attention of government officials and the schools, as well as the teachers themselves. The environmental, organizational and technological conditions must be accompanied to maintain adequate working conditions together with the teachers, with attention being given to physical and mental health in the working environment.

Keywords: Burnout syndrome, working conditions, teachers

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Occupational Stress, Working Conditions and Nutritional Status of Military Police Officers

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This study aimed to investigate the relationship between stress, working conditions and the nutritional status of 53 military police officers in a Southeast city of Brazil. In order to evaluate the symptomatology and the stress phase, the Inventory of Stress Symptoms Lipp for Adults – ISSL (Lipp 2000) was utilized. The assessment of the working conditions was performed by means of socio-demographic questionnaire, direct observation and interviews. The nutritional and health conditions were assessed through anthropometric measures, biochemical tests, blood pressure measurements and cardiovascular disease risk calculator. The sample is of the male gender (92.5%), aging below 40 years old (73.6%), married (60.4%) having 2 children (34.0%) and high school concluded (64.2%). From these, 35.8% showed stress and 68.4% were in the resistance phase, with 31.6% almost burned out. There was no predominance of symptoms of a specific area, given that 47.4% showed physical symptoms and 47.4%, psychological symptoms. The population shows overweight (64.1%), but no risk of cardiovascular diseases (67.9%). The measurement of the waist showed excessive body fat or high percentage of fat (72.0%). 73.6% showed normal blood pressure, hypoglycemia (87.5%), normal levels of cholesterol (66.7%) and normal levels of triglycerides (80.0%). Through the calculation of Chi-square we could find positive association between the BMI and tiredness ($P = 0.0188$), between the BMI and irritation ($P = 0.0005$) and the BMI and the appearance of nervous system problems or emotional problems ($P = 0.0304$), indicating that these statuses or problems could be related to work. We can conclude then, that stress is present among the police, especially soldiers and even more among corporals. There is, characteristically, overweight, excessive body fat and high percentage of fat, although with no risk of cardiovascular diseases. No case of critical stress was found, and the stress phases identified are still susceptible to intervention.

Keywords: Stress, working conditions, military police officers, nutritional status

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Mechanical Construction Safety Management and Operation of Equipment

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Construction machinery and equipment company, is the material basis for the completion of construction tasks. Construction machinery construction safety management in the construction business operations occupy an important position. Modern construction machinery equipment allocation management is also a higher demand. The author based on their years of experience, analysis of the safety management of construction machinery and equipment, and safety management because the reform measures, then the deployment of construction machinery also were studied. Construction equipment cover a variety of machinery such as hydraulic excavators, wheel loaders, backhoe loaders, bull dozers, dump trucks, tippers, graders, pavers, asphalt drum/wet mix plants, breakers, vibratory compactors, cranes, fork lifts, dozers, off-highway dumpers (20T to 170T), drills, scrapers, motor graders, rope shovels etc. They perform a variety of functions like preparation of ground, excavation, haulage of material, dumping/laying in specified manner, material handling, road construction etc. With a wide production capacity base, India is perhaps the only developing country, which is totally self-reliant in such highly sophisticated equipment. With the rapid development of India construction industry, especially in urban residential areas increased, so mechanized construction in construction projects play an increasingly important role. But along with the development of construction, rush speed, ensuring quality, to benefit, the contradictions among the increasingly prominent, and this made on the construction of new requirements. That is, to solve the fast, efficient and high quality of the construction works the problem. Traditional human, simple mechanical construction construction methods were not suited to the requirements of modern building construction only for the use of mechanization. Therefore, security management, and construction equipment selection and configuration are very important, very urgent.

Keywords: Construction, machinery, safety

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Articulating Ergonomics and Engineering Design to Develop Healthy and Safe Work Environments

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The main purpose of this paper is to emphasize the need for integration between ergonomics and engineering design to develop healthy and safe work environments and some needs to promote this articulation. In industrial contexts, ergonomics methods are traditionally applied for evaluating the risks of a specific workplace or task. However, this approach may become narrow, as the main objective of ergonomics is to optimize human well-being and to promote the overall performance of a system. More and more often, ergonomics approach should be integrated in the engineering design process. Through this, it can contribute to the conception of healthier and safer work environments, where needs, skills and limitations of

people can be considered in the work designing process. In the traditional engineering design, ergonomics is placed as one of the multiple criteria established for designing the production process or facilities. In a multiple constraint environment, it can easily lose its strength on the decision making process, as it will compete with criteria that are legally or social imposed. Therefore, ergonomics are frequently viewed by designers as an extra-cost or time loss. To be able to contribute to the design of healthier and safer work environments, ergonomics should be integrated and articulated with the engineering design process. This articulation should be maintained in all of the development stages, considering that consequent changes and decisions are made during the design process. With this purpose, ergonomists should be part of the design teams and understand the context in which they work. Should also identify and conciliate the workers' needs and consider the technical requirements. For this, should apply compatible methods according to the specific goals of the project and evaluate the feasibility of the proposals according to the current constraints.

Keywords: Articulation, ergonomics, engineering design

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EvaHair - Assessment of Performance of Skin Protective Measures for Hairdressers in Europe

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Background: Occupational skin diseases are the most common health problems in hairdressing. Currently, in many EU countries, there is no information available concerning the effective implementation of skin protection measures for hairdressers. However, in Germany effective prevention measures for hairdressers have been put in place over the past years, which have significantly reduced the prevalence of skin diseases in the hairdressing trade.. Yet, to be able to identify standards for the prevention of occupational skin diseases, it is important to assess the current situation in this sector. Objective: One objective of the EU-financed project "Common health and safety development in professional hairdressing in Europe ("SafeHair")" was to develop and to evaluate a tool (EvaHair) aimed at assessing the current implementation of skin protective measures in hairdressing in Europe and to obtain comparable data. Methodology: Following a literature review, relevant items were identified and a tool (questionnaire) was developed. After an expert validation and some modifications the questionnaire was pretested in 8 European countries (114 questionnaires). After a second revision the final version was translated into nine languages (see www.safehair.eu). Result: The questionnaire assesses the current implementation status of skin prevention in hairdressing. It includes 4 dimensions: General questions, questions concerning handling and risk assessment, questions concerning average working days and questions concerning future needs in hairdressing. Conclusion: EvaHair can be used in surveys, cross-sectoral and longitudinal studies to identify fields of operations, and/or to evaluate the implementation of skin protection measures in the hairdressing trade. Furthermore, the results clearly show that effective implementation of prevention measures can reduce the prevalence of occupational skin diseases (OSD) in hairdressing. OSD are still the main reason for early retirement or for lifelong suffering. Overall, a standardized evaluation tool ensures the quality of study results and of occupational safety and health standards for hairdressers.



Keywords: Prevention of occupational skin diseases, assessment instrument

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Malignant Mesothelioma: Analysis of a Clinicopathologic Experience of 247 Cases

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Objective: This study describes the frequency, occupational, clinical, and pathological features in a large cohort of cases of Malignant Mesothelioma (MM) from the National Institute of Respiratory Diseases (INER), in Mexico. **Methods:** A retrospective and transversal study was carried out in medical records of patients diagnosed with MM between the years 1991 to 2007. **Results:** Of the 247 medical files, 184 were male and 63 were female with an age average of 51-60 years. Dyspnea and chest pain were the presenting symptoms in most patients. Exposure to asbestos was referred only in 34% of cases but direct exposition only was documented in five of them. Clinical features of MM patients were similar in asbestos related and non-asbestos related malignant mesothelioma. It is very important that all patients answer a questionnaire about their employment History, in order to know what kind of pollutants have been exposed during their working life and, if it is possible, the characteristics of exposure.

Keywords: Mesothelioma

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The Sustainable Employability of Personnel is an Elementary Strategic Goal in Every Organization

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At the OHS 2011 conference in Istanbul, NEN Occupational Health and Safety's presentation on sustainable employability will discuss the following topics: What is the role and focus of NEN, the Netherlands Standardisation Institute? What was the process that led to the Dutch standard for sustainable employability? What is sustainable employability? How is that linked to other contemporary issues such as the ageing workforce, occupational health, independent contractors without employees of their own, corporate social responsibility and the New World of Work? What does the organisational scan for sustainable employability entail, and what can you do with it? How can you adapt the approach to fit the organisation's context, culture and structure? A case in practice: The roles of the manager and the employee. Discussion: What is the future of NPR 6070 internationally? How are other countries dealing with the issue of sustainable employability?

Keywords: Sustainable employability



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Impacts of Climate Change on Occupational Health and Safety: Assessment for a Country with a Continental Climate

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The effects of climate change (CC) on human health and adaptation have been largely discussed for the general population. However, its impacts on Occupational Health and Safety (OHS) have received little attention, even if workers may be affected directly by climate change-related hazards or indirectly by modification of the ecosystems. The aim of this work was to establish an overview of the potential links between climate change and OHS, and to identify research priorities for Quebec, a province of Canada. To achieve this goal, a narrative review of the scientific literature published between 2005 and 2010 was conducted. Main risks identified were divided into seven large categories: Heat waves, air pollutants, ultraviolet radiation, extreme weather events, zoonotic and vector-borne diseases, impacts on natural resources and other socio-economic impacts. The effects of these risks on OHS were discussed in a workshop that brought together national and international experts and Quebec stakeholders from different industrial sectors. Construction, mining, farming, forestry, fishing and health care were identified as the most likely affected sectors. Research priorities were determined after the workshop, using a qualitative matrix with several indicators, and they were finally submitted to the stakeholders for comments. This overall approach allowed the confrontation of literature-derived impacts of CC on OHS with stakeholders' beliefs and perceptions and helped identification and prioritization of the main research areas. Such an approach should foster sound occupational health and safety promotion and facilitate preventive interventions in order to protect workers.

Keywords: Climate, hazard, OHS

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Evaluating the Usage of Communication Tools Preventing the Job Accidents Occurred at Structures

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Accidents at structures may occur either at preparatory phase or construction stage. Besides this kind of accidents may occur during the destruction and restoration of which the usage time has been completed and substituted of the function of the structures. The results of these accidents may cause both life losts and economical damages. In terms of preventing these damages people who works in construction jobs have to take necessary measures and implement them rigorously. At this study usage of warning measures by the authorities will be shown to ensure the safety of construction workers working at construction sites

moreover the risk factors that threaten the security of environment. Investigations will be made at the small and large scale structures at Ankara province-wide. Obtained datas will be divided into two. In the first one samples taken all necessary measures in compliance while the second one will show examples of not taken measures or not shown sufficient diligence. These samples will be compared numerically with the help of the Excel programme. By this study the importance of using communication tools at the construction works that carry great risks and providing the environmental safety will be emphasized. As a result, the numerical data will be evaluated in the light of the current situation in Turkey's capital city of Ankara.

Keywords: Structure, accidents, communication tools, relationship between construction and environment, occupational safety

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Is Erectile Dysfunction a must to be Questioned in Chronic Lead Pasing Patients?

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Aım:Lead intoxication is a heavy metal intoxication and occupational disease that increases reactive oxygen species. We aimed to evaluate the relationship between erectile dysfunction(ED) and Chronic Lead Intoxication(CLI) and effects of depression to this relationship.

Methods:We evaluated prospectively 26 patients with CLI and 24 patients without any occupational disease as control in Ankara Occupational Diseases Hospital between November 2008 and January 2009. The International Index of Erectile Dysfunction(IIEF) with 15 questions and Beck Depression Quationary(BDQ) were performed both groups of patient to evaluate ED and severity of depression symptoms.

Results: The mean ages of CLI and control groups were 35.5 ± 6.6 and 38.5 ± 5.1 respectively and there was no statistically significant difference. The mean serum lead level of CLI was significantly higher than control and they were $42.1\mu\text{g/dL}$ and $3.2\mu\text{g/dL}$ respectively($p<0.01$). The mean time interval of lead exposition of patients in CLI group was $71.5(6-360)$ months. IIEF-15 scores of patients in CLI group was significantly lower than control($p<0.05$). Number of patients with ED according to IIEF-15 scores in CLI group was statistically higher than control($p<0.05$). BDQ scores of patients in CLI group was significantly higher than control($p<0.05$). When IIEF-15 sores and serum lead levels were evaluated with partial correlation test in control of BDQ scores, there was moderately negative and statistically significant correlation between IIEF-15 scores and serum lead levels($r=-0.453$, $p<0.05$).

Conclusion: CLI is a common occupational disease and it seems that CLI has an important role on development of ED and depression. Our results showed that ED is an independent factor from depression in CLI group and the increased depressive symptoms are probably due to ED. Patients with CLI should be evaluated with IIEF to detect ED and ED therapy should be added to CLI treatment protocol.

Keywords: Lead intoxication, erectile dysfunction, depression, IIEF, occupational disease

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Social Dialogue Examples in Reproductive Health Services

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Within the framework of the “Health for All” approach of the Ministry of Health, reproductive health, coverage of services, reducing regional discrepancies and dealing with gender issues have become visible in the Ministry’s perspectives in the 1990s. Parallel to this, negotiations with the EU, which was willing to directly invest in the civil sector, were started in the first half of the 1990s. As parties finally agreed on a two-strand (i.e. public and civil sector) programme, RHP was launched in 2003. The main idea adopted for the conceptualisation is very simple and clear. The Programme, based on this dual structure, improved service quality through activities targeting infrastructure and service providers on one hand and on the other hand it promoted services for the disadvantaged groups who are not aware of their own service needs or have difficulty to reach services. It encouraged these groups to seek services and help them utilise preventive reproductive health services. In order to boost demand and utilisation of health services, direct financial support of 20 million has also been granted to Civil Society Organisations (CSO). Funding to CSOs has followed competitive procedures through well publicised “open calls” inviting a wide range of organisations to submit innovative projects which respond to the priorities of the programme and to local needs. Following stringent evaluation procedures of two successive calls for proposals, the best projects were selected and 88 grant contracts were signed to conduct information, education and communication activities. In the process the CSOs have been encouraged to establish effective strategic relations with local authorities and other stakeholders, and to institute intersectoral and multidisciplinary approaches in addressing health issues.

Keywords: Social dialogue, civil society, reproductive health

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Importance of Using Communication Tools in Architecture Education

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Designing buildings, following the construction phases and taking the user satisfaction into account are architects. Civil engineers, mechanical engineers, electrical engineers are helping architects who make the artificial environment. Such the architecture is an important branch of science, unfortunately highlighting the importance of occupational health and safety training has not been given. Due to the lack of this architects who signed the large projects have caused economic damages and loss lives by not taking the adequate measures at the applications. Well understanding the occupational health and safety information training and giving by expert trainers at this branch of science will help reducing these losses in the coming years. By this study, it is believed that especially for designers in terms of providing occupational health and safety of buildings will bring a different perspective. Done in this study in order to raise awareness of worker health and safety at the architecture students will be developed the recommendations using the communication tools



and techniques in the simulation. By this study it is believed that especially for designers in terms of providing occupational health and safety of buildings brought a different perspective.

Keywords: Structure, communication tools, architectural education, occupational health and safety

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Risk Reduction at Health Service Presentation and OHS for Health Laboring

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Today, changing practice and approaches put at risk the health and safety of healthy employees and patients in health service delivery models.

In health service provision, quality management has been increasing, especially institutional structure of the servers.

In health service delivery presentation, diagnosing and seeking solutions with employees about quality problems gives more successful results than cliché quality programs which are prepared as packs. Starting from the place where the staff works, discussing concept of quality, ensuring their participation and working on real life problems, providing the quality of self-healing are the basic steps.

Improvements in health delivery service should contain subjects of health and safety of employees. But in Turkey 2/3 of health employees work in public sector. Occupational health and safety legislation covers only employees of SGI and employees which are working in public sector and health sector are excluded. Actually health sector is one of the most dangerous sector and health sector workers are face to face physical, chemical, biological, physisocial risk factor. The educations of protection and development of their own health and safety are not enough in employees fundamental educations. The efficiency of continuity educations which are given frame of management is significant in the study.

In this study, health service provider who has quality management documents-first, second and third step-examples of good practice which is about occupational health and safety application will be share with participants.

Keywords: OHS, patient, health employee

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The Effect of Contract Type on Working Conditions of Nurses

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The aim of this study was to describe the effect of contract type (permanent/temporary) on working conditions of nurses in five departments of a university hospital. Methods: The data

of this study was gathered as a part of a thesis that aimed to develop occupational accident surveillance system for nurses. A descriptive study with a response rate of 96,67%(232 nurse) had been carried out at the Internal Medicine, General Surgery, Anesthesia and Reanimation, Psychiatry, and Emergency Medicine Departments. A self-report questionnaire was used to collect data regarding the nurses working conditions. Work schedules of these nurses were monitored for six months. Results: Mean age of nurses were 30.83 ± 7.22 . 40.1% of the nurses were working with temporary contracts and their working conditions were worse. Hours worked per night ($t=-7.510$, $p=0,000$) and weekends per month ($t=-4.179$, $p=0,000$) were significantly higher and monthly income was lower for nurses with limited contracts. Shift work was more frequent for them. The frequency of working at intensive care units and emergency services was higher. Number of days work lost due to occupational accidents was higher within temporary nurses. Conclusion: Inequalities had been recorded between nurses with different types of contracts. Considering that they were doing the same job, the effect of these inequalities on their wellbeing, work performance and patient safety must be assessed.

Keywords: Contract type, nurse, working conditions

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Safety Culture and Safety Performance

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The safety culture has a process of complex causality which includes the characteristics of the organization such as the strategies, the structures and the process which influence the individual perceptions. Then, these perceptions are shared at the organizational level what gives rise to a culture. According to this model, we want to identify the key dimensions of the safety culture by using a statistical analysis of the answers to the questionnaire spread on the level of two companies of the Algerian petrochemical sector. The Results show the important role of the managers in the promotion of the safe behavior of employees, both by their attitudes and the behavior by developing a more powerful management system.

Keywords: Safety culture, safety behavior, safety performance

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Pesticides Exposure Using and the Risk of Spontaneous Abortion among Women Living in Agricultural Center in Brebes District

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A population based Case Control study was conducted in the agricultural centers of Brebes district. Case is defined as women who had a spontaneous abortion in the last 3 month.



Variables studied are time of work, jobs, work practices and work hygiene of wife and husbands, reproductive history, daily practices and household work load. 204 cases and 408 controls were recruited. A scoring method was used to measure the level of intensity of pesticide exposure. High intensity of pesticide exposure (score >10) increases the risk of abortion (OR adj= 3.57) among farmers. Safe work practices decreases risk of abortion.

Keywords: Pesticides, spontaneous abortion, female farmers

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The Comparison of Carbon Nanotubes Performance to Traditional Activated Charcoal for Adsorbing of Benzene Vapor

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Introduction: Nanotechnology is a new approach that is lionized in recent years. One of the usages, is consumption of it as an absorbent. Today, air pollution is one of the fundamental problems of human society that has caused many problems. Hence in this study, we used single wall carbon nanotubes (SWCNTs) that are prepared by Iran Research Institute of Petroleum Industry (R. I. P. I) as an absorbent for sampling of benzene in air. Material & Methods: For this study, single-wall carbon nanotubes are manufactured by Iran Research Institute of Petroleum Industry and SKC's activated charcoal were used for sampling of benzene vapors. Preparation of samples was done by carbon disulfide and the analysis of samples was made by using GC-FID. Results: The results of this study indicate that the performance of single wall carbon nanotubes are less than of conventional activated charcoal for sampling of benzene vapors in the air. Conclusion: During the accomplished tests, it was determined that the performance of single wall carbon nanotubes in the sampling of benzene vapors in the air is very poor and therefore can't be a good alternative to SKC's activated charcoal.

Keywords: Air pollution, carbon nanotubes, activated charcoal, GC-FID, benzene

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Coaching Program for Driving Safety: A Good Practice Example

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In Türkiye, occupational health and safety practices mainly focused on risks in the production areas. Nevertheless traffic accidents constitute a large part of workplace accidents, particularly in transportation business. Researches show that regarding the car accidents, the ones who drive for business purposes have a higher risks than those driving for other purposes (eg. vacation). In Abbott Türkiye, between 2008 - 2010, for the objective of reducing car accidents, specific programs have been implemented into the fleet safety system. Safe driving skills training for all company drivers, coaching for safe driving



(behaviour based) program for managers (coaching program), a new record keeping system for each employee's driving performance and accidents. As a result of these practices, a remarkable reduction in the number of accidents per million miles was recorded. This presentation aims to share the importance of integrated programs (training, coaching and fleet safety efforts together) in the reduction of work related car accidents.

Keywords: Driving safety, behavior based safety, coaching for safety, fleet safety

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The Importance of Noise Control on Safety and Health at Workplace

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Noise, which is accepted as an environmental pollution for the present day, is an important problem as it directly affects the health of the people. The presence of noise can affect all kinds of activities in a negative way and leads to several physiological and psychological health problems. Therefore the acceptable noise levels in the enclosed spaces must not be exceeded. These acceptable levels vary depending on the functionality of the room in question. Moreover the duration of noise is another factor that affects the annoyance and damage. For the industrial buildings and production facilities noise generated by the machinery and equipment emerge as an important problem. The noise levels and spectrums for these noise sources can demonstrate peculiarities. Hence, locations and the usage patterns of these noise sources are critical. These noise sources have to be analysed closely and required precautions have to be taken for both airborne noise and structure borne noise.

Noise related problems in industrial areas can be studied under the headings of 'workers health', 'workers safety' and 'impacts on production'. Measures for noise control can be undertaken in three stages: Control at the source, control between source and receiver and control at the receiver. To ensure efficient, continuous and economical noise control these stages should be carefully followed. The production facilities must be designed by taking into account noise control parameters. The workers and the employer must be educated about noise control and should observe noise control measures at all levels of production. The cooperation between the workers and the employee can lead to important reductions in unwanted noise.

In this article, negative effects of noise on the workers in the industrial facilities will be discussed. The responsibilities of all the parties involved will be presented and suggestions for solving the noise control problem in industrial facilities will be explained. Finally some samples of industrial noise determination and control studies will be given. During this analysis, references will be made to the related articles of the local legal regulations related to employee and employer health and the similarities and differences compared to international regulations will be briefly mentioned.

Keywords: Noise control, industrial noise, hearing loss

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Hazardous Chemicals Released to Work Environment in Ship Construction Industry

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Objective: Ship build industry included the class of 'very hazardous works'. The hazardous class list of work places from the point of occupational health and safety in line with the opinions of The Hazardous Class Identification Committee which was created according to the 57. item of the Regulation About Workplace Health and Safety Units with Shared Health and Safety Units published in 15/8/2009 dated and 27320 numbered official journal. For this scope, the Ministry conducted a study in 39 shipyards in İstanbul/Tuzla region which had taken 6 months. This study was conducted by the İSGÜM İstanbul Region Laboratory's technical persons. This study was intended to draw attention to the high exposure values to the hazardous chemicals and determinate action/operation steps that create high exposure in ship build industry. Method: For the determination of employees who might be exposed the chemicals which released to the work place air, at first, the companies production department, machinery layout plans, work flow diagrams, number of the employee, the datas of production capacity were reviewed, and then, together with the companies OHS experts, production sites were visited and the hazardous sources of chemical, the distance of employees to the source, available protection and prevention systems were reviewed. At that points, MDHS 14/3 method was used for the measurement and analysis of the exposure of respirable and inhalable dust to the employees; OSHA ID 121, NIOSH 7024, NIOSH 7048, NIOSH 7029, NIOSH 7030, NIOSH 7082 methods was used for the measurement and analysis of the exposure of heavy metals that occur during welding; NIOSH 1501 method was used for the measurement and analysis of the exposure of volatile organic compounds. Results: The personel exposures that indicated according to the result of the measurements were compared with national and international limit values: - 379 measurements were done for the determination of the respirable dust concentrations and in the %35 of it the results were up to the limits values.

Keywords: Ship construction, hazardous chemicals

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Application of Noise Control Programme with Using Participatory Method in a Plant and Results

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Aim: The aim of this study were to evaluate the application of noise control programme, knowledge, attitudes and practice about noise, training about the using of the personal protective device, threshold shift of audiometric measurement and average points on checklist of noise control programme. Methods: The study was conducted in a refrigerator production plant which consists of 128 employees working in the exposure environment where the noise level is 80 dB(A) and over. According to the Kern's method education of health effects of noise and personal protective device usage were prepared. The NIOSH standards used for



the evaluation of threshold shift on audiometric measurements and the effects of noise control programme. Statistical analysis: The effects of the training course regarding the knowledge and attitudes were analyzed by paired sample t test. The difference in the frequency of personal protective device usage between pre and post training courses was assessed by McNemar chi-square test. Results: The knowledge and attitudes of the workers about noise were found significantly increased 4 months after the initial training ($p < 0.001$). The frequency of post training personal protective device usage was also increased significantly ($p = 0.001$). Before the noise control programme the average point was 90.4, after six months later then the using of the noise control programme it became 132.6. After the control programme the significantly threshold shift was 7.9 %. Conclusion: The training course and noise control programme were found constructive to improve knowledge of the workers and positively affected the attitudes and practice of the workers with regard to protection from the noise.

Keywords: Noise, noise control programme, noise induced hearing loss

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New Developments in Health and Safety Management in Northern Cyprus

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In Northern Cyprus mining, quarries, tourism, education, construction and agriculture are the most important economical sectors.

New developments are taking place on occupational health and safety after 2000's in Northern Cyprus. Adaptation to European Union Regulations is aimed and new law has been prepared in February 6, 2008, and started to be applied on March 1, 2009. New Regulations within this concept have been promulgated afterwards. Some of them has already been started to be applied and some at the preparation step. Certification program has been started to train experts on this subject.

In this study, new developments about occupational health and safety in Northern Cyprus will be given, in addition to present situation and future expectations.

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Work Safety Management for Vertical Transportation Equipments in the Construction Industry

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Worldwide, about 270 million work-related accidents happen each year, the construction sector stands out, seen as, one in every six fatal accidents occur in construction and every year there are at least 60.000 fatal accidents on construction sites around the world (ILO, 2010). Equipments such as cranes, elevators, and forklifts may be considered as key points

in any project, as they come to represent up to 80% of the activities of a construction. (GEHBAUER, 2002). This study aims to investigate elevators and cranes used on construction sites, in order to develop indicators of work safety and health to systematize actions of security and equipment maintenance. For so, a protocol was elaborated to be applied on construction sites of the state Pernambuco/Brazil, in 2010. It was adopted as reference, the "Evaluation and Risk control Method" elaborated by Barkokébas Junior, in 2004. The inspection control, grounded by the safety legislation and occupational medicine, is divided into three parts: I. Documentation II. Handling and transportation of materials and people; and, III. Cranes. With data collected in the sites, graphic were generated that reflect quantitative, qualitative and economic indicators. It was found the necessity to improve the equipment's documentation in the construction site, emphasizing the crane's loading plan. There was the need for attention in the elevators, in relation to the winch operator and drum bearing without cage. The cranes showed disagreements in relation to work in inclement weather, as well as lack of identification of the manufacturer on the lifting devices or technician responsible for lifting devices. It is concluded that, that actions of integration between mechanical and production engineers and the work safety team must be intensified so that the construction industry environment becomes safer, with equipment in good working order, so as to further contribute to the execution of activities.

Keywords: Work safety, elevators, cranes, indicators

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Occupational Exposure to Welding Fumes Using Different - Ventilation Scenarios

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Chemical air pollutants such as smoke, fume, gases and mists are generated during the welding process which impact worker's respiratory system. Many of these air pollutants can be controlled at threshold limit values by designing and executing suitable industrial ventilation systems. The objective of the present work was to study the mitigation of air pollutants at welding stations, using different ventilation scenarios. Four air pollutants including iron oxide, respirable dust, ozone, and carbon monoxide were measured during four different ventilation scenarios using US OSHA and US NIOSH sampling and analysis methods. Meantime, face velocity, volumetric airflow rates, duct velocity, static, and velocity pressures at different locations of the ventilation systems were also measured using BS 1042 standard methods. The paired t-test revealed that with $p < 0.05$ there was a significant difference between occupational exposure to air pollutants in 4 different ventilation scenarios. The results also showed that when local and general ventilation systems were both on, the occupational exposure to iron oxide and carbon monoxide were below than their TLVs, but the exposure to the respirable dust in two welding stations and ozone levels in three welding stations were higher than their respective TLVs. The duct air velocity in three welding stations is higher and in eight stations lower than 10.1 m/s recommended by ACGIH. The mean value of volumetric airflow rates in all 11 stations were 34.7% of the required volumetric airflow rates based on standard ventilation systems recommended value. The applied general exhaust ventilation was only 35.5% of standard required value. The local

exhaust ventilation is expected to mitigate the air pollutants to acceptable levels at welding stations.

Keywords: Ventilation, iron oxides, respirable dust, carbon monoxide, ozone

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Upgrading Occupational Health and Safety in SMEs

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99.7% of all enterprises are small and medium sized enterprises in Turkey. It is known that the OSH indicators of workplaces worsen as the enterprise gets smaller. Leading problems being faced in SMEs and their complications in terms of OSH are; limited capital structure, usage of old technology, traditional production methods, inadequate knowledge, undeveloped safety culture and low understanding of its importance, inadequate infrastructure, absence of qualified workforce.

Upgrading occupational health and safety in Turkey – ISAG Project was an EU project and was carried on between 2004-2006 and finalized successfully. Within this project besides given trainings directed to implementation of the legislation, increasing communal awareness and constituting occupational health and safety in Turkey, re-arranging its efficiency and working procedure also studied and 87 short term expert appointed. With this project, an efficient and productive system for providing occupational health and safety at workplaces was contributed via the trainings covering general OSH applications, risk assessment and preventive health services specially focusing on the SMEs. Provided that, to guide the SMEs, a booklet named “Risk Assessment in 5 Steps” prepared, 20.000 copy published and disseminated.

With the second phase of the ISAG Project (ISAG II), upgrading occupational health and safety in Turkey is aimed by providing the effective and productive implementation of OSH legislation especially in SMEs. Widespread, high quality and cheap OSH service is aimed to be served especially to SMEs via the Mobile Health Vehicles which are equipped with medical appliances.

With this vehicles; serving of protective and preventive health services in the occupational health field; conducting workplace risk assessment and analysis; transferring economic, fast, high quality and reliable occupational health services to SMEs; ensuring the medical examinations coherent with procedures to be used in early diagnose of the occupational diseases; conducting researches in occupational health and occupational diseases; paving the way to legal or private persons and institutions serving or will serve in OSH field; constituting a model; preventing the occupational diseases via early diagnose; treatment and/or preventing the progress of diagnosed illnesses are aimed.

Keywords: Small and medium sized enterprise, occupational health and safety, improvement.

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Epidemiology, Prevention Tool

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In the undeveloped countries, prevalence of communicable diseases is very high. This situation can mainly explained by nutritional deficiencies. The emergence of new health problems, like infection (including AIDS), metabolic diseases, occupational hazards, traumatic accidents and cancers are a new burden for these societies. Occupational Health is not a priority in these countries, the number of specialists is low and the monitoring of occupational exposures remains difficult, limited by the lack of transfer of technology. The Epidemiology allowed us to link diseases and occupational exposures. It can be an important tool in the prevention of occupational risks by gathering information on health problems and to relate them to work. This aim can be achieved by some simple descriptive studies conducted only by health professionals trained in basic epidemiology. The promotion of the epidemiology in undeveloped countries can be very useful to support prevention programs focusing on the very acute and severe diseases. That's why governments and stakeholders must develop this discipline. Knowledge of the epidemiological situation leads to a policy of prevention of occupational risks across local, national or regional areas. Epidemiology can be a low cost and efficient tool to make an inventory of health in underdeveloped countries and set up a policy of occupational hazards prevention based on national and international priorities.

Keywords: Epidemiology, prevention, occupational hazard, underdeveloped countries

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Bilateral Tendinopathy of the Thumb

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Introduction: Musculoskeletal disorders (MSDs) are the result of an imbalance between biomechanical sollicitation and functional capacity of thoperator. When these sollicitations exceed the functional capacity, the probability of occurrence of an MSD is increased. **Instrument and Method:** This is a lab technician for thirty years, 54 years old, mother of two children allergic to acetic acid and treated forretinal detachment since1998. She complained since the beginning of her career from a very important work load with repeated use of pipette. **Findings:** The onset of the disease was in 2005 by a mechanical paint end on of the right thumb, ultrasound has objectified tendinopathy of the flex o rof the right thumb placed under medical treatment but without improvement. She was taken in to surgery with clinical improvement associated with a loss of precision of movement. Given the lack of technicians, she began working with her left hand and now she has a tendinitis of the left thumb. The patient has not yet declared her condition as an occupational disease. **Discussion:** The ecase of this patient demonstrates the importance of medical surveillance of employees in the workplace, as well as early identification and appropriate treatment could prevent such



developments. Conclusion: The therapeutic difficulties, occupational disability and financial cost are all arguments to develop prevention of work related MSDs in health care settings.

Keywords: Tendinopathy, laboratory, technician

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Night Work in Health Care Settings

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Introduction: Night work in health care settings requires caregivers to work in times of deactivation of the human body and sleep during the activation phase of this latter. This is rarely a choice but an obligation of professional life. This study aims to assess the impact of night work on the professional activity and on the health of intensive care units (ICUs) staff. **Methods:** This is a cross-sectional study conducted among 50 members of ICUs health staff at CHU Ibn Rochd of Casablanca. Data collection was performed using a standardized questionnaire regarding night work and its impact on health and social life. **Findings:** In Morocco, night work is considered all work performed between 9 pm and 6 am in non-farm activities and between 8 pm and 5 am in agricultural activities. It can cause several adverse effects on health (sleep disorders, digestive disorders, cardiovascular diseases, psychosocial disorders, obesity ...) and risks related to security. Fifty questionnaires were collected and are being analyzed. **Conclusion:** Night work requires a policy of continuous and effective prevention including improved conditions of work, scheduling and bearings, taking account of social conditions of workers, the struggle against fatigue, regular meals, reordering and regular medical supervision of caregivers.

Keywords: Night work, risk, health care

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Psoriatic Arthritis. About a Case

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Introduction: Education is the largest employer in the public service in Morocco. It is an industry that knows the highest rate of absenteeism for health reasons with a growing number of students, associated with difficult working conditions. **Instrument:** He is a teacher of 50 years old, who has for 4 years pruritic, round erythemato-squamous lesions, first at the 2 legs and extension to the whole body with involvement of the face and external genitalia. The clinical examination, in addition to skin lesions, shows spontaneous arthralgias and induced at both ankles, both wrists and a pain in the spacing -approximation of the sacroiliac, lumbar back pain with positive signs bell L4 - L5. The diagnosis of psoriasis arthropathica was confirmed by biopsy. **Discussion:** Mobility in a class raises widespread pain for this patient which imposes a temporary outplacement (sedentary job) with a regular reassessment of his



condition. The lack of obligation of occupational medicine for public education in Morocco requires close cooperation between attending physicians, occupational physicians and doctors of school hygiene for effective rehabilitation or reclassification of patients with pathologies having a relationship with their jobs. Conclusion: Teaching in our context is a very difficult job with a heavy workload; sometimes with difficult working conditions, imposing a regular medical supervision and a proper lifestyle for teachers.

Keywords: Psoriasis, occupational health, education

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Medical Control of Absenteeism at Chu Ibn Rochd Casablanca

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Introduction: The Healthcare setting is known by an important physical and mental load, which generates health problems among caregivers whose average age is increasing in Morocco. Method: A control records exploitation of medical certificates in relation to days off from work on a two-year period 2006 - 2007, we used a form of exploitation including the following items: the staff's professional status, the number of days off from work, clinical signs and validation of days off work. Findings: In Morocco, we do not have reliable study on absenteeism among civil servants. A ministerial note states that any cessation of work of a staff of more than three days must be medically controlled to assess the consistency of the decision with the state of health. The preliminary result of this work shows that over this period, absenteeism is more prevalent among nurses with a rate of 39.4%, respectively followed by service agents (18.4%) and physicians (18%). Depressive disorder is the most frequent cause of absenteeism at work with a rate of 4.9%. Conclusion: Absenteeism is a global problem in the workplace, regular monitoring can reduce the impact by studying the causes, followed by the establishment of an appropriate policy for prevention and punishment of abuse if necessary.

Keywords: Absenteeism, health worker

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Market Surveillance of Personal Protective Equipments

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Market Surveillance (MS) is the action which is carried out in order to check whether the PPE is in conformity with the relevant technical regulation and with the requirements related to safety at the stage of placing on the market or distribution of the product concerned or when it is on the market. The aim of the market surveillance is to ensure safe products at the market and prevent unfair trade and any kind of health and safety problem arising from unsafe products. For the purposes of this Directive, PPE shall mean any device or appliance

designed to be worn or held by an individual for protection against one or more health and safety hazards. Ministry of Labor and Social Security is responsible for MS activities of PPE. Directorate General for OHS is keep up this duty in the name of the Ministry by its charged staff to consider findings of accidents, complaints, denounces, risky products declared by the international database Rapex. If the PPE concerned is found to be unsafe after the MS, the public authority shall adopt measures such as temporary stop of the placing on the market of the product, prohibit the placing on the market of the product, withdraw the marketed products and ensure whole or partial disposal of the products, implement administrative fines. Results of the MS are preserved at the PPE product safety database. For instance; 409 personnel protective equipment is inspected at 89 workplaces in 2009. In this paper, a detailed examination will be done for the 2010 inspection results and market surveillance implementations and statistics will be shared. Besides, a comparison will be done with MS implementations of other national authorities and activities will be evaluated in accordance with national market surveillance strategy of 2010-2012.

Keywords: OHS, market surveillance, personal protective equipments

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VBG - Online Questionnaire as Part of VBG's Health Management Product (GMS – Gesundheit Mit System)

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The changes taking place in the world of work and the associated health risks have been discussed frequently in a variety of publications in recent years. What effects do globalisation, structural change, rapid technological developments, economic slumps and demographic changes have on the labour market and on the demands and burdens placed on workers? The pressure on companies to keep costs down and remain competitive continues to rise. Mergers, restructuring, downsizing, outsourcing and offshoring are being used more and more often to achieve these aims. Managers are faced with the challenge of maintaining their employees' productivity, health and willingness to perform while also making operational decisions. Employees, too, are increasingly required to strengthen their own personal resources. How can their capacity to work and their employability be maintained in the long term against the background of growing pressure to perform better under greater time constraints, increasing work intensification and rising levels of uncertainty? VBG helps companies and employees to overcome these challenges with its service and consultancy product "GMS – Gesundheit mit System". This product is an occupational health management tool that takes a holistic and systematic approach. Instead of focusing in isolation on health and safety measures that generally do not reflect workplace realities, it aims to systematically boost employees' health, productivity and willingness to perform by integrating the necessary measures into operational processes, management functions and the organisation as a whole. VBG can guide and advise you on the implementation of GMS. In order to analyse the current situation within a company and identify improvement potential, VBG uses methods such as online employee questionnaires. It then presents the key findings obtained from the employee surveys and the suggestions most frequently implemented.



Keywords: Health risks, demands, impact, strain, stress, resources, pressure, uncertainty, occupational health management, tools, suggestions

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Workers Participation in Health Improving Measures of Management

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An impressive number of prospective investigations demonstrate that the psychosocial work environment has far reaching impact on mood, motivation, mental and physical health and is connected with increased risk of disease. Following the WHO global approach of healthy workplaces and the participation principle, workers views concerning necessary employer's actions to improve work ability and to decrease work tension were surveyed. Methods: Study object are 3 organizations of employed in broadcasting and public health sector, in total 487 subjects. Besides workers improvement suggestions data on work strain sources and health complaints were obtained too. Up to 3/4 of the employed reported muscular-skeletal pains, permanent anxiety, frequent fatigue and 48% - sleep disorders, all with marked psychosomatic character. Prevalence of suggestions about what should management do to enhance work ability and diminish work stress are in tune with OHS paradigm shift from physical work conditions and equipment to more 'soft' hazards like organizational and management style, work atmosphere and motivation, recognition and career perspectives: 15-20% of the expressed opinions pointed out necessity of improvements in work psychological climate, actual communication and recognition, and up to 50% - in organization of work, time and task management. Conclusion: Workers' suggestion along with prevailing health complaints and reported stress sources are the foundation for planning and introduction of specific preventive measures to reduce employees' psychic strain and increase the work capacity. Organizations were provided with recommended measures and approaches how to eliminate the revealed organizational shortcomings as well as follow-up survey to monitor the effect of the managerial improving measures. Findings confirm the introduction of preventive culture in relation to psychosocial risks and workers participation in managing job-related stress as a priority in EU policy on health and safety at work.

Keywords: Psychosocial factors at work, healthy workplaces, workers improvement views, service sector

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Comparative Inter- Institutional Study of Stress in Dentists

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Background: Dentistry is considered to be a stressful profession, exposed to potential stressors. The objectives were to identify and compare the chronic stress in dentists among



the different Health Institutions and the association of stress with risk factors. Methods: Identification of stress with an inventory of stress symptoms and a census, the statistical analysis was carried out with the Odds Ratio and chi-square statistic. Results: In 256 dentists with chronic levels of stress, there were 219 with a high level and 37 with a low level, finding an association in dentists of the University of Guadalajara with a high level of chronic stress, female sex, age from 40 to 49 years, employment duration from one to ten years, and a $p < 0.05$, in the Mexican Institute of Social Security, the University of Guadalajara and the Ministry of Health. Conclusions: The Mexican Institute of Social Security dentists have a greater risk of developing high levels of chronic stress than the dentists of other institutions

Keywords: Stress, dentists, occupational health

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Primary Prevention in Occupational Skin Diseases in the Hairdressing Trade: Reflexion on the Last 20 Years

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Hairdressing is still at the top of the Occupational Skin Diseases (OSD) high risk professions despite the fact that there are good practice prevention models in Germany: Indeed, during the 1992-2006 period, the incidence of OSD in the hairdressers sector decreased from over 5 000 cases to 1 800 cases per year and social security saved approximately € 20 million per year. To assess the incidence of hand eczema, the exposure levels, the use of skin protection products and the number of consultations with doctors, we have carried out total surveys of hairdressing trainees in Lower Saxony continuously during the last 20 years to objectify the success of new prevention measures (surveillance instrument). We used standardized questionnaires to evaluate the status quo every 5 years from 1989 to 2009. Sample sizes ranged between $N = 8256$ in 1989 and $N = 3554$ in 2009 because of a decrease of hairdressing apprentices in this time period. The response rates ranged from 50% (1989) and 68,5% (2009). Between 1989 and 1994 participation in an examination before starting the vocational training increased, between 1994 and 1999 it decreased and stagnated further on (1989: 16%; 1994: 48%, 1999: 29%, 2004: 31%, 2009: 30%). The incidence of skin diseases decreased from 70% to 57% between 1989 and 1994. Between 1994 and 1999 an increase up to 61% was observed. From 1999 to 2004 the incidence decreased to 55% and the results of 2009 show again a strong increase up to 72%. These and other results of the surveys will be discussed in relation to the implementation of skin protection measures during this 20 year time period. The results argue for the need to continue with prevention measures in the hairdressing trade.

Keywords: Primary prevention, hairdressers apprentices, occupational skin diseases

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Application of Psychological Symptom Checklist among Workers in High Risk Works

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In this cross-sectional study, symptom check list (SCL 90-R) was applied face to face to all workers working in galvanized plating for electricity conduction line. Health examinations of the workers were carried out by the occupational physician. Besides, the psychological situation of the workers was examined in the coordination of the occupational physician and the psychiatrist. According to the results of SCL 90-R, it was determined that there were high scores related to depression, anxiety and obsession scales. Also there were highly statistical differences related to determined disorders between office workers and plant workers and between subgroups as well. As conclusion, high risk works and also economical problems have been thought as the causes of the increasing anxiety and depression, in particular. Thus, a close cooperation between occupational physician and the psychiatrist is needed for health surveillance of the workers, so that this will contribute to implement occupational health services at workplaces effectively.

Keywords: High risk works, SCL 90-R, psychiatric disorders

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Research on OHS Conditions and Stress at Work among Air Traffic Controllers

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A research study on OHS and stress at work among air traffic controllers was conducted in Turkey between 2007-2009 by the Ministry of Labour and Social Security Directorate General of OHS in coordination with the Ministry of Transport and the Turkish Air Traffic Controllers Association. The study covered 511 air traffic controllers working in 34 airports in Turkey and besides, 10 airports were selected in order to assess and to evaluate OHS risks within the working environment. A combined questionnaire form which included OHS situation, general health conditions, occupational diseases and injuries and Doetinchem Organizational Stress Scala was applied to 511 controllers. The sociodemographic findings are; 33.8 % of them were female, 66.2 % were male. Age mean was 36.48 ± 0.35 . Relating to educational aspect 97.1 % them had university graduation. Besides 95.2 % of them have not been trained on OHS issues. Working period mean was about 12.34 ± 0.42 years. Daily working hours are so important and the mean for day shift was 10.88 ± 0.07 , for night shift was 12.43 ± 0.09 . Regarding working environment surveillance, the values measured at the workplaces were generally determined below the MAC values. However according to the results of the questionnaire form, the controllers complained about noise (78.9 %), insufficient ventilation, (63.9%), radiation (60 %), and insufficient illumination (46.2 %) as the risk factors. Regarding the health behaviours, it was determined that approximately half of the controllers smoked and 60.4 % of them consumed alcoholic drinks. Relating to Stress scala, the causes of their stress were found as inadequate role identifications, responsibilities



and overloading respectively. As the conclusion of the study, a guideline was prepared and a training programme on OHS and stress at work was arranged for all the controllers.

Keywords: Stress at work, air traffic controllers, doetinchem organizational stress scala

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A Turkish Project (METIP) Strategy and Action Plan on Improving Working and Social Lives of Seasonal Agricultural Workers

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Introduction:

- In general, the agricultural families who have no place or inadequate place to grow move to the regions which need intensive agricultural labour force and they work in these areas temporarily .
- There is not sufficient data concerning these workers at the national level.

Aim:

- Regarding the problems defined,
 - to record the seasonal agricultural workers,
 - to improve the working and social lives of the agricultural families, children in particular,
 - to meet qualified labour force for a long period.

It is planned to improve the conditions within the framework of the action plan by determining a comprehensive and multi-space point of view point.

Coordination for the Strategy and Action Plan

The Turkish Prime Ministry Instruction come into force in 24 March 2010; to provide coordination among the related organizations, to set standards and to implement effective and efficient services

Facilities Planned:

- Transport: focusing at the seasonal workers moving places, more effective traffic controls
- Accomodation Facilities: opportunity for use of the public areas and places; providing appropriate places for hygienic conditions by employers, otherwise by local authorities
- Infrastructure: providing drinkable water and washing water, setting the electricity conditions

- Health Care Facilities: Immunization, following the children and pregnant women periodically by the health teams, mobile health units if required, giving special attention for the ageing and handicapped workers
- Education: providing the continuity of education of the child workers by accepting as a guest student in the nearest schools or ensuring mobile education
- Besides, providing basic education, vocational education, social and cultural activities specially for the women and the girls

This article aims to introduce the activities within the framework of the METİP Project in Turkey coordinated by the Ministry of Labour and Social Security as a good practice example in the agricultural sector.

Keywords: Agricultural sector, seasonal agricultural workers, accommodation and working of seasonal agricultural workers

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Recent Developments for WHO-CC in OH activities in Turkey

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A World Health Organization (WHO) collaborating centre (CC) is an institution designated by the Director-General to form part of an international collaborative network carrying out activities in support of WHO's programme at all levels. The WHO requires expert advice for overall scientific and technical guidance, as well as for direct support of global, interregional and regional technical cooperation programmes for national health development. The functions of WHO collaborating centres include: (a) the promotion of WHO's policies and priorities; and (b) the collection, collation and dissemination of information regarding inter alia: standardization of terminology and nomenclature, of technology, of diagnostic, therapeutic and prophylactic substances, and of methods and procedures; development and application of appropriate technology; provision of reference substances and other services; participation in collaborative research developed under WHO's leadership, including the planning, conduct, monitoring and evaluation of research, as well as promotion of the application of the research results; training, including research training; coordination of activities carried out by several institutions on a given subject. A WHO collaborating centre participates in activities based on a Plan of Work, jointly prepared by the centre and WHO in line with WHO procedures. The activities may take place at the country, intercountry, regional, interregional and global levels. They also contribute to increasing technical cooperation with and among countries by providing them with information, services and advice, and by stimulating and supporting research and training. Both institutions showing a growing capacity to fulfil a function or functions related to WHO's programme, and institutions of high scientific and technical standing having attained international recognition, may qualify for designation as WHO collaborating centres. A period of at least two years active collaboration with WHO should precede the designation. Regarding the field of OHS in Turkey, the Ministry of Labour and Social Security in cooperation with related ministries and representatives of social partners has been played the key role for many years.

Keywords: Recent developments, WHO-CC, OH activities, Turkey

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Providing OHS Services within the Framework of Primary Health Care

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In the field of OHS, Turkey has legislative, practical and institutional knowledge accumulated over the past 150 years.

However, Turkey has still continued challenging in the field of OHS, such as the general socio-economical level, unemployment problem, unrecorded economy, OHS legislation not covering all workers, insufficient implementation of the current legislation, inadequate researches on OHS, obstacles on the diagnosis of occupational diseases, insufficient coordination and social dialog between related parties and finally, insufficient expertise.

In this context, the Ministry of Labour and Social Security in cooperation with related ministries and representatives of social partners play the key role in improving OHS. The Ministry has several organizations which carry out OHS activities such as the Directorate General of Occupational Health and Safety (DGOHS), Occupational Health and Safety Institute (ISGUM) Labour Inspection Board and Training Center. İSGÜM is a non-profit governmental organization that was established in 1968 by a joint project of the Government, the UNDP and ILO and it is also the substitution of DGOHS with the central laboratory in Ankara and five regional laboratories throughout Turkey.

Both DGOHS and ISGUM perform their activities in cooperation with employer organizations, trade unions, universities, related Ministries particularly Ministry of Health, the chambers of OHS professionals, universities and the other stakeholders.

Recently there is a significant development on OH services related to the Ministry of Health with support of WHO; it is planned to organize OH Services by Community Health Centers established within the framework Family Health System in Turkey in cooperation with the Ministry of Labour . Furthermore, this effective organization aims to provide Basic OHS (BOHS) to the underserved workers particularly.

This article includes introduction of recent development on BOHS in Turkey by comparing with implementation of BOHS in other countries.

Keywords: Basic occupational health services (BOSH), integration of OHS into PHC, public OHS services

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National Action Plan for the Prevention of Pneumoconioses

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“National Action Plan for the Prevention of Pneumoconioses” was prepared by the General Directorate for Occupational Health and Safety of Ministry of Labour and Social Security in comply with the decisions of ILO/WHO Joint Committee for Occupational Health and was approved by the “Commission for Struggling Against Dust” established according to the Article 6 and other related articles of the Regulation for “Struggling Against Dust at the Enterprises for Mining & Stock Quarry and Tunnel Construction” which came into force after being published at the Official Gazette dated 14th September 1990. The plan included prevention strategies, related participants, pilot field studies and expected results for short, intermediate and long terms.

Keywords: Global programme for silicosis prevention, ILO/WHO Joint Committee, pneumoconiosis

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Evaluation on Occupational Physicians in the Field of OH in Turkey

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Recent developments in the field of OHS all over the world required more alternatives for organizing of OHS services, so that these alternatives would ensure İşveren yükümlülükten ziyade, işletme faaliyetlerinin daha iyi bir seviyeye taşınmasında vazgeçilmez bir destek olarak İSG hizmetlerini almayı tercih edecektir.

In Turkish Labour Act, it is specified that those employers who permanently employ at least fifty persons are obliged to employ one or more occupational physician(s) in an internal OHS unit or to take OHS services from joint OHS Unit depending on the number of employees and the degree of danger of the work performed to improve working condition of the workers and to provide carrying out of occupational health and safety measures, as well as to provide first aid, emergency services and preventive health services.

The duties of physicians are defined as participating in OHS Council at the workplace, realizing the pre-placement examinations and periodic controls, organizing the first aid and emergency services and training of the related personnel, maintaining health surveillance in the workplace, taking preventive and protective actions, performing research activities and health training in the Regulation for Occupational Physicians.

There is a significant decreasing on the occupational accidents at the data of OSH in Turkey since 1980. Thus, it is considered that the first Regulation related to occupational physicians amended in 1980 affected on this improvement.

On the other hand, the cases of occupational diseases in Turkey could not be known accurately because of several factors; therefore many activities for raising awareness of OHS professionals particularly occupational physicians and social partners on occupational diseases have been planned by the Ministry of Labour in cooperation with the stakeholders.



In this article, implementation of OHS system in Turkey and in some countries are compared regarding training and authorizing of occupational physicians.

Keywords : Occupational health and safety services, occupational physicians

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An Ergonomics Intervention Study in Automotive Sector

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An intervention study was planned by Occupational Health and Safety Institute (İSGÜM) and was conducted in the automotive sector relating to ergonomics risks at the workplace. Firstly, the ergonomics team consisting of occupational physicians and safety engineers from both the plant and the institute was established. The team members were trained on assessment of exposure to ergonomics risks for work-related musculoskeletal disorders and particularly the Quick Exposure Check (QEC). After the intensive training programme and the practices in the plant, high-risk departments in the plant were determined by involvement of the team members and workers by means of the QEC. Finally, overall evaluation was realized with the participation of all related parties in the plant and thus the intervention studies were started for two pilot sections among high-risk departments.

Keywords: Ergonomics risks, work-related musculoskeletal disorders, quick exposure check (QEC)

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The Model of Mobile Occupational Health Units in Turkey

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With a view to realization of steps taken for the harmonization of occupational health and safety legislation to the EU Acquis as provided for in the national program and within the "Upgrading Occupational Health and Safety/İSGÜM" Project, the activities to turn the OHS Center into an international training and research center and to support and multiply its regional labs by the establishment of fixed and mobile labs especially in industrialized regions have been carried out. The establishment of additional regional and mobile labs is of great importance for the upgrading of occupational health and safety services in Turkey taking the vast geographical area of the country. Every employer and worker should have access to occupational health and safety services whenever needed. Thus, in order to provide occupational health surveillance services, mobile occupational health units for İSGÜM were purchased in 2008 by the EU funded project. These units consisted of several

vehicles that include 2 mobile occupational health heart-lung screening system, 2 mobile occupational health audio screening system, 2 mobile occupational health medical laboratory system and 8 sample transporting vehicles. Main aims and tasks of mobile occupational health units are; providing common occupational health services; pre-diagnosing of occupational diseases; performing mandatory periodical examinations of the employees; preventing workday lost and workforce lost by performing examinations in the workplace; conducting scientific researches and projects on occupational health and occupational diseases. By means of these units, the following services could be provided as medical examination, radiological examination, respiratory function test, ECG, audiometric test, biochemical and toxicological blood and urine analysis,, training and consultancy services.

Keywords: Mobile occupational health unit, health surveillance

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Country Comparisons of Occupational Health and Safety Applications After the Global Economic Crisis

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After the recent global economic crisis faced by countries in the field of occupational health and safety issues are also changing. Even the economies of large enterprises in the economic crisis the country fell in trouble to stand alone businesses, especially SME level and efficiency of the challenges is to continue. Employers can choose the title at the first occupational health and safety save as following the economic difficulties. Caught up in the same way the fear of dismissal of workers on occupational health and safety issues have refrained from introducing the agenda. In this study, after the global crisis in the 4 EU member countries and Turkey to compare solutions have been produced to the challenges. In the field of OHS emerging risks and prevention methods are examined and shared with interested parties. Comparison of the countries in the case of Italy, a large number of post-crisis re-opened after the business closed, and almost 90% of businesses, was opened by employers people outside the country in third world countries. As a result of this development, many different cultures, languages and habits of the workers came to be trained in occupational health and safety requirements and the need for multilingual and multi-cultural preparation of training materials has emerged. In a process of overcome the economic bottlenecks challenges appeared the emerging migrant workers education and to create a common security culture.

The occupational health and safety topic is one of the directly affected subjects from the economic crisis by the reason that it has a high socio-economic influence. The protection of workplace commercial presence and maintaining of the production takes priority within the employer view of point.

After the economic crisis emerged in 2009 countries experienced bottlenecks and ways of solutions in terms of occupational health and safety was tried to be found.

This study presents the comparison of 3 country practices of EU members and Turkey as a EU candidate country.



Keywords: Global economic crisis, OSH

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Burnout Levels of Medical Doctors

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Purpose: The purpose of this study was to determine the burnout levels of medical doctors working at primary health care and socio-demographical characteristics affecting them and their working conditions. **Material and Method:** The study is of the cross-sectional type. The data was collected using a questionnaire through face-to-face interviews from the doctors working in Ankara. The universe of the study comprises 123 people. 74 people (60,2%) participated in the study. Burnout level was measured with Maslach Burnout Scale (MBS). Descriptive statistics were used to summarize data, whereas chi-square, t-test, ANOVA, Mann-Whitney-U ve Kruskal-Wallis tests were used to compare groups by SPSS 15.0 statistical programme. **Results:** In the study, 52.7% of the doctors were female, 87.8% married, 81.1% of them were under 45 years, 32.4% were current smokers. Over half of the doctors (58.1%) were working as a doctor for more than 10 years. Of the doctors, 60.8% thought that the place they work is not appropriate for examining and caring for patients and the number of examinations is too high. 58.8% of male and 65.8% of female doctors found their family income insufficient ($p=0,542$). 45.7% of men, 10.3% of women have a second job ($p<0,05$). The average score for emotional burnout (EB) was 15.28 ± 4.90 ; for desensitization (D) 4.09 ± 2.88 ; personal ineffectualness (PI) 10.77 ± 4.53 . The average score for MBS-EB for unmarried doctors was (27.66 ± 6.02), lower than that of married doctors. (30.49 ± 8.59 , $p<0.05$). The average score for MBS-PI was lower in the doctors working at a second job (8.90 ± 3.80) than the doctors who don't have a second job (11.46 ± 4.61 , $p<0.05$). The average score for MBS-D was higher with the doctors having treatment because of experiencing violence at work (5.33 ± 3.03) than the doctors not experiencing violence (3.60 ± 2.69 , $p<0.05$). The average score for MTÖ-D was lower in the doctors having good relations with his staff, patient and patient's relatives at work place (28.90 ± 8.02), than the doctors who don't have good relations (38.10 ± 5.76 , $p<0.05$).

Keywords: Doctor, burnout, job satisfaction

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Refuge 60 m Below Sea Level

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The Marmaray Project, one of the most important projects of the century, consists of 3 separate contracts: the Bosphorus Crossing (BC1) is one of them. Under the BC1 Contract precast Tube Elements are immersed and laid down onto the sea bed. 11 separate



immersed tube elements were transported to the Istanbul Strait, immersed and connected to each other underwater. Until the tube tunnel (IMT) docked with the land, access to IMT was via a jetty and through an access shaft down into IMT. A task specific safety plan was prepared. Many aspects like ventilation, communication etc were planned specifically for these conditions. For example, a GSM operator installed a base station to enable mobile telephone communication in the IMT. The aim of the refuge is to protect people inside a confined waterproof space if the worst case scenario of flooding in IMT occurs. Calculations were made such as flooding velocity etc. The refuge was designed to provide all basic needs like ventilation, illumination, first aid, food and toilet etc. As the capacity of the refuge was 40 persons, only 40 workers were permitted to work in the IMT at one time. A rescue barge was kept ready throughout the duration of the work. To explain the rescue operation briefly, the barge pulls up to the vicinity of the refuge, a rescue shaft is inserted and installed by divers into its nest on the refuge roof, from where the workers are evacuated with the help of the crane mounted on the barge and a cage to pull them up in. In this project all specific safety considerations that this project deserves, were implemented. And the work was completed without any need for these to be used.

Keywords: Refuge below sea

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Is Safety a Priority or a Cultural Issue?

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There is an undeniable progress at occupational safety. Considering thousands of fatalities at great projects such as Suez Channel or hundreds at Hoover Dam, adopting the slogan "safety first" at every workplace is a great progress. However, we see that it can easily fall behind Time and Cost. If something is part of our culture and custom, we do adhere with it, whereas if we do it out of obligation or to show off or for our reputation, then we return to our original behavior when we get the chance and start violating it. For example, if it is customary in our culture to wash our hands after a visit to the toilet, we will do so even at a deserted location. However, if it is not part of our customs and culture, we will neglect washing our hands even if we are in the WC of a luxurious plaza. Safety culture and behaviour-based models should be established in our organizations. This requires more than writing procedures and punishing the ones that don't obey. The behaviour of people is influenced by several internal and external factors. Discipline, job factor, human behaviour or failure, competence, training, reward and communication are only some of the key factors that make up and influence the safety culture. Eventually, the development of a positive safety culture lies in the hands of the senior management. We adopt the culture surrounding us, whether we want to or not. In an office where all the people wear suits and ties, we would only wear blue jeans 2 or 3 times before we conform to the general dress code. As usual, it will be hard to resist a safety culture at an organization where the risks are taken into consideration and where measures are taken at an early stage.

Keywords: Safety culture

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Sick Building Syndrome and Technical Measurement Methods of Indoor Air Quality

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Especially in office and closed work places air quality is an important factor for worker or person. Indoor air quality generally refers to the quality of the air in an office environment. Complaints about IAQ range from simple complaints such as the air smelling odd, to more complex, where the air quality causes illness and lost work time. Sick building syndrome (SBS) is used to describe situations in which building occupants experience acute health and comfort effects that appear to be linked to time spent in a building, but no specific illness or cause can be identified. The complaints may be localized in a particular room or zone, or may be widespread throughout the building. Indoor pollution sources that release gases or particles into the air are the primary cause of indoor air quality problems in homes and offices. As you spend most of your time at work, you may find that you suffer more during working hours which increases over the week. Symptoms can negatively affect your productivity, mood and motivation. There are many sources of indoor air pollution in any home, offices and closed work places. These include combustion sources such as oil, gas, kerosene, coal, wood, and tobacco products; building materials and furnishings as diverse as deteriorated, asbestos-containing insulation, wet or damp carpet, and cabinetry or furniture made of certain pressed wood products; products for household cleaning and maintenance, personal care, or hobbies; central heating and cooling systems and humidification devices; and outdoor sources such as radon, pesticides, and outdoor air pollution. In this study our aim is; learning the technical measurement methods for indoor air quality such as suspended particulates, air flow, dust, moisture, chemical materials like toluene, benzene, volatile organic compounds, carbon monoxide, nitrogen dioxide, respirable particles and biological contaminants like bacteria, molds, pollen and other viruses.

Keywords: Indoor air quality, sick building syndrome, measurement methods

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Special Applications for Improvement of Health and Safety Performance at Construction Works

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At any workplace, potential fatal accidents must be prevented as a fundamental objective of the health and safety (HS) applications. Similarly, permanent personal incapacities and the day away from work cases (DAFWC) must be minimized as much as possible. The strategic approach in this context is a continual proactive improvement of the HS performance with the target that residual risk levels, after corrective and preventive actions, would be ALARP (As Low As Reasonably Possible). In relation with this target, it is for certain that job specific special applications would be required additionally on top of the basic mitigation measures such as those of the related legislation, standards and codes applicable to the work. The identified direct and root causes of the accidents and near misses demonstrate that



uncontrolled external effects, human mistakes, equipment and material failures are the initiating events of the incidents. This background must be diligently and prudently used for planning and implementation of the corrective and preventive actions against the incidents, deviations and non-conformances. In the course of execution of past and present construction works, a number of special applications have been developed, based on the practice and experience, for control of the HS risks. In connection therewith, the following special applications are introduced in the present paper: i. Task Specific HS Plans under expertise for high risk operations, ii. Permit to work for critical activities, iii. Management of change (MOC), iv. Tracking of deviations and non-conformity, v. Cross check of HS supervision and CPAR, vi. Emergency management and drills by experts. vii. Drama for lessons learnt for highest degree of awareness, viii. Tool-box drama, ix. Specific technical and competency trainings, x. Incentive for workforce involvement, xi. Specific audits by experts, xii. Selection, test and maintenance of equipment and material, xiii. Periodical color coding of electrical equipment.

Keywords: Special applications accident prevention safety management system

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Joint Project to Research Silicosis Prevalance and Working Conditions of the Workers at Blue Jeans Sandblasting Workplaces

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This joint project was conducted in coordination with Ministry of Labour and Social Security Directorate General of OHS, Ministry of Health Istanbul Occupational Diseases Hospital and Bursa Tuberculosis Fight Society. The project covered totally 93 employees working at 15 workplaces which produce blue jeans by sandblasting. In these workplaces, dust measurement and analysis were performed within the framework of workplace environment surveillance and silica was determined in about 42% of these workplaces. Besides that, workers' health surveillance was conducted effectively; PA Chest radiographies of the workers were evaluated in accordance with International ILO Classification 2000 by A and B readers. As a result, about 40 % of the radiographies were found as above than 1/0 category in ILO Classification. Within the framework of health surveillance, respiratory function tests of the workers were also performed and according to the results of these tests, 11% of them were determined as pathologic level. Regarding the other aspects of the project, there was no statistically correlation between working hours, respiratory function tests, smoking and determination of silica.

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The Role of Social Service in the Industry Safety and Health in Minas Gerias

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The daily life of a company brings endless situations that may result in accidents. The SESI concerned to reduce accidents in industry brought to Brazil to experience the European Agency for Safety and Health at Work (EU-OSHA), which resulted in the Risk Assessment campaign. The goal is to promote a method of risk assessment in the workplace, which can be implemented by security professionals and health. The research question that guided the development of this work was to know what industries do with the requested material on the site. The aim is to assist the industry in preventive and corrective SST, providing technical support in the use of materials, and from the use of the material is expected to reduce its indicators. Such indicators collected starting at applications of questionnaires to 17,655 employees of the CNAE-National Code of Economic Activities of Metallurgy, applied in the period from 21/07/2007 to 08/07/2010 in MG. The results of the indicators of the industries of the state of MG were 5.6% have tendonitis or RSI, 14.4% have problems of the spine, while the analyzed industry: 2.8% have tendonitis or RSI, 10.9% have problems column. The result of the consultancy was satisfactory according to the satisfaction questionnaire answered by the industry. Among the difficulties encountered by consultants in the case study, include: lack of communication between hierarchical levels, a low level of employee participation in the system, inadequate planning of actions, lack of indicators for measuring performance and SST's non-establishment of security as one of the company's strategic objectives. It is believed therefore that the objective was reached, as by means of meetings identified the company's difficulties in its management and the guidelines regarding the materials were presented.

Keywords: Security, business, health, industry

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RECODESTIL (Recreation, Leisure, Entertainment): A Physical, Social and Psychological Factor to Prevent Occupational Diseases at Construction Sites

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"The crisis of industrial society into question many of our cultural values, our role models, our professional expectations and the use and guidance of leisure and free time (...) We conclude that the nature of work, social relations of leisure time are changing or have to change radically. " Persistent situation worse by new ingredients that must be analyzed to understand their effects on the behavior of the infinite quest to prevent diseases. Any discussion on the future of free time people and their new occupations will necessarily related to the analysis of technological advances, changes in the production process and the social changes they cause. Employment and wage work as productive business activity does not escape from their collateral effects on the daily physical and psychological-social members. These two concepts are currently undergoing a transformation that disrupts their social content and function productively. You need to build measurement factors to affect the passage of the concept of full employment to the concept of full activity, an activity more rich and meaningful in a different occupation. This new concept is already manifest as a possible alternative and innovative concept that transforms the empty time to time released. Time



freed up by the machine to engage in an activity where creativity, initiative, aesthetics, solidarity, social service, family life, art, literature, cultural activities, education, etc. Play a completely different role and to prevent the emerging diseases given by the stress.

Keywords: Measurement of physical-social-psychological nature of work, social relationships, leisure time, work stress, occupational disease prevention, RECODESTIL (recreation, leisure, rest and free time)

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Safe Work at Heights as a Corporate Social Responsibility

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It is frequent to hear the phrase: "The law does not require it, should not comply". This phrase in the world of the SECURITY AT WORK, leads to a transcendental dilemma for the ones that day to day have the responsibility to look for the lives of the workers, that oscillates in a pendulum between the being and the must be (duty of being) , in other words, between the actions that in the field of safety must be made, and others that the organizations asked not to be made because they are not "required by law", way beyond the positive or negative consequences that this must bring with it. Fortunately, the world has advanced in the field of the Corporate Social Responsibility (CSR). In Empresas Públicas de Medellín (EPM <http://www.epm.com.co/epm/web/Documents/brochure/brochureinstitucional2010.pdf>), the health and the Industrial Security, make part of the CSR, and we make it with a public and explicit declaration to our group of interest, in this case our workers, with a view of providing public services (Electric energy, water potabilisation, natural gas distribution) with quality and efficiency in the compliance of their social object, as an public enterprise. It's the active and voluntary contribution to the social, economic and environmental improvement, with the objective of upgrading the competitive situation by generating added value, like in the subject of SAFE WORK AT HEIGHTS, we have advanced way beyond the fulfillment of laws and the norms, assuming their respect and strict compliance. Although Colombia is not in force the regulations for safe work at height (effective June 2012), EPM has already certified 1560 workers in labor competencies, as part of its CSR program, in partnership with the Professional Risk Management COLMENA ARP.

Keywords: Corporate social responsibility (CSR), safe work at heights, added value

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Associations among Sociodemographic and Labor Variables and Diseases Groups with the Presence of Psychosocial Factors in Workers of the Electric Train System, Guadalajara, México

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In the world there are millions of workers who suffer any kind of occupational hazard: Accidents or occupational diseases due to continuous exposure to occupational risk factors. The objective was to analyze the association between the psychosocial factors and health aspects. The study was descriptive, cross sectional and analytical. The population was made up of 506 workers (census) in the Electric Train System in Jalisco, Mexico. We included all management and operating workers that were available to answer the evaluation tools on a voluntary basis. To gather the information, the following assessment tools were used: 1. A questionnaire with socio-demographic, labor and health problems items, 2. The Guide to Identify Psychosocial Factors developed by the Mexican Social Security Institute. The 92% of the 506 workers participated. Less than half of workers (43.4%) reported had having an illness in the past six months. The most frequent illnesses were respiratory problems, no respiratory infections, gastrointestinal and musculoskeletal. 20% of the population reported that their illness was related to their work. The 26.9% reported the presence of adverse psychosocial factors in their work area and, by areas, the following: Social interaction (34.1%), dependents of the task (33.3%), working system (24.9 %) and organizational (12%). The only negative associations were: To be man with the areas of work system, the social interaction and the total of the areas; to have a couple with the work system, to work on a mixed shift with the social interaction, to be dissatisfied at work with the organizational area, as well as the upper respiratory diseases with the total areas and the gastrointestinal diseases with the task area. However having more than 40 years of age and over 8 years of seniority, acted as protective variables to the dependent areas of the task and of the work system.

Keywords: Sociodemographic and labor variables, diseases groups, psychosocial factors

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Mechanical Determinants of Carpal Tunnel Syndrome in a Population of the Colombian Flower Industry

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Carpal tunnel syndrome is the most frequently recorded occupational disease in Colombia. The flower industry has been mainly affected, with annual incidences that are over 500 cases per 100,000 workers in recent years. We aimed to assess the mechanical determinants of CTS in a population of workers of the Colombian flower industry. In this cross-sectional study, 160 workers from eight flower manufactures were recruited. There were three levels of data collection. First, all workers were interviewed about demographics, tasks' durations and self-reported effort associated with those tasks. Physical examinations allowed determining a medical impression for the presence of CTS (CTSMI). Second, 80 workers were video-taped to estimate the Job Strain Index for the workers' main job task, cutting, packing or a combination of those tasks. Third, upper-extremity postures and kinematics of 40 workers were assessed using the CUELA measurement system. Independent variables tested for association with CTSMI included demographics, effort, and mechanical demands derived from observations and direct measurements. Prevalence of CTSMI was 33.1%. In the adjusted analyses only effort at work was significantly associated with CTSMI. Differences in occurrence of CTSMI by task were mostly explained by gender and effort. Further adjustments indicated that median velocity of the hand in the flexion-extension and ulnar-



radial directions; and the main elbow flexion relate to CTSMI and explain residual differences in CTSMI occurrence by task. CTSMI occurrence is high in this population and is partly explained by work mechanical demands. Positive associations of hand velocity-related variables and elbow flexion with CTSMI suggest that interventions should be oriented to reduce work pace and increase work breaks.

Keywords: Upper limb, agriculture, epidemiology

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Psychoeducational Intervention in Symptoms of Stress, Job Stressors and Psychophysiological Markers in Nurses a Hospital in Mexico

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Objective: To determine the effect of a psychoeducational intervention with cognitive-behavioral approach, on the symptoms of stress, perceived occupational stress and some psychophysiological markers in nurses tertiary care hospital in Guadalajara, Mexico. **Methodology:** Was designed and implemented an intervention program to reduce the effect of job stressors. Measurements performed before, after and 3 months after surgery, we take the group as its own control. Prior to the intervention was screened for nurses with symptoms of stress. 24% found, was included as an 8 nurse practitioners, who had no medical diagnosis of chronic illness or have psychopharmacological treatment. Confirmed symptoms of stress scale exploring Seppo Aro psychosomatic symptoms, emotional and conative, with Cronbach alpha of 0.83, also the Nursing Stress Scale for occupational stress, blood samples were analyzed to determine glucose, triglycerides, cholesterol and cortisol before and after 3 months after surgery. Data were processed in SPSS version 15 using descriptive statistics and student t Association. It took signing an informed consent. **Results:** The intervention program reported statistically significant reduction of the immediate post-evaluation of stress symptoms $p = 0.01$ and 3 months $p = 0.00$; as well as perceived occupational stress with a value of $p = 0.03$ intervention immediately and $p = 0.05$ at 3 months postintervention. Psychophysiological markers, only glucose and cortisol were significantly decreased ($p = 0.01$ and $p = 0.04$ respectively). **Conclusions:** The intervention program designed for nurses for tertiary care, was effective in reducing symptoms of stress, perceived occupational stress, glucose and cortisol, that normal maintenance can contribute to reduced risk of some chronic diseases like diabetes and hypertension.

Keywords: Psychoeducational, illness, symptoms

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Analysis of Work Related Accidents in the Mining Sector from 2000-2010: The Case of Minas Gerais State, Brazil

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Background and Objectives: The purpose of this study is to investigate the trends and differentials of workplace accidents registered in the mining sector in the State of Minas Gerais, located in Southeastern Brazil and responsible for more than 40% of mineral production in the country. In addition, it intends to identify some restraints to more realistic quantifications and characterizations of workplace accidents as well as to discuss possible alternatives to overcome them. **Material and methods:** Thus, through a critical view of statistics about fatal and nonfatal occupational accidents originating from two sources: RAIS (Annual Relation of Social Information – Ministry of Labor and Employment) and AEAT (Yearly Workplace Accident Records – National Institute for Social Security), it is intended to measure differentials about the accident results – i.e., temporary incapacity, death and disability, conceive benefits, lost work time, accident description, ages, sex, instruction degree and occupation – by a selection of specific variables of both data sources, an a geographical cross-cut analysis separated in themes related to accidents reality. **Results:** From 2000 to 2010, workplace accidents in the mining sector kept a relatively high level. In fact, they are rising. Except for 2001 and mainly for 2003, when it fell, this trend remained practically unchanged in the period. Yet, this fall may not reflect larger outsourcing and/or an increase in informal work relations. Even so, its figures, when transformed into accident and death rates or, more specifically, in lethality rates, places the sector in an uncomfortable rank. **Conclusion:** The data found in these records can be intrinsically improved and their cover range can be broadened. Even keeping the particularities of mining sector on a regional scale, this work shows a concrete analysis followed by propositions of intervention to achieve a general better workplace accidents statistics in Brazil.

Keywords: Occupational diseases, Brazilian social security

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Social Security in Brazil: the Impact of Epidemiological Nexus on the Benefits Related to Occupational Diseases

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Background and aims: The Ministry of Social Security in Brazil, in order to face the under-reporting of occupational accidents and diseases, has introduced new methods of identifying them. In addition to the Employment Accident Notification (CAT), the Technical Epidemiological Social Welfare Nexus (NTEP) was established in 2007. This work intends to analyse the role of the NTEP in improving information regarding to the work-related diseases and, more specifically, on the trend and variation of benefits paid for them. **Methods:** Through the NTEP it is possible to establish a nexus for each area of the economic activity, focusing on data of incapacitating diseases recognized by social welfare and involving more than 15 days' absence from work, using the International Classification of Diseases (ICD-10). The period 2005-2008 is taken here as landmark to examine the early impacts of NTEP on the statistics and benefits paid. **Results:** During the period, benefits for work-related diseases increased 128.2%. However, the greatest changes occurred in 2007. With this, a largest impact on estimates of the benefits paid by Social Security. From May 2006 to March 2007, when only the employer's CAT was used, 125,246 Accident and Disease Assistance authorizations were issued. But, with the addition of the NTEP to the CAT this number rose to 293,912, an increase of 134.7% over the period from April 2007 to February 2008. The



detachable figures are for “musculoskeletal system and connective tissue” (107,764 cases), “mental and behavioral disorders” (8,930 cases), and “diseases of the nervous system” (8,396 cases). Discussion and Conclusions: The accident benefits for work-related diseases are growing more than other welfare benefits. This reality requires more studies and technical insights as well as priorities in terms of specific strategies for OSH policy.

Keywords: Mortality from work-related accidents, information and data sources, Brazilian mining and construction industry

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Mining Sector in Brazil: Retirements for Workplace Accidents and Work-Related Diseases from 2000 to 2010

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This study presents an exploratory analysis of data regarding to retirements caused by workplace accidents and work-related diseases in the Brazilian mining sector from 2000 to 2010. It includes groups and classes of this activity according to the CNAE - National Classification of Economics Activities. Therefore, it begins by using information from the federal administrative register RAIS - Annual Relation of Social Information – from the Ministry of Labor and Employment. After extracting the data of RAIS about retirements by workplace accidents and work-related disease, problems applicable to data utilization are discussed, especially about the appropriation of information to make technical and scientific studies. Among demographic, socioeconomic and epidemiologic variables selected, the assignment seeks to measure differentials, according to age, gender, education, and companies size. Sequentially, on the perspective to increase knowledge, some RAIS data is compared with another equivalent administrative source – in this case the CAT System -, from the Ministry of Welfare, regarding, for that, the referred period above. In short, given the nature and potentiality of data explored here, including their gaps, the present assignment also seeks a critical assessment of the information about workplace accidents and work-related diseases in the country. In this sense, new studies and cognitive possibilities are suggested in a way which new profiles can be achieved in relation of the object of study here focused, as well as on its consequences for society.

Keywords: Brazilian mining sector, workplace accidents and work-related diseases, retirements

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Training Studies of HESME Train

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Development process of occupational safety and health awareness in Turkey has been in parallel with the economical and social developments as in other developing countries.

HESME Programme named as Health, Environment and Safety Management in Enterprises carried out with cooperation of World Health Organisation, International Labour Organization, United Nations Environment Programme and European Commission has been a new and as well as a necessary tool which introduced environment aspect to the traditional safety and health concept.

HESME Programme that enables environment, safety and health problems to be handled with a holistic approach in small and medium-sized enterprises which are especially crucial for developing economies has been a guiding action for our country within the European Union accession period.

With HESME Training Train, in 2002 Northern Anatolia Route and in 2003 in Southern Anatolia Route totally 55 symposium are organized in 33 province and district with a view to establish and promote implementation of HESME “Health, Environment and Safety Management in Enterprises” approach which is accepted as a result of the 1st International Occupational Safety and Health Regional Conference organized by our Ministry in 2001. Within the project coverage primarily in every province by establishing an Occupational Safety and Health Council preliminary preparations are done and contribution of all social partners is provided. Moreover the first competition covering all the country, between municipalities regarding Environment, Health and Safety is organized and the actions taken by the municipalities on this subject is encouraged. Additionally competitions between students like painting and slogan competitions are organized and promotions are handed out.

Within this work the results of a mission to build up awareness about environment, health and safety at work are shared.

Key words: Workplace, health, safety, environment, education

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Management’s Role for Safety and Management of Safety

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Although there are many issued legislations to underline the role of top management in Turkiye, the management of safety is left only to the hands of Health and Safety Engineers and legislative committee. Widely, “management support” sounds as a cliché. This presentation aims to explain management’s role to provide safety in the workplaces. For top management, “safety” is something to meet the legislative requirements. Top management’s visible and demonstrable ongoing support is needed for an established safety culture. The examples of good practices from the applied research and professional work will be shared. And also the real life cases from Turkiye will be discussed in terms of the management’s role. If the role of the safety in the business is understood, the management’s role in safety will be much more supportive.

Keywords: Management, leadership, safety management, health and safety



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The Study of Surviving of Bacteria on Charcoal Filters under Nutrient, Moisture Regain and Water Content Conditions

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When the severe acute respiratory syndrome (SARS) or Hemagglutinin 1 Neuraminidase 1 (H1N1) virus attacked human beings all over the world, some people in Taiwan wore activated carbon mask to prevent inhalation of hazardous bioaerosols. However, activated carbon mask is designed to adsorb gaseous contaminants, but not to use for filtering of aerosols. The activated charcoal may provide better space for the survival of bacteria, and indirectly hurt human body for re-entrainment of bacteria. The study used a Collison nebulizer to generate *Bacillus subtilis* endospores or *Escherichia coli* as challenge aerosols. The single stage Anderson sampler was used to monitor the bioaerosol concentrations of the tested chamber. The charcoal filters, were loaded inoculum by using pipette. After that, the filters were added different nutrients (included sterile water, artificial saliva and artificial perspiration, placed in constant temperature and humidity incubators, and stored in different conditions. The moisture regain of activated charcoal were included in the experimental parameters. The ultimate goal of the study will provide people selecting proper masks in the outbreaks of epidemic diseases. The results showed: The six type activated charcoals and surgical charcoal mask had high moisture regain and water content at 95 % relative humidity. The *Bacillus subtilis* loaded in the six type activated charcoals had obviously growth-and-decline succession under 95 % relative humidity and 25 °C conditions.

This phenomenon could reveal that *Bacillus subtilis* survived in the six type activated charcoals. Moreover, the similar survival results occurred in *Bacillus subtilis* loaded in the surgical charcoal masks. However, *Escherichia coli* could not survive in the six type activated charcoals last for 24 hours, except in columnar activated charcoal under adding artificial saliva, distilled water or artificial perspiration.

Keywords: Activated charcoal, bioaerosol, moisture regain, nutrient

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A Study of Occupational Stress in Employees of a Thermal Power Plant

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To investigate the stress and depression level and explore their relationship in thermal power employees. 383 employees of a thermal power plant were investigated using cross-sectional method. Questionnaire included basic information, Job Content Questionnaire (JCQ) and Center for Epidemiological Survey Depression Scale (CES-D). Finding showed Cronbach's



alpha were 0.466~0.842 among latent factors and 0.740 total items of JCQ, 0.904 total items of CES-D. The percent of high occupational stress was 40.1%, while the percent of low occupational stress was 56.0% according to the ratio of job demand and job control compared to 1. Multivariate analysis showed that some factors affected occupational stress such as marital status, daily work hours, the level of satisfaction with working conditions, occupational hazards (high temperature, screen operation), and the level of life stress. The positive of depression predisposition was 61.4%. The influential factors (age, length of service, repetitive work, department, physical health, the ability to ease work pressure, high temperature, screen operation, and the level of life stress) related with depression. Besides, passive employees and high employees have higher depression scores, respectively 20.76 ± 8.25 and 21.65 ± 9.96 . The depression scores were higher with the increase of the ratio of job demand and job control and the decrease of the social support level. The analysis of depression showed that older, passive type (OR=1.407), strain (OR=1.467) were the risk factors of depression.

Keywords: Occupational stress, depression level, study

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Participative Detection of the Occupational Risks in the Tunisian Industry of Textile

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Introduction: Occupational health practitioners must place at the disposal of the companies, in Tunisia as elsewhere, simple but powerful tools, for the recognition, the evaluation and especially the prevention of occupational hazards. That is particularly urgent in the textile sector which, in the area of Monastir, has the highest rate of industrial accidents and occupational diseases. The objective of this work was to figure out whether or not the Déparis guide, first level of the Sobane strategy, could fulfil this role in the industrial and cultural Tunisian context and to determine how it could be integrated in the general system of business management. Material and Method: The Déparis guide was used in 10 companies of the textile sector in the Monastir area, while following the prescribed procedure. Results: The 20 Déparis meetings made it possible to formulate 270 preventive actions, 75% of which are concrete and not very expensive. These proposals were mainly related to the work organization, the maintenance of the working rooms and motivation of the workers to use the personal protective equipments. The main risks highlighted were the noise and the dust contamination. The psychosocial aspects (autonomy, individual responsibilities, employment relationships within the personnel and with the hierarchy, psychosocial environment) were considered to be normal or satisfactory, but the participants hesitated to discuss these subjects, fearing that it could jeopardize their professional positions. Conclusion: In spite of the difficulties encountered in using the Déparis meetings, this approach contributed considerably to bring out the occupational risks and was the starting point of several in-depth studies particularly aiming to limit the risks of noise and dust contamination in the textile sector.

Keywords: Prevention, screening, textile, SOBANE

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Ergonomic Study Of Musculo-Skeletal Disorders in Monastir Hospital (Tunisia)

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Aims: Musculo-skeletal disorders are a major health problem mainly in health care units. Many methods have been developed in order to assess such risk according to OWAS (Ovaco Working Analyzing System) method. The aims of our study is to estimate referring to an observational method the charge and the physiological tension on the musculoskeletal system caused by the postural charge and task requirements in health care units. **Methods:** An ergonomic study in the university hospital of Monastir including a representative randomised health care personnel group. This study was established according to OWAS method which is a semi quantitative analysis referring to observation of the risks related to the constraining work postures. **Results:** The painful postures were observed at mean during 18% of the total work duration. Among all professional categories, the “back leant ahead” posture was observed at mean during 45.2% of the total work duration. The “twisted back” posture was observed during 20% of time. The upright posture represents almost half of global duration mainly among surgeons (84.1%) and midwives (72.3%). A handling activity exceeding 10 kg was observed in 10% of total work. **Conclusion:** The major constraints in a health care environment are the unfavourable handling and postures. Methodology used allowed us to identify and to quantify risks related to the constraining postures of the work station. Results were given in the global scale and by physical zone (back, arm, legs). However, this method is not applicable for the wrists and does not approach other risk factors such as the repetitiveness and the time of preservation of a physical activity. The musculo-skeletal disorders prevention is complex because of a multifactorial origin. It should include a screening step allowing the detection of possible risk factors followed by an interventional step which is an ergonomic approach aiming the adaptation of the work to man.

Keywords: Musculo-skeletal disorders, OWAS, healthcare personal

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A more Objective Evaluation of the Repetitiveness in the Compensation of Musculoskeletal Disorders: The Case of Tunisia

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During these last decades, the incidence of occupational declared upper-limb musculoskeletal disorders (ULMSD) did not stop increasing with an alarming evolution of their human and financial costs. These pathologies, joining a probabilistic model, are characterized by a causality shared between occupational and non occupational risk factors with a more controversial participation of each one of them. In addition to the organizational and psychosocial factors, the main biomechanical constraints (postures, repetitiveness, strength level developed and static work) were the predominant influences according to the articular areas. Among these factors, the repetitiveness is a notion which remains ambiguous

and vaguely defined in numerous studies, guides for physicians, as well as in compensation systems. This notion leads to subjective interpretations, and significant different appreciations, particularly for indemnity procedure. In Tunisia, aiming to limit this subjectivity, to emphasize this disorder identification and to establish more effective prevention strategies, an expert's consensus with a revision of the table number 82 was established. This consensus proposed a more objective tool for repetitiveness evaluation by considering the gestural variability as an indicator of the repeated movements, one of major biomechanical factors of the ULMSD. Therefore, the number of the movements per minute was considered and a minimum duration of exposure in the repetitive work was fixed. The elaboration of such tool will insure for the medical practitioners an early screening of the potential TMS risk situations, and so assess a more efficient prevention intervention; as well as a more equitable satisfaction of various social partners.

Keywords: Musculo-skeletal disorders, OWAS, healthcare personal

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Combined Effect of Production Factors on the Functional State of Operators Involved in Shift Work

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In the work process a man-operator is exposed to a combination of factors of the work environment and work process. In full extent it is related to shift work. The assessment of the degree of development of biological effects under the combined action in comparison with the isolated exposure is of great importance for the problem of hygienic rating and improvement of the acting legislation on occupational health. The purpose was to establish peculiarities of the combined effect of work-environmental factors (noise, air temperature) and the work process (shift work and work strain) on human physiological functions when simulating operator's activity in the experiment. The studies were conducted according to the plan of 4-factor experiment with participation of volunteers, aged 19-21. Different levels of the thermal loads have been simulated ($t = 22, 29^{\circ}\text{C}$), noise (60 и 80 dBA), mental load (high and low intensity) and shift work (day and night shifts, duration 12 hours). The studies were conducted in the experimental chamber with simulation of the strain mental activity, by proposing different complicated test tasks. Heart rate, arterial tension, body temperature as well as indices of the subjective state (state of health, activity, mood and thermal sensation) have been recorded every hour. The results of experimental studies point to mainly synergetic effect of work-environmental factors and the work process on indices of the functional state of volunteers when modeling operator's activity. It is found that the effect of the studied factors and their combinations depends on the factor's nature, its rate and time of the day. The shift type of the work (work in the night shift) and work strain play a leading part in the combination of factors influencing the operator's work. Concomitant factors (noise, microclimate) in certain conditions can significantly strengthen biological reactions of a man, involved in shift work.

Keywords: Man-operator, work-environmental factors, combined effect

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Aerosol Penetration through Particulate Protective Clothing Materials

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A variety of protective garments, currently used in health care industry, were tested for aerosol penetration and air resistance. A constant output atomizer and an ultrasonic atomizing nozzle was used to generate polydisperse sub-micrometer-sized and micrometer-sized particles, respectively. Two different particle size spectrometers were used to measure the aerosol concentrations and size distributions upstream and downstream of the filters: A scanning mobility particle sizer for particles smaller than 0.7 μm , and an aerodynamic particle sizer for particles larger than 0.7 μm . For active sampling method, filtration velocity ranging from 0.01 to 20 cm/sec was adopted to study the flow dependency. The closed-return sampling train method was conducted in a wind tunnel-like chamber. The flow rate of the closed-return system, the configuration of the sampling train, and the external approaching velocity were the principal operating parameters. The fluorescent aerosol method shared the same test apparatus with the closed-return sampling train method, except that monodisperse uranine particles, were used as challenge aerosols. Under extremely low face velocity, gravitational settling became the principal filtration mechanism. This was particularly true for large particles. Transition from gravitational settling to inertial impaction was best demonstrated by rotating sampling orientation and changing face velocity. Both active sampling method and closed return sampling train method showed that the aerosol penetration through clothing with seam was much higher than that of clothing without seam. The approaching velocity played an important role pushing aerosols through particulate protective clothing. However, this effect diminished as the velocity decreased or the air resistance of the clothing material increased. In general, the aerosol penetration measured by active sampling method was about 10 times higher than that of closed return sampling train method. The aerosol penetration determined by fluorescent aerosol method decreased by a factor of 100 when compared to active sampling method.

Keywords: Aerosol penetration, protective clothing, seam

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CD/DVD for SME: Safety and Health at Work – A New Tool for Small Enterprises

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Safety and Health at Work – a new CD/DVD tool for small enterprises especially small enterprises do often have difficulties to get along with the regulations concerning safety and health at work. What obligations do exist in the field of machinery, chemical agents or workplace assessment? What for is a safety technician and does every enterprise need the services of a workplace hygienist? These and similar questions are important for responsible persons in small enterprises and the CD/DVD deals with them in a comprehensible way. The



CD/DVD „Safety and Health at Work“, Version 5.0 is an enhanced version of a former version and was developed by AUVA and the Austrian social partners, offering an attractive and appealing overview about the topic safety and health at work. Film sequences can be watched and virtual walkabouts through the enterprise can be done. Machines and other workplaces can be examined, the typical hazards can be investigated. Furthermore there are checklists and documents for workplace assessment as well as a dictionary with more than 500 of the most important notions.

Keywords: Building site, production, trade and service, office

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Workplace Field Testing of the Pressure Drop of Particulate Respirators Using Welding Fumes

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The present study evaluated particulate respirator pressure drop (PD) based on workplace field tests. A field PD tester was designed and validated using the TSI 8130 Automatic Filter Tester, designed in compliance with NIOSH regulation 42 CFR part 84. Three models (two replaceable dual-type filters, one replaceable single-type filter) were evaluated against CO₂ gas arc welding on mild steel in confined booths in the workplace. Field tests were performed under four airborne concentrations (27.5, 15.4, 7.9, and 2.1 mg/m³). The mass concentration was measured by the gravimetric method, and number concentration was monitored using P-Trak (Model 8525, TSI, USA). Additionally, photos and scanning electron microscopy-energy dispersive X-ray spectroscopy (SEM-EDS) were used to visualize and analyze the composition of welding fumes trapped in the filters. The field PD tester showed no significant difference compared with the TSI tester. There was no significant difference in the initial PD between lab and field results. The PD increased as a function of time and fume load on the respirator filters for all tested models. The increasing PD trend differed by models, and PD increased rapidly at high concentrations because greater amount of fumes accumulated on the filters in a given time. The increase in PD as a function of fume load on the filters showed a similar pattern as fume load varied for a particular model, but different patterns were observed for different models. Images and elemental analyses of fumes trapped on the respirator filters showed that most welding fumes were trapped within the second layer, first layer, and third layer, in order, while no fumes were observed beneath the fourth layer of the tested respirators. The current findings contribute substantially to our understanding of respirator PD in the presence of welding fumes.

Keywords: Welding fumes, workplace field-testing, particulate respirator, filter layer

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Comparison of Nanoparticle Concentrations by Task Based Exposure Assessment in the Workplace

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Nanoparticles have been concerned due to their potential toxicity to human health. Several exposure strategies have been explored to assess exposure to nanoparticles. The purpose of this study is to explore a strategy called 'Task Based Assessment (TBA)' during engineered nanoparticle manufacturing/handling in occupational settings. Continuous monitoring with SMPS (Scanning Mobility Particle Spectrometer), SAM (Surface Area Monitor), OPC (Optical Particle Counter), and CPC (Condensation Particle Counter) was used for 36 hours in an engineered nanomaterial manufacturing factory. To define the task, detailed contextual information was acquired during a full work shift. Background concentration was monitored during off-duty night hours. Number concentration, Surface area concentration and Size-distribution were measured. Geometric mean (GM) and Geometric standard deviation (GSD) were calculated to compare the TBA concentrations. The concentration profiles differs according to the types of nanoparticles, handling methods, specific task, among temporal variation such as handling, break time and background time. There was significant difference in number concentration, surface area concentration and particle size distribution by TBA (e.g. Silver nanoparticle filtering, Aluminum or Titanium dioxide nanoparticle mixing) in the FSA. For example, surface area concentration, aluminum mixing activity showed $210.88 \mu\text{m}^2/\text{cc}$ (1.51) and smoking showed $154.01 \mu\text{m}^2/\text{cc}$ (1.15). Background surface area concentration was $50.53 \mu\text{m}^2/\text{cc}$ (1.45). The size distribution was also varied depending on the task. This study suggests that TBA during full shift monitoring with detailed contextual information could provide useful information to predict worker exposure profile. A better sampling strategy for nano material exposure assessment should be considered to maximize the use of the numerous data from various real time monitoring instruments. (This research was supported by Basic Science Research Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Education, Science and Technology(No. 2009-0073407) & KOSHA Reprot No. 2010-78-895)

Keywords: Nanoparticle, task, SMPS, exposure

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An Appraisal of the Positive Actions Undertaken by European Construction Professions to Ensure Health, Safety and Welfare is an Integral Aspect of Competency of their Registrants

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How can designers' competence be developed and used in a meaningful and beneficial way to ensure the development of inherently safe(r) designs and the delivery of the objective that



designs should be such that they can be built, used, maintained and eventually demolished safely. The success of any construction process begins with the client and his willingness to commission a project that will bear the test of time and stand acknowledged by present and future generations as a symbol of excellence in the built environment. The translation of that desire into preliminary drawings, detailed plans, construction and eventually to the finished project will fall to the architects and designers, engineers and principal contractors. The relationship between these players is crucial to the successful implementation of the client's wishes. It has been said that the million-dollar mistake can be traced back to these early stages in the design process and the decisions made at the first scribbling of the design, whereas with early identification and correction, using a structured design checking process the costs would be marginal, by comparison. Designers are in a unique position to eliminate or reduce the risks that arise during construction work and have a key role to play in the design and management of construction projects. The earliest design decisions can fundamentally affect safety and health. It is tasked to the designers and engineers to advise the client on the feasibility and viability of his project as well as the resource requirements to make it work. Behind any project there are fundamental principles that are universally applicable and which the designers and engineers must keep to the fore from the outset. And at the heart of the achievement of these principles are educational and professional standards.

Keywords: Education, professional review, code of ethics, occupational health and safety

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Arp Sura's Involvement in the Porce III Hydroelectrical Project

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The topography and the wealth of natural water in Colombia allow the development of hydro generation projects which require the construction of dams, underground excavation and large ancillary works. In answer to the need to protect the life and health of the workers in this sector and to offer them security, ARP SURA has developed a strategy of intervention which was implemented during the construction of Porce III hydroelectric project. The project, with a generating capacity of 660 MW, a cost of USD 1.3 billion, was constructed between January 2006 and December 2010. ARP SURA was involved in covering the occupational risks of 4,000 workers. ARP SURA applied its corporate strategy of Occupational Risk Management based mainly on risk prevention, counselling and training. ARP Sura advised the company in the application of a management system that ensured the implementation and tracking of the SISO program, and was involved in the identification and control of unsafe conditions and training at all levels of the organization to increase technical skills and develop a safety culture in all areas of work. RESULTS ARP SURA contributed to a change in favour of the workers regarding the historical trend of fatal and serious accidents at hydroelectric projects. It contributed to the control of work related illnesses caused by noise and particulate matter. Programmes regarding preventative medicine and work standards were managed on site. Processes for early return to work of injured workers to their place of work were implemented. Programmes were designed and applied to train all management and operational personnel on the project, according to the specific risks in their area of work. With this, the culture of intervention in unsafe conditions and self-care in all areas of work



was achieved. In the workplace, 170 analyses of risk regarding critical tasks were made and shared.

Keywords: Training, early return to work, reduce accidentability

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Defining the Lumbar Load of Furniture Removers

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Objective: Furniture removers are apparently exposed to numerous lifting and carrying activities from which can result irreversible and degenerative diseases of the lumbar spine. The study analysed typical exposure data to evaluate the work load of furniture removers. **Methods:** Altogether 23 removals of private households have been observed to measure the handled weights and the average carrying distance. For five removals the body postures of one of the furniture removers have been analysed additionally by using the biomechanical motion analysing system CUELA (Ellegast 1998). CUELA summarizes the different body postures and defines the working time in the four different OWAS categories (Karhu et al. 1977). **Results:** The average weight is 16.3 kg (SD ± 7.8 kg, $n = 3603$). In average 184 (± 112) pieces of weight are carried along a distance of 25.5 (± 10.4) metres ($n = 40$). CUELA observes an average exposure time of 55.2 minutes for working with flexed back and 27.9 minutes for working with laterally flexed or twisted back during an eight hour working shift. During one shift the employees handle weights in the range from 10 to 20 kg for a total of 73.5 minutes and weights with more than 20 kg for a total of 56.7 minutes. **Conclusions:** For all furniture removers the exposure to manual lifting and carrying heavy weights is very high. Especially less resilient workers (such as older employees or workers with present musculoskeletal problems) risk an occupational disease of the lumbar spine in the long run. The most important strain factor is the carrying distance. The existing technical support devices (external elevator, wheel board, sack barrow etc.) are used insufficiently by the employees.

Keywords: Lumbar load, spine, furniture removers, manual handling

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The Contractor Quandary: Sustainable Safety Solutions for Short-Term Employees

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Keeping supplemental and short-term employees safe is a priority in many industries. It also brings with it special challenges: • Work assignments can be as short as a day. • Many short-term employees lack exposure to safety programs or access to safety professionals. • Work assignments are frequently in remote locations with limited training. • There may be language issues. • Typically, production pressure is extreme. Given these difficulties, how do



organizations ensure that these work groups are performing safely? As with most organizational functioning, effective safety initiatives begin with leadership motivation, clarity, and demonstration of engagement. Leaders must identify and communicate safety performance and process goals, document expectations, learn to recognize exposure and appropriate intervention, and reinforce safety as a minimum job requirement. Moving from the strategic to the operations level, a data-driven analysis of the most common work-type injuries can then focus safety efforts effectively within the time constraints. This tailoring can include clear definitions of safe work performance, brief and repeated contractor training in these targeted areas of exposure, and frequent safety contacts and feedback by key individuals. This session examines these and other safety activities geared toward short-term employees, and the results leading organizations have achieved in successfully implementing these site-specific interventions.

Keywords: Employees, assignments, safety

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The Zero-Harm Organization: Shifting the Focus from Injuries to Exposures

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The zero harm goal is not simply an extension of injury reduction goals of the past. There are too many examples of organizations with low injury rates that continue to have fatalities, recordkeeping violations, and so on. Instead, zero-harm performance is about creating an environment where injuries are not acceptable and where we do everything possible to prevent them. In other words, we are not just targeting a lower number—we are aiming to develop a new way of thinking about safety performance.

Keywords: Injuries, exposures

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The Zeta 0 Organization: Safety as Strategy

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The development of safety performance over the past 30 years has seen organizations move from a technical and tactical focus to the recognition that leadership, culture and behavior have to support the entire system that supports safety outcomes. Despite these advancements, safety continues to be dominated by a project-engineering mindset where initiatives are isolated, programs are compounded rather than integrated, and progress and thinking remain limited. Led by BST CEO, Colin Duncan, this session challenges conventional wisdom about safety performance with a new six-stage model that describes the progression of organizations from “Safety is a Burden” to “Safety is Who We Are”. Expanding the definition of “good” safety performance, Mr. Duncan describes ten disciplines

that define and drive safety performance, the discernable stages of progression in these disciplines, and the change management principles essential to safety strategy. This presentation is required for any leader who wants to know what is possible and the steps to getting there.

Keywords: Safety, strategy

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Portuguese Public Administration: Is there a System Approach in the Implementation of Portuguese Strategy for Occupational Safety and Health (2008 - 2012)

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Traditionally, the sector of Public Administration has not received attention in the study of work conditions. Related to this sector, OSH statistics are difficult to obtain in Portugal. There are several reasons for that to happen. Some of them related with the absence of a single model of accident participation in public services. Besides this, the main source of information for calculating statistics on occupational accidents is based on evidence provided by the insurers and the social security system. This statistical portrait is not complete because it leaves out all the civil servants who are signatories to the General Pension Fund. The system held two different reporting schemes concerning occupational accidents in Public Administration. There is a remarkable discrepancy between the statistics provided by the Portuguese National Authority for Working Conditions and the data sent by the system of compensation (insurers), which is subsequently processed by the Strategy Planning Office (Ministry of Labour). Altogether, these (and other) constraints influence the ability to achieve an updated OSH profile in Public Administration. The result turns into an increasing need to tackle OSH in public services as a strategic subject. The Portuguese Strategy for Occupational Safety and Health 2008 – 2012 embodies this concern and provides guidelines aimed at to invest in the development of programs for prevention of occupational hazards. This formal aim placed by the OSH Strategy requires an ongoing effort of coordination between different public organizations. This coordination has been hindered by several factors and, in result, it compromise the system approach needed to implement an effective OSH structure in public services. The aim of our presentation is to consider the progress in the implementation of key development priorities set out in the OSH Strategy 2008 – 2012 and main constraints in the development of OSH services and culture.

Keywords: OSH Strategy for public administration, system approach, prevention

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Case Study of RSI Based Epidemiology Whereas Proceedings Pursued at Justice Work in 2007 in Sao Jose Dos Pinhais - Parana - Brazil

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The musculoskeletal disorders related to work - DORT is one of the greatest challenges in Occupational Health. The number of cases is increasing at a level that brings problems with doing business practices that seek to minimize its impact. The epidemiology, which is a basic discipline of public health, can be used for the understanding of the health-disease and is concerned about the development of strategies for actions geared to the protection and promotion of workers' health. The objective was to analyze the judicial proceedings taking place in Sao Jose dos Pinhais - PR in 2007 that was going on Justice Labor. We considered demographics and types of damages of 58 cases in the epidemiological study that has allowed for an overview of the major complaints of workers to support actions to be proposed by public power businesses. The age at which most cases there was the beginning of the 26 to 30 years with 29.3%. The male is what accounts for the majority of such cases with 47 of a total of 58. In periods of work examined the range of one to two years was that obtained the highest number with 32.8% of cases by occupational diseases. The sector of employment that most injuries to the workers was assembled with 60.3% of cases of the workers in the sector. The unions were the most frequent CAT issued totaling 65.5%. The tendinitis was the occupational disease that workers with more injuries 47%. The lesions in the right shoulder were those with the highest number with 35.1%. It was possible to conclude that the sector of assembly, and tendinitis in right shoulder injury were the factors that caused the largest number of cases analyzed.

Keywords: RSI, tendonitis, epidemiology, legal skills

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Effect of an Exercise Program on the Perceived Quality of Life of Warehouse Workers

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Background Musculoskeletal problems are associated with a decreased quality of life. Exercise can improve quality of life resulting in better professional performance and functionality. Aims: The purpose of this study was to evaluate the effect of a low back specific exercise program (LBSEP) on the perceived quality of life of warehouse workers during a period of two years. Methods: 220 subjects were selected from a population of 557 warehouse male workers; 124 were allocated to the experimental group and 96 to the control group. All completed the SF-36 questionnaire prior to the beginning and on the 11th and 22th months. The LBSEP was performed once a day for 8 minutes. The data were analyzed using the SPSS® version 17.0 for Windows®. The student's t tests for independent and paired samples were used with a 95% significance level. Results After 11 months, we verified an increase in all the scores of the experimental group, with statistically differences in the dimensions physical functioning (0.019), bodily pain (0.010), general health (0.004) and role-physical (0.037). The results obtained at the end of 21 months demonstrated significant improvements in dimensions physical functioning (p=0.002), role-physical (p=0.007), bodily pain (p=0.001), social functioning (p=0.015), role-emotional (p=0.011) and mental health (p=0.001). In the control group all dimensions showed a decrease in mean scores. Conclusion: We can conclude that the implementation of a low back specific exercise program has changed positively the perception of quality of life of warehouse workers.

Keywords: Occupational health, quality of life, SF-36, specific exercises



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Implementation of Risk Profiles in Mexican Sugar Mills

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This article is based on the modernization labor process of the sugar industry in Mexico to confront the gaps of a decent and productive work, specially the notable high level of accidents (2 to 3 times higher than the national average). The development of a sectoral competence profile which highlights the issue of security, health at work and the implementation of Risk Profiles in 14 sugar mills since 2009 is a change with demonstrative effect for developing and strengthening the management of safety prevention and health of a responsible company. The Mexican sugar agribusiness has direct impact in 12 million people and their families; the modernization process is caused by a loss of competitiveness and the consequences of labor relations historically conflictive. This is a change that creates a virtuous circle where the political will of the actors in the sector learns from the rigorous standards and technical innovation required which emphasizes the health and safety issue on the agenda of the sector. The proposal is to develop a management in security prevention and health in a comprehensive way that does not only depend on the occupational health and safety specialist but also on all the members where social dialogue plays a preponderant role.

Keywords: Risk profiles, agriculture

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Energy Expenditure During Life Aboard Ship: Comparison of Measurement Methods

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Estimation of daily energy expenditure during a one-month period of life aboard ship was performed in two subjects. The record of living activity method and the acceleration sensor (Kenz calorie counter: Select2) method were used to measure the energy expenditure and the number of steps taken each day, respectively. The correlation between the daily energy expenditure provided by the record of living activity method and the acceleration sensor method was examined. For both subjects, the two measurement methods showed strong, positive correlations with regard to daily energy expenditure during life aboard ship and life on land. The correlation coefficients between methods for the period of time aboard ship were 0.837 and 0.649 ($p < .001$); the correlation coefficients for the period of time on land were 0.886 and 0.825 ($p < .001$). Therefore, it is thought that the daily energy expenditure during life aboard ship can be calculated by the acceleration sensor method. The daily energy expenditure provided by the acceleration sensor method during life aboard ship was lower than life on land; this was seen for complete cruising days as well as for partial cruising days (half day anchored) as a result of classifying the embarkation life into six sailing



situations. Similarly, the number of steps taken during life aboard ship was compared with the number of steps taken during life on land. Results showed that the number of steps during life on land was greater than the number of steps taken during life aboard ship; this was seen for complete cruising days and partial cruising days (half day anchored). Therefore, it was shown that for both complete and partial cruising days the daily energy expenditure and the number of steps are lower than life on land when they are measured during life aboard ship.

Keywords: Daily energy expenditure, steps, acceleration sensor method

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Developing Low-Tech Safety Measures for and with Waste Workers in Ethiopia Potentials and Limits of Participatory Approaches

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Waste management systems in developing countries are characterised by low levels of technology and significant involvement of the informal sector. With the research project “IGNIS - Income Generation and Climate Protection by Valorising Municipal Solid Wastes in Emerging Megacities in a Sustainable Way – Exemplarily for the City of Addis Ababa, Ethiopia”, funded by the German Ministry of Education and Research (BMBF), a bi-national consortium of German and Ethiopian partners aims at implementing technically feasible and socially responsible income opportunities through waste management. Due to working procedures and properties of waste, persons engaged in waste management are exposed to a diversity of occupational health hazards. One goal of the IGNIS project is the improvement of occupational safety and health of waste workers. In Addis Ababa, occupational risks of waste workers are currently either not addressed at all or by provision of personal protective equipment, which is often inappropriate in terms of material and frequency of distribution. Risk assessments were performed and safety interventions were developed with participation of the waste workers involved in our pilot projects. Measures also improve productivity and are realizable with locally procurable means. Workers contributed extensive information to risk assessment and were well aware of health hazards associated with their activities. In the second step though, tangible suggestions from the project consortium were needed to start and promote discussions on feasible safety interventions. We will show carrying equipment for recyclable collectors made of recycling materials as well as simple technical concepts for reduction of risks associated with charcoal production and discuss the participatory process.

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Indoor Air Quality-Carbon Dioxide Concentration and Sick Building Syndrome

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Purpose Sick Building Syndrome (SBS), defined by the WHO as an excess of work-related irritations of the skin and mucous membranes and other symptoms reported by workers in modern office buildings, is an emerging problem in many countries. Relationships between CO₂ levels and SBS are analyzed in office buildings from five cities in 2008-2010. Method The data analyzed in this paper were collected in 12 randomly selected Romanian buildings. The SBS elicited from the questionnaire included: irritation of eyes, nose, and throat, chest tightness, difficulty breathing, wheezing, fatigue, headache, eyestrain, and dry or itchy skin. While there is currently no standardized test method for measuring CO₂, some guidance is available. Were measured with an infrared analyzer. Sampling locations have been selected to ensure a representative concentration value that is not unduly biased by the carbon dioxide sources and ventilation air with a low concentration. Time-averaged (8hr) workday difference between indoor and outdoor CO₂ concentrations (dCO₂) was calculated as a surrogate measure of ventilation rate per occupant. Logistic regression was used to calculate prevalence odds ratios (OR) and Wald Maximum Likelihood (WML) statistic. Crude and adjusted multivariate logistic regression (MLR) models were constructed using either continuous dCO₂ data as independent variable and an SBS symptom as the dependent variable. Findings A dose –response relationship ($p < 0,05$) with OR per 100 ppm dCO₂ ranging 1,11 to 1,43 for sore throat, nose/sinus was observed. Conclusions Large increase in ventilation rate or improvements in ventilation effectiveness and/or indoor pollutant source control would be expected to decrease the prevalence of selected symptoms. References Apte, M.G., and Daisey, J. M.1999"VOCS and Sick Building Syndrome" in Proceeding of Indoor Air 99.

Keywords: Carbon dioxide, sick building syndrome, office building

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Selling Safety to Sales - A Comprehensive Approach to Safety in a Global Sales Organization

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Commercial sales representatives face a variety of safety risks from motor vehicle accidents, ergonomic issues, personal security threats, and more. Developing an effective safety program in a global sales organization can be extremely challenging due to geographic distribution, language/cultural barriers, and a general lack of professional health and safety resources. Eli Lilly and Company, a multi-national pharmaceutical company has a global sales organization that includes 20,000 employees in over 70 countries. This presentation will provide an overview of Lilly's approach to a comprehensive health, safety, and environmental (HSE) program call hseDIRECTIONS, designed specifically for their sales organization. Details regarding program content, strategies for selling senior management, how do deal with competing business priorities, success factors, and lessons learned will be provided.

Keywords: Global sales organization, motor vehicle safety, commercial sales, ergonomics

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Health Risk Assessment of Chemical Pollutants in a Petrochemical Complex

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Whereas that workers in petrochemical industries exposure with various contaminants and are facing to serious hazards, therefore need for a comprehensive risk assessment program for identification of hazardous chemicals that affect human health and also determine hazardous tasks and processes is necessary. This descriptive cross-sectional study accomplished in three steps. First step consists of identifying hazardous chemicals and determination of chemicals risk ratio, the second step includes evaluation of exposure to hazardous chemicals, and the third step is estimating the relative risk of blood cancer caused by exposure to benzene through epidemiological studies. With regard to risk assessment method, 40 chemicals were identified in this Petrochemical Company. Among them, Benzene introduced as the most hazardous chemical. The results of the second steps showed that site man workers in noon shift work and in aromatic site with mean exposure 4.29 ppm have highest levels to benzene exposure. The test results showed that relationship between exposure to benzene and different groups working is significant. This study showed that benzene with a risk ratio of 4.5-5 have 5th rank in risk levels and this indicates that preventative actions regarding to this hazardous carcinogenic chemical must be started as soon as possible.

Keywords: Petrochemical industries, risk assessment, exposure assessment, relative risk, leukemia

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Survey of Prevalence of Musculoskeletal Disorders and Work-Related Risk Factors in Employees of an Automobile Industry in Tehran, 2009

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Work-related musculoskeletal disorders are usually considered as one of the most common occupational diseases and injuries. High prevalence of the disorder has been reported in automobile industry due to numerous risk factors. This study was conducted to determine the prevalence of musculoskeletal disorders and the work-related risk factors in an automobile company. This cross-sectional study was carried out on 145 automobile workers. The prevalence of disorders and work-related risk factors were evaluated using standard Nordic questionnaire and KIM index, respectively. Chi-square was used for data analysis. The most prevalent musculoskeletal disorders was in tire installing sections (92.8%) and exhaust storage installing sections (88.4%). The lowest prevalence of the disorder was in door car installing sections (43.7%). Awkward posture, manual load lifting, back bending and torsion were shown as the most important work-related risk factors for musculoskeletal disorders. Significant relationship was observed between the prevalence of musculoskeletal disorders



and occupational risk level ($p < 0.05$). Load lifting, manual handling and awkward posture were among the major risk factors. Ergonomically interventions are mandatory for correcting the work stations.

Keywords: Musculoskeletal disorders, ergonomics, body posture

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Safety and Occupational Safety Expert System - Croatian Model

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Safety and occupational safety are complex fields of activity abounding in problems. Great efforts are being invested into increasing safety and occupational safety level, which requires specific knowledge and skills. State-of-the art technologies enable the creation of systems that use bases of knowledge acquired through experience and work in the field – these systems are called expert systems. Expert system is software that uses the base of knowledge founded on human expertise and experience in solving problems or dealing with the situations in which it is customary to consult one or more experts. Expert systems do not explicitly define the sequence of steps that need to be taken in order to reach a solution, but the sequence is changed dynamically depending on the problem. Expert systems can process multiple values for any of the parameters of a problem, which enables the display of incomplete solutions during the problem-solving process, which is enabled by the application of specific knowledge and not specific techniques, based on the belief that individuals do not use their knowledge differently, but that they possess different kinds of knowledge. This means that the base of knowledge is extended in case the system fails to solve a problem, without changing the procedure. The system consists of five mutually connected modules. The first module is a database containing regulations in force, standards, norms, judicial practice, scientific and professional papers, and other information sources. The second module calculates and predicts the number of accidents in certain fields of activities according to state statistics. The third module gathers tools for making risk estimates by using various methods. The fourth model is used for planning and programming occupational safety in a company. The fifth module consolidates the gathered data with the purpose of data generation, analysis, and interpretation.

Keywords: Croatia, expert system, model, occupational safety, safety

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Obesity Rate Among Workers and Relevant Factors

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Obesity is known as one of the most important health problems of the world. According to various researches, obesity has effect on important health problems such as heart diseases,



cancer and diabetics. In this context, people should be protected against obesity and health programs about weight control should be implemented. It is stated that, with the aid of “weight control programs” to be organized in scope of workplace health development programs, workers who constitutes a major part of the society, may keep and maintain their weights in normal levels. However primarily, there should be researches stating obesity rate of workers and factors affecting it. In this scope, the objective of this research is to define the obesity rate of textile workers and factors affecting it.

Keywords: Obesity, pre-obese, body mass index, textile, worker

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Trends in Rates of Fatal and Nonfatal Employment Injuries in Turkey (2003-2009)

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In Turkey, between the years 2003-2009, 75904 employment injuries occurred on average and due to this injuries 7394 worker died on average. These accidents and deaths affect the government, families of the workers, co-workers and other workers who engage in the same branch and the whole society, indirectly. In this research, the objective is to analyze the course of fatal and nonfatal employment injuries occurred in Turkey between 2003-2009.

Keywords: Workplace health, workplace safety, employment injuries, death, rate

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Interdisciplinary Research Project: Principles of Work Scheduling

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Purpose: The research project is established to develop a “connection” between the daily working hours and the resulting performance of the workers. The research concentrates on the sector carcass work, especially with the focus on bricklayer’s work, formwork work, reinforcement work and concreting. The aim of the research project is to set up personnel body parameters (pulse, blood pressure etc.) by monitoring the working process and the corresponding load and exposure of the workers combined with the achieved output during the investigation. **Method:** in this research project the connection between the workload and the fatigue will be determined for the first time by a mix of three interdisciplinary investigation methods, which were until now independently used. The first part is the REFA-Analysis which were tested and approved in many workflow analyses. These can also be used as a reference for the examination of the observations in this project. The second part is the medical test series. All the proposed tests are standardized and often used. The results of these tests in other industries and in sports should also lead to another chance for cross references to verify the results. The last part of the investigation is the indexing of the climatic influences to describe and compare different climatic states. **Conclusions:** the result



of this project should be considered as the basis to estimate the performance of workers in the future by setting up environmental variables and the daily hours of work. This new treatment of existing researches should lead to more realistic estimations of workload than this is possible with the current knowledge. Main outcome: showing up the allocation of the different parts of the working time; exposure-rating for the investigated workers; pointing out achievable workload and output performance; setting up the “connection” between workload and exposure of specific construction activities; setting up a new working curve depending on the activities expressed in working calories.

Keywords: Workflow analyses, workload, exposure of bricklayers, climatic influences, output performance, output changes

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Secret Heroes: Effectiveness of First Aid Trainings

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First aid training is an important part of the management of emergency situations. For the first aid trainings; the transfer of learning should be evaluated through the measurement and feedback about the level of learned skills and knowledge. In this study; the perceived level of competency and the attitudes to the training were asked to the participants by a questionnaire. The number of respondents are 365 and 17% of participants have met with an emergency situation after the training. The most frequent first aid interventions are cuts and wounds, then faintings, bleedings and burns. The participants' self ratings are very positive for controlling the area, maintaining safety and checking the patient. The acquisition of first aid skills enhance the competency of organizations for emergency situations. In this presentation, the necessity of first aid teams in the companies, the management of those teams and the training need will be discussed too.

Keywords: First aid training, training effectiveness, evaluation of trainings

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Lower Limb Workloads of Construction Workers- A Database for Preventive Measures

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Work-related knee straining activities like kneeling or squatting are regarded as risk factors for injuries and diseases of the lower limb, e.g. meniscal pathologies or osteoarthritis. As the knowledge about quality, occurrence and frequency of occupational knee loading is rather scarce, a study was launched to gain a new insight and to build up a database for preventive measures, especially for the construction industry in Germany. As the database should rely on valid data, posture capturing was performed in field with the measuring system CUELA

(computer-assisted measurement and long-term analysis of musculoskeletal workloads) of the Institute for Occupational Safety and Health of the German Social Accident Insurance. The study encompassed individual tasks ("task modules") performed during an entire working shift. This enabled consideration to be given to the heterogeneity of the type of work performed within the individual vocations. The registry is based on a total of approximately 250 working shift recordings and contains data on 16 occupations like tilers, screed layers, installers, roofers, pavers, concrete workers and painters. As a result, working shifts with kneeling or squatting activities of more than 50% of the working shift are not uncommon in the vocations under examination, above all in working shifts of tilers or installers. On the other hand, a huge variation of the daily amount of knee straining activities has been observed – even within a profession – reaching from 0% to more than 80% of the working shift. Thus, knee loading has to be considered as task specific rather than occupation specific. Therefore, the sole declaration of the profession is not appropriate to deduce the risk of knee straining for the people working in it. The featured database may help to identify occupational tasks with high knee loading to develop appropriate and precise means of prevention.

Keywords: Kneeling and squatting, construction, database, prevention

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Collective Emotion and Decision-Making Process in Emergency Medicine

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West and Patterson (1999) showed that in health services, people who work in teams express a lower level of stress compared to those who work alone. But in order to allow teams to meet the need of belonging of individuals, they have to support the emergence of positive emotions and help to reduce the emergence of negative emotion. From this point of view, collective emotions play a fundamental role for understanding the reduction process of individual stress at work (De Dreu et al., 2001). George (1996) defined these emotions as a group's emotional tonality and showed that one can highlight affects shared by the members of a group, more especially through emotional contagion (Hatfield et al., 1992, 1994). As a result, these affects have an impact on group processes and collective actions. For example, the convergence of positive moods was associated with a relational interdependence, or with the regulation of the standards of regulation of mood (Bartel and Saavedra, 2000). These convergences define the emotional climate which can be felt at the individual, interindividual or organisational level (Tran, 2009).

One cause of diagnosis's errors identified in emergency medicine was the excessive confidence in the diagnosis of the emergency doctor and in the reliability of the results of tests (Marquié et al., 2003). In an emergency professional context where the risk of error can have serious consequences, how collective emotions related to the team work can interfere on the decision-making process?

We addressed this question in a research conducted in several hospitals in the East of France. This empirical study integrated emotional and group dimensions in the expert decisions's analysis that deviating from a rational cognitive approach (Raufaste, 2001). We



propose here the first results of this research which ultimate goal is to contribute to psychosocial risks prevention.

Keywords: Collective emotion, decision-making, emergency medicine, psychosocial risks

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Implications of Maritime Piracy to the Health and Safety of Seafarers

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Maritime piracy especially in the Gulf of Aden in Somalia has been escalating for the past decades. The increasing maritime traffic in the area, the continued instability of the country of Somalia, the lucrative business of maritime piracy has emboldened pirates in furthering their actions. The increasing monetary demands of the pirates and the giving in of the shipping and insurance companies to provide ransoms allowed more investment on the better firepower, ammunitions and fast and good seacrafts of the Somalian pirates. The inability of the international community and military forces to implement sound interventions and prosecute pirates contribute to the increasing problem. In this paper I will focus on the impact of this problem on the health and safety of the global seafarers using the narrative incidents reported to the International Maritime Bureau by the different shipping companies and to the Philippine government (biggest maritime labour-supplying country in the world) by the manning agencies. The data of incidents of piracy covers five years from 2006-2010. Interview with maritime authorities and other bodies which have interest in piracy and other secondary data were also analyzed for this study. The study is limited on the aspect of health, safety and welfare problems that arise before, during and after piracy. A set of recommendations for different stakeholders will be provided by the study.

Keywords: Maritime piracy, seafarers, maritime industry

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Governance of Health and Safety of the Global Maritime Industry

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Industry and academe have shown unprecedented advancements in human resources research, policy and practice during the past decades having considered labour as an integral element in global economic development. Human resources covers six core areas—management practices, selection and placement, training and development, compensation and benefits, employee and labour relations, and health, safety, and security. This paper will examine the case of the global maritime industry and its practices in two areas—health, safety and security and compensation and benefits. The paper will argue that these areas have been the least of the focus of investment by the industry. Based on various policy papers and studies collated, this paper will provide an overview of the health and welfare of



seafarers, global governance of the maritime health system, various international initiatives, and the implications to maritime policy and practice. This paper will specifically identify the various factors that shape the current state of health, well-being and safety of the 1.5 million global seafarers who contribute to 90% of global trade done on waters. It will identify the global players that contribute to the governance of health in the industry and analyze their roles and provide historical and global determinants that made the current maritime global health system given the internationalized labour force and globalized industry. The paper will also look at the interplay of all these players and the instruments that have been placed for the promotion of health and safety. The paper will also argue all these elements have implications to maritime policy and safety. It will come up with various recommendations to improve the current state of affairs in the premise that a healthy workforce has a major impact on the global industry and its sustainability.

Keywords: Maritime industry, health and safety, governance

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Retrospective Exposure Assessment Used in Epidemiological Cancer or Mortality Risk Studies of Wafer Fabrication Workers: Limitations and Recommendations

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Retrospective exposure assessment methods used to classify wafer fabrication workers has not been fully discussed. Exposure surrogates and estimates used to assign wafer fabrication workers in semiconductor industry into similar exposure group for epidemiological study were reviewed. All epidemiological cancer or mortality studies in wafer fabrication operations were collected through an extensive literature search. A total of seven epidemiological papers were found to study either cancer risk or mortality, which was conducted in a particular or group of similar large plants from only UK and USA. Work history information used to classify fabrication workers in epidemiological study were found to be industry, facility, employment duration, manufacturing era, broad category of hazard or environment, and job title provided by company. There were two papers that used job title or job exposure matrix to classify fabrication workers. Classification of maintenance worker differed from each other. Only one paper made internal comparison to adjust the effect of healthy worker effect. No study has estimated quantitative or semi-quantitative exposure to specific agent generated in the wafer fabrication operations. All epidemiological studies we reviewed used surrogate such as job code, employment duration and broad class of hazards to classify fabrication workers, which do not address the issue of variability of exposures within the group. More epidemiological study should be conducted to examine the association of fabrication work and environment with cancer risks or mortality using work history obtained from various information sources, several countries and companies.

Keywords: Fabrication operation, retrospective exposure assessment, semiconductor industry.

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Occupational Accidents and Affecting Factors

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Evaluating the reasons and results of accidents in metal sector and to contribute to development of prevention recommendations in accordance with obtained information. The study was conducted with 201 of 210 employees working in heavy metal manufacturing, construction, building industry company between April 2008-June 2008. The frequency of occupational accident among the metal employees was 22,4% between January 2007 and June 2008. The employees' accident reasons are listed as; respectively insufficient personal protective in use (44,4%), carelessness (37,7%), personal reasons, not to be taken of security measures at machines and looms/ unsuitableness of machines (both 17,7%). The study states that the accidents mostly occur because of lack in use of personal protective, still and also the insufficiency in taking vocational training.

Keywords: Occupational health, metal industry, accident, monitoring

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Hydraulic Versus Electric Hospital Beds

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The hospital bed is a highly functional medical device, whose role is basilar for the worker's safety and the patient's quality of care, but few indications are internationally available about its choice of hospital beds. Auxiliary nurses, who show the greatest injury rates among health care workers, often adopt prolonged flexed postures, which imply compressive and shear forces on the spine, together with a biomechanical cumulative component. Aim of the study was to prove if the use of an electric bed instead of an hydraulic one could reduce the time spent by nurses in flexed postures and the force actions associated with patient's handling. 6 pairs of volunteer attendance nurses were observed and video-recorded while assisting similar dependent bed confined patients, using an electric bed or an hydraulic one. Tasks were filmed in order to capture the nurses' and patients' postures. At the end of each task, subjective assessment were given by the nurses about the force applied during the just performed task and about the perceived effort. Nurses were also required to rate some ergonomic and usability aspects of the two types of bed. Biomechanical analysis of the video recorded tasks was carried on through the software package 4D Watbak. While no differences in the flexed postures adopted by nurses, longer performance times were recorded during use of the electric beds. Subjective effort, force exertion, and lumbar shear forces overcoming the safety limits denoted the superiority of the electric beds. The electric device gained an excellent appreciation by the nurses. Its use seemed to reduce the level of effort perceived during care giving and the postural load during critical subtasks. Ergonomic and organizational problems related to the adoption of electric beds in the wards should be deeper addressed in order to get a higher efficacy in their use.



Keywords: Electric hospital bed, biomechanical load, posture

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Evaluation of Work-Related Psychosocial and Ergonomics Factors in Relation to Low Back Discomfort in Emergency Unit Nurses

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Introduction: Today, Hazard and Operability Study (HAZOP) is recognized as one of the most accurate multi specialist team approaches for determining risks and hazards. It is applied in various industries including refineries, petrochemical, metallurgies, pharmaceutical and chemical industries. **Material & Methods:** This technique was used to recognize the hazards and problems of operations on the chemical section at power station and then evaluate important risk factors. In this study, 126 deviations were recognized with various causes and consequences. **Results:** Ranking and evaluation of identified risks indicate that the majority of deviations were categorized as "acceptable" and less than half of that were "unacceptable". The highest calculated risk level (1B) related to both the interruption of acid entry to the discharge pumps and an increased density of the acid. About 27% of the deviations had the lowest risk level (4B). **Conclusion:** In conclusion, HAZOP can be considered as an effective method for recognition and prediction of hazards on chemical unit of power plants. This technique, therefore, may increase the safety levels, prevent accidents and increase the reliability of systems via the reduction of operational problems.

Keywords: Hazard and operability, hazop, risk assessment, chemical unit

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Importance of Dynamic Risk Assessment Concepts to Prevention Strategies

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Hazard Identification and Risk Assessment concepts are a key issue facing SH&E professionals. This presentation will discuss traditional methodology of proactive work hazard or job safety analysis and then expand into the concepts of dynamic risk assessment and how both are essential. The session will challenge, through story and theory, whether dynamic risk assessment can be done with any occupation and by any worker across the globe. Specific industry examples such as remote mucking and loose situation in underground mining concepts and run away explosive truck on a ramp in pit operations will be explored within the presented concepts.

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Integrated Hematology Indexes at Patients with Professional Toxic-Dust Bronchitis in Manufacture of Primary Aluminium

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The conditions of work in manufacture of primary aluminium are connected with influence on workers the complex of adverse professional factors. The quantitative and populations structure of peripheral blood leukocytes at group of the control (healthy, n=24), groups of risk of toxic-dust bronchitis (TDB) development in aluminium manufacture (n=38), in manufacture of alumina (n=19), at workers of alumina manufacture (n=19) with TDB (n=47) were analysed. Statistical data were analysed with use the Statistica 5.5 program. In the time of the analysis of integrated hematology indexes changes the statistically significant distinctions were revealed between the groups of TDB patients-workers of aluminium electrolyse manufacture on the parameters of index of the neutrophiles and monocytes ratio (14.3 ± 1.8 and 10.9 ± 0.8 accordingly, $p=0.05$); ISNM was increased in the both groups that explained by intensity compensation processes providing detoxication. The index of lymphocytes and eosinophiles ratio in the group of TDB developments risk at aluminium electrolyse were greater than at patients of manufacture of alumina ($X^2=3.86$), that accounted for prevalence of immediate type hypersensitivity at TDB patients in manufacture of alumina. Correlation between at allergisation index, parameter PEF1 and dust loading ($r=0.32$), and weak correlation between parameter PEF1 and the general index ($r=0.37$) in the group of TDB developments risk in manufacture of alumina was revealed. Thus, the analysis hematology parameters allow to indirectly estimating the immune homeostasis and the transition of adaptating – compensating immunologing processes in damaging.

Keywords: Manufacture aluminium

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Internal Communication Practices Among at Workplace Safety Culture Cases from Turkey

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According to health and safety authorities, corporates that want to establish and manage safety culture at the workplace have to encourage internal communication activities and employee participation. OSHA (Occupational Health Safety Administration) programs highlight the significance of increasing employees' interest to health and safety and support a new understanding of safety culture. In this paper, the small number of internal communication campaigns that have been designed in Turkey to create a work environment supporting health and safety will be studied within a theoretical framework. The six internal communication campaigns of six companies working in medicine, metal, automotive, ship building and two other campaigns in mining and construction practiced with state support will



be the samplings. Sampling analyses about management commitment statement, design of internal communication opportunities, internal communication opportunities created and practice that support employee participation will be studied. Data is going to be collected after interviews with corporate communication manager, human resources manager, health and safety manager, leader of campaign, focus group interview with employees to analyse the communication campaign's materials and record. Results of campaigns will be presented comparatively. This paper is going to contribute to literature in terms of the contribution of internal communication to the creation of a health and safety culture in the workplace and in understanding the difficulties of practice.

Keywords: Internal communication, safety culture, health&safety communication, employee engagement, employee participation, health and safety campaign

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Some Proposals about Mobbing According to Occupational Physicians

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After evaluating the literature and experiences, we can say that mobbing is a social concept which cause health problems. Especially in European countries, America, Canada, Australia, mostly in Sweden but also in other Scandinavian countries, there are many researches about mobbing activities which cause burn out syndrome in workers, specialists and make them unable to work at the end. It is an interesting fact that mobbing finds its place easier in the workplaces where it is more difficult to fire the employees and if the employee resigns himself or herself, it is more beneficial for the employer. In the world so many mobbing activities can be observed in the fields of healthcare sector, social services and education where the hierarchy in the relations are more and difficult to question and firing the employee is not easy. Mobbing has become a working place phenomenon which now takes place in different world languages, becoming like pandemic and may end up by making the people suicide. In this paper, we want to evaluate the concept of mobbing with its aspects related with occupational doctors according to medical law and ethics.

Keywords: Mobbing, workplace, ethic

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Baghdad/Factories of Battery 2&1 Hazards Among Workers in Babylon Health

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Aims: Notifying the health hazards in the work environment; identifying the health impact on the employees; give solutions to promote healthy & safe workplace. Materials & method: The studying team had done many visits to both factories to study environmental pollutants (physical & chemical) twice during summer time & winter time. The volunteered workers were



sent to be examined clinically & physiologically in the specialized occupational clinic in the NCOHS. Also laboratory examinations were done to all these workers in the toxicology labs of the NCOHS. So noise, illumination, relative humidity, correctable heat, lead concentration carbon concentrations in the rubber department were studied. Also clinical examinations, visual acuity, hearing thresholds & pulmonary function test for participant workers were done, in addition to ALA in urine & Pb in blood. Instruments: These were done by using; sound level meter, luxmeter, hygrometer, unsilvered kata thermometer & glob thermometer [for radiating heat & then correctable heat by using the equation (correct effective temperature $0.7 * \text{wet temperature} + 0.3 * \text{glob temperature}$)] and then by using nomogram. Also we used personal dust sampler. We used for physiological examination stethoscope, retinoscope, auroscope, audiometer, spirometer & visual acuity chart for the laboratory test spectrophotometer & atomic absorption were used. The total number of participants was 162 males only as we did not accept females to participate in this study. Results & discussion: Most workplaces were exposed to noise levels above the acceptable limits except the charging department where the noise & illumination levels were within the acceptable limits. heat & humidity were within acceptable levels also, while the corrected heat was accepted only during winter but it was high during summer Pb levels were above the acceptable levels in the air of both factories Carbon concentration was high in the rubber department. Conclusion: This study revealed increasing levels of noise & diminished illumination in many workplaces in both factories, while the heat, humidity were acceptable only during winter. Also the carbon & Pb concentrations were above permissible levels.

Keywords: Health, hazards, Baghdad

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Practice Patterns of Dermatologists, Workplace Doctors and Family Physicians for Occupational Contact Dermatitis

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Occupational contact dermatitis constitutes the majority of occupational dermatoses and has a substantial impact in the workers quality of life. Health care providers have a critical role in the recognition of occupational contact dermatitis. Our aim was to find out practice patterns, level of recognition and level of demand for further education on this topic among dermatologists, family physicians and workplace doctors. For this purpose, a survey which includes questions about occupational contact dermatitis has been delivered via e-mail. The responses have been collected and the results were analyzed.

Keywords: Occupational contact dermatitis, practice patterns, dermatologist, workplace doctor, family physician

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Unionisation in the Homebased Work, State Politics and Occupational Health and Safety in Turkish Context

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Why occupational illnesses and work accidents of us who are women homebased workers? Why we have to work in unhealthy conditions and without any social security programme? Why we are unionising? And why we are not contented with just having a job but organising for decent work? Here, we discuss these questions in related with state politics on care work and health and safety in recent years. For this aim, we associate recent legal regulations in Turkey with homebased work and occupational health and safety. Our data are: texts and practices of legal regulations related with care work and health and safety in recent years; reports of workshops and mapping activities of us (as several groups and Initiative before 2009 and as the Union after 2009); records of membership meetings; our observations as women homebased workers who are deeply involved in the unionisation process in our daily lives and in organising process; notes of discussion meetings within the Union. We discuss analyse all these data with benefiting Paulo Freire's philosophy which is outlined in the Pedagogy of Oppressed; actually the writing process of this presentation is itself a part of liberatory education process. In this presentation, after we associate the unionisation of homebased workers and their demands with state policies in the context of occupational health and safety, we try to develop some policy suggestions.

Keywords: Unionisation, homebased work, care work, health and safety, decent work

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Occupational Health and Safety at Lifting Machines

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For transportation heavy materials from one place to another place, various types and capacities of lifting devices are used where the manpower is not enough and during the implementation of activities in the workplaces.

Although lifting devices are widely used to facilitate and accelerate the activities in the workplaces, they can harm the operators and the workplace if they are not used safely. When the statistical data of occupational accidents occurred in the year of 2009 is examined, it is seen that 4,798 accidents took place because of falling of objects during the transportation.¹ These lifting accidents don't only occur as a result of falling of objects. This number of accident will easily increase when we consider the crashing of lifted device to personnel, being pressed of body between the two lifting devices and accidents occurred during maintenance activities.

Occupational accidents occurred as a result of the use of lifting devices can cause big losses like death. To prevent these losses, Occupational Health and Safety Culture should be adopted at all levels of the workplace. These accidents can be prevented by establishing Occupational Health and Safety systematic, eliminating the hazards with carrying out of risk assessments before starting to work, ensuring continuity of education activities and monitoring of the activities by experts. If this adoption only covers the requirements of existing law, these accidents will continue to harm people and workplaces.

Keywords: Lifting Devices, occupational health and safety

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Importance of Design for Safety at Telecommunications Industry: Vodafone Model

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Telecommunications is a unique industry because of the number of different workplaces or sites that the business is dependent on, and the conditions of those sites which involves various different hazards unique to each site. These sites (in other words base stations) differ from towers located at the remote locations such as mountain tops to sloped rooftop of a residential building. Number of sites i.e. the work places may be around 15-20,000 in a country like Turkey. Each of these workplaces/sites involves different hazards and risks arising from physical, environmental and social conditions of the location, such as; - Existing infrastructure/structure - Climate/Environment - Landlord's limitations - External factors like neighbouring equipment/people/building - Access route/method - Area/space limits and so on... Safety of the sites and people working on those sites may also be limited because of similar external factors. In order to eliminate the hazards and provide a safer workplace, a systematic risk based approach is required. Design for Safety plays an important role in Telecoms industry for providing safer workplaces by assessing the risks at survey and design stages and designing the sites not only for providing the best technical performance but also for providing the safest possible workplace under such limitations. The presentation discusses the importance of the Design for Safety in Telecoms Industry and a model implemented by Vodafone.

Keywords: Design for safety, vodafone, telecommunications

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Emotional Exhaustion in Women Manual Workers, Mexico

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Perceived job stress on the individual encourages emotional exhaustion, which is expressed by primary reactions of fear, anger, envy, jealousy or bodily tension and resulting disruption



among co-workers and dissatisfaction with their activity. Objective: To determine the degree of emotional exhaustion between women garment workers and electronic industry. Methodology: Was elected to two companies with 300 workers around (2009) and randomly surveyed at the end of their working day to 121 workers and 122 sewing factory workers in the electronics industry with the emotional exhaustion scale Education (Preciado, 2004) with validity (0.72 to 0.85) and alpha reliability (0.64 to 0.77). Participation was voluntary and written authorization once explained the goal. Results: Student t test showed significant difference in the degree of emotional exhaustion between the two groups ($t= 2.17$, $p= 0.031$). It was reported that 21.5% of women garment workers have a high degree of dissatisfaction, problems with peers, 27.3% said body tension and 33.1% coping cognitive dysfunction; and the electronic industry workers, 14.8%, 16.4%, 14.8% and 13.9% are in this level in the respective dimensions. Conclusion: Not being happy in their work, suffer from fatigue, muscle aches mild or feel stress when their routine work activities may be indicators of emotional exhaustion. The subjective nature inherent in the job affects job performance, both in efficiency and effectiveness in production, as proposed regular screening assessments.

Keywords: Emotional exhaustion, job stress, manual workers

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Safety Crossword Puzzle

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The purpose of occupational health and safety applications is to ensure employee work in safe and healthy work conditions and to protect the employees, employers, and the country's economic, social, health, and cultural stability. Achieving success in safety is accomplished by performing training, evaluating processes related to equipment, machines, people, methods, and environmental parameters, and embracing and internalizing the applications. After employees embrace the safety program, everyone can be the performer and also the defender for safety. The failure in communications, internalizing, creating interest and awareness will be barriers for active, effective, continuous, and effective safety performance. To support health and safety activities and to consistently generate and maintain interest in safety, a safety crossword puzzle competition was started in FNSS and it has kept going with five puzzle competitions conducted and five prizes awarded. In these crossword puzzles, there are 20 – 25 questions related to safety expressions, technical terms, regulations, personal protective equipment, environment, safety methods, current national and international safety activities, and also incidents that have occurred in the plant. All contributors' answers were collected and a lottery held. Then, one of the contributors is selected to have the prize and, to make the winner feel proud, the winner's name is distributed by the intranet.

Keywords: Crossword, puzzle, safety, awareness, internalizing

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Impact of Lopcymat in the Prevention of Accidents in PDVSA

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To analyze the performance of PDVSA in the legal preventive aspects of health and safety at work, a comparison of annual reports contained in the publications of INPSASEL and PDVSA, was made. The compared variables were: Prevention-Delegates (PD), Safety Committees (SC), and training for safety at work (TS). The LOPCYMAT is a law issued in 2005 that requires PD's, SC's and TS and INPSASEL is the government agency in charge of to apply this law. RESULTS: 1) The institute recorded between years 2005 and 2009, 111,584 PD's across the country. They were elected by approximately 6,000,000 workers, that means: 18.6 PD per thousand workers. In the same period, PDVSA had 1,500 PD's elected by 87,000 workers, that means 17.2 PD's per thousand workers. 2) Between 2007 and 2008, INPSASEL recorded 26,026 SC's for the same work force, that means: 4.3 per thousand workers. PDVSA formed 42 SC's, the same population, representing 0.5 per thousand workers. 3) In 2010 were given 430,000 hours of TS to PDVSA workers. The LOPCYMAT requires 5,568,000 hours. 4) Between 1997 and 2002, the rate of mortality in PDVSA was 1.73 per thousand workers, while 2004 until 2010 this rate was 0,95 per thousand workers. The presence of PD's in operational areas has contributed significantly to the reduction of both, fatal and no fatal accidents and improved the work of Safety and Hygiene in PDVSA. CONCLUSIONS: Venezuela has issued an special law to protect people in the work called LOPCYMAT. PDVSA is in compliance of this law, although some aspects have to improve, like ST and SC. The most important fact in relation with LOPCYMAT is the worker participation in the operation danger control and its the reduction of fatal accidents.

Keywords: Pdvsa

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Oh-Learning: A Global Scheme for Training and Accreditation in Occupational Hygiene

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A statistical analysis by the International Labour Organisation shows diseases related to work cause the most deaths among workers. Hazardous substances alone are estimated to cause more than 430,000 deaths a year (ILO 2005). Globally, occupational hygienists, with the skills to recognise, assess and control these hazards are scarce. Over the last 5-years an international scheme of modular training and qualifications has been developed and is in widespread use across the world to raise capability in occupational hygiene. The scheme operates under the guidance of the International Occupational Hygiene Association and its members societies. The scheme is based on 5-day modular training courses that have been developed, peer reviewed and tested across the world. Each course package includes student manual, slide packs, lesson plans practical assignments and syndicate studies, all of which can be accessed free of charge from www.OHLearning.com Courses that are



delivered by approved training providers that have demonstrated technical and ability resources are offered with a student assessment. Successful candidates can build up modules toward qualifications that are recognised by the occupational hygiene community globally. Materials are being translated into other languages, including French, Mandarin, Norwegian, Portuguese, Russian and Spanish. Courses have been run or are planned in countries such as Australia, Brazil, Canada, Chile, China, India, Indonesia, Kazakhstan, Norway, Singapore, South Africa, Spain, Thailand, Trinidad, UK, USA and Vietnam. The scheme is now listed as a WHO project supporting the 2009-12 Global Network Workplan to increase technical knowledge and capacity in industrial hygiene (WHO 2009). ILO International Labour Organisation (2005) : World Day for Safety and Health at Work 2005: A Background Paper, available at <http://tiny.cc/9i6oa> WHO Workplan of the Global Network of WHO Collaborating Centres for Occupational Health for the period 2009-2012

Keywords: OH Learning

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Risk Assessment of Marine Accidents on the İzmit Bay

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The importance of Marine Transport, which has 85-90 % of World Trade, is becoming greater with the developing economy in our country. İzmit Ports, has a great role in marine goods trade, because of its settlement is in a big industrial area. In this study, occupational health and safety and risk of marine accidents is inspected in İzmit Ports, which is in the first place with its 15 % of the Turkish marine transport. The transportation is doubled in last ten years and 800.000 people is carried every year in the İzmit Bay.

In the near future, the Haydarpaşa Port (İstanbul) will be closed and the risk will be much higher with the establishment of the new ports and expanding the capacity of the existing ports in the İzmit Bay. For this reason, the number of ships entering to the bay will be increased and the traffic will be denser and the transfer to the motorways will cause condensed traffic in the highways of Kocaeli. The aim is to show the growing risk of the increasing marine transport and occupational safety in the ports in İzmit Bay.

For this aim, 32 port facility was studied for occupational safety and risk of accidents, and port enterprise assessed within the national and international laws. In the study which was carried in the ports, the firm profile, port capacities, the education situations of the employee's, work organization, the rate of the meeting of the laws and the conditions of the ports in the case of emergency was researched. The other side of Marine safety is the ships but because many of the ships are foreign flagged, there is no chance to inspect them. The given data is collected from the interviews from the relevant people in this sector and from the government.

As a conclusion, the risks of the Bay today and the risks that is coming together with the new establishments and the expanding capacities of the existing ports in the İzmit Bay was brought up in study. The increasing of the marine accidents, port facilities and capacity expansions which will take the safety risks on the motorways with the extra cargo increasing is foresighted. For this reason, the necessity of extra preventive actions should be taken in the ports, the connection roads must be improved and education of OHS activities in ports.



Keywords: Port safety, occupational accident, marine accidents

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Design a Cool Spot and Evaluation of its Effect on Heat Stress of Furnace Workers

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Furnace workers suffered from the high temperature by the radiant heat of furnace. The purpose of this study was to design a cool spot and its effects on furnace workers heat stress. Cool spot was constructed using double layer insulators; painted aluminum radiant heat shield in the outer layer and iron in inner layer and glass wool (5cm) between two layers. MRT and WBGT indices were measured to evaluate heat stress before and after using cool spot in furnace workplace. The result showed that MRT values were 43.8°C and 28.6°C before and after using cool spot and WBGT values were 29.6°C and 22.8°C before and after using cool spot respectively. It was concluded that the designed cool spot increased workers thermal comfort and such a low cost technology may be regarded as a suitable method to reduce heat stress.

Keywords: Cool spot, on heat stress, MRT, WBGT

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Evaluation of Noise Exposure Risk in an Industrial Workplace by Using Fuzzy Logic Method

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The evaluation of noise exposure in the workplace has great important. At present, conventional methods of noise exposure evaluation utilize in industrial workplaces. In this method, noise level evaluation depends on measurement outcomes that expressed numerically and evaluated as safe, caution and danger areas. This article proposed an industrial noise exposure evaluation method based on Fuzzy sets that involve the primary evaluation of the workplace, determined of inputs and output variables, Fuzzification and Defuzzification. Inputs variables were considered Noise level, the number of exposed workers, exposure duration. Also noise Exposure Risk selected as an output variable. The results showed fuzzy logic are more useful and flexible for analysis than conventional evaluation. It provides the opportunity to obtain risk model of noise exposure based on parameters that not consider in the conventional approach.

Keywords: Noise exposure risk, fuzzy logic, evaluation, conventional method

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Mining Sector and Zonguldak Case in Improvement of OHS in Turkey

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Although the technologies used at present have contributed a lot to prevent accidents, mining is still the leading sector in which the risk of accident and death are the highest.

Between 1955 – 2010, a sum of 2915 people were killed and 326.000 people were wounded or became permanently disabled due to accidents that happened in mines. When the 2010 statistics are examined, it is seen that Turkey has ranked third after Russia and India in terms of the accidents in mining industry. It is essential that miners be educated and inspections be enforced more often so as to prevent the accidents in mining industry.

In this study, accidents in mining industry were examined and the region of Zonguldak was taken as a sample.

Keywords: Safety at work, mining industry, education and inspection

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The Location of the State in Ergonomics and OHS Strategies

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NACE is the French acronym used to designate the various statistical classifications of economic activities having been developed since 1970 in European Union which means Statistical Classification of Economic Activities in the European Community, Revision 2 (NACE Rev.2).

In 2003, workplace facilities were divided into various risk groups according to the degree of work related accidents and occupational diseases risks they have. This statement of 'risk groups' was changed into the expression of 'danger groups' with amending the law. Employers using the statement of "danger groups" by the Social Security Institution as well as the Directorate General of Occupational Health and Safety led to a confusion. Therefore, it was decided to gather the legislation in a single expression reflected in the same list.

NACE studies was started at 27.01.2010 in order to ensure the standardization of Ministries' legislation and to maintain the comparability of statistics in Europe and world, that are produced on the basis of NACE. With the participation of representatives from the Ministry of Industry and Trade/ Directorate General of Tradesmen and Craftsmen, Ministry of Finance/ Revenue Administration, Turkish Statistical Institute, Confederation of Turkish Tradesmen And Craftsmen, Ministry of Labour and Social Security/ Directorate General of Occupational Health and Safety and Social Security Institution, the work on the six-digit NACE Rev. 2 which is still being used by Ministry of Finance was carried on and completed at 28.01.2011.

Ergonomics of legislation was aimed by the reflection of the regulations on the same work namely: Regulation on Heavy and Dangerous Works", "Regulation on Health and Safety

Measures for the risks related to exposure to carcinogens or mutagens at work”, and “Regulation on Jobs Which Should be Worked on Utmost Seven and Half Hour a Day, in Terms of Health Rules”.

Keywords: NACE

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A Sick Building Syndrome - A Case Study in a Multistory Centrally Air-Conditioned Building in Ankara

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Sick building syndrome (SBS) is a poorly understood, multifactorial health condition that is diagnosed when building occupants report various, nonspecific symptoms that they attribute to being inside the building. SBS is diagnosed when other known causes of potentially serious building-related illness have been ruled out. SBS is likely to result from a complex interaction of a number of factors including environmental, individual, and psychosocial factors. SBS is most clearly recognised in the office environment. The present work aims at the study of the indoor air quality in selected office rooms of the intelligent building complex (a multistory centrally air-conditioned building) after serious complaints of sick-building syndrome on behalf of the staff. In order to define SBS, developed a symptom questionnaire Participants in the study have been asked to complete a self-reported questionnaire which collates data on the following ten symptoms: headache; cough; dry eyes; blocked/runny nose; tired for no reason; rashes/itches; cold/flu; dry throat; sore throat; and wheeziness. Key findings of our SBS study are summarised as follows. The main symptoms reported were slumber, tired for no reason, dry eyes, headaches and throat irritation. In addition to this study, physical and chemical measurements took place in order to identify the air quality status. As such, the potential risk factors for SBS were investigated. In this study, status of the indoor office environment that were shown to have significant effect on reporting of SBS symptoms can be divided into personal and building factors. Personal factors of our SBS study were psychosocial and environmental factors, age and working hours at indoor environment. Building factors were extensive use of computers, nonhomogeneity of indoor temperature, no outdoor air ventilation, presence of air conditioning, poor individual control of temperature-air conditioning and new office furnishings.

Keywords: Sick building syndrome, intelligent building, indoor office environment

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Bank of New Zealand Injury Prevention Programmes

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The Bank of New Zealand (BNZ) has 5000 employees and is owned by the National Australian Bank (NAB). The Group (New Zealand, Australia, UK, USA, Asia Pacific) has around 50 000 employees. BNZ introduced three injury prevention programmes from early 2007. The programmes are part of the International Health and Safety Data Harmonization, where the Health and Safety data information is incorporated in global reporting to enable Group to benchmark, share and develop the best practice preventive programmes. BNZ Habit at Work is an interactive programme developed by NZ Accident Compensation Corporation and adjusted to the Bank environment. This programme includes visual, auditory and kinetic components. It is targeting the Banks discomfort reporting (218 reports FY06/07) and gradual process claims, GPC (over 80% 134 banks claims were GPC). The BNZ 'MyWellBeing' wellness programme started with health checks (identification of health risks such as high cholesterol levels, blood pressure, sugar levels, etc) and an online questionnaire. This identified the areas across the country where the health risks were the greatest. In the areas where health risks were above national average score, we organized workshops for all employees. In all other areas, we organized a series of educational workshops (140 across the country). To ensure the consistent information flow a 'MyWellBeing' web site was developed. This web site offers practical initiatives to assist employees to take action and foster an environment and culture that supports wellbeing. Staff Health and Safety Representative up-skilling – development of training, guidelines for processes and case studies: hazard report, discomfort report, accident/incident report and serious harm injury.

Keywords: Injury prevention program, bank workers

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Preliminary Assessment of a Holistic Methodology for Occupational Health & Safety Performance Evaluation

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Performance evaluation is a key step in any management process and constitutes the basis of continual improvement. The evaluation of health and safety performance has three main purposes: (i) to provide information on the current status and progress of an organisation's safety management system, (ii) to support decisions regarding improvements of this system, and (iii) to motivate those in position to take the above decisions.

Holistic safety performance evaluation must integrate all factors that interact in a safety management system and also include the inter-relations with more general organisational and external factors. Measurement of these factors, using a combination of subjective and objective methods, provides data, which in consequence should be evaluated through a



number of criteria, in order to produce useful knowledge for decision-making. The various participants in the evaluation process may evaluate same criteria differently. A holistic approach of safety performance evaluation should integrate different judgments

Based on the above framework, a methodology has been proposed to be used in diverse work settings, mainly for occupational health and safety performance evaluation (in contrast to process safety evaluation). This methodology has been assessed through a set of established criteria related to conceptual, methodological and practical characteristics of any safety performance evaluation method.

The aim of this paper is to present the proposed safety performance evaluation method and the results of its primary assessment, through the aforementioned criteria.

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Greek Labour Inspectorate: Facing New Challenges in the Context of Current Economic Crisis

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While focusing on their mission to secure decent working conditions in the labour market, Greek labour inspectors face numerous new challenges deriving from the current economic crisis. During the first 9-month period of year 2010, approximately 34% of new employment contracts in Greece concerned part time employment and cyclical work. In addition to that, during the same time period, more than 15,000 full time employment contracts were converted into part time employment or cyclical work contracts. The rapidly changing labour landscape may result in several implications on workers rights such as the protection of their health and safety at work. Precarious employment, increased work demands on a reduced number of staff and emerging psychosocial risks such as the occupational stress associated with potential lay-offs are only some of the issues that labour inspectors may need to be concerned with in the near future.

An in-depth qualitative study of the annual reports of the Greek labour inspectorate has been carried out, in addition to a study of relevant existing literature, with the aim of qualitatively assessing the negative impact of crisis on labour patterns, working conditions and compliance with the legislative framework. The new challenges faced by the labour inspectorate, the key institution for good labour market governance, are being identified and discussed.

Suggestions are made towards redesigning and strengthening the labour inspection system in order to enable it to respond effectively to all reforms in the labour market. Suggestions include reinforcing the labour inspectorate with legal and technical support, adjusting the legislative framework to the current trends in the labour market, enhancing the coordination of different inspection systems in Greece by creating networks of inspectors.

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Ergonomic Evaluation in an Assembly Line of Electric Motors Before and After Implementation of New Technologies

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The objective was to perform ergonomic evaluation in line with company stators of electric motors and compare the modification of risk factors present in the workplace before and after the introduction of new technologies. We designed an intervention study that applies the ergonomic approach focused on the analysis of work. The techniques used were individual interviews, group (Method DEPARIS), observation tasks. Evaluation of the bids with the REBA method, anthropometric assessments of workers and dimensions of their jobs. Were intentionally selected positions where technological changes occurred (three of twelve) in the assembly line and were studied 18 workers (10 women and 8 men) who rotated through them. Results: The initial assessment was verified that the work was manual. Remained in static postures in sitting. Performing repetitive movements of upper limbs. Then with the introduction of the machines increase production. They stand REBA improved level. The workers reported changes in the organization and tools of the top two positions, as well as environmental factors and mental workload of first place, from moderately satisfactory to unsatisfactory situations. Repetitive work went from being dangerous to be improved. At number three successful changes were observed in terms of cargo handling, environmental factors and working conditions, only attached to this post for deterioration in the noise and the employment relationship, becoming unsatisfactory. Conclusions: The ergonomic modifications of posts showing decreased risk factors relating to: repetitive movements, postural overload, production requirements, work against the clock. The company improved production levels, the job was easier, and, improved organization among jobs.

Keywords: Ergonomics, new technologies, risk reduction

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An Implication Model for the Workplaces without Pain: Ergonomic Improvement Campaign

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An Ergonomical Improvement Campaign was held in a pharmaceutical factory in order to reduce the frequency and severity of musculoskeletal complaints and to create a healthier workplace through the necessary improvements between 2009 and 2010. During the campaign ergonomical complaints of workers were assessed, observations were done in the production sites, basic ergonomics trainings were held and visual aids were prepared. Campaign was started with a survey and slogan competition. The most frequent complaints, the distribution of complaints and the intervening factors were asked with a questionnaire. Results of the questionnaire and health unit records were used to prioritize work units in the factory. 303 workers were completed the questionnaire. Results showed that, 48% of



workers have musculoskeletal complaints. 57% of complaints is in women. Most of effected body parts are neck, back and shoulder. Specific checklists were used to assess ergonomical risks at the site and structural improvements were done accordingly.

Keywords: Ergonomics, safety campaigns, musculoskeletal complaints

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Innovative Design of Protection Measures

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The evolution of technical solutions in last decades has led to relevant changes in product development activities also in the field of occupational safety and machine safety. In such a context it is relevant the issue of the new machinery directive (2006/42/EC), which has introduced additional mandatory requisites for both machine producers and users, and has included agricultural tractors in its scope. Such an improvement makes the safety level of operators higher, but the compliance with new safety requisites results in being more difficult, especially in agriculture sector due to its specific characteristics (e.g. the large variety of activities usually carried out by companies, the use of obsolete machines and equipments, as well as the continuous change of workplaces), which make the management of agricultural activities harder to deal with. On these considerations, the paper presents a procedure based on the principles of Methodical Design for the development of innovative roll-over protective structure (ROPS) for the improvement of safety level of agricultural tractors. The proposed approach was focused on the importance of providing correct and useful information to all stakeholders involved in the use of this type of vehicles (i.e. manufacturers, users, retailers, etc.), with the aim of supporting them in being in compliance with safety laws and regulations, especially in the case of Small and medium sized companies. The research was performed in the ambit of a collaboration between the Italian Ministry of Agriculture and the Institute for Occupational Safety and Prevention of INAIL, and allowed us to develop an innovative solution for ROPS, which particularly fits narrow-track tractors. The project is set in the ambit of the prevention activities carried out for the improvement of safety in agriculture, where the occurrence of accidents is still very high, especially in the activities which involve the use of mechanical equipments and tractors.

Keywords: Design for safety, machine safety, narrow-track tractors, ROPS

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Exposure to Volatile Organic Compounds on Arak Car Painters and Pulmonary Function Effects

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Car painting workers are exposed to many Volatile organic compounds. The purpose of this study is two fold, to describe the status of exposure to VOCs Among Car Painters and to examine the respiratory effects associated with the exposure. Method: In this case-control study, 122 workers working in car painting workshops and 122 people from the general population as control group in Arak (IRAN) were investigated. Volatile organic compounds in workshop of car painting was measured. Furthermore, lung volume and capacities of workers, mainly VC, FVC, FEV1 were measured through portable spirometer machine. In addition, demographic and respiratory signs and symptoms of poisoning with volatile organic compounds data were collected using a designed questionnaire. Results: The workers are exposed to 5.17 ppm at time of painting and 1.87 ppm at hours that were not performed painting with volatile organic compounds. After the adjustment for smoking status and age, TVOC exposure was significantly associated with itchy eyes and nose, headache, hoarseness, wheezing, weight reduction in car painting workers ($p < 0/05$). The pulmonary function values as VC, FVC and FEV 1 in car painters, despite the lack of significant correlation, were lower than in control group (78, 178 and 44 ml respectively). But there was significant difference in the ratio of the forced expiratory volume in one second and forced vital capacity (FEV₁/FVC) in car painters compared with unexposed group ($p < 0/02$). This study showed that almost "all symptoms of respiratory disorders increases with age and Job Experience ($p < 0/02$). In addition, there was Inverse relationship between indices of lung functional capacity of workers with occupational experiences ($p < 0/000$). Conclusion: The findings of this study showed that exposure to volatile organic compounds, including emissions from in workshops of handcraft car painting, is associated with increased rates of chronic respiratory symptoms characteristic of reactive airways.

Keywords: Volatile organic compounds, pulmonary symptoms, spirometry, car painting, Arak

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Survey of Risk Factors of Occupational Accidents in a Metal Industry, Arak (2005-2007)

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Aims and Background: Occupational accident is an unplanned and harmful event that occurs in working environments. Among the various occupations and activities, heavy metal industries are the most industries hazardous in the world. This study was designed in a metal industry to determine of individual, environmental and institutional effective factors in accidents. analysis of accidents in three-years comprehensively and accurately. Provided a better understanding of the causes and circumstances incident in order to develop a successful implementation of prevention of industrial accidents. Method: In this case-control study, accidents in a large metal industry in Arak since 1384 till 1386 was investigated and 251 people employed in the factory without occupational accidents have been randomly selected as control and statistical analysis was conducted by using chi-square test, Fisher exact test, t-test and ANOVA in spss software. Results: During these three years, 359



accidents had been occurred. In this study, the mean coefficient of frequency of accidents was calculated as 13.7 per 100 workers there was significant relationship between. Incidence rates of accidents and variables as age, work experience, education level, height, blood pressure, type of shift smoking ($p < 0.05$) but there was no relationship between marital, number of childrens and accident rate. Conclusion: According to research findings and high frequency of accidents in the Arak Azarab factory recommended to the planning and implementation of safety training, Modified non-safe conditions, supplying workers with appropriate standard protective equipment and appropriate facilities

Keywords: Industrial accident, Arak Azarab Co, risk factors, accidents causes

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Study of Biosorption Function of Xanthan (Iran made) for Removing Hexavalent Chromium from Aqueous Solutions and Air

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In the current study, potential to remove Cr (VI), (which is known as human carcinogen) from aqueous solutions and air through biosorption using the xanthan beads was investigated in continuous and batch experiments. In the first phase, the optimal conditions including the type of xanthan polymers, pH, amount of biomass, initial ion concentration and agitation speed were determined for biosorption of the hexavalent chromium, Cr₆₊ in a batch reactor. Then, in the second phase, a pilot-scale continuous reactor was operated under the so-determined optimal conditions to remove Cr₆₊ ions from the chromium electroplating mist. Influences of the mentioned factors on biosorption capacity were investigated using the full factorial design statistical method. The biosorption efficiency of the most efficient xanthan (b82, as determined in the first phase) was investigated in the second phase (continuous pilot-scale removal of airborne Cr₆₊). Fifteen samples were collected from continuous reactor under the optimal biosorption conditions (mean pollutant concentration of 50-500 µg/m³, biosorbent concentration of 1 mg/ml, pH= 5, feed flow rate of 2 L/min). The findings showed that, significant variations occur in biosorption capacities while altering mentioned parameters except for the agitation speeds. According to the results, maximum removal capacity obtained by b82 xanthan polymer under optimal conditions, was 54.4 mg chromium per gram biosorbent. The results in the second phase showed that the average and maximum removal efficiency of b82 xanthan polymer beads under the optimal conditions were 92.8% (SD± 5.61) and 96.8%, respectively.

Keywords: B82 Xanthan, hexavalent chromium mist, optimization

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Combined Effect of Occupational Exposure to Noise and Solvents and Workers Safety

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Exposure to noise is the most common cause of hearing impairment in workers. In working environments where organic solvents are used, noise is also common and its ototoxicity interacts with noise under such environments. The aim of this study was to verify the risk of hearing loss among workers exposed to noise, as well as a mixture of organic solvents. It included three groups; the first group included 93 workers exposed to organic solvents and noise, the second group included 70 workers exposed only to noise, and the control group included 59 individuals not exposed to either noise or organic solvents. The results revealed no statistically significant difference between groups as regards age. There was a higher significant difference in smoker workers exposed to noise only (group 2) than the other two groups. There was no statistical significant difference between the two exposed groups as regards duration of exposure. There was a highly statistical significant difference between the two exposed groups as regards different types of hearing loss (sensory neural induced hearing loss, conductive deafness and mixed type) than control one. Distribution of different types of hearing loss (sensory neural induced hearing loss, conductive deafness and mixed type) among the exposed groups was more frequent bilaterally than in one ear (right or left alone). Prevalence of conductive deafness, sensory neural induced hearing loss and mixed type hearing loss increased (respectively) with increased duration of exposure. The current study recommends a more comprehensive approach to workers safety via the application of well designed hearing conservation programs that takes into consideration other factors causing ototoxicity.

Keywords: Noise exposure, organic solvents, combined exposure, ototoxicity, noise, induced hearing loss

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Improvement of Occupational Health and Safety Conditions at Workplaces in Turkey

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Project on Improvement of Occupational Health and Safety Conditions at Workplaces in Turkey (İSGİP), which will last for 24 months and in which Ministry of Labour and Social Security, Directorate General of Occupational Health and Safety placed as beneficiary, has started to work after the signing of the contract on 15 January 2010. The budget of the project is 4 million 75 thousand Euros. Under the European Union Instrument for Pre-Accession Assistance (IPA), in the Project various activities are carrying out in five pilot provinces (Ankara, Denizli, Kocaeli, Kütahya, and Zonguldak) and in three targeted industrial sectors; metals, mining and construction where occupational accidents and diseases are most common. In addition to these activities, at later stages of the project it is aimed to extend similar studies to all these sectors throughout Turkey in order to improve occupational health and safety conditions. At the initial phase of the project, 16 enterprises selected as

Centres of Best Practice Candidates from the above-mentioned three sectors and in the pilot provinces. At these selected SMEs, by servicing special support programme in order to improve occupational health and safety conditions, it is provided to implement occupational health and safety management system to be developed by the project team. Next step, an OHS Management System which also includes Health Management System and developed at the Centers of Best Practice by project team is extended to 112 enterprises; then it is planned to transmitted through 1500 enterprises by the trainings which will be given free of charge. Within the scope of the Project, by establishing a training program after analysis of training needs, for the duration of the project a large number of training activities will take place for employers, employees, sector representatives, experts working in the field of occupational health and safety. The overall objectives of the Project are determined as improvement of working conditions and reduction of occupational accidents and diseases and thereby increasing productivity of the selected sectors.

Keywords: Occupational health and safety, metal, mining, construction, OHS management system, project, SMEs

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Analysis Individual Disagreement Approaches of Employees within the Framework of OSH: Çanakkale Case on Disaster Management Employees

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In paralel with technological developments in the world and our country, certain problems have emerged from health and safety of institution employees. These initially slubbered problems have become more of an issue since they jeopardize the productivity of the employee and institution; therefore, they should be under consideration. According to the specialists in International Labour Organization and World Health Organization, occupational health is the study of maintaining and improving the ultimate level of physical, psychological and social well-being of the employees in every field. The main aims of labour's health and job safety works are to protect personnel's psychological and physical health from the negative effects of workplaces, guard against occupational accidents and diseases, enable them to work in comfortable and safe environments. Management and organization literature groups "individual conflict management approaches" under five categories. These are avoidance style, collaboration style, reconciliation style, compliance style and forcing style. These approaches are substituted for different terms in some resources. However different their names are, these terms have the same contents, e.g. "competition" instead of forcing, "integration" or "problem-solving" instead of collaboration. "Individual conflict management approaches" preferred by the employees in their workplaces are closely related to their occupational health, and so, there are psychological and physicological effects of these approaches such as, occupational accidents and diseases, mobbing, and leaving from work. The purpose of the present study is to reveal the correlation/relationship between occupational health and safety and the individual conflict management approaches of the employees in the field of disaster management.

Keywords: Physicological effects, safe environments

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Results of Safety Culture, Occupational Health & Safety Practices in a Cement Factory

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This study aims at sharing the practices and outcomes of occupational health and safety practices, as well as safety culture practices in a cement factory.

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Develop the OHS Management System in Privatized Mining Company Located in a Developing Country

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Katanga Copper Mining located at Katanga Province, Democratic Republic of Congo, is dedicated to exploitation of copper/cobalt minerals. The operations consist of 2 Open pits and Underground mine, metallurgic plants and service facilities (workshops, warehouses and projects). KCM was privatized on 2006, after managed 2 years was declared in bankrupt. The new management received a mine with obsolete infrastructure, strong union, staff with limited skills and low morale. We establish an action plan to improve the safety controls to prevent additional losses to the company based in practical tools. After 2 years the production increase from 50,000 t/month to 120,000 t/month and the performance safety indicators increase more than 100%.

Keywords: OHS management system

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Dosimetric Monitoring of Workers Occupationally Exposed to Ionizing Radiation in Chile

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Introduction: Occupational exposure to ionized radiation it's very frequent and common in a variety of jobs, since the use of this type of radiation it's on the rise, therefore the correct use and procedures for radiation protection it's paramount to effectively and safe use of ionizing radiation. The system for Dosimetric Monitoring of the Health Public Institute of Chile has the overall goal of lowering exposure to harmful radiation for occupationally exposed workers in order to minimize the possibility of a radiological accident. The research shows the result of monitoring 6148 workers and their exposure levels in the period of 2007 to 2010. Materials

and Method The study recorded exposure levels for 6148 workers since May 2007 to December 2010. These records are provided by external personal dosimetry service of country and following categories outlined in Supreme decree N°3. For each trimester dosage above 5 mSv was selected, and registered by dose level, gender, source, control date and work type among others. Results The results show 167 alerts, with 78 cases in the exposure level between 5 to 12.5 mSv and 89 samples show levels at or above 12,5 mSv. Between years 2007-08-09-10 the samples show 20,56,39 and 52 for each year respectively, with an average of 42 cases per year, showing an incidence of 0.7%. The overall total per first, second and third category are 74,82 and 11 respectively. Discussion The biggest group alerts were due to incorrect use of dosimetry, which demonstrates the need for ongoing training. The group with the highest number of cases corresponds to industrial scintigraphy, where the doses mostly due to irradiation of the operator for malpractice, error and loose practices.

Keywords: Occupational exposure, ionized radiation, radiation protection, radiation monitoring

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Economic Analysis of Safety Risks in Construction

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The objective of this study revolves around the analysis of the safety risks involved with one construction project, and the respective economic effects of risk prevention and safety management. As a result of the co-ordination of systems, and harmonising of work between the Project Leader, Safety Co-ordinator and Contractor, an adequate strategy was developed for the safety of the project a Big Dam in the North of Portugal. The Big Dam in the North of Portugal is located nearby the confluence with the river Douro, basin, with a storage strategic role added to the electricity generation. It comprises two storage-pumped plants equipped with reversible units. The construction volume covers around 700 000 m³ of concrete, 600 000 m³ of excavation and an installed power of 170 MW. These Dam presents a strategic value, once, it allow water supply reserves for domestic and industrial use and the biggest reserve of water in Portugal, and help to improve flow modulation control. The safety risk evaluation on construction is carried out in simulated form, and task by task, introduced into the work programme. This gives a history of risk evaluation over the course of the project. The simulation allows peaks of risk to be identified, which will then lead to additional proposals of prevention measures. These prevention measures will serve to reduce risk and consequently lead to a curve on the risk chart. They consist not only of on-site measures, but also of the integrated implementation of working safety policies. We should be aware that risk can be reduced, but is difficult to eliminate altogether. The implementation of prevention systems and working safety policies has its own cost, but what we intend to prove, by attributing costs to risks, is that safety has lower costs than a lack of safety.



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A Case Study-New Approaches in Monitoring and Evaluation of Health and Safety (Hs) Performance in a Large-Scale Construction Project in İstanbul-Turkey

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This paper focuses on the new approaches in implementation of health and safety (HS) monitoring and evaluation system utilized in Justice Palace Construction Project Caglayan-Istanbul. The large-scale construction work was executed by Varyap Varlibaslar Co. during September 2007-March 2011. The total size of the construction was 328.544 m² built on 42,000 m² land that consisted of 19 adjacent blocks of 4 to 19 storeys. The average number of the employees was around 1.000 that reached to 1.500 in peak time. The complex is considered as the largest justice palace building in Europe. Overall HS performance management of a construction project is mainly based on main contractor's HS policy and objectives and highly related to sub-contractor capabilities in addition to implementation of effective measurement and monitoring techniques. In particular, like the subject project, when there are specific difficulties like short production time, inner-city obligations and tight workplace conditions; then it is required to plan and implement new approaches for HS performance management throughout the Project. HS monitoring and evaluation system structure was planned and implemented within five levels:

- Achievement of HS policy, objectives and targets in addition to legal compliance
- Results of on-site HS observations within the context of sub-contractor performance
- Results of training and participation activities
- Results of test, inspection and audit (internal/external/legal) activities
- Results of reactive incident data; ill health, accident and near miss data combined with lost time and cost values

In the paper, qualitative and quantitative indicators assigned for each above mentioned level are defined, the trend analyses are demonstrated and the achieved results are discussed leading to an overall HS performance of the Project. The results are compared with other available data in the sector. It is also intended to demonstrate the difficulties and achievements of the implemented performance management system.

Keywords: Monitoring, evaluation, HS indicators, construction

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Comparison of Employees Awareness Conscious of Occupational Health and Security Which in Company has Work Health & Safety Organization and has not Works Health & Safety Organization Occupational Health

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The purpose of this research, occupational health and safety in workplaces with and without organizations employees to determine their awareness of occupational health and safety. In this direction be considered as occupational health and safety issues are examined and basic health units and non-corporate firms workplace occupational health and safety consciousness of employees are evaluated. Survey was to collect data. City and participated in our study, 150 questionnaires were evaluated on a sectoral basis, without distinction, and this analysis was conducted via questionnaires. Distinctive feature of our study to other studies in the literature and the civil servant status of employees, workers' awareness of occupational health and safety of all employees covered by the fact that without engaging in the same group to evaluate. In this group, workers, civil servants, engineers, office staff, academics, doctors, nurses, teachers, technicians, etc. one is located. A general concept and the concept of occupational health and safety of workers working near the state study, we see the concept of occupational health and safety. Employees in establishments of every human being and development of health protection needs. In our study group not include with and without significant differences in some matters isgb. Although significant differences were found key questions of occupational health and safety, and the results obtained were evaluated. As a result of the research important findings has been reached and interpreted these findings in detail. Future research studies is thought to contribute.

Keywords: Occupational health, occupational safety, occupational health and safety organizations, awareness.

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Formaldehyde

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Introduction: Formaldehyde is the most commercially important aldehyde. Formaldehyde has been produced commercially since the early 1900s. Urea-, phenol- and melamine-formaldehyde resins (UF, PF and MF resins) accounted for approximately 63% of world demand in 2009. World consumption is forecast to grow at an average annual rate of 4.0% during 2009–2014. Formaldehyde is a carcinogen in humans. It has been shown to cause cancer of the nasopharynx and leukemia. Formaldehyde resins are used predominantly in the wood products industry as adhesives therefore it's not just a workplace chemical hazard that effects workers but it's also an important air quality parameter that we constantly exposed in our daily lives. This poster is intend to attract attention to formaldehyde and create awerness. Contents: What is formaldehyde, where is it used, sources of formaldehyde, health effects occupational exposure limits

Keywords: Formaldehyde, occupational health and safety, sources of formaldehyde, health effects

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Enhancement of Skin Protection in Hairdressers in Europe - a Common Recommendation for Europe

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Occupational skin diseases in the hairdressing trade in Germany declined by more than 60%. This is due to the implementation of graduated preventive measures. However, a Europe-wide implementation of effective measures for the prevention of occupational skin diseases in the hairdresser sector is still needed. Therefore, an agreement on minimum standards of the member states and accession countries is essential. Objective: The EU-funded project „Development of a common health and safety recommendation for the hairdressing trade in Europe – SafeHair” aimed at developing a scientific based standard for the prevention of occupational skin diseases for hairdressers. The project took into account apprenticeship, vocational education and training with the participation of the social partners. Methodology: Within the framework of three international workshops comprehensive prevention measures for the hairdressing trade were commonly developed. 50 representatives from employers’ and workers’ associations, dermatologists, occupational physicians, statutory occupational accident insurers and industry associations from 14 European countries discussed and reached agreement on the importance of skin protection measures, dissemination strategies, inclusion of a prevention culture into the syllabi of apprenticeships and the involvement of key actors in these measures. Result: A declaration of intent for a high-risk occupation was adopted for the first time. The “Declaration of Dresden” contains recommendations concerning the above-mentioned issues as well as concrete support measures for its implementation at national level. Conclusion: The declaration provides a basis for further attempts concerning occupational safety and health, focusing in particular on the prevention of occupational dermatitis in the European hairdressing trade.

Keywords: Prevention of occupational skin diseases, declaration

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Enhancement of Skin Protection in Hairdressers in Europe - A Common Recommendation for Europe

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Occupational skin diseases in the hairdressing trade in Germany declined by more than 60%. This is due to the implementation of graduated preventive measures. However, a Europe-wide implementation of effective measures for the prevention of occupational skin diseases in the hairdresser sector is still needed. Therefore, an agreement on minimum standards of the member states and accession countries is essential. Objective: The EU-funded project „Development of a common health and safety recommendation for the hairdressing trade in Europe – SafeHair” aimed at developing a scientific based standard for the prevention of occupational skin diseases for hairdressers. The project took into account



apprenticeship, vocational education and training with the participation of the social partners. Methodology: Within the framework of three international workshops comprehensive prevention measures for the hairdressing trade were commonly developed. 50 representatives from employers' and workers' associations, dermatologists, occupational physicians, statutory occupational accident insurers and industry associations from 14 European countries discussed and reached agreement on the importance of skin protection measures, dissemination strategies, inclusion of a prevention culture into the syllabi of apprenticeships and the involvement of key actors in these measures. Result: A declaration of intent for a high-risk occupation was adopted for the first time. The "Declaration of Dresden" contains recommendations concerning the above-mentioned issues as well as concrete support measures for its implementation at national level. Conclusion: The declaration provides a basis for further attempts concerning occupational safety and health, focusing in particular on the prevention of occupational dermatitis in the European hairdressing trade.

Keywords: Prevention of occupational skin diseases, declaration

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Effectiveness of Safety Training in Reducing Occupational Injuries – An Epidemiological Follow-up Study in the German Glass Industry

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Injury is a main occupational health problem. Although in Germany a consistent declining rate of occupational injuries since the 1970s can be observed, there are still about 800,000 reportable occupational injuries per year.

To facilitate the effective prevention of occupational injuries, a preventive training program was developed by the work safety professionals of the German Social Accident Insurance focusing on the improvement of job-specific safety behavior and risk management. The effectiveness of this training program was evaluated in an epidemiological follow-up study among workers in the German glass industry.

Intervention of one year work safety training was conducted among employees (n=860) in 10 factories producing flat glasses. The effectiveness of this training program was evaluated in follow-up of the study cohort, and in a comparison of injury rate between the intervention group and a reference population (n=14,200, whole workers employed in the flat glass production in Germany).

The analysis demonstrates a negative trend of injury rate over time. The time trend leads to a 5% decrease of the injury rates during the follow-up time period per year. In addition to the negative time trend, the intervention leads to a 37% decrease of reportable occupational



injuries. Base on this estimation, 122 cases of injuries were prevented due to the intervention program during the time period between 2002 and 2008.

A cost-benefit analysis of this intervention program proves savings of about 2 million euros.

The study indicates that job-specific work safe training significantly reduces occupational injuries. Sustainability of the intervention effect can be maintained if the training program can be refreshed every 2 years.

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RECODESTIL: Preventive Method for the Assessment of Occupational Diseases Caused by Work-Related Stress

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"... The crisis of industrial society into question many of our cultural values, our role models, our professional expectations and the use and guidance of leisure and free time (...) We conclude that the nature of work, social relations of leisure time are changing or have to change radically." Persistent situation worse by new ingredients that must be analyzed to understand their effects on the behavior of the infinite quest to prevent diseases. Any discussion on the future of free time people and their new occupations will necessarily related to the analysis of technological advances, changes in the production process and the social changes they cause. Employment and wage work as productive business activity does not escape from their collateral effects on the daily physical and psychological-social members. These two concepts are currently undergoing a transformation that disrupts their social content and function productively. You need to build measurement factors to effect the passage of the concept of full employment to the concept of full activity, an activity more rich and meaningful in a different occupation. This new concept is already manifest as a possible alternative and innovative concept that transforms the empty time to time released. Time freed up by the machine to engage in an activity where creativity, initiative, aesthetics, solidarity, social service, family life, art, literature, cultural activities, education, etc., Play a completely different role and to prevent the emerging diseases given by the stress.

Keywords: Measurement of physical-social-psychological nature of work, social relationships, leisure time, work stress, occupational disease prevention, RECODESTIL (recreation, leisure, rest and free time)

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Clothing Flame-Retardant Contradicting International Standards to Ensure Comfort for Electricians

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In order to provide a better comfort for electricians who perform activities in networks of power distribution and that wear flame resistant uniform against thermal effects of an electric arc, Cemig, an electric utility, has customized a t-shirt made of 100% cotton for exclusive use in activities of driving, inspecting and others without any risk of electric arc. In practice, due to the fact that these workers perform their activities on public roads, it is not appropriate changing the 100% cotton t-shirt by the flame retardant shirt. For this reason, they wear a flame resistant shirt over a 100% cotton t-shirt, what is not recommended by the ASTM-F1958: Standard Test Method for Determining the Ignitability of Non-flame-Resistant Materials for Clothing by Electric Arc Exposure Method Using Mannequins and NFPA-70E: Standard for Electrical Safety in the Workplace. To ensure the electricians safety in this situation and to check the ignition or not of the 100% cotton t-shirt, tests of electric arc were performed in a typical structure of distribution network and it was considered for these tests the following parameters: distance between rails 150mm, voltage of 13.8kV, short circuit current of 6kA, protection time of 300ms and working distance of 45cm. Old and new RF uniforms, helmets, harness, safety glasses, underwear and especially the 100% cotton t-shirt under the flame retardant shirt were tested, and the results proved that the t-shirt in these situations is not ignited in any applications. We emphasize that the tests portrayed a real situation of exposure to an electric arc. In order to validate the results, followed up some tests in laboratories in Europe/Canada and found out that apart from the lack of ignition on the 100% cotton t-shirts, there were a increase of the protection level, contradicting what has been established by international standards.

Keywords: Electric arc, flame retardant clothing, comfort, NFPA70E, ASTM F 1958

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Prevalence of Needlestick Injuries and Related Factors among Nurses

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Introduction: Needlesticks is a known serious treat and occupational problem among health care workers especially nurses with a wide rang of diseases such as AIDS and Hepatitis. Since nurses are the biggest part of healthcare workers, and over eighty percent of needlestick injuries are preventable, we decided to determine prevalence of needlestick injuries among several medical and educational centers nurses. **Material and method:** This cross-sectional project was conducted during autumn and winter in 1388. The data were gathered by a questionnaire among all of nurses in three Babol educational hospital (more than 300 person) after a pilot study (n=29). The data were analyzed with descriptive statistical indexes.

Keywords: Needlestick injury, nurse, healthcare worker, prevalence, occupational hazard

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Personal Protective Equipment (PPE) Regulations and Their Applications

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Personal Protective Equipment Directive (PPE) which is in the field of The Ministry of Labour and Social Security 's responsibility has been prepared in accordance with the Council of Ministers which is about No. 4703 on Preparation and Implementation of Technical Legislation on Products, Act 4 and Article 97 / 9196 Technical Regulations Prepare for Increasing Exports of Turkish products on the determination of institutions which is issued by the Undersecretariat of Foreign Trade. European Union prepared PPE Directive by the harmonization of the 89/686 / EEC directive and it is publicated in the Official newspaper 25368 on 09.02.2004 and entered into force on 09.02.2005. These Regulations have been revised on 29.11.2006

Within the scope of personal protective equipment's market surveillance (MS) activities; the market supply or the distribution of the product or while the product is on market, it is produced in accordance with the relevant technical regulation or not, it is safe or not are controlled by the personnel of the Ministry of Labour and Social Security. As a result of the controls , products which are not appropriate technical regulation (CE conformity marking and the non Turkish manual) is made in appropriate and administrative sanctions are applied when needed.

Within the scope of market surveillance activities performed by the Ministry in 2010, 624 products inspected. As a result of the controls, 181 products (28%) were not produced in accordance with its technical regulation. The distributor who supply improper products, the manufacturer and their authorized representatives are warned. In the scope of MS,a manufacturer is applied administrative fine.

Except MS activities, by preparing the magazines, brochures and posters related to personal protective equipment, various activities took place to raise stakeholders' awareness and sensitivity about the legislation

Keywords: Safety product, surveillance, inspection

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New Concept for Risks Arising from Occupational Exposure to Electromagnetic Fields

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Employers have the obligation to adequately protect workers against all risks related to health and safety of workers at work. This also includes risks arising from the exposure to electric, magnetic and electromagnetic fields (EMF). Adverse health and safety risks have its physiological origin in an unacceptable stimulation of excitable body tissues through EMF in the low frequency range. Exposure to EMF in the high frequency range may lead to unacceptable heating of the human tissue through energy absorption. Taking account of the ongoing technological development and scientific research regarding occupational exposure to EMF a German expert group has performed an in-depth analysis of the physical and physiological background for an effective protection of health and safety of workers with respect to occupational exposure to EMF. In order to facilitate the risk assessment, to reduce



unnecessary measures and to avoid unduly impacting of the use of certain technology or industrial processes a new concept of exposure limit values for the low frequency electric and magnetic fields based on current scientific knowledge has been developed. It provides the most up-to-date information available for the ongoing discussion concerning occupational exposure of workers to EMF. The main results of the analysis and the new concept of exposure limit values and the consequences for adequate preventive measures at workplace will be presented.

Keywords: Exposure, electromagnetic fields

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Corporate Governance for OHS Across Thirty Five of the Largest Mental Health Service in Australia

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Background: Melbourne Health's mental health program, North Western Mental Health, is a clinical stream of Melbourne Health and is based in the city of Melbourne, Victoria, Australia. The State of Victoria, one of six States and two internal territories in Australia, has had an Occupational Health & Safety Act since 1985, with penalties for organisations and individual managers, if unsafe practices are allowed to occur. Therefore a corporate governance program to ensure we were aware and acting on risks to our population was undertaken. Our Mental Health service is the largest mental health service in Australia with over 2,000 full time staff and a budget of over \$160 million. It operates across 35 sites and five major hospitals, covering an area of over 126 kilometres. Mental Health workers are frequently exposed to a number of hazards (1) and risks (2) within their daily practice. Methods: An OHS plan was developed utilising the domains that were required under State legislation and the organisations risk and incident database. This would then be monitored utilising an audit tools that were designed after searching several databases from our States regulating body and insurers web sites. Conclusion: This presentation will highlight the effectiveness of a coordinated corporate governance program that has resulted in ensuring over 2,000 full time staff have been trained in the components of our State regulations. We now maintain a safe workplace, demonstrated by 100% compliance to the OHS plan following audits, leading to a reduction of lost time hours, workplace injury claims and a more satisfied workforce. Expected outcomes: An analysis of various service initiatives was conducted and supported by observations and audits. In 2009, the program was awarded a "highly commended" award as part of the best of health awards from the chairman of our health service.

Keywords: Occupational health and safety, mental health services, hazards are identified as predictable incidents, risks are identified via our incident and injury data base

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Chronic Fatigue of Work Strain

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Studies of the work strain in occupational groups, providing for flight safety, namely: air dispatchers and engineering- technical staff of radio navigation, radio location and communication (engineers-electronics) as well as in a group of persons staying in extreme conditions in Antarctic), including patients (operators and power engineering staff) with symptoms of chronic fatigue (SCF) showed peculiarities of chronic fatigue development of different degree. Physiological and hygienic measures on their prevention in occupations with work strain have been grounded. Occupational groups have been divided into two sub-groups with «low fatigue level» and «high fatigue level». Using a factorial analysis it was revealed, that in groups with «high» fatigue level more number of associations with symptoms of «burnout» was observed, pointing to disorders in the emotional sphere of a worker, where the leading factors showed from 17% to 50% dispersions of the analyzed data. A direct proportional dependence in meanings of psychophysiological indices on the degree of manifestation of chronic fatigue has been marked. The increase of the degree of chronic fatigue caused worsening of the cardio-vascular system: increase of the arterial tension (e.g. in the sub-group of air dispatchers $-158,8 \pm 1,7$ mm Hg; in the sub-group of engineers-electronics it was $144,5 \pm 2,7$ mm Hg). Also, anxiety, bad state of health, worsening of activity and mood were recorded. The availability of the nonspecific mechanism of chronic fatigue formation in different occupational groups. It was found that effect of rehabilitation measures directed at nonspecific chains, forming development of chronic fatigue, resulted in effective improvement of work ability and state of health of workers, involved in various branches of production.

Keywords: Strain work, chronic fatigue, airdispatchers, electronic engineers, winterers, factor analysis, syndrome of chronic fatigue

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Effectiveness and Activity of Specialists in Health and Safety at Work

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The long-term study commissioned by German Statutory Accident Insurance [Deutsche Gesetzliche Unfallversicherung (DGUV)] examines the entry into employment and effectiveness of about 2.000 specialists in health and safety at work over a period of eight years. The study will be completed in 2011. Most of the results are available. Using a longitudinal design, both the experts in health and safety at work and their cooperation partners in companies are surveyed online in several intervals of questions. This means that the development of focuses of activity, effectiveness, personal expertise and ways of working, but also influences from company and supracompany conditions can be analysed on a representative basis over a longer period. Chances and measures to improve the activity and effectiveness of specialists in health and safety at work in particular and corporate preventive work in general will be derived from the study.

Keywords: Effectiveness of safety specialists, long-term study

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Health and Safety Professionalism in the Globalised Economy

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This joint presentation examines the work being done to meet the challenges and opportunities for health and safety professionalism in the UK, Europe and the North American continent in the globalised economy.

When considering the potential importance of regulating professional standards, it is helpful to remember the worldwide scale of human and economic toll that work-related health and safety failures bring. It has been estimated that each year 2.3 million people are killed as a result of work-related accidents and diseases; there are around 337 million workplace accidents; and 160 million people are affected by occupational disease. Occupational accidents and diseases have been estimated to cost approximately 4% of the world's GDP each year. It is all this suffering and loss that we believe competent health and safety assistance can help prevent.

With growing globalisation and movement of labour it is increasingly important for employers to be able to adequately assess the competence of employees from varying backgrounds. Where the occupations concerned are safety-critical and involve providing advice on protecting people's welfare, such as the occupational safety and health (OSH) profession, this is absolutely essential. Employers must be able to judge competence in this area and so we need to agree how best to do this and the standards required for different roles. And because the roles themselves will need to adapt and develop to ensure ongoing adequacy as the world of work changes, the standards too will need to appropriately evolve. The movement towards stronger multidisciplinary approach to OSH will also mean that each professional group involved needs a ready means of recognising competence in other fields.

Our session outlines work towards achieving consistency, quality and minimum service standards so that the principles for protecting people's health and safety and the ethics of professional practice can be universally applied.

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The Analysis of the Factors that Effect the Health Problems and Rate of Attendance to Work of the Coal Miners Who Work in Shifts in the Zonguldak Coal Basin

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There are huge psychological and physiological problems in mining profession that arise due to working in shifts. In our research, as it is one of the oldest line of business in Turkey, and as it requires working in shifts due to the process, the research has been made on the workers in the pit coal mining. In our study; - to search the health problems on the workers due to working in shifts in the mining business, and to compare them to the permanent daytime workers, - to compare shifted and daytime workers according to the statistical criteria regarding the health reasons and other reasons, and the workers' absenteeism and work accidents are aimed. According to the results of the research, it is assessed that the rate of



cigarette smoking among the shifted workers is more than the permanent daytime workers, whereas the average daily sleeping period is less, stomach illnesses, headaches, gaining weight and fatigue complaints are more than daytime workers. Although the rate of absenteeism caused by all reasons is lower at shifted workers than daytime workers, absenteeism due to illness and work accident and average working hours loss per person is higher. Despite the fact that the rate of frequency of accidents of the shifted workers is lower than non shift workers, the rate of severity of accidents are higher. Perception, attention and short memory levels of the night shift workers drop drastically with compare to the morning and noon shift workers.

Keywords: Shift work, working hours

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Prediction of Safety-Related Behavior among Turkish Nurses: an Application of Theory of Planned Behavior

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This study examined the effect of safety climate perceptions of nurses on adherence to the safety related behaviours. Data were collected from nurses (N=274) of two different private Turkish Hospitals located in Ankara and their first line supervisors (N=34). Participants filled out the questionnaires including scales of safety climate and adherence to the Standard Safety Precautions. The outcome variable was the compliance to the standard precautions as rated by the supervisors for each nurse. The safety climate scale which was a composed of the safety climate scale used in Neal et al. (2000) study, the scale used in Gershon et. al (2000) study and new created items employed first time among a Turkish sample. The factor structure of the scale was examined and the differentiation from the original factors of the scale (management values, communication, training, safety systems, absences of job hindrances, teamwork, reporting, and personal protective equipment availability) was revealed. General safety climate and teamwork were the two safety climate dimensions found in the present study. Moreover, the safety performance variables used as dependent variables were determined according to the factor structure of the supervisor rated standard precautions scale as personal protective equipment usage, preventive standard precautions, proactive standard precautions and hand-hygiene. The predictive power of safety climate dimensions for each safety performance variable was investigated and the most effective safety climate dimension was found as teamwork for predicting the safety performance of the nurses in Turkish context. Theoretical and practical implications of the findings will be discussed.

Keywords: Safety climate, standard safety precautions, safety performance, nurse

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(P: 213)

Work and Technology on Human Terms

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Introduction: The technical colleges and universities of Sweden offer basic courses in human engineering, ergonomics and related subjects. These courses aim at giving the student basic knowledge and skill in order to, in a future capacity as product developer, production technician, manager or leader, design products and workplaces with a regard to human abilities and limitations. At the expressed requests of the teachers at the technical colleges and universities and by order of the parties of the labour market, Prevent has produced a learning material for this interdisciplinary subject. Prevent is an unincorporated association within the working environment area owned by the Confederation of Swedish Enterprise, the Swedish Trade Union Confederation and the Federation of Salaried Employees in Industry and Services. Our task is to supply knowledge concerning working environment-related questions and develop methods supporting every workplace in its handling of the continuous work concerning the working environment. Methods: The learning material's content was defined in a series of workshops with eight teachers from six different universities and colleges. Thereafter, the book was produced within a project organized by Prevent under the supervision of an editorial committee and with the help of 20 authors who are teachers and scientists within the graduate engineer programme at the technical colleges and universities. Results: The result of the project is a book, consisting of over 700 pages with the following Content: Psychosocial and organisational environment

- Psychosocial working environment
- The organisation of production and work Physical environment
- Physical load
- Physical factors
- Chemical health risks Information and interaction in technical systems
- Human-technology system
- Safety and risks Methods and design processes
- Methods
- Design processes Economic and legal conditions
- Occupational injuries
- Work environment and economics
- Work environment legislation
- Standardisation

Keywords: Labour improvement, work condition, Sweden

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The Experience of a Health Center about Sickness Certification, a Preliminary Study at Hacettepe University (in Ankara, Turkey)

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Purpose: Evaluating the sickness certification of permanent staff referring to Merkez Health Center of Hacettepe University at 2010. Instrument – Method: The information about 483 permanent staff referred to the Merkez Health Center is collected from sickness certification records and Computer based patient recordings of health center. Findings: The total number of sickness certification written for permanent staff at the health center was 592 in 2010. However the total number of permanent staff receiving sick certification was 483. Of these staffs, 87,7% was administrative. Some of the staff received the certification repeatedly. 13.7% of administrative staff and 5.97% of akademik staff whom received a report get the certification 2 times during year, where 4.33% of administrative staff and 1.49% of akademik staff get the certification 3 times and more. The most common illnesses reported were diseases of respiratory system both in academic and administrative staff (58.22%, 63.35% respectively) the second were the diseases of musculoskeletal system and connective tissue (10.13%, 10.09% respectively). Discussion: The findings of our study revealed preventive interventions concerning diseases of respiratory system, musculoskeletal system and connective tissue is necessary to improve overall health and sickness leave among permanent staff at Hacettepe University. Such as worksite physical activity and diet promotion programmes has work related outcomes and can yield decreased levels of absenteeism. Conclusion: Only treatment of patients will not help reduce work related illnesses Primary preventive measures needed. Monitoring sickness certification rates, and identifying people who carry high risk of sick leave will guide to prepare workplace interventions and serve to reduce work related illnesses.

Keywords: Absenteeism

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Prevention Noise in Manufacturing in Estonia

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Occupational exposure to excessive noise is commonly encountered in a great variety of industrial processes. This study attempts to provide a basis for the determination of risk levels of noise as the main physical hazard in the work environment in industry and to implement the flexible risk assessment method by using the results of measurements in four industries (printing, clothing, wood, and mechanical industries), and draws the conclusions about noise and the possibilities and the willingness of the management of the enterprises to reduce and prevent the influence of this hazard. Based on the study, the following conclusions can be drawn: 1. A consistent method for assessing the occupational hazards is recommended. The case studies showed that the simple/flexible risk assessment method created by the authors is viable and applicable in the selected industries assessing risks from

occupational noise. The methodology can be used in any kind of company, but small and medium-sized companies are preferred. 2. In the investigated Estonian enterprises, noise is one of the main health hazards present in many industries. In the studied enterprises, the noise level exceeded the norms in several cases. The risk to experience noise-induced hearing loss among workers who misuse the protective equipment is significant. The employers should attempt to find additional technical measures to lower the noise levels and encourage the workers to use the personal protective equipment properly. 3. New possibilities for the involvement of workers in the safety management at enterprises have to be considered by the top management of the enterprises. In many of the investigated enterprises, the management's attitude towards occupational health and safety was stimulating and supportive and the management showed eagerness to enhance workplace safety.

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Easy Safety Training Access By E-Learning

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Safestart is a European initiative designed to enhance work floor safety through the development of an e-learning programme. The user can acquire basic knowledge of safety in a user-friendly way at his own pace. This project was financed with the aid of the European Commission (Leonardo da Vinci Program) Content: Basic knowledge of relevant topics from health and safety legislation, of the terms risk, prevention and control measures, accident prevention. Knowledge of the general risks and control measures for: dangerous substances, fires and explosions, confined spaces, hand tools and machine tools, hoisting, lifting, carrying, stumbling, slipping, falling work at heights, control measures for electricity, knowledge of the correct use of personal protective equipment and its uses. The e-learning course can be embedded in any SCORM-compliant learning environment. It is in multimedia form, with illustrations and animations, interactive exercises and the necessary assessment tests. The course is fully supported by voice-over audio. It includes an exam and a certificate so that the trainee can prove that he/she understood the content. Safestart is a learning aid for independent study; as part of blended learning and a didactic support for courses in a class-teaching context. Safestart is a high-quality product that can be used for training. Safestart improves access to training for the target group and improves access to the labour market. Safestart is already incorporated into training programmes of some training institutions and official bodies, so that further use by the target group is guaranteed. The course is available in Turkish and adapted to standards and prescriptions in Turkey. Other language versions are available in Dutch, French, English, German, Polish, Bulgarian, Romanian, Greek and Hungarian. In this presentation, final Turkish version will be demonstrated.

Keywords: E-learning, easy access safety training, efficient safety training

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Occupational Strain Among Health Care Workers

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The purpose of this study is to assess the occupational strain among health care workers (HCWs). 3520 HCWs were interviewed by questionnaires about working condition and the health. Some specific methods such as to use Stress Assessment Score for Asian (SAS); to measure Heart Rate Variability (HRV). Also were used to study on occupational stress, the level of strain of the cardiovascular system among HCWs. The results showed that: 10.7 percent health workers having high stress assessment score (SAS), 37.9 percent having moderate SAS and 51.4 percent having low SAS. The level of strain of the cardiovascular system among HCWs was high (according to Baevski's classification). HCWs of treatment system were tend more strain than HCWs of preventive system with lower SD ($P < 0.05$) and higher heart rate frequency ($P < 0.01$). During the work, the strain level of the cardiovascular system among the ICU department was highest (62.9% HCWs having average heart rate frequency (calculated each hour) was greater 90 beats/min; 100% HCWs having a maximum heart rate greater than 90 beats and the difference of heart rate was 40 ± 22 beats), next the general surgical department, clinical department, mental department and other departments. Working condition factors (over work, night work shift, exposed to poisonous gas...) were having a connection with some HCWs expression such as fatigue, headache and muscular disorders. The author recommended that it is necessary to apply some solutions for reduced occupational strain of HCWs.

Keywords: Health care workers, stress, HRV

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Workload and 24h-Heart Rate Variability in Operators

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This study was carried out to study on workload and 24h-Heart Rate Variability (HRV) in Operators. Thirty two (32) train operators with 38 ± 6.8 years of age and 6.4 ± 2.6 working years took part in this study. Operator's workload was assessed by Stress Assessment Score for Asian (SAS) and by monitoring working duration. Some indices such as HRV by 24h Holter recording system, Critical Flicker Frequency (CFF), short-term memory ability, blood pressure were measured among them. The result showed that operator's workload is clearly: long working time, high intensity of work, shiftwork; the high rate of operator's SAS, the low rate of short-term memory ability and CFF. There is a change obviously in the heart rate during the work in comparison with that having a rest ($P < 0.001$). The time-domain indices and frequency-domain indices of 24h-HRV were analysed in order to find the work-related and HRV. The author recommended that it is necessary to apply some solutions for reducing workload for operators.

Keywords: Workload, HRV, operator

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Best Safety Practices for Outdoor Advertising in Turkey

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An outdoor advertisement which calls as city furniture has been seen extensively in big cities last few years and number of them are continuing to increase very fast. Those are designed to catch a person's attention and create a memorable impression very quickly; therefore, those structures are typically found in high traffic areas such as alongside busy roads and pedestrians. In parallel more workers have been started to work in outdoor advertisement industry and safety issue has been started to arise because of nature of job and working places. Outdoor advertisement structures can be building at different forms such as billboard, digital billboards, megalight, building wall, etc. Those different types of structures are created different safety issues both during the construction and its operation. Generally outdoor advertisement equipments are required in order to be effective in high-traffic location. As known, the road traffic crashed is one of the world's largest injury prevention problems and all workers have to be worked under this circumstance. While working in heavy traffic all safety precaution have to be taken for driver and workers. Besides heavy traffic condition, other safety risks are available for the worker. Those are working at high, electrical work, vandalism, working at hot or cold weather, etc. Very limited counties have been created a law related outdoor advertisement and the rules are usually related for traffic safety and there are no detailed safety applications for this area. In this study it has been aimed that to determined safety risks in outdoor advertising industry and take preventing action if necessary for eliminate or reduce accidents/incidents. Also, it has been aimed create special safety rules and procedures for each type product and task and develop a management system specifically for outdoor advertisement industries.

Keywords: Outdoor safety, traffic safety

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Applications of OHSAS 18000 for Mining and Situation in Turkey

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Essentially, establish an OHSAS 18000 management system and standardization helps to eliminate or minimise risk to employees and other interested parties who may be exposed to OH&S risks associated with its activities for all kind and size of the industries. An occupational health and safety management system is a network of interrelated elements. These elements include responsibilities, authorities, relationships, functions, activities, processes, practices, procedures, and resources. These elements are used to establish



OH&S policies, plans, programs, and objectives. OHSAS 18000 expects organizations to comply with all of the requirements that make up the standard. However, the size and complexity of OHSAS management system and industries vary quite a bit. The size and complexity of management system depends on many factors, including: the size of organization, location, nature of organization's culture, activities, legal obligations, scope of organization, OH&S policy, organization's hazards and risk. In parallel to the rest of the other industries, health and safety activities have started with inspection and procure safety in mining. Actually OHSAS 18000 is designed to be used for certification purposes, however it does not require certification. The industries can be in compliance without being formally certified. It has been noted that most of mining companies are safety compliance only because of difficulties of full implementation of OHSAS. The main problem is commitment of the top management and their resistance to lean management system. Other problems are documentation and training of the personnel, resistance of laborers to apply safety regulations and procedures and understanding requirement of the standard. These problems are more serious in small scale mining companies and quarries. This study aims to examine the systems elements, benefits, applicability and application difficulties of OHSAS 18000 series and management system tools in mining.

Keywords: Mining, ohsas, safety management system

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Petrochemicals Environmental Polluted & Health Impacts in District Fier (Albania)

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Background: The oil-bearing area is among the most polluted areas caused by oil, this pollution has been present for years and keeps degrading everyday because of the oil wells and its by-products. There are more than 3000 oil wells scattered in an area of 300 hectares. The ground in this area is covered with oil mixed with water. **Aim of study:** The study aimed to evaluate the levels of pollutants in the environment (air, soil, water) and the vulnerability of the citizens to diseases caused by pollutants; to intervene in order to reduce the pollution as well as to improve the wellbeing and health of the people. **Methods:** Were monitored air, water and soil petroleum polluted, the levels of pollutants in blood and urine, chronic and professional diseases, morbidity and mortality of population. **Results:** The concentration of air, water, soil pollutants are not stable as a result of industrial petroleum activities and hydro-metrology changing time. **Conclusions:** Now the main source of air, water and soil pollution is industrial petroleum activities, the tendency is mostly in the larger zones of petroleum fields (an increase of air pollution by sulfur dioxide (H₂S), Hydrocarbons), water and soil are polluted by petroleum. The health situation of this population is:

- Respiratory diseases, cardiovascular diseases, endocrine diseases, blood diseases, cancer diseases, etc.
- The average death rate of the population is low and the principle factors are cardiovascular diseases, cancer, respiratory diseases, accidents, etc...

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Effects of Participatory Ergonomics Intervention on Office Workers Working with Computer on Upper Extremity Disorder and Disability

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Objectives: Aim of the study is to determine the effect of the education and risk assessment using participatory ergonomics method on upper extremity disorders and functional disability among office workers. **Method:** This is a cluster randomized controlled intervention study conducted between November 2008 – November 2009. Study group consists of office workers using computer at Balçova Municipality in total 116 agreed to participate. Individuals were trained on office ergonomics and how to make risk assessment using participatory ergonomics method and risk assessment was provided with a standardized form at their own working conditions. Workers were monthly screened 3 times before and 10 times after intervention. In the statistical analyses Mantel-Haenszel rate ratio, Cox proportional hazard model and generalized estimating equations was used with Stata 11.1 statistical package programs. **Results:** Among participants, 58 were in intervention and 58 were in control group. Mean age was 36.1 ± 8.2 , 54.5% participant were female, 64.5% had a university degree. Probability of developing wrist-hand and neck symptom was significantly lower at intervention group compared to control group in the multivariate analysis ($p < 0.05$). Neck disability score value was lower at intervention group compared to control group when we take time varying effect into account ($p < 0.05$). **Conclusion:** Application of education and risk assessment using participatory ergonomics method reduced the occurrence of musculoskeletal symptoms and neck disability.

Keywords: Office worker, participatory ergonomics, work related musculoskeletal disorders

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Development of OSH in Tunisian Small and Middle Enterprises

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The Tunisian labor code requires all companies to provide OSH services to their employees. Whereas different national programs have allowed developing OSH services coverage in large enterprises, SME access to OSH services remains low and well below the national average. To remedy this difficulty in report with the specificities of SMEs (small number of employees, distance from OSH service structures, lack of space, difficulty of financement). The national program for prevention of accidents of work and occupational diseases 2009-2014 aims to develop OSH in SME. National strategy relies mainly on greater proximity of OHS services. Thus the network of mobile clinical units allowing inter-enterprises occupational health groups-IEOHG (structures inter enterprises covering essentially SMEs) has been strengthened by 6 clinical mobile units on the 2010-2011 period allowing to equip 16 GMT on 22 and eight groups will have stationary medical units in large industrial areas. The multidisciplinary of the IEOHG will be developed to enable a global approach of OSH. All

these measures is funded by the national medical insurance office (insurance of risks of occupational injuries and diseases) via contract programs between the Ministry of Social Affairs and the IEOHG. Moreover, a micro credit line was implemented to allow the SMEs finance occupational risk prevention programs. Regional educational sessions involving the social partners and intra enterprise days are organized to develop the culture of prevention. Development of OSH in SMEs is essential for an improved OSH in Tunisia especially since this type of companies is more than 80% of Tunisian companies.

Keywords: SME's, Tunisia, OSH development

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Health and Safety Factor for the Development of Sustainable Enterprises

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Perhaps at first glance, safety and staff training issues, particularly "early returns in enterprises and small industries, seem costly affair, But reality and time, it is proof of staff training and deployment of safety systems, environmental health and not just something not expensive, but safe investment in the industry to increase production quality and quantity, reduce human injuries reduce financial losses and eventually" becoming a major industrial poles will have to follow. Unfortunately, the situation in Third World economic growth is such that most firms due to lack of stability in the economy and high cost of capital, have a short time horizon. To fix that prevents a director of the enterprise, is ahead, with a view to sustainable development should look at the issues, economic, social and environmental, safety and health together look, because none of these issues alone and isolated not be looked at. Suggestions:

- Safety and Health Conference and national awards dedicated to health and insurance and tax relief for firms that establish safety and health systems, have been pioneered. Government support of health and safety workshops and also help in identifying and eliminating hazards.
- Government support of health and safety workshops and help identify and remove danger.
- Extension of health and safety experts from the field and part of the industry and ensure sustainable enterprises to invest in human resources, training, job security and non-payment of financial and human losses that lead to honor and make a positive reputation for industry and enterprises will be sustained.
- Government guarantees to support the products and encourage enterprises to compete with similar foreign products.
- Create a sense of obligation for all industry.
- Take special classes of workers and their participation in meetings and occupational health and safety meetings.

So come hand in hand to put together the global thinking, to realize a world without danger, we tried.



Keywords: Safety, economy, work

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Ultra-Trace Toxic Mercury Determination in Air of Workplace and Environmental Samples Using Cold Vapor Atomic Absorption Spectrometry After Preconcentration with Multiwall Carbon Nanotubes

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A new method has been developed based on multiwall carbon nanotubes (MWCNTs) for pre-concentration of ultra trace mercury in air of workplace and environmental samples. Mercury in air of workplace and environmental samples (mixed with a sodium borohydride solution) pass through a microcolumn packed with 10 mg of MWCNTs and then pre-concentrated. The experimental parameters such as, amount of sorbent, argon flow rate and volume of sample have been optimized. Under optimum condition, mercury vapor can be quantitatively retained on MWCNTs and then completely desorbition by electric heater accessory at 340oC. The mercury vapour is then passed into a quartz cell and determined by cold vapor atomic absorption spectrometry (CV-AAS). The detection limits of this method was 2 ng L-1. A wide linear range varying from 6 up to 54 ng L-1 ($r^2 = 0.9988$) and the relative standard deviations (RSD) at 40 ng L-1 level were found to be less than 5%. The developed method was applied successfully to determination of mercury in air of workplace and environmental samples. Validation of the methodology was performed by a special mercury analyzer system (GBC, MC3000). The aim of this work was to develop a new, simple and sensitive method for pre-concentration of ultra trace mercury in air of workplace, river and drinking water samples prior to determine by CV-AAS.

Keywords: Mercury, air of workplace, environmental samples, multiwall carbon nanotubes, pre-concentration, cold vapor atomic absorption spectrometry

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OSH Aspects among Child Workers in Indonesia

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This qualitative study in 2010 aimed to explore the Occupational Health Services for Informal Sectors (OHIS)'s effectiveness and its impact. Java Island has 60% of informal-sector workers and 65% informal-workshops. Researchers interviewed 31 respondents, selected a-priori, in charge of OHIS in different hierarchy levels (national, province, district, community and village). On national and province level, respondents were convinced that training had been effective. Indonesia's model of integrating Basic Occupational Health services into

Primary Care is moderately successful. Sustained funding and training seem the most important factors of future success.

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OHS Development for Mining Sector

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Mining sector, providing raw materials for industry, has a significant position among the fundamental sectors of our country. However, mining sector is the primary heavy and hazardous work due to its nature, and requires experience, know-how, specialization and regular inspections. Hence, in the year 2007, mining sector was chosen as prior working area by Directorate General of Occupational Health and Safety and “Occupational Health and Safety Campaign for Mining Sector” was launched. Within that campaign, social partners involvement was provided as, signing “Occupational Health and Safety Cooperation in Mining Protocol” with TMMOB Chamber of Mining Engineers. Within the scope of the campaign training seminars were held in 8 provinces and 3400 trainees including employers and employees representatives, agencies and institutes related to OHS participated to those trainings. In seminars holding in Dursunbey/Balıkesir, Ermenek/Karaman, Gediz/Kütahya, Zonguldak, Edirne, Afyon, Erzurum and Soma/Manisa, mining legislations, employers’ responsibilities, work inspections in mines, safety culture, risk assessment, sample occupational accidents in mining sector, relationship between OHS and efficiency, pneumoconiosis-workplace doctor, dust problems in mines and personal protective equipment usage were included and knowledge and sensibility of mine workers, employers and all related partners were tried to be improved. Moreover, brochures and posters related to mining were prepared and given as free-of-charge to social partners in raising awareness seminars.

Keywords: Occupational health and safety, mine, fire-damp, protection, precaution

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Vibration and Effects of Vibration on Human Health

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Protection of health of the staff, establishing and developing awareness of protection and precautions together with occupational health and safety on workplaces, take an important place in studies for community health. Physical and chemical factors, which affects staff in workplaces, causes illnesses, accidents and delay in scheduled jobs in workplaces. Vibration that humanbeing affected, described as the vibration sensed by somebody due to direct

contact with vibrated surfaces. These surfaces can be ground of a building, seat of a vehicle or handling part of a device operated with power. Effects of vibration on human body can be considerably severe. In some cases, some frequencies and levels of vibration creates constant harmful effects on internal organs of humanbody. Vibration shall cause sense of uncomfotability, mitigation in work efficiency and physical damages. Measurement and analysis of vibration is necessary to assess and define the safety level of vibration that affects the staff. There exists two types of exposition on vibration. Hand and arm vibration that conducted by handling of devices used by hand, and Whole-body vibration that conducted by seat or surface of a motor vehicle. Risk of damage due to vibration show changes with type, magnitude, frequency, exposing time of vibration and part of the body affected. On working staff, it can be seen comparatively different effects on health according to the above mentioned factors. By this study it is given some information on effects of vibration on human health, physics of vibration that exposed to humanbeing, physical parameters of vibration, kinds of vibration, devices for measurement and analysis, methods of measurement and analysis, protection methods, eposition limits and effective values.

Keywords: Vibration, exposition on vibration, kinds of vibration

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Prevalence of Depression in a Group of Textile Workers in Turkey and Related Factors

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Introduction: Nursing is a job that focused on improvement and protection of person's health and prevention of diseases Health is state of well-being from bio-psycho-social aspects. Thus, nurse should take into account psycho-social aspect as biological aspect in protection of heath. While occupational health nursing fulfill protection and improvement of health of responsibilities, it must take into account the mental health of workers. Method: The sample of this cross-sectional study constituted 346 workers that are worked in textile factory in Düzce. Data collected between 1-31 December. Assesment is made with the General Haelth Questionnaire 12 (GHQ-12). Each question has four options (1. Never happens, 2. As usul, 3 Frequently, 4 Very often). Scoring is evaluated by giving "0" to the first options and giving "1" to the last two options. The highest and lowest score that can be taken "12" and 0, respectively. Points that are higher than 4 or more are evaluated ' high' score. 2-3 points are evaluated medium score and 0-1 points are evaluated low score. Employees that have 4 or more points of General Health Questionnaire score are defined as risk group for mental disorders. Results: 6.1%, 28.6%, 24% of textile workers surveyed are 16-19, 20-24, 25-29 years old, respectively. 19.1%, 13.3%, 9% of textile workers surveyed are 30-34, 35-39, 40 or more years old, respectively. average age of workers is 28.89 ± 7.04 . 64.5% of the workers are married, 59.8% are female. 46.2% of employees are graduated from primary school, 33.5% of them are graduated from secondary school. 17.9% and 2.3% of workers are graduated from high school and university. 22.5% of workers are in risk group for mental disorders. 24.6% of women workers are in risk group for mental disorders. 19.4% of men workers are in risk group for mental disorders. Conclusion: According to research data, one out of every 5 workers is in the risk group for mental health. This rate is very high. Occupational health nurses should taking into account mental symptoms addition to psychological symptoms of



workers and workers must take as a whole. Thus, mental health is preserved and low performance that occurred result of mental symptoms is prevented.

Keywords: Occupational health nurse, depression, GHQ 12

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Role And Assessment of Visual Performance At Workplace

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Introduction: Workers visual abilities are today characterized by measuring visual acuity, light adaptation and performance in visual field (perimetry). Validity of these parameters in determining visual abilities at work is questionable, as for instance is shown by the missing correlation of the parameters with frequency of traffic accidents. Of course tasks like visual inspection require a good visual acuity. As will be shown, visual experience, awareness of events, alertness, and stability of performance over time are even more important than visual acuity. Content: The results of experiments and tests will be presented which include subjective assessments and awareness. They show that visual acuity is of limited value as a measure of vision. Multifocal glasses are a measure to compensate the loss of accommodation during aging. Field studies show that the subjective quality of those glasses deviates from physical respectively optical quality. Therefore subjective measurements are needed to assess the quality of different makes of multifocal eyeglasses. Measuring visual acuity is not sufficient for real tasks. Visual acuity might be a good measure for clinical purposes but is of limited value for vision at work. A dynamic test will be presented which measures visual information processing in the peripheral visual field while static and dynamic information is presented in the centre of the visual field (area of fovea) and in the periphery. The test results show that visual performance for peripheral stimuli drops if dynamic information is presented as a common distractor in real traffic situations.

Keywords: Tests, visual ability

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New Lighting Systems - New Challenges - New Opportunities

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Precondition / Starting position: Soon a decade has passed that new receptors were detected in the retina, which apparently control the biological rhythm. New lamps are more effective than the ones used in the past. They allow new solutions. In this workshop, in addition to the traditional ways, the new requirements in the design of the lighting systems at work will be discussed. In many work areas, it is not sufficient to provide light for vision but there is an additional demand for the design of luminaires ("light to look on") and the design and illumination of walls ("light to look at"). In addition, the needs of the biological rhythm

have to be taken into account. As the population and the employees age, the special needs of individual older workers have to go into the planning process. Where standard values are needed, they may require a proper implementation in practice that goes well beyond the mere implementation of today standard values. Contents: Overview of new biological and psychological requirements of lightening; Light and work efficiency; Lighting as a risk factor; Overview of new possibilities in lighting; Designing the lighting for workplaces; Design of visual environment in quality control. Goal: Understanding that compliance with the specifications of standard values of illumination is important but not sufficient. Recognition that standard values neither guarantee a good lighting nor an adequate work efficiency. There must be additional factors involved in the design of lighting and visual environment.

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Benefits Which Are Paid By Accidents In Rondônia, In The Brazilian Amazon

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Purpose: Establish the epidemiological profile and the distribution of productive sectors in the inability for the work in the state of Rondonia. Instrument – Method: Was based on descriptive, census, about the benefits designed for the INSS by work accident on the Rondônia State, Brazil, on the period of January 2003 to December 2010. Were studied the variables species of the benefit, economical activity of the employer and CID-10. Finding: It was found that 15,763 were granted accident benefits, sickness benefit and 14,567 (93%), 330 disability retirement (2%), 158 death pension (1%) and 709 accident-aid (4%). The Nexus Technical Previdential Epidemiological, since its implantation in 2007, influenced the increase of 92.01% in the number of notifications. The Mortality, especially observed in the productive sector, peaked in 2004 and since then has been decreasing. The most incidents diseases were dorsalgia, fractures, synovitis and tenosynovitis, traumatic amputation on the level of wrist and hand. Injury of wrist and hand. The economical productive sector that contributes the most disabilities was the one of Processing Industries – Manufacture of Food Products - Slaughtering and manufacturing meat product. Discussion: The work morbimortality on Brazil reaches epidemical levels generating impact to the medical and previdencial services. On the Rondônia State there is great participation of the agropastoral sector on the group of taxpayers companies, where we should observe high levels of harms to the worker health mainly the farm workers. Conclusions: Despite the tendency of state occupational hazard to be focused on agricultural production was observed that the cattle slaughter industry has contributed heavily in the production of incapacity for work. The Politics of Health should direct the actions to the refrigerator segment that demands further study and specific towards the search for improving working conditions in those companies.

Keywords: Worker's health, disability, sickness benefit, health care worker, Amazon.

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Analysis of Noise and Vibration Levels in a Car Assembly Plant

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Abstract: This study considers as principal aim to elaborate a proposal that allows to control the noise and vibrations levels perceived in the Auto body Department of a company assembly of vehicles; This one includes, the accomplishment of a diagnosis that allows to know the areas of noise and vibrations that they present in the Department, being based on the criteria established in Venezuelan norm COVENIN 1565-95 y 2255-91, the ISO norm 10819, between others. The study is of exploratory, descriptive, transverse type and with a quantitative methodology, the strategy that follows, is a feasible project offer, across a field investigation. The information was obtained by means of the studies of sound meter, dosimeters and accelerometer. The phase of analysis and interpretation of the results determined that the Cabins of Trimming and Welding are the principal noise sources, followed by the Area of Rescue (recover), the basic sources of vibrations were the hammer and pneumatic emery (grinding tool) and the forklift. There proposed itself the incorporation of measures of control as absorbent panels, screens, filters of attenuation, use of ant vibration gloves and a device in the seats of the forklift, All that justified economically.

Keywords: Exhibition, machinate and tools, noise and vibrations

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High Incidence of Occupational Blood Exposures (OBE) in the Health Care Workers Sector of Low Income Countries, Using the Example of Bangui, Central African Republic (CAR)

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Context CAR has been heavily affected by HIV (6.2%) and hepatitis B (15%) and C (3%), but has not yet developed a prevention plan against OBE, even though its health care staff, already low in numbers, is overwhelmed by a massive patient load. Objectives This study aims to assess the current OBE situation and develop a national plan for the management of these accidents. Methods A preliminary cross-sector study was conducted in 2009 amongst 3 health care facilities groups in Bangui. The parameters being studied were collected using a standard form including serological status for HIV, HBV and HCV, vaccination against hepatitis B, incidents of OBE and their subsequent management. Outcomes Three hundred members of the health care staff were included in the study. 9.2% had been vaccinated against hepatitis B. Thirty six percent (36%) had already been tested for HIV, with 7.3% of the tests performed within the last three months. Fifty four percent (54%) cited an incident of OBE within the last six months. Sixty eight percent (68%) of these were from accidental needle stick injuries. At the time of the accident, 39.9% knew their HIV serological status and 22% their HBV status. Three percent had been vaccinated against hepatitis B. Three percent (3%) of the accidents received subsequent care. The post-OBE care management did



not cover hepatitis B. Conclusion There is a high prevalence of OBEs in the sites studied. The number of health care staff receiving subsequent care is low. As this study was limited to Bangui, it could be interesting to conduct an exhaustive evaluation throughout CAR. Meanwhile, given the current results and the aim of safeguarding the over-stretched pool of health care staff from OBEs, efforts are required to strengthen staff capacities, manage OBEs and improve hospital hygiene in the sites studied.

Keywords: Occupational blood exposure, HIV, HBV, health care staff, Bangui

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Determination of Lymphocyte DNA Damage By Use of Comet Assay in Painters

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Painters are commonly exposed to an extensive variety of substances like organic solvents such as toluene, white spirits, xylene and other volatile paint components throughout their working lifetime. Also, workers in paint manufacture are classified as an occupation that increases certain cancers risk. The physicochemical properties of solvents can cause disturbances to cellular structures, including damage to DNA. The Comet assay is a rapid and sensitive method for measuring DNA single-strand breaks. The aim of this study was to determine lymphocyte DNA damage in painters. For this purpose, 70 whole blood samples from 35 painters and 35 control volunteers were studied by comet assay and evaluated according to four image-analysis parameters including tail intensity (TI), tail DNA (DNA_t), tail moment (TM) and olive tail moment (OTM). Also, urinary hippuric acid rate which is used as a marker for toluene exposure was also measured in painters. As a result, mean of TI, DNA_t, TM and OTM in organic solvent-exposed group had higher than in control group. TI, DNA_t and TM were statistically significant between the exposed and non-exposed groups ($p < 0.05$), but OTM was not ($p > 0.05$). Moreover, smoking habit was statistical compared with DNA damage parameters and hippuric acid rates in exposed group. While statistically significant association was determined with hippuric acid rates ($p < 0.05$), there was found no statistically association with DNA damage parameters ($p > 0.05$). The study is suggested that organic solvents exposure can induce lymphocyte DNA damage in painters and comet assay may be a suitable test for DNA-damaging potential in biomonitoring studies.

Keywords: Comet assay, painters, lymphocyte DNA damage, hippuric acid

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Outside Air Influence on Microclimate in Mines

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Study carried out in coal mines. Assessment methods were: workplaces, access ways and work characterization, outside and underground microclimate factors measurement, thermal

state investigation in 100 underground workers by skin temperature measuring and thermal sensation valuation, microclimate influence on the underground and outside surface workers' health state by the morbidity analysis for two years. The galleries are access ways to and from the workplaces (coalface, advance into sterile) by train or walking, ways for tools and materials transport by train. In winter the outside cold air penetrates by the mine opening into galleries determining hard air currents (5-7 m/s) and low temperature, under or about 0°C, to a distance of 1.000 m, where the speed decreases and the temperature begins to increase. After 2.000 m distance, the outside air influence vanishes. The relative air humidity rises to 80-90% increasing the cold sensation. Therefore the workers are exposed in those galleries to great microclimate variations, to cooling. The skin temperature decreased under the normal values, the thermal sensation was "cool", "cold", "very cold". When the miners come from their workplaces warmed and sweaty by a more warm microclimate and intense muscular effort, they may sicken of the diseases produced by cooling. The train engine-drivers and repairing workers in galleries are also exposed to cooling. The morbidity showed that the cooling diseases of the underground workers were more frequent in winter than in summer and more frequent than in the surface workers. The frequency and gravity indices of the acute upper respiratory ways infections exceeded in underground workers 3-4 times the surface morbidity values for those infections. The respective diseases favor the silicosis appearance in the subjects working in sterile with dust of free crystalline silicium dioxide. Technical, medical, personal protective clothing and educational prevention interventions are necessary.

Keywords: Mines, microclimate, cooling diseases

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Organism Strain and Body Position At Work

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During his activity the worker must be situated towards the equipment, materials or products in a position adapted to the work characteristics. The respective position realization is an important organism function, of the locomotory apparatus. The technical progress decreases the physical effort, but it increases the organism strain produced by the body position, also a physical effort generated by the static muscular effort/The position characteristics and their influence on the organism were investigated at many activities: manual fitting electric and watch pieces, manual porcelain objects decoration, manual carrying weights, work at electrical sewing machines for clothes and footwear, video display terminal, cleaning founded metallic pieces, mechanic presses. The study methods were: equipment and work analysis, work furniture and environmental lighting characterization, tracing the spine contour during work for 80 subjects, investigating the health state and electromyogram registration of some muscles in the workers at each activity, subjective symptomatology investigation valuating, the anthropometrical body dimensions in the positions and the organism effort. The static muscle contraction determines the position of some body segments or of the whole body, but it is not possible to support a prolonged static contraction, acute aches appear showing the muscles fatigue. There are three main work positions – standing, sitting and lying, each with many variations. Their charge and influence in the organism are shown. The standing position is more tiresome than the sitting, the lying is not indicated. The body position at



manual raising and carrying weights, at precision work and the spine contour with its modifications (scoliosis, ciphosis, lordosis) are shown. The trunk extension and its bending the crouched or on the knees positions are more tiresome than the right position. There is a great relation between the visual activity and the position. Interventions were established to assure tireless body positions at work.

Keywords: Body position, work, strain

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The Working Conditions Strain At Control Panel

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In the modern technologies the human operator receives the information on their carrying on by watching some indicators and/or signals assuring the good equipment running. The technical progress may determine a great flux of information, special means of their presentation which can exceed the organism possibility producing super strain. Therefore a study was made at work on the control panel (CP) of chemical fertilizers production for agriculture, to establishing interventions to optimize the work. Research methodology included: work and equipment analysis, working environment characterization, assessing some organism indicators in 30 subjects before and during work and at the work end, investigating the health state in 50 subjects, morbidity analysis of three years, electronic processing the data. The chemical production processes carry out in great complex automatic installations with continuous flow, most in open air. The conduct and supervision of the installations are made by the human operator in central way at the CP which runs in separated room (control room) with air-conditioned. On the large CP surface are placed the information devices regarding the technological process evolution, the running installations state. The operators watch permanently the information devices to detect quickly the parameters deviation from the normal. The noise may exceed the TLV, the lighting may have deficiencies. The nervous psychic strain predominates: sensorial (especially visual) and mental, of the attention, technical memory and thinking, responsibility. There is a permanent vigilance state, mistakes can produce technological disorder, even damage. The nervous psychic indicators performance decreased in 76-97% of subjects during work ($p < 0.001$). The investigated subjects had not disorders or diseases which could be caused by the activity at CP. The work content, but also other factors can be strain causes with fatigue (deficiencies of the technological equipment, environment, operators' functional state and professional training). Prevention interventions regarding those factors were elaborated.

Keywords: Organism, strain, control panel

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Acute Occupational Pesticide Poisoning in Morocco

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Acute pesticide poisoning has become a major public health problem worldwide, following the intensification of agriculture. The easy availability of highly toxic pesticides in the homes of farming communities has made pesticides the preferred means of suicide with an extremely high case fatality. Similarly, the extensive use of pesticides exposes the community to both long-term and acute occupational health problems. The aim of this study is to describe the main characteristics of acute occupational poisoning by these products in Morocco. A descriptive retrospective analysis of occupational poisoning cases, notified between 2000 and 2008 in the Morocco Poison Control Center, was performed. A total of 384 acute occupational pesticide poisoning cases (29,5% of women and 70,5% of men) have been identified, constituting 32% of occupational poisoning notified during the period of study. These products were responsible for poisoning of varying severity, depending on the type of pesticide, the route of exposure, and the duration of exposure. The average age of victims is 29 ± 12 years. Almost 50% of reported cases result from oral exposure, 44% from inhalation and only 3,7% from cutaneous route. The risk is mainly related to organophosphates exposure. Among the 304 cases for whom the evolution is known, five of them died. For other cases, the outcome was favorable with or without sequelae.

Keywords: Pesticide, occupational exposure, acute poisoning, Morocco

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Analysis of Scuba Diving Accidents In Japan

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Introduction: Recently, the frequency of scuba diving accidents has increased along with its popularity. A primary objective for decreasing the number of diving accidents should include a clarification of the circumstances responsible and/or surrounding the occurrence of these accidents. Guide divers should understand the factors that are related to an increased tendency for accidents since the probability for their occurrence is likely to be quite high, given the frequency with which they participate in various diving opportunities. Methods: We collected and analyzed 912 dive accidents for 20 years (i.e., from 1991 to 2010). The data regarding dive accidents which DAN JAPAN made public was obtained from the Japan Coast Guard. We analyzed the accident forms, the experience of divers, and various factors associated with the accidents. Results: The survival rate was 57% and the rate of dead or missing persons was 43%. Drowning (64% and 267 cases) was the most significant factor, and sickness and injury (15% and 62 cases) also was revealed to be high among 394 accident forms identified "death" and "missing". As for accidents due to drowning or sickness and injury, the number of dead or missing persons exceeded the number of survivors. 24% of accidents involved novice divers, and 21% involved expert divers. The factor identified as "immaturity of skills" accounted for 20% of the accidents, and the factor identified as "physical condition/carelessness" accounted for 16%. Conclusion: Analysis of diving accidents over a 20-year period identified several important tendencies. Drowning or sickness and injury were significant factors for dive accidents that led to classifications of "death" or "missing". Moreover, many of accident factors were due to poor ability of the diver



and inadequate physical conditioning. It is suggested that analysis of diving accidents should become an integral component for enhancing the safety of scuba diving instruction.

Keywords: Diving, accident, safety

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Assessment of Occupational Exposure to Airborne Fibers Using Pcm, Plm and Sem Microscopic Methods Simultaneously

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Introduction: Several methods have been developed to assess occupational exposure to the airborne fibers that often based on fibers counting by phase contrast microscopy. PCM method in detecting various types of fibers has some limitations and generally, total countable fibers are reported. In this study to assess occupational exposure by microscopic methods, air samples of a brake linings and clutches manufacturing industry have been studied. **Methods:** 56 personal air samples were collected and analyzed according the NIOSH 7400 method. Then fibers optical behavior was evaluated by polarized light microscopy. To recognize the type and proportion of elements and identify the type of fibers, several samples were studied by scanning electron microscopy. To determine the type of consumed raw materials, PLM and SEM methods were used. **Results:** In this study, geometric mean, standard deviation and range of fibers concentration in workers breathing zone were 0.54(1.61) and 0.23-1.50 PCM f/cc respectively. In addition to anisotropic fibers, isotropic fibers also were seen in air samples significantly. Elemental analysis of airborne fibers showed that 60 percent of countable fibers were rock wool and other fibers were chrysotile asbestos. By using these proportions in total fibers concentration, the results were changed to 0.22(1.61) and 0.32(1.61) f/cc for asbestos and rock wool fibers respectively. Bulk samples analysis also showed that the raw materials were rock wool and chrysotile. **Conclusion:** Some asbestos industries are replacing asbestos by other fibrous materials. In such conditions, PCM method to evaluation of occupational exposure to airborne asbestos and non asbestos fibers and comparing the results with the threshold limit values can not be correct. Therefore, other microscopic methods should be used simultaneously.

Keywords: Fibers, occupational exposure, phase contrast microscopy, polarized light microscopy, scanning electron microscopy

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Ergo-Culture In Workers

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Recently, studies are increased on vulnerable workers in such areas as textile industry and health care workers at high risk. Aging workers and workers in agriculture and in construction

industry have the highest risk for health problems as well as low health status. Informal sector and young workers under 18 years have poor availability of occupational health services. Demographic and work characteristics, personal and work-related physical and psychosocial factors of workers were strongly associated with musculoskeletal disorders. The ergonomic issues of greatest concern are the discomforts. Available instruments for work intensity assessment are not widely known. Suitable preventive and protective measures are required to mitigate the adverse effects and ensure that worker can cope satisfactorily. The ergonomic assessment techniques could assist the early identification of work-related musculoskeletal concerns and help prioritize jobs for intervention in the construction field. Injury prevention should focus on improving safety of workplaces. Workers often endure working irregular day, night and evening shifts as well as mandatory overtime. These work irregularities are an important issue because of its implications on workers health, safety, performance and social well-being. The measures are based mainly on the organization of shift schedules according to ergonomic criteria and on specific medical surveillance. Ergotherapy has to consider several factors that can influence tolerance and adaptation. A program should be developed to provide training on self-care in order to reduce and prevent work-related accidents, injuries, illnesses and cost of occupational health/safety. Public health, labor and trade organizations should guide the employers to help them for safer workplaces and should identify steps that employers might take to remove or reduce hazards. Employers need to ensure that their workers have the requisite training and personal protective equipment to perform their jobs safely. Policy makers should establish healthy, safe and more productive workplaces.

Keywords: Ergo-culture, musculoskeletal disorders

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A Software Program Systems to Estimate Workplaces Accidents in Production

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Production systems have become more complex in parallel with the developments in technology. This case enlarged the complexity of the problems come out related to the safety of the workers who are productive factors in working places and enforced to appeal to the new technologies in solving these problems. The need for qualified personals in modern production systems necessitated more investment and great store on the labors. Besides, the fall of labor productivity arising from the labor accidents, estimating the accidents that the workers will expose raise the importance of preventing these accidents. Determining the cause of the accidents constitute the base of the works to prevent the accidents. Today, the theory is admitted by everyone that the accidents occur by not only a unique reason but also by other factors in various rates. The basic goal of this study is to supply a support of conclusion to the works for labor safety, to determine the factors, may cause accidents in the system, by the computer-aided works so that the workers, working in medium and large scaled production systems, could work in a secure medium. For this purpose, a new quantitative danger evaluation technique has been developed and a software has been set up running according to this logic. The program is used in a large scale public establishment in Kırıkkale and proved reliability of proposed model by using 217 accident data which belongs to past. The program is coded by using Delphi 7 which is one of the most widely

used programming languages that is both modular and object oriented. And also program's data is stored and managed by Mysql Engine which is the most used open source Database management system. For this program a database is created and necessary 4 tables also included. Each table is linked each other by relational database model. Tables are factors, levels, crash-data and results that has the program execution output data. Program firstly, finds the average values of each factors according to corresponding level parameters. Any factors succeeds the mean value is stored in results-table. After that process, programs taking the result set as an input and for each value of that, try to find another factor that has an impact on the crash.

Keywords: Occupational accidents, job safety, technique of danger evaluation, software

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Sectoral Work Related Accident Analysis, Preventing Methods and Visional Datas

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The term of work accident which frequently occurs in especially shipyard building regions in recent years describes the direct and fatal work-related accidents. Main causes of the many work accidents are inattention, ignorance, disregard, imprudence, such non-compliance with the measures taken, in fact no matter whatever the reason, gives painful consequences. As many dangerous factors in a workplace environment many procedures and methods are available in preventing work related accidents. This paper presents several examples of industrial accidents at work using visual datas in industrial environments and gives practical preventive approaches in "what if ? wouldn't have been" style.

Keywords: Occupational accident, workplace accident, fatal work related accident

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Vibration (Hand, Arm and Whole Body) Measurement and Assessment Practices in Terms of OSH and a Best Practice: Ford Otosan Kocaeli Factory

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The concept of Hand Arm and Whole Body Vibration being included in Human Vibration; is too important for Occupational Health and Safety and particularly to provide ergonomical comfort. This fact which also being thought to trigger negative effects of noise in some research, encounters us at almost all hand and heavy construction equipments, floor and counters in all industrial sectors. When disregarding and not taking measures determining needed solutions, it can give rise to significant muscle, vertebral and nervous system problems. In this paper, it is mentioned about measurement, evaluation and prevention techniques of human vibration in terms of OHS. Additionally "good practice sample" which is



related to realize to minimise the whole body and hand arm vibration values, affecting workers unfavorably, by some methods in Ford Otosan Kocaeli Factory.

Keywords: Vibration, human vibration, hand arm and whole body vibration, OSH

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Air Sampling Methods and İSGÜM Practises

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It is extremely important to sample of pollutants existing especially airborne in workplaces and threatening health of workers and to make necessary qualitative and quantitative analysis.

Air Sampling is simply explained as passing air through the media holding pollutant and accumulation of pollutant there. Knowing volume of passing air and amount of pollutant will ensure to obtain concentration.

There are a lot of air sampling methods, but the most common and preferred one is connecting of a battery-powered pump to a filter media. Up to 8 hours with constant speed pump will pull the air filter must be capable of. This criterion is advised in case that sampling is 8 hours (TWA: Time Weighted Average)

In this paper, definition, characteristics, sampling and analysis methods of a lot of pollutants such as aerosol, powder, smoked, smoke, mist, steam and smoke are explained and it is aimed to give general information about the vocabulary of particles suspended in the air.

Keywords: Air sampling, pollutant, pump, aerosol

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Noise Exposure Measurement, Assessment and Protection Methods in Terms of OSH and a Best Practice

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Noise encountering us almost in everywhere and in all industry is a source of hazard which can give rise to important health problems such as permanent hearing loss. But when taking necessary and sufficient measures it can be possible to being protected. For being able to ensure this protection; it is necessary to know physical structure, formation, source and level of noise, and to find daily noise exposure by making necessary measurements, and to work on minimising of noise at source and to ensure to use hear protectors. In this paper noise is dealt with in terms of OSH and by taking advantage of related all technical and industrial experiences noise device and measurement knowledge, noise regulation and sectoral



assessment are presented. Additionally a “good practice” sample on minimising of risk at source is presented.

Keywords: Noise, sound, occupational health and safety, personal exposure

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Preliminary Study on Quantitative Assessment Strategy For Determining The Exposures to Volatile Organic Chemicals in Chemistry Laboratories

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Working in a research laboratory means exposure to a wide range of hazardous substances. Several studies indicated that laboratory workers, especially working with chemicals, might have an increased risk of certain cancers. However, exposure assessment data in laboratory settings are scarce. This study was performed to examine several approaches for quantitatively assessing the exposure levels to volatile organic compounds (VOCs) among workers in chemistry laboratories. The list of 10 target VOCs, including ethanol, acetone, 2-propanol, dichloromethane, tetrahydrofuran, benzene, toluene, n-hexane, ethyl acetate, chloroform, was determined through self-administered questionnaire for six chemistry research laboratories in a university, a government-funded research institute, or private labs. From September to December 2008, 84 air samples were collected (15 area samples, 27 personal time weighted samples, 42 personal task-basis short-term samples). Real time monitors with photo ionization detector were placed during the sampling periods. In this study, benzene was observed exceeding the action levels, although all the results were below the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV). From the air sampling results, we concluded that (1) chemicals emitted during experiments could directly affect to neighbor office areas (2) chemical exposures in research laboratories showed a wide range of concentrations depending on research activities (3) area samples tended to underestimate the exposures relative to personal samples. Still, further investigation, is necessary for developing exposure assessment strategies specific to laboratories with unique exposure profiles.

Keywords: Chemistry laboratory, laboratory workers, exposure assessment, personal exposures, volatile organic compounds (VOCs)

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Occupational Injuries Among EMTs and Paramedics in a Large Health Care System in North America: 7 Years of Workers' Compensation Claims

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The United States Bureau of Labor Statistics (2009) report that emergency medical technicians (EMTs) and paramedics ranked as the third highest occupation sustaining



nonfatal occupational injuries and illnesses involving days away from work in 2009. EMTs/paramedics were the top occupation injuries caused by overexertion, including lifting. We investigate injuries among EMTs/Paramedics employed in a large healthcare system in North America. We reviewed institutional Workers' Compensation (WC) claims from 2003 to 2009. Injuries were classified by musculoskeletal and non-musculoskeletal using reported ICD-9 codes (International Classification of Disease). Injury rates among EMTs/paramedics were compared with other occupations in the health system, adjusting for age, gender, duration of employment, union membership, shift schedule, and employment status. Full time equivalents (FTEs) were used to offset and estimate Injury rate ratios (IRR). Among 618 (311 FTEs) EMTs/paramedics employed in the study period, about 25% (n=169, 54 claims per 100 FTEs) had accepted WC claims. Among those 169 claims, 90% (n=152) comprised musculoskeletal injuries, of which 50% were associated with lifting (n=86), particularly patient lifting (n=75). Compared with nurses, EMTs/paramedics experienced approximately six times more musculoskeletal injuries (IRR=5.7 (4.8-6.7)). Compared with office workers, then were eight times more musculoskeletal claims (IRR=8.0 (6.8-9.4)). Approximately half of all workplace injuries among EMTs/paramedics can be diminished by implementing controls to reduce patient lifting. Developing and adapting patient lifting equipment which functions in unanticipated environments, such as patients' homes, stairwells, or accident settings are primary interventions to reduce occupational injuries associated with patient lifting.

Keywords: Occupational injuries, EMTs and paramedics, North America

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Analysing the Full Range of Health, Wellness and Injury Prevention Practiced at Country Energy

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Country Energy is a leading Australian energy business owned by the New South Wales Government, with around 4,500 employees serving more than 800,000 customers. We operate Australia's largest electricity network spanning 95 per cent of New South Wales. Our employees face significant occupational health and safety (OHS) challenges – working in remote locations, at heights, with high voltage electricity, operating machinery and equipment. A major component of Country Energy's OHS management system is health promotion and injury prevention initiatives. Primary prevention programs within the organisation include: 1. Manual Handling Solutions Program The Manual Handling Solutions Program was developed and launched in 2007. Musculoskeletal injury is the major contributor to workers compensation claims within Country Energy. 2. Powerful Health Program Powerful Health is Country Energy's workplace health promotion program, which addresses health education in combination with policy, economic, and organisational interventions. 3. Powerful Minds Program Country Energy implemented a program Powerful Minds in 2007 to address the occupational stress, mental illness, bullying and harassment in the workplace. 4. Powerful Apprentice Program The Powerful Apprentice Program is a four year program to address injury prevention issues for the apprentice group within Country Energy. A target group is provided injury prevention activities, and then compared to a control group for outcomes. 5. Health Watch – health surveillance program Health Watch is the Country Energy health surveillance program. The prime focus is to ensure compliance

with legislative requirements, while also implementing more proactive programs. 6. Office ergonomics Proactive interventions implemented within Country Energy include office design guidelines and preferred equipment lists, work pause break software, induction training, and information packages. 7. Early intervention programs Early intervention activities include in-house regional health professionals, same day injury reporting and follow up, Telemedicine, task analysis, and a treatment fund for non-compensable conditions.

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Work Demands, Air Pollution and Noise: The Risk Factors for Stress Among Traffic Police Officers in Malaysia

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Introduction: Stress in policing has been evident from substantive studies particularly in developed countries. Little is known however about stress among traffic police officers who are highly exposed to traffic air pollution and noise. Objective: A cross sectional study was conducted in urban and rural areas in Malaysia to assess stress level and the possible risk factors including the exposure to particulate matter (PM10) and noise levels among traffic police officers. Method: A combination of six standardised questionnaires was used to measure work stressors and mental health status. Dustrak and sound level meter was used to measure the level of PM10 and noise respectively at significant road junctions during peak hours. Results: The response rate was 45.3% giving into total of 328 sample size. Both levels of average PM10 (0.273mg/m³) and noise 77.8 dB(A) were higher in urban areas. The prevalence of stress was high (46.8%) and significantly higher among urban traffic police officers ($p < 0.05$). Police specific operational and organisational work stressors and PM10 and noise levels were found to be significantly associated with mental health status and well being ($p < 0.05$). Conclusion: This finding suggests that in order to conduct a more comprehensive and conclusive assessment of stress among traffic police officers, air pollution and noise should be included in addition to the operational and organisational risk factors.

Keywords: Work demands, air pollution, noise, stress

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Ergonomic Tridimensional Analysis: Contribution to a Case Study in Retailing Sector

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Cash-and-carry is an important retailing sector in market distribution where it can be identified a particular kind of clients defined as professional customers. These can be business owners, self-employed professionals, freelancers or institutions. This kind of business is characterized by large open spaces where different sections with food and non-



food services can be identified. Although these different sections are in the same commercial area, different ergonomic contexts can be identified within the same space. In order to understand and characterize these contexts, a case study was analyzed in a cash-and-carry business in the North of Portugal. Some considerations were made after a first observation of the commercial area. There are common circulation areas designed for workers and clients. Some ergonomic risk factors were identified, such as the low temperature (nearly 8°C) in the refrigerated aisles, which are also used by clients. It was also observed that clients have difficulties in operate the shopping trolleys, especially when they are full, i.e., when the total weight can reach values of approximately 600 kg (1322 lbs). It was verified that both clients and workers may be exposed to the same ergonomic risk factors. This paper describes the use of the methodology Ergonomic Tridimensional Analysis (ETdA). Considering the thermal environment evaluation results for the professional dimension, 69% of the answers were in the “bad” and “very bad” categories. In the “fresh meat” and “butchery” sections, 100% of the answers are related with negative categories. Being these common areas, it is expected that the thermal evaluation of the clients will follows this tendency. Considering the managements point of view, it seems easier to make organisational changes when the client perceptions of the ergonomic issues are known. This situation seems to produce more impact in ETdA ergonomic intervention and consequently professionals will benefit of this management procedure.

Keywords: Retailing sector, common areas, etda, ergonomic risk

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Contractor EHS Management Process

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Nowadays Business Owners prefer executing their projects with contractors instead of their own recourses. At first, although it seems like cost effective, if contractor management couldn't be performed properly, Business Owners take much more risks on financial, reputation and business continuity aspects. Among those risks EHS activities impacts are the hidden and mostly underestimated. Business Owners realise impacts of EHS when an accidents occurred. In this presentation, how quality management systems approach is adopted to Contractor EHS Management Process is described. Quality management systems approach (Plan- Do- Check- Act Cycle) shall be applied in order to manage contractor EHS activities. Experiences and learning are taken from one cycle and they are used in the next cycle to improve and adjust expectations which leads to continues improvement. The information below illustrates the four main steps in Contractor EHS Management Process. In 'Plan' step, according to the scope of work, contractor definition, responsibilities, contract EHS items, risk assessments, EHS budget and evaluation of contractors shall be done in detail. The importance of careful planning cannot be overemphasized as success of the project mainly depends on this step. In 'Do' step, kick of meeting, documentation sharing, current risk assessment, training of contractor employees shall be done. At this stage contractor starts to implement EHS requirements of the project according to the defined scope in the 'Plan' step. Business Owner shall monitor the progress against the Plan and Do steps and shall audit the implementations in this 'Check' step. If there is a change needed to improve the process, actions shall be taken in the 'Act' step. By



applying Plan-Do-Check-Act steps systematically, Contractor EHS Management Process shall be taken under control and negative impacts of contractor activities on business continuity can be decreased.

Keywords: Ehs, management, contractor

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Challenges for Improving Occupational Health and Safety for Smes in Latvia

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Poor occupational health and safety (OHS) situation in SME is wide known problem over the world including Latvia. Recent major OHS surveys in 2006 and 2010 in Latvia showed failure in existing OHS policy to improve situation and were used to analyse the real situation to establish new strategy approach. These surveys joined data from computer assisted telephone interviews from more than 2400 employees and 1000 employers, data from interviews of OHS experts as well as data from registry of occupational accidents, registry of occupational diseases and data from data base of workplace measurements. Results. Major drawbacks found were low coverage with risk assessment (24% among 1-10 employee companies) and low quality of the assessments (61% done by the employers lacking basic OHS training and half of the cases without involving workers). Another source for further improvements were employers comments on refusal to pay more attention to OHS including statements like "my small workshop has no concern for health and safety". Other basic indicators like reporting of occupational accidents were significant problem with less than half of the accidents being registered and no actions provided after the accidents. Another major problem to be improved is lack of access to health services that were significantly lower for SME (only 62% of workers that were supposed to have health examination actually had it). Coverage of SME workers with basic OHS services like health insurance, training, vaccinations are also significantly lower in SME when compared with larger companies. Conclusions. Workers of SME are poorly covered with OHS services and thus are at greater risks to their health and safety. Based on these results more attractive and convincing ways to address the employers and employees of SME have been defined improving awareness and training including economical benefits of OHS.

Keywords: SME's, latvia, osh

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Joint Health and Safety Unit Application: Tezmed Tez Medikal

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Mankind noticed occupational health risks as early as 3,500 years ago. However, many people still suffer, even die of, work accidents and occupational diseases in this country. The final solution to this problem is to provide an efficient service in a continuous basis at each

workplace. In fact, company doctor is a branch of specialty in the developed countries. In Turkey, however, company doctor is a position taken up mostly as a secondary job for a limited time. Ministry of Labor and Social Security is revising the occupational health and safety regulations in the light of the above mentioned problem. Said revision will enable businesses to purchase occupational health and safety services from a specialized service provider. Tezmed Tez Medikal develops integrated health solutions for special needs at such crowded working spaces as airports and marinas. This company has now decided to use its experience in a Joint Health and Safety Unit service. Before starting to provide occupational health and safety services, Tezmed Tez Medikal ensures its experienced team to analyze the workplace, develops an individual operating plan for it, and trains its team about the risks found out as a result of said analysis. The properties and requirements of a business and the services provided in accordance with them are reported to its management at regular intervals and are stored in the corporate database of Tezmed Tez Medikal, so that it will be ensured to continue to provide the services at the same quality level without interruption in case of a personnel change due to any reason. Tezmed Tez Medikal cooperates with leading academic institutions located at home and abroad to monitor the innovations achieved in this field, and transfers such innovations to its customers through its service personnel. Business purchasing service from the Joint Health and Safety Unit of Tezmed Tez .

Keywords: Joint health and safety unit, work health, work safety

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Comparison of Two Different Risk Assessment Methods: a Practice in Cement Sector

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There are several scientific methods commonly used across the world in the field of risk assessment which is a concept introduced in the literature by new approaches regarding occupational health and safety. A proactive approach forms the basis of risk assessment methods with a view to develop a risk based culture of decision making. Screening Level Risk Analysis (SLRA) and Kinney Method are two of the methods used in this sense. Both methods categorize each dangerous incident determined in the step of hazard identification as to their prevalence and results. The method used in the workplace examined in this study was a Kinney based risk assessment method. A risk assessment study was conducted in a cement plant where it was possible to implement both methods. As a result of this risk assessment study, it was found out that disparities between the method commonly used in the cement sector and the SLRA method used by ISGUM (Occupational Health and Safety Center) were existent and this study dwells on these disparities. Both methods were implemented in the pre-determined sections and risks that could be caused by hazards were ranked. It has been observed that the risk assessment method found as appropriate as a result of the examination directly affects risk ranking and prioritization of the required measures. Considering the fact that hazardous incidents can lead to fatal occupational accidents in the cement sector, it becomes more evident that an appropriate implementation

of risk assessment in the cement sector and adaptation of such a study to the sector are of great importance for the workplaces operating in this sector.

Keywords: Risk assessment, risk assessment methods

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Determination of The Respirable Dust Concentration and Content of Quartz in Underground Production Areas of the TTK Kozlu Mine

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In this study, firstly pneumoconiosis was briefly explained. Then, a general information about respirable dust and the methods for dust measurement was given. The Fourier Transform Infrared Spectroscopy (FTIR), which is still most popular method used to determine the quartz amount of dust, was mentioned. In order to investigate the effective role of quartz in progression of coal worker's pneumoconiosis, the respirable dust samples were taken from risky work areas in terms of dust in TTK Kozlu Mines. MRE113A gravimetric dust sampler was employed for dust measurement studies. Quartz contents of the collected samples were determined by Fourier Transform Infrared Spectrophotometric method. The results were evaluated according to the international standards and dust regulations. Besides, coal samples were taken from coal seam where respirable dust samplings were made to determine the origin of quartz. After grinding these samples at laboratory, chemical analysis of samples were carried out by XRF method and also quartz content of samples was determined by XRD method.

Keywords: Respirable dust, quartz, pneumoconiosis, fourier transform infrared spectroscopy (ftir)

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2004-2011: Preparatory Process for OHS Law

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In order to harmonize the Turkish legislation with ILO Conventions no:155 and 161 approved by parliament in 2004 and with the Framework Directive 89/391 EEC committed to EU National Programs since 2004, an independent OHS Law should be published.

OHS Law preparatory work has been done between 2004 and 2011, however has not been published yet.

During the preparation of the Law, OHS Laws of Spain, Sweden, England and Germany were examined in detail and how the framework directive interpreted was discussed. Besides OHS legislation processes of world countries were studied. With this study; it was determined



that in 1970 the USA, in 1974 England, in 1980 Netherlands, ,in 1981 Korea, even a small and developing country ,in 1985 Burkina Faso published an independent OHS Law.

Significant progresses during the preparation of OHS Law in our country are shown below:

1. 89/391 EEC Directive transposed and published as Implementing Regulation of OHS on 9 December 2003.
2. 10th Bureau of Council of State suspended the enforcement of Implementing Regulation.
3. After the opinions of the social parts taken Draft OHS Law has been sent to the Prime Ministry in December 2008.
4. In 2010, Draft Law rehashed and some amendments have been done to reflect the needs of current OHS situation in Turkiye.
5. Although, some of the parts are hindering the process, the Draft OHS Law is planned to be enacted in the second half of the 2011.

Following aims are to be achieved by preparing the Draft OHS Law: Ensuring the complete harmonization and complying the Turkey's Programme for Alignment with the Acquis that commits the harmonization of the Framework Directive (89/391/EEC).

Two main improvements with the Law are: All employees will be covered by OHS Law, there will be no limit in number of employees in order to benefit the OHS services.

Key words: OSH, Law, Frame work Directive, ILO Convention

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Approaches to Noise İnduced Hearing Loss and Health Surveillance in Occupational Health Practice in Turkey

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Noise induced hearing loss is a preventable condition and, as with any hazard, the first step is to assess the risk. Noise-induced hearing loss, is still the most prominent and recognized occupational disease in the world. Incidence rate 4,7 in 100,000 employees and males generates 97% of cases. The criterias and limits for identification and notification of noise-induced hearing loss divers in different countries. In Turkey, according to statistics from the 2005 Occupational Diseases Hospital, total number of hearing loss considered as an occupational disease is 4. The objectives of hearing conservation programmes is to identify at an early stage individuals particularly susceptible to noise damage, and the use of control measures. Health surveillance of employees due to noise induced hearing loss in workplaces is held by air and bone conduction audiometry devices which shows the degree of hearing loss. This scrutiny should be undertaken under suitable conditions, by authorized personnel, quality assured measurement devices which have not easily covered in daily practices. Health surveillance can provide a useful information to risk management and is considered good practice where applied in standart conditions with a qualified personnell. Existing legal regulations has some conflicting directives and does not have clear preventive and warning



conditions for occupational health physicians. There is a need for a guideline for occupational health physicians that will provide action and referral levels. Authors of the document are the members of The Association of Occupational Health Physicians tried to compile related knowledge to form an approach for health surveillance of noise induced hearing loss for occupational health physicians in workplace practices in Turkey.

Keywords: Occupational health, hearing loss, health surveillance, audiometry

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Scorecard on Kenya's Safety Culture in the Sugar Industry

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This paper will examine the sugar sector in the light of the developments following the passing of the New Labour Laws in Kenya in 2007. Recent Occupational Safety and Health Audits done in the last few years suggests that numerous challenges remain in cultivating a safety culture within the sugar industry in Kenya. However, no systematic review has been done on the sector. The sugar sector has attracted little interest among researchers and yet it is one of the sectors that raise serious OSH concerns. The concerns include the poor working conditions and OSH hazards for workers both in the sugar fields and within sugar factories. The sugar industry is an important sector in Agriculture, which is the backbone of Kenya's economy. It provides some of the cash crops that drive Kenya's economy and as such it employs a sizeable number of people. This sector is also important in that it draws its workforce from the rural folk. Since they are based in rural areas, the sector may not enjoy much oversight and support and therefore it needs to be focused on in a serious way. This paper will therefore seek to throw light into how the sector has responded to the provisions of the Occupational Safety and Health Act and accompanying legislations that regulate the workplace in Kenya. The paper will also highlight the progress that the sugar industry has realized in trying to implement the requirements of the New Labour Laws as well as the challenges. Drawing from best practices in OSH, the paper will propose a way forward that might be adopted to speed up the development of a safety culture in the sugar industry.

Keywords: Occupational, safety, health, sugar, culture

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Biological Hazards in Sewage Treatment Plant Ete-Belém, Curitiba - Paraná, Brazil

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The air quality in the workplace is critical to the performance of activities of workers. The aeration tanks of sewage treatment plants produce large amounts of microorganisms that can transmit diseases to workers. We performed a sampling of indoor air (IA) in the administrative sector of ETE - Belém, Curitiba - PR, located approximately 70 m of the

aeration tanks subdivided into: administrative supervision, kitchen, living room panels, solid laboratory, laboratory of physical chemistry, the press room and caleador and the external environment (AE) 3 m away from the aeration tank, with the aim of evaluating the quality of air which workers are exposed. Sampling of bioaerosols was performed in triplicate, with a Microbiological Air Monitor Model M Air T Millipore, containing culture medium specific groups of microorganisms: mesophilic fungi, staphylococci, coliforms, and heterotrophic bacteria *Pseudomonas aeruginosa*. It was found that the AI (administrative supervision, kitchen, panels, laboratory of solids, physical-chemistry laboratory and supervision of laboratories) showed high E <1.5, which means good ambient conditions. Already in the press room and caleador, fungal density exceeded the Maximum Acceptable 750 CFU/m³ air, moreover, the index E > 2.0, showing the poor condition of the air. AE in the microbial density, mainly bacteria, was high. In AI there is a need to conduct qualitative research in all environments for the presence of pathogenic genera of fungi as provided in Resolution 176/2000 Anvisa. Also in the AI the press room and caleador due to the large amount of aerosols generated, it is recommended the replacement of the press by a centrifuge that does not generate bioaerosols. In AI it is necessary to use appropriate EPE: eye and respiratory protection for aerosols from the aeration tanks.

Keywords: Bioaerosols, microorganisms, aeration tank

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Contribution of The Work Place Study in The Etiologic Diagnosis of Toxic Cytopeny

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Hematological disorders, mainly cytopenia are becoming more frequent in the occupational environment. We investigated toxic cytopenia cases, focusing on the prevalence determination and the identification of etiologic factors in the various occupational activities. We also established and follow up measures of the victims. We investigated in an epidemiological retrospective study all cases of cytopenia collected among workers population patients disclosed recruited by the department of hematology of Sfax during five years period between January 2004 and December 2008. Qualitative variables were evaluated by the chi square test. While the quantitative variables, were calculated by linear correlation coefficient. Statistical significance was reached when p value was less than 0.05. A questionnaire was used to collect epidemiological, clinical, par clinical and work place information's. Our inquiry has carried 138 patients, sex ratio H/F = 1.76. The mean age was 40 years. Various occupational activities were reported in workers population with toxic cytopenia: handicraft (49%), services sector (32%), agriculture (10%), construction industry (5%) and heavy industry (4%). Among factors of risk, solvents were the leading risk factor (82.2%) of which benzene accounting for 44.6% of cases. Monocytopenic cases were the most frequent (67.4%) with leucopenia (32.2%), thrombopenia (26.8%) and anemia (4.4%). Tow cell categories were involved in 22.5% of cases and pancytopenia were reported in 10.1% of cases. Correlations were found between cytopenia and some parameters mainly solvent exposure, activity sectors and occupational categories. Our approach allowed us to specify the harmful potential of some toxic industrial products.

Keywords: Toxic cytopeny,work-place



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Efficiency Assessment of The Economic Factors Applied to Stimulate Improvement of Work Conditions in Poland

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Economic factors applied in Poland to stimulate the improvement of work conditions in companies stem from the provisions of law and in-house regulations. The OHS improvement factors stipulated in the law include a system of experience rating, now in place since 1.03.2003 as part of the social insurance system comprising also pension scheme along with disability and sickness insurance. The in-house regulations determine the factors to improve OHS, including measures that encourage and enforce safe behaviour thanks to material and non-material incentives to work without accidents and keep workplace clean, orderly and properly organised. Performed in 200 companies in the years 2009 - 2010, the study was to assess how the experience rating system stimulated companies to apply prevention measures and how material and non-material incentives supported work without accidents and the workplace cleanliness, order and proper organisation. The study has demonstrated that the experience rating system is an effective tool to motivate large companies, i.e. employing at least 250 workers and those classified in the groups paying high premiums. The analysis of research output has resulted in both, identification of factors that reduce a stimulating effect of the experience rating system in companies, and the proposals of amendments and modifications in the current experience rating system to enhance its motivating role. As for the stimulators of OHS improvement originating from the in-house regulations, the study output analysis demonstrates that the companies vary considerably in their use of incentives, which depends on their level of human resources management (HRM) and their having implemented or not, the OHS Management System (OSH MS) as the incentives are applied much more frequently in the companies with a good level of HRM and those having the OSH MS in place.

Keywords: Experience rating, work conditions, prevention, economic incentives

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Child Labour - Realities, Preventive Approaches and Opportunities for its Limitation

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Contemporary challenges facing the child population in Bulgaria related to health and safe future are troubling and complex. This necessitates the need to create an effective system of security and child care, which focuses on preventing cumulative effect of several risk factors. Therefore, the growing importance for the society of so-called "economically active" children, whose number is constantly increasing, is directed to identify and address the multiple problems associated with the significant social phenomenon - child labour. In this connection

we should emphasize and add it to the many characteristics of childhood, representing a risk, vulnerable period of human life. The specificity of these children as a demographic, age and biosocial group outlines ways and means to increase the visibility of the problem - child labour, its incidence and prevention. Their design in adequate sectorized policies aimed to shape and promote healthy and safe living conditions for the rising generation. Studying this risk part of the infant community, there are negative consequences of the early initiation of work related to their health, physical and mental development. We pay particular attention to the risks and the reasons supporting the use of child labour. In this context, we put emphasis on the basic characteristics and factors on which depend the regulation of child labour. This requires building a preventive, comprehensive and coordinated approach to counteraction the spread of child labour. For this purpose, we offer a framework for policy and action restricting the entry of children in this risk category.

Keywords: Child labour, occupational health, prevention, security

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Malignant Mesothelioma (Mm): to Establish the Relation of The Mm With Occupational Exposition to Asbestos.

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Abstract. Objective. This study describes the relation between the MM with occupational exposition to asbestos, by means of the application of a questionnaire of work precedents by means of the Occupational Medicine technologies, in a cohort of cases of Malignant Mesothelioma (MM) from the National Institute of Cancerology, (INCAN), of the Department of Health in Mexico. **Methods.** A retrospective and transversal study was carried out in medical records of patients diagnosed with MM between the years 2002 2010. **Results.** Of the 14 cases, 11 were male, and 3 were female, with an age average for all, of 60 years old. Dyspnea was the presenting symptom in most patients. **Conclusion.** Although in 8,355 cases admitted in INCAN, with several diagnoses, between the years 2009 - 2010, only 27 cases with were diagnosed with MM. Eight of the patients initiated the symptoms before 2009.

Keywords: Malignant mesothelioma, asbestos

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Psychoactive Substance Use and the Role of Work Organization: Challenges for Union Actions in Occupational Safety and Health

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This communication presents the results of a qualitative study which aimed to establish ties between the appearance, development or increase of psychotropic substance use (alcohol, illicit or prescribed drugs) and employers' responsibility when considering work organization.



Substance use can indeed be considered as a defensive strategy enacted by some workers in order to access and stay in a working world where performance and competitiveness prescriptions seem to be growing indefinitely. The results are based on a “work psychodynamic” analysis (Dejours, 2008) of 30 semi-guided interviews led with voluntary participants selected in three categories of work organization: “high-performance” organizations, organizations where manual work is predominant and “service” organizations. The analysis made it possible to trace back the links between substance use and work, and raises many questions toward union action and occupational safety and health, especially considering primary prevention: what are the risks within work organization that can be linked to psychotropic substance use? How can unions put forward actions capable of modifying a work organization which is potentially at the source of substance use while the actual economic model prescribes performance? What kind of difficulties will unions face when substance use problems must be addressed from a collective perspective, especially considering the fact that substance use is often seen as an individual flaw?

Keywords: Psychoactive substance, organization, union actions

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Excess Lifetime Cancer Risk Assessment of Workers in Asbestos-Containing Waste Industry

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While asbestos had been utilized for its many useful properties in many products for a long time, it is now clearly recognized as causing a significant injury and disease. However, the studies on asbestos exposure of workers in asbestos-containing waste industry such as collection service company, mid-treatment company (solidification of asbestos-containing waste), and final disposal of waste in Korea have never been carried out. For this study, we did the assessment of excess lifetime cancer risk (ELCR) by asbestos exposure of workers in asbestos-containing waste industry.

All 8 hr time weighted average concentration results for workers in handling the asbestos-containing waste industry didn't exceed the current Korean occupational exposure standard, 0.1 fiber/cc. The personal exposure concentrations were summarized as the arithmetic mean, the geometric mean, maximum, respectively, and then assumed worker's ELCR in condition of the each concentration has been exposed from 20, 30, 40, 50 ages respectively to 60 ages. At the result, the ELCR of mid-treatment company's workers were highest in the other types of asbestos-containing waste industry. And the collection service company's workers have the lowest ELCR. Especially, the worker that started to 20 ages was exceed that the recommended EPA's target risk range (1.0×10^{-4} - 1.0×10^{-6}).

In the result of ELCR assessment for each task in asbestos-containing waste industry, the driver of the collection service company was not exceed EPA's target risk range. But the worker of the loading the asbestos in mid-treatment company shows the highest the ELCR and the assistant worker in mid-treatment company shows the lowest ELCR. In the final



disposal of waste, the excavator driver shows the highest the ELCR and the sprinkle worker shows the lowest the ELCR. All types of workers except for the driver of the collection service company in asbestos-containing waste industry exceeded the recommended EPA's target risk range of ELCR.

Keywords: Asbestos, asbestos-containing waste industry, exposure, excess lifetime cancer risk (elcr)

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Developing Safe Learners in England

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Young people making the transition from school to work are at particular risk of injury as they may be unaware of existing or potential risks due to: • lack of experience or maturity or may be unaware of how to raise concerns. • they may not have reached physical maturity and therefore lack the strength demanded • they may be eager to impress or please people with whom they work In England, there are a number of parties involved in ensuring this transition takes place safely including the Health and Safety Executive, RoSPA, IOSH, British Safety Council and the Learning and Skills Council – now the Skills Funding Agency. Initiatives implemented include the IOSH Wiseup2work campaign, HSE Young people at Work website and guidance, and RoSPA young persons website. The Learning and Skills Council developed the Safe Learner Concept and Blueprint to provide a structured framework for the development of occupational health and safety knowledge by those leaving the classroom and experiencing work for the first time. It provides guidance for colleges, training providers and employers on a set of 'inputs' and 'outputs' that influence the design of a learning programme such that, a learner develops a set of safe behaviours which can be measured. WYG have detailed knowledge of the component elements of the Safe Learner Concept and Safe Learner Blueprint and have carried out numerous projects to survey and analyse national employers' and other funded organisations' management systems for occupational health and safety to ensure the safe learner blueprint is being implemented. This experience has been used to give structure to the various aspects of occupational health and safety training incorporated into work based learning programmes to ensure that school leavers receive and retain the necessary level of knowledge and understanding over time and progress towards becoming the 'safe worker'.

Keywords: Young people, school work transition, safe inputs outputs learner

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Effects of Early Support Intervention on Employees Work Ability and Well-Being

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Objectives Early support intervention on employees' work ability is a new type of action arranged at the workplace. The objectives of this method are to promote workers' health, work ability, and well-being, and to achieve necessary changes in working conditions, attitudes, and work climate at the workplace. The purpose of this survey was to determine the effect of a tailored early support intervention method on workers' health and work ability. **Material and methods** In this controlled longitudinal study, the material was gathered via two questionnaires given to trade groups. The initial questionnaire for the study sample (301 intervention individuals and 235 control individuals) was mailed in 2008, and the final questionnaire in 2010. The response rate among the intervention group was 45.1% and in the control group 45.4%. Multivariate repeated measures analysis of variance (MANOVA) was used to test the difference in the groups at two points of time. **Results** Stress statistically increased over time ($p=0.02$) in both groups but to a greater extent among the intervention group than among controls ($p=0.02$). Health compared with other people of the same age group deteriorated statistically more in the control group ($p<0.0001$). Work ability with respect to the physical demands of work deteriorated more among controls. The p-value of the group effect was <0.0001 and the p-value of the time effect was 0.07. During the monitoring period work ability with respect to mental demands of the work decreased in both groups ($p=0.0006$) but was statistically better in the intervention group ($p<0.0001$). There were no interaction between group and time. **Conclusions** According to the study material, tailored early support intervention has a perpetuating impact on employees' health and work ability. The changes among the employees who participated in the intervention were lower than among the controls.

Keywords: Early support intervention, work ability, well-being

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Organizational Strategies, Organizational Trust and Welfare Committee to Improve the Quality of Life in the Manufacturing Industry in Jalisco, Mexico

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The current study contributes to our understanding of the relationship between organizational health strategies, confidence in the organization and participation of workers in the manufacturing industry in Jalisco, México, based on welfare committees to improve the quality of life of workers Model (Salanova, Llorens , figures, and Martinez, 2010) and use of data aggregated work unit level with the participation of two companies (medium enterprises) with 389 employees in its. Healthy organizational strategies, confidence in the organization and participation in welfare committees are the sum total of the perceptions of team members using intraclass correlation coefficients (ICC1 and ICC2) with the group as a reference. Identifying the relationship with the workers' perceptions toward the organization (organizational climate) to the perception of quality of life. AMOS structural equation modeling revealed that, as expected, organizational trust plays a mediating role between organizational strategies fully healthy and participating in welfare committees for the development of quality of life. The theoretical and practical implications are discussed.

Keywords: Healthy strategies organization, welfare committee, quality of life



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An Evaluation of the Brazilian Institute of Occupational Health and Safety Activities

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The goals of FUNDACENTRO, the Brazilian Institute of Occupational Health and Safety (OSH) are to produce scientific knowledge and to influence the implementation of public policies in OHS. This paper aims to present an evaluative research of FUNDACENTRO activities. The research question was: is FUNDACENTRO able to produce knowledge and influence policies to face new OHS problems (as organizational related diseases)? It was realized a documental analysis considering human resources issues (from 1993 to 2009), academic and technical activities (since 2005) and FUNDACENTRO's historical development. The results show that: - The major role in OHS police implementation in the beginning of the seventies, complemented by professional education and technical intervention, gave place to prior research activities in the nineties, but with less funding and personnel. It can be observed a decrease in the number of its personnel: 382 in 1993 to 279 in 2009. There are 157 research professionals with and mean age of 52. By 2020, 93 professional will be able to retire. - There are seven national programs - construction, silicosis prevention, chemical safety, SME, policies, OHS education and agriculture work -, but no program concerned to the prevention of to musculoskeletal disorders or mental health. - The department of occupational hygiene is the most important in the Institute; it has more funding, personnel, PHDs and more published papers. - The scientific production (papers presented in conferences or published in journals) is low; only 79 papers in 2006. As a conclusion, it can be noted a huge paradox concerning FUNDACENTRO's contribution: at the present moment when 'organizational injuries' are growing in epidemic grounds, the Institute is not able neither to produce knowledge nor to influence police implementation. Actually, the very future of FUNDACENTRO is at stake if no hiring policies take place in the next years.

Keywords: Research, evaluation

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Occupational Noise Exposure in Small and Medium Sized industries in Northern Cyprus

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Goal: the aim of the study is to investigate the noise levels in various small and medium-sized industries in North Cyprus in order to identify industries that might need further investigation due to high noise levels. Background: no prior studies have been done on industrial noise exposure in Northern Cyprus. Occupational safety and health rules and regulations in North Cyprus states that monitoring noise levels, understanding the workers



personal noise exposure and providing personal ear protectors is the responsibility of employers. It is observed that none of the companies visited are following these requirements. Exposure to excessive noise can cause health problems including temporary or permanent hearing loss, concentration problems, stress, nervousness, sleeping problems and fatigue. Methods: we measured noise levels in different industrial settings in North Cyprus using cirrus 273 integrated sound level meter with octave band filters. Occupational safety and health standards for noise exposure were used as the benchmark for our data analysis. Questionnaires were designed to determine how much employees were affected by high noise levels in the workplace. We analyzed the data using SPSS statistical program. Results: survey responses identified the most likely problems faced by industrial workers in North Cyprus. Sound level mapping informed worker noise exposure. Future studies will focus on industries with the highest noise levels, monitoring worker noise exposure using a dosimeter.

Keywords: Noise level, noise exposure, noise safety and health

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Design an Intervention Protocol for the Prevention of Wmsd in Colombia

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In Colombia among 1985 and 2000, the WMSD is the leading cause of occupational morbidity in 32.8% of all cases. 2001 and 2004 the Ministry of Social Protection states that MSDs are the principal cause of occupational morbidity; the total number of MSDs in Colombia in 2005 was 23,477 cases and was estimated 11.6 per 10,000 workers. According to the report of occupational disease in Colombia 2001 – 2004, the MSDs account for 65% of all diagnoses of workers. Our process of intervention was conducted in 30 Colombian companies. Of these 23 are big companies, 7 are small and medium-sized company were met. In this sample of 13 companies are public administration, 10 of the transport sector, 4 from other activities, 3 manufacturing industry. The ergonomic intervention model, departed from the database provided by Positive Insurance Company, composition data on the phenomenon of MSDs in the companies through the analysis of cases of PD. This resulted in a total sample of 1426 workers, distributed in 744 men and 560 women, for biomechanical analysis of the whole group was taken a sample of 267 additional workers Psychosocial tests were applied in 28 companies and specified clinical evaluation was performed in 82 workers . The MSDs Prevention protocol, was developed from the ergonomics activity approach, this approach can identify MSDs generating events (causes) for the purpose of structuring and organizing knowledge that would enable the development of strategies prevention and control. This protocol as a tool to develop a Knowledge Base, which describes a special type of database, knowledge management, i.e. data relating to the worker, the tasks, technology, organization and process. The objective of this knowledge base is to model and store in digital form such a body of knowledge, ideas, concepts or data to be accessed or used for the prevention of MSDs.

Key Words: Activity, ergonomics, muscle skeletal disorders, prevention, knowledge model

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Critical Incident Response Program - A Clinical Case

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The Poster presentation is about a clinical case applying the Critical Incident Response Team (ERIC) which is a program oriented to give psychological first aid to persons who have been affected by critical incident in the labor environment. It is composed of Clinical Psychologist. The main objective of the program is to create a space of containment to establish early intervention measurements oriented to avoid appearance of post traumatic-stress disorder in workers who have lived a critical incident or have been witness of a fatal occupational accident. It has been demonstrated that the benefits of this intervention basically are: - To acquire psychological skills to be able to face successfully the critical situation. - To maintain normal activity. - To avoid developing secondary pathologies. - To diminish secondary labor absenteeism The poster presents a real case about a fatal occupational accident, occurred in a Chilean Forest Company; a group of affected workers were selected to participate in the ERIC Program, including two brothers of the man who died. The Poster will present main steps to apply the Program and it will conclude with suggestions for the affected company

Keywords: Critical incident response team, occupational accident

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The Biofeedback and Stress in Workers in the Packing Area of an Industry in Guadalajara, México

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The biofeedback has been studied as information in the control of the respiratory rate and muscular, as well as the body posture in order to gradually find a balance for the wellbeing (1). Objective: To assess the impact of biofeedback on stress symptoms of seed packers. Material and Methods: The Yates questionnaire of stress symptoms (1979) which reports physical and mental indicators was applied to 10 workers from a total of 47. The selection was random in the packing area. It was assessed before and after an intervention of five sessions under the guidance of a feedback imaging software in the control of respiration (2). It had a control group matched on the variables: sex, age, marital status, education, position and seniority; who were invited to participate in the intervention once the study was finished. Results: In analysis with the Mann-Whitney test, it was showed significant difference in the dimension of mental symptoms ($X^2 = 8.95$ $p = 0.030$) decreasing the frequency in three of seven participants that before the intervention were placed at risk category for having more than four indicators. In the dimension that records physical symptoms no significant difference was found, however, from the ten participants located in the risk level, after treatment, two were located in the no risk level. The control group experienced no significant change; nine of the workers remained at the risk level in both dimensions. Conclusion: The



biofeedback technique in breathing reduces stress symptoms in workers, so at low cost and a short time it could be an intervention to be implemented by employers for the workers benefit.

Keywords: Biofeedback, stress, worker industry

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Traffic Safety Training for Drivers of Rescue and Emergency Vehicles

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The Institute for Work and Health of the German Social Accident Insurance (IAG) and the German Road Safety Council (DVR) developed an education and training program for drivers of rescue and emergency vehicles. The main objective of this training program is to minimize the enormous mental stress and to improve road safety during blue light drive. Special feature of the program is a driving simulator, which allows drives under realistic conditions with blue light and siren use. So the simulator software enable that many reactions of other road users depend from the behaviour of the driver. With post-exposure analysis of the simulation in the seminar group each driver is learning to see the situations under different perspectives and we get a set of experiences from this first drive. The following teaching unit will treat the themes driving physics especially the residual velocity combined with aspects of the perception and information processing. Generally this leads to new findings for the seminar participants. In a second drive on the simulator they can test the derived behaviour pattern based on the experiences from the first drive and the findings from the teaching unit. But now the situation is tightened through difficult conversations or additional tasks. In these combined training with a simulator strategies can developed and test to retain control in critical traffic situations. For single rescue organizations, changes in the long-term adjustment of the drivers will evaluated due to the seminar. The objective of the presentation is to show the necessity for such preventive meas-ures. The emphasis is on the methodical didactic approach and the technical implementation of the simulation illustrated with single video sequences from the drives. And finally first results of the evaluation will be presented.

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Instruments of Taiwan OSH Management System

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Guideline of Taiwan Occupational Safety and Health Management System (TOSHMS) was issued in 2007. This voluntary system consists of structural elements of ILO-OSH 2001, and

also adopts relevant requirements of OHSAS 18001:2007. Through the auditing by commercial certification bodies (CBs) designated and quality-controlled by CLA, any organization that passes TOSHMS certification is qualified to obtain the certificates of TOSHMS and OHSAS 18001, and waive of CLA's scheduled inspection. Technical guidelines are issued and trainings are provided to all industries. Organizations and their supply-chain partners are encouraged to implement the TOSHMS. Auditors, with mandatory OSH certifications and experience, are trained and evaluated annually by CLA. The auditing reports of designated CBs are regularly reviewed and compared in peer. The three audited requirements as of operational control, hazard identification/risk assessment/determining controls and performance measurement/monitoring roughly accounted for 35%, 16% and 7% of the nonconformity and recommendation items respectively in 2010. Moreover, CLA regularly visits some of TOSHMS organizations as to verify the auditing findings of CBs. To continuously improve performance, TOSHMS families established in regions and all TOSHMS organizations are encouraged to contribute to the efforts of this mechanism promotion. Senior manager training, risk assessment training, incident investigation and experience sharing are the major activities engaged by the families.

By 2010, around 545 organizations passed TOSHMS certification, where 11% and 27% of them were composed by 100 under and 100~300 workers and contractors respectively. The occupational accident rate (OCR) of the TOSHMS organizations was 45% lower than the average OCR of general industries in 2009. In terms of improvement from year 2006 to 2009, a significant drop of 44% for OCR was accomplished by TOSHMS organizations whereas 16% by general industries. Results indicate that instruments of regulatory agency, competent social certification bodies, mutual-aid groups and top supply-chain organizations could facilitate the dissemination of OSH system. Learning and sharing of good practices of operational control will further enable organization to prevent occupational accidents and ill health.

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Impact of Demographical Changes on Strategy of Occupational Health and Safety Management

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The scheme of age pyramid is changing unfavourably due to increasing of a population average age, as well as because of a reduced birth rate. During the post-war time period there was actual the "baby boom" era. Nowadays we are living in the so-called "papy crack" epoch, which is distinguished demographically by a decrease of number of economically active inhabitants. Prolongation of an active human life enables to establish a balanced labour market. But it represents just only one of measures that should be undertaken with regard to the above-mentioned trend. In this way it is possible to ensure a sufficient capacity of the disposable labour force and the pension systems can be stabilised. However, these steps have also negative impacts concerning, for example, occupational health and safety. Individual organizations are playing a significant role in prevention of negative occurrences that are resulting from the demographic development and they must be engaged in preventive and protective arrangements above all. Physiological changes, occurring in the group of older employees, are symptomatic already from the age 45 years as a result of human aging process and they are causing problems concerning working environment.



These changes are affecting employee's working ability, as well as occupational health and safety. Older employees are skilled thanks to the long time experiences, they have a less number of accidents at work, but in the case of a work accident occurrence there are more serious consequences of it, together with a longer time of disability for work. It is necessary to define key indicators of performance oriented to the older employees and in this way to realize a permanent control, together with suggestion of corrective measures. This conception represents an integrated part of every well- functioning management system, which aims at a continuous self-improvement.

Keywords: Osh, demographic changes, prevention

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Determination of Occupational Health and Safety Problems of Metal Industry's Small Medium Sized Enterprises

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According to 2008 Social Security Institution data, 99.7% percent of enterprises in our country are small and medium-sized (SMEs) with 83,8% of the employees. In addition to this information, 80.7% percent of occupational accidents have occurred at the SMEs. Largest share of the rate of accidents in this sector belongs to the metal sector. According to same data, metal sector is in the first place in terms of occupational accidents with a rate of 15% In addition, workers exposed to many factors as a result of physical and chemical activities at the metal sector. These factors are classified in two groups as physical and chemical. Physical factors are such as noise, vibration, lack of thermal comfort and lighting conditions, chemical factors are heavy metals, welding gases, dusts, volatile organic compounds that occurring from painting operations.

In order to identify problems and develop solutions for these problems for small- medium sized enterprises of metal industry; a project which name is "Occupational Health and Safety Problems of Metal Industry" was carried out by our organization. Ankara Chamber of Industry I.Organized Industrial Zone was selected as a pilot region of project. For this project, Ankara Chamber of Industry I.Organized Industrial Zone is selected as a pilot region. Within the scope of the project, working environment of 28 pieces of workplace were investigated. In order to determine levels of physical and chemical factors to workers; personal sampling method was used. The chemical factors that were measured in working ambient air are as follows: Volatile organic compounds (benzene, toluene, xylene, ethyl benzene, etc.) heavy metals (iron, manganese, lead, chromium, nickel, aluminum, etc.), welding gases (carbon monoxide, carbon dioxide, etc.) In addition of these measurements, dust measurements and analysis were done for welding, cutting, grinding jobs. The physical factors that were measured in working ambient air are as follows: Noise, vibration, lighting and thermal comfort conditions. The values that were obtained after the measurements and analysis were compared with limit values that are allowed in the atmosphere of working environment.



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Occupational Accidents in a Mineral Deposit in Morocco

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Purpose The mining industry is a risky business. The aim of our study is to analyze Occupational accidents in a mine and to know their main causes. **Instrument and Method** Our work retrospective to January st 2000 to December 31, 2009, attracted a mineral deposit (3048 persons from which 2022 are workers) comprising three operational sites: underground mining, mining discovery, mineral processing, logistics and administrative management. **Findings** We recorded 291 occupational accidents from which 37 are commuting accidents. The number of occupational accidents is increased from 5 in 2000 to 10 in 2009. 48% in underground mining against 16.5% in the mining discovery. By activity, 44% in operating activities and 15% in mechanical maintenance. The main mechanisms are clashes (23%) and slips and falls (18%). Small category workers is the category most affected with 63%. The location of lesions is predominant in upper limbs in 46%. The frequency rate increased from 4.22 in 2000 to 1.47 in 2009, the severity rate from 0.2 in 2000 to 0.08 in 2009. **Discussion** Analysis of these results shows that there is a marked decrease in occupational accidents and safety indicators in this mining operation; this could be explained by the closure of underground operations and the establishment of a health, safety and environment Management System in 2005. **Conclusion** The adoption of an assessment approach for occupational risks is an indispensable tool for the prevention of Occupational Accidents in the mining sector.

Keywords: Mining industry, occupational accidents, risk assesment

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The Layout of a Workstation for a Nurse

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Purpose It is the study of a nurse's workstation of 52 years old, working at the nephrology department at CHU Ibn Rochd for 25 years. She had asked the Occupational Health service for an organization of its workstation. The objective of this study is to assess the compatibility of her workstation with her health. **Instrument and Method** The study was to observe the activity on a work cycle with the establishment of a timing and tracking of binding work situations, in addition to the analysis of her medical records. **Findings** This study has objectified binding work situations, especially during the following tasks: connecting patient on dialysis, making peripheral venous at the bedside, bedside blood test. The analysis of medical records has found somatic inter tiered dorsal osteoarthritis, cervico-brachial neuralgia with right C5 radiculopathy right at EMG and pain in the right shoulder with one aspect of the supraspinatus tendinosis right to Ultrasonography. **Discussion** After this study of post, it was decided a workstation layout with key recommendations such as: avoid heavy



lifting, avoid work postures with arm elevation, avoid repeated flexion of the neck, avoid prolonged static postures in standing position with anteflexion of the trunk and finally avoid prolonged pressing on the heel of the hand, wrist and elbow extension. Conclusion The layout of the workplace inevitably passes through the study of post, essential step to any improvement in working conditions among caregivers.

Keywords: Workstation, layout, nurse

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Blood Exposure Accidents among Nurse Anesthetists

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Purpose The Healthcare staff is very exposed to the risk of infection in the workplace, particularly in a blood exposure accident (BEA). The aim of our study is to assess the prevalence of BEA and the state of information of nurse-anesthetists. **Instrument and Method** This is a multicenter descriptive cross-sectional survey, over a period of three months, interested at nurses in operating rooms at CHU Ibn Rochd and nine provincial hospitals in Casablanca and the data were collected using a self-administered questionnaire comprising 28 questions. **Findings** 100 nurses responded (100% response). Mean age 32 years old. Female predominance (78%). Average job tenure 19 years. 74% have been victims of BEAs, of which 88% from needle stick. Gestures most purveyors of BEAs have been the installation and removal of infusion (36%), blood sampling (32%) and sutures (10%). The source patient's HIV status was known in 86% of BEAs. 74% have never received training, 48% do not use standard precautions. 74% believe that vaccination against hepatitis B virus is essential for prevention. **Discussion** Our study shows a prevalence of BEAs comparable to that in the literature, the single most frequent cause was the poses and drops of perfusion, unlike what is described by different authors. We found a lack of training on what to do and attitude towards the risk of BEAs. **Conclusion** BEAs prevention inevitably passes through training and informing exposed personnel as well as the provision of appropriate safety equipment.

Keywords: Blood exposure accident, nurse-anesthetists, prevention

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Occupational Accidents in a Construction Site of a Highway

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Purpose The construction sector and public work is one of our most important economic activity, but it remains a high risk area for Occupational Accidents. Our work consists of analyzing Occupational accidents occurred during the construction of a highway about 22 km in northern Morocco. **Instrument and Methods** Our work is a retrospective study concerning 823 cases of employees who worked on the construction site of the highway (October



2004/August 2007). An analysis focused on the causes of occurrence, injury and cessation of work. Findings 223 occupational accidents from which 2 were fatal. 11 occupational accidents have benefited from a permanent physical disability. 47% of occupational accidents occurred during the first 3 months of work. The causes of these accidents include: manual handling, falls on the same level, falls from heights, injuries by working tools are the most frequent with respectively 18, 16 and 12% . Manual handling has caused the greatest number of days off (18%). The location of the lesions is dominated by the trunk 20%, foot 19% and 17% head. Mild injuries (38%), wounds (17%) and foreign bodies (11%) are the most common injuries. The average incidence rate is of 8.29, the severity rate is 7.81. Discussion Our study shows that security on public works projects remains inadequate, since safety indicators are well above the international rates in the same sector. Conclusion Prevention is needed in this high risk sector of Occupational accidents, based on safety standards in workplaces.

Keywords: Occupational accidents, construction sector, prevention

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Do You Know? Did not Leave Accidents to Me

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Occupational accident is defined as an external, unexpected, and during the execution of work or arising out of it, which may lead to an industrial injury or fatality or material or environmental damages. Every year many occupational accidents occur in Turkey. According to statistics, the number of accidents occurring in 2008 are 72 963, and due to these accidents, loss of life are 866. 1694 people have been continuously incapable of working these accidents. 1,865,295 days consisted of temporary incapacity. The problem is very serious and threatening manner. However, 98% of work-related accidents are preventable accidents. Actions can be taken on this subject is giving the consciousness of the employees, employers, managers, public officials and citizens. In this sense, the media is one of the most effective tools. Handling style of the printed press on this topic is very important. The aim of the study is to understand the handling styles of the printed press on the occupational accidents by using the method of discourse analysis. News on this issue in the newspapers will be selected as text.

Keywords: Occupational accident, awareness, media

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Burnout Syndrome as an Occupational Disease among Advocates

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Burnout syndrome is seen in occupational groups who have to communicate with people more directly. Also the business of law is one of these professions. The situation of losing the energy to handle the situation in an exposure of factors those are more than they can cope with and causing long period of stress is called burnout syndrome. At the same time not following their business causes reminiscent of losses for their clients. This case occasion loads moral responsibility pressure on the lawyers. Each of these examples is serious stressors. There is no an occupational disease is defined for Lawyers. However, it can be classified as an occupational disease. The purpose of this study is to analyse effect of burnout syndrome for health at work in advocacy profession. In the study, Maslach's burnout syndrome scale and demographic information form will be used. Baro has approximately 700 lawyers which we will plan study 150 of them.

Keywords: Burnout, lawyer, occupational health

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The Usage of Personal Protective Equipment in Construction

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Construction industry is the most dangerous industry based on the rate of work injuries and the overall number of on-the-job fatalities. That is because of the lack of Occupational Health and Safety Culture in Construction industry. Especially in developing countries even the proper use of personal protective equipment is inadequate. Personal protective equipment should be the last resort in defence. Better alternatives are engineering controls that eliminate as much of the risk as possible. Engineering controls has methods such as substitution, alternative work methods, isolation, enclosure, ventilation etc. It is important not to forget that personal protective equipment does not eliminate the hazard. However because of the nature of the construction works, most of the time the use of personal protective equipment is necessary. The proper use of personal protective equipment would reduce the risk in a great amount and would decrease the injuries and fatalities. In this paper, it is aimed to examine view of construction workers to the personal protective equipment and whether they know proper use of personal protective equipment. In Turkey, it is known that there is not enough usage of PPE. That is because of the workers of the industry are uneducated and unqualified. In this study, 500 construction workers were interviewed and a questionnaire module was applied, the goal was to measure the awareness of workers to risks of construction works. The questionnaire consists of 4 categories which are; job level, education, working environment, working style. The results of the study showed that to improve the Occupational Health and Safety Culture and to reduce the job injuries and fatalities in construction industry, it is important that the workers should be trained in the use and care of personal protective equipments. The study can increase the awareness of the construction workers about the usage of personal protective equipment.

Keywords: Occupational health and safety, personal protective equipment, construction, workers, awareness

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Safety Sign Manual for the Construction Industry

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According to SESI's III Occupational Health and Safety Panorama, in 2005 in the Brazilian Construction Industry registered 29,228 work related accidents and 307 work related deaths. The situation is especially critical in the northeastern state of Bahia where 18 of every 1000 construction workers experience a work related accident. As in most countries, construction workers in Brazil are usually recruited amongst those of the population who have little or no formal education, a fact which allows us to associate low reading levels to a great majority of these workers. Through a series of safety inspections at various building construction sites in Bahia, SESI-BA found that most safety signs were not being used effectively. Problems identified during these inspections range from little or no use of safety signs, including non-compliance with safety sign regulations, to poor distribution and placing of signs, to use signs which do not reflect that may not be understood by workers due to their low reading skills. In order to help construction enterprises implement an efficient safety sign system, SESI-BA developed a Safety Sign Manual for the Building Construction Industry which includes the following: 1) general information and guidelines for safety signs; 2) a check-list for evaluating safety signs on site; 3) an action plan for installing safety signs; 4) a series of 60 colorfully illustrated safety signs. All of the material developed was made available for free download on SESI's OHS website called Pro-SST, which aims to provide access to OHS knowledge and information so as to contribute to the enhancement of occupational health and safety and consequently the productivity of Brazilian Industry.

Keywords: Safety sign, manual, construction Industry

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Chemical Substances

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In our everyday lives, we are surrounded by a large number of different chemicals and are continually becoming aware of new problems as a result of them. There are EU laws and regulations, for example Reach and CLP, and national laws regulating substances and safe work and risk assessments are crucial when handling chemicals. Chemical Substances is the necessary tool for producers, suppliers and users of chemicals as well as for occupational hygienists and those responsible for dangerous waste or transportation of goods.

Chemical Substances is an interactive register of more than 32 000 chemical substances with more than 2.9 million data of which 335 600 are searchable names. Those are divided into English, Swedish, German and French as well as trade names. Chemical Substances has been continuously improved for nearly 20 years and is provided both as a web version, updated four times a year and as a cd-rom version, annually updated. The database supplies information about physical data, structural formula, risk and safety phrases, hazard symbols,

toxicology/ecotoxicology, directions for handling and storage, disposal and transport directions for senders and transport organizers, etc. This comprises the possibility to copy/paste/print a List of All Available Information about a substance, basis for Product Safety Data Sheet and Warning Label.

Chemical Substances includes full texts of Regulations, Directives and Decisions from the European Community, as well as the substances that are regulated.

Included in Chemical Substances are also two calculation programs: Classification of dilutions which calculates risk phrases and hazard symbols, marine pollutant and flammability. Limitation of quantities when transporting dangerous goods which also calculates Limited quantity provisions for air transports.

Chemical Substances is produced by Prevent Sweden – Management and Labour Improving Work Environment.

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Man-Made Mineral Fibres in Russian Federation: Review of 300 Russian Publications

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For the studying of clinical epidemiological aspects of tuberculosis in patients with chrysotile-related asbestosis from size of a total dose of a dust it was conducted a retrospective epidemiological study using the “case-control” method of causes of death in patients with asbestosis complicated with tuberculosis.

The study included 657 patients with asbestosis, diagnosed in the Centre for the last 60 years (1946-2005), former workers of “Uralasbest”, JSC and 727 individuals, who worked in same occupational sanitarian conditions and lived in comparable social conditions, who occurred in the Centre during 40 years and weren’t diagnosed an asbestosis.

In consequence of active large-scale industrial-technological and medical-preventive actions at the enterprise in the last 60 years occupational conditions became significantly better and in the result the dust load in patients with asbestosis complicated with tuberculosis, worked at new factories, as on dust lump and cumulative exposure of respirable fibers statistically significantly decreased in 3.0 and 1.7 times in men and 4.7 and 1.6 times in women respectively.

As a result the incidence rate of asbestosis decreased in 100 times by the beginning of XXIth century in comparison with 50s of XXth century, and complication of asbestosis with tuberculosis decreased in 5 times, in spite of the growth of incidence rate of tuberculosis in Russia.

In structure of clinical forms of tuberculosis in workers of old factories destructive and widespread forms with bacterioexcretion (60%) prevailed, and now the disease is characterized by absence of progressing forms, a trivial and an average course, decrease of incidence of forms with bacterioexcretion and increase of longevity of patients.



The trend of a case rate of patients with asbestosis complicated with tuberculosis reflects an epidemiological situation on tuberculosis in the country. The basic share of patients with a tuberculosis in all studied cohorts concerns to 40-60s (70.7%) and 90s of the XXth century (17.1%) when the situation with tuberculosis in Russia was unfavorable.

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Epidemiological Study of Respiratory Malignant Tumors in Men from Asbest City of Sverdlovsk Region

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The title should be in capital letters using font size 14. At the right top corner, title, full name should be followed by University/Institution/Organization names on the next line. In common declarations the name of the person who will make the presentation should be underlined. Participants wishing to submit their posters should print their posters in the dimensions of 90x70 cm as shown on the figure to be readable from a distance of 1 m. At the top of each poster the title of the poster, the author and the institutions they work for should be included. The contact address of the author should be written. The title of the posters should be at least 2.5 cm. A brief purpose should be included in introduction. Following this, instruments / method, findings and discussion should be presented. Poster should be finalized with a conclusion reflecting the characteristics of the study.

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(P: 291)

Revolutionary Advances in OSH: Last Decade in Turkey

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OSH hasn't been from subjects of primary importance in 80 year-old Republic of Turkey. Major revision studies conducted on OHS during and Labor Law by the beginning of 21. Century have recently begun to give their results. Turkey, along with the driving power of the accession partnership of European Union, has adopted the approach of determining all hazards with their risks. OSH issues that is included in the EU membership negotiations have lead the studies of strengthening the organizational structures on this area giving our country the chance to catch the western countries. OSH legislation which is revised conforming to the international norms has brought into power all new terms obligatory to state and private organizations. In this study, recent studies on OSH in Turkey will be summarized, last stage of which is the "OSH Legislation" that is projected to be promulgated by the end of this year.

Keywords: OSH Policies, OSH application



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Problems and Solutions of Turkey's OSH Organizations

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It can be seen that industrialized countries like EU member have changed OSH approaches radically. New approach of these countries about OSH is “developing policies that improves the current situation”. The responsibility of providing OSH services including the prevention of workers in Turkey is given to The State by The TR Constitution. OSH services are given in five different groups in Turkey. According to “New OSH Approach of EU”, new policies are discussed on the improvement of current situations. In this study, a new organizational structure model for Turkey's OSH, conforming to economic and socio-cultural structure of Turkey, will be presented.

Keywords: Osh policies, national policies, osh organization

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Work Ability of Ageing Employees with Mainly Mental Work Demands in the Public Sector

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Background: The retirement age was recently increased in our country, contributing to the increase of ageing work force along with other factors. The aim of the study was to follow work ability in employees with mainly mental work demands in public sector and the work-related and individual factors affecting it. Methods: The work ability was followed in 544 employees with mainly mental work demands in the public sector using the work ability index questionnaire. Three groups were formed on the base of the age as follows: 193 subjects of age <44 yrs, 181 subjects aged from 45 to 54 yrs and 170 subjects >55 yrs. The self reported working conditions, psychosocial and ergonomic factors, as well as life-style data were followed and fitted in the regression model to explore the factors affecting work ability. In 35.1 % the investigated subjects the cardiovascular risk factors are followed, too. Results: The rate of subjects with excellent and good work ability exceeded 50% in all the studied groups, but was significantly lower in the ageing groups, mainly due to health problems. The most frequently reported were musculoskeletal, cardiovascular, respiratory and digestive diseases, with significantly higher rate in the ageing groups. Significant differences in the rates of cardiovascular diseases were found between the two ageing groups. The study showed also high rate of hypertension, dyslipidemia, overweight, smoking and low physical activity in ageing employees. The health status and mental resources were found to be the main determinants of work ability. Conclusion: The data reveal good work ability in the



studied ageing employees, most probably reflecting the high educational level and challenging job. Improvement in work organization and healthier life style could contribute to better health and work ability of the ageing employees.

Keywords: Aging employee, mental work demands, work ability, health

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Stress and Musculoskeletal Disorders in Broadcasting Engineers: The Role of Ergonomic Factors and Work Organization

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Background: The rate of musculoskeletal complaints is increasing in white collar workers, often discussed in relation to ergonomic and work organization issues. The aim of the study was to follow the rate and determinants of musculoskeletal disorders in broadcasting engineers under shift work. Methods: Job analysis and ergonomic evaluation of the workplaces of 168 broadcasting engineers, working different shift work schedules, was carried. The self reported working conditions, psychosocial and ergonomic factors were followed. Questioning for distribution and localization of musculoskeletal complaints and the diagnosed musculoskeletal diseases was carried. The saliva cortisol and self-ratings for strain, fatigue and stress symptoms were followed in selected groups during the working shifts. Data were analyzed with variation, correlation and regression analysis. Results: A lot of ergonomic and work organization problems, simultaneous work on two monitors, changes of workplace during the shift were found. More than 50% of the employees were not content with shift work schedules, 38.7 % worked often under time pressure and 23.8 % in non-ergonomic work posture. Cortisol retained normal circadian rhythm, with higher values in early morning and night shifts in employee working backward rotating shifts in comparison to forward rotating ones ($F(3,66)=6.046$, $p<0.001$). The self-ratings showed symptoms of strain and fatigue. A high incidence of musculoskeletal complaints mainly in the region of the back and neck was found. 35.1 % of the employee reported musculoskeletal diseases, determined by non-ergonomic work posture, problems in shift work schedules, lack of control and decision making in a highly significant model. In adjusted by shift work and task groups the musculoskeletal complaints were associated with cortisol values, insufficient time for work breaks, specialized length of service and ergonomic problems. Conclusion: Measures for improving workplace ergonomics and work organization were proposed in order to reduce stress, fatigue and health risks in broadcasting staff.

Keywords: Ergonomic problems, shift work, stress, musculoskeletal disorders

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Model for the Implementation of the Occupational Safety and Health Management System (OSHMS), Based on the ILO and OHSAS 18001 Guidelines, for the Chain of Furnishers of Large Industries

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The large Brazilian industries were the first ones to identify the need for the implementation of the OSHMS in the country, due to its visibility in the market and the demands from the clients. After the initial challenge of establishing the OSHMS, one of the main concerns of these enterprises is to get the service providers to keep a satisfactory level of performance on issues related to OSH. The large enterprises have observed that only implementing operational controls and carrying out audits on the subcontracted enterprises did not minimize the incidents nor the accidents with workers of its furnishers. A more effective action was necessary. Thus, SESI, Social Service of Industry, created the OSHMS based on the ILO and OHSAS18001 guidelines, where the involvement of the workers and entrepreneurs on the identification of simple, low cost solutions and is the catalyst of an OSHMS of good quality. This model also counts on the participation of the hiring enterprise (great enterprise), incentivating and in some cases, fostering financially the OSHMS of the outsourced enterprises. The SESI model of OSHMS was built in three levels, which enables its application in all kinds of enterprises. Before its implementation, a launching event takes place, where the hiring enterprise states its commitment and support to the program, and announces an award system to those enterprises that stand out. The implementation of the OSHMS begins with the participation of workers of up to 20 enterprises in workshops, where there is an exchange of information and problems presentation which most of the time, are common to many enterprises. To motivate workers and entrepreneurs, one of the first activities that are carried out is the identification of "Quick Wins". The quick wins are actions related to problems with simple, low cost solutions and that may be implemented in up to 30 days. The involvement of all the actors is a differential for the improvement of the OSH performance of these enterprises.

Keywords: Occupational safety and health management systems, guidelines, industry

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(P: 296)

Return on Investment in Worksite Wellness Program: Results of an Experiment in a Large Chemical Industry in Bahia

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The need for enterprises investments in programs of Prevention and Health Promotion is a widely publicized topic. Besides reducing costs on aspects related to health insurance, these programs valorize the worker, reduce absenteeism and increase productivity. Despite this knowledge is already widespread, enterprises need to know if what they invest in these programs really means an advantage from an economic point of view. Aware of this need, the Social Service of Industry (SESI) sought a methodology capable of projecting return on investment in these programs, what would strengthen the capacity of SESI to support industrial enterprises in the process of a more effective decision making. This study describes the experience of a pilot project in partnership with a large chemical company that has successfully implemented a program of quality of life in their workplace based on four pillars: biological, psychological, social and organizational. The methodology used in this project was based on software Wellcast ROI, which makes projections on the occurrence of

disease (with and without prevention programs), and compares the total cost of each disease (medical treatment costs, lost productivity, relocation, retraining, compensation, and replacement of employees) with the reduced costs due to the introduction of the program. It was evidenced, in the studied company, that by providing employees with health promotion and disease prevention services, the costs of health care and lost productivity were reduced. Besides demonstrating the feasibility and economic advantages of adopting a program of Prevention and Health Promotion in a worksite, this project enabled the SESI to approach a methodology that will support the companies to make safer decisions for investments in the area of safety and occupational health.

Keywords: Return on investment, health promotion, industry

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The Details of the Safety and Health Plan for Constructions in National Legislation and Foreign Countries Legislations

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As in all over the world the construction sector in Turkey is in a separate location and importance within the economic structure. However, the construction sector compared with other sectors, it is one of the most risky sectors because of its unique features. In terms of number of work accidents it is in second place just behind the metal sector but in terms of these accidents result in death and permanent incapacity it is in the first place unfortunately, break open. 33 % of fatal accidents occur in the working life is in construction sector. In order to prevent these accidents and possible occupational diseases and also to provide the occupational health and safety in workplaces, occupational health and safety regulations were encouraged to be done. Our country within the framework of the European Union harmonization process, has adapted the occupational health and safety legislation significantly. The regulation of Health and Safety in the Construction Works is one of them that has issued under the 78th article of the Employment Law No. 4857. The regulation is based on the European Union Council Directive 92/57/EEC dated 24/6/1992. in accordance with this directive, European Union member states has created their legal regulations to ensure the health and safety in construction workplaces With this regulation, the construction sector has gained many innovations like coordination, notification and health and safety plan. In our country's legislation, the health and safety plan for construction works is located only in this regulation and just like in the directive only some main elements about the plan like prepared by whom and when it is being prepared are located in the regulation but the content of the plan is not told. The purpose of this study is to examine the particulars about the health and safety plan located in the European Union member states' and non-member states' legal regulations. During examining the legal regulations of countries, in which cases and by whom the plan is created and the contents of the plan will be evaluated.

Keywords: Construction,legislation,national

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Safeguard Measures Form Sulfuric Acid

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Iskenderun Iron and Steel Co. industrial cooling water in the sulfuric acid pH (acidity-alkalinity) and adjust the balance of Coke Manufacturing Plants by-product of raw materials, fertilizer is a chemical used to get. The use of hazardous chemicals and many precautions must be taken in maintaining this. Related Regulations, Sulphuric Acid dangerous, corrosive, it is harmful to human health and the environment, using, storing some of the points defines the issues to be considered. The purpose of this study, the participants, Sulfuric Acid is to obtain information about the harmful effects and protective materials. In this study; Identification of chemical and physical properties of Sulfuric Acid, which is how the concentrations used, intended uses and locations, This type of regulations it deems appropriate when working with chemicals when exposed to the detriment of the work environment and work values, This should be in areas (body showers, eye-side shower and so on.) equipment and first aid measures to be taken, Skin, eye, respiratory tract, or digestive system if swallowed losses Methods of prevention and first aid measures will be in contact with skin Especially the skin, eye contact and protection from damage caused by roads To avoid any contact with the various types of masks, protective clothing, gloves and shoes The use of protective equipment and locations shapes, the neutralization for the spreading of the environment, emergency pools, and their properties, the spread of environmental damage in case of emergency measures to be taken to ensure the safety and operation, Measures to be taken during the transfer operation when the tanks of acids, business tools and rules to be followed and descriptive information is examined in the light of ISDEMIR applications.

Keywords: Safeguard measures from sulfuric acid

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Upgrade Program of Moroccan Companies for Occupational Health and Safety

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Purpose In Casablanca, April 2008, a fire destroyed a factory and caused 55 deaths. An "Interministerial Commission" has then taken actions to promote the prevention of occupational risks: the creation of the National Institute of Occupational Life, a new framework law specific in Occupational Health and Safety, a pilot upgrade program... Instrument- Method This program, coordinated by the National Institute of Occupational Life, provides an upgrading of firms with less than 50 employees in Casablanca, whatever the sector, in the Health and Safety field. A pre-selection of companies is established through the databases of ministries, professional associations ... based on the number of employees. These firms may volunteer to integrate this program. The program includes, for each beneficiary, a personalized mapping of occupational hazards and coaching for their control. To achieve these objectives, the National Institute of Occupational Life accredits experienced and knowledgeable consultants in occupational risk prevention. Findings the process is



designed as pilot operation in Casablanca for 1 000 companies in 2011, and nationally, 2 000 companies in 2012, 4 500 in 2013 and 6 000 in 2014. Preliminary results will be exploited in September 2011. Discussion The upgrade program should enable Small and Medium Enterprises (SME) to comply with national requirements for Occupational Health and Safety and to initiate a process of self-assessment and continuous improvement. Nationally, the exploitation of the results will highlight the difficulties of SME in the management of occupational hazards and to include targeted action in national politics.

Keywords: Upgrade small and medium enterprises morocco

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Quantitative and Qualitative Parameters of Air Ionization on the Indoors Workplace

Konstantin Chernyy

Perm State Technical University, Russian Federation

The environmental conditions of indoors workplace are defined by many different indicators and if these indicators do not correspond to the hygienic regulations the indoor environment may become one of the risk factors. One of these sensitive and important indicators is ionization of indoor air.

Though, indoor air ionization is technically accessible, it is rather difficult to reach the healthy effect of ionization. Therefore, the necessity of experimental researches for quantitative and qualitative parameters of indoor air ionization (volumetric concentrations and mobility spectra of air ions) aimed at creating health and safety environment indoor ionization becomes essential.

The presented experimental data indicate the availability of air ions of certain groups of mobility and polarity is the essential indicator to health and well-being.

An analysis of electronic equipment influence on the air ionization is submitted.

The comparative analyses of peculiarities of air ions formation on the workplace in the buildings are discussed in details.

Mobility spectra of air ions generated by corona ionizer and of natural ions are compared. The mobility distribution of artificially generated air ions differs from natural distribution by the content of intermediate air ions.

The review of various methods of increasing concentration of small air ions is submitted.

On the diagrams dependence of volumetric distribution of small air ion concentration from place and design of air ionizers is resulted.

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Back to Work

Krister Skoglund

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The longer an employee is away from the workplace due to illness, the more difficult returning to work becomes. In this presentation I go through four steps for keeping absence from work as short as possible. It's based on the Swedish National Health Insurance System and Sweden's occupational health and safety regulations. For good results, cooperation is important. The employer, the employee, the union representative, the attending physician and the National Health Insurance Authority as well as other parties must work together to seek solutions. Step 1: Early measures • Note early signals of poor health. Investigate cases of repeated sick leave. • Establish contact with employees on sick leave early. Then maintain regular contact. • Document anything relevant to the sick leave but consider confidentiality issues. Step 2: Plan for the return to work • Ask the employee to report changes in the course of the disease or disability as well as changes in working capacity. • Maintain contact with the attending physician, occupational health services and the National Health Insurance Authority. • Prepare for a meeting on job redesign. Step 3: Judge working capacity and carry out job redesign • Judge working capacity together with the employee and with the help of the attending physician's report. • Take medical rehabilitation measures into account. • If necessary, seek assistance for evaluation of working capacity and job and workplace redesign. • Document and evaluate the employee's work and workplace. • Together with the employee, draw up a proposal for job and workplace redesign Step 4: Job training and evaluation • Together with the employee, draw up a plan for job training. • Follow up job training with regular discussions. • When rehabilitation is complete, perform an evaluation. Finally I will present some preventive measures for a successful rehabilitation in the workplace.

Keywords: After illness, return work, Sweden

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Contracteranto - a Web Based Communication-Tool for High Risk Work Environments Where Non-Native Speakers Are Involved

Kristien De Ro

Active Project Development - Europe, Belgium

The origin of the project is based on the demand from various sectors who work often with contractors and their non-native speaking workers. Communication is a problem and puts the safety at risk. The increased mobility of workers in European countries stimulates this. The aim of Contracteranto is to develop an online database with safety related items of high-risk functions from out all sectors translated in all European languages and even other languages if there is a need. Added value will be the voice-over of the words. Contracteranto focuses on communication between local workers and their non-native speaking colleagues. Improved communications and enhanced language skills are essential elements for a successful Health & Safety management. Contracteranto is a supportive communication mean and gives an answer to this issue. APDEU (BE), together with NAVB-CNAC-Constructiv (member of ISSA Construction) (BE) and 9 other players in the OHS-world from 5 different countries whereunder Turkey, co-operate to develop this database. Target group: - Companies and their prevention departments who work a lot with non native speaking operational workers for short or middle-long periods (chemical industry, construction sector,...). They have the need to give appropriate safety instructions, regulations, etc... in a foreign language. - Contractors who put more and more non native language speaking workers into the different sectors –



The non native speakers themselves, who work abroad for contractors on short or middle-long term - The non native speaking workers who are low skilled or had low education - Temporary workers Access to the program will be free.

Keywords: Contractors, communication, languages, mobility, high-risk work, web based

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Real Time Monitoring in Analytic Laboratories at Refineries: NTP 555 as Alternative Method for The Nom-010 Stps-1999

Kristy Pena Muñoz

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Nowadays Mexico is looking for a better Assessment on occupational health and safety (OHS) issues. The relocation of industry from “developed countries to low and middle income areas, which have regulatory structures attractive to foreign investors not only creates risks to the working populations of those countries, but also fosters a dynamic in which safety-conscious corporations and nations with effective OHS enforcement become uncompetitive. For example, Mexico has several sectors that are constantly changing and willing to improve the work condition for their blue collars (employees). Two special cases are the maquiladoras (textile industry), concentrated in the north part of the country, and the petroleum sector. The Mexican Petroleum Industry occupies the 3er place worldwide on crude production, and thru refinery, the 13th place. Some of the most risky activities at the Petroleum sector are done in the Analytic Laboratories, where all the refinery products are analyzed in order to assure the quality of the final product. The Unions are interested on protecting the health of the employees; therefore the Petroleum industry in Mexico has a double target: produce high quality refinery products and protect the health of its employees. Therefore this research took as study case the Analytic Laboratories at one Petroleum Industry. This study focused on a) Suggest a “real time monitoring”, based on international regulations, as an alternative method for the chemical evaluation at working places in accordance to the NOM-010-STPS-1999. b) Compare the traditional monitoring in accordance to NOM-010-STPS-1999 with the Spanish regulation NTP555. c) Propose the implementation of the NTP 555 as sample strategy for short term expose measurement and the use of the NTP 407 for the evaluation of labor expose as alternative method for the NOM-010-STPS-1999. d) Propose a real time monitoring by using AREA Rae Equipment.

Keywords: Atlas of risk, NTP55, NOM-010-STPS-1999, Real time monitoring, TLV, STEL

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Glutaraldehyde in the Hospital Center Ibn Rochd of Casablanca

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Introduction The environment of care is an environment at risk for the health of the hospital staff. The lack of staff, the constant increase of the work, the ageing of the carers promotes the emergence of health problems. What imposes on the Occupational physician to propose a layout of a workstation or a professional redeployment. The purpose of our work is to explain the experience of our occupational health service in supporting all the hospital staff applications for layout of a workstation and professional redeployment. **Materials and Methods:** Our study is a retrospective study of 39 cases collected in occupational health service among a population of 3.300 employees since November 2004 from December 2010. **Results:** The Average age was 46.4 years. 71.79% were women. 51.28% of cases were Nurses. The most affected service was Resuscitation in 15.38% of cases. Psychiatry was the dominant pathology (23%). We had noted 23 cases of layout of a workstation and 16 cases of professional redeployment. The decision of layout or professional redeployment was taken within health service in the work after study of post in 25.6 % of the cases. The main proposition of the new posts is the limitation of the efforts of handling in 52.94 % of the cases. Our decisions were respected in 68.75 % for the professional redeployment and in 52.17 % for the layout of a workstation. A re-evaluation of post was required in 33.33% of cases but without continuation. **Conclusion:** The prevalence of the cases of layout of a workstation and professional redeployment remains very low. This observation is in contradiction with the fact that aging is a source of health problems related to work, especially in a legislative context that protects employees with chronic non-disabling diseases.

Keywords: The layout of a workstation, professional redeployment

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Layout of a Workstation and Professional Redeployment in the Hospital Center Ibn Rochd Casablanca

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Introduction The environment of care is an environment at risk for the health of the hospital staff. The lack of staff, the constant increase of the work, the ageing of the carers promotes the emergence of health problems. What imposes on the Occupational physician to propose a layout of a workstation or a professional redeployment. The purpose of our work is to explain the experience of our occupational health service in supporting all the hospital staff applications for layout of a workstation and professional redeployment. **Materials and Methods:** Our study is a retrospective study of 39 cases collected in occupational health service among a population of 3.300 employees since November 2004 from December 2010. **Results:** The Average age was 46.4 years. 71.79% were women. 51.28% of cases were Nurses. The most affected service was Resuscitation in 15.38% of cases. Psychiatry was the dominant pathology (23%). We had noted 23 cases of layout of a workstation and 16 cases of professional redeployment. The decision of layout or professional redeployment was taken within health service in the work after study of post in 25.6 % of the cases. The main proposition of the new posts is the limitation of the efforts of handling in 52.94 % of the cases. Our decisions were respected in 68.75 % for the professional redeployment and in 52.17 % for the layout of a workstation. A re-evaluation of post was required in 33.33% of cases but without continuation. **Conclusion:** The prevalence of the cases of layout of a



workstation and professional redeployment remains very low. This observation is in contradiction with the fact that aging is a source of health problems related to work, especially in a legislative context that protects employees with chronic non-disabling diseases.

Keywords: The layout of a workstation, professional redeployment

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(P: 306)

The Health and Safety Management System at Work in the Moroccan Context

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Objective The health and safety management system is part of the overall management of the company, expressing a managerial approach to the prevention of occupational risks, it is based on a repository and following a process of change that must be animated and sustained. The aim of our work is to provide an overview of the health and safety management system at work in the Moroccan context. **Materials** Our work is based on an analysis of the normalization Moroccan management of OHS. **Results** In terms of standardization, Morocco has adopted many international standards as Moroccan standards; they are the standards of the health and safety management systems NM 00.5.800-802. In illustrative title, and concerning certain aspects of the management of the OHS, on 3200 existing companies of more than 50 employees, subjected legally to the creation of a medical service of the autonomous work as well as a Hygiene and Safety Committee (HSC), only 25 % have an autonomous service and 14 % created a HSC. **Discussion** The health and safety management system is a management device combining people, policies and resources. It must ensure the comprehensive knowledge of all the risks of accidents, the implementation of the means to decrease the gravity, the fast reaction in case of accidental situation, the implementation of an external and internal system of communication and an appropriate system of training, with the objective the improvement continues performances. **Conclusion** In Morocco, the already existing standards offer to companies a national reference table widely inspired by the international standards, allowing them to engage in sustainable approaches of the health and safety management system.

Keywords: Safety management system

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Occupational Risks in the New Technology of Information and Communication

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Objective The new technology of information and communication (NICT) was applied in several activities. The aim of our work is to cite the main risks associated with NTIC and the preventive methods which are undertaken in the workplace. **Instrument – method** It is a



literature review with a summary synthesis of the scientific documents about professions risks in the NICT sector. Results NICT expose workers to professions risks represented as follow: - Ergonomic risks related to computer screen that causes tendinitis, tenosynovitis, entrapment syndromes, cervico-brachial neuralgia and low back pain - Physical risks associated with electromagnetic fields are possibly carcinogenic to persons, can be responsible to subjective auditory effects also skin's reaction. - Psychosocial risks as type of depression, anxiety, difficulty of concentration, disturbance of sleep, lack of appetite, problems of digestion, metabolic syndrome and hypertension. Discussion There is not enough experience about these new technologies risks on workers health and safety, however, some of them are well known, especially those related to musculoskeletal disorders, visual fatigue and stress. Conclusion Prevention of risks related to NICT begins with a process of devaluating this risk, the starting point of the health process management and enterprises security

Keywords: New technology of information and communication, prevention

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Swine Influenza at Health Care Workers in the University Hospital Center Ibn Rochd

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Introduction Health care workers are greatly exposed to swine influenza because of the substantial contact with contaminated patients. The aim of our work is to detail the experience of the CHU Ibn Rochd in support of swine influenza among hospital staff. Instruments and methods It is a retrospective survey that collected data from the consultation 's register of the swine influenza during a period from 09 November to 29 December 2009. Results 210 hospital staffs were consulted during this period. Physicians represent 41.9% of consultants. Nurses and Technicians (laboratories and radiological services) represent 31.9%. 10% concerns services officers. 8.09% concerns students and administrative employees. Staff of medicine services is the most affected with a rate of 40.47%, besides there are intensive care unit which represent (8.09%). Antiviral therapy was prescribed for 46 people (21.9%). The number of days absence were 423 days. In terms of enterprising training act and information, 15 sessions of awareness were conducted during this period, involving almost the entire staff of CHU. Discussion The affecting rate by the virus of swine influenza in the hospital of the CHU of Casablanca was 5.73%. Physicians are the most affected. Conclusion it is very important to improve the vigilance within the structures of care and take the necessary sanitary measures.

Keywords: Swine influenza ,health care workers

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The Importance of Speciation for the Evaluation of Occupational Exposure to Arsenic

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This work describes the different methodologies for the arsenic speciation for the evaluation of arsenic occupational exposure. The identification of the specific arsenic species plays an important role in the interpretation of effects and biological mechanisms of action in humans. Arsenic is a ubiquitous element in the environment, it occurs in both organic and inorganic forms; it can be found in food, water, soil and airborne particles. The Arsenic exposure can occur from natural and anthropogenic sources, especially from some activities such as mining, fossil fuel, pesticides use, and wood preservative use. One of the most widely used wood preservatives in Uruguay is CCA (Chromium, Copper, and Arsenic), especially in outdoor wood treatment. For that reason, one of most important aspect is the prevention and safety management in industrial activities, waste disposal and burning of wood treated with arsenic. Most organic arsenic species present in seafood, are not very toxic, while the inorganic species are highly toxic and responsible for developing serious health effects. This work describes the different strategies for the arsenic speciation for the evaluation for arsenic occupational exposure. Developing analytical methodologies for determination of different species present in urine is necessary for evaluation of the Arsenic exposure. When we considerate the total urinary Arsenic, is not possible to distinguish between dietary arsenic and occupational environmental Arsenic. Considering all the environmental variables and toxic Arsenic chemical species, a specific biomarker for individual assessment of exposure to Arsenic is required . The total Arsenic in urine reflects exposure to both organic species and inorganic arsenic species (highest toxicity). In conclusion, developing analytical methodologies is an important step in the evaluation of the occupational Arsenic exposure risks.

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Ergonomic Workplace Design for Prevention of Health Damages Caused by Monotonous Work

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Introduction: Different toolkits for prevention of MSDs in the frames of the TIAM (Toolkits for prevention of work-related musculoskeletal disorders base on a collaborative platform, INTERREG IVC project) were investigated for suitability of analysing the Estonian occupational activities: NIOSH, Fonti: Finnish+Iso+Scandianavian, Fonti: Solo Finnish (ARBAN), LUBA, MAC, ACGIH Hand Activity Level (HAL), Fonti: Finnish+Hedge+Ontario; RULA , OCRA etc. (1,2). AIM: to carry out risk assessment of monotonous work in Estonian enterprises using the aforementioned methods. Material and Method: 4 different companies with 120 workers (mostly salesmen) were investigated in Tallinn, the capital of Estonia. OCRA method (1) was chosen as the best for the risk assessment of monotonous work for salesmen. Results: The loads, the number of repetitive work, the angles of the movement of the worker's body, the time of actions etc. were measured. The supplementary hazards like low room temperature, insufficient lighting, noise etc. were taken into account. MSD prevention possibilities: Training system on prevention of MSDs was worked out and training for the staff of the companies was organised. The propositions for redesign of the workplace,



the measurement and reduction of loads and the number of repetitive work actions during the shift were made on the basis of the investigation. References 1. Occhipinti, E., Colombini, D. 2007. Updating reference values and predictive models of the OCRA method in the risk assessment of work-related musculoskeletal disorders of the upper limbs. *Ergonomics*, 50(11):1727-1739. 2. Bao, S., Howard, N., Spielholz, P., Silverstein, B. 2006. Quantifying repetitive hand activity for epidemiological research on musculoskeletal disorders- part II: comparison of different methods of measuring force level and repetitiveness. *Ergonomics*, 49(4):381-92.

Keywords: Ergodesign, msd, workplace, risk assessment

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When Workers Analyze their Own Jobs

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Collective Analysis of Work (CAW) is a method of analyzing work in which the workers themselves analyze their own jobs in group meetings. The analysis begins with a description of the job in response to the question "what do you do at work?" which is the guiding question for the whole process. The larger objective is that all the workers understand the jobs that are being analyzed, launching a collective dialogue where all can participate, comparing and interpreting their experiences. In all the situations in which it has been applied in Brazil, CAW has revealed itself as a potent method of knowledge and understanding of work for the very participants of the meetings and also for those who are interested in the jobs in question since all the analyzes have been published, largely in the form of books (about airplane pilots, operators in a petroleum refinery, sugar-cane cutters, lobster fishers and teachers) destined for the lay public. In detecting the negative aspects of a determined job, CAW can be an important ally in actions to improve working conditions and, consequently, the health and safety of workers. For the participants to feel comfortable about talking about their jobs, however, the method requires some precautions: the participants need to be volunteers and have their anonymity guaranteed; the meetings need to be held outside the place of work; and the participant researchers need to have experience in the analysis of work as well as a genuine interest and openness to listen to the workers. In our experience, collaboration with the trade unions has been decisive in achieving successful meetings and analyzes.

Keywords: Collective, analysis of work

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Innovative Design of Protection Measures for Supporting SMEs

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Many agricultural self-propelled machines present roll-over risk without fitting a ROPS. This problem has been aroused by the Italian occupational safety authority (INAIL ex ISPESL) and, nowadays, a specific standard EN ISO 16231 is being developed concerning roll over risk assessment and technical measures to reduce it. In the mean time, INAIL ex ISPESL during its market surveillance activity had to deal with several machines which were not in compliance with health and safety requirements 3.4.3 roll-over and tip-over of annex I of machinery directive 2006/42/EC. The main typologies of the encountered machines were grape harvester, hazelnut harvester, liquid fertilizer sprayers and hay rakes. In many of these cases the roll over risk was not deeply investigated by the manufacturer even if it was accounted for. The main reason of not installing a proper roll over protective structure (ROPS) lied down on the lack of technical information for its designing and testing. Thus, INAIL ex ISPESL developed a specific investigation in order to verify if standards used for different kind of machines (e.g. forestry self propelled machines, earth moving machines and tractors) but technically similar with reference to roll over risk could be applied also for agricultural self propelled machines. The results of this investigation revealed that OECD code 4 used for agricultural and forestry tractors and OECD code 8 used for tracklaying agricultural and forestry tractors could be successfully used. Hence, with the support of Italian testing centre in Cadriano and Treviglio, the manufacturers of the machines under investigation developed experimental tests on the after market ROPS realized based on the aforementioned OECD codes. Moreover, the results of the experimental tests developed on these machines revealed that, even if the main frame of the machine was not designed to fit a ROPS, it was able to sustain the forces/energies required by the applied OECD code.

Keywords: Agricultural self-propelled machines, rops

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Biosafety Competence: Accredited Training Provision by the University of Edinburgh

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The University of Edinburgh's Biosafety Training Institute (BTI) is a sustainable legacy of the Scottish Funding Council's project to co-ordinate and enhance safety and health within Scotland's Universities and Colleges – the CHASTE Project. BTI has been developed by the University as a centre of excellence, delivering accredited biosafety training courses to a specialist audience. Initially targeted at biological workers in Universities, this training is available to anyone with an interest in health and safety within a biological environment. The UK Institute of Safety in Technology and Research (ISTR) has accredited the course materials delivered by the BTI. Once candidates have completed all of the units by class study or via e-learning, and passed the assessment; they can become registered with ISTR as Level One practitioners, if they have relevant practical experience. The course complies with the European CEN Workshop Agreement, under the auspices of the European Biosafety Association (EBSA), fulfilling its requirements for the training of individuals to become Level One biosafety practitioners, with a view to some candidates progressing to become Level Two biosafety professionals. BTI offers opportunities for consolidation and expansion of knowledge and skills, particularly within research and education institutions, for international partner institutions to cascade training within their own geographical areas, and for cross fertilisation of knowledge, ideas and experience. The poster display will provide all relevant



detail regarding this training provision, to anyone who is interested, whether they are potential international partners or individual candidates. BTI is part of the University's Internationalisation Mission, and seeks to promote the ethos of matching biosafety competence to the rapid pace of development in this area of science and technology, in collaboration with international partners. The University of Edinburgh cordially invites potential international partners to make contact with the Institute to explore the formation and development of strategic alliances.

Keywords: Biosafety training institute

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Study of Activities of Postmen Motorcyclists Focused in Motorcycle Accidents

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This article presents the steps of transforming the material and organizational aspects in the work environment, beyond the social order for the proper development of activities in the Household Distribution Center, the Postmen Motorcyclists. The demand was made by managers from the accident records, establishing the need to identify the working conditions of postmen motorcyclists, regarding motorcycle accidents occurring on public roads. Method: Based on the characteristics of the steps required by the methodology, was necessary to realize internal and external observations, with the aim of identifying the dynamics of the accident and the collective dimensions of activity which requires a strategy for monitoring the work on the street. For this it was necessary that we make systematic observations on the street, which represented only a sample of the work of distributing objects by postmen. Result: The ergonomic analysis of postmen bikers showed that the risk of accidents is a complex phenomenon, with the causes for its occurrence potentiate each other, characterizing the complexity. Conclusion: The phenomenon of traffic accidents involving motorcyclists are not just related to driving behavior. He has to do also with the environment and with the rules imposed by bosses and customers. The planning of preventive actions need to consider, then, all actors and factors that influence risky behavior of motorcyclists. Shares more punctual, reductively aimed at changing the behavior of riders, probably will have little success.

Keywords: Ergonomics, motorcycle accidents, postmen

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Work Environment Conditions and Consequencesto Worker's Health: The Case of Companies in the Food and Beverage Sector

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In the scope of the actions of the Social Service of Industry in the State of Bahia (SESI-Bahia) in partnership with SESI National Department (SESI-ND) a study was developed, with the following aims: describe the working conditions in micro and small enterprises of food and beverage sector and evaluate the health and work ability of a group of assessed workers. Social insurance data and records of periodic medical examinations conducted by the company were analyzed. A specific form was designed to register the observation of working conditions. It was used in order to apply the Rapid Ergonomic Diagnosis. Also, surveys were applied, the Work Ability Index (WAI) and the Nottingham Health Profile (NHP). The following risk factors and situations that cause discomfort were observed: manual handling of loads, upstanding and in series work (production line); improvised benches, hazardous facilities, tools in bad state of conservation and poor maintenance of machinery. Most workers were men, aged approximately 32 years. The average score found for the WAI was 43 (SD = 4.25), indicating good ability to work. Musculoskeletal diseases were the most frequently diagnosed and most mentioned symptoms. Low back pain were amongst the main specific diagnoses among occupational and non-occupational social insurance benefits in the studied period and it could be explained by the upstanding work in series and manual handling of loads. According to NHP, the general health of employees can be considered good. Based on these results, input is provided to policies which support small companies regarding the compliance of relevant legislation and the promoting of worker's health in the industrial sector. It will also be possible to offer companies, alternatives to change the diagnosed situation taking as basis the Ergonomic Checkpoints of ILO.

Keywords: Ergonomics, work conditions, food and beverage industry

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Morbidity Absenteeism as Criteria of Difficulty of Work

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Introduction. Morbidity absenteeism (exemption from work, sick leave, temporary incapability for work, absence from work because of an illness or injury) is very complex and current medical, socio-medical, psychological and economical phenomenon. Under the term sick leave we imply every abnormal or sick condition of the organism in which an employee is incapable for work on his working place. AIM. The aim of this paper is to examine the connection between the relevant facts and the absenteeism. METHODS OF WORK. Epidemiological-retrospective. The studied group consists of 231 employees of the Health Care Center in Bijelo Polje. The analyzed period is from 01.01.2009.-31.12.2009. Data sources are reports of temporary incapability for work, the files about absenteeism, and personal data of the health Care center. THE RESULTS OF WORK. Women are more often absent from work than men. The most frequent cause for absence from work are: pregnancy illnesses with 17,32%, child care 16,40%, mental disease 11,35%, Because of sick level 5,91 employees per day are absent from work. The rate of going to sick leave is increased (52,83%). Per one sick leave lost working days are 29. The sick leave per employee is 15 days.. CONCLUSION. Occupation does not influence the absence from work. Unqualified and qualified workers are less absent from work than the health-care and administrative employees.

Keywords: Absenteeism, occupation, work



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Work Conditions and Home-Work Space in Artisanal and Familiar Micro Enterprises

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The study aimed to identify the artisans work conditions of 47 small family micro-enterprises engaged in the manufacture of iron and wood articles. The analysis considered the home workspace as interest factor in these production units. It was made a field research from a qualitative and descriptive level. In a first phase, to collect data, it was used a non-participant observation. In the second phase, it was applied an in-depth interview and a guide for observing the conditions and working environment. The results showed that the workplaces are located at home or joint to it. The workspace is very important in this article as a factor at production units. The work spaces are small, poorly ventilated and poor lighting. Some tasks are carried out at open spaces with sun exposure. There is some division of labor, women and children do the sanding, painting, sealing, finishing and sale. The men do the design, cutting, fabrication and assembly. There is not employment contract or social protection cobertura (health insurance), and the pay by work done. In general, the workers are exposed to ergonomical incompatibility and risk factors of physical, chemical, biological and psychosocial factors. It was found that the artisans are aware of the risks but there are not prevention measures. It was reported high morbidity by accidents from cuts, amputations, falls, and upper respiratory problems and contact dermatitis. At the end of the study, the artisans showed interest for learning about the prevention of occupational risks and improve their work conditions. It was designed participation strategies to identify and prevent risk at artisanal enterprises.

Keywords: Artisanal work, small family micro-enterprises, work conditions, risk factors, home workspace

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Effects of a Workers' Oral Health Program on Caries Reduction

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The Social Service for Industry (SESI) is a national institution that offers occupational health and safety services for industries. Since 2003, SESI is implementing an Oral Health Program for Enterprises (PSBE) based on a range of health care provision from prevention, clinical and surgical treatments, to dental specialty referral. Workers from covered industries have free access to all these services. This study is aimed at to evaluate the PSBE effect on dental caries reduction. The PSBE group is composed by 780 (50.9%) workers and the control group comprises 753 (49.1%) covered by another oral health program based only in spontaneous demands for clinical treatment. Study subjects have electronic records from at least two oral health visits occurred between 1/1/2003 and 30/12/2006. Unconditional logistic



regression for repeated measures was used to estimate the association between being covered by the PSBE and caries occurrence, extension, and severity. Although over the four years follow-up caries prevalence rose 0.2% in the intervention group, this change was lower than the 15.3 increment in the referent group. In each study year, prevalence of tooth decay was lower under PSBE when compared to the control group: in 2004 (Prevalence Ratio= 0.59; 95%Confidence Interval: 0.41-0.85); in 2005 (PR= 0.49; 95%CI: 0.38-0.64), and in 2006 (PR= 0,55; 95%CI: 0.43-0.72). Protective effect of the intervention was also found for caries (RRadjusted=0.68; 95%CI: 0.56-0.82), caries extension (RRadjusted=0.57; 95%CI: 0.45-0.83) and severity (RRadjusted=0.65; 95%IC: 0.52-0.81). Adjustment variables were for age, sex, income, education, oral hygiene, and fluoride treatment. No evidences of effect modification were found. These results point out the relevance of prevention programs to reduce dental caries among industrial workers in Brazil , which can potentially impact in the number of work days lost and productivity.

Keywords: Cavities, oral health program, evaluation

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The Development of Risk Perception Risk for Young Workers in an Online Course

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The development of risk perception is a tool that is important when think about a culture of accident prevention. The severity evaluation and characteristics that people make about a risk is subjective. That is why the importance to present best practices related to prevent possible accidents and occupational diseases. Many young people start work to help the household budget. According to the 2000 census, about 9 million adolescents aged 15 to 19 years were included in the labor market. The early work usually promotes negative effects on physical and educational development, as the no participating in extracurricular and social activities. This is occurs a delay in school and isolation among family. To minimize these problems, we developed the distance learning course Health and Safety for Young Workers - Know to prevent! The course objective is to provide young workers a safety culture learning more about safety and health at work. The course is divided into modules: Welcome to the course, learning the steps of the course, the main definitions of health and safety at work, the Brazilian law on safety and health, the principals risks that young workers are exposed, curious about the factors that put young people at risk exposure and actions to protect themselves. It was created five moments for a partial assessment, called passage exercises, with questions that help to measure the knowledge during the course.

Keywords: Risk perception, young people, online course

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Improving Workplace Health in Singapore

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Purpose and Methods To describe Singapore's experience with the compulsory medical examinations for workers exposed to specific health hazards from 1985 to 2009. Results Since 1985, Singapore has a statutory requirement for pre-employment and periodic medical examinations in place for factory workers exposed to specific health hazards to ensure that they are fit to work and continue exposure to these hazards. Designated Factory Doctors (DFDs) who have undergone a course of training in occupational health and are registered with the Ministry of Manpower (MOM) perform these examinations and notify cases with abnormal results for further investigation. This early intervention ensures that the work environment is controlled and further cases of occupational disease prevented. The types of medical examinations are reviewed periodically to ensure relevance and effectiveness. To date, almost 700 doctors have been trained. Biological exposure limits were reviewed and lowered and this resulted in improved control of such hazards in industry. Limitations of biological monitoring include confounding of results by bioaccumulation of heavy metals such as arsenic and mercury, incorrect sampling containers, incorrect sample collection timing and contamination from the surrounding skin, Small and medium enterprises also need to be educated on timing of tests when sending staff for examinations. These could be obviated by training DFDs and their staff on techniques to reduce such inaccuracies. Laboratories performing such tests should be encouraged to participate in proficiency testing schemes to ensure quality of tests and results generated. Review and analysis of the medical examination results allows the Ministry to identify poorly performing industry sectors for control of the work environment through targeted intervention programmes. These Regulations are being updated and coverage expanded to cover all workplaces by September 2011. An electronic platform for online submissions is being developed and expected to be ready by the end of 2011

Keywords: Biological monitoring, statutory medical examinations, electronic submission, hazards, chemicals, noise, occupational disease

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Updates on Workplace Health in Singapore

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Purpose and methods To describe developments in the workplace health landscape in Singapore. Results In 2006, Singapore enacted the Workplace Safety and Health Act the main legislative framework for workplace safety and health (WSH). As part of this new performance based framework, stakeholders were required to proactively identify risks at source, mitigate WSH risks and report occupational diseases (ODs) and work-related injuries. Although workplace safety outcomes have improved significantly since then, there is scope for improvement in the management of workplace health issues. In 2010, the Workplace Health strategy was launched to focus attention on health risks and ODs. Although the incidence of ODs appeared low, the low numbers were likely due to under-reporting and general lack of awareness on occupational diseases. Given the diverse nature of health hazards, a differentiated approach to manage workplace health issues was taken. For noise, asbestos, chemicals and confined space hazards, a targeted intervention approach was taken. The elements in this approach include developing standards, compliance assistance, enhancing technical capabilities, training and enforcement. On the



other hand, a promotional approach was taken for workplace hazards that may contribute to the development of ODs. Research and standards development, monitoring and intelligence gathering, and promotion of good practices support these approaches. To expand the scope of occupational health to include psychosocial and lifestyle factors, efforts are being taken to integrate management of general with occupational health in the workplace. Initiatives include the development of a reference guide on occupational diseases, review of relevant legislation, and the setting up of a research institute.

Keywords: Workplace safety and health, national strategy, occupational disease, hazards, under-reporting

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Evaluation of Brazilian Benzene Agreement and Legislation

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In 1994, under strong pressure from workers, the Brazilian legislation on benzene was modified by a tripartite group, which approved an agreement and a proposed law. The main points were: prohibition or restriction of benzene use; compulsory registration of companies using benzene; establishment of a “program for preventing occupational exposure to benzene”; adoption of concept of Technological Reference Value (TRV) which means: concentration of benzene in air considered feasible from a technological standpoint; creation of the National Permanent Commission of Benzene, a tripartite commission that monitors compliance with the agreement and legislation of benzene, and the Group of Workers from Benzene, which is comprised of employees of companies that receive special training and must follow the companies actions related to prevention of occupational exposure to benzene.

TRV must be considered as reference for programs of continuous improvement of environmental conditions in the workplace. Compliance with the TRV is mandatory, but does not exclude the risk to health.

Another important point was the recognition of benzene as a carcinogen for which no exposure is allowed.

These agreement and law are implemented by multidisciplinary and inter-institutional committees that have education programs for different groups involved, carries out inspections at workplaces and negotiations on the emissions control benchmarks practices.

In practice companies have advanced in utilization of modern hermetic or least emission equipments, maintenance procedures, workers' right to know etc, but now there's an impasse. Companies did not acknowledge the causal link between disease and exposure, the environmental emission and individual exposition, because it implies an increase of fees to be paid to social security, the difficulties in the processes of accreditation, and judicial accountability

Currently a tripartite negotiation by consensus does not respond appropriately. Now it's necessary a government policy position and greater pressure from workers.

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Squat or Lean: Push Strategies Minimizing Effort for Work Tasks

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Purpose: To compare the success rates & perceived effort for two different push techniques in a task that simulated lateral transfer of a patient in supine on a friction reducing device. **Relevance:** Strategies are needed to optimise capacity to successfully push the variety of loads with less effort. Manual handling training traditionally uses advice to maintain a straight back, bent knees and wide base, yet with the application of equipment & technology many of these principles are untested and confounded by their origin in lifting studies. **Methods:** Thirteen subjects completed sets of a lateral patient transfers, using their natural technique, then a randomised cross over design for the two remaining techniques. Five to seven minutes training was allowed for each strategy. Perceived effort was reported on a 10 cm visual analog scale (VAS). **Results:** For the 14 kg load in the squat technique 77% of participants failed to achieve the target on 1 or more trials, but for the RockBack only 7% failed. Additionally the new technique was associated with significantly lower perceived effort ($P < 0.001$) than maintaining straight back & bending the knees. Squat required significantly greater perceived effort ($P < 0.001$), and may not be advantageous in occupational settings. Instructions regarding applications of straight back and bend the knees approach is questioned for pushing tasks at this height. **Conclusions:** For pushing, the spontaneous & RockBack strategies were perceived to require less effort than the more conventional straight back and bent knees postures. Additionally in simulated blind push conditions technique varied perception of effort, with higher perceived exertion scores for squat technique and significantly more fail to reach goal.

Keywords: Manual handling, pushing, perceived exertion

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Squatting, Rocking or Leaning: PUSH Strategies Minimizing Perceived Exertion

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Purpose: To compare the success rates and perceived effort for two different push techniques in a task that simulated lateral transfer of a patient in supine on a friction reducing device. **Relevance:** Staff in nursing and care facilities repeatedly push high loads, eg when using friction reducing devices. Strategies are needed to optimise capacity to successfully push the variety of loads with less effort. Manual handling training traditionally uses advice to maintain a straight back, bent knees and wide base, yet with the application of equipment & technology many of these principles are untested and confounded by their origin in lifting studies. **Methods:** Thirteen subjects completed sets of a lateral patient transfers, using their natural technique, then a randomised cross over design for the two remaining techniques. Five to seven minutes training was allowed for each strategy. Perceived effort was reported



on a 10 cm visual analog scale (VAS). Analysis: Successes and failures for performing the push in each strategy were recorded for descriptive statistics. Perceived effort on the VAS scale was analysed with one-way analysis of variance and Tukey's post hoc test, with alpha $P < 0.05$. Results: For the 6 kg load all trials were successful. For the 10 kg load in the squat push, 46% of participants failed to complete the 100 mm push in 1 or more trials, but for the RockBack technique 100% were successful. Mean effort for squat technique was 4.6 (1.5) and for RockBack technique was 3.1 (0.9). For the 14 kg load in the squat technique 85% of participants failed to achieve the target on 1 or more trials, but for the RockBack technique only 7% failed. Mean effort for squat was 7.6 (1.4) and then for RockBack technique was 5.9 (1.9). The RockBack technique was associated with significantly lower perceived effort ($P < 0.013$) than the squat technique. ANOVA showed that the squat required significantly greater perceived effort ($P < 0.001$), and may not be advantageous in occupational settings.

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Concept of an Outpatient Clinic of the Work-Related Diseases - Medcover Case Study

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The study was aimed at choosing up-to-date solutions supporting employers in their attempt for securing a healthy workplace, exemplified by the activities of Medcover – a leading supplier of medical services in Poland and Official Partner of EU-OSHA.

The study describes the Outpatient Clinic of the Work Related Diseases in Medcover within the concept called „clinic inside clinic”. It presents both organizational and substantial innovatory solutions. Benefits and threats (for both employers and employees) related to the performance of such an institution have been presented.

Predominant threats in modern work environment (in times of the knowledge based economy) and contemporary trends in employee care have been summarized.

Such factors as: an increasing number of diagnosed work related diseases, a changing work market, trends in the field of health and safety, education and business have been included in the holistic model of management and performance of the dispensary.

Statutory activities of the Outpatient Clinic have been based on complex training for medical staff, data from electronic medical record and algorithms of diagnosis and medical procedure, training for employers, employees and external experts, permanent monitoring and updating medical data, co-operation with reference institutions in the field of the work related diseases.

Statistical data (from the data base concerning people from companies entrusted to the Medcover's care and from the Internet research concerning people employed by the Polish companies) and their analysis, in comparison to the European and global data have been analyzed.

The activities are accomplished in Poland, by Medcover, for the companies located in Poland, although they are often international corporations. Medcover has also taken into consideration the local legal requirements and health related needs of the population.



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The Medical Team Confronted to the Risks of Error

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The care, as the education, was already for Freud one of these impossible trades: "I had made mine very early the witty remark which wants that there are three impossible trades: to educate, to cure, to govern "(Freud, 1925). It is without doubt because it is closely related to the concept of risk, in particular with the risk of error, that this trade is "impossible" and that it requires that we get down to it in team. If the team is a group, it can be simply defined like a whole of people linked in a common task. But how can one define this task collectively when the medical practice confronts the professionals at the important limits and risks? Which role the action group can it play in particularly difficult contexts of work where the error in the care can be quickly fatal to the patient? How does one manage collectively the medical error and death? The team joins together persons in an intersubjective unit (R. Kaës, 1983) where things cannot be always said, where the installed strategies installation must be operative to face the extreme situations and to maintain an ideal of cohesion. But the team is also a power issue, a set competences, a place of relationship between generations, the team has a history (Billé, 2007) which can shake the function containing of the caregivers' group to which belongs looking after it. To try to answer these questions, we started from a double of experiment: that of an investigation in progress near looking after intensive care units and that of animation of group with professionals in geriatrics. In these two contexts of work, the medical team must be met with variable urgently degrees, the risk of died of a patient. We will show then how the idealized team can become a kind of illusion in this death context. The ultimate goal is to anticipate burnout thanks to help the team could give.

Keywords: Occupational hazards, team work, management of death

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Assessment of Respirator Filters Collection Efficiency for Capture of Hexavalent Chromium Mists

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Personal protective equipment (PPE) must be considered as last approach or complementary method for control of exposure but it is using in wide range. Filter of respiratory protection mask has different response for each pollutant and conditions such as different range of temperature, relative humidity and amount of interance pollutant concentration. In this study the Cr+6 mist generated by a Chromium electroplating bath and conducted to the filter testing tunnel and sampling performed upstream and downstream of respiratory filters. Effects of three variables "temperature, relative humidity and Cr+6 mist concentration" on collection efficiency of respiratory filter has investigated. All of testing stage

was carried out on MSA respirator filters. The sampling method was NIOSH 7600, samples collected from upstream of filters analyzed with spectrophotometer VIS in 540nm wave length and samples collected from downstream of respiratory mask in testing tunnel analyzed with ICP method. According to the result, the effect of relative humidity on collection efficiency was significant (P -value < 0.001) and comparison of means in two groups indicated that the relationship of relative humidity and collection efficiency was reversed and increase of relative humidity made decrease in collection efficiency. The collection efficiency in dry air has better responses than humid air. Concentration of mist has significant effect on collection efficiency (P -value < 0.001) and increase of chromium mist concentration can cause increase in penetration of mist to filter media and then make decrease collection efficiency. Result also shown effect of temperature by interaction with other variables on collection efficiency was significant (P -value < 0.001). In addition respirator filter has different responses in different climate condition and pollutant concentration.

Keywords: Cr⁺⁶ mist, filter, collection efficiency, temperature, humidity, concentration

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Health Problems were Detected in Cement Factory Workers

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Objective: It is to analyse the medical records to ascertain the health problems observed in cement factory workers. **Methods:** It is a descriptive record research. It has held in Cimpor Yibitaş Yozgat cement factory on March 2009. The whole record of workers (N=184) in factory was used in this research. The data were accumulated with an adjusted file format (prepared). 20-30% of records has contained too much or in part missing data. **Findings:** Ninety-five point one percent of workers who joined the research was male, 96% of them was married, 67.8 % of them was educated from high school and above, 62.0% of them age < 40 , 26.5% of them has worked cement production process and 48.2% of them has worked office jobs. 21.8% of employees had high cholesterol (≥ 240 mg / dL), 6.6% had high fasting blood glucose (FBG ≥ 110 mg/dL), and 4.1% had lower hemoglobin (< 13 g/dL). These health problems have not been found statistically different according to their education, age group and working area ($p > 0.05$). 27.8% of workers had hearing problems as a result of hearing test ($n=180$). 32.1% of workers -55.8% of employees of cement production process- had visual problems as a result of vision test ($n=159$) ($X^2=21.5$ $p < 0.001$). 17.6% of workers - 30.0% of employees of cement production process that 2 times greater than (12.2 to 13.9%) employees of other areas was- had abnormal lungs as a result of lung capacity test ($x^2 = 6.8$, $p < 0.05$). **Conclusion:** Nearly one-quarter of the workers' records in medical unit of factory was missing. Proportion of the people had high cholesterol and fasting blood glucose level was lower than from society.

Keywords: Cement factory, occupational health, health problems

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Global Analysis of Ergonomic Working Conditions in the Production Area of a Company in the Plastic Industry

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SESI Regional Department of Bahia assists businesses and employees of industry with Ergonomics products, seeking to provide, in partnership with industry, better working conditions. The aim of this study is to present results of a global analysis of ergonomic working conditions carried out in a factory of the plastic industry, located in Feira de Santana, state of Bahia. The investigation was carried out using the methodology of hybrid ergonomics, which enabled to identify the main ergonomic risks to which workers of mixing and injection areas were exposed, seeking to understand the potential causes of complaints and absenteeism related to musculoskeletal disorders. Besides the demand for ergonomic suitability of working conditions for this group of workers, the study emphasized issues related to physical load (effort and posture) and some points of the work organization, trying to help in implementing improvements. It was highlighted that working conditions demand from workers some postures in extreme angles, physical exertion determined by the handling and transport of loads, repeatability, and predominance of work in standing posture with work pace determined by production management. The result of this study showed that physical loads associated to extreme postures in intense work pace, besides the breaks which they do not promote physiological recovery, have a direct impact on the appearing of complaints related to workers musculoskeletal disorders in the studied areas. It was observed that the body is used as a work tool associated to the existence of supports that do not favor the comfort and safety, to meet production goals established by production management. Based on recommendations of the analysis performed by technical staff of SESI Bahia, changes were implemented, being possible to identify improvements related to the conditions of comfort, safety and efficient performance in production work and the satisfaction felt by the workers.

Keywords: Ergonomics, work conditions, plastic industry

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Health Risks that Nursing Profession Brought to Healthy Hospital Environment and Occupational Health Services

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Nurses are element of a profession that has a need in a global scale and becoming indispensable. Nurses giving 7/24 services to healthy or sick individuals; help maintain health of individual, family and society; prevent the diseases, rehabilitate the patients in hospitals, community organizations, workplaces and schools. Nurses as in all other professions in health care face with a wide chain of danger while fulfilling their jobs and these hazards leave the nurses with many health problems. OSHA's classified these potential risks in hospitals



under the headings of biological, chemical, psychological, physical, environmental and mechanical/biomechanics. Nurses face with some specific business risks according to OSHA. By taking an attention to the classification of OSHA it is appearing that many of the risks of business could be to prevent by providing a healthy environment in the hospital. A suitable architectural design for the hospital environment is an important step to a healthy working environment. Hospital architecture design is a special issue and it does not concern the architects, engineers and people fulfilling the instalment in the hospital but also it concerns people who will be using the space. For this reason, it is required to take the health care workers' opinion in preparation of architectural projects. Besides creating a healthy hospital environment in order to reduce the occupational risks for the nurses; an occupational health services where many disciplines work in cooperation in order to diagnose, threat and prevent the work-related illness and injuries and other health problems must be served. Occupational health services are generally served by workplace doctor and occupational health nurse. When evaluating the services for employees; it is seemed that health sector employees are being neglected. It is thought that health workers and nurses occupying the great majority of this group have rights to use these services as others.

Keywords: Occupational environment, hospital design, nurse, occupational health services, occupational health nurse

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Health Based OEL's of Chemicals in Poland in 2010

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Objective: In 2010 The Group of Experts for Chemical Agents, worked in Nofer Institute of Occupational Medicine in Poland proposed health based Maximum Admissible Concentrations values (MAC) for 12 new dangerous chemical agents in the working environment: benzoil chloride [98-88-4], citral [5392-40-5], 1,2-dibromoethane [106-93-4], 1,2-epoxypropane [75-56-9], bis(chloromethyl) ether [542-88-1], bis(2-methoxyethyl) ether [111-96-6], cadmium [7440-43-9] and its inorganic compounds, acrylic acid [79-10-7], manganese [7439-96-5], tetramethylsuccinonitrile, 1,1,2 trichloroethane [79-00-5], 4,4'-tiobis(6-tert-butyl-3-methylphenole) [96-69-5]. Health based values, are derived from the most recent scientific data available and taking into account the availability of measurement techniques. **Method:** The MAC values in Poland have been set as follows: GECA within the Interdepartmental Commission for Maximum Admissible Concentrations performs a critical evaluation of the documentation for the MACs prepared by individual members of the team. The experts prepare health-based documentation for recommended exposure limits along with analytical procedures, recommendations on pre-employment and periodical medical examinations and contraindications to exposure. The experts review all available data and information: experimental animal and human data, structure activity relationship, occupational (human) experience and select most relevant study and dose descriptor. In practice, the scientific data base to set an OEL is not ideal. GECA deals with this by using uncertainty factors. Those proposals are presented during a session of the Commission including representatives of the ministries of health and labor, and representatives of industry and of scientific institutions. **Results:** Polish OELs are legally binding administrative norms. To 2010 there are 518 health based MAC values for chemical substances in Poland



regulation. Conclusions: The specified MAC values constitute the guidelines for the designers of new and updated technologies and products, and the criteria for the evaluation of working conditions.

Keywords: Oel, mac, working conditions

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National Poison Information Centre in Poland - 40 Years of Experience

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National Poison Information Centre (NPIC) was established in Poland in 1967 by the Ministry of Health. The Centre prepares and disseminates information materials helpful in treating patients poisoned with toxic agents; those materials are also helpful in preventing poisonings in the communal, municipal and industrial environments. The tasks of NPIC: to provide an information service for: medical practitioners, chemical safety services, work safety and hygiene units, sanitary epidemiological stations on identification of chemical substances, their toxic effects, MAC values on work places, first aid, and treatment of poisoning cases; to make a computerized database of common chemical substances (such as medicines, chemicals used by industry, pesticides, household products) containing information on chemical composition, toxicity, MAC values, first aid and treatment of poisonings and collecting information about new chemicals which are on the Polish market; to prepare and edit information materials such as posters, brochures, periodical books etc. to prevent poisonings. The staff of NPIC runs phone information service to medical units, work safety and hygiene units, chemical safety from 8.00 a.m. to 4.00 p.m. From 4.00 p.m. to 8.00 a.m. the information is available from the physicians employed at the Acute Poisonings Department (APD). A records are made of all outgoing information, and collected by NPIC. The Centre performs an essential educational and training function in Poland in the field of poisonings problems. By making available its own information materials to regional toxicological centres, NPIC enables the operation of a uniform nationwide toxicological information system in Poland.

Keywords: Toxicological information service

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Managing Indicators of Work-Related Absence in Poland

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In Poland sickness benefits are the second top expenditure item of Social Insurance Fund, following old-age and disability benefits. In case of workers a rule is applied that in the initial 33 days of incapacity for work they receive regular salaries. Starting from 34th day of incapacity workers become entitled to the benefit financed from the Social Insurance Fund.



In 2009 the number of days due to sick absenteeism amounted to 205 million, of which the number of days due to sick absenteeism financed by employers – 79 million, whereas sick absenteeism days financed with Social Insurance Fund – 126 million. According to the Eurostat estimations 20% of sick absence is caused by working conditions. In EU, in 2007 5.3% of employees suffered from health problems related to work, and 62% of them stayed on sick leave. According to the Polish Central Statistical Office every fourth employee suffers from work – related health problems. Recent estimates have put the figure of the socio-economic costs of workplace absence (including sickness absence insurance, health care costs and early retirement costs) to account for between 2%-3% of total GDP. The poster will present indicators of work-related absence at the macro level in Poland collected by the Central Statistical Office, Nofer Institute of Occupational Medicine and Social Insurance Institution as well as tools developed to monitor work-related health problems at a company level. It will also present possibilities to manage and reduce work-related absence and their costs in enterprises. In particular the preliminary findings of projects aimed at determining: - what percentage of sick absence is caused by working conditions, - what are economic consequence of work-related sick absence for enterprises, - what are reasons and economic consequences of presence of sick employees at work will be presented.

Keywords: Sick absence, work-related absence, working conditions, costs

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Ergonomics as Basis for a Decision Support System in the Printing Industry

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This study shows the improvement on the management in a printing plant where five different newspapers are printed every night. This supposes a total of 400,000 daily copies for delivery in Spain and France. Furthermore, what we purchase often consists not only of the newspaper itself, but also of additional supplements, such as advertisement brochures, special offers or gift items, called as “supplements”. The operation of receiving newspapers in order to insert additional materials is referred to as “insertion”. The printing, and also the insertion, must be done in a very short period of time, once the daily copy is ready to be printed and before the trucks pick up the newspapers in order to deliver them to newsstands and bookstores. If the newspapers arrive later than the forecasted times, the printing plant company must pay a penalty to the newspaper company. Production processes must therefore be perfectly defined. Some manual operations are especially critical, especially when a newspaper should include supplements. On the other hand, production varies nightly, making it difficult to know beforehand what will be inserted into the next day’s paper. To minimize penalties, the printing plant developed a decision-making support system to determine the number of workers needed to insert supplements into the newspapers. These temporary workers may at times account for 60% of total plant production staff. The outcome of this study is an information system, which provides cost analysis and decision-making support for Closure. It allows the production manager to determine how many additional temporary workers to hire each night to prevent bottlenecks and accomplish the pre-fixed compromises. Ergonomics criteria has been integrated in the development of this tool of ongoing improvement, with the aim of raising plant performance via Lean Management principles.



Keywords: Ergonomics, lean management, productive process

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Assessing the Risks Associated with New Types of Work

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The world of work is changing. The percentage of people in new, atypical types of employment in Germany, including mobile employment adapted to the employee, working part-time in more than one company or different departments, and combining work life with voluntary activities, has increased over the last ten years. The rise in the number of people working in new types of employment has made the associated potential health risks an important issue for accident insurers. There is a growing need for new and innovative solutions to provide employees with a healthy working environment. Risk assessment is key to the creation of a safe workplace, and new types of employment must be considered as well. An initial project involved analysing the situation and identifying what insurers should do. The results showed that both companies and employees require assistance with the following issues: o What are the statutory obligations of employers and employees? o What are the legal considerations with regard to assessing risks posed by new forms of employment? o What can employers and employees do beyond their statutory obligations to minimise work pressures? o Motivate the parties involved o Enable employees to make their own assessment of the health issues and stresses o Outline support measures that can be used. Insurers are currently involved in a project to develop prototype products that assist employees and employers: o Providing employers with information to help them assess the risks employees face when they perform multiple functions or work away from the office. o Providing employees with the information needed to evaluate work-related demands and stresses (“my health”) if they have more than one job, are involved in voluntary activities or are subject to particular personal stresses in connection with work.

Keywords: Risk assessment, new types of work

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Oral Health in Actions of Occupational Safety and Health

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Thinking about the relationship between occupation and oral health, the demographic and epidemiological profile of Brazilian population has revealed the need of a closer look to adult populations exposed to risk factors in work environment. Due to this and thinking about the reality and experience of the Social Service of Industry (SESI), the non-inclusion of dentists among the staff of Occupational Safety and Health (OSH) is a gap in the activities developed and standardized by the OSH team. From the perspective of integration between areas,



SESI started to develop and implement oral health actions in order to structure the Model of Oral Health Care to Workers of Industry. This study aims to describe how this integration is being accomplished, through the presentation of a procedure of care in occupational dentistry able to diagnose, classify and monitor people and their work environment, identifying the main occupational risk factors related to the onset or worsening of oral health status of workers and the establishment of control measures and prevention. Within this procedure, some documents were created and standardized: a form of worker dental health, a guidebook for completing the form, a report template for the company and employee, a spreadsheet of hazards and damage to the area of dentistry, a model to certificate workers oral health, among other documents. From this, dentistry can be inserted into SESI Occupational Safety and Health, improving analysis and extent of OSH actions proposed to workers. Thus, SESI presents an innovative practice by introducing dentistry in this area and making an overall assessment of worker.

Keywords: Oral health, occupational safety and health, diseases

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The Path of Oral Health in Worker's Health at Social Service of Industry (SESI) Regional Department of Bahia

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Social Service of Industry (SESI) in Brazil aims to deliver services and provide solutions for the industrial sector in areas of occupational safety and health (OSH), leisure, education and social responsibility. This study aims to demonstrate the path of oral health in SESI Regional Department of Bahia until the inclusion of dentistry in the occupational healthcare. For this, a survey was conducted to measure the evolution of this area since 1998, when the establishment of a program took place, not only to healing actions but also the awareness of workers regarding the prevention of oral diseases. Initially, a program called "Program of Dental Prevention to the Company (PPOE)" with curative care and some occasional group activities was implemented. Then, the "Program of Oral Health in Company (PSBE)" was created, which evolved significantly in comparison to the first one because it had an attention model based on the principles of health surveillance and promotion of oral health, considering epidemiology as a fundamental instrument in diagnosis and monitoring of problems, assisting, planning and permitting the evaluation of implemented actions. Thus, the focus became the group of workers and their work environment. Through the obtained experience, SESI Bahia, in partnership with SESI National Department, conducted a project called "Integration of dentistry into SESI actions regarding OSH" that aimed the inclusion of dentistry in the field of worker's health, through dental examinations with focus on the workers, along with the "Program for the Prevention of Environmental Risks" (PPRA) and "Program of Medical Control of Occupational Health" (PCMSO), which are programs required by Brazilian legislation and executed by this institution. With this, it is possible to have an integrated view of health, because lesions in mouth are common and may occur as result of work.

Keywords: Oral health, occupational safety and health, programs of oral health

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The Oral Health of Workers of a Metallurgical Industry in Metropolitan Region of Salvador, Bahia Brazil

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The concern with the work environment and its relationship to workers oral health was rarely elected as a central aspect in the studies. Therefore, there is not much information linking occupational risk and oral health. The aim of this study is to characterize the oral health status in workers of a metallurgical industry with a program called “Oral Health Program in Company – PSBE”, in the metropolitan region of Salvador, Bahia, Brazil. It was developed from the data analysis provided by the epidemiological diagnosis carried out from 1999 to 2003. The eligible population corresponded to all workers who participated in the survey. Gender, age, occupation and oral health conditions were evaluated as condition of urgency, prevalence and severity of periodontal disease, prevalence and location of mucosal changes, use and necessity of prosthesis. Based on results, there was predominance of male workers, mean age of 39 years. In assessing the oral health status, few were presenting urgency condition; the lower anterior sextant was the most affected by dental calculus; the percentage of workers without mucosa change ranged from 70.6% to 90.7% over the years, being the palate the most commonly affected site. The most frequent was the red injury, which ranged from 5.8% to 17.5%. Regarding the use of prosthesis, 37.7% to 42.7% did not use in maxillary and 45.4% to 53% in mandible. From the results was concluded that the percentage of workers under urgency condition was low; periodontal disease remained stable; there was a reduction in the percentage of people with mucosal changes; and most of the workers did not have necessity of prosthesis. Thus, the importance of an oral health program in company can be noticed.

Keywords: Oral health program, occupational oral health, diseases

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Work-Related Oral Diseases in Industry

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Despite being studied for a long time, the workers' oral health area is still poorly explored and understood. It is recognized, however, that there are occupational exposure to various agents that can cause oral diseases in workers. In Brazil, the oral health in adult population is alarming, showing high level of cavities, significant number of missing teeth in young adults, great need for use of prosthesis and severe periodontal disease. Considering specifically the factory workers, it is possible to notice they are not only exposed to the common danger to the entire population, but also to the danger related to the work. Thus, this study aims to provide a summary of the main hazards/risk factors and damage related to the association between occupational exposure and oral disease, besides the potential preventive measures to minimize these problems. For this reason, an extensive review in national and international literature was conducted and a vast spreadsheet was constructed,



listing agents, hazards, diseases and preventive actions. Among them, it may be quoted among the chemical agents, exposure to of sulfuric or nitric acid mists in various industrial companies which can cause dental erosion and other diseases, and potential preventive actions as the constant consumption of water and educational actions. In its turn, the exposure to lead in the industry of battery may cause chronic ulcerative stomatitis, and the potential preventive action is the use of personal protective equipment. From this survey, we could confirm that there is need for dissemination of studies in this area of knowledge, so the dangers can be diagnosed and diseases minimized, thus, improving the quality of life to workers and having a good reason for the employers' awareness about the need of implementing prevention methods in their company.

Keywords: Oral health, occupational health, diseases

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Thoughts that Can Kill: Safety Culture Improvement Programme as a Proactive and Preventative Approach to Safety at Work – a Case Study from a UK Coal-Fired Power Plant

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In the Reason's (1998) Swiss cheese accident model organisational influences (culture) is an important element preventing / contributing to latent failures in safety management and consequent accidents. Culture is defined here as a set of beliefs, assumptions, perceptions and opinions, shared by a group of people in a work environment, and finding expression through behaviours and ways of working. These elements are affected by personal experiences and shaped by interpretations that are influenced by the language used. Research indicates that (a) type of language used determines cognitive processes, (b) positive reinforcement is more successful in driving desired behaviour than negative reinforcement, and (c) discussing reasons behind unsafe acts is more beneficial than blaming individuals. In order to positively influence culture a new programme was introduced to promote positive conversations about safety. The programme aimed to ensure that conversations about safety are not confrontational / focused on blaming people for mistakes, but simple, clear and supportive while still seeking root causes of unsafe behaviours / conditions. For these reasons all employees on site were trained in using a newly developed conversation framework which places emphasis on positive language, putting people at their ease, praising safe behaviour, and (in case of unsafe acts) asking supportive questions about potential consequences. The process was supported with a simple reporting system that monitored numbers and locations of conversations without recording names of individuals. The new programme:

- Helped to promote the importance of non-blaming language
- Allowed gathering intelligence about the safe and unsafe behaviours that employees discussed
- Decreased a number of unsafe behaviours
- Decreased the fear of reporting
- Contributed positively to other aspects of culture and organisational change, and
- Improved organisational learning.

All of these contributed to prevent injuries and accidents. This presentation discusses the programme, the reasons for its development, the outcomes from the first year of implementation, and possible ways forward given what we have learned.

Keywords: Safety culture, coal mine, proactive approach



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PSQ - Management System Approaching the Sustainability and OSH on Brazil

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In 2005 was installed the PSQ – Sector Quality Program which is a management program for Occupational Safety and Health on the whole production chain of a mineral on Brazil. Management system developed for standardization the industries of extraction, industrialization of the ore, transportation and transformation industries (as fibercement) the objective is guarantee the safe and health use in all the sectors related to the mineral. This program was developed by IBC, jointly with the companies associated to the IBC and with the workers, organized by their Syndicate, in advanced principals of Occupational Health, Safety and Environment based on ISO - International Standard Organizations. Today, the PSQ has 100% of all main stakeholders to the production chains, starting on the mine until the final consumer. The safety and the sustainability of the institutions belonging to the program are assured by external audits realized annually, following international procedures, where the team of audits is formed by an independent consultant, by a member of the IBC and by a member for the Workers. When the members participants of the Management Program of OSH has implemented all the guidelines of a “Manual” of PSQ, they receive a certification in accordance with the OSH process. In 2009, 21 audits were promoted on the PSQ – Sector Quality Program, which 19 were certificated with the total compliment of the requirements. Indeed, the process evaluated, reveal the sustainability of the system and the engagement of the OSH, without negative impacts on the environment and with the guarantee of the health of all workers. The program achieves more than 5,000 workers directly and beneficiating 170 thousand workers indirectly connected to the whole production chain. After the implementation, the participants also conquered other certificates of managements as ISO 14001, 9001 and OHSAS 18000.

Keywords: Sector quality program, management program for occupational safety and health, sustainability of osh

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Overweight and Auto Esteem in School Teenagers of Average Basic Education of the Metropolitan Zone of Guadalajara

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Background: The overweight refers to a corporal overweight which includes all the fabrics oily bone muscle like that as the corporal water. The overweight has gone in I increase worldwide managing to turn into a problem of health it publishes worldwide. In agreement to information of the more in the nutritional disorders re finds the overweight and the obesity. The above mentioned problematic is not alone of México but worldwide since every time the

increase of weight is brought by major frequency in all the groups of age. The children and girls of México have overweight and obesity. The World Health Organization in 1998 I bring that worldwide it exists more of 1 trillion of adults with overweight and at least 300 millions of these are obese. The literature raises that a child with overweight has low auto esteem. Aim: Identifies the prevalence of overweight and the association with the auto esteem in school teenagers in levels of education basic average in the zone metropolitan of Guadalajara Material and method: It is a transverse study that I realize during the school cycle 2008 – 2009. To identify the teenagers with overweight it was obtained you dare of it induces more corporal mass –IMC-. Results: The study I realize in a sample of 1177 of pupils, 562 were women and 615 men, 417 of the morning shift 760 evening shift. Identifying 85 teenagers. I diagnose overweight to the teenagers whose IMC it was between the ranges 85 and major of 95. The prevalence found in the sample was 7.20 %. Conclusions: The overweight is identified more in the masculine sex that in the feminine one especially in the evening shift. The reached prevalence is minor that in san Jose rich coast and Canary. But major that the reached one in San Salvador not being an association.

Keywords: Overweight, esteem in school, education

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Case Study: Reducing Absenteeism through Implementation of an Occupational Safety and Health Management System in Companies of the Construction Sector

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The high rate of absenteeism is a problem for most Brazilian companies, whether caused by occupational health (typical accidents of work, commuting accidents, occupational diseases) or general health (common diseases, medical or dental treatments, surgery) or for other reasons apart from health (blood donation, mourning or legal reasons). This study refers to the case of a company in the construction sector that had as absenteeism rate of 14%, and that, by implementing an Occupational Safety and Health Management System, could reduce this rate to 2.4%. To obtain such a result, policies have been developed, valuing workers together with advanced management strategies and innovative practices of business management using the methodology of SESI to Occupational Safety and Health Management System (OSHMS). The most important factor for the effective implementation of prevention and promoting programs of health and safety was the commitment of the executive direction, providing resources and seeking the participation and involvement of everyone. The implementation of OSH programs had an impact not only on the direct reduction of the absenteeism rate, but in other aspects that can be classified as benefits of investment in OSH, such as: No accidents resulting in absence due to health in 712 days of work; engagement of materials and services providers in OSH programs; awareness of workers regarding health problems, becoming multipliers in their community and family; high level of motivation among employees in developing their activities, thus increasing their satisfaction and productivity and reduction of projects deadline. It is therefore evident from what was mentioned above that the implementation of an OSHMS is an essential tool for the company to increase its competitiveness, encouraging prevention and avoiding unexpected events, reducing costs and improving the image of business.



Keywords: Occupational safety and health management systems; absenteeism, construction industry

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Economic Analysis of Safety Risks in Construction

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The objective of this study revolves around the analysis of the safety risks involved with one construction project, and the respective economic effects of risk prevention and safety management. As a result of the co-ordination of systems, and harmonising of work between the Project Leader, Safety Co-ordinator and Contractor, an adequate strategy was developed for the safety of the project a Big Dam in the North of Portugal. The Big Dam in the North of Portugal is located nearby the confluence with the river Douro, basin, with a storage strategic role added to the electricity generation. It comprises two storage-pumped plants equipped with reversible units. The construction volume covers around 700 000 m³ of concrete, 600 000 m³ of excavation and an installed power of 170 MW. These Dam presents a strategic value, once, it allow water supply reserves for domestic and industrial use and the biggest reserve of water in Portugal, and help to improve flow modulation control. The safety risk evaluation on construction is carried out in simulated form, and task by task, introduced into the work programme. This gives a history of risk evaluation over the course of the project. The simulation allows peaks of risk to be identified, which will then lead to additional proposals of prevention measures. These prevention measures will serve to reduce risk and consequently lead to a curve on the risk chart. They consist not only of on-site measures, but also of the integrated implementation of working safety policies. We should be aware that risk can be reduced, but is difficult to eliminate altogether. The implementation of prevention systems and working safety policies has its own cost, but what we intend to prove, by attributing costs to risks, is that safety has lower costs than a lack of safety.

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Difference in the Psychosocial Symptomatology among Workers and Nurses of Companies of Seed Packaging

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The expression of interpersonal problems, sleep disturbances, symptoms of anxiety or depression may be present in the workplace, so this study aimed to compare seed packers and occupational health nurses, as both groups are exposed to same environmental conditions, but whose difference is the job profile and work requirements. Material and This study was composed of two independent samples, homogeneous in age, gender, marital status and hours/weeks worked. The discriminant variables were schooling (nine years for operators and 16 years for nurses) and working hours (rotary shift for operators and fixed schedule for nurses). The Goldberg GHQ-28 was supplied under informed consent to workers that counted with a valid labor contract and no record of disability for mental illness. A total of 46 workers participated in each group. The 60% were women and 40% were married. With the "t of Student" significant differences were found in sleep disturbances, [t=2.44, p=0.017; IC95%:(0.37)—(3.65)]; interpersonal problems [t=-5.75, p=0.000; IC95%:(-4.74)—(-2.30)] and anxiety-depression [t=-7.98, p=0.000; IC95%:(2.75)—(4.58)]; with more affectation in nursing. The 97% (45) of nurses and the 60% (28) of operators had symptoms of sleep disturbances; the 95% (44) of nurses and the 19% (9) of operators manifested symptoms of anxiety-depression, and the 97% (45) in both groups, interpersonal problems were expressed. No significant difference was found in the presence of somatic symptoms between the 76% (35) of operators and the 52% (24) of nurses who reported suffering from headaches, mainly. This study suggests that nurses working in the industry manifest more symptoms of sleep that operators, in spite of not rotating shift. However, in both groups the interpersonal problems and the anxiety-depression symptomatology were expressed; so that in the labor context, the intervention can be done to prevent psychosocial disorders.

Keywords: Health mental, nurses, work, industry

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Comparison of Pesticide Exposure Methods

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Costa Rica exports a wide variety of agricultural products such as chayote, palm hearts, flowers and ferns. Different methods are used for pest control, including chemical based pesticides, even though they could be damaging the farmer's health. This exploratory study, aimed to compare, in a sample of 10 farmers from each of these crops, three different techniques for dermal exposure assessment: the algorithm quantitative approach method (AQAM), fluorescent tracer and dermal patches. From the algorithmic the intensity levels of exposure were obtained, with fluorescent tracer technique (FTT), deposition of pesticides on workers' skin was estimated during application and with absorbent patches the amount of selected pesticides was quantified according to WHO protocol. The AQAM estimated exposure conditions up to eight times higher compared to the reference level (calculated from safe working conditions for each crop). The FTT showed average percentages of body exposure in flowers and ferns of 13% (5.5 - 36.3%) for chayote 24.8% (5.9 -51.6%) and palm hearts 21% (19-31%). Highest fluorescent tracer deposition body segment were hands (50-68%), although forearms and neck, showed important percentages. Applicators wearing gloves presented fluorescent depositions significantly lower than those not using protection. Significant association of the fluorescent deposition and intensity level per employee was



found for flowers and palm hearts using a Spearman correlation ($R= 0.86$ and -0.73). The AQAM is not applicable to all types of crops since variations within could lead to exposure sub-estimation. It's necessary to generate our own low-cost tools to assess exposure in the agricultural sector.

Keywords: Pesticide exposure, fluorescent tracer, dermal patches

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Organizational Factors and Job Satisfaction in the Construction Industry in Spain

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Purpose – The purpose of this paper is to analyze organizational factors that influence job satisfaction in the construction industry in Spain. The factors examined are: control of and influence on work hours, clarity of job description, social support at the worksite, opportunities for social relationships in the workplace, and quality of leadership. **Design/methodology/approach** - The sampling system used was a non probabilistic method and 51 usable questionnaires were gathered. A questionnaire was developed and distributed to professionals in 206 construction companies. Data related to psychosocial risk factors were collected using the ISTAS-21 (an adapted Spanish version of the Copenhagen Psychosocial Questionnaire) as well as questions created ad hoc by the research group. ISTAS-21 was designed to be used in any type of work context to measure the organizational, social, and psychological characteristics of jobs which can affect workers' health. It has been validated in the Spanish population and is recommended by experts in occupational health and safety. **Findings** - Workplace supportive leadership quality, influence on work hours, clarity of job description and social support at the worksite are shown to be associated with job satisfaction. Control of work hours and opportunities for social relationships in the workplace do not have a direct influence on job satisfaction. **Originality/Value** Although this survey is exploratory, the results obtained can be useful as a first step in an in-depth study to evaluate the organizational climate and psychosocial risks inherent in the construction industry. **Keywords**- Construction, job satisfaction, organizational climate, psychosocial risk **Paper type**- Research paper

Keywords: Construction industry, organizational factors, job satisfaction

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Incorporation of Safety and Health at Work for Business Small and Micro Enterprises - Educational Innovation: A Didactic in Construction

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The projection of new scenarios demanded by the economy, now so uncertain and competitive, is becoming an indispensable requirement for companies looking for



sustainability and prosperity in their businesses. Planning, strategies and new insights are indispensable. During the changes, business organizations, regardless of size, but especially micro and small businesses need to provide and develop the capacity of re-reading of existing scenarios, hitherto considered to be satisfactory from the viewpoint of questions on safety and health at work. Many managers in this sector show up and claim that unsafe health and safety at work undermine the revenue and business performance. Choose to remain in general trends, the result of analysis inconsistent, superficial, common sense and providers immediate relief - albeit illusory. While the emphasis needed to design and organization of healthy settings as a strategic element to business, necessarily, by testing for the anticipation of future adverse conditions and careful supervision by the ever-present. The method of constructing knowledge and the tone of the autonomy of adult entrepreneur served as references for the creation of a new education proposal to these managers, willing to break old paradigms and to prepare them for the incorporation of safety and health work to business management.

Keywords: Small enterprises, safety, health, entrepreneurship

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The Chemical Lab Work Associated with Environmental Hygiene and Fatigue Symptoms

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There are environmental factors such as temperature and internal context that can inhibit the initiation or the maintenance of volunteer activities and to present fatigue symptoms. Objective: To relate the concentration of volatile organic compounds (VOCs) with the fatigue in personnel working in a chemical laboratory at a public university. The maximum concentration (VOCs) was reached at 13:00 hours and increased the number of fatigue symptoms (from one to four), appeared drowsy and sluggishness. There was no change in concentrating difficulty. chemicals that volatilize easily, in workplace can increase fatigue symptoms in students.

Keywords: Fatigue symptoms, environmental hygiene, contaminants, vocs, and volatility.

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Difference in the Psychosocial Symptomatology among Workers and Nurses of Companies of Seed Packaging

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Introduction: The expression of interpersonal problems, sleep disturbances, symptoms of anxiety or depression may be present in the workplace, so this study aimed to compare seed packers and occupational health nurses, as both groups are exposed to same environmental conditions, but whose difference is the job profile and work requirements. **Material and Methods:** This study was composed of two independent samples, homogeneous in age, gender, marital status and hours/weeks worked. The discriminant variables were schooling (nine years for operators and 16 years for nurses) and working hours (rotary shift for operators and fixed schedule for nurses). The Goldberg GHQ-28 was supplied under informed consent to workers that counted with a valid labor contract and no record of disability for mental illness. **Results:** A total of 46 workers participated in each group. The 60% were women and 40% were married. With the "t of Student" significant differences were found in sleep disturbances, [$t=2.44$, $p=0.017$; IC95%:(0.37)—(3.65)]; interpersonal problems [$t=-5.75$, $p=0.000$; IC95%:(-4.74)—(-2.30)] and anxiety-depression [$t=-7.98$, $p=0.000$; IC95%:(2.75)—(4.58)]; with more affectation in nursing. The 97% (45) of nurses and the 60% (28) of operators had symptoms of sleep disturbances; the 95% (44) of nurses and the 19% (9) of operators manifested symptoms of anxiety-depression, and the 97% (45) in both groups, interpersonal problems were expressed. No significant difference was found in the presence of somatic symptoms between the 76% (35) of operators and the 52% (24) of nurses who reported suffering from headaches, mainly. **Conclusion:** This study suggests that nurses working in the industry manifest more symptoms of sleep that operators, in spite of not rotating shift. However, in both groups the interpersonal problems and the anxiety-depression symptomatology were expressed; so that in the labor context, the intervention can be done to prevent psychosocial disorders.

Keywords: Health mental, nurses, work, industry

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The Culture of Prevention for a Healthy and Safe Work in Enterprises of Small and Medium Size in Greece

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A number of small and medium size enterprises are still active in Greece, developing their activities mainly in the sector of services and commerce. The most of employees, work in the office and they are exposed in occupational risks. The office, as workplace, serves multipurpose activities depending on the type, the magnitude, the system of work, the proprietary regime of the company. It is widely considered among people that the work in an office is not dangerous and the majority of employers agrees and promotes these considerations. On the opposite side specialists in the field of Health and Safety at the workplaces, know the complicate character of an office from occupational health's and safety's point of view. Physical, ergonomic, organizational, psychological and other parameters provide potential risks for the employees every day. Many accidents and injuries, some of them unfortunately fatal, as well as important occupational diseases, especially musculoskeletal disorders, menace the white collars. Considering the fact that the economical crisis brought lot of problems in small and medium size enterprises, the most employees are forced to change job within the company or to search for another job. So the prevention's activities must be clear and stable in the company and the awareness of



employees must be increased. Do they realize the importance of the risk? Do the existing legislation and practice help the promotion of a culture of prevention for safe and healthy work? The author of this paper carry out a research among employees of small and medium size privet Greek companies in order to investigate their perception of occupational risk. The first results of the research are presented in this paper for further discussions, in order to light up some useful aspects helping the development of a culture for healthy and safe work in the future.

Keywords: Health,safety,office,employees,small and medium enterprises,risk perception

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Monitoring and Evaluation on OSH: the Impact of Changes in the Composition of the Workforce on Occupational Health and Safety Issues

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Changes in the composition of the workforce have already had impacts on occupational health and safety issues in terms of both prevention and injured worker compensation and rehabilitation. These impacts will continue in the years ahead. In the industrialized countries, we are witnessing an overall aging of the population and consequently of workers. By contrast, in emerging countries, a large proportion of young people are currently looking for jobs or entering the workforce. To grapple with this situation, countries facing an aging population are turning to immigration with increasing openness and are granting work permits to foreign workers. Emerging countries are having to create more jobs to meet economic and social needs, while promoting the prevention of occupational accidents and diseases. In addition, emerging countries are observing changes in the composition of their workforces due, among other things, to the growing presence of women on the job market. These different worlds are interconnected and inevitably have a spillover effect, as workforces become increasingly mobile. The issues associated with these population changes and migrations will be the focus of questions and analyses regarding their impacts on occupational health and safety and their monitoring. In such a global context, what can we do to promote a worldwide prevention culture within companies and to support government authorities

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Twenty- Five Years of Alcohol & Drug Policies at the Workplace in Belgium (Flanders): What Do We Know?

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VAD is the umbrella organization for all alcohol and drug organizations (77) in Flanders. VAD has more than 25 years of experience in advising companies (both in the public and private



sector) to elaborate and implement an alcohol & drug policy. In Belgium, the costs of alcohol related problems at the workplace are estimated to be 2.2 billion euro. On 1 April 2009, the national social partners concluded the Collective Labour Agreement (CAO) no. 100 'concerning an alcohol and drug prevention policy in the company'. Private organisations were obliged to develop the principles and objectives of their alcohol and drug policy and to formalise them in a policy statement or declaration of intent by 1 April 2010. In addition to the mandatory component, the CAO also provides for a second, optional phase. Working out rules, procedures, steps to take in the event of unfitness to work and (preventive) testing fall under the second phase. VAD developed the QADO-tools: www.qado.be & Q-ADO 1.0. For QADO, VAD was awarded by the Belgian department of the European Association for the Promotion of Health. On Qado.be companies can find all information concerning an alcohol- and drug policy at work: legislation, information, training, questions, cases etc. Q-ADO 1.0 is an online questionnaire to support organisations in developing a policy. The questionnaire is available for all organisations. It is built up around the four pillars of an evidence based alcohol and drug policy: regulations, procedures in the event of acute and chronic abuse, assistance, and training & information. Organisations receive both feedback to their answers and advice for a successful alcohol and drug policy. They also discover whether the policy of the organisation meets the requirements of CAO 100. Q-ADO 1.0 also provides VAD a lot of interesting information on policy making in the field.

Keywords: Alcohol drug policies, Belgium

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Occupational Health and Safety System in the Republic of Croatia

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Occupational Health and Safety System in the Republic of Croatia Zavalic M., M.D. Ph.D
Croatian Institute for Health Protection and Safety at Work, Zagreb, Croatia For purpose of occupational health and safety surveillance in the Republic of Croatia were established Croatian Institute for Health Protection and Safety at Work (CIHPSW). Its task is to produce guidelines, perform statistic exploration and give recommendations for better work to all the stakeholders in these fields, including state institutions, employers and workers. Institute employs personnel of medical and technical background specifically educated in these issues. The Croatian Institute for Health Insurance, which is financed by the State budget, insures free treatment of the workers injured at work or suffering an occupational disease, and pays compensation during sick leave. Based on a Risk Assessment it pays medical examinations of workers who work at high risk jobs. Also it pays examinations of all workers occupationally exposed to carcinogen regardless to their current working status. The dynamics and content of the medical examinations is proposed by CIHPSW, performed by occupational health specialists and legalized by minister entitled for labour issues. Risk Assessment document is elaborated by employer itself or by a company licensed by minister entitled for labour issues, who also licences the companies who perform measurements in working places. The implementation of regulations is performed by the State Inspectorate which is directly controlled by Government. An employer employs safety professionals for the jobs of safety at work or makes a contract with the company licensed for these jobs. Health protection is performed by occupational medicine specialists who have to perform 4-year specialization upon graduation at medical school, psychologists with additional education in



occupational medicine and educated nurses. These professionals are obliged to permanent education and should be relicensed every 6 years. Safety at work with an employer is responsibility of safety experts who get qualification at technical university or polytechnics for safety at work, and by passing the exam with the ministry entitled for labour. It is not prescribed for safety experts to have additional permanent education for relicensing during their work in occupational safety domain.

Keywords: Health and safety

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Exploratory Study on Safety Conditions of Health Workers Exposed to Antineoplastic Drugs

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A preliminary study was done to establish work practices and preventive measures for nurses handling antineoplastic drugs (AND) and to determine the risk of developing AND-related signs/symptoms. A descriptive cross sectional study was made. Workers from 5 health centers in Valencia, Venezuela, were selected. Demography, occupational and clinical history, shift, work practices, safety precautions, antineoplastic drugs used, residues disposal and life styles were obtained via a questionnaire. Nauseas were the most prevalent symptom (55%). Most frequent symptoms reported were adjusted for age, shift, and smoking. Results show that age was significant for abdominal pain, and smoking was significant for facial redness and allergies. Dizziness was positively associated with use of gowns and negatively to half-face respirator. None of the studied centers had satisfactory working conditions to manage antineoplastic drugs and their preventive and control measures are very much below the recommended requirements. A follow up study should be made including physical exam and environmental and biological monitoring. This will allow a more suitable assessment of exposure and also, the effectiveness of personal protective equipment used.

Keywords: Antineoplastic drugs, occupational exposure, health centers.

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Burnout among Finnish Dairy Farmers

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A postal survey of Finnish dairy farmers was carried out in 2010 in the research project "Improved well-being of dairy farmers as a means of enhancing livestock welfare". The questionnaire was sent to 400 dairy farms randomly selected from the farm register of Finland. After two mailing rounds, we received 264 questionnaires from 47% farms in the sample (two questionnaires were sent to each farm). In this paper we report the results of the Maslach Burnout Inventory (MBI-GS), which was included in the survey.

On average, the dairy farmers reported slight burnout symptoms. The respondents were categorized as follows: nearly half (45%) had slight symptoms of burnout, 9% had severe symptoms and 46% of respondents had none of these symptoms. When we compared our results with those of Hakanen (2005), who surveyed a sample of 44- to 57-year-old Finnish citizens (n = 532), the dairy farmers had more burnout symptoms than the Finnish citizens in general. There were no differences in responses concerning professional self-respect, but cynical attitudes were more prevalent among dairy farmers; for example, the farmers wondered whether there were any longer benefits from carrying out their work. Farmers' attitudes towards dairy cattle are a very important factor influencing cattle welfare (Hemsworth & Coleman, 1998). Possible connections between burnout symptoms in farmers and the welfare of dairy cattle will be analysed in the future.

Our research project (2009-2011) is being carried out by the University of Eastern Finland, Agrifood Research Finland, Finnish Institute of Occupational Health, Novetos Research Ltd and the University of Helsinki.

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Possibilities to Improve Occupational Safety by Animal Handling Practices: a Qualitative Study from Finnish Dairy Farms

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A major proportion of injuries (43%) in Finnish agriculture occur in livestock-related work. Even a greater proportion of women's farm injuries (77%) is related to animals. The working conditions of ten women dairy farmers were studied by observing their farm work and performing semi-structured interviews. The study farms had on average 106 hectares of cultivated land, 51 hectares of forest and 45 dairy cows.

Most respondents considered animals as the greatest hazard on their farm and specifically, unexpected animal behavior was considered the most significant work-related injury risk. Injuries were frequent on study farms; eight respondents out of ten had suffered one or more injuries during the previous two years. Dangerous situations had resulted when cows were stressed due to unpleasant circumstances or when they were fearful of their handlers. Experiences from some study farms suggested that dairy farm work can be relatively safe. Improving the trust between cows and their handlers improves occupational safety on cattle



farms. The research material was synthesized into four animal handling strategies, which can potentially reduce the risk of injury among stockpersons. We developed practical guidelines on how to gradually build a good cow-handler relationship based on our findings and the literature on animal welfare science.

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Evaluation of Natural Radioactivity of Some Deposition Radionuclides in Aquatic Plants and Arvand River and the Persian Gulf

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In this study the absorption rate to compare radionuclides (^{40}K) and (^{232}Th) in 20 samples of sediment and algae samples 5 respectively, sampled from 20 different stations throughout 5 Arvand River have been measured. Because of the increasing use of radiation and spread radioactive material, especially a lot of concern from the perspective of sustainable development is raised. Monitoring the study area of natural radionuclides long-term goals are sustainable development, so this study we determined radiation balance in the core of algae compared with precipitation in the region, including ^{232}Th & ^{40}K in the River south of the border and the Persian Gulf is the sea. Gamma spectrometry of these samples have been performed using an HPGe detector with 25% efficiency. The rate of radioactivity Radionuclide natural ^{232}Th and ^{40}K respectively for the samples deposited in the range of 5.25 to 24.5 and 153 to 370 Bq.kg⁻¹ is. While this amount of radioactivity for the Radionuclide algae samples respectively to 90.20 and 10.13 in the range 267 to 471. Bq.kg⁻¹ is that this study shows the power of thorium and potassium uptake in algae Sargassum radionuclides is greater than the deposit And thus set as a kind of algae Sargassum biological cleaners for the full radionuclides in areas of aquatic ecosystems Radionuclide concentrations of high radioactivity that it is used.

Keywords: Gamma spectrometers, radionuclides natural - ^{40}K - ^{232}Th , Persian Gulf

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Occupational Health and Safety Culture in the School: Research, Development, Promotion and Dissemination

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The European Union's strategy on health and safety at work (2007-2012) has identified education and the prevention culture as key factors for maintaining and improving the quality of work and has underlined the important role played by primary education. The Italian legislation on health and safety at work (Legislative decree 81/2008) gives the schools the power to include interdisciplinary educational courses in all its curricula in order to promote health and safety culture in the workplace (OSH) [art.11(4)]. School is the perfect place for

structuring and developing OSH, so that the prevention culture becomes a deep-seated value for the next generations and a key point of their lifestyle. The Department of Occupational Medicine of INAIL (formerly ISPESL) has launched many initiatives to promote safety and health culture in schools by establishing macro-areas of activity: 1. Research on educational priorities in the field of OSH promotion and dissemination at school. Through a pilot study based on the Delphi investigation technique we administered a questionnaire to 544 School Managers at each educational level over the Province of Rome. Even if the most important training needs were not closely related to OSH, our research showed a close relationship between training needs and living environments. 2. Definition of effective and easy formative teaching tools aimed at facilitating and promoting OSH in schools. Some of these tools have been tested and implemented in some schools at national level. The topics covered have included: ergonomics, bullying, safety signs, risks in living environments and principles of first aid, child labour, alcohol and smoking. These learning tools were organized in teaching modules and tuned according to pupil's age. 3. Creation and implementation of a website addressed to teachers to provide them information, brochures, scientific and educational materials. Information about these activities were widely disseminated during conferences, seminars and other educational initiatives addressed to schools.

Keywords: Health and safety at work, school, educational requirements

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The Surgeon Dentist to Stress not Perceived as an Occupational Risk

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Objective: To determine the non-perception of stress as a risk off health in the dental surgeon during there professional practice and the relation to chronic stress levels according to the public health institutions where they work. **Methods:** We conducted an observational, transverse, and descriptive study. The data was obtained by the application of a design test of stress perception and the Stress Symptoms Inventory. The study universe was the total dentists in the study population. **Results:** From the total of 255 dentists, 59 (23.1%) did not perceive the stress and 196 did. (78.1%) yes. Stress levels were high for 70 dentists (27.5%), 84 (32.9%) intermediate and 101 (39.6%) low. Association was found with the variable non-perception of stress by OR, with the variables, high levels of chronic stress with an OR 31.65, female gender with an OR of 2.83, not having another job with OR of 3.19 and with a low socioeconomic level OR of 2.53 **Conclusions:** Dentists who have high levels of chronic stress, are women with low socioeconomic status and have no other employment, they have higher risk of not perceiving the stress as a health risk, that could lead them not to take action for its appropriate management and control, thus risking their health and work safety.

Keywords: Perception, stress, dentists

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15 Key Lessons Learned from a Lifetime in Health and Safety

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Life is a compromise, health and safety is a compromise. By that I don't mean we compromise health and safety. 2. You only engage competent contractors, don't you? If yes, you have the foundations for success. If no, you will fail. 3. The usefulness of a method statement is inversely proportional to its size. The larger it is, the less use it is because no one is going to read it. 4. Recognise that the conventional measure of health and safety performance, the AFR, is actually measuring failure i.e. an accident is a failure. 5. The road to health and safety is littered with good intent and initiatives which never reach a conclusion. Be ready to celebrate success. 6. Most organisations have got to where they are today by process-driven health and safety which can only achieve so much, i.e. "the plateau effect". 7. To get beyond the plateau by process driven health and safety is virtually impossible. There is a need to introduce another ingredient i.e. culture. 8. How to build a positive health and safety culture - do it little but often and take the opportunity to celebrate success. 9. Apply the principles of marketing to health and safety with the workforce as the target market i.e. make it attractive to the market place. 10. Health and Safety is as simple as "someone you are responsible for will go home tonight, to enjoy their family in the same way as no doubt you look forward". 11. Best way to succeed in health and safety is to invite all to the party, including you. 12. Recognise the need to put the "health" into "health and safety". 13. Understand value of simplicity of communication i.e. it is a two way street. "Two ears one mouth" - a good proportion for health and safety communication. 14. Keep it simple, be genuine, be honest. The rest will follow because health and safety and quality are inter-linked. 15. Above all else, make health and safety personal – each and every time!

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Organizational and Personal Factors in Judging the Occupational Risk Acceptability

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In occupational environments, risk assessment is a crucial process for an effective risk prevention. However, the problematic issue of risk acceptability should also be considered during this process. This is a challenging issue in occupational environments, since there are several factors that can influence the decision-making process regarding risk acceptability. Although this discussion is well established for public risks, in what regards the occupational risks it is still scarce and is an emerging issue. Therefore, this paper aims to analyze the main factors that may play a role in risk acceptability in occupational environments. With this purpose, an analysis of the acceptability concept and of the principal factors that can influence risk acceptability was carried out. The risk acceptance can be defined as the accepted risk level for a specific dangerous situation. It not only depends on a quantitative representation of risk, but it is also affected by several others factors. These factors can be grouped into organizational and personal factors. Regarding the first group, some factors,



such as safety climate, safety culture, changing in work environment and available alternatives to a technology can be considered. Moreover, there are also some important personal factors. Thus, risk acceptance decisions can contain moral judgments and emotions, as well as influenced by trust in the companies' management and policies, familiarity with the risk, knowledge and perception of risks and benefits. This study shows that the influence of organisational and personal factors can lead to several discrepancies in the risk acceptability decisions among the different countries, organizations, managers and employees. Accordingly, while a risk factor in a specific context can be acceptable, it is likely that the same does not happen in another context. Therefore, it seems very important to study the influence of each of these variables and their implications in risk acceptability.

Keywords: Risk, acceptability, occupational, organizational factors, personal factors

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Alcohol Abuse at Workplace: a Qualitative Assessment in Health Surveillance

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Background: Alcohol abuse (AA) is a public health problem that causes 2.5 million deaths per year (WHO). Labor sector is not immune to this situation that creates the need for early detection of AA on workers. The objective of this study is to identify instruments for health surveillance of workers with AA problems.
Methods: We reviewed scientific literature databases: PUBMED, CIS-DOC, Cochrane and SCIELO. We included studies relating to AA in the working population, AA risk factors and consequences in the labor sector. They were classified according to evidence level of Scottish Intercollegiate Guidelines Network (SIGN).
Results: We retrieved thirty articles that met the inclusion criteria: One was a 2+ evidence level study. Fourteen were evidence level 3 and fifteen were evidence level 4. Alcohol was the most consumed psychoactive substance by the workforce in Spain. AA prevalence was 77.8% in men and 72.9% in women. The most used AA screening methods were CAGE questionnaire (sensitivity=67-98%, specificity=86-95%) and AUDIT (sensitivity=86%, specificity=95%). Men had higher AA than females (OR=5.1, 95%CI: 2.8-9.3). Being a non-qualified worker, was a risk factor for AA, OR=2.95 (p=0.025). Two studies with evidence level 4, reported increased accident rates and absenteeism related to AA.
Conclusions: The use of CAGE and AUDIT questionnaires are the best options for AA detection at workplaces, because of their easy application and low cost. Identified Risk factors for AA at workplaces were: work organization, skill levels and individual factors. Insufficient documentation was found about the effects of AA. We suggest the promotion of research in these issues and assess the use of screening measures to enhance prevention.

Keywords: Alcohol abuse, workplace, CAGE, AUDIT

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Preventing and Controlling Endemic Diseases during a Pipeline Construction in Amazon Region

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Preventing and Controlling Endemic Diseases in Amazon Region were identified as the most important action of the work environment. This project was implemented during the URUCU-COARI-MANAUS pipeline construction as a model project to be improved in Health, Safety and Environmental (HSE) practices. After discussions with management and other stakeholders, several teams of prevention agents were trained for the project's development. Actions were taken to import HSE knowledge and training to all on site personnel indicated by contractors. The main focus of the actions was on worker's immunization and workplaces fumigation necessary for the project improvement. The validation of the training and implementation of actions was closely monitored by the Health, Safety and Environmental (HSE) Petrobras teams and by the stakeholders. There were 9.000 workers in the middle of Amazon forest during the construction and no endemic diseases infected them. There were 499 confirmed cases of Malaria in workers; however, all of these workers were contaminated before workplaces entrances, ratifying the project's control success. The implementation of this project resulted in one hundred percent (100%) of workers immunized for Yellow Fever, Tetanus, and Hepatitis A and B. During construction, the incidence of Malaria in surrounding communities decreased around thirty percent (30%). Project benefits' include lower accidents rates, because the Brazilian legislation considers as accident, the appearance of endemic diseases in workers, and several new water treatment in surrounding communities in order to prevent water transmissible diseases which are very common in Amazon Region. This project resulted in trained of experts among local, which are now capable of preventing and controlling endemic diseases.

Keywords: Ustainable, malaria, endemic diseases, environmental health, workers health, amazon region

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Occupational Exposure to Noise and Inhalable Particles in the Monitoring of Gaseous Emissions - Case Study

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One of the key measures for a policy of prevention and control of air pollution is the setting of limits for emissions at source for the most significant pollutants, their effects on people's health and on the environment in general. In Portugal, the Act DL n.º 78/2004 of 3 April on the arrangements for preventing and controlling emissions of pollutants into the atmosphere sets the principles, objectives, measures and instruments appropriate to ensure the protection of the atmosphere. It also puts in place the policies, procedures and obligations for operators of covered installations to prevent or reduce the air pollution originating from these facilities to acceptable levels. One of the measures imposed by this act is the self-control of



gaseous emissions (by the polluting industry), controlled by accredited laboratories that have technical staff. The activity involves many hazards that can be grouped into four types: physical (eg noise), chemical (eg, inhalable particles), climatic and environmental conditions (eg wind and rain) and general conditions of installation (eg movement of vehicles). In a significant number of occasions, the severity of potential accidents is high. The hazards and risks that sampling technicians are exposed to during their work must therefore be documented and monitored for a set of requirements aimed at ensuring their safety. This study aims to evaluate the noise exposure and the exposure to inhalable particles from the technical characterization of gaseous emissions. We evaluated the occupational exposure of technicians from two laboratories accredited by IPAC (Portugal). For the measurement of noise and inhalable particles according to the internationally recognized methodology, including ISO 9612 and NIOSH 0500, several samples were collected at various exposure scenarios.

Keywords: Noise, inhalable particles, monitoring of gaseous emissions, occupational exposure, ISO 9612, NIOSH 0500

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That is Software for the Country-wide Monitoring of the OHS Services at Workplace

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The most basic indicators of occupational health and safety are occupational accidents and diseases. In 27 November 2010 published in three separate arrangements for the regulation of OHS services.

Occupational medicine services and Occupational safety expert services are related to the training of OHS professionals in OSH and related regulations.

OHS Regulatory service provision in Turkey with this diversity has been the opportunity to:

1. Workplace Health and Safety Unit is established in the workplace
2. External OHS services is established out of the workplace
3. Occupational medicine with the help of community health centers

Workplaces, which get services from External Occupational Health and Services (EOHS), is employed health and safety professionals by the number of occupational physician and occupational safety expert, their working hours, and controls intended to supply up to date statistics

The implementing regulation on the duty, authority and responsibilities of Occupational Physician with The implementing regulation on the duty, authority and responsibilities of Occupational Safety Expert and The implementing regulation on the duty, authority and responsibilities of Training and training of OHS professionals to do qualities of the institutions, how to do authorization and controls were determined. Educational institutions



certificates, approval of training programs, educators were founded on a series of contracts containing a detailed manner is monitoring of thanks to the software

In this study, the OHS services in workplaces and educational institutions in Turkey; training programs and that allow trainers to be made online with do contracts have been developed and put into practice with this software. In this study, as an example of best practice sharing with the parties concerned of this software is foreseen.

Keywords: OHS Services, electronic agreement, approval of training programs via electronic software

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Burning Future of Indian Youth: Case Study of Indian Firework Industries

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India is a land of diverse cultures and numerous festivals. One such widely celebrated festival is that of Diwali. This festival of light is celebrated by firing crackers all through out the country. However, it is ignored that such crackers at cost of the health of many industrial workers. Unfortunately, minors form an integral part of this labor force. These workers are exposed to adverse and unfavorable working conditions. They work without proper equipments, medical assistance and preventive tools. They are hardly provided with any medical insurance or knowledge by their employers. Most of them are unaware of the occupational hazards that are involved in the industry. They have tedious and long working hours. They are provided with little remuneration for their services. They are exposed to chronic and fatal diseases like blindness, cancer and other lung and skin diseases. Presently, the laws in the country are unable to deal with the situation. The word "child labor" only constitutes a minor who is below the age of 14 in India. Hence, if a fifteen year old is working in a firework's industry, the same would not be punishable under the ambit of child labor. This peculiar situation needs to be dealt at both administrative as well as legislative front by the Indian Government. It is proposed that a specific legislation should be framed to deal with the present circumstances. Medical insurance and regular medical check-ups for all workers should be made compulsory. Considering the occupational and environmental hazards relating to the fire-works industry, the same should be discouraged to a large extend. The paper proposes other viable solutions to improve the conditions of the workers related to the industry. If immediate steps are not taken in this regard, we might loose many children at cost of nothing.

Keywords: Fireworks, industry, crackers, minors, India

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Prevalence of Subjective and Musculoskeletal Symptoms among Cold Store Workers

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Background A cross-sectional questionnaire study conducted among workers a cold store work in Tehran. This study was undertaken to clarify the effects of exposure to cold environments on workers operating a forklift inside. Health conditions were checked by subjective symptoms and musculoskeletal symptoms (MSS) associate with cold exposure. **Methods** The workers in this study consisted of 15 workers in cold storage at temperature was between -27.0°C to -30.5°C (exposed group) and 20 workers at temperature was between 25°C to 27°C (unexposed group). Two self-administered questionnaire survey on cold related subjective complaints and MSS were performed among workers. **Results** The prevalence rates of almost subjective symptoms in the exposed group were significantly higher than those among unexposed group. Most the prevalence of MSS among exposed group was from the knee (100.0%), feet (73.3%) and wrist/hands (66.7%). The estimated relative risk for upper back were 16.62(95% CI 1.74-158.08), elbow 12.66(95% CI 1.32-121.46) and neck 10.28 (95% CI 1.73 – 60.90), respectively. **Conclusions** The prevalence various complaints and MSS among workers cold stores strengthen a real risk of cold-related. These findings show that work management is one of the most important aspects of occupational facility.

Keywords: Cold store, subjective symptoms, cold exposure, musculoskeletal symptoms

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Evaluation of Change Schedule of Organic vapor Respirator Cartridges in a Petrochemical Industry

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Background and aim: In the absence of End of Service Life Indicator (ESLI), a cartridge change schedule should be established for ensuring that cartridges are changed before their end of service life. The aim of this study was determining the efficiency of respirator change schedule and presenting a suitable schedule for changing the cartridges before their end of service life in a petrochemical complex. **Materials and method:** Required information for change criteria, number and time between changing the cartridges were gathered through the existing records in the industry. Also the highest values of measured environmental conditions were used as a worse case condition for estimation of service life of cartridges. Technical data and specification of used cartridges in the industry were collected through the cartridges manufactures. Manufacturer's service life software was used for estimation of cartridge service life and 10% of threshold limit values were considered for estimation of breakthrough time of cartridges. **Results:** The results show that there is no effective change schedule for respirator cartridges in the studied industry. Also there was a significant difference between current schedule and developed schedule for changing the respirators in the studied industry. **Conclusion:** Relying on odor thresholds and other warning properties solely as the basis for changing respirator chemical cartridges is not allowed and a change out schedule should be developed base on workplace conditions and specification of respirator cartridges.

Keywords: Change schedule, respirator cartridge, organic vapors, petrochemical

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Evaluating the Process of Diagnosis of Occupational Diseases and Applications of Different Countries

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Occupational disease is a social and economical fact that entirely preventable. In addition, occupational disease is more than just the diagnosis and treatment process, also is a fact that the patient should receive lifelong compensation for himself or his/her heirs. Annually, 4-12 new cases of occupational disease are expected for every thousand workers but also vary among countries.

In Turkey, rights and responsibilities regarding occupational diseases are defined for persons employed under a service contract and independent workers. In this context, the expected number of occupational disease cases is between 36,000 and 105,000. However, the number of occupational diseases is only 429 according to the Social Security Institute Statistics in 2009.

When analyzed occupational diseases in the EU countries it is observed that is relatively good in member countries before the declaration of 2004, but after 2004 it was taken below the EU average in 2009 by the countries added to the community. Countries such as Finland and Sweden have the highest number of occupational disease, it is explained by these countries have a developed diagnose and report system. This situation explains the lack of notification system and the diagnosis of occupational diseases in our country.

In our country, many reasons could be listed for inadequate number of occupational diseases related with medical, legal, and social parties.

Sum up of medical reasons are; occupational diseases and preventive medicine is not priority areas in health professionals` education policies and programs, inadequacy of physicians` knowledge and sensitivity, difficulties in the process of diagnosis of occupational disease, insufficiency of supporting of the diagnosis of occupational disease by measurements of workplace environment and job history, deficiency of guidelines and standardization of diagnostic occupational disease, gaps in occupational disease registration system, and even thought the suspicion of occupational disease couldn`t direct correct address except occupational disease hospitals.

As regards the social partners are; employer and employee couldn`t have adequate and accurate information about occupational diseases and insurance indemnities, the fear of worker`s loss rights and position, and declared as `invalid` or `disabled` as a result of diagnosis of occupational disease.

Keywords : Occupational diseases, diagnosis, physician, employer, employee

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National OHS Policy Documents and Implementations

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In the 4th Article of 2nd part of the ILO Convention No. 155;

‘Each Member shall, in the light of national conditions and practice, and in consultation with the most representative organizations of employers and workers, formulate, implement and periodically review and coherent national policy on occupational safety, occupational health and the working environment.

The aim of the policy shall be to prevent accidents and injury to health arising out of, linked with or occurring in the course of work, by minimizing, so far as is reasonably practicable, the causes of hazards inherent in the working environment.’ expressions are involved.

Turkey who signed the agreement in 2004; by fulfilling the requirement of the agreement, has established a national council of the OHS that government, employers and workers sides are represented.

So far, The Council, which has been working with sub-working groups since 2005 has published National OHS Policy Document 1 in 2006, National OHS Policy Document II in 2009 and the objectives.

The realization of the objectives between 2006 and 2008 years is measured and shared with the public by gathering the studies of public institution and establishments.

While it is targeted to reduce the occupational accidents in a proportion of % 20 by the trainings, promotions, notifications, raising awareness activities, surveillances and inspections for product safety and workplace safety in scope of the market surveillance of personal protective equipment activities, the realization of the rate is %12.

The national occupational health and safety objectives for 2009 – 2013 are as below:

- Getting into force of Occupational Health and Safety Law and completion of related legislative studies.
- Notification of related partners and public to provide the implementation of the new legislation and Execution of the promotion activities by the Council members.
- Reducing the occupation accident rate as %20
- Increasing as %500 the findings of the number of cases that that were expected but not detected
- Increasing as %20 the number of employees that the serviced OHS laboratory services reaches,

Keywords: National Council of OHS, Policy, Social Partners

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Occupational Accidents and Diseases in the Changing Business World: a Case Study for Çorlu

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Today, the concept of occupational health and safety includes protections of employees, business and production against all kinds of danger and damage of in industry. Due to the priority of human life, it is seen that operational or production safety issues are handled in the second plan and in international arena, the safety of employees is generally expressed with the concept of occupational health and safety. On the other hand, the occupational accidents and diseases have been gained different dimension with the effect of rapidly developing technology and globalization in the changing business world. In this study, it was investigated that the historical process of occupational health and safety concept both in Turkey and in the world and also it's situation in industry with the current practices was evaluated. Furthermore, because of Çorlu which is selected as the study site, has a wide variety of industrial sectors; occupational accidents and diseases in industrial establishments in this area were examined, then classified according to the causes of their occurrence and after their industrial base-annual statistics were evaluated. In addition, the relationship between occupational accidents & diseases and applied processes & working conditions were analyzed and the preventions which have to be taken was investigated. On the base of the obtained results, some practical and applicable recommendations were determined to prevent the loss of manpower and to improve the quality of working environment.

Keywords: Occupational accident and disease, industrial establishment, danger, the loss of manpower, technological developments.

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Analysis of the Workdays Lost Dependent on Occupational Accidents in Western Lignite Enterprise (GLI) Coal Mines

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According to World Health Organization Turkey is the 1st place of occupational accidents among Europe. In Turkey yearly average of accidents is 170 thousands and the death workers in those accidents are 1140 and injured workers are 2850. According to these figures there is an accident every 43 seconds and there is a deadly accident in every 110 minutes.

Mining sector especially coal mining has the most risk of accidents in all sectors. It is not possible to remove all accidents but first of all the reasons of the accidents should be cleared and then should be take measures to remove those reasons.

In this study the accidents in GLI coal mines are determined statically, workdays lost and the costs of the accidents are compared with the costs of the precautions of accidents happen. In addition to those, occupational disease might happen on workers who work in coal mines are determined by statistically and the precautions of those diseases stated here. The researches about the costs caused by whether occupational accidents or occupational diseases will be guide for the enterprise.

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Statistical Analysis of Work Accidents in Garp Lignite Enterprise and a Case Study on a Particular Accident

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Mine work accidents cause deaths, injuries and economical losses every year. Investigating the details and reasons of them may show the way of saving people and investments from further undesired events. In this study, the work accidents, occurred between 2005 and 2010 in Garp Lignite Enterprise, Kutahya, Turkey, have been analyzed from different points of view. One of the points focused on is time of occurrence of the accidents. Time factor was discussed on the base of days of week, months of year and hours of day. Another investigated parameter is place of occurrence. Underground, open pit, processing plant, etc. are regarded in this respect. Accident distribution according to professions, ratio of accident types, age factor and education level effect are also considered in the analyses. Additionally, clash of 85ston and 170ston trucks is discussed as case study. The clash resulted in fatal loss. Economical and work losses are also analyzed in details. The precautions that could be taken, cost of the preventive investments and comparison of them with the economical losses due to the accident are presented.

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Standardization of Safety and Health Signals

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Regulations related with the safety and health signs are;

Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances,

Council Directive 94/55/EC as announced in Commission Directive 2001/7/EC adapting for the third time to technical progress Council Directive 94/55/EC on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road,

Regulation (EC) No 1272/2008 Of The European Parliament And Of The Council

of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006,

Council Directive 92/58/EEC of 24 June 1992 on the minimum requirements for the provision of safety and/or health signs at work (ninth individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC).

According to these regulations safety and health signs must be provided where hazards cannot be adequately reduced by techniques for collective protection or by measures, methods or procedures used in the organization of work.

In these regulations safety and health signs are used for the same purpose and sometimes even the same naming but designed in different ways.

There are some disadvantages in this situation

- You have to provide another training related with safety and health signs because of all different signs,
- Increased training cost related with safety and health signs,
- Trained worker be in an unsafe situation like an untrained worker.

Because of these reasons, in our opinion using one sign for same unsafe situation is more useful.

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Women Workers in OSH

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Various occupations which women work and possible exposure examples:

- 1- Agricultural sector: Risks of exposure to Chemicals, especially pesticides, herbicides, insecticides, solvents, powders, incense, gases, temperature and high humidity, infections and vibrations.
- 2- Cleaning staff:
 - A. Laundresses: Contaminated clothing, detergents, enzymes, soaps, temperature and humidity exposure,
 - B. Dry cleaners: Risks of exposure to Contaminated clothing, temperature, perkloroetilen, naphtha, benzene, ethylene tricolor and the other solvents.
- 3- Office staff: Risk of exposure to Physical stress, poor lighting, ergonomic deficiencies and a variety of cleaners.
- 4- Hairdressers and employees dealing with cosmetics: Risks of exposure to Acetone, aerosols, benzyl alcohol, ethyl alcohol, hair spray resins (polyvinyl prolidone), hydrocarbons with halogen and the other solvents.

5- Hospital / Health Care Personnel:

- Nurses, doctors, students and patients: alcohol, anesthetic gases, ethylene oxide, infectious diseases (bacterial, viral), penetrating injuries and x-ray radiation risks.
- Dentists / employees: anesthetic gases, infectious diseases (bacterial, viral), mercury, penetrating injuries, ultrasonic noise, vibration and x-ray radiation risks.
- Laboratory staff (clinical, research and animal Laboratories): Infectious diseases (bacterial, viral), penetrating injuries, various toxic chemicals, carcinogens, mutagens and teratogens, x-ray radiation and shift work risks.

6- Opticians: :Risks of exposure to coal tar, pitch, hydrocarbonlar, iron oxide, polishing and grinding dust and other solvents.

7- Photographers: bromides, Caustics, iodides, iron salts, mercury chloride, pirogallik acid and silver nitrate.

8- Plastic factories workers: Risks of exposure to acids, acrylonitrile, alkalis, hexamethylene tetramine, peroxide, phenol formaldehydes, styrene, urea formaldehydes clorid vinyl, vinylidene chloride, high temperature and humidity.

9- Textile-related jobs:

- A. Textile machinery workers: Risks of exposure to Asbestosis, formaldehyde, temperature, noise, dust raw cotton, synthetic fiber dust
- B. Tailors: Asbestosis, cotton and synthetic fiber dusts, formaldehyde, organic solvents and noise.

Women workers who faced with special hazards, are one of the special risk groups in OHS and they are protected by law particularly.

Key Words: OHS, women workers, protection

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Monitoring and Evaluating Man-Made Mineral Fibres: Scanning Electron Microscopy Method

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In Turkey, both in workplaces and the environmental level of asbestos exposure have witnessed a long period of time. Together with the restriction of the use of asbestos and after the prohibition, man-made mineral fibers (MMMMF) have been used in Turkey. Man-made mineral fibers are produced 5 million tons annually worldwide and used extensively in industry. Glass fiber, glass wool, rock wool, ceramic fibers, textile fibers are the main man-made mineral fibers. Man-made mineral fibers are used in industry for insulation and as an additive. Until now, a lot of research has been conducted on the exposure to asbestos but the studies conducted on man-made mineral fiber exposure are limited. As a result of the studies on health effects of MMMF, eye, skin and respiratory system effects are known to be. As a result of work done by the international cancer research institutions some fibers have been found to be carcinogenic. A project has been conducted in the workplaces which



employees have been exposed to asbestos and after the prohibition, man-made mineral fibers (MMMF) have been used, in order to monitor the health and safety conditions for employees. Within the scope of this project, air sampling was carried out by personal sampling equipment to determine the exposure levels and type of fibers. Scanning Electron Microscope-Energy Dispersive X-Ray Spectrometer system was used for determining type of fibers. Including a portion of the project results within the scope of this paper, an analysis study of air samples which were taken from the various department of workplaces presented. It is thought that, this study will contribute other works which will be held about MMMF.

Keywords: Man-made mineral fibres (MMMF), scanning electron microscope (SEM)

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Occupational Diseases in Montenegro: Yesterday, Today and Tomorrow,

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Occupational diseases are caused by the adverse job impact. Their diagnosis requires a multidisciplinary approach that includes knowledge of medicine, technology, safety and knowledge of the legislation. There are no official data on the current incidence and prevalence of occupational diseases in Montenegro. There was a significant drop from the period 1994/00 (213, average of 30.4 per year) compared with 2001/08 (76, average of 9.5 per year). The first reason for the reduction of occupational diseases is closing of industrial plants which previously recruited professionally ill workers. The other reason is the significant reduction of activities in the diagnosis, recording and recognition of these diseases due to changed conditions, inadequate legislation, undefined competencies, poor cooperation in occupational health and safety, PHC, statistics, and the absence of state-level institutions responsible for diagnosis and verification of these diseases. Following the adoption of Strategy for OHS improvement, in the draft Model of organization in occupational health and safety, it is planned that the Institute of Occupational Health participate in the preparation of a List on occupational diseases in line with the specifics of Montenegro and the EU recommendations, the ILO and WHO in monitoring and controlling risks, the verification of the disease and propose measures for their prevention, monitoring the epidemiological situation of occupational diseases and publish an annual report.

Keywords: Occupational diseases, diagnostics, recording, epidemiology

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Knowledge on Infection Control, Attitudes and Practices of Manicurists and Pedicurists in Establishments Registered to the Chamber of Commerce in Bornova

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Manicuring/pedicuring are among the routes of transmission of HBV, HCV, HIV viruses to adults. Our aim was to determine the infection control knowledge, attitudes and practices of manicurists/pedicurists in Bornova. Among 211 establishments registered to the chamber of commerce, 83.7% were contacted. 131 manicurists/pedicurists working in 109 establishments were interviewed face-to-face in November-December 2009. The questionnaire included 70 questions covering socio-demographics, experience, working conditions, knowledge and practice on infection control. A knowledge score was calculated from the 25 true/false type questions on knowledge, and an attitude score from 14 questions. Spearman's correlation, ANOVA, Kruskal-Wallis, Student t and Mann-Whitney U tests were used for analyses. The mean age of participants was 27.4 ± 8.2 . 41.6% had primary schooling and 25.7% vocational training. They were working as manicurists/pedicurists since 9.4 ± 7.9 years. Their mean knowledge and attitude scores were 68 and 54 over 100. Decontamination was the least known issue. Age, professional experience, marital status, education and social security affected knowledge while attitude depended only on age and experience. Among participants, 92.9% used appropriate sterilization methods. The use of hypochloride was over 70%. Hepatitis B vaccination rates (60%), hand washing (52.3%) and the use of gloves (20.2-33.1%) should be improved. Periodical examination rates were quite low (<10%) for the previous year. Manicurists-pedicurists knew some issues very well and had good practices for sterilization and using hypochloride. Hepatitis B vaccination rate was moderately high. Decontamination knowledge, hand washing attitudes and use of personal protection should be improved.

Keywords: Hairdresser, manicure, pedicure, infection control, sterilization, hygiene

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Monitoring on OSH in Spain: the Spanish Observatory of Working Conditions

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The deep knowledge and analysis of the working conditions and occupational risks is the first step in the development of effective preventive policies. Consequently, the information systems in OSH must be designed in order to provide useful information to define, adopt and evaluate public policies in OSH. This information is not always easily accessible and very often is scattered among many entities. The Spanish Observatory of Working Conditions (www.oect.es) was created in 2008 to fulfill this need of information, in the frame of the operational objective of the Spanish Safety and Health at Work Strategy (2007-2012) aimed at the improvement of the national systems of OSH information and research. In the Observatory, data from different contrasted and reliable sources is synthesized to obtain indicators (95 at this moment) which show the evolution of the Spanish world of work, especially in those aspects related to work conditions, their effects on the safety and health of workers and the preventive actions taken. The indicators are designed and analysed by OSH experts and they are from different complementary sources, for example, surveys or registers of occupational accidents and diseases. The Observatory has also room for technical studies focused on the analyses of work accidents, sector studies, and research reports from different Spanish institutions, which provide a multidisciplinary state-of-the-art vision of OSH. The information provided by the Observatory is mainly targeted at OSH experts and at the designers of public OSH policies but also to the interested non-expert

public, so the indicators and some of the studies can be used in different degrees of complexity. As the world of work is in constant change, so does the Observatory, which reviews and designs its indicators to match the pace of the society evolution and also, new sources of information will be added to broad the field of knowledge of the Observatory.

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How Safe are MSDSs?

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Material Safety Data Sheets (MSDSs) are used as a means of risk communication tool for the issues such as hazards, environmental and health effects of hazardous substances and preparations, safety precautions to be taken. There are quite a few studies made on MSDSs in which they were concentrated principally on the preparation and handling of MSDSs, and intelligibility by employees. In this study, the functions of MSDSs as a communication tool were investigated and the problems relative to the preparation and contents of MSDSs were discussed. Majority of the materials purchased for industrial purposes are of hazardous substances and preparations. It is known that the ideal situation has to replace those hazardous materials with less hazardous alternatives at the design stage. If such a substitution is not possible, to be aware of all hazards arising from nature of those substances is an imported step for managing the related risks. It is widely agreed that the use MSDSs as a safety guide in the workplaces, where hazardous materials are being handled is of vital importance. But, some problems related to effectiveness and intelligibility of MSDSs by employees are in discussions. Providing MSDSs in the native language is a consumer right. However, in cases where the original text in local language cannot be provided, mistranslated or bad translated versions are being handled. Other problems encountered in the MSDSs are the lack of information about the nominate of compiler, contact information and some contradictions in the context. The preparation, delivery and usage of the MSDSs are regulated with legislations, but to increase of awareness is an important task of HSE professionals and management. It is thought that auditing MSDSs by an independent body can help to increase the efficiency and reliability.

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The Prevalence of Silicosis in a Ceramic Factory Workers

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Since 1986, the data about pneumoconiosis prevalence has been issued for coal mine workers of Turkish Coal Company in Zonguldak. No data was presented about private sector coal mines workers. In this study, we aimed to present the investigation data concerning 2010 year pneumoconiosis prevalence in two private coal mines. There were 321 workers in one coal mine and 221 workers in another coal mine. ILO standardized 35x35 cm chest x-ray graphies were taken. Quality 3 and 4 graphies were repeated, then quality 1 and 2 films were

evaluated. The films were read by one B type (MÇ) reader. The diagnosis of pneumoconiosis were put in workers worked more than 3 years and having suitable radiological appearance. The pneumoconiosis were detected in 4 of 321 (1.3%) and 6 of 221 (2.7%) in two coal mine workers. While the lesion type is mostly nodular and p type, categories were 1/1 or 1/2. The pneumoconiosis cases were detected in coal production section. The most of the workers have been working lower than 10 years. In conclusion, even prevalence in coal mine workers is lower than expected the exposure duration (below than 10 years in most of the workers) may affect the results. On the other hand, concerning profusion categories the pneumoconiosis findings are not severe in these workers. So, in our opinion, new studies are needed to show real pneumoconiosis prevalences in private coal mine workers.

Keywords: Pneumoconiosis, prevalence

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The Relationship Between Sociodemographic Characteristics, Working Life Characteristics and Work-Related Accidents of Nurses in Mugla State Hospital

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According to Social Security Institution statistics in Turkey, 72 963 work-related accidents had happened and 866 of those resulted in death (1). In this study, the relationship between the characteristics of sociodemographic and working life and the possibility of experiencing a work-related accidents that nurses, who have been working at Mugla State Hospital, face with has been investigated. A cross sectional analysis has been conducted in which 225 nurses were selected. Of the 225, 200 nurses participated, yielding a response rate of 88.8%. In the study, a questionnaire, which had been developed by the researchers and had sociodemographic and work life related variables, had been used. Fisher's Exact Test and Pearson Chi-Square Test were conducted using the program SPSS 15.0. 48.6% of the nurses are between the range of 31-39 years old and 71.5% have never got any education about work-related accidents after the graduation. Moreover, 78.0% of those nurses had seen sharp tools, 26.0% of them blood and body fluid, 19.0% had experienced a fall off at the workplace and 18.0% had faced with a violence. At a sharp tool accident, 53.3% of nurses had mentioned that there were no protections used and 88.5% of them had said that they had not reported the accidents. A dispersed treatment room(p:0.003), not using gloves(p:0.000) and insomnia(p:0.009) result in facing with a sharp tool; slippery floor(p:0.000), not enough lighting(p:0.000) and not being experienced(p:0.000) result in fall offs and increase the risk of experiencing incidences on-the-job statistically significantly. The most important results of experiencing work-related accidents that nurses had faced with are not being educated on the subject. Precautions should be taken by employers and training related with how to protect ourselves against accidents has to be provided to employees. References 1.<http://www.sgk.gov.tr/> (Erişim tarihi: 02.06.2010)

Keywords: Work-related accidents, nurses, state hospital

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Outcome of the POSITIVE Program in Indonesia for Five Years

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POSITIVE (Participation-oriented Safety Improvements by Trade Union Initiative) seminars were conducted for trade union members for improving their workplace conditions in Indonesia. The program was developed by the Japan International Labour Foundation (JILAF) with technical support of the Institute for Science of Labour. The program is conducted in 11 countries including Bangladesh, China, Indonesia, Mongolia, Nepal, Pakistan, the Philippines, Thailand, Laos, Vietnam, and Timor-Leste. The program consisted of collecting local good examples, small group discussions among the participants and using an action check list for proposing improvements in participants' workplaces. POSITIVE seminars in Indonesia were conducted by the Confederation of Indonesian Trade Unions (CITU) and JILAF for five years. Through five year periods, 18 POSITIVE seminars including a pilot seminar, 10 basic four-day training activities and eight seminars for training of trainers were held. In total, 483 trade union members in many industries participated, including 79 trainers, who conducted the basic four-day seminars. After the seminars, participants became the trainers of occupational safety and health activities in their own workplaces. The training tools such as a trainer's manual and a check list were developed in Indonesian language. The participants have reported many improvements in their workplaces after the POSITIVE seminars. Many improvements were achieved in materials handling, workstations, machine safety, physical environment and welfare facilities. In the global strategy on occupational safety and health, the ILO suggests the importance of developing practical training materials and methods for the improvement of the working conditions. The experiences of POSITIVE seminars in Indonesia show that the POSITIVE-style participatory training program is effective and useful for workers to improve their working conditions by their ideas for the prevention of work-related injuries and diseases.

Keywords: OSH training, participatory method

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Assessing Work - Related Stress and Integrated Health and Safety Management

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The European legislative requirements in H&S, require nowadays an Assessment of the Work Related Stress (WRS) risks. A methodology has not been identified by the law, furthermore there is no a unique methodology in the scientific literature that can be easily applied to the most common scenarios. Goals of the method: help companies to comply with the law requirements; define a repeatable assessment methodology through a validated tool; use the WRS risk to strengthen the company's organization; use the WRS appraisal as an important tool for prevention of major events like occupational injury and illness considering the influence of stress in traditional risks. The model has both a qualitative and quantitative approach. It refers to the Cox model and it includes the analysis of working

organizational aspects, including organizational, interpersonal, and individual work factors that can cause direct or indirect physical or psychosocial consequences (i.e.: burnout, behavioral stress, organizational cynicism, intention to leave). The structure of this model includes the analysis of antecedent's factors. The tool investigates the employee's perception of different dimensions of their working environment. By using these tools it is possible to validate positively and negatively the antecedents. The assessment allows to identify positive aspects too; such as Psychological well-being, Emotional well-being and Personal satisfaction. Furthermore it allows to map Strength, Weaknesses, Opportunities and Threats of the organization in order to adequately identify management measures specifically addressed to WRS issues. This approach makes it possible to directly manage actions that could have an impact on negative factors, preventing undesired consequences. It is also possible to relate factors to different areas of intervention (i.e.: customers/patients, organization, tools, operators, structure, environment) to optimize the action plan in an overall vision of an integrated management system.

Keywords: Stress related, assessment, psychological, well-being, cox model

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The HSWI: Health and Safety Workplace Index. A New Method for Managing the Residual Risk in Hospitals

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This study's purpose is to develop a useful tool for assessing and managing the residual risk in hospitals. The method is structured according to the principles based on the occupational H&S. The model's peculiarities are: the smartness of implementation, the possibility of reproduction and the opportunity to easily control through the time the identified residual risk factors. The theoretical approach starts from an overall vision of an integrated management system designed to quantify and measure the antecedents, not only for the inner negative factors, but also to consider the positive factors of the concerned organization. In order to do that, an accurate analysis is carried out of the incidents & accidents or near misses causes (related to: corporate organization, personal factors, machinery or equipment, etc.) and the positive or non-causal factors that are also involved. While the causal variables (lack in procedures, insufficient training, etc) are responsible for the generation errors, the non-causal ones (efficient internal communication, good ergonomics, etc) increase the corporate system of H&S while working. The selected factors will be submitted to a ternary statistical analysis, bearing in mind that the remaining residual risk cannot be eliminated, with the purpose of obtaining two different values (for the causal and non-causal factors). Using these values a torus will be created, in which the two types of variables will be put together. The created relation between the factors will define the current hospital HWSI. By applying this method, the HSWI could be estimated for hospitals and the results shown as a simple toroidal graph representation, as a donut. Over time the fluctuation system can identify easily which factors were properly managed and those that still need to be worked on in order to optimize the result, by deepening each variable as to avoid or minimize the possible adverse events.

Keywords: Risk management, OHSAS 18001, healthy workplace, healthy hospital, near miss, residual risk.

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Safety and Health at Work as a Factor of Competitiveness of Organizations

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The Health and Safety at Work (HSW) is a key factor in the competitiveness of organizations, what for was developed by a research work, in Portugal, covering the full range of enterprise and public administration. The population was divided into micro, small, medium and large organizations, and has chosen by a stratified probability sample. By approximation, the number of companies studied was calculated to be 899. Was decided to contact all the organizations that had the field on the e-mail address filled in a total of about 17,240 companies. In addition, were also contacted "The 500 Biggest of 2009" and "The 85 Best to work of 2009" as well as the services of Public Administration. In total, about 18,800 were sent messages. Were also carried out interviews with individuals involved in the world of work that allowed concluding that the HSW is a theme that cuts across any type of organization and the services they contribute to the same HSW an added value, being a factor in competitiveness. So far, it was not carried out any work of this nature, based on the following assumptions: • H1 - Action of HSW Services contributes to Decrease Occupational Accidents; • H2 - Action of HSW Services helps to reduce absenteeism; • H3 - The working conditions contribute to increased competitiveness; • H4 - HSW Services are an investment, not a cost. HSW Services contribute to the improvement of working conditions. As a result, accidents at work and absenteeism decrease, resulting in greater productivity, competitiveness is a factor of any organization. This work was also contributing to an overview of the organizational fabric Portuguese and the degree of implementation of HSW Services.

Keywords: Small, medium and large organizations, health and safety at work

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Risk Assessment in Portuguese Air Force – A Short, Clear and Concise Methodology

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In any organization, the various activities contain risks. The Portuguese Air Force (PoAF) is no exception to this rule. Rather, the specificity, complexity and technology associated with some of the tasks performed are distinguished, in large part, the risk factor is enhanced. The process of risk management provides six steps: identify hazards, assess risks, analyze, control measures, make the decision, effectively implement and supervise and review. In this case enter two variables: the severity, with five categories, and probability, with five options. The result of the combination of these two parameters is the Risk Assessment Code (RAC). The methodology is applied with the use of a simple spreadsheet, where the technician places the location ID, the number of people who normally work in it, the type of work,

identified hazards, risks and associated values for probability and severity, with the CAR obtained automatically. The technician must still fill the cells on the proposed control measures. In the end, the spreadsheets are made known to all elements of the area, signed by the author after the evaluation by the technical services and the responsible of Prevention. The application at visible site is the next step, to go reminding workers of the dangers and risks that may face, and draw attention to potential visitors on them. The methodology explained not only nor the best, nor is it original. Results of a blend of other methodologies. Its simplicity and clarity are a great help in Risk Management in PoAF, a process still embryonic. Due to its versatility, it is also used to categorize the abnormalities in supporting audits units. Not anymore, in fact, an element of prevention.

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Integration of Occupational Health Services in Primary Health Services

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The global plan of action on workers 'health (2008-2017) was adopted by 192 member countries including Turkey at the 60th World Health Assembly. The action plan will touch on all aspects of occupational health. Occupational health improvement can be won with primary prevention. The basic strategy to remedy this situation is the basic occupational health services. Family medicine can not participate such a practice. They faces more the type of disease and they can suspect from etiology associated with the work but they can not evaluate patient enough due to formation. Occupational medicine is organized due to these and similar reasons in many countries of world, beside family medicine in primary health care services. In Turkey approximately 2% of the workplace have their workplace health unit and they have regular occupational health service on the basis of legal regulations and organizational structure. Setting up a workplace health unit for out of this 2% is not appropriate in terms of economic and practical rules. So, it thought that most workplace can get this service from common workplace health units, which employs occupational physicians. Establishment of their common workplace health unit by small or middle enterprises is very difficult. Serving this service through primary health care and the private common workplace health unit is thought but rational one is to create common workplace units which is in primary care health system and belongs to Community Health Centers. Because it is quite difficult to produce service for private sector with a certain standard and to control them. This model in Community Health Center will prioritize the prevention among occupational health services, based on the principles of primary health care services to meet the current approach; information flow and cooperation between family medicine and occupational medicine in terms of respond the requirement in an appropriate infrastructure will be created.

Keywords: Occupational health services, primary care, common workplace health unit

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Emotional Safety Emirates Aluminium

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Emotional Safety, Does it Work? The journey to “zero harm” of any safety strategy is so complicated and time-consuming, hence the safety professional shouldn’t be left un-sourced; It has been proven when the emotional factor properly utilized to enhance the safety performance, the results are quick and lasting ones as well. All are aware of the statement of “business is money” and “time is money” but couldn’t we say that “emotion is money” as well? The presentation will focus on how the “Emotional Safety” can be used as a very helpful tool to improve the safety at the workplace. The presentation will explain a case study when the safety performance was retrained to its normal and accepted level by talking “emotionally” to a massive work-force. The presentation will also add a light at how to build a safety culture within a multi-national site on daily bases.

Keywords: Emotional safety, does it work!?

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Why I Moved from Engineering Towards HSE?

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Why I moved from engineering towards HSE? The misconception understanding of the role of the safety officer within the Arabic cultures is a major challenge, most of Arabic nations deal with the safety officer as he is a police man, “implement, and then argue” We would like the role of safety officer to change to be similar to “customer care” rather policing the organizations, to do so we need to look at different experiences and learn from it. At an advance stage, the safety or HSE officer could play major enforcement role within the governments, but that is only achievable when we reach a well-established Safety Cultures at all nations’ levels The presentation will talk about the following points - Definitions of Safety Officer, Supervisor and manager - Roles and Responsibilities - Qualifications - Backgrounds - Development - Management skills with the work-force - Fair usage of the authority - Success stories - Q&A

Keywords: Arabic HSE professional

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Can Cross Median Structures Affect on Efficiency of Parallel Noise Barriers?

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The aim of this study is to investigate the parallel noise barrier performance in the presence of a required structure called median barrier. The insertion loss of rigid parallel noise barriers in presence of a simple median barrier was investigated using Boundary Element Method (BEM). It was found that a simple median barrier can decline the efficiency of parallel noise barriers at some frequencies. Various median barrier shapes were modeled to decrease the considered negative effect of median barrier. Median barriers were divided into two groups consists of sloped barriers and profiled barriers. In terms of insertion loss difference between profiled median barriers and the simple one, those designed median barriers which have a top surface have lower max and min points at frequency range. Fewer corners in such barriers compared with other barriers with more refraction surface make a simple trend. Similar results were also realized in inclined barriers. The mean A-weighted insertion loss of all tested barriers has shown that sloped barriers have better efficiency than profiled barriers.

Keywords: Median barrier, boundary element method, parallel noise barriers

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Occupational and Commuting Injuries among Non-Governmental Employees in Malaysia

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Data on occupational injuries reported to Malaysia's Social Security Organization (SOCSO) has been analyzed from 2002 to 2010. There was a decrease in both the absolute number and the incidence rates of these injuries over time. About 40% of cases occurred in the manufacturing sector followed by the service (17%) and trading (17%) sectors. The agriculture sector reported the highest incidence rate (24.1/1000), followed by the manufacturing sector subcategories of wood product manufacturing (22.1/1000) and non-metallic industries (20.8/1000). Men age 40 to 59 had a greater tendency to sustain injuries. Trend of Commuting Accident (CA) as compared to industrial accidents has been steadily increasing from 8.8% in 1993 to 38% in 2010. Analysis of the CA shows that most of the workers involved in CA suffered multiple injuries resulting in permanent disability for a long time. In 2010 there were 720 deaths due to CA. The victims were mainly in the 15-44 age groups. The peak time of accident was during coming back from work at 1600-1800 hours. The vehicles involved were the motorcycles and cars (89%). Male workers formed 80% of total commuting accidents in 2010. The most common cause of commuting injury in 2010, are due to being hit by moving object (32.2%), and stepping on or striking against or struck by objects (18.4%). Manufacturing sectors still form the largest percentage of commuting claims with more than 30 percent. Most of the claims for commuting accidents were reported in Kuala Lumpur and Selangor. Government and non-governmental organizations should strive to develop strategies to reduce the occupational and commuting injuries targeting vulnerable groups. Enforcement of safety measures will further play an important role to ensure that both employees and employers take special precautions to address workplace hazards.

Keywords: Occupational injuries, surveillance, industry, wood products, agriculture, service sector, Malaysia

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Ergonomics Assessment of Musculoskeletal Disorders Risk Factors in Building Construction Workers by Path Method

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Work-related Musculoskeletal Disorders (WRMSDs) are the most prevalent occupational diseases and injuries. The aim of this study was WRMSDs risk factors investigation in building construction industry by PATH (Posture, Activity, Tools and Handling) method. Method: A cross-sectional study was conducted in four construction sites. A total of 2200 observations on 63 building construction workers were obtained. The percent of time determined for trunk, legs and hands postures, and manual material handling activities, used tools and handling in job tasks. Trunk, legs and hands postures, tools and objects weight differed significantly among studied jobs ($P < 0.0001$). Neutral trunk posture was observed frequently. Neutral legs and hands postures were observed greater than %50 and %80 of the work time respectively in studied workers. Loads with less than 5 Kg were handled repeatedly. Ergonomics interventions such as proper workplace design, worker training, exercise and use of lifting belts could reduce incidence of WRMSDs in workers.

Keywords: Building construction, ergonomics, musculoskeletal disorders, building construction workers

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Prevalence of Musculoskeletal Disorders in Steel Industry Workers, 2010

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Work-related musculoskeletal disorders (WMSDs) are a common problem in workers. Work factors, such as repetitive tasks, awkward posture, heavy physical work, and vibration are known as risk factors for musculoskeletal disorders in the workforce. This study was aimed to determine the prevalence of musculoskeletal disorders in steel industry workers in Birjand, Iran. This cross-sectional study performed on 40 workers at a steel company in Birjand, Iran. The prevalence of WMSDs was obtained by using Nordic Musculoskeletal Questionnaire (NMQ). The data were analyzed by SPSS using t-test, Chi-square and ANOVA test with $P < 0.05$ as the limit of significance. All study subjects were male. Mean age of them was 28 ± 5.7 years and their mean work experience was 1.8 ± 0.88 years. The prevalence of disorders for different parts of the body was as follows: 25% for neck, 52% for legs, 19% for low back, 38% for shoulders, and 31% for wrist. There were significant correlation between leg disorder with age ($P = 0.01$) and low back disorder with work experience. ($P = 0.04$) It is concluded that the evaluation of postures is necessary. In addition the level of workers' education regarding correct work conditions and postures should be increased.

Keywords: Musculoskeletal disorders, steel industry, ergonomics

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Prevalence of Respiratory Symptoms in Ceramic Factory Workers in Birjand Iran, 2010

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Ceramic workers are exposed to dust particles and are susceptible to multiple pulmonary complications. Problems like asthma, chronic obstructive pulmonary symptoms, and silicosis are more common among them. This study was aimed to determine the prevalence of respiratory symptoms in a ceramic factory in Birjand, Iran. The study was conducted as a case-control study which included 49 workers occupationally exposed to dust and 49 unexposed workers as controls. Both groups had identical socioeconomic, demographic status and length of employment. The prevalence of respiratory symptoms was obtained by using American Thoracic Society Questionnaire. Results analyzed using T-test and Chi-square with $P < 0.05$ as the limit of significance. All study subjects were male, and the two groups were comparable in age and smoking. The exposed group had frequent respiratory symptoms like phlegm, wheezing, cough, shortness of breath, hoarseness of voice, dry mouth, blurred vision. The difference was shown to be statistically significant ($P < 0.05$). In this study both groups had identical socioeconomic and demographic status and were similar as far as important confounding variables such as cigarette smoking. It is very likely that the significant increased prevalence of respiratory symptoms among exposed workers could be attributed to their exposure to raw materials used in ceramic production. Therefore, our data approves the results of similar research conducted

Keywords: Ceramic dust, respiratory symptoms and disorders, ceramic industry

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Appointing the Abundance and Comparing Respiratory Symptoms among Welders and Official Staffs in One of Arak Industrial Factory

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It is necessary to assess the abundance of respiratory symptoms and spirometric through academic methods because of the increasing usage of the welding and also having different poisonous gas and fumes in various industries like machine industries and others that could be paved the way to form and increase the respiratory symptoms in this workers group. To handle the procedures, we respectively need the followings: Choosing non smoked welders and non smoked official staffs, having check-up and spirometry by an occupational physician, filling the questionnaire, also gathering the results, analyzing data and finally preparing the reports. Sampling in this procedure is choosing all non smoked welders that experienced at least 6 months in welding and picking out the same number among non smoked official staffs having no experiences in facing respirable pollutants. Also the total number in each of 2 groups is 60 people. The most important results is that there is no meaningful relations between symptoms including burning of nasal membrane, hoarsening, epistaxis, results in pulmonary examination, spirometry results and welding itself, but a meaningful relation is observed in complaining about throat burning, cough, sputum excretion

and dyspnea. Based on reports in measuring the chemical factors around working atmosphere and being high in this amount from the related standards, finding such symptoms among welders are not farfetched.

Keywords: Welding, spirometry, respiratory symptoms

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Occupational Health and Safety on Oil and Gas Sectors

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The paper will include the followings: Introduction on the Oil, gas and mineral sectors history of exploration and production in Yemen. Oil & Gas sectors, the produced and exported quantity of oil reserve pipelines and port seas of export oil, gas and minerals statistics of 2009 (new edition of 2010) Human resources: Total number of employees in: • The Ministry, its Companies (13824 employees) • Producing Oil Companies • Oil Exploration Companies • Subcontract Companies (18324 employees for the rest companies) Legislation on OSH: Yemeni legislations Ratified ILO & ALO conventions gulf legislations HSE procedures of the international companies such as TOTAL, HUNT, LNG.. etc. Occupational hazards (Injuries, Accidents, etc.) in oil, gas and minerals in the activates of exploration, production, transportation, refining and marketing. Methods of controls will include the polices, risk assessment, and inspection of the working environments in the companies. the problems resulted from the usage of high technology will be explained in details for the Main contractors and subcontractors companies. Training programmes in oil, and gas OSH: will determine the types of training programmes in international and locals companies. Proposed solution for challenges and obstacles: • To unified the responsible unit of OSH • Clear OSH standards • Awareness promotion • Development of Training.

Keywords: Text

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Estimation of the Flammability Characteristics and Zone of a Hydrocarbon Vapor Mixture above Refinery's Liquid Waste

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The study of fire in process industries has displayed significant potential for further research in the oil and gas business. The aim of the study is to investigate the possibility for the occurrence of fire incidents due to the vaporization of hydrocarbon components above the wastewater flowing through a refinery's drain. The study covers both experimental and theoretical aspects. The experimental part is initiated by collecting the liquid sample from one of the refinery's drainage systems. The liquid sample contains mixture of hydrocarbon

products and water. The liquid sample in the initial stage was subjected to undergo the distillation process to extract oil and remove water contents. Then, the oily liquid is analyzed using Gas Chromatography Mass Spectrometry (GC-MS) to examine the compositions of the sample. The results obtained indicated that there are 77 hydrocarbon components ranging from C9 to C22. The mole fractions of the components in the liquid phase were obtained from the GC results. Whereas, the mole fractions of the components in the gas phase were calculated according to Raoult's law. The Lower Flammability Limits (LFLs) and Upper Flammability Limits (UFLs) for individual component were calculated using stoichiometric concentration method. The values were compared with others obtained from different literatures and database. The LFLmix and UFLmix for the mixture were calculated with accordance to Le Chatelier equations. LFLmix and UFLmix values were used to draw the flammability diagram and to examine if the mixture is flammable or not. The results of this study may contribute to minimizing the loss of properties, business and life due to fire accidents.

Keywords: Fire, gas chromatography, compositions, LFL, UFL, flammability diagram.

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Environmental Aspects by Life Cycle Analysis in Production Processes: Cement Case

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The continuing degradation of the environment and many environmental disasters have given the theme of the environment is of increasing importance. Approximately 5% of global CO₂ emissions originate from the manufacturing of cement, addition to the CO₂ the cement manufacturing process produces millions of tons of the waste product cement kiln dust each year contributing to respiratory and pollution health risks. In this framework we will make a statement of environmental economic activities of a cement company in applying life cycle analysis (LCA) to evaluate the environmental impact. Evaluate the best air emissions of a cement company located in the local air pollution, locate the company in the present and future regulatory environment, assess the difficulties related to the analysis of emissions and finding the best solution to reduce and give an order of magnitude of the economic: cost reduction, response times possible return on investment.

Keywords: Environment, economy, cementry, LCA, Demarch

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Social Realities of the Workers of the Informal Economy Gender, Jalisco, Mexico

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To identify the social realities of the Workers of the informal economy (tianguis) with sort perspective. Study of Qualitative and interpretive case. Spatio-temporal boundary in the State of Jalisco, Mexico. Propositive sampling with the AIM of Describing the process of a phenomenon through the selection of focal groups of (7 -12 members) as selling by women and men of food in three flea located in the metropolitan zone of Guadalajara, Jalisco. The analysis of the information-through hermeneutical method with realized the support of program ATLAS.ti. The participation of women that expressed change their way of life by feeling worried, tired and with increased mental workload, lack of autonomy and support. Working conditions and double shift that women bear the unfair distribution of roles within work and outside work, is a trigger overload and economic inequality. For his work there are feelings of happiness, pride, love and joy, but expressed no family support and lack of social and labor rights. The gender analysis was not limited to identify differences between men and women if they do not address a number of dimensions involved in social relations and, from them, conduct field goals, in order to guarantee the rights and access to work without discrimination against women.

Keywords: Gender, labor, health, women

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Evaluation the Efficiency of Respiratory Protective Equipment Based on Biological Monitoring Indicator, Ortho-Cresol, in Urine of Workers Exposed to Toluene

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Abstract Background and Aim: In most of industries including paint manufacturing, workers are exposed to toluene. Absorbed toluene in liver is metabolized and is exerted as urine metabolites including ortho-cresol. Because of some reasons in some industries the only possible way for reduction of exposure is using personal protective equipment. The aim of this study is examining the efficiency of respiratory protective Equipment in reduction of exposure of workers to toluene by biological monitoring in urine. **Method:** Workers of production line of three paint industries (22 Subjects) were studied. When workers did not use respiratory protective Equipment, the average of the amount of breathing exposure of each one to toluene was measured during the shift. Next day the average of the amount of exposure of the same workers who used respirator was again measured and at the end of work shift of both days, their urines were collected and were sent to lab for determining the amount of ortho-cresol. The measurement of urine ortho-cresol was carried out by NIOSH 8305 and sampling and measuring of existing toluene in workplace air was done by NIOSH 1501. **Findings:** The average of workers' exposure to toluene was the same for first and second day but the comparison of urine ortho-cresol at the end of shift showed significant differences for days during which respirator was used and days it wasn't used (pvalue=0.026). The comparison of the average of inhaled toluene based on ortho-cresol criterion in urine of workers which was calculated by formula showed significant differences (pvalue<0.05) for days respirator was used and days that it wasn't used. Regarding to 20% reduction in inhaled toluene, based on related formulas, the average of efficiency of respirator was achieved 42.6% and protective factor 1.7. **Conclusion:** According to NIOSH standard, protective factor for used respirators is 10. So, according to results, this respirator

has not sufficient efficiency for reducing exposure of toluene and it cannot be used as the safe way for protecting workers against chemical pollutants.

Keywords: Respiratory protective equipment, biological criterion, ortho-cresol, toluene

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The Determinants of Sick Leave Durations of Spanish Self-Employed

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Self-employment has gained importance in Spain and authorities are willing to promote it as a different way to generate employment. In January 2008, nearly one fifth of the Spanish labour force consisted of self-employed (in particular, more than 3.3 million were affiliated to this special scheme). Mostly, research on labour market has focused only on wage-earners but recent figures should modify future analysis because the behavior of the self-employed has become a major issue to understand how the labour market is functioning. This study focuses on the duration of sick-leaves after experiencing an occupational accident for self-employed. Although recent figures are scarce, the number of lost days of work seems relatively high in relation to other workers. The average number of sickness absence days per year of the self-employed is twice as much as the wage-earners. A public debate is now centered in explaining the reasons of these differences, taking into account as a possible explanation the existence of a moral hazard problem. However, self-employed representatives maintain that characteristics of self-employed differ from those of the wage-earners and this is the main reason that produces longer durations. The analysis takes into account the recent legislative efforts made by the authorities to improve social benefits for self-employed in Spain. Among others, since 2004 self-employed may partially compensate their loss of income by a state-provided income insurance in the case of temporary disability (both in case of occupational accident or illness). This reform has generated exogenous sources of variation and yield testable implications. If moral hazard plays a role and self-employed react to economic incentives, absenteeism should increase. We apply duration models so as to determine the factors explaining the duration of sick-leaves and data used come from the Spanish Statistics on Accidents at work.

Keywords: Moral hazard, sick-leaves duration, self-employment

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ANSES Proposes a New Tool to Limit Peaks of Exposure in the Workplace

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Occupational exposure limits (OELs) are an important tool used to protect workers from adverse chemical exposures and their detrimental effects on health. Thus, setting OELs for hazards in the workplace has been an integral component of worker health protection



programs for many decades. In France, these OELs are established by ANSES (French Agency for Food, Environmental and Occupational and Health & Safety) via a specific Committee dedicated to this topic. The approach involves developing OELs by expert review of the available evidence and setting levels based primarily on health considerations. One of the major questions that the Committee is considering is whether a limitation of peak exposures is necessary and whether, when scientific data are lacking, there exists a generic methodology to determine short-term limit values (STEL) that may assist in limiting the risks of peak exposures. Peak exposure intensity is often associated with acute health outcomes, whereas cumulative exposure is generally more relevant for diseases with long induction times. The 8-hour time weighted average (-8h-TWA) does not provide the best yardstick for the prevention of all health risks. For this purpose, the ANSES OEL Committee recommends:

- applying the ceiling value (an airborne concentration that should never be exceeded even for an instant) for fast-acting hazardous substances.
- limiting the number of exposure peaks, even when scientific data are lacking; therefore, a proportionality factor of 5 is proposed to link the 8h-TWA to the 15min-STEL.

Keywords: Occupational exposure, peak of exposure, OEL, STEL, ceiling value

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Using of Communication Techniques for Raising Awareness of OSH

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The Ministry that works to build a safety culture on OHS, prepares and distributes educational and promotional material to interested parties and citizens free of charge. Increasing effectiveness of usage of written and visual training materials was planned on. For this purpose, cooperation between communication sciences to diversify the tools used in and make it effective was aimed too.

Most important steps of a good communication are collecting accurate and adequate information, making a positive attitude as a result of the communication, developing plans for communication, and earning the trust of surroundings.

A measure of the effectiveness of communication is taking the intended result against a message directed to the target audience in a communication process.

To achieve this effect;

1. Presentation of the message should attract the attention of the recipient and be clear,
2. The receiver and the transmitter should have common knowledge about the symbols that encodes the message,
3. The message should respond the need of priority of recipient,
4. Recipients' basic values, and attitudes should be defined.

A cooperation has been carried out with Anadolu University Faculty of Communication Sciences about the primarily occupational health and safety problems in Turkey. To produce original and effective, written and visual materials being studied, taking into account characteristics of Turkish workers, also culture and traditions in our country.



In this study, the training and promotion materials` samples that produced to make health professionals, employees and employers sensitive about occupational diseases with using the methods of effective communication will be shared with participants.

Key words: OHS, communication, raising awareness

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OHSAS on Machining

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Manufacturing is the processing of a raw material to produce industrial products and goods.

One of the manufacturing methods is "Machining". Various risks occurs during the movements of the cutting tools and shaping under force.

We see the processes which started with the basic tool making is getting safer every day.

İskenderun Iron and Steel Co. has the largest production capacity in Turkey and it's machine shop is capable of wide variety of machining processes.

The OHSAS in this shop, which makes the manufacturing and maintenance processes, starts with determining activity steps and continues with documenting the risks, dangers and intensities according to OHSAS, creating improvement action plans and applying all of them according to the plans. In addition, the systematic OHSAS activities; 5S, Informed Security Tours, behavior-oriented safety management training, Emergency Exercises, sharing of accident investigation, incident reports, the TSE 18001 OSHAS management systems, suggestion systems, initial meetings to work, OHSAS sub-committee meetings, meetings of the OHSAS committee are applied.

We do machining operations with our staff by implementing "people first" policy and "zero accident" goal. In this study, hazards which workers exposed to, accidents and improvement of work practices will be presented.

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Electromagnetic Field Mapping and Health Status of Workers Exposed to Electromagnetic Fields in a University Hospital

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The aim of this study is to prepare an electromagnetic map of a university hospital and to determine the health status of workers working in electromagnetic fields. This is a descriptive study conducted in Gazi University Medical Faculty Hospital. For electromagnetic mapping, measurements were done in whole hospital building and Dean's building. In the study, 121 (97.5%) of the 124 workers working in the environments with equipment that may cause



electromagnetic field (EMF) were reached. 124 workers who work in the same building but not in the units where medical technological equipment were used were taken as controls and surveyed. In order to prepare the EMF map, measurements were done 90 cm above the ground and the two ends plus the mid-point of the longest aisle on every floor were measured. The EMF value for each floor is calculated as the mean of these measurements. Since the ground floor and four floors on top of the ground floor has 2 separate blocks, EMF values for each of the blocks are presented separately. EMF measurements were performed 1 m high from the ground at 1-2cms, 30 cms, 50 cms distances from the medical technological equipment, and a last measurement was performed in the half way of the aisle outside the room by calibrated F.W. BELL Model 5080 Gauss / Tesla Meter (Bell Technology, 1999, Sypris Test and Measurement Company, USA) equipment. The data were evaluated by SPSS 11.5 (Chicago, Illionis USA) statistical analysis program. For statistical comparisons, Mann-Whitney U-test, t-test and Analysis of Variance were used for continuous variables and Chi-Square and Fisher's Test are used for nominal variables. A p value <0.05 is accepted as statistically significant. The EMF values were found to be between $1,1\pm 0,1$ ile $1,4\pm 0,4$ miliGauss. The lowest measurements were detected in General Surgery and Forensic Medicine units, whereas the highest measurements were detected in the floors where the Angiography, Pathology, Central Laboratory and Radiology units were situated. Allergic diseases were significantly higher among the workers exposed to EMF than the control group.

Keywords: EMF (electromagnetic fields), hospital, health workers, occupational health, disease, symptoms

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The Frequency of Occupational Accident-Illnesses and Related Factors in Employees Working in Tunçbilek and Soma Mines

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Coal mining, like as in many countries, is one of the most risky sectors in terms of both occupational accidents and illnesses. In this study, the aim is to determine the frequency of occupational accidents-illnesses and related factors in Turkey's biggest mines, Tunçbilek and Soma. 832 workers were investigated within the scope of descriptive-cross-sectional study made in 2009. The mean of workers' age is $43,6\pm 6,9$; 31,2% is vocational/technical high school graduate; 84% has a monthly income between 500-1000 EU. 46,8% is smoking, 25,4% is drinking alcohol. Workers are working for $8,1\pm 0,3$ hours per day; $45,4\pm 7,7$ hours per week and 62,1% is working in shifts. Workers didn't take Occupational Health and Safety training with the frequency of 78,6%, compliance training with the frequency of 75,4% and first aid training with the frequency of 82,1% while starting the job. 4,6% of the workers had an occupational accident and workers who are in the 30-40 age group, have low educational level, work in shifts, didn't take occupational health and safety training, had more accident. The frequency of occurring occupational accident under the ground and above the ground is similar, workers, who work in construction above the ground and preparation area under the ground, had more accident. 9,2% of the workers declared receiving occupational illness diagnosis; workers in 41-50 age group, having low educational level (literate and primary school graduate), received diagnosis more. The most reported occupational illnesses are

pneumoconiosis and hearing loss. Occupational accidents and illnesses are preventable health problems and listed risk factors are easily correctable. And these facts show occupational health and safety measures to be taken in mining sector, clearly. For that reason, support of both public and private sector in this area should be provided.

Keywords: Mining, occupational health and safety, occupational disease, accident

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The Mapping of EM Field and Evaluation of Health Status

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Today, the demand for the electricity increasing rapidly and as a result the number of electricity production plants, especially coal fired power plants, are being erected and commissioned. Switchyards located in these coal fired power plants and the corresponding coal fields, and High Voltage Lines (HVL) which transmit the produced electricity effect both the employees working in these plants and the people living in close vicinity. Of course, this type of industrialization brings some problems too. One of these problems is the Electromagnetic (EM) fields generated by switchyards located in the power plants and mines, and HVLS. It is essential to identify the effects of EM fields on the employees and local people living in close vicinity, to inform the relevant individuals and institutions. The aim of this study is to measure the EM field in Çoğulhan located adjacent to power plants and to identify the possible effect of EM public field exposure. In Çoğulhan totally 713 EM field measurements are done to generate mapping of EM field. EM field level is varying between 1.38 ± 0.03 and 27.02 ± 0.47 mG. The lowest measurement is recorded at the farthest point from switchyards and HVLS while the highest values are recorded under the 380 kV HVL. The arithmetic mean of EM field measurements in Çoğulhan is 2.86 ± 3.60 which is higher than 2 mG EM field level, threshold level for childhood leukemia. As a result of the study, it was seen that females are more sensitive to EM fields. The prevalence of the diseases among sexuality ($p=0.005$), allergic diseases among females ($p=0.0015$) and prevalence of migraine among females ($p=0.006$) are statistically significant. In addition, the prevalence of unwanted abortion depend on the duration of residency over survey group is statistically significant. The results of the study are consistent with the EMF measurement levels and health effects in the literature in general.

Keywords: EMF (electromagnetic fields), power plant, switchyard, high voltage line (HVL), health effect, disease.

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Working Conditions, Frequency of Occupational Accidents-Illnesses and Related Factors of Workers Working in a Construction Area in Sakarya

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Construction work, like as in many countries, is also one of the leading informal sectors in Turkey, takes place in sectors at which occupational accidents occur most. In this study, the aim is to determine the frequency of occupational accidents and illnesses and related factors in a housing estate which is the most common construction work in Turkey. 247 workers were investigated within the scope of descriptive-cross-sectional study made in 2009. The mean of workers' age is 34,1±9,5; nearly the half (47,4%) is primary school graduate; more than half (51,9%) has a monthly income under 350 EU (minimum wage). 56,8% is smoking, 36,4% is drinking alcohol. Workers are working for 9,2±0,9 hours per day; 56,6±4,1 hours per week and 68,0% is working in shifts. Workers didn't take Occupational Health and Safety training with the frequency of 92,7% and compliance/vocational training with the frequency of 89,1% while starting the job. 55,5% doesn't use personal protective. 15,0% of the workers had an occupational accident and the most frequent accidents were falling and sharp injuries (62,2%-32,4%). Workers who are in the 25-34 age group, work more than 10 hours per day and 55 hours per week, didn't take occupational health and safety training, work in shifts and don't use personal protective had more accident. 99,2% of the workers declared not receiving occupational illness diagnosis. Occupational accidents and illnesses are preventable health problems and listed risk factors are easily correctable. And these facts show occupational health and safety measures to be taken in construction sector, clearly. For that reason, support of both public and private sector in this area should be provided.

Keywords: Construction sector, occupational health and safety, accident

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Knowledge, Attitude and Behaviour of Physicians Working in Primary and Tertiary Health Care Towards Occupational Accidents and Illnesses

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This study aims to be leader to determine occupational accidents-illnesses in physicians' knowledge, attitudes, behavior. In June 2009, 349 physicians working at the Gazi University Medical Faculty Hospital and under the Department of Health in Etimesgut, completed questionnaire. 56.7% of the participants were in 26–35 age groups, 54.4% was male, 56.7% was medical resident. The median number of cared patients daily is 20 (min:0-max:302). 49.9% of the participants reported taking occupational accidents, illnesses training during medical education, 34.5% of these reported that training was sufficient. Participants reported that they didn't take occupational accidents and illnesses training after graduation with frequency of 88.0%, the training was not sufficient with frequency of 42.9% and haven't been an occupational physician before with frequency of 97.1%. 88.0% of the physicians told that they didn't know at least number of workers should be stated for one occupational physician to work, also physicians reported knowing the necessary number gave answers as median 50 (min:1-max: 1000) person. 52.4% of the participants said that he experienced an occupational accident, 37.7% declared making occupational accident notification, 57.7% declared that the workplace environment factors are affecting occurrence of occupational accidents, 96.6% declared that accident notification must be done. 55.0% of the participants said that he didn't diagnose an occupational illness, 51.5% factors related to workplace are affecting occurrence of occupational illness, 92.8% occupational illness notification must be

done, 12.1% declared that he makes occupational illness notification. The results of this study show that although approximately the half of the physicians received occupational accidents and illnesses training, only one-third of the received participants think that the training was sufficient. Participants received training after graduation is approximately one-tenth of the whole group. It's obvious that acquisition of experience of this issue in training process would be for the benefit of both individuals and the state. While physicians grown in this way served as occupational physician, burden of the patients can be reduced by providing awareness in healthy working group.

Keywords: Physician, knowledge, attitude, behavior, occupational accident, occupational disease

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How to be Successful in Implementing OHS Management System

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Occupational incident, including ill health, is one of the organization's business risks that must be well managed in order not to turn it into organization's loss. Occupational health and safety (OH&S) management system is the appropriate tool to manage such a risk, and the implementation of it should not be a stand-alone program within the organization. Implementing OH&S management system cannot be separated from a network with and functions of other sub-systems within the organization's management system. Each sub-system is related to and affected by each other, and must work well and operate optimally to achieve the organization's objectives and goals. OH&S management system requires the implementation of OH&S as a program that is measurable and achievable (SMART principles), similar to how a financial or production system is managed. There is a saying "you cannot manage what you cannot measure." There are at least five (5) outstanding characteristics for an organization successfully implemented OH&S management system. They are as follows: 1. The organization has a clear process model of OH&S management system implementation. While the legal requirements are the basis for the implementation of it, P-D-C-A approach is widely used. 2. OH&S management system is considered as a sub-system within the organization's management system. One cannot be separated from the others. 3. Risk-based OH&S programs are the backbone of the overall OH&S programs implemented. 4. OH&S roles, responsibility and accountabilities are clearly defined, communicated, implemented and periodically measured. 5. Commitment from site management and active participation from stakeholders are widely observed on day-to-day basis of the OH&S management system implementation.

Keywords: OHS management system, implementation of OHS program

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An Accident: What Does It Mean to You and Your Organization

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Accidents are clearly undesired events. When they occur, they not only upset your schedule but demand all of your attention, as you have to stop what you are doing and to handle the many problems caused by the accident. In addition, you must always think about the costs – direct and indirect – of an accident. Safety textbook says that its indirect costs are up to more than 50 times the direct costs spend. In many countries, the consequence of accidents not only ends with high costs, but also possibility of imprisonment of the accountable persons(s). So, think about it. Countries are now very concern about occupational health and safety (OH&S) and require industries to implement it. There is no excuse for not obeying the country's OH&S legal requirements. A business entity with accident prone may result in business closure! In short, an accident means a lot of consequences. Therefore, an organization must do something to stop it from recurring. The good thing is that an organization can use these adverse events as a tool to prevent future accidents. It is just a question of identifying all relevant contributing factors, the so called "root causes", and by trying to eliminate them your organization can decrease considerably the risk for similar accidents. Accident prevention is every individual's job within any organization, and the primary responsibility for accident prevention rests with top management. They, in turn, share the responsibility with middle management and through them with front line supervisors.

Keywords: Accident, OHS legal requirement

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Occupational Health and Safety in the Informal Economy in Brazil: Street Vendors; Collectors of Materials for Recycling; Rural Workers and Fishermen

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In, 2009, 212 million were unemployed and 1.5 billion were under employed, remained in insecure and vulnerable, provided own-account, self-employed and family workers (ILO, 2009). In Brazil in 2002, 45,2% contributed to Social Security. Much more worrying is the fact that 54.8% of Economically Active Population in the country has no social protection. Informal workers with low educational attainment and low- income live in poverty and inequality. This study demonstrates, through an ethnographic approach, the process of insertion and permanence of workers in the informal labor market – the forms of exploitation, domination, and precarization of work and their consequences with regard to the health, working, and living conditions of the workers – considering most directly the following four groups: street vendors, collectors of materials for recycling, orange pickers, and lobster fishermen. The study reveals the resistance strategies developed by the informal agents in their daily work routine, as well as the forms of organization that they have adopted in an attempt to overturn the situation of poverty and exploitation. Emphasized in this study is the positioning of the various social and political institutions – particularly unions, cooperatives, non-governmental organizations (NGOs), social movements, and, mainly, the state – in the context of the informal economy. The main objective is to analyze the role of informal work and its importance in the capitalist mode of production. This understanding will allow for

combating the real causes of unemployment, informality of labor, and social and economic inequality. A criticism is made of the principles of “entrepreneurism,” “autonomy,” and “cooperativism” that have been suggested as alternatives to unemployment. The various forms of informal work – such as “autonomous” work, self-employment, temporary work, and outsourced work – obfuscate the subordination of informal work to the dynamic sectors of the economy and, consequently, to the process of capitalist accumulation. The lack of a labor contract, or of a contract that completely protects the worker, is considered an affront to social citizenship. This being the case, the informal worker is not seen as a citizen or as a legal subject.

Keywords: Subcontracting, informal economy, precarious work, accidents, violence, occupational diseases

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Nurses Exposure to Cytostatics in the University Hospital Center Ibn Rochd

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Introduction In Morocco, 40 000 new cancer cases are diagnosed each year, their management is a big challenge because of the lack of infrastructure and human resources. Cancer treatment by cytostatics can be responsible of acute or chronic toxicity for caregivers like mutagenic, carcinogenic or teratogenic side effects. Those accidents can occur during the preparation or the administration of these harmful products by direct contact (percutaneous or ocular), ingestion or inhalation as an aerosol. Materials and methods Our comprehensive study in Ibn Rochd hospital, was based on a guided questionnaire focusing on the mode of cytostatic's preparation, the average number of patients treated per day, compliance with safety manufacturers, medical information and education about risks and waste management. Results the preliminary results showed that the preparation of cytostatics, in Ibn Rochd Hospital, is not centralized. These preparations are made in a specific unit with hood but in case of failure of this hood, the product is prepared nearby the patient. We found neither emergency procedure nor waste management plan in any service of Ibn Rochd Hospital. Only 7 of 25 caregivers have benefited from medical surveillance. We also find that the caregivers had never received any kind of training - information about the risks of cytostatics and how to prevent their harmful effects. Neither illnesses contracted in the service nor work accident related to cytostatic was reported by medical care staff. Conclusion Latency of the side effects of cytostatics and the emergence of new molecules require the establishment of preventive measures in order to protect the patient, caregivers and the environment.

Keywords: Cytostatics, cancer, toxicity

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Simplified Integrated Management Systems for Small and Medium Enterprises Adapted to the Italian Construction Industry Sector

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In Italy, the integrated management systems (limited to quality and health and safety) could be implemented with many difficulties by small and medium firms, which, however, constitute the large majority of Italian construction industry sector (small and medium firms account for 86,9% of the whole). Although the beneficial effects of the implementation of integrated management systems are known, few Italian construction firms adopts an integrated management system. The majority of construction firms usually adopt the quality management system (according to ISO 9001:2008) that is required by the Italian Law to participate in public tenders; few companies also adopt a health and safety management system (according to OHSAS 18001:2007) or the environmental management system (according to ISO 14001:2004). Limited to the construction sector, Italian firms are mostly small companies (an average of 35,3 employees per construction firm). The main barriers to the implementation of integrated management systems in small and medium-sized firms are: (i) management and organizational difficulties, (ii) high costs, (iii) lack of resources competent human and (iv) lack of adequate financial support. In order to allow also small and medium-sized construction companies to take advantage of the benefits arising from the application of the integrated management systems, we consider useful to conceive simplified fully integrated management systems structured according to company's size (small, medium). At the BEST department of the Politecnico di Milano, a research project has been recently instituted in order to study a way to allow even small and midsize construction firms to benefit from these advantages. Simplified organization and management models that require a progressive number of requirements are in a developing phase.

Keywords: Integrated management systems, safety management systems, occupational health and safety, construction industries, OHSAS 18001:2007, ISO 9001:2008

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Prevalence of Risk Factors For Non-Transmissible Diseases in Workers of Industry in Bahia / Brazil

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The non-transmissible chronic diseases represent a major problem of public health, and cardiovascular diseases are the leading cause of morbimortality in Brazil. This is a cross-sectional study aimed at estimating the prevalence of risk factors for non-communicable chronic diseases among industrial workers in the state of Bahia. Data from a nationwide program developed by the Social Service of Industry- SESI, titled as "Health and Lifestyle Diagnosis" was used. This program offers a comprehensive diagnosis of health and lifestyle conditions of industrial workers. The data were collected through interviews with 45,068 employees from 319 companies from different sectors of industry in the state of Bahia from



June 2007 to October 2010. The studied population consisted mostly of men (82.6%), youth (58.9% have up to 34 years old), married people (57.1%) and earning between one and three minimum wages. About 9.6% of the workers reported hypertension and 1.9% reported suffering from diabetes. We detected a high prevalence of overweight / obesity, unhealthy eating habits and low physical activity level. Smoking was reported by 12.5% and alcohol consumption in excess for 3.3% of the participants. Approximately 45% reported a positive family history for hypertension and 17.7% for diabetes. It was verified a high prevalence of risk factors for non-transmissible chronic diseases, and most of this risk factors is susceptible of modification by adopting a healthier lifestyle. The information collected in this program, additionally to helping companies to conduct activities promoting health and preventing disease, mainly through awareness programs to change habits in life, allow the creation of a database that enables monitoring of health and lifestyle conditions of workers, representing a real system of epidemiological surveillance of industrial population in Bahia.

Keywords: Prevalence, risk factors, non-transmissible diseases

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Youth, Employment and Occupational Hazards. a Vision of Workers about the Risk Factors at Work

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Objective is proposed to inquire into the perception that young people of occupational risks. It develops a field study. The instruments for data collection were focus groups and the Program Guide for Evaluation and Health Monitoring of Workers (PROESSAT). Participated in the study 44 active employees of a fast food franchise transnational. It is not apparent in young people aware of the risks to which they are subjected during the work process, although in the speeches and evaluations revealed the prescience of risks associated with the organization of work, high demands, physical and mechanical agents and ergonomic incompatibility.

Keywords: Occupational risks, work organization, youth work and requirements

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Food (Fighting Obesity Through Offer and Demand). A Workplace Health Promotion Programme

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In 2008, the World Health Organization estimated that more than 1.6 billion people suffer from obesity in the world. The prevalence of obesity today has led governments and public authorities to make nutrition a priority topic in public health. According to the Eurobarometer



on Health and Food (November 2006), 95% of Europeans consider obesity to be harmful for their health and would like to change their eating habits. Similarly, the International Labour Organization has observed that employees who eat balanced nutrition are 20% more productive. In that perspective, Edenred wished to participate actively and has proposed to representatives of Public Health Authorities as well as Nutritionists and Universities to join the FOOD project as partners in Belgium, Czech Republic, France, Italy, Spain and Sweden. All the members of our Public Private Partnership Consortium, co-funded by the EC, are highly committed to the promotion of healthier lifestyles during the working day by giving consumers the keys to understand and to act. Two main objectives are to: □ sensitize employees in order to help them to improve their nutrition habits; □ improve the nutritional quality of the offer by working with restaurants. To meet these objectives, FOOD actions are led through original networks that are often forgotten but essential: companies and restaurants. A unique and rare channel of communication between both has been built, following five complementary sets of actions: 1. Inventory of the existing programs in companies and restaurants to know and understand better the needs (760 pages summary of the main findings) 2. Surveys sent to 54 000 employees and 5000 restaurants whose results led to recommendations and adapted tools (pedagogical guides and DVD, trainings, conferences...) 3. Pilots in restaurants and companies 4. Evaluation in process 5. Dissemination of best practices in Europe and beyond to come in 2011.

Keywords: Food, obesity, workplace health

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Childcare Vouchers: An Answer to Stress Prevention and a Tool for Work-Life Balance

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The increasing number of women in the workforce and an aging population has meant that more and more employees are shouldering the responsibility of one or more dependents. To help them, Edenred, with a presence in 40 countries, has established solutions to solve their childcare, education or eldercare problems. Vouchers in the form of tickets, cards or e-payment system enable employers to contribute to childcare costs. The system operates on the basis of very simple principles: the companies buy the vouchers to an issuer. Then they distribute them to their staff. The user spends the vouchers at their face value in affiliated networks such as nurseries or “personal nannies”, which then are redeemed to the issuer. In addition, a childcare and education helpline can also be available (to solve concerns involving childcare, tutoring, education or care for the elderly or disabled). According to our experience, and as more and more governments have already implemented such measures, it seems interesting to collect and present some best practices. Once it has been introduced by a favorable legal framework, this system has already proved to be very effective and successful: organizations gain in productivity and well-being. It is also very easy to manage whatever the size of the company. Public institutions grant social subsidies with better fund control, it guarantees the destination of the allocation, and creates jobs. It turns informal economy into a formal activity providing tax revenue for the State. It improves employees’ quality of life with a greater purchasing power. The needs, roles and responsibilities of each actor (international organizations, regional organizations – the EU, national governments, employers and employees associations) could be discussed and underlined in the session,



as well as the holistic approach of psychosocial issues (work is not the only cause of stress and mental health problems).

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Occupational Health and Safety Conditions and Solution Proposals at Furniture Industry in Turkey

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Employees working at carpentry works in manufacturing furniture are exposed to hard and soft wood dust classified as carcinogen agent and also exposed to noise. This study aimed to determine dust and noise levels at these workplaces. By this aim, respirable air samples were taken and analyzed in the laboratory and also personal noise levels were measured. According to the results of the measurements and analysis, it was showed that levels of dust exceeded the MAK value and also levels of noise exceeded LEX value during the works carried out by plane and horizontal machine. As conclusion, health risks at the workplaces should be assessed and measured; technical and organizational preventive and promotional measures should be taken; .and the employees should be informed and trained about the health risks in this industry.

Keywords: furniture industry, wood dust, noise

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Provision of Occupational Health and Safety and the Employer Liability

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In this study, in the field of occupational health and safety responsibilities of employers and those responsible for limiting the investigated. This purpose, the applicable national and international legislation, the employer's occupational health and safety obligations and thoroughly researched, also the employer's legal responsibility and liability limitation regarding doctrine and the Supreme Court applied the framework of the approach are examined. The study in our world and in Turkey, occupational health and safety field for the protection work well, occupational health and safety risks, conducted without "prevention" work done was very important that, in recent times the legal arrangements the social side, especially the employer's occupational health and safety responsibility for providing the more was quite extensive in number and obligations have emerged. This framework, the occupational health and safety in the area of responsibility and obligations of the employer, in this respect in all areas of encouraging, by the occupational health and safety protection and risk prevention purposes closer concluded.

Keywords: Occupational health and safety, employer liability, prevention, promotion



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Implementation of the European Physical Agents Directive for Vibration in Germany

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A large number of workers worldwide use power tools and drive various vehicles for extended periods. These individuals are exposed to hand-arm- and whole-body-transmitted vibrations, which are known to cause health problems for exposures with long durations or high magnitudes. In 2002, in addition to existing national and international standards on vibration exposure, the European Union has issued a physical agents directive for vibration. The Directive 2002/44/EC of 25th June 2002 of the European Parliament and of the Council defines the minimum health and safety requirements regarding the exposure of workers to the risks arising from vibration. Actual implementation of Directive 2002/44/EC varies between the EU member states. Germany has adopted the Directive 2002/44/EC as 'Lärm- und Vibrations-Arbeitsschutzverordnung' ('Noise and Vibration Occupational Safety Regulation') of 6th March 2007. This presentation is intended to be an introduction to vibration-related issues in occupational health and a discussion of the current situation regarding vibration-related standards and regulations. Differences between Directive 2002/44/EC and the German Noise and Vibration Occupational Safety Regulation will be discussed in detail from the perspective of the German Bundesanstalt für Arbeitsschutz und Arbeitsmedizin ('Federal Institute for Occupational Safety and Health'). Methods and tools for the implementation of the Vibration Occupational Safety Regulation in small and medium-sized enterprises will be presented.

Keywords: Vibration, regulation, Germany

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OHS Conditions at Aliğa Ship Dismantling Area and Improving Them by Recommendations

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The primary goals of our study are to bring up the conditions in the ship recycling industry with respect to occupational health and safety and to develop recommendations that target to improve these working conditions. The key finding of the study is that the main causes of occupational accidents are negligence, personal conditions, inadequacy of safety measures and insufficient use of personal protective equipment; hence, these causes should be addressed primarily with longtime practical training that will raise awareness on the occupational health and safety. Measures should be taken to increase the use of personal protective equipment. Also statistics on occupational accident and diseases of Turkey and



eminent countries were examined. The findings of our study have evaluated by comparing with the data taken from the studies performed in metal, mining construction sectors and SGK statistics due to the fact that, a study about OHS conditions and status of ship dismantling workers is not present in the international literature. Although the fact, there is not any international studies about the subject creates some methodical problems, because working conditions and education and cultural level of workers are in a own specific structure, national comparison becomes more logical and meaningful. All of the occupational diseases and 98% of the occupational accident can be avoided. What ever the working conditions be in the enterprises, when approach that gives importance to human life and productivity is embraced, it is impossible not to do any development in the field of OHS. It should be in mind that when appropriate risk assessments have performed and correct preventive measures taken, even the sector that is thought to have the worst conditions will be a honorable sector not only in Turkey but also in the whole world.

Keywords: Occupational health and safety, ship recycling, risk assessment, Aliağa Dismantling Region, occupational accident, occupational diseases.

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Determination, Diagnosis on Occupational Diseases and Increasing Sensitivity of OHS Professionals in Turkey

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Occupational diseases are very problematic issue about determining and diagnosis of them. They are usually got confused by normal diseases beside financial losses which produced by them. But it is important to separate them, because this separation reduces costs of treatment. When the relationship between agents which cause to occupational disease and exposure is cut, it is no need a healing period. It means thst OHS professionals has a key position about determination and diagnosis on occupational disease.

Starting out to increasing sensitivity of OHS professionals- especially occupational physicians, nurses and others- a national funded project has been planned. And Project implemented 2010-2011. This Project is based to "Cooperation Protocol" between Ministry of Labour and Social Security (MoLSS) and Ministry of Health (MoH). The main objectives are to inform parties on determination and diagnosis of occupational diseases, to increase awareness and to prepare diagnostic guidelines for occupational diseases.

At the first phase of the project; it has been planned to create a safety culture on occupational diseases in determined areas, to complete the preparatory work of occupational diseases diagnostic guidelines, to cooperate and coordinate between relevant institutions and organizations and to contribute integration of occupational safety and health into instructional programs of graduate and undergraduate.

Thereby determining 22 provinces which are highly industrialized and in which maximum occupational accidents are observed, sensitizing conferences for society are organized. A



half day training programme has been developed and implemented to OHS professionals by the lecturer of MoLLS and MoH.

The conclusions of the trainings targeted to OHS professionals and outputs of Project will be shared in the Congress with all participants.

Results of the trainings aimed at society will be shared in the Congress with all participants.

Keywords: Occupational disease, OHS professionals, occupational physicians, training, MoLLS, MoH.

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Health and Safety Issues of an (Ammonium Nitrate) Fertilizer Production

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World population is rapidly growing, while arable agricultural land is shrinking. Complete and adequate nutrition products that will create more efficiency is a necessity. Chemical fertilizers, which meet the nutritional needs of plants, alone contributed to 40 % increase in productivity in the agricultural entries and ensuring food safety. Toros Agri accepts the responsibility to minimize the health risks for employees and customers in the production, processing and handling of fertilizers. Toros Agri provides information and training for employees regarding the safety of operations and any health risks associated with raw materials, chemicals and finished products in the production process. Over the last 100 years, significant developments have taken place in AN (ammonium nitrate) process technology, product quality, safety related issues and application. AN has three main potential hazards of relevance, which are fire, thermal decomposition and explosion. Precautions should be taken to avoid contaminating the process as well as the product i.e. by oil in ammonia, oil/grease from equipment, cross-contamination with other stored products, recycling of product coated with organic agents; materials/tools left in vessels during overhauls etc. Use of such materials should be avoided in the construction of plants and warehouses, and good housekeeping standards should be maintained to prevent combustible materials coming into contact with AN. Following the introduction of better technology and safety related controls in the early 50s the AN-based fertilizer industry has flourished over the last five decades with a very good safety record against an annual world production in excess of 20 million tons. Main uses of AN, its potential hazards, safety principles and the practical control measures to take.

Keywords: AN based fertilizers, occupational health and safety

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Search and Rescue Training as Part of Health and Safety Management System

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Search-and-rescue (SAR) is considered as "multi-hazard" discipline, since it may be required for a variety of emergencies or disasters, including earthquakes, storms, floods and hazardous materials releases. In our facility we have a SAR team which is a group of dedicated volunteers committed to saving lives in the emergency cases. It is one of the main part of our Health and Safety Management System and Emergency Organization. In the context of studies to prevent accidents, we also held outdoor training in order to prevent accidents during SAR facilities. Several training was received by Turkish professional SAR trainers. Our aim was to strengthen the preparedness for emergency situations and to share the practical experiences with other companies. We also supported the volunteer trainers as a result of our cooperation. Before and during the training, risk assessment of workplace was made for buildings, chemical risks and biohazard. Risk assessment also included ergonomic, electrical, mechanical and environmental hazards. Effective risk assessment is necessary for every field as it might change as per environmental conditions. Besides, communication, motivation and team work under pressure of heavy workload is important for ensuring safety. Various outdoor practices with different scenarios were organized in which task, roles & responsibilities were tested. As a conclusion, voluntary based SAR training is an important part of the occupational health and safety management and provides increased participation in safety practices. As a result of these activities, team members accrued enough information to apply during their daily life. This training experience also helped us to raise the awareness of personal and to establish a health & safety culture. We conducted a survey after the training and the results showed that these activities increased the productivity, motivation and teamwork spirit by %100.

Keywords: SAR, search and rescue, health and safety management system, emergency , risk assessment

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Explosion Protection

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An explosion is the sudden chemical reaction of a flammable substance with oxygen with the simultaneous release of high energy. Flammable substances may be present in the form of gases, vapors, mists or dusts. Explosion can only occur, when three factors come together: Flammable material (in ignitable quantities), Oxygen (in the air), Ignition source. The term explosion protection refers to all precautions, which prevent a hazardous explosive atmosphere from being created. This can be achieved by: avoiding flammable substances (replacement technologies); inerting (addition of nitrogen, carbon dioxide etc.); limitation of the concentration by means of natural or technical ventilation Explosion is very dangerous especially for people and its results are so devastating. For example, a few times ago, there was a big explosion in Ostim. There were so dead people and also there were so many economic damage. When we look in this respect, development of methods of explosion protection is very important. When assessing the risks of explosion, the following factors are to be taken into account ;the likelihood that explosive atmospheres will occur and their persistence; the likelihood that ignition sources, including electrostatic discharges, will be present and become active and effective; the installations, substances used, processes, and their possible interactions; the scale of the anticipated effects. In this study, there will be a



risk analysis about areas where the explosion is possible. In addition, explosion protection methods will be investigated. In 1999/92/EC, there is a part of explosion protection document. But in our country, it is not very effective. So in this study, explosion protection document's importance and how they prepare it will be explained.

Keywords: Explosion, risk analysis, explosion protection document

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OSH Professional Competence Management System: Framework of New Approach

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¹Perm Regional OSH Centre of Perm State Technical University, Russian Federation The assessment and management of occupational risks is the focus of every work on prevention of accidents and occupational diseases. It is known that the most part of the risks is created by workers owing to the personal qualities or insufficiency of the professional competence. Throughout a number of years the Russian National Association of the Centers for Occupational Safety and Health, having united efforts of numerous experts, creates and introduces the new approach to an assessment of the professional competence of various categories of employees: workers, technical specialists, managers. Requirements (indicators) to each category of workers are formulated, the system of tests of an estimation is developed. Together with ENSHPO the system of voluntary certification of OSH managers is introduced. The system of curriculums and manuals for formation of the demanded professional competence is created. The system of vocational training of experts in the OSH on a basis of the new approach is described. Laws of communication of level of occupational risk with level of the professional competence are formulated. Experience of introduction of the given system on a number of the enterprises of the various regions of Russia is analysed

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Job Satisfaction and Stress of Municipal Workers

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Job dissatisfaction and occupational stress among workers affect life quality. Our study aimed to determine job satisfaction and job stress levels of workers in a district municipality and the factors that have effect. Two 5-point Likert-type scales were used in this cross section study: Job Satisfaction Scale, developed and tested for validity and reliability by Mandıracıoğlu et al, and Job Stress Scale, developed by Haynes, tested for validity and reliability in Turkish by Aktaş. 75 workers from a district municipality were participated in the study. Their answers to the questionnaires, demographic characteristics and work conditions were evaluated using SPSS 11.5 statistics program. Mean age of workers is 36.53±8.49. 53.3% of the group is female and 46.7% male. 80.9% of workers are at least high school graduates, 56.0% married, 14.7% divorced and 29.3% unmarried. Job satisfaction point

mean of municipal workers is 71.72 ± 10.45 . Age, gender, education level, marital status, working at weekend, extra work, having managerial task, salary level, total length of service, length of service at last work and daily hour of work don't make any significant difference in regard to satisfaction level ($P > 0.05$). Workers who get higher salary have a higher satisfaction level ($P < 0.05$). Job stress point mean of municipal workers is 32.56 ± 4.99 . While 40.9% have moderate level of occupational stress, 59.1% have high level stress. Age, gender, education level, marital status, working at weekend, extra work, having managerial task, salary level, total length of service and length of service at last work don't make any significant difference in regard to stress level ($P > 0.05$). Workers who have a work duration of 8 hours or less have a higher level of stress according to others who work more ($P < 0.05$). Stress levels of market controllers are higher than that of technicians, officers and other workers ($P < 0.05$).

Keywords: Job satisfaction, job stress, municipal workers

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Safety and Health of Female Workers in Polluting Industries: Experience in Pondicherry Region, India

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Women constitute around 86 percent of the informal sector workers, in which they work under highly exploitative, low paid and low social security conditions. Due to their low human capital capabilities and lack of socio-economic resources controls, they are also more exposed to economic upheavals. As a result, they are compelled to work under exploitative and risky conditions. Against this background, the present paper examines the following objectives- 1) to over-view the socio-economic background that influence the work participation of female respondents in selected polluting industries; 2) to examine exposure to pollution and its health effects on the sample women; and 3) to assess the social security measures available to them and their adequacy. The study is based on primary data gathered from a random sample of 300 women working in red (most), orange (medium) and green (least) polluting industries in Pondicherry region, Union Territory Pondicherry in India, during 2009 August. The objectives are analyzed using simple averages, percentages, ratios, multiple regression and Garret ranking technique. The results reveal the sample respondents to be largely belonging poor families with low socio-economic capabilities. Almost all of them are directly exposed to pollutions of various types and degrees at their work places. While social security provisions are better in the less polluting industries, it is quite poor in the highly polluting industries. Those employed in the latter also have less holidays, low wages, long working hours, few pollution protection equipments, less medical facility and more health problems. As a consequence, they work for fewer years and quit when the health problems aggravate, not even realizing that it was caused by exposure to pollution. Given their poverty, low literacy rate and high ignorance level, they do not ask for any social security cover, resulting in their further exploitation. Thus, even policy reforms and government actions prove ineffective in bringing women under social security cover when they are poor and ignorant.

Keywords: Female workers, pollution industry



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A Cohort Study on Japanese Toner Manufacturing Workers: 5 Years Follow-Up on Biochemical Indices and Markers

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In order to clarify the relationship between toner exposure and health, we started a 10-year cohort study of employees in Japanese plants of a major office equipment manufacturer in 2003. The subjects are male workers under 50 years, who work in Japanese plants of Fuji Xerox Co., Ltd. (2003; first investigation). They consist of a toner-handling (768 workers) and a non-handling group (736 workers). The items investigated are 1) Questionnaire about subjective respiratory symptoms and allergic symptoms, 2) Respiratory function test, 3) Chest X-ray and 4) Hematological value, biochemical indices and inflammatory markers. This report presents analysis of a 5-year follow-up from the baseline in 2003 (first investigation) of the results of questionnaire concerning subjective respiratory and allergic symptoms. In the beginning of the investigation, a high complaint rate of respiratory symptoms such as coughing and expectoration was observed in the toner-handling group, but the complaint rate gradually decreasing. After follow-up for 5 years, almost no significant differences existed compared with the complaint rate from the non-handling group. The difference in the complaint rate between the toner-handling and non-handling group tended to decrease with time. Due to the informed consent obtained in the beginning of the investigation, information bias is observed in the toner-handling group. In an investigation in which such a bias can be mediated, evaluating the result on respiratory function tests and determining various markers, which are objective indices, is necessary.

Keywords: Occupational health, toner, cohort study

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Child Labour and Health Outcomes- A Critical Review of Published Evidence 1988-2008

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Over 215 million children below 14 years of age work globally. Not all child labor is harmful. This comprehensive literature review assesses all accessible published evidence in scientific journals of health effects of child labor in the informal sector in developing countries 1988-2008. METHODS: Journal articles were identified in bibliographical databases: PubMed, OVID and World of Science. Keywords were: working children, child labor, employment, informal sector AND health. Two authors assessed abstracts and then articles. Articles that reported a scientific study on health outcomes in working children (age 14 and younger) from developing countries were included. The broadest search yielded 46,330 articles. However,

abstract review yielded only 28 possible research studies. Most not-included publications were either not available/accessible, or were opinions/editorials, anecdotal or case reports or unclear convenience samples. Books or gray literature were excluded. Finally only 22 studies met inclusion criteria. Overall quality of was poor: 8 (36%) below 50%-quality score, 19 (86%) below 65%-quality. Majority were cross-sectional (10/22; 45%), very few qualitative studies. Common quality limitations were: poor design and methodology, cross-sectional study design, poor reporting, and unclear participants' selection. Eleven studies (50%) focus on nutrition and growth, only three reported physical injuries (14%), ten growth (45%), two mental health (10%) and three neurological outcomes (14%). Only one study each included biological monitoring or lung-function-tests. Some studies report improved [!] health and nutritional outcomes. All studies describe difficulties to recruit participants. Surprisingly few studies in 1988-2008 actually report scientifically on health effects. Overall quality of studies was poor. Access to journals in developing countries is still problematic. Impact of non-hazardous child work on health can be positive or negative. The global focus of ILO/IPEC on worst forms of child labor, abuse or social impact seems justified.

Keywords: Child labour, health outcomes, occupational health, evidence, literature review

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Improvement of Occupational Health and Safety Culture at Furniture Industry

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This paper concentrates on furniture industry in Turkey and to help them improve working conditions via raising awareness of health and safety culture. The furniture industry is essentially an assembling industry, which employs various raw materials to manufacture its products. They range from wood and wood based panels to metals, plastics, textile, leather and glass. There are many different types of furniture (e.g. chairs, sofas, tables, wardrobes, kitchens, mattresses) with very different uses (e.g. households, schools, offices). However, not only developing countries but also developed countries the furniture sector occurs small and medium sized enterprises. These companies have less than 50 employees, even in ABD, the percentage of companies which have less than 50 employees is 86%. Apparently, this case is fundamentals of occupational health and safety weakness. As the mechanism of the industry the accident risk is very high because of the employees have not been trained to become a professional. In additional these risk wood dust, chemical processes and biological factors like fungus, mold etc. are also risk factors for the employees. The paper highlights how these employees should be educated by using a reliable method for measuring the safety level of their behaviors and how they should be protected the risks which they encounter.

Keywords: Furniture industry, OHS culture

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The Importance of Safety Studies in Museums

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Safety studies in museum and health of museum employees are the most important issues in terms of museum personal and museum management.

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Scientific Methodical Bases for Rating Work Intensity and Professional Risk

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Questions of management of a professional risk include a set of mechanisms on management of industrial environment, occupational hygiene and health of the workers. These tasks are solved by the system of monitoring of the industrial enterprise. The automated database management system was developed that contains databases on the staff, working conditions and diseases. The degree of influence of industrial factors on disease is ranged and taken into account in the program for allocation of the priority factor. The system reveals not only professional "risk groups", but also "risk persons" among workers for which the further continuation of contact with professional harmfulness will result in significant deterioration of health. The joint influence of some influencing factors complicates revealing character of dependence everyone owing to a various degree of their participation in formation of a level of a functional organism tension. The complete information about quantitative parameters of the influencing factors and answer-back reaction of organism to these influences received in conditions as much as possible approached to natural vital situations, without additional "intrusion" is necessary. The methodical approach is developed that includes one-moment registration of entrance and target parameters of system "doze - effect" much raising objectivity of the received results at the expense of exception of a rating of no account factors. The developed technique of the mathematical analysis allows reveal the influence of all complexes of the investigated factors at the expense of consecutive neutralization of the strong factors, which presence does not allow revealing the role of other factors. It is experimentally proved the opportunity of express diagnostics of organism functional tension during physical and toxic effects to parameters of the mathematical analysis of a cardiac rhythm. The developed equipment showed its ample opportunities of the operative control of various human statuses during physical and toxic (alcohol, narcotic, medicinal substances) stress.

Keywords: Professional risk, working conditions, diseases, risk persons

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Nanosafety in the Workplace: The State of Research in Ukraine

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Ukrainian scientific community is conducting research in various areas of nanosafety in the workplace. Priority directions in the field of nanosafety are study of toxicity of nanoparticles, monitoring of occupational exposure, risk assessment, reducing of the negative impacts and spreading of information about the nanoparticles' properties and biological effects among workers in the field of nanotechnology. In a present stage, when accumulation of toxicological studies results is continued world-wide, we carried out a set of pilot studies of the biological effects of nanoparticles of silicon dioxide on laboratory animals (rats) as well as research of the toxicity of nanoparticles of silver, gold, lead, copper, zinc, cobalt, iron, and manganese on alternative toxicological models. In particular, it was found that the biological activity of nanoparticles varies substantially within the nano range, - nanoparticles of silicon dioxide with diameter of 6-7 nm cause more severe pathological changes in laboratory animals than particles of the same substance with diameter 54-55 nm. Also, it was found that pathological changes caused by nanoparticles are more intense in the case of prior exposition by the particles of larger size (greater than 100 nm). In the same time a tendency to increasing of the damaging effect of the particles 6-7 nm in comparison with particles 54-55 nm remains valid. With regard to the exposure monitoring, we work actively on modification of traditional hygiene methods and the development of more sensitive and specific sampling methods for occupational exposure assessing. In particular, we studied a content of nanoparticles of solid component of welding fumes in the air of working zone during the welding works as well as titanium dioxide nanoparticles and carbon nanotubes at the relevant enterprises. Also, we develop ways of adaptation of the traditional risk assessment approaches in the field of nanotechnology and temporary hygienic regulations for risk management in the workplace.

Keywords: Nanosafety, nanoparticles, risk assessment

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The Ultimate Defence Line for Forest Workers: Personal Protection Equipment and Their Use in Turkish Forestry Practice

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Personal Protection Equipment (PPE) is clothes or tools specifically designed to protect working person from hazards. Such equipment never alter the hazards around working environments. In contrast, PPE merely minimize the risks that have already occurred after dangers and accidents and provide protection against heavy injuries and diseases in potential accident cases. Protection of workers with PPE is applied as a last solution after evaluating other possible solution proposals as they cannot be applied. Among forest workers, most accidents occur in tree felling and delimiting processes of wood harvesting. In



wood harvesting, many hazards cannot be eliminated or modified because of the nature of the work and the techniques currently applied. Therefore, the last solution or the ultimate defence line against the hazards is to use PPE such as helmets, goggles, earmuffs, gloves, pants and jackets fortified against saws, and steel capped saw protected boots. It is stated that PPE commonly have not been applied or on the contrary, almost not been used at all in wood harvesting in Turkey. It is also very limited to apply PPE in tree climbing and in other forest tasks. As a conclusion, use of PPE in forestry sector is very limited. Especially in wood harvesting, the average use of PPE was found to be 1 %. In the last five years, 96 % of chain-saw operators involved in accidents did not use PPE and only 3 % of them used some minor PPE. The objective of this paper is to reveal the reasons why the chain-saw operators in Turkey do not use PPE in wood harvesting and to suggest solution proposals. The study was carried in Forestry Districts of Kastamonu, Bolu, Muğla and Istanbul Regional Directorates. The reason for selecting these regions is that these are the regions where intensive wood harvesting takes place and chainsaws are sold most often. It was found that there were many reasons for abstaining from the PPE use in our country. Some of them might be summarized as follows. Forestry workers did not see and hear about many of the PPE earlier.

Keywords: Personal protect equipment, forest workers, wood harvesting

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The Role of Protective Device Inspections

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Safeguarding technologies have been improved continuously. The development of different technologies offers a broad variety of solutions when safeguarding of machines is required. Although the number of accidents due to the failure of such devices can be considered as negligible, due to their high reliability, a significant number of accidents on properly safeguarded machines happens. Most of these accidents are due to errors that have reduced significantly or impaired the effectivity of the applied protective devices leading to severe or fatal outcomes. In addition these accidents reduce the confidence in protective devices, most of them wrongly considered as too expensive by machine manufacturers and users, and seriously undermines accident prevention efforts. The presentation shows in practical examples how human errors may lead to the reduction or impairment of protective devices, either by error or lack of knowledge. The presentation also shows simple testing procedures and regular inspections which can be applied by medium and small size enterprises to avoid these accidents. Most of this tests and inspections can be easily implemented by small and medium size enterprises and they offer the advantage of being also able to detect manipulation and bypassing of protective devices thus prevent further accidents

Keywords: Safeguarding, machines, protective devices, accidents, inspections, SME

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Electronic Wastes

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E-wastes (electronic wastes) are generated globally as the useful lifetime of electronic devices end.

E-wastes are a growing global issue because their volume and toxicity. For instance, a computer monitor contains 6% lead. At present, some countries have been collecting and recycling the e-wastes. If these wastes will be handled properly, they can be used as raw materials.

E-wastes (TV, computer, printer, phone, monitors, semiconductors, circuits, sensors, MP3, medical devices etc.) contain mostly plastics, metals and glass.)

These wastes mostly generate hazardous materials in the case of their disassembling, combustion and recycling. Recent technological developments offer less hazardous materials for the manufacturers and less costly recycling methods.

Electronic waste is a hazardous waste. More than 1000 substances like chloride containing solvents, bromide containing fire retardants, PVC, heavy metals, plastics and gases are used for the production of electronic parts, semi-conductor chips, boards and disc drivers.

A TV cathode ray tube (CRT) contains 2-4 kg lead. 40 % of heavy metals (e.g. Pb, Cd, Hg) in soils are originated due to electronic wastes.

Rapid growing technology not only increases the consumption of electronic wastes, but also reveals the electronic waste issue. As of 2008, the electronic waste per capita in our country is more than 2.5 kg. Even the half of this amount cannot be collected.

Ministry of Environment and Forestry states that the collection of lead, chrome and mercury is not regulated yet but there are 3 companies dealing with this operations. The goal is to collect 1,5 kg per capita of this waste.

Metin Karacam, an environmental engineer working for an electronic waste collection company located in Izmir states that the present situation is "bring the old electronic device and take the new" and this is profitable for the electronic device manufacturer/retailer, not for the customers. In the current situation, firms are not obliged to collect the wastes, they do it in the scope of corporate social responsibility or for their sales strategy.

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The Role and Importance of Primary Test and Determination Studies for Prevention Occupational Accidents at Construction Sites

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Construction industry in Turkey is the sector having the highest death toll after occupational accidents. There are several reasons to have such a high industrial accidents in construction industry: - Building sites cover large areas in which different construction activities are carried out at the same time. They are open also to natural conditions and hazards. - Although construction activities are considered as continuous activities; several handicaps such as unfavorable seasonal conditions, continuously changing working conditions, deployment of temporary workers and orientation difficulties to work are the fields exhibiting higher risks. Construction of shopping centers, power plants, dams, roads, tunnels, subways, petrochemical plants, oil and gas pipelines are the building sites of today deploying many people with several machines and equipment. Pre-check studies are important applications to determine the existing dangers and possible risks of a building site to prevent the occupational accidents. Although pre-check studies will never replace any methodological risk analysis study, they can be considered as a preliminary activity to sense the accidents and be the first step of a logical thinking. Pre-check studies are based on the application of CHECK-LIST method to determine the existing working conditions of the building sites on health safety and environment conditions. Daily CHECK-LIST applications will provide early information on work organization, working environment, working procedures - equipment and personal protective equipment which will help to minimize the dangers. Different CHECK-LISTS with different questions are prepared for different working areas. CHECK-LIST activities in a building site should be applied by work safety engineer. The success of a pre-check study is dependent on the continuity on the control, check and follow up. Any weak point in the control sequence and any breakdown in feedback will reduce the success chance of application. This handicap can only be overcome by deploying someone responsible to play an active role for feedback, a safety specialist. This article will cover the importance pre-check studies and case studies will be presented.

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Indoor Air Quality in Dental School Environment

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Recently the scientific community has become increasingly interested in the air quality of indoor areas of hospitals and healthcare facilities where the mixture of pollutants, chemical compounds, microorganisms and biological infectious agents in the air form indoor conditions which are dangerous to health for both patients and health providers. On the other hand, very few attempts have been made to assess the air quality status of dental offices from the chemical point of view. The purpose of this work is to assess, both experimentally and theoretically the status of air quality of Hacettepe University Dentistry Faculty with respect to chemical pollutants and identify the indoor sources associated with dental activities. As a result of the preliminary investigation work at eight-storey faculty building, chemical factors and measurement points were detected. Volatile organic compounds (VOCs), carbon dioxide, carbon monoxide, heavy metals (copper, zinc, chromium and nickel), formaldehyde, chloroform, acetic acid, ammonia, phosphoric acid, 1-2, propanol, ethanol, gravimetric dust, silica, methylmethacrylate levels were measured in where necessary. High pollution levels during the operation hours regarding CO₂, CO, acetic acid, ammonia, silica dust and chromium-copper concentration after casting operation at students' laboratory were



recorded. These conditions were associated with the number of occupants, the nature of the dental clinical procedures, the materials used and the ventilation schemes, which lead to high concentrations, far above the limits that are set by international organizations and concern human exposure. Concentration measurements of chemical factors in general dental processes have been performed in order to carry out chemical risk assessments.

Keywords: Dental school, chemical exposure, indoor air quality

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Energy Control and Power Lockout "Safety Practices in Automotive Industry Ford Otosan"

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Before any kind of action is taken on machinery (like planned maintenance, commissioning, repair, inspection, production/model change, breakdown-maintenance, servicing, cleaning etc.), it is being ensured that the sudden release of stored energy, uncontrolled flow of liquids (like compressed gas, liquid etc.), energizing of electrical circuits and the unexpected operation of equipments (like moving equipments, rotating gears/pulleys etc..) is prevented and all hazardous energy sources are isolated.

Energy control principles are being implemented to prevent unexpected machinery movement during tasks that are performed as a part of the normal production operation (like routine start-up, model change, electrical or electronical troubleshooting, adjusting, checking or changing tools, removing chips, observing machine conditions, robot programming etc..).

Power lockout principles are being implemented to prevent sudden release of stored energy, uncontrolled flow of liquids (like compressed gas, liquid etc.), energizing of electrical circuits during maintenance, repair, breakdown-maintenance, servicing, changing of motor/chain etc., maintenance in electrical panels etc..

A safe method for any kind of intervention is established by identifying the hazardous energy sources in machinery/equipment and stored energies and by risk assessment. Afterwards, this process is documented. All power locking devices on machinery / equipment shall be adequately and durably labelled or marked to clearly indicate their function. It is provided that the power lockout information sheet on machinery / equipment main control panel is in line with the label/mark of the power locking devices.

In every machinery/equipment, it should be ensured that:

- each energy source (compressed air, hydraulic oil, electricity etc..) can be isolated,
- any kind of stored energy (gravity, springs under tension etc..) can be dissipated,
- every power locking device can be locked with a suitable padlock.

A regular awareness training program including energy control and power lockout principles, safe working methods with machinery/equipment etc.. is applied to all personnel and their supervisors, who can be affected from conditions that can jeopardize their health and safety (unexpected energized machinery operation, energizing of electrical equipments, flow of materials etc..).



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Evaluation of Workers Who not Focused to Job in a Enterprises

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The presentism is defined as going to work even in a sick state. It is one of the main factors which are decreasing the labor performance. For such causes, the presentism is increasing but not going to work is decreasing. The study is cross-sectional descriptive. The data was collected from handout that was taken from employees at the period of June 2010. The handout was consisting the data of age, sex, academic background, income, working year, a form of mission and a form of Stanford Presentism Scale-6 (SPS-6). The evaluation of SPS-6 value is between 6 and 30. The lower scores were showing the increase of presentism. A contacted was formed that was working at that period (N=209). The employees' average age was 32.9 ± 5.4 . 76.5% of them was male. 52.5% of them was married. 92.3% of them had 1 or 2 children. 51.8% of them was graduated from university. 36.5% of them had master degree. 53.1% of the employees' income was over 2000TL. The Cronbach alpha items of the scale SPS-6 was calculated as 77.8%. The scale was seen as a reliably acceptable. High perception of health seemed to increase the SPS-6 scores of participants. There was a relation between incomes and scores of SPS-6. The SPS-6 scores of participants whose income was over 2000TL had been $14,94 \pm 6,37$ while the SPS-6 scores of participants whose income was under 2000TL had been $18,50 \pm 7,23$ ($p=0,025$). SPS-6 could be used for evaluation of presentism. The increase in income was found to be significantly effective on presentism for this study group.

Keywords: Presentism, work health, productivity

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Psychological Harassment (Mobbing) as a Psycho-Social risk in the Workplace; Qualitative Research on the Academics

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With physical, chemical and biological risks that employees encounter and effects of these risks on the health of employees and on the safety of a workplace have been dwelled upon for a long time in the field of Safety and Health at Work. Labor Health Safety gained a new dimension with the realization that in addition to physical, chemical and biological risks that preserve their significance with respect to problems they still arise in Turkey and in the world, there are also certain psycho-social risks in work places. Along with the noticing of psycho-social risks, the field of Safety and Health at Work has acquired dimension. In changing work life differing of works and organization structures and with expanding service sector the risks that threaten the health and safety of employees have varied. Psycho-social risks affect the health and safety of work atmosphere adversely as much as other risks do. In

this sense, the risk of psychological harassment (mobbing) that has an important place among psycho-social risks at a workplace creating negative effects on employees, in a frame of qualitative research model with findings acquired by elaborate interviews with academicians will be introduced in this study. Within the context of research will be realized with the subjects expressing themselves to be psychologically harassed (mobbing) and given harm in an academic or a personal way. The independent variables of research are reasons of harassments, the intervening variables are types and period of psychological harassment, and the dependent variables of this research are psychological, physical and social effects occurring upon the individual as a result of psychological harassment (mobbing).

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OHS Development in Shipbuilding Sector

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After Japan-South Korea and China which are holded 96% of the world shipbuilding industry, Turkey is the first place at the remaining 4%. Turkish shipbuilding industry which comes first at the chemical tanker constructions in Europe and comes in third at the mega yacht building on the basis of order, contributes significantly to employment and national economy.

However, work intensity in shipyards, lack of infrastructure, subcontracting, intensive working hours of employees cause undesirable problems and occupational accidents. According to the results of the inspection and researching on the sector specific, lack of education of employees come to the forefront as well as many risk factors.

In accordance with the information obtained, an effective education programme should be prepared for the employees in order to solve the problems about OHS in the shipbuilding industry. This programme should be carried out urgently. By this way, employers and employees in shipyards will adopt the security culture by learning hazards and risks in working life. In order to increase sensibility of interested parties, a protocol called "The Development of Occupational Health and Safety in Shipyards Cooperation Protocol" has been signed between Directorate General of Occupational Health and Safety, Labor and Social Security Education and Researching Center, Turkish Shipbuilders' Association and Turkey Port Dock and Shipping Industry Worker's Union on the date of February, 25 2008. Under the protocol; approximately 18.000 people were trained for the purpose of the development of prevention policies in workplaces, establishment of OHS culture, provision of permanent and systematic improvement, guidance to interested parties and activated the new approach in terms of OHS.

Keywords: Occupational health and safety (OHS), shipbuilding, protection, precaution

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Occupational Implications for Emergence of Fox Rabies in North-Eastern Italy

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Rabies is a zoonotic disease transmitted to humans through bites or scratches from infected wild or domestic animals. Once the clinical onset is apparent no cure is available; more than 55,000 people worldwide die every year. Safe and effective vaccines are available to prevent the disease in animals; in humans preventive immunization should be considered for people at risk of exposure to rabies through their jobs (veterinarians, animal handlers, laboratory and rabies biologic production workers, hunters, rangers, travelers likely to have contact with animals in areas where rabies is common). Post-exposure treatment, which includes wound cleansing and disinfection, administration of vaccine and anti-rabies immunoglobulin, depends on the type of contact (category 1-3). Persons who come into contact with live attenuated virus vaccine of foxes also received post-exposure prophylaxis. Though Italy was declared rabies free in 1997, the risk in some areas has long been recognised. Since October 2008, 287 cases of rabies have been diagnosed in red fox (*Vulpes vulpes*) in North-Eastern Italy (Friuli Venezia Giulia, Veneto, Provincia autonoma of Trento and of Bolzano). Moreover a number of other animals including dogs, cats, donkeys, deer and badgers have been infected. Control measures have been enforced: enhanced surveillance and oral vaccination of red fox, vaccination of dogs and domestic herbivores and restriction of movement. Informative campaign regarding the risk for the public health has been performed. Prevention by pre-exposure vaccination and education are critical for occupational categories that may interact with rabid animals. A four-doses vaccine schedule for post-exposure immunization is under investigation. Our study aims to provide an overview of the strategies to protect workers exposed to rabies virus, including the post-exposure management. WHO- Rabies - Fact Sheet N°99 Updated September 2010 <http://www.who.int/mediacentre/factsheets/fs099/en/index.html>) WHO Position Paper on rabies vaccines. Weekly Epidemiological Record 2007; 82 (No. 49/50): 425-436

Keywords: Rabies, prevention, exposure management

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Integration of Perspective General, about Safety and Health at Work in Vasco

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The aim of the present work of investigation is to study, compile and to communicate the policies and strategies based on the scientific knowledge in terms of Genre perspective and Safety and Health in the Work and to put them in relation with OSALAN's activity (SST's Basque service) in order to identify the opportunities and the lines of action for the integration of the perspective of Genre perspective. A work of search of information has been done about Genre perspective and Safety and Health in the Work to different levels: 1. Policies of Genre perspective based on the Safety and Health in the Work of the European Union. 2. Publications of scientific investigations, of last 5 years, published available in the databases



of scientific publication worldwide. The engine chosen for the search in the world databases has been the IsiWeb of Knowledge of Institute for Scientific Information 3. Publications on Good Practices and recommendations on Genre perspective of the International Organization of Work 4. Statistics of Eurostat and of the National Institute of Statistics 5. From the selected documents, three topics have been discussed: policies of equality, security policies and health in the work, and the perspective of Genre perspective in the Safety and Health in the work. These three topics constitute the focus points for the identification of the opportunities of OSALAN's action for the integration of the perspective of Genre perspective in his strategic plan of Safety and Health in the Work.

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From Measurements to Action - An Activity Theoretical Framework on Reducing Flour Dust Exposure in Bakeries

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Bakery workers are the most important group exposed to flour dust in Finland. The mean flour dust concentrations at the worker's breathing zone have reported to be about 6 mg/m³. During year 2007 the occupational exposure limit value was decreased to 2 mg/m³. Especially, small bakeries seem to have difficulties to comply with the new OEL. The present abstract summarizes a Finnish study in which activity theoretical framework was used to create new approach in managing flour dust. Nine bakeries were selected for the development work. The worker's inhalable dust exposures were determined by standard gravimetric filter sampling and by real-time monitoring. Real-time dust monitoring used a portable aerosol photometer. The output signal was connected to the PIMEX video based measurement system. The particle size distribution of the dust was measured by using aerosol spectrometer. In order to understand work in bakeries we conducted analyses of the bakeries daily work processes and tasks as well as dust exposure there. Activity theoretical approach and model for activity systems was utilized in which attention is paid to the objects of work, as well as instruments, rules, community and the division of labour which affects the work process. Development workshop conducted after measurement visit clearly pointed out the complexity of the dust exposure management. Our study has shown that in order to control flour dust under current OEL several measures should be implemented. Therefore, the whole activity system needs to be considered in a new way. Best way to re-structure the activity system is to utilize participatory method in development work. Combining occupational hygiene approach with activity theoretical approach has proven to be a success in controlling flour dust in small bakeries.

Keywords: Flour dust, bakery, activity theory

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Effects of Work Design and Training on Occupational Accidents in the Manufacturing Sector in Greece

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The manufacturing industry is the economic activity accounting for most of the accidents in the industrial sector in Greece. Accident investigation has been significant in the accident prevention as it clarifies accident causes and identifies accident prevention measures. Labour Inspectors investigate accidents to identify possible accident causes, initiate prosecution and plan future accident prevention. The Method of Investigation for Labour Inspectors (MILI) was designed to help them identify workplace and organizational factors in addition to immediate factors and legal breaches. The aim of this paper is to analyze the impact of workplace (work design) and organizational factors (training) on accident causation, using accident data from the manufacturing sector collected with MILI by the Labour Inspectorate of East Attica in Greece. Our findings, based on the investigation and analysis of 40 occupational accidents in the region of East Attica, in Greece, provide evidence that safety hazards such as work design influence organizational factors such as training. Results revealed that occupational accidents in the manufacturing sector in Greece can be prevented by implementing work design principles and providing the workers with adequate training. For Labour Inspectors, MILI findings can be used towards the improvement of services provided from the Ministry of Labour and Social Security in terms of designing effective prevention policies. In addition to that, MILI can also prove useful for employers, raising awareness and facilitating proactive behavior.

Keywords: Accident investigation, labour inspection, manufacturing

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State of the Art of the Conditions and Environment of Work of the Personnel of Infirmary in Venezuela, Period 2004-2008

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The present research was done with the aim to approximate to the State of the Art of the Conditions and Environment of Work (CyMAT) of Infirmary Personnel in Venezuela during the period 2004 – 2008. It was developed under the documentary typology, using the Special Works of Degree elaborated by the/ace students/ace of the School of Infirmary of the UCV, with a descriptive level, retrospective historical, employing like technicians and instruments the tonnage of sources, review of documents, the signing and analysis of content. For the data processing, was used the Excel program and the Statistical Package for the Social Sciences (SPSS) for a subsequent analysis. Taking a thoughtful way –from the results - that the CyMAT of the personnel of infirmary still presents significant fails that affect negatively on its health, the antecedents situated in the TEG from 1995 to 2003, are similar to the exposed in this investigation from the period 2004 to the 2008. Similarly that a high percentage of the Environment of work are unhealthy, they don't get sufficient endowment of materials and economic resources, , low evidence handle of basic knowledge of personal protection, do not employ the teams of protection, it is observed alterations and physiological troubles, the adoption of postures during the handle of patient are inappropriate, does not realize a fair distribution of the activities, the Personnel Immunology Cycle is incomplete and from the total number of personal counted in the TEG, we find that from 1.608 some 683 roughly are being



affected, in consequence, all these appearances show in that the conditions and Environment of work have not left to be inappropriate of general way, Influencing directly in the guarantee and quality in the provision of the services of infirmary directed to the Venezuelan population.

Keywords: Infirmary personnel, conditions and environment of work, atmosphere of work, health

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Validation of the Inhalable Dust Algorithm of the Advanced Reach Tool Using a Dataset from the Pharmaceutical Industry

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As it is often difficult to obtain sufficient numbers of measurements to adequately characterize exposure levels, occupational exposure models may be useful tools in the exposure assessment process. The Advanced REACH Tool (ART) is a higher tier exposure assessment tool that combines a mechanistic model and available exposure measurements using a Bayesian approach (www.advancedreachttool.com). The mechanistic model was developed and calibrated for the purposes of REACH exposure scenarios to estimate a geometric mean exposure level for any given exposure scenario from across many companies and countries. This study aims to refine and validate the inhalable dust model to predict exposures of workers in the pharmaceutical industry. The ART was refined to reflect pharmaceutical situations. Largely task based workplace exposure data (n=192) was collated from a multinational pharmaceutical company with exposure levels ranging from 5×10^{-5} to 12 mg/m³. Bias, relative bias and uncertainty around geometric mean exposure estimates were calculated for 16 exposure scenarios. For 12 of the 16 scenarios the ART geometric mean exposure estimates were lower than measured exposure levels with on average, a one-third underestimation of exposure (relative bias -32%). For 75% of the scenarios the exposure estimates were, within the 90% uncertainty factor of 4.4, as reported for the original calibration study, which may indicate more uncertainty in the ART estimates in this industry. While the uncertainty was higher than expected this is likely due to the limited number of measurements per scenario, which were largely derived from single premises. Results from this study indicate that the ART may have useful applications for risk evaluations for example in the scope of REACH; it is not applicable to assess a quantitative exposure level at a specific workplace.

Keywords: Exposure assessment, validation, worker exposure, pharmaceutical industry

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The Advantages of Learning by Immersion for the Prevention of Occupational and Technology Related Risks

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The prevention of occupational and technological hazards has become a societal and economic priority (4% of global GDP, in other words, \$ 1.25 billion and a death every minute globally). Accidents at the place of work, occupational diseases and technological hazards, that are often preventable, are becoming more unbearable for workers. Governments and companies hope to improve risk management by reinforcing prevention. Knowledge of risk preventive skills leads to better results in terms of health and security at work. Furthermore, with the skills workers, rather than being the source of risks, become preventive actors. However, the transfer of knowledge about health and safety at work is still a challenge to be overcome. The software industry has seized the problem by providing computing equipment for training purposes. Among them is a virtual learning platform called Intelligent Tutorial Systems (ITS). They are designed to provide learners with quality content while maintaining the desire to learn. In addition, they offer simulations and reconstructions of complex situations in relation to trainee responses. Generic and adaptive Intelligent Tutorial Systems focus on the specific needs of trainees by evaluating, analyzing their problems and providing assistance when necessary. They are consequently good learning tools which promote the transfer of skills and are particularly suited for young people. These tools have so far proven their efficacy in the aerospace and the military fields. They give good results in risk prevention and are affordable to both small and medium sized enterprises.

Keywords: Virtual learning, safety training, intelligent tutoring

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Risk Management of Manufactured Nanomaterials, Control Banding Nanotool Delft University of Technology

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The world of nanomaterials is fascinating, due to their high degree of reactivity and ability to cross barriers. The applications for engineered nanoparticles seem endless, and quite some effort is put into the research and development of nanotechnologies. But the same properties make nanoparticles hazardous, and news on health effects has been front page news at quality newspapers. The contribution refers to the similarity between carbon nanotubes and asbestos, both in their dimensions as well as their pathogenicity. An attempt to quantifying risks of nanoparticles is like entering an area full of uncertainties. Just to name a few: there is a complex relation between physical and chemical structure of these particles and their health effects, which is not fully understood yet. Deposition and alveolar clearance is most likely different from larger particles. There are many questions on the toxicological mechanisms. There is no consensus on relevant indices of exposure as particle size and surface are likely to be much more important than mass. And finally there is no clear information on exposure scenarios and population at risk. In literature, Control Banding Nanotool is mentioned as a potentially useful concept to manage nanomaterial exposure in the workplace. This qualitative risk assessment and risk management method is preferred above a classical quantitative approach. Control banding Nanotools facilitates decisions on

appropriate levels of control, based upon product and process information, without complete information on hazards and exposure scenarios.

Keywords: Risk management, nanomaterial, control banding

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Campaign for the Recognition and Evaluation of Environmental Risks

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An oil and gas logistics company with more than 100 Operational Units and more than 6,000 employees, in which there is the possibility of occupational exposure to around 2,000 workers connected to Homogenous Exposure Interest Groups, Occupational Hygiene (OH) needs to be applied on a standardized and uniform basis, with a view to controlling exposure. This work is underway in 47 terminals, 29 smaller units, 4 gas pipeline networks and the fleet of 53 ships.

The principal objective of the work was to recognize the agents for environmental risk, and evaluate quantitatively (noise and chemicals) of interest, through contracts covering the entire nation, according to corporate standards.

Among the specific objectives are:

- a) to obtain a general view of the exposures;
- b) to standardize the actions for recognition, evaluation and control of occupational exposure;
- c) to obtain a profile for the workers' occupational exposure through standardized methodologies;
- d) to establish the levels of adherence that each Operational Unit has to the corporate standards of OH;
- e) to serve as a pilot for future corporate campaigns;
- f) to consolidate standards of Occupational Hygiene in the company as a whole, and
- g) to promote the exchange of technical information about OH.

The work involved the following stages:

- a) definition of Occupational Hygiene standards;
- b) 80 hours OH training for the local inspectors;
- c) definition of sampling strategies;
- d) preparation of descriptive reports;
- e) bid processes, one for the recognition of environmental risks and noise evaluation, and the other for the evaluation of chemical agents;
- f) revision of the basic Homogenous Exposure Group classification;
- g) recognition of environmental risks through Preliminary Risk Analysis for OH;
- h) evaluation of the physical noise agent through accurate noise measurement;
- i) evaluation of chemical agents.

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Post-Graduation Education on Occupational Health and Safety (OHS): Results from a Survey within European Countries

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The education of safety professionals shows a high variety in their level of approved qualifications, ranging from a technician level up to university master courses, and more recently, doctoral programs. In European countries, it seems that there are some differences in what regards the characteristics of the courses. These may be due to national particularities and legal issues, but also to the nature of the institutions and people behind the courses. This paper presents the results of a survey carried out in the scope of an European research project and it aims to provide a basic understanding of the range and diversity of the OHS post-graduation courses. With an estimated average answer rate of 50%, the survey has only included courses with more than 120 teaching hours, from a post-graduation level, and with complete programs. Results are presented for 90 courses, from 18 countries, mainly (84.4%) from universities. It is possible to highlight the fact that, as expected, the majority of the courses (59%) are Masters (or equivalent), and are organized primarily by Engineering, Applied Sciences and Management, schools/faculties, which together accounted for nearly 65% of the courses. In what regards the adopted quality systems reported by respondents, there is predominance (65.8%) of the use of "internal" tools, such as the students and teachers evaluations and internal audits. One of the main conclusions is that there is a large variability amongst the analyzed courses. However, it should be emphasized that these results are not representative of the situation all around Europe, as it was not possible to obtain information from all OHS courses. Considering the identified differences within all the European countries, the harmonization of post-graduation courses on OHS within the European countries will be a very demanding task.

Keywords: OHS training, Europe, post graduation, survey

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Designing a European Master in OH&S Management: Searching for Partners

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This paper presents a project to design an Erasmus Multilateral Project for the development of a joint European study programme in Occupational Health and Safety Management at the Master's level within the Lifelong Learning Programme of the European Commission (next deadline is expected on February 2012). The University of Oviedo (Spain) and the Silesian University of Technology in Gliwice (Poland) are searching for potential partners within the entities to which the Lifelong Learning Programme is accessible: Member States of the European Union, the EEA/EFTA countries (Iceland, Liechtenstein, Norway and Switzerland), and the candidate countries (Croatia and Turkey). The need for a global approach to the OH&S environment is evident. Since the last century, social policies have developed in the Member States (MS) and progressive improvements have been made in this field. However,



the pace of change differed from MS to MS and there were also wide differences in the measures taken; nowadays, almost each EU country has its own regulations regarding OH&S professional practice. The impact envisaged is to create a EU framework for front end teaching and training in the field of OH&S management in order to increase the competitiveness and employability of EU students and to overcome the current bottleneck caused by the different regulations. This Master degree will try to promote a creative approach to solve this problem and the major project outcome will be a joint Master's degree in OH&S management recognized by all partners and covering job market requirements in all participant countries.

Keywords: OH&S training, Master's degree, Europe, partnership

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Common Issues on Occupational Safety and Health in Small and Medium Size Enterprises in Turkey

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Small and medium size enterprises (SME) comprise more than 99% of the total workplaces in Turkey. According to the statistics announced by the Ministry of Labor and Social Security, 81% of the occupational injuries occur at SMEs. In this study common issues on occupational safety and health (OSH) in SMEs will be presented based on five SMEs from different sectors. At SMEs one of the biggest issues is the lack of knowledge on Turkish legal requirements on OSH. SMEs fail to have the annual health checks required for "heavy and dangerous jobs". The periodic checks of lifting equipment, elevators, and pressure vessels are either not done at the specified period or not done at all. The employees do not receive OSH training listed in the related regulation. There are many machine guards which only partially cover the dangerous parts of the machine and even there are machines without any guarding. Guardrails in ladders and platforms are not high enough; generally surfaces of ladders have no protection against slipping. Change rooms and shower areas even do not comply with the 1974 regulation. Safety data sheets of the chemicals are not present at the work places. Warning / prohibitory labels and signs are not used and most of the times the ones purchased as readymade ones do not comply with the corresponding regulation. Industrial hygiene measurements are not done. As a conclusion, it is evident that regardless of the sector small and medium size enterprises need expert support on legal requirements, basic safety and health knowledge, as well as technical support on machine, chemical and fire safety.

Keywords: SME, OSH, legal requirements, safety

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The Role of the Occupational Physicians in the Work Health and Security: Some Practical Problems

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Abstract The Role of the Occupational Physicians in the Work Health and Security: Some Practical Problems Having a healthy and secure working environment is also very important for the work place as well as for the workers. The importance of work health and security for the public must also be emphasized. The feedback of healthy and secure work environment to the workplaces will be high productivity as a result of high motivation. To reach this aim, the role of occupational physicians who are educated and specialized would be firstly to apply preventive medicine. In the guideline with the title “The Guideline About the Licence, Responsibility and Education of Occupational Physicians”, the definition of occupational physicians is made and the duties are described in four main groups. The working conditions of occupational physicians are described in the guideline with the title of “The Declaration of the Danger List about Work Health and Security”. The protection and monitoring the workers health is the responsibility of the workplace with the occupational physicians. In our country, the frequency of work accidents and the cases ending mostly with death are making the issue even more important. In this paper, we will try to answer the question of which kind of legal changes are necessary in order to make the work health and security better. We will discuss the issue according to the rights and obligation between the employer and the occupational physician with the issues of the role of the mediator companies, the level of the occupational education of the worker, the problems of the certification process of occupational physicians and the obligation of confidentiality of the physician towards the patient and its effects on the employer.

Keywords: Workplace, worker, work health and security

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What Do We Really Know about Semicircular Lipoatrophy?

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Introduction: Semicircular lipoatrophy (SL) is an emerging occupational disease, characterized by benign subcutaneous tissue alterations of unknown cause. The incidence in office workers is 37,5%. Semicircular depressions appear in the anterolateral side of thighs, unilateral or bilateral. SL has been related with environmental conditions at workplaces, repeated microtrauma and personal factors. The aim of this study is to summarize scientific knowledge about this emerging disease.
Methods: A systematic review of the scientific literature was conducted. Biomedical magazines databases reviewed: OSH-UPDATE, ISI-WOK, PubMed, Cochrane, CIS-DOC, IBECs, IBSST, LILACS and IME. We included articles about semicircular lipoatrophy associated with workplaces and environmental conditions. All papers were evaluated with the levels of scientific evidence of the Scottish Intercollegiate Guidelines Network (SIGN) criteria.
Results: We retrieved 66 articles. Only 19 met the inclusion criteria. All of them had SIGN evidence level 3. Nine papers were studies of series of cases and 10 were single case reports. Reports of 852 cases of LS were published between 1982 and 2010. The main risks factors for LS were repeated microtrauma, low relative humidity.

Keywords: Semicircular lipoatrophy, risk factors, symptoms, diagnosis, treatment



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Occupational Health and Safety in Agriculture: Situation and Priorities at the Beginning of the Third Millennium

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Agriculture is human activity which includes a number of different activities and occupying a huge number of people worldwide. ILO estimates that 1.3 billion of workers are engaged in agriculture which almost a half of total number of economically active subjects (2.838.897.404). In developed countries agriculture workers represent only small fraction of total workforce (up to 9% according to ILO data), on the contrary in developing countries especially in Asia agriculture workers presents up to 60% of total workforce. The most of agriculture workers reside in Asia & Pacific 74% and Africa 16%. ILO estimates suggest that half of fatal occupational injuries in world are attributable to agriculture. This means that around 170.000 agriculture workers dies every year due to occupational injuries. Using the same estimate, half of all non fatal accidents could be linked to agricultural activities (more than 130 million). Comparing this estimate with 6.328.217 persons injured in war in 2002 or with 20-50 million injured persons in road accidents one could get much clearer picture on importance of preventing agricultural injuries. In so complicated situation like occupational health and safety problems in agriculture it is not so easy to clearly select priorities. But, "legalization" of agriculture workers could create environment for solving a lot of problems in agriculture. Actual data on fatal and non fatal occupational injuries in agriculture indicates that occupational health and safety issues are among top priorities for that discipline.

Keywords: Agriculture, occupational health and safety, occupational Diseases, occupational Injuries

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Examination of Occupational Health Conditions at Gas Stations

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The purpose of this study is to determine the levels of chemicals that gas stations employees are exposed (benzene, toluene, xylene, ethylbenzene, methanol, ethanol, phenol, isobutylalcohol, isoprophylalcohol, formaldehyde, carbonmonoxide, carbondioxide, nitrogenoxides, sulphurdioxide, butane, hexane) and health problems they may cause. Benzene and other organic volatiles can cause damage on kidney, liver, central nervous system, blood-forming system and they make respiratory tract irritation. Exposure is mainly through inhalation. Repeated or long-term inhalation of solvents which Ambient concentrations exceed limit values adopted for the working environment can cause eye irritation, skin lesions, bone marrow damage, the central nervous system damage (behavior changes, and memory disorders, chronic toxic encephalopathy, etc.). In previous years

studies phenol has been identified in urine of gas station workers who are exposed to benzene . As a result of the statistical evaluations an association between exposure to benzene and phenol in urine was determined. A study shows that in workers exposed to aromatic hydrocarbons in benzene who have been working in a station for a period of five years or more, liver and kidney damages appeared to occur in liver and kidney function tests. In addition, a decrease in the number of red blood cells and hematological complaints were found in workers. This study will be held in 10 petrol stations within the boundaries of Ankara province. Research data will be collected within the three main headings: (survey, determination of workplace environmental conditions, personal examination and evaluation). The determination of workplace conditions will be done by determining the levels of chemicals and thermal conditions in the working environment. In addition, some laboratory tests will be done in order to determine impairment on employees (blood count, sedimentation analysis, biochemical and toxicological analysis of urine (urinary hippuric acid and phenol)), Complete Urine Analysis and pulmonary function tests and chest radiographs will be taken.

Keywords: Occupational health, gas station

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Prevention Through Competence/ Competence through Cultural Maturity

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The concept of the competent company is one where-in the strategy, the managerial structures and policies, and the way in which the company acts to meet its responsibilities towards all the key stakeholders combine in a way that ensures the safety of its workforce and those affected by what the company does, enhances the quality of its output and satisfies the fiscal needs of the owners in a sustainable manner. Safety and the prevention of accidents and ill health has step by step developed into a core component of what it is to be a successful company, but in that development a separation has occurred between the competent practice of the worker and his/her ability to make authoritative decisions on safety. Safety legislation and international protocols on safe practices and safety education is common and widespread; safety professionals and practitioners are engaged to assist companies meet their obligations in law and management structures include safety departments and directors. But inadvertently one of the key elements that makes a worker competent has become an adjunct to rather than an integral aspect of what s/he does. As a consequence safety is perceived all too often as an additional cost burden subject to cuts when profitability declines; employers seek means to meet the minimum legal requirements rather than aim for quality performance and output and engage safety professionals to keep them out of court, whilst safety practitioners claim and hold onto the right to make safety decisions in respect of how a task is carried out to the exclusion of the workers and the work team. The mature company recognizes that competence at all levels, from the narrowest to the widest application, stems not solely from the skillful reiteration of work tasks but from the appointment of workers and management who are capable of and are supported in making authoritative decisions on all aspects of the work activity.

Keywords: Competence, legal requirements, mature company, prevention



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Methodology for the Evaluation of Qualitative Factors in Safety Culture

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Workplace tasks and activities often have objectives that do not lend easily themselves to evaluation by standard measurements. OSH is a case in point where objectives may be set in negative terminology relating for example to the reduction of accidents, absolutely or by percentage. These can be quantitatively established and measured. But when it comes to establishing qualitative objectives these are often set in terms of intangibles, such as improvements to the quality of performance, of output or customer satisfaction. Whilst the quality of a hard product may be measured against specific and universal standards which are quantitative, the quality of performance of workers and work-teams does not lend itself so easily to agreed/universal quantitative standards and therefore to objective evaluation. Once such area that presents particular problems is that of safety culture, not least because of the widely differing interpretations on what it is. However in the adoption of a praxic approach where-in a common agreement is arrived at as to what constitutes a safety culture and a commitment to strive towards achieving/improving increased maturity it is possible to evaluate and score the safety culture of a company in a manner that is reiterative and consistent. By establishing the maturity criteria and a set of core competencies necessary to measure each criterion it is possible to evaluate and compare the objectives of the company, the activities of management and the performance of the workforce in practice and produce a rating and an action plan for improvement. The process is objective, capable of reiteration year on year, across departments and indeed across an industry, allowing for benchmarking and continuous improvement in safety.

Keywords: Safety culture, qualitative, quantitative, evaluation

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Assessment of Airborne Asbestos Exposure During the Ship Dismantling and Recycling

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Ship dismantling and recycling is a well-established industry, taking care of the disposal of a large majority of the world's older ships at the end of their useful life. Turkey, one of the five major ship recycling nations in the world, has signed the United Nations-backed treaty promoting the environmentally friendly recycling of ships. Ship Recyclers' Association of Turkey (GEMİSANDER) was established in 1976 in Aliğa/İzmir. GEMİSANDER carries out breaking and the recycling activities of old ships. In the process of recycling ships, virtually nothing goes to waste. The materials and equipment are almost entirely reused. Steel scrap from the damaged and demolished ships is a primary source of raw material for the re-rolling

mills. In addition to steel and other useful materials, ships can contain many substances that are banned or considered dangerous in developed countries. Asbestos is a typical example. Asbestos was used heavily in ship construction until it was finally banned in most of the developed world in the mid 1980s. Asbestos is a naturally occurring yet carcinogenic mineral long used in shipbuilding. Long term exposure to asbestos is known to cause asbestosis, lung cancer and mesothelioma. Asbestos is most dangerous when it is disturbed, causing it to break and crumble, which in turn releases toxic fibers into the air that can be easily inhaled. A project called "Determination of Occupational Risks During The Ship Dismantling and Recycling, Risk Assessment" has carried out with GEMİSANDER to determine of occupational risks in the ship recycling industry and occupational health and safety conditions for workers in Aliğa ship breaking facilities. Within the scope of this project, ambient air sampling was carried out on ships for determining exposure levels to asbestos. Analysis of samples was done with the device SEM-EDX (Scanning Electron Microscope-Energy Dispersive X-Ray Spectrometer) to determine the type of asbestos. Phase Contrast Microscope was used to determine the fiber concentrations of the samples. Within the scope of this paper which including a part of the project results, the types of asbestos encountered in ship breaking and the results of the concentration of asbestos exposed workers is located. This study would benefit to evaluate of asbestos exposure ship breaking workers.

Keywords: Asbestos, ship recycling sector

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Pathology Labs

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Pathology Laboratories' employees, mainly through the respiratory system during operations are exposed to formaldehyde and xylenes. Formaldehyde (FA) is used in pathology laboratories as a tissue preservative. Several epidemiological studies of occupational exposure to FA have indicated an increased risk of nasopharyngeal cancers in workers. There is also a clear evidence of nasal squamous cell carcinomas from inhalation studies in the rats. The postulated mode of action for nasal tumours in rats was considered biologically plausible and considered likely to be relevant to humans. Based on the available data IARC, the International Agency for Research on Cancer, has recently classified FA as a human carcinogen. Xylene which is used extensively in Pathology Laboratories', sectioning and staining tissue sections track is a clear flammable liquid. It acts with the theme of the respiratory tract and skin. The effect of narcosis, pulmonary edema, stomach pain, nausea, liver and kidney damage, along with known health risks are among the known effects of xylene. IARC classifies Xylene as carcinogenic to humans. This article includes a portion of the results obtained in the Project which are obtained using HPLC and GC for formaldehyde and xylene exposures.

Keywords: Formaldehyde, xylene, exposure

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Psychosocial Risks at Work and Strategies Supporting Psychological Health

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Psychosocial Risks at Work and Strategies Supporting Psychological Health Psychosocial risks at work includes work content, workload and pace, working hours, autonomy and control, organizational culture and climate, interpersonal relationships, role conflict, role ambiguity, career development, lack of job security which are also directly related with work stress. In recent years, mobbing and work-life imbalance are also added to these. Psychosocial risks affect employee health as much as physical and chemical risks. Psychosocial risks as well as causing psychological symptoms such as burnout or depression; might also cause muscle and skeleton system diseases which also affect physical health negatively. Therefore, it could be suggested that psychosocial risks affect both physical and psychological health which constitutes overall well-being of the individual. The number of studies in relation to the definition and reduction of psychosocial risks have increased in recent years under the guidance of the World Health Organization and International Work Organization. Ministry of Labour and Social Security in Turkey has also started studies in order to increase awareness about psychosocial risks. Intervention strategies carried out in organizations are classified in a variety of ways, such as primary or organizational/work, secondary or person/work interface and tertiary or person directed. In this study, the evidence obtained in various societies and sectors in relation to the psychosocial risk intervention strategies used at work is reviewed and some recommendations will be suggested to relevant parts in order to make these strategies more helpful.

Keywords: Psychosocial risks, stress

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A Statistical View of the Occupational Health and Safety of Industry Maintenance Workers in Finland

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This survey presents an up-to-date statistical view of the occupational health and safety of Finnish industry maintenance workers (IMW). We analyzed the numbers of accidents at work, occupational diseases, depression, mental disorders, musculoskeletal disorders, sickness absences, reasons for disability pensions and the relationship between occupation and mortality, using data obtained from various Finnish institutions. The number of IMW accidents at work declined in the period 2004–2008. About 50% of accidents at work caused sickness absences of 0–3 days, and less than 8% caused sickness absences of over 30 days, disability pension or death. In Finland, IMWs suffer approximately only 0–2 fatal accidents per year. In Finland, the most common carcinogens used in maintenance work are chromium (VI) compounds, nickel and its inorganic compounds, cadmium and its compounds, polycyclic aromatic hydrocarbons, benzene, asbestos, and ceramic fibres. The

most common registered occupational diseases are noise-induced hearing loss, diseases caused by asbestos, skin diseases and repetitive strain injuries. During the study period, total mortality of IMWs did not differ from the mortality of other employees. However, violent and accidental deaths occurred slightly more often among IMWs, and the incidence of disability pensions was about 20% higher than average. Disability due to musculoskeletal disorders was the most common. Men had a higher incidence of injury- and poisoning-related disability pensions. Disability due to cardiovascular disease was also common among men. However, both depression-related pensions and sick leave absences were fewer among IMWs. Occupational health and safety was generally of an acceptable standard. However, the incidence of disability pensions was about 20% higher among IMWs than among other employees, especially those due to musculoskeletal disorders and cardiovascular disease. The detailed data given here should be used to guide preventive measures and health interventions among this group of workers.

Keywords: Statistics, indicators, OHS, prevention

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Risk Factors for Development and Persistence of Neck Pain in Undergraduate Students: A 1- Year Prospective Cohort Study

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Neck pain is common in young adulthood but studies on the outcome and predictive factors for the development and persistence of such symptoms are scarce. It may, therefore, be important to identify possible risk factors among young adults in order to prevent the development of neck pain later in life. A prospective study was carried out among 684 healthy undergraduate students. At baseline, a self-administered questionnaire and a standardized physical examination were used to collect data on biopsychosocial factors. At the 3rd, 6th, 9th and 12th months, follow-up data were collected on neck complaints. Two regression models were built to analyze the risk factors for the incidence and persistence of neck pain (N=524, 77%). Of the sample, 46% of students reported the onset of neck pain between baseline and the one-year follow-up, of whom 33% reported persistent neck pain. Risk factors for the development differed from those for the persistence of neck pain. Development of neck pain was associated with computer screen position not being level with the eyes and mouse position being self-rated as suitable. The factors that predicted the persistence of neck pain were the position of the keyboard being too high, the use of the computer for entertainment less than 70% of total computer usage time and students being in the second year of their studies. Neck pain is quite common among undergraduate students. Certain aspects related to computer use were significant risk factors for developing and persisting neck pain in undergraduate students. The health of undergraduate students deserves consideration because they are future adults. However, there is still much uncertainty about the factors leading to neck pain and more research is needed on this topic.

Keywords: Risk factors, neck pain

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Prevalence of and Biopsychosocial Factors Associated with Low Back Pain in Commercial Airline Pilots

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To examine the 12-month prevalence of LBP and to identify individual, flight-related and psychosocial factors associated with the prevalence of LBP in commercial airline pilots. A cross-sectional survey was conducted with a self-administered questionnaire delivered by hand to 708 Thai airline pilots from those visiting the Institute of Aviation Medicine, Royal Thai Air Force for their regular medical examinations. Multivariable logistic regression model was used to assess the associations between the prevalence of LBP and statistically significant factors. A total of 684 subjects (97%) returned the questionnaires. The 12-month prevalence of self-reported LBP among commercial airline pilots was 55.7%. Elevated risk of experiencing LBP was associated with flying the ATR 72 series aircraft, occasionally to frequently encountering turbulence in the previous year, lifting luggage ≥ 4 times/duty period, perception of noise in the cockpit as being too loud and perception of work hazards at intermediate level, assessed by the JCQ Thai version. On the other hand, the factors that reduced the risk of experiencing LBP were performing vigorous exercise regularly and having 5-24 hour rest breaks between flights. LBP is common among commercial airline pilots. Our findings suggest that LBP in commercial airline pilots is occupation-related. Interventions aimed at reducing the occurrence of LBP in commercial airline pilots should focus at least on work condition adjustment and mental stress reduction.

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Occupational Health and Safety in Wastewater Treatment Plants

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In this study, it is aimed to examine the urban wastewater treatment plants in terms of Occupational Health and Safety (İSG). In this context, studies are conducted in the example of Sivas wastewater treatment plant. The most important issue in many wastewater treatment plants operated in Turkey is to provide the quality of output water. However, "Occupational Health and Safety" which is one of the most important issues interesting managers is not taken into account. Current situation was exposed by the field reviews in Sivas wastewater treatment plant, risk factors in every unit were identified and risk analysis and evaluations of the components of the plant were made. Additionally, working areas of the plant were examined microbiologically by taking bacteriological examples from various points on the area of plant. According to the obtained data, catching a disease because of unhygienic environmental conditions took the first place in the list of most risky factors in terms of occupational health and safety in the entire plant, and risks encountered during works in solving technical problems and repair-maintenance of the equipments took the second place. Current occupational health and safety (İSG) conditions in Sivas wastewater treatment plant were exposed with this study which is the first study intended for the wastewater treatment

plants in terms of occupational health and safety (ISG). In order to eliminate or minimize the effects of the risks; it has been proposed to prepare a regulation intended for the wastewater treatment plants.

Keywords: Occupational health and safety, risk assessment

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Systematic Promotion of Substitution of Hazardous Chemicals on an International Level - The Approach of the European Project "Subsport"

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SUBSPORT is the abbreviation for Substitution Support Portal, a three years European project which aims to provide authorities, industry and third parties with information on alternatives in order to facilitate the effective substitution of hazardous substances. It will support companies in fulfilling substitution requirements of national, EU and international legislation. SUBSPORT will provide publicly available information in four languages – English, French, Spanish and German. It will contain the following areas: legal information on substitution, a database of hazardous substances that are legally or voluntarily restricted by governments or enterprises, a description of existing substitution methods and tools, general information on alternatives, detailed and evaluated case studies which document practical experiences in the substitution of 10 selected substances of very high concern, concepts and materials for substitution training programmes and interactive elements for discussion, networking, exchange of information and experience (see: www.subsport.eu).

Keywords: Chemicals, substitution, database

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The Follow up Study of Workers Who Hepatitis B Carriers

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Nowadays hepatitis b is the most common cause of death after smoking in the world. Turkey is an intermediate endemic area for hepatitis B virus infection. A cross-sectional study investigated HBV infection in a group of low- risk workers with none known professional HBV exposure in 1996. In the same study, seropositivity was 53 % and carrier workers were followed. The follow up study investigated in a group of hepatitis B carrier workers that none known occupational exposures. The carrier workers and their families was trained on infectious of hepatitis B and followed. It will be presented of health and work ability of the carrier workers since 1996.

The study was conducted among staff of the Provincial Directorate of Rural Services, Ankara, which provides public services to villages. These public services include protection



and improvement of the soil and water and presentation of programmes and projects for rural areas. The institution includes an occupational health office, where a full-time occupational physician works. They are not specific risk groups for hepatitis B. In this study there will be discussed health effects and social effects of hepatitis B.

Keywords: Hepatitis B, follow up, HBV, workers

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Work Injures as an Indicator of Safety in a Working Place

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Safety of working place can evaluate by using the most frequent injures during work. AIM. The aim was to show which working place is the most risky and who are the workers, according to their occupation, that are the most disposed to injures. The injuries during work of the people employed on railway were analyzed in the period of five years from 2000 to 2010. For five years there were 51 cases of injures during work with 3460 lost working days and the average sick leave of 67,84 days per injures. The workers with certain qualifications are less safe for workers with secondary school education and to qualified workers. The least safe are the unqualified workers who have 50% of all injures, and that is certainly connected with their working place. Number of injures was 5-9 with an average of 7,28 injures per year. The data that the greatest number of injures had the workers with the working experience of over 20 years and the workers with the working experience from 11-20 years should be considered with reserve, because almost a hundred percent of the employed have the working experiences in the range from 11-20 or more years. We do not have the valid data about the injured workers and the workers with little working experience. Position of railway worker, the position of a person who maintains the vehicles and installations and the position of a railway keeper are the safest positions in the observed company. There is no safe working place where workers do not get injured.

Keywords: Railway, injury, workplace, worker

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An Ergonomic Approach for Improving Occupational Safety and Health of Construction Workers

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Among various types of work systems, construction is known for presenting a very high risk of musculoskeletal disorders (MSDs) to the workers as they are exposed to several risk factors, such as poor and awkward postures, repetitive motions, hand-arm vibration, heavy material handling, and high physical work stress. Although technology has advanced and new work methods including use of mechanical aids are being introduced in construction,

manual material handling (MMH) is unavoidable because of the nature of jobs as well as criticality of man-machine interfaces in construction. In this context, assessment of occupational risk factors associated with varieties of man-machine interface is a critical research need for ergonomic design of construction-related jobs. In this paper, details of the methodology and its application for assessing occupational risks for a number of construction-related jobs involving MMH, such as shoveling, welding and grinding of steel plates, chipping of concrete with the help of jack hammers, pulling and pushing of hand trolleys, repetitive manual handling and laying of bricks at a height, being carried out at the worksites of an integrated steel plant located in eastern India are presented. Data related to characteristics of MMH tasks, working environment, activities involved, tools and equipment used as well as the workers and their musculoskeletal problems are collected through a questionnaire survey. In specific terms, the methodology as developed and used results in identification and analysis of potential short- and long-term risks associated with various MMH activities, MSDs for various segments of the human body, their symptoms and causes. The quantitative relationships between the risk factors and the probabilities of different kinds of injuries are measured and discussed. Based on the evaluation, specific preventive and remedial measures are suggested to improve the ergonomic design of man-machine interfaces. This analysis may also lead to development of appropriate guidelines for improved safety and health of workers under prevailing construction work environment in India.

Keywords: Construction, occupational risk, manual material handling, musculoskeletal disorders, ergonomic design, injury probability

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Work Related Stress Measurement and Management

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Prevention of Psychosocial Risk Factors in the workplace demands two conditions. First, identify and measure the stress dose and second, compare the results with a previously established reference value. These findings help to develop stress intervention programs. This prevalence logic currently has some challenges for its application in the field of psychosocial risk factors. However, it is a means of measuring the effectiveness of the applied stress intervention programs. The objective of this study is to describe the stress levels and symptoms in three manufacturing plants and one corporate office, identify the most relevant work related causes and demonstrate the effectiveness of intervention programs selected over the course of four years of continuous measurement. The Seppo Aro Stress Symptoms Scale (ESE) questionnaire was used along with part of the Viccorsat (IMSS) questionnaire which considers work related causes. The Krejcie, R.V. & Morgan 1970 method was used to validate the samples sizes. The employee sample sizes were 1,163 in 2007, 1,047 in 2008, 2,023 in 2,009 and 2,286 in 2010. The study was done with a transversal type design and with data gathered using a self administered questionnaire. Stress levels were 15 to 20% higher at a corporate office compared to manufacturing plants. The stress management programs applied proved to be very effective as demonstrated by the decreases in all stress levels, year after year. Of the three groups of causes of occupational stress, the most consistently outstanding and increasingly important factor has



been Time Management. By measuring stress levels, symptoms and causes with the same tool and prospective analysis, it is possible to develop targeted attention and intervention programs with demonstrated effectiveness.

Keywords: Work related stress, psychosocial risk factors, stress levels

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German Technical Rule Biological Agents in Health Care and Welfare Services - an Example for Good Practice to Avoid Needle Stick Accidents

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Needle stick accidents are the most common source for infection with Hepatitis B- and C- viruses and HIV in Health Care. Thousands of members of the medical staff in the world are infected via such accidents every year. In the United States the Needle Stick Act from 2000 ensures that employers protect the health care staff from needle stick accidents. In March 2010 the European Union enacted a Directive to protect the European Health Care personnel based on an agreement of the European social partners. In Germany the Federal Ministry of Labour and Social Affairs (BMAS), the Committee of Biological Agents (ABAS – a committee of the BMAS) and the German Statutory Accident Insurance institutions already demanded since 2003 safe devices for all activities at risk if technical possible. The Technical Rule Biological Agents in Health Care and Welfare Services describes the necessity for the use, the requirements for the safe devices and the conditions for use. It gives advice for risk assessment and also for accompanying safety measures. So this rule was ground-breaking in Europe to protect the health care employees from needle stick accidents. The implementation of the rule was accompanied by projects giving advice to hospitals and doctor's practice etc. Projects like STOP "Safety by Training, Organization and Product selection" were promoted by the Federal Ministry of Labour and Social Affairs, by the Federal Institute for Occupational Safety and Health (project STOP), by the Federal States, by Statutory Accident Insurance institutions, by Universities and by municipality. The presentation will show the highlights of the technical rule and experiences of the projects.

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A Friendly Risk Indicator

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Safety and health management has been adopted by the companies around the world which are based on recently created models, whose models adopt the risk management concept as started point. Beyond this, the choice of management systems is being driven to those systems which provide easy integration, considering the different business dimensions and



approach looking for making the management task as soft as possible. In this way, proactive and objective performance indicators are welcome as well as friendly risk management systems. It is important and relevant put out that management system is a tool that must guide the company to obtain consistent and better results in a way of continuous improvement. Built management systems looking only for certification and marketing is unacceptable and means waste relevant resources, efforts and time. So, the risk management models need be constructed to be an efficient disease and injury prevention tool as well as provide enough flexibility to be applied to any company regardless its business activity and number of employees. Another important characteristic of this methodology is obtain from risk assessment a friendly risk management indicator which can be deployed to all company management levels.

Keywords: Risk assessment, risk indicator

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International Partnership Approach to Biosafety Training Provision in Europe and Asia

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I lead a project funded by the Scottish Funding Council (Higher and Further Education) to coordinate and enhance occupational health and safety across the tertiary education sector in Scotland, which consists of 19 Universities and 43 Colleges – the CHASTE Project. My presentation describes the philosophy behind this innovative social partnership project, which runs from 2004-2011. A major sustainable legacy of the Project, the University of Edinburgh's Biosafety Training Institute (BTI) will be described, as will the relationship of BTI's course provision to European standards. The BTI has been developed by the University as a centre of excellence, delivering accredited biosafety training courses to a specialist audience. Initially targeted at biological workers in universities and research institutes, this training is available to anyone working within a biological environment. The course complies with the European CEN Workshop Agreement, under the European Biosafety Association (EBSA), fulfilling its requirements for the training of individuals to become Level One biosafety practitioners, with a view to some candidates progressing to become Level Two biosafety professionals. The BTI offers opportunities for consolidation and expansion of knowledge and skills, particularly within research, education and health-related organizations, for international partners to cascade training within their own geographical areas, and for cross fertilization of knowledge, ideas and experience with international partners. Accessible e-learning provision is a significant focus for the BTI. The BTI is an element of the University of Edinburgh's Internationalization Mission, and seeks to promote the ethos of matching biosafety competence to the rapid pace of development in this area of science and technology, in collaboration with international partners. Partnerships with Spanish Universities are currently under discussion, and potential across Asia is being actively explored. The University of Edinburgh cordially invites potential international partners to make contact with the Institute to explore the formation and development of strategic alliances.

Keywords: Biosafety training international

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Intelligent Management of Safety and Health Information at the Core of All Planning, Evaluation and Surveillance Efforts at Enterprise Level: Approaches and Methodologies to be Shared

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The aim of this communication is focused on the interest of the authors in sharing some positive outcomes and impacts of the adoption of some simple approaches and techniques developed to deal with health data vis-à-vis working conditions data, at enterprise level. The approach and the techniques are based on the “pyramid” model, which allows the organization of all information along progressive steps or levels of severity, from the bottom to the top, starting by risk factors (both occupational and non-occupational risk factors, related to personal and community life-styles), and then, information on health assessments outcomes (clinical and laboratorial), followed by information on health related short-term absenteeism; long-term absenteeism, temporary disability, permanent disability and, finally, causes of death (if occurred). The main purpose of the adoption of the “pyramid” is the organization and display of health indicators, as well as indicators on the quality of working conditions and working environment (based on available information transcribed from medical records and from Occupational Hygiene records), in order to use them within a Health Surveillance framework, at enterprise level. Moreover: the introduction of an epidemiological “intelligence” to the analysis of such information provides additional gains, mainly for managerial and administrative purposes. So, the authors have not only developed the theoretical model based on the “pyramid” approach (from the bottom to the top, in terms of increasing severity, and from the top to the bottom, in terms of feasibility and cost-effectiveness for preventive interventions), but also have put these ideas into practice in several medium size and large corporations. The first step in such methodology is the retrieval and treatment of available information; the second one, is the technical assessment to the adoption of computerized programs which are able to provide in “real time” accurate health surveillance practice, in addition to other important gains.

Keywords: Epidemiology, health assessment, OSH assessment, occupational health services

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The Factors Affecting Worker's Job Satisfaction in a Textile Factory in Denizli Province

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The main purpose of the study is to determine the level of job satisfaction and the factors affecting workers in a textile factory in Denizli. A cross sectional method was used at the research and totally a number of all workers (740 workers) form the population of the research. “The Minnesota Job Satisfaction Scale” whose validity and reliability was approved by (Baycan,1985) as a scale and formed of 20 questions was used as the measuring



inventory for the level of job satisfaction of workers. The data was analyzed and evaluated through the SPSS 10,5 program and t-tests, the analysis of variance and correlation were used through parametric tests. 93.2% of workers (690) participated in the study. 46.2% of the workers were female, 53.8% were male. 78.0% of the workers were married, 20.6% were single and 1.4% were widowed–divorced. Through the evaluation of the job satisfaction of workers, the total internal and external job satisfaction arithmetic scores are the followings, respectively; $3,8\pm 0,5$; $3,9\pm 0,5$; $3,7\pm 0,6$. When it was analyzed that whether the worker's opinions related with job satisfaction regarding their education level, the number of people living at home, having children, immigration status, health, working departments, overtime working or not, meaningful differences were found. Those graduating from high schools or being associate degree graduates; living in houses inhabited by few people (1-2); having less than a five year migration history; working in yarn section; having overtime at work has a lower job satisfaction. Job satisfaction increases according with the level of perceived health status. Those who have 3 or more children have a higher job satisfaction than those who have 1-2 or no children. The level of job satisfaction of textile factory workers is higher when it is compared with the studies done among white-collar workers but similar to other workers.

Keywords: Job satisfaction, perceived health, level of education

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Effects of Job Stress on Mental Health of Tehran 12 - Regional Police - Men Officers in Iran (June, 2003)

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This study has been done about effects of job stress on mental health of Tehran 12 – regional police - men officers . The procedures were grounding correlation and historical view of the samples that were 250 person of male officers that 49 of them were official and 201 of them were disciplinary officers. That were selected on the basis of random sampling in accordance with the number of the officers in each region. The measuring tool which was used in this study was General Health Questionair 28 (GHQ-28), police officer stress factors indexes questionair, scaling of life events stressors and a type A , B behavior Questionair the analysis were done by multi – variable linear regression, pierson correlation coefficient, varians trial, F trial and T –test . The results show that the police – men officers face a huge amount of job stress. Also if job stress and stress factors of life events increase then, mental health will decrease. In addition, the persons with A type character have less mental health and have much more job stresses and scaling of life events. The job stress and life stress were more in disciplinary officers than official officers, but there was not any significant difference between them about mental health. the researches have shown that job stresses were more in shift- work officers than day–time officers, but these are equal due to mental health ($P < 0.01$). This study showed that younger officers which have short work history are more healthy, but they have more job stress along with those who are over 46 years old. There was not any significant relation between mental health, job stresses and life stress with educational level in this study.

Keywords: Job stress, mental health, official officers, disciplinary officers, general health questionair 28 (GHQ-28), police officers stress factors indexes questionair, scaling of life events stressors, shift



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Prevention Cultures for Risk Management Strategies at Work

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Considering prevention as a powerful strategy for managing safety and health at work, the concepts organizational culture and safety culture are approached in order to establish the relations to each other and with the logics of risk management. In this way, the influence of human error in incidents and accidents at work is analyzed and the basic components of prevention are detailed, advancing in the analysis of ways in which perception of risks influences in the decision making-with the information about its evaluation and uncertainty-with respect to the prevention policies. Finally, factors that affect costs and investments on safety are analyzed, offering elements to revalue aspects of external and internal responsibility and/or accountability, mentioning strategies of identification of processes and critics activities for risk control systematization, like keys in order to obtain safe, healthful, sustainable and responsible organizations.

Keywords: Cultures, prevention, risk management, occupational safety and health

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Occupational Neoplasms Prevention in the State of Parana-Brazil

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The rates of cancer mortality in Brazil from 1979 to 2004 have increased 24.73% to 18.60% in men and women (Journal of Oncology, 2002), a concern that is reflected in the production of preventive actions to neoplasms. Thus, one objective of this study is to establish a mapping between the branch of industrial activity in the State of Paraná and occupational cancer, though, considering the multifactorial disease. At the same time, that this survey is being conducted, we are developing an action directed at two thousand people, contributing to reduce morbidity and mortality from cancer as well, "resignify it" disease as "synonymous with death" for a treatable with survival rates and quality of life. The focus of this project is the primary and secondary prevention, especially the secondary, and such action involves simple tests that target specific population groups to identify precancerous lesions or early stage cancer in individuals with asymptomatic disease and may be modified in the medium and long term, for example, cancer of the cervix and breast. The data for the development of the research were collected and published by the Ministry of Health of Paraná, that these data will be compared with the design of map production in Parana, and the services data Gaertner Hospital and University Hospital of Curitiba -Paraná/Brazil, high-complexity cancer in the state of Parana to the development of prevention and clarification.

Keywords: Occupational cancer, prevention, reinterpretation



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Understanding the Work of the Production in School Backpacks: Case Study of the Methodology National Conservatory of Arts and Office

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The productive craft system, consisting of manufacture of products of the type you wrinkle, backpacks and small packs, produced in system of shares of specific models, being the regulated mark, according to the real means of assembly. The impact of the system of production adopted in the sector sewing, reach of marks for production and his reflex in the abstention from voting, demanded adaptation to a new model of work with bigger variability of products, bigger degree of complexity and demand for quality. The “ knowledge to do ” from the dressmakers man-task interferes in the interface and impact in not reached marks. The absenteeism from voting of 4 % to the day, socially situated demand that, according to GUÉRIN, et al (2001), “ A social demand is a demand definite in an institutional picture. ” The reformulation of the demand already points for the system of production to Just in Team OHNO (1997), adopted in the enterprise as contributive factor for the abstention from voting. The lack of proceeding in the processes suggests the dressmakers an edge of strategic maneuver, so they get organized to divide the tasks, according to individual skills, in other words, there is collective regulation GUÉRIN, et al (2001). Since proposed for transformation they are the adaptation of the normalization in the projection of production; the integrated projection intersectoral; to set up process of corrective maintenance of the sewing machines; to introduce interval in the working day; to make possible activities in the line of sewing; procedural the processes of manufacture of the sewing, to set the school of the sewing up; to introduce Office of the Sewing, like mechanism of humanization of the work, like item of great transformation of the work, where it makes possible the enlargement and enrichment of the task.

Keywords: Abstention from voting, participatory ergonomics, cognitive

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Vocal Health Self-Evaluation, in Brazil

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Voice-related diseases affect an increasing number of workers and may cause and impact negatively on the professional voice. Brazil ranks second among the countries with the highest incidence of voice disorders (data from the Brazilian Society of Laryngology and Voice-BSLV). As the voice is the oral form of communication used by people who depend on it for their professional activity, and enhance individual comfort, to ensure better health in the workplace as a factor relevant to the harmony of the contributors to the development of their previous work, this case study aims to evaluate the vocal health of professional voice users,



in order to identify factors related or correlated with vocal disorders in a participatory manner (self-assessment questionnaire of vocal health of the Brazilian Society of Otolaryngology). The case study was conducted in an institution of vocational education and fundamental of Parana, Brazil. It was verified that among the professionals studied voice, there is a higher prevalence for professional voice male over female, both with good vocal health, the majority of respondents teach at only one institution, in relation to clinical symptoms was observed that the vast majority do not exhibit clinical symptoms, have good habits and quality of life and even the isolation of self-assessment questionnaire of vocal health, could understand appropriate tool to aid in characterizing voice disorders.

Keywords: Occupational health, voice disorders, dysphonia

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Dignity is a Safe Work Practice - Creating Well-Being at Work Through Physical, Psychological and Emotional Safety

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Dignity at work arises when our work provides an opportunity to express who we are. Indeed, work is one way that we bring ourselves to the world. As humans, we reside in our knowledge - knowledge of who we are, what we know to be true, and our relationship to ourselves, our family, and our community. This knowledge is intrinsic, experienced, and often non-verbal; it is both personal and cultural; and it informs our decisions, including our health and safety decisions. When we invite workers to participate in developing their work - when we invite them to share their personal knowledge in the workplace - we demonstrate dignity and respect for each worker. In this environment, workers can bring their values, passions, and insights, all of which contribute to their experience of work and the quality of their work. Traditional approaches to safety focus upon intellectual and technological solutions to promote physical safety and protect the body. But all of us are more than our minds and bodies. To promote the total well-being of each worker, we must engage the entire person - in addition to physical safety, we need to provide psychological safety and emotional safety for each worker. A well-defined, physical work practice will be of little help if workers are distracted by an emotionally threatening or psychologically negative work environment. However, management styles that engage the entire person invite each worker to participate in creating their own work environment. This personal ownership, investment, and creativity will build greater focus, decrease stress, and ultimately promote dignity. Through examples in media, leadership, and behavioral research, we will explore communications and work practices that engage dignity and well-being as in integral part of work and life.

Keywords: Dignity, work practice, safety, well-being

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Construction of the National Occupational Safety and Health Profile of Brazil

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Purpose: Brazilian federal government agencies, in conjunction with institutions of workers and employers, are building the first Brazilian profile of OSH. This initiative aims to provide a comprehensive overview of the infrastructure and resources available for OSH and the situation of accidents and diseases at work in Brazil. Phases: The project is divided into three phases: a) identification, analysis and selection of national descriptors and indicators in OHS, based on the provisions of ILO instruments (Convention No.187 and Recommendation No.197), the WHO's Resolution WHA 60.26 "Workers' Health: Global Plan of Action" and recommendations of the Network of WHO Collaborating Centres in Occupational Health (concluded), b) dialogue and engagement with stakeholders. Dialogue on the importance, necessity, challenges and opportunities of developing the national OHS profile (ongoing), c) preparation of a concise national OHS profile, starting from a limited number of selected and relevant key descriptors and indicators, according to the needs and possibilities of the country (ongoing). Discussion: The improvement of national OSH system is related to the effective integration of research and information systems with the development of policies, plans and programs. The definition of descriptors and indicators that are appropriate, sufficient and feasible for the preparation of national OSH profile is a task that requires the observation of different aspects, since it is linked to the capacity and resources of information systems in the country. The availability of data and information is the major challenge in building the national profile. Due to the nature and scope of information covered in the profile, there is an ongoing effort for the effective participation of key bodies and relevant agencies involved in different aspects of OSH.

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How to Motivate for Safety

Ron C Mckinnon

Ron C Mckinnon and Associates, South Africa

Motivation, enthusiasm, and inspiration can be keys to the success of changing the safety culture and habits at a workplace. This enthusiastic presentation uses true-to-life examples to explain the nine basic rules needed to motivate employees and management in safety matters. The presenter involves the audience in sharing common mistakes made when we upset others instead of inspiring them.

Keywords: How to motivate for safety

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I Changed Safety Culture and It Nearly Killed Me

Ron C Mckinnon

Ron C Mckinnon and Associates, South Africa

This presentation is a true story about a safety culture change that was brought about by the presenter when he was contracted as Manager: Safety, Health and Environment to Aluminum Bahrain (ALBA) in Bahrain in the Middle East. This assignment turned out to be the presenter's greatest challenge to date and the presentation relates to the situation and culture as they were in the beginning, the change process and factors that aided, and hindered, the change process and the achievements of the safety culture shift. The presentation is filled with actual scenarios and real-life encounters that were experienced during this period. It tells of a multi cultural workforce and the safety and management politics that hampered the introduction of a safety system and the conflict that arose as a result of these internal politics. The speaker's emotions will show when he tells of the two fatalities that occurred within a week during his third month at ALBA and the consequences of these deaths. The presenter was told that he "was crazy" and that he "was dreaming" when he presented his redesign and system implementation strategy to his director. The personal mental stress that was created as a result of this resistance and ridicule will be explained as well as how it was eventually overcome. A highlight of the presentation will be the relating of the small successes that were achieved and how certain key strategies were used to get the buy-in to the safety system. The presentation ends with a list of safety achievements that are unbelievable considering the rocky start to the safety culture change process.

Keywords: Changed, safety, culture, nearly, killed

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Changing Safety's Paradigms

Ron C Mckinnon

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Safety is clouded in myths and hampered by paradigms, which are believed and practiced today. These paradigms are Safety's Sacred Cows and few have ever had the courage to question them and their validity – until now! This presentation, based on the presenter's book of the same name, describes what the many paradigms concerning safety and health at work are, how these preconditioned ideas hamper the progress of accident prevention in industry, and how to change them. Based on the presenter's 37 years of international safety experience, numerous case studies and true to life examples will give an insight into how safety myths and paradigms can be changed.

Keywords: Changing safety's paradigms



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Qualitative Evaluations of Air Bringing Safety Environments to Work

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All the industries of fibercement, the mining and the logistic companies, the production chain, make evaluations of fibers in the air, analyzing the dust on the occupational environments. It is collected some volume of air, using some bombs of low outflow, with 1 L/min, in membranes of cellulose, for determinate period on the occupational environments where the works are exposure. After collecting the air, the samples are sent to the lab which the membranes are submitted to clarification, than they are analyzed on optic microscope of contrast of phase, with 500 times amplifications. The analyzes are promoted following Brazilian regulations, but also following the NIOSH 7.400, AIA RTM 1 procedures, with evaluation every each 6 months. All the methodology was produced with the participation of Governmental Agencies, Trade Unions, Associations and Universities. The Projecontrol, lab responsible on the evaluation of the fibers on the air, is the unique lab certificated on Brazil by the national authorities to make that kind of study. The evaluation of the sector has been realized during the last decades, since the beginning of 90ths. There were resumed more than 4,334 analysis of the air, with more than 15 occupational sites on the companies are checked in each analysis, achieving more than 5,000 workers directly in every year. Due the evaluation and inspections that brings quantitative, but also qualitative analyses of the sites in order to verify the Occupational Safety and Health measures, the companies have invested in the adaptation of the machines with the focus on the collective protections. There were installed ventilation exhaustions systems, strongly decreasing the level of fibers on the air. Today, 98% of the business has levels 20 times lower than the national legislation determines as TLV for fibers in the air.

Keywords: Air dust measures, evaluation of air, TLV, implamentation of occupational safety and health sites

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The Significance of Methods for Assessment of Functional Status for Occupational Medicine Research

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Recent trend in occupational medicine research is to invent, and to work with reliable methods for examination of functional status. The aim of the present study is to reveal the research significance of the methods for assessment of functional status of cardiovascular system: heart rate variability, and arterial blood pressure monitoring for one of the most important purposes of occupational medicine: screening of morbidity, differentiation, and an effective functional diagnostics of normotensive and hypertensive individuals. The autonomic cardiovascular control was examined with heart rate variability (HRV), and peripheral blood pressure (BP) in 139 individuals exposed to mental work load divided in two groups. In the first group results showed: registration of a case with mean heart rate = 120 b/min and HR =

85% who was as an emergency case hospitalized and referred to clinical treatment at Emergency and Intensive Care Cardiology Unit; in 17 individuals or 27.42 % of the working staff we found HR value above the referent and indicative for CVD $\geq 65\%$. Our results for increased HR coincide with the registered CVD: in 21 individuals with CVD we found a trend for an increased value of HR - 51.84 %. In the second group the disturbed sympathetic-to-parasympathetic balance of autonomic cardiovascular control results in an increased sympathetically related HRV (low frequency band, and the ratio of low-to high-frequency band) in hypertensive compared with normotensive individuals. Results indicated the significance of HRV analysis for the screening of morbidity, and necessity of periodical examination of functional status in individuals with increased value of HR. The results of our study revealed also that the specific neuroregulatory mechanism of arterial hypertension is manifested in disturbed autonomic balance with sympathetic predominance. Occupational medicine research might extend its investigation potential with concentration of researchers' efforts to study operator's functional state both in laboratory conditions and working places.

Keywords: Mental stress, heart rate variability, peripheral blood pressure, arterial hypertension, sympathetic and parasympathetic activity

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The Response of the Autonomic Nervous System Under Mental Stress Positions Individuals at Risk Groups

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Clinical physiology, cardiology and preventive medicine necessitate functional indicators that might position individuals at risk, and non-risk groups. Research of autonomic neural function in rest, and mental stress conditions is study to elucidate mechanisms of CVD. The aim of the present study is to examine the pattern of autonomic cardiovascular regulation at normotensive and hypertensive individuals, and to determine functional indicators that might position individuals at risk and non-risk groups. The autonomic cardiovascular control was examined with heart rate variability (HRV), and blood pressure variability (BPV) in 1069 individuals exposed to mental work load divided in two groups. In the first group, consisting of 719 individuals, results indicate that the increased level of distribution of CVD and morbidity rate enhance with the increase of the value of integral index of HRV – Health Risk (HR). Group with the highest HR value reveals the highest rate of CVD than the groups with lower HR value. Group with level of HR higher than 45% might consider as risk group. In the second group, consisting of 40 normotensive and hypertensive individuals selected of 350 individuals, disturbed autonomic cardiovascular control results in an increased sympathetically-mediated variances in very low frequency (VLF) bands of HRV, systolic and diastolic BPV in hypertensive compared with normotensive group under exposure to mental arithmetic tests (MA1 and MA2) and colour word test (S2). Under MA2 and S2 normotensives showed higher values of parasympathetic cardiac control, assessed with variance in high-frequency band of HRV than hypertensives. Significant result is persisted increased sympathetic activity, assessed with variances in VLF and LF bands of HRV, in hypertensives at recovery phase. Results reveal the physiological significance of VLF and LF variances of HRV as functional indicators that might position individuals at risk (AH) and non-



risk groups. Our study indicates that HRV is a sensitive method that discriminates the pattern of autonomic cardiovascular control in risk (AH) and non-risk (normotensive) groups.

Keywords: Mental stress, mental work load, neuroregulatory mechanisms, heart rate variability

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EUROSHNET- Sharing Knowledge and Experience for High-Quality Standards and Innovation

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EUROSHNET (www.euroshnet.eu) is a network for cooperation between European OSH professionals active in standardization, testing, certification, and/or related research. It is supported by a Steering Committee and a Working Group with members of OSH institutions from Finland, France, Germany, Poland and Spain. Over 500 experts from 20 European countries are registered with the network. The essential aims of EUROSHNET are as follows:

- To facilitate contact between individual OSH experts
- To promote discussion of issues of common interest
- To disseminate information of interest to occupational safety and health
- To forge and maintain contacts with other networks

Standardization, testing/certification and related research play an important role in occupational health and safety. In order for standards to lead to safe products, it is however essential that they reflect the requirements of practical use and take into account the experience gained by users in the field. EUROSHNET offers a platform for OSH experts to share and discuss experience from the field, best practice examples, gaps detected in individual standards or particular areas of standardization, new technologies, advanced products or the need for further research. By collecting such input and presenting it to the standardization process, EUROSHNET and the experts registered with it support the development of high-quality standards, innovation and competitiveness, which in turn lead to safe products and an improvement of safety and health at the workplace. The poster will focus on EUROSHNET's role as an intermediary between practical life in occupational settings and standardization and provide some general information on the functioning of the network.

Keywords: Networking, standardization, testing, certification, research, discussion fora

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TOSHIBUMI GAMO: Builder of Safety Culture

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It is well known that the protection of workers against injury and diseases has always been a key issue for the ILO since its foundation in 1919. Nevertheless, a report of the ILO estimates 2.2 million work-related deaths worldwide each year. This means that work safety is as indispensable as ever. Toshibumi Gamo (1883-1966), who devoted all his life to safety campaigns, is recognized as a prominent builder of safety culture (culture of prevention). This study aims to reveal how he built the safety culture by illustrating the "Safety Week" which was launched in 1919, so as to make sure our current safety. The research methodology is comprised of documentation and interviews with Gamo's daughter and grandson. Historically, the safety campaign in Japan is rooted in his idea which he developed in the 1910s, and which gave birth to the "Safety Week" in Japan. The findings indicate that the safety campaign rose in response to socio-cultural changes such as the urbanization and the priority to prevention, and that the Safety Week brought a "gospel" of safety for millions of workers, whilst underpinned by invisible and hidden memories for the victims of accidents in their place. This study also highlights the issue of the mentality of our time from the point of view that relief has become more important than ever before as prevention is increasingly unable to manage accidents. I conclude that Gamo is a pioneer among the Japanese who built the safety culture, which gives priority to humanity. This is a global culture in the Arab countries as well which we have all in common to promote decent and safe work. References: Horiguchi, R. An Ideological History on the Safety Movement, PhD Dissertation, Kyoto University, 2011. International Labour Organization. Introductory Report: Decent Work - Safe Work, International Labour Office, 2005.

Keywords: Safety culture, culture of prevention, safety week, safety campaign, Gamo Toshibumi

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Estimation and Analysis of Costs Associated with Fatal Occupational Accidents in a Manufacturing Company in Iran

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Statement of problem: Human capital is one of the most important factors in manufacturing. Therefore investment in human capital is the fundamental basic of economic growth. Estimation of costs associated with accidents will result in optimum allocation of limited resources, persuasion of society, governments and employers to investment in health and safety topics and reduction of losses from accidents. This study was aimed to evaluate costs associated with fatal occupational accidents in a manufacturing company over a period of ten years. Material and methods: This descriptive-analytical study was performed in 1387 on personnel of a manufacturing company who died because of occupational accidents in a period of time between 1377 and 1387. The method used for estimation of costs related to accidents was Human Capital Method. Results: According to findings, most of personnel who died because of occupational accidents were in the 26- to 30-year old age group (30.5 percent). The average age of personnel who died because of occupational accidents was 35. Each fatal occupational accident ruins approximately 40 years of life and 30 years of economic activity. Conclusion: Because of violent losses of organizational resources due to fatal occupational accidents, design and implementation of a strategic planning and



management to improve safety level of organizations is Prerequisite to continuity of organizations.

Keywords: Costs of accidents, human capital, safety

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Workplace Violence and Related Factors among Health Workers in Hospitals of a Faculty of Medicine in Ankara

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Introduction: This study is a descriptive study performed to determine the level of Workplace Violence and related factors on health workers in Hospitals of a Faculty of Medicine in Ankara. **MATERIAL-METHOD** 380 people are determined by proportional stratification among 1790 physicians and nurses working in the in Hospitals of a Faculty of Medicine in Ankara. However 277 of them participated in this study (participation rate is 72,89 %). Three forms have been used throughout the study for collecting data. These are personal and workplace information form, physical violence form, physhological violence form (Verbal Abuse, Bullying/ Mobbing, Sexual Harassment). Statistical analysis of data are performed using SPSS 10 program. In the statistical analysis chisquare is used. The study is conducted between January 2008-June 2009. **RESULTS** the prevalans of exposure to at least one type of violence among the health workers participated in this study in last 12 months is 62,8% while 7,2% of them are exposed to physical violence, 59,2 % of them are exposed to verbal abuse, 21,7% of them are exposed to bullying/mobbing and 1,1 % of them are exposed to sexual harassment. There are statistically significant differences between the groups of age, sex, working years in the organization, work experience, number of turn of work, physical contact, the department they work and being exposed to verbal abuse. There are also statistically significant differences between the groups of anxiety they feel about workplace violence and physical violence, verbal abuse and bullying/mobbing. Physical violence and verbal abuse exposure are mostly seen among the residents and nurses due to their positions in the hospitals while bullying/mobbing exposure are mostly seen among the experts/specialists and professors and assistant professors. **CONCLUSION** The organisations should have politics preventing violence and also apply politics including a policy of zero-tolerance against workplace violence. Organizations should also encourage their workers to attend the education programmes they organise. Registration and declaration systems should be developed. Also, violence/scene forms including the suggestions of workers who are exposed to violence should be developed and updated.

Keywords: Workplace violence, physician, nurse, physical violence, physhological violence, verbal abuse, bullying/mobbing, sexual harassment

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Occupational Injuries and Occupational Safety and Health in Northern Cyprus Construction Industry

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Goal: The aim of this study is to contribute to the improvement of occupational safety and health (OSH) in North Cyprus. **Background:** This article examines the injuries and OSH standards in the construction industry and is part of an ongoing study of OSH of three selected industries in Northern Cyprus. The industrial sectors in need of attention were determined following an analysis of the data collected from the labor and social insurance office on the number of industrial accidents reported each year. In the past ten years, the highest number of accidents was reported from the construction industry followed by the production industry in general. **Methods:** We used surveys designed to identify the extent to which the construction industry followed the rules and regulations stated in the OSH law requirements. The response rate to the surveys was 75% and the SPSS program was used for data analysis. Check lists were also used to identify possible OSH risks at construction sites. **Results:** 12.2% of construction workers responding to the survey had a serious accident on the job, 22.2% reported starting their job without any OSH training, 23.3% had no OSH training in the work place, 44% complained that their work place did not have first aid, 85% reported that safety belts were not used when working on scaffolds. Some of the other work environment concerns raised by respondents included: repetitive activities that may lead to repetitive strain injuries, exposure to excessive heat, noise and dust. **Conclusion:** this study shows that although there are new OSH rules and regulations the lack of compliance with these regulations may result in a significant occupational injuries in the construction industry. Inspection of construction sites may be required to ensure that these regulations are properly enforced in order to prevent future construction related occupational injuries.

Keywords: Accident prevention, safety in construction, injuries

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(P: 500)

Blood Exposure Accidents among Medical Laboratories' Staff

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Introduction Blood exposure accidents (BEAs) are a major occupational hazard for medical laboratories' staff. The aim of our study is to determine the prevalence of BEAs among medical laboratories' staff and to investigate the procedures at risk. **Patients and Methods** This is a cross-sectional survey based on a self-administered questionnaire, assessing the risk of BEAs, for the staff of nine medical laboratories at eight provincial hospitals of the Oriental region of Morocco. **Findings** out of 111 agents, 57% are laboratory technicians with female predominance (56%). 52% have a tenure of more than 10 years. Recapping of needles is practised in 75% and the mismatch of the needles by hand is rated at 73% despite the presence of safety boxes in 65%. 29% report having been victims of BEAs. The blood



sample is the most common task during the last accident. The HIV status of source patient is nearly all failed. The use of gloves and washing hands are found in 80.76%. 85% believe that vaccination is an effective way for prevention yet more than half say they are not vaccinated against hepatitis B (56%). Discussion Our study shows a prevalence comparable to the literature. The gesture most at risk in our study is the venepuncture while it is represented by subcutaneous injections in the literature. Conclusion Safety equipment, training and HBV vaccination remain the main focus of improving the prevention of BEAs among medical laboratories' staff.

Keywords: Blood exposure accidents, medical laboratories, health care workers

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(P: 501)

Professional Burnout Syndrome among the Caregivers of Pediatric Services

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Objective Professional burnout syndrome is a problem on the rise in settings. Caregivers of pediatric services are particularly affected by this syndrome as well as other psychosocial risks including professional stress. The aim of our study is to determine the prevalence of burnout and professional stress among caregivers working in pediatric services of Children's Hospital of CHU Ibn Rochd of Casablanca. Methods, this is a cross-sectional survey based on an individual and anonymous self-administered questionnaire containing the Maslach Burn Out Inventory and questionnaire of Karasek ; it concerned all caregivers in 7 pediatric services of CHU Ibn Rochd: 5 clinical pediatric services, an emergency department and a pediatric intensive care unit. Findings our investigation, still ongoing, has attracted 80 caregivers (response rate 50%), with female predominance (75%). The mean age was 32.42 years. Our population is constituted mainly of nurses with 61.3%, against 38.8% of resident physicians. Professional burnout is considered high in 30% of cases. The situation of Job-Strain is present in 28.75% of cases and iso-strain in 17.5% of cases. Discussion our descriptive study shows that burnout and occupational stress is a reality among caregivers in the pediatric services at Children's Hospital Ibn Rochd of Casablanca, and impose more broadened and deepened studies in order to identify key risk factors. Conclusion These results also show the need to develop prevention strategies, specific interventions and early multidisciplinary management of professional burnout syndrome.

Keywords: Burn out, stress, health care workers

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(P: 502)

Accidentology among Nursing Staff

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Purpose Occupational accidents in Morocco are not governed by specific texts in the civil service. Under-reporting and uncodified repair make it difficult to assess occupational accidents in our public care. Instrument and method This is a retrospective study concerning occupational accidents of nursing staff at CHU Ibn Rochd. Data collection was done using a form including, socio-professional characteristics, nature of the accident, injury, time off work and degree of permanent disability. Findings: We collected 66 sheets over 3 years. 66 victims are primary grade nurses with age over 45 years old in 58% of cases. 97% of accidents occurred in the hospital. The main causes of accidents are slips (41%) and blood exposure accidents BEAs (26%). 79% of accidents have caused a cessation of work. Finally, only 3 rates PPI were found in the files. Discussion The low rate of commuting accidents is explained by the fact that they are reported as highway accidents or by the employees' ignorance of their rights. Slips can be avoided by making soil maintenance outside the periods of major activities and complying with safety standards. BEAs prevention is based on standard precautions, the provision of safety equipment and vaccination against viral hepatitis B. Conclusion: The frequency and severity of accidents recorded in this study may be reduced in accordance with the basic safety standards. A staff awareness regarding reporting occupational accidents is necessary.

Keywords: Occupational accidents, nursing staff, safety standards

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(P: 503)

Diagnosis and Evaluation of Fire Risk by the Running of Rna – Statistical Analysis: Algerian Industry Case

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The function of diagnosis breaks up into two elementary functions: localization and identification of the causes. The localization makes it possible to determine the failing functional subset while the identification of the cause consists in determining the causes which led to an abnormal situation. Taking into consideration these definition, the diagnosis treats at the same time numerical data (exploitation of the observations if it acts of sensors for example) and of the data symbolic systems (knowledge on the system considered). These two types of data are necessary to the operation of diagnosis. On the one hand, one finds the knowledge total, which one can describe as knowledge a priori resting on the past of the system. In addition an instantaneous knowledge is necessary, corresponding to the whole of the elements which one has at one moment given to make a decision and to exploit it. The first methods of diagnosis were based on the redundancy of materials considered to be critical for operation of the system. The principal disadvantages of this redundancy are related to the costs due to the multiplication of the elements as well as the additional obstruction and weight which it generates. The development of the digital computers makes it possible today to eliminate partly, and even entirely, the material redundancy for the diagnosis of the industrial systems. The objective of this work is the development of a method making it possible in an automatic way to detect the defects / failures of an industrial facility and to diagnose their causes. To meet this aim we propose the following step: The application of a method of diagnosis using functional and material modeling; The application of a statistical method; And, finally the application of a method of diagnosis using the networks of artificial neurons.



Keywords: Diagnosis, networks of artificial neurons, statistical methods

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(P: 504)

Carcinogen Surveillance Activity Driven by Trade Unions in Korea

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In 2009, the Carcinogen Surveillance Network (CSN) was established by collaborative efforts with the Korean Confederation of Trade Unions, Federation of Korean Trade Unions, Korea Federation for Environmental Movement, Korean Federation of Medical Groups for Health Rights, Wonjin Institute for Occupational and Environmental Health, and progressive health and safety professionals in Korea. The major goal of CSN was to reduce the risk related to exposure to chemical carcinogens at work or environment. There was no legally binding carcinogen list until 2009 in Korea. The CSN organized the Carcinogen Listing Committee (CLC) consisting of 32 occupational and/or environmental professionals. The CLC reviewed carcinogen lists issued by 5 representative institutions with a carcinogen classification system such as the International Agency for Research on Cancer (IARC), National Toxicological Program (NTP), Environmental Protection Agency (US-EPA), American Conference of Governmental Industrial Hygienists (ACGIH), and European Union (EU). Finally, the CNS announced the Carcinogen List ver. 1.0 consisting of confirmed human carcinogens 34, probable human carcinogens 179 and possible human carcinogens 251 in February 2010. The CNS conducted the first surveillance activity with workers by using the Carcinogen List ver. 1.0. We collected 2,590 Material Safety Data Sheets of products from 26 automobile and part workplaces and investigated a total of 5,962 chemical components. The carcinogenic products accounted for 22.5 % of surveyed products, and the products containing any confirmed human carcinogens were 114 (4.4 %). We informed the survey results to workers and developed internet website for searching carcinogenic products. In this year, the second project for shipbuilding industry is going on.

Keywords: Carcinogen, surveillance, trade union

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(P: 505)

Analysis Occupational Stress and Determination of Effective Factors in One of the Country's Industries

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Generally speaking, one of the important subjects, today, in the science of industrial psychology and ergonomics is stress in the working environment. Regarding the importance of the matter, the present research considers the relation between stress with some relevant parameters in the employees of one industry. This research is cross-sectional and of

analytical-descriptive type, and a stress questionnaire and software was used to consider stress parameters. Some other parameters including age, sex, marital status, occupation, education levels, employment background and enthusiasm to the occupation were also added to the questionnaire, due to the considered purposes and aims. Sampling in this research was done by taking census. The analyzable final number of considered samples were added up to 294. Finally, “SPSS” software and statistical tests were used, for the achieved data to be analyzed. The considered industry divided into three categories of administrative, supporting and production sections. Stress showed a higher average grade in the production section and a lower average grade in the supporting section. Pearson correlation test showed no relations between the grade of stress, and age and employment backgrounds, similar results have been derived in some other investigations.

Keywords: Stress, anxiety, depression

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Success Factors in Preventing Occupational Risks to Road Transport Drivers

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Purpose and method EU-OSHA reviewed the extent, nature and trends in occupational risks faced by professional road transport drivers in the EU. Subsequently, EU-OSHA gathered and analysed examples of employers’ good practices as well as programmes and campaigns to identify successful prevention approaches findings and discussion drivers of road transport vehicles (freight or passenger) face a variety of occupational hazards, which contribute to their performance on the road. Managing risks can be challenging because drivers work alone, away from their base, and are dealing with traffic in addition to many other risks that are difficult for them to control. It is challenging to reach and persuade employers and drivers to adopt better occupational safety and health (OSH) practices. Lessons drawn from the cases include: Involve drivers, using their experience; make approaches practical, not patronising; allow time to introduce changes; use older drivers as advocates; involve the whole supply chain, passengers, and stakeholders in solutions; large organisations can set OSH standards for their delivery contractors etc.; new technology in cabs can be used for OSH purposes, e.g. intelligent cruise control, but also to improve delivery schedules; OSH solutions may increase the time to carry out tasks which must be recognised in working time and by clients; training, e.g. defensive driving, must be part of a system to prevent risks, with clear management commitment. Involvement is important, as shown by cases to prevent violence to bus drivers, where pupils are involved in developing solutions. Conclusions the key to success in both risk management and campaigning is taking account of how the sector operates in practice, and the characteristics of drivers themselves and the way they work. The cases show many business benefits in managing work-related road safety, no matter the size of the business. Further information http://osha.europa.eu/en/topics/road_transport.

Keywords: Road transport, professional drivers, good practice, SMEs

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Evaluation Effect Mycorrhiza and Degrading Bacteria in Enhance Phytoremediation Oil Compound in Oil Contaminated Soil

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Polycyclic aromatic hydrocarbons (PAHs) are common environmental pollutants produced by industrial operations using fossil fuels as well as by natural events such as forest fires. Because of their widespread distribution and their toxicity and mutagenicity, PAHs are listed as priority pollutants, and remediation of soils contaminated with PAHs is of great concern. The use of microorganisms and plants for bioremediation of PAHs-contaminated environments seems to be a viable technology for restoration of polluted sites. The purpose of this research was investigation effect mycorrhiza and degrading bacteria in increasing phytoremediation. For this aim the soil deliberately contaminated with crude oil in a 1 and 2 wt % rate and four treatments, for including: plant alfalfa (T1), plant alfalfa with mycorrhiza inoculation (T2), plant alfalfa with oil degrading bacteria inoculation (T3), plant alfalfa with mycorrhiza and oil degrading bacteria inoculation (T4) employed for bioremediation of oil contaminated soil, After 8 weeks Assessment of AM colonization of alfalfa roots and Petroleum Hydrocarbon Degradation after extracted compound oil by soxhlet, performance GC analysis. The results showed that with increasing pollution level shoots and roots yield decreased. AMF colonization in mycorrhizal treatments did not reduce the yield significantly. Most importantly, degradation of oil components was significantly enhanced by the addition of oil-degrading microorganisms, compared to growing plants alone at both pollution levels. The highest oil degradation (85%) was observed with AMF + oil degrading bacteria in soil with pollution level of 2%. GC results indicated that all normal paraffin and isoprenoids i.e. Phytane and Pristane decreased from 40 to 80 percent in treatments with oil-degrading microorganisms.

Keywords: Degrading bacteria, gas chromatography, mycorrhiza, normal paraffin

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Occupational Health and Safety Applications of Nursing Administration in OHSAS 18001 in a State Hospital

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Health institutions who aim to provide health services to the community, present quite many of occupational accidents and occupational diseases to employees. Varying employees from assistants who are educated with inservice training to high educated specialist physicians, complex and very expensive equipments, stress which emerges because of activities between life and death, increase distinctive properties and spesific problems which need to be solved. Hospitals are spesific work areas where a very good team work at the highest level is needed, very high technology used and patient dependency to occur at top level. Health care provided in hospitals is a system of thosands of processes chained to each other. Adverse events and errors can occur at any time in the system. Patients and their



family apply to nurses 24 hours for all kinds of problems and nurses ensuring communication inside health team have a very critical role in hospitals. Nursing has been described as a stressful occupation because of work environment and heavy workload arising from the influence of many negative factors. International Labour Organization (ILO) defines the main stressors of nurses working environment as follows: Conflict with manager, role conflict and indefiniteness, extra work load, sentimental stress because of working with patients, conflicts with patients, working with patients who need intensive care and who are dying and shift work. (ILO 2001) In this study, we wanted to explain the applications of nursing administration and occupational health and safety applications of subcontractors in OHSAS 18001 quality certification system in a state hospital. Our hospital is the first state hospital to achieve OHSAS 18001 quality certification system.

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(P: 509)

Engineering Out the Hazards of a Machine Shop

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A machine shop environment presents a high potential for occupational injuries and fatalities. A combination of rotating spindle, coolant spatter, cutting tool activity, and sharp airborne chips, occurring during the metal cutting process, creates a significant hazard for equipment operators. The danger of working in this environment is reflective in industry TRIRs (Total Recordable Incident Rate) which fall between 2.7 (Oil and Gas Manufacturing) and 5.5 (Metal Manufacturing) based on USA 2009 industry SIC/NAICS Codes. This case study highlights how Baker Hughes Inc – Navigation Manufacturing Facility (500 employees, 100 CNC Machines) – identified numerous safety issues in its machine shop environment and processes, and undertook a three-step program for “engineering out” those hazards. The first step involved modifying machinery guarding and improving the internal visibility of parts during machine operation. The second step took traditional secondary process tasks – deburring, marking, cleaning – and incorporated them into more a part of the machining effort to reduce operator hand injuries incurred during interaction with the part. Lastly, the handling of production parts was improved with the use of parts catchers, modified forklifts, and new safer material lifting devices, further reducing the likelihood of other bodily injury. Implementation of “hands-free” machine and equipment improvements and enhanced process practices has allowed the Navigation facility to achieve over two million hours without a Recordable Injury (TRIR), over 8 million hours without a Days Away from Work Case (DAFWC), and a TRIR of less than 0.4 for the last 5 years.

Keywords: Machine shop, equipment hazards, metal manufacturing

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Safety & Health Effects of Liquefied Petroleum Gases During Production, Transportation, Storage and Disposal

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Safety & Health Effects of Liquefied Petroleum Gases during Production, Transportation, Storage and Disposal Liquefied gases are gases that can change phase from liquid to gas and gas to liquid at specific conditions such as pressure and temperature. The most important liquefied gas is Liquefied Petroleum Gases that is known as LPG. LPG is mostly used at kitchens, heating, lightening and industrial area. It is a common energy source, used for providing energy for vehicles at automobile industry, ventilating devices, punch pressing, welding, achieving power for drilling devices of oil wells and aerosol industry as propellant gas. Besides, according to statistics for 2010, LPG is used as cast, tank and auto gas and among these, auto gas has the highest ratio (67, 97%) in Turkey. LPG is a colourless and odourless gas, composed of 70% butane and 30% propane. When considering production sources, 30% of LPG is obtained from raw oil at refinery and 70% from natural gas. Moreover, when compared to other fuels, LPG is much cleaner in terms of environment and health due to the fact that it does not include lead and does not release carcinogenic substances with complete combustion. It is aimed by the research 'Safety & Health Effects of LPG during Production, Transportation, Storage and Disposal' to introduce properties and effects of LPG. Detailed information such as properties, transportation, storage, OSH and other legislation, environmental and occupational health and safety effects of LPG, prevention of fire, exposure to dangerous substances, measures to be held on LPG usage areas, etc. will be given at the poster study. The result that "LPG is a safe, environmentalist and user friendly fuel if it is used or stored properly" will be introduced by related graphics and statistical data.

Keywords: LPG, OHS

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The Project of Determination, Diagnostic and OHS Professional's Precision Enhancement about Occupational Diseases in Turkey

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Financial and emotional loss arising out of occupational accidents and occupational diseases, reach important dimension in terms of national economy of Turkey. Therefore, it is obligatory that measures should be taken in occupational safety and health field in Turkey. Occupational diseases are completely preventable diseases. Therefore, safety and health measures taken in an enterprise are vital of importance.

While varying between countries, for one thousand workers, 4-12 new occupational diseases are expected annually. Despite the fact that when "expected occupational disease rate" calculated 36.000-108.000 occupational diseases are expected, only 429 occupational diseases are found according to Social Security Institution's 2009 data. As a reason for this inadequate number many things may be specified regarding medical, legal or social partners.

By reason of the fact that early diagnosis of occupational diseases cannot get adequately in Turkey, employers, employees, social security institutions and country is damaged financially and emotionally.

Project is planned so as to inform parties on determination and diagnosis of occupational diseases, to increase awareness and to prepare diagnostic guidelines for occupational diseases.

The aim of the project is to sensitize relevant parties and society. First phase targets of the project; to create a safety culture on occupational diseases in determined areas, to complete the preparatory work of occupational diseases diagnostic guidelines, to cooperate and coordinate between relevant institutions and organizations and to contribute integration of occupational safety and health into instructional programs of graduate and undergraduate.

Thereby specifying 22 provinces which are highly industrialized and in which maximum occupational accidents are observed, sensitizing conferences for society are organized.

Results of the trainings aimed at society will be shared in the Congress with all participants.

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Professional Development of Assistant OHS Experts on European Dimension of OHS

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In Turkey duty of providing safety and health of workers is given to Directorate General of Occupational Safety and Health with the law. Occupational Safety and Health Institute (ISGUM) is supporting DGOSH with activities intended to implementation.

By the year 2004, Occupational Safety and Health Assistant Experts are being employed in DGOSH and ISGUM. Now there is 44 Occupational Safety and Health Assistant Experts from 7 different engineering branches started working in ISGUM and DGOSH. Occupational Safety and Health Assistant Experts in ISGUM and DGOSH study on;

- Development and harmonization of legislation with EU legislation,
- Development of national policies,
- Make scientific and technical researchs in order to prevention of occupational accidents and diseases,
- Market surveillance and inspection of personal protective equipments,
- Measurement, analysis, technical control, risk analysis and assessment,
- Training and consulting

and carry out these duties within cooperation and coordination with national and international institutions and organizations.

During the EU membership process, our country continues negotiations. As a result of these negotiations, social policy and employment chapter was opened to achieve integration of our legislations to EU legislations under this heading. In this context, regulations are prepared within Directorate General of Occupational Safety and Health and brought many innovations to our Working Life.

At the point of implementation vocational training of Occupational Safety and Health Assistant Experts gains importance. To fulfil this need a Project is prepared within "EU-



Leonardo da Vinci” programme. In EU two biggest industrialized and experienced country in OSH, Germany-United Kingdom is selected for the Project and collaborated with leading OSH institutions in these countries.

Preparation period of the Project, international collaboration provided, vocational training and training content prepared regarding European Dimension of this Project and all the experiences gained after this period and the Project with all its aspects will be examined and results obtained will be shared with all the participants in the Congress.

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Machinery Park Area in Terms of Settlement Order of Occupational Safety

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In business production, ensure the flow of business and are in the same field in order to avoid loss of time. As a result, decreasing production time and costs recovered. But the machine park businesses from creating the right job can lead to accidents. In this study, explained the importance of workplace safety in machine work placement scheme.

Keywords: Mechanical parking area, occupational safety, accidents at work

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(P: 514)

Epidemiological Study of Respiratory Malignant Tumors in Men from Asbest City of Sverdlovsk Region

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The title should be in capital letters using font size 14. At the right top corner, title, full name should be followed by University/Institution/Organization names on the next line. In common declarations the name of the person who will make the presentation should be underlined. Participants wishing to submit their posters should print their posters in the dimensions of 90x70 cm as shown on the figure to be readable from a distance of 1 m. At the top of each poster the title of the poster, the author and the institutions they work for should be included. The contact address of the author should be written. The title of the posters should be at least 2.5 cm. A brief purpose should be included in introduction. Following this, instruments / method, findings and discussion should be presented. Poster should be finalized with a conclusion reflecting the characteristics of the study.

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(P: 515)

Employee Nutrition

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Researches in many countries has showed that it is very profitable to provide nutrition opportunities. Furthermore, in industrialized countries, it is an obligation in law to provide food service for companies which has enough employees. The cost of food service has been compensated from employers and employees.

In our country, collective labour contracts also include rulings for supplying food to employees. These rulings take place in several ways. In some labour contracts, it is envisioned to give certain amount of food that meets certain energy levels, give money for single meal or give certain amount of food for certain amount of money ??????.

Thinking of nutrition for only energy level may lead to an increase of imbalance of the diet. The Employee mostly eats low quality food (usually based on grains) at home. For this reason, quality and well balanced food being served in the workplace compensates the lack of quality food at home.

A person's nutrition needs depends on her/his age, sex, work and specific case. the blue collar workers needs more energy than white collar workers. Daily diet must be balanced according to the energy spent. Furthermore this diet must be enough for protein, vitamin and mineral needs.

Workplace diets which should be considered as special for groups and issues are summarized as follows:

It has summarized that

- Pregnant workers; Diet before birth; Needs Fe (Iron), vitamin and mineral support.
- It should a special care like pregnant.
- The women workers in menaphosis; their need on P, Ca, Vit.D are more than the others.
- Old workers; Because of systemic diseases like dental and digestive problems, constipation, arteriosclerosis, cholesterol, hypertension, diabetes and decrease in need of energy with age, they should be paid special attention.
- Child workers; their puberty needs must be met
- Employees who has metabolic and chronic problems; diabetes, cardiac diseases, hypertension, gout, cholesterol, obesity must follow suitable diets.

Keywords: Employee, workplace, nutrition

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Human Error Probability Index Assessment for Mastering of Emergency Situation in Gas Compression Stations (Gas Transmission of District No.3)

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Field and purpose: Human error plays a key role in accident occurrence both in direct performance and weak designs. This task concentrates on human error probability prediction during the master of emergency situations in gas compression station. The purpose of presenting this article is to give a short description of Human Error Probability Index (HEPI) for the process of aggregation and mastering. Methodology: regarding the lack of data bases in the field of Human Error and particularly Human Error Data for mastering of emergency situations in gas compression stations, an expert judgment methodology called Success likelihood Index Methodology, is provided as a tool for human error probability prediction. Two mastering scenarios with different intensity (gas leakage, firing and explosion) have been studied in detail. 34 reference diagram provided data for weight and rating for six factors of processing the performance and finally these data have been processed using Success likelihood Index Methodology (SLIM) to calculate the success likelihood for 16 mastering activities from starting-point of mastering to the last activity in Temporary Safe Refuge (TSR). The above mentioned activities are divided into four steps: announcement, evaluation, exit and recovery. Six factors of processing performance regarded in the task are as follows: stress, task complication, instruction, experience, occurrence factor, climate condition factors. Results: Human error probability in the exit step was more than the other steps and after that in evaluation step the highest probability has been observed and the least probability has occurred in the announcement step. Conclusion: Human Error Probability Index (HEPI) can be applied to restrict the possibilities of human error and reduce the backwash intensity of such errors via modifications in training, designing, safety systems and instructions by which error resistance in designing or operation is increased.

Keywords: Human Factors, Human Error, Human Error Probability Index (HEPI), Success Likelihood Index Methodology and Gas Compression Stations.

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Human Capacity Development on Work Hazards and Safety Practices in the Telecommunication Industry in Nigeria

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Telecommunication networks have evolved to become the backbone through which we conduct our daily lives and transact our business. The telecommunication industry in Nigeria accounts for about \$16bn as at March 2010 in investment, about twenty thousand (20, 000) base transceiver stations (BTS) and thousands of kilometres of metro and national fibre-optic backbone on key routes across the nation with 80 million subscribers and about 10,000 direct and 3million indirect workers. The operation of this complex infrastructure involves risks of loss ranging from damage to the infrastructure's physical components, such as towers and

switching equipment, the corresponding interruption of services provided to worker injuries, and liability claims associated with maintaining these networks: hence keeping workers safe is a growing concern to overcome. Therefore, it is essential to raise HSE issues high up on the industry agenda and integrate them with industry's core values. Statistics show that injury-free working environment is still a distant goal from where we are standing today; nevertheless we can work towards perfection. Statistics shows that 70% of all workplace accidents are due to human error or management system failures. This paper seeks to emphasize the need for human capacity development for employees and others stakeholders on Work Hazards and Safety Practices in telecommunication industry. It also to inform employers of their obligations to develop the appropriate hazard prevention and control methodologies designed to prevent workplace injuries and illnesses.

Keywords: HSE, profitability, human error, Safety management system, human resources

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Gynaecological Disturbances among Females Engaged in the Manufacture of Sex Hormones

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Introduction: Numerous studies have established as association between exposure to sex hormones and many gynaecological troubles. The aim of work: to investigate the different gynaecological disturbances which may affect female workers occupationally engaged in the manufacture of contraceptive pills and other hormonal preparations. **Methods:** The total number of female workers was 214; a control group of 220 subjects was taken of comparable age and socioeconomic status and not exposed to any external source of hormones. All workers were subjected to a prepared questionnaire including present, past, family and occupational history. Gynaecological examinations were carried out for married female workers who agreed to cooperate with the team (137 exposed, 180 control). Virgins were excluded. Blood samples were collected for hormonal assay. **Results:** This study showed the presence of masculinizing signs among the exposed group. There was a statistically significant difference between exposed and control on comparing gynaecological disorders (bleeding, amenorrhea...). Hysterectomy was done to 11.2% of exposed workers versus 3.6% of non-exposed workers. Our study showed a significant positive correlation between duration of exposure and the prevalence of hysterectomy. About 51% of married exposed workers had reproductive disorders. Gynaecological examination showed that exposed workers suffered from vulvo-vaginitis (46.7%), cervical erosion (3.9%) and leucorrhoea (62.8%). About 12% of the exposed workers complained of some family health disturbances in the form of precocious puberty in female children, gynaecomastia in male children and husbands. A statistically significant higher mean value of oestrogen was found among the exposed group. **Discussion:** This study showed that occupational exposure to sex hormones especially oestrogen lead to gynaecological disturbances among exposed workers and health troubles among their families. We recommend health education for the importance of the use of protective equipments, machines enclosure is a mandatory. Periodic medical examination should be carried out regularly for early detection of affected personnel. Pre placement for any female worker complaining of any gynaecological troubles.

Keywords: Gynaecological, disturbances, females, manufacture of sex hormones



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Evaluation of the TRA ECETOC Model for Inhalation Workplace Exposure to Different Organic Solvents for Selected Process Categories

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Objective: The aim of this work is to describe the operation principle of the TRA-ECETOC model developed using the descriptor system, and the utilization of that model for assessment of inhalation exposures to different organic solvents for selected process categories identifying a given application. **Rn Method:** Measurement results were available for toluene, ethyl acetate and acetone in workplace atmosphere in Poland. The following process categories have been postulated: Rn-Paints and lacquers factory: use in closed, continuous process with occasional controlled exposure Rn-Shoe factory: roller or brush application of glues. Rn-Refinery: use in closed process, no likelihood of exposure Rn. The next step was to calculate the workplace concentration at chosen process categories by applying the TRA ECETOC model Rn. **Results:** The selected categories do not precisely describe the studied applications. Very high concentration values of acetone were measured in the shoe factory, mean 443 ppm. The concentration obtained with the aid of the model is underestimated, ranging from 25,47 to 254,7 ppm, for the case with and without activation of the LEV, respectively. Estimated concentration at a level corresponding to that of the measured concentration would be possible if the process category involving spraying, e.g. PROC 7 was considered. For toluene and ethyl acetate, the measured concentrations are within the predicted ranges determined with the use of the model when we assume the concentration predicted with active ventilation for the beginning, and the concentration predicted with inactive ventilation for the end of the range. **Rn Conclusions:** Model TRA ECETOC can be easily used to assess inhalation exposure at workplace. It has numerous advantages, its structure is clear, requires few data, is available free of charge. Selection of appropriate process categories related to the uses identified is guarantee of successful exposure assessment Rn.

Keywords: Workplace exposure, exposure calculation

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Squamous Cell Carcinoma and Occupation: Results of a Case-Control Study in Sousse, Tunisia

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Objectives: The purpose of this investigation is to study the clinical characteristics and to identify occupational risk factors for Squamous Cell Carcinoma (SCC). **Methods:** We conducted a case-control study including 99 patients hospitalized in Dermatology department of "Farhat Hached" University Hospital for SCC between years 1991 and 2007. These cases were matched by age and gender with 120 healthy subjects. Socio-professional and medical data was collected by standardized questionnaire and medical file of hospitalization. This survey was conducted using a job-exposure matrix. **Results:** A predominance of males was found with a sex ratio of 1.75 for cases and 1.66 for controls. The average age of cases was 63.9 ± 15.9 years versus 62.8 ± 16.04 for controls. Predominant location was the head and neck (62.6%) with almost two thirds (66.13%) in labial location. Ulcerofungating cancer was the most frequently encountered (44.44%). Well differentiated tumors were the most represented on histology (34.34%), followed by moderately differentiated tumors (21.21%). The lymph node metastasis was found in 25.25% of cases and distant metastases in 5 cases. Fatal evolution was observed in 13 cases (a mortality rate of 13.13%). The proportion of farmers was higher in cases (49.5%) than in controls (37.5%). Excessive exposure to pesticides and fertilizers without significant difference has been observed in cases. The mean of exposure index and the number of exposed to solar radiation were significantly higher in cases. Similarly, a history of skin burns was significantly associated with the occurrence of SCC. Moreover, tobacco consumption has been associated with the occurrence of labial SCC. **Conclusion:** Preventive actions aiming at the eviction of solar radiation exposure could reduce the prevalence of SCC in workers. The role of pesticides and fertilizers in SCC occurrence needs to be confirmed by other studies.

Keywords: Squamous Cell Carcinoma, occupational exposure, pesticides, solar radiation

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Occupational Asthma in the Tunisian Central Region: Etiologies and Professional Status

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Objective: To study the etiologies of occupational asthma and to determine its impact on the professional status of asthmatic subjects. **Methods:** we carried out a descriptive study on the whole of the cases of asthma which was declared in the private sector in the Tunisian central region and recognized as an occupational disease during a nine –year period (2000 - 2008). **Results:** We listed 219 cases of occupational asthma, which accounted for 16.8% of the whole of the occupational diseases recognized during the period of study. Occupational asthma concerned young adults (40 ± 8.2 years) with a predominance of females (67.7%). The textile sector was dominating (74.9%). The majority of the employees were exposed to high molecular weight allergens (82.3%) and cotton dust was the principal offending agent (75.3%). Involuntary unemployment was observed in about half of cases (46.6%) and was associated with an age lower or equal to 35 years ($p= 0.01$) and with a professional seniority lower than 15 years ($p=0.03$). **Conclusion:** Occupational asthma in the Tunisian central region prevails in the textile sector, which justifies the reinforcement of preventive measures in this branch of industry.

Keywords: Occupational asthma, epidemiology, allergy

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Implementations of ENETOSH

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The European network education and training in occupational safety and health (ENETOSH) is being created with the support of the European Commission. The network currently comprises 36 members from 16 European countries, including Turkey.

ENETOSH develops a standard of competence for instructors and trainers in occupational safety and health in order to improve the quality of training and to promote the process of mainstreaming occupational safety and health into education and training.

ENETOSH Standard and new approaches in occupational health and safety training beginning from kindergarten to elder ages and the ways of implementation at national and international level.

The objective in OSH should be the constitution of a common “Safety Culture” in working life and public.

OSH and training policy should be integrated for the purpose of mainstreaming OSH into training. The contribution of all parties has to be provided, to make OSH an integral part of life-long learning, interactive methods to be used, direct communication to be provided at the work places and feedbacks be provided and evaluated.

OSH is not restricted to only one subject title, but is integrated into mathematics and Turkish lessons at every level of education. OSH training given to primary school students in the recent four years has been very efficient. Besides, in order to make students and their teachers conscious of the importance of the OSH concept an educational program was designed for the students of vocational schools in 10 provinces throughout Turkey.

In the training campaigns which will be designed for this purpose, public awareness should be provided to the subject by using some methods such as spot films, making use of famous faces for the OSH promotion, preparing TV programs, using cartoon characters like NAPO in OSH trainings, preparing OSH puzzles, arranging poster, composition and slogan painting competitions.

Key words: OSH, training, ENETOSH standard

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Risk Assessment of Metal Sector

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The metal sector which is known to be one of the leading sectors in our country includes many of the occupational health and safety risk factors within the nature. Determination of the risk factors that the employees are exposed and ensuring to take proper measures in metal sector where small and medium sized enterprises (SMEs) are especially in a majority is critically important.

For this purpose, a treaty between Industrial Zone Management (OSB) and Occupational Health and Safety Center (İSGÜM) was concluded to identify hazards, to grade risks and to develop proper risk control measures at SMEs which are serving at First Industrial Zone of Ankara Chamber of Industry which was selected as pilot region.

Screening Level Risk Analysis (SLRA) method was used in risk assesment study at Sincan Industrial Zone. The reason of choosing this method was having process focus to identify potentially hazardous events, using matrix approach to grade the risks by seperating to categories and providing the participation of the employees.

Consequently, by using SLRA method, risk assesment have been done at 5 metal workplaces and the results were shared with this article.

Keywords: Risk assesment, SMEs, metal sector

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A Job-Technology-Risk Evaluation Methodology Using Fuzzy Set Theory for Designing a Safe Engineering Work System

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In homo-technological systems (HTSs) worldwide around 2.3 million people die every year for work-related causes resulting in expenditure amounting to about 4% of the total world GNP and hence, it is essential for an organization to evaluate work-related risks during the design stage of its engineering systems so as to prevent the occurrence of such causes during their operations. Risk being an integral factor of any engineering life cycle refers to severity of and exposure to its associated hazards and thus, the root cause analysis of the risk may help an analyst determine and assessing safety level with the consideration of possible job-technology-hazard interaction in a work system. This paper presents a comprehensive, integrated and generic methodology for job-safety analysis that is considered to be essential during the preliminary design phase of an engineering system or its component(s) in order to control, mitigate or eliminate the dangerous conditions based on Fuzzy set theory and Fuzzy logic approach. The proposed methodology discussed is a part of prevention-based 'design for safety' approach by taking into account both the system hierarchical structure and job-technology-hazards interaction with both job and technology are classified into a number of categories based on the levels of skill, rule and knowledge required by the concerned person(s) as well as the types of technology employed to carry out the job(s). All possible interactions among jobs, persons and technology in work systems are quantified and studied for assessment of safety system. Finally, a practical complex



manufacturing engineering work system example is presented to demonstrate the usefulness of the proposed approach.

Keywords: Homo-Technological system, job-technology-hazards interaction, design phase, risk analysis, engineering system, Fuzzy set theory and logic

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Past, Present and Future For Romanian Research in OSH, Through Inter-European Cooperation

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Cooperation in research is the best way to obtain tangible results. This is truer in Occupational Health and Safety Research, where the transfer of expertise, including use cases and knowledge could be invaluable in order to avoid occupational accidents and assure the best risk management. The research in the Occupational Safety and Health domain is performed in Romania mainly by the Romanian National Research Institute on Occupational Health and Safety. The paper presents the history of INCDPM regarding inter-European cooperation in OSH, the present inter-European research programs in which INCDPM is involved and also the future trends- proposed by INCDPM- regarding the development of OSH research at the European level. Among those proposals would be: -An East-European Safety Academy- with a research and a training component, academy that would closely cooperate with the best European safety research institutions and educational ones, being also supported by Authorities like ILO, ISSA or EOSH. - A network to communicate occupational accidents and to store and disseminate incident and accident experience in order to be used as lessons in safety training; -A network regarding risk management instruments; -A network for OSH training and assistance for SME.

Keywords: Cooperation in safety research

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Who is Responsible for Safety in Your Organization - Really?

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As safety professionals, many in our companies assume that we are the ones responsible for safety. We feel the employees are responsible. The law feels there is specific ownership of responsibilities. Do you even know who is? Ms.benay presents to her audience a simple question – who is responsible for safety and takes her audience through the steps in understanding accountability, responsibility and what that entails. This presentation was a result of a heated discussion between oh&s lawyers, professionals and ceo's.interactive and enlightening, ms. Benay is a world class presenter and the audience will be inspired to be a better professional, secure in the knowledge that they understand their roles.

Keywords: Geophysical, seismic



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Geophysical Seismic Safety - New Challenges and New Approaches

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Geophysical seismic exploration is the “first step” in the petroleum industry. It is also the most overlooked. Known as the “ugly stepsister” in the industry, it’s said to full of vagabonds that just “get the job done”.

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International Day of Mourning - What it Means to a Safety Professional

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Ms. Benay presents to her audience a captive description of a workplace death in the oil and gas industry and how it affected her as a safety professional. As an industry, we are the ones who deal with the incidents and accidents alike in our workplaces. The daily pressures of keeping our workforce “safe and alive” takes its toll. Ms. Benay shares with the audience, skills in safety “caregiving and survival” for our professionals and our organizations.

Keywords: Mourning, safety professional

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An Effective Traffic Safety Program for Shuttle Buses

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An Effective Traffic Safety Program for Shuttle Buses Every year thousands of people are killed or injured in traffic accidents in Turkey. According to Turkish Labor Law, since road traffic accidents which occur during the course of work and transport provided for employees to or from work are defined as occupational accidents, employers should ensure that employees are transported safely. A traffic safety awareness program for shuttle buses was implemented in a pharmaceutical manufacturing site in order to prevent injuries resulted from traffic accidents. Another purpose of the program was to observe if educational program can be effective to raise the awareness of a group of employees in a country in which use of belts are not widespread. In this study, a traffic safety program and its results are presented. At the initial stage, the survey results demonstrated that although the majority of employees and drivers were aware that seatbelt use is effective in prevention of traffic injuries, the rate of seat belt use was extremely low in service buses. Utilizing from the survey results, comprehensive educational programs were organized, inspection findings were closed,



various informative tools were used, the winners of shuttle bus safe driving competition, continuous seatbelt users and reported best near misses were rewarded in the scope of this program. At the final stage, the performance of the program was assessed: No traffic accident with injury was reported in 2010 while 2 service bus accidents have happened in 2009 which resulted with hospitalization. The final survey results have demonstrated that the seatbelt use has increased by % 54 after the program. A short term awareness program which is supported by various communication, education, warning and surveillance systems can be effective in prevention of traffic accidents and their negative consequences by raising safety awareness in employees and drivers.

Keywords: Traffic safety program, shuttle bus safety, safe driving, prevention of traffic accidents, seatbelt use, safety awareness

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Contribution of Occupational Safety Corporate Reputation and Efficiency Natural Gas Operation

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Businesses no longer balance sheets, financial indicators, such as with profits, reputation, integrity, sensitivity to the environment and the social responsibilities of the images are evaluated. Because these matters is no longer a problem, for example, insensitivity to the environment, employees, injustice, neglect as a result of a serious accident at work one time event, such as a provider of public-private difference does not, in society are subjected to negative evaluation. In addition, each valid for two cuts, skilled manpower required for brain power or workplace danger of being born out of the media is becoming a target. For these reasons, no longer even without the need for external audit of businesses in any other problem raised by someone other important issues were brought directly to give them job security. Work-related accidents; • Mechanical, material and product loss causes • Efficiency decreases, • Cause the loss of labor, • To stop the production, editing, and unnecessary repair work, • Responsible for the customer and leads to a loss of prestige in society. This is why health and safety should by the one-way, not only for the workers a safe working environment for the creation of the regulations not to be considered. Occupational Health and Safety concerns at the same time, the employer and the production of a concept to be considered. Natural gas investment and operations, profit margins, costs, timely delivery of service must be important, but more important, however, it is also a matter of human life . Natural gas companies, the order of importance given to occupational safety and efficient operation of the staff will be providing a safe environment, as well as the need to fulfill the social responsibility to society by offering a reliable service with high corporate reputation will take its rightful place among the companies.

Keywords: Corporate reputation, efficiency, safety

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Adapting Occupational Safety & Health Into the Curriculum of University Courses

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Adapting occupational safety and health (OSH) into the university programs plays an important role in developing and improving safety culture in the workplace. This is recognised by OSH strategy of the Turkish Ministry of Labour and by OSH strategy of the Turkish Council of Higher Education. A workplace, not designed in accordance with Occupational Safety and Health precautions, is unlikely to be economic and efficient. Engineers, architects and health professionals need risk education in order to develop the necessary OSH skills, knowledge and attitudes. By this way, occupational accidents and diseases can be eliminated or at least reduces to acceptable levels at safe workplaces designed and organised by the engineers, health professionals and architects who have OSH culture. But if OSH is truly to become an integral part of business management in all sizes of organisations, all future managers and professionals need to undertake relevant risk education, regardless of the magnitude of risk in their sectors. Sufficient importance should be given the graduate and post-graduate education to expand OSH culture and OSH curriculum should be systematically included as an element in courses. Lifelong learning programs are also important to expand OSH culture. There have been few activities regarding risk education at university-level in Turkey up to date. There is also a lack of lecturers with the knowledge to teach OSH culture. As it presents some special challenges, related to the types of teaching methods traditionally used, the sharing of experiences and resources at the university-level is particularly important. In recent years, OSH programs are spreading over the Science, Engineering and Architecture courses. Risk education is already adapted into the curriculum of 28% of the Turkish University courses. This study discusses the alternatives concerning how OSH can be included in university-level education.

Keywords: Occupational safety and health, education, university, curriculum

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Appraising MEA Safety Bridge to the Safety Poster

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Achievements in safety program in any organization can be appraised from various indexes. One possible way to carry out safety measurement is to determine the frequency rate and the severity rate based on the report of accident statistics last year. As statistical technique is implemented, the data can be analyzed and finally result to the quantitative values. Manager can take this outcome as a reference for setting up the safety criteria, as well as, the safety strategic approach. This article is intended to outline the statistical technique of safety measurements which are implemented by MEA. Quantitative results are then be made practical use in the safety promotion strategic planning processes. Safety poster is one of the proven tool for reducing accidents and as a part of safety promotion program which MEA use to encourage employees to recognize in safety. The conceptual design of safety poster



based on the outcome of safety measurement at MEA is also presented in this paper. This paper focus strictly on the methods MEA utilized to measure the safety and the result it provide can help focus on safety promotion efforts on actual rather than imaginary.

Keywords: Safety poster, safety measurement

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Assessment of OHS Indicators in Turkey in Last 50 Years

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According to the Social Security Institution statistics 1.216.308 work-places have carried business and in these workplaces 9.030.202 workers have been employed. Besides in these workplaces 64.316 occupational accidents, 429 occupational diseases have occurred; 1.171 of these occupational accidents resulted in death whereas no occupational diseases resulted in death. The number of lost days due to occupational accidents and diseases in 2009 was 1.589.116. The number of permanent disabilities to work was 1885. According to these numbers, in Turkey nearly 176 occupational accidents occur, 3 employees die due to occupational accident and 5 employees become disabled to work due to occupational accidents.

Nearly all of the workplaces (%99.7) in our country comprise of small and middle-sized enterprises. And %83 of occupational accidents occurs in SME. As can be resulted from these numbers, the moral and material losses due to occupational accidents and diseases have been significantly growing to enormous size. That is why there is an obligation of taking very serious precautions in the field of occupational health and safety.

In order to realize the distance covered in Turkey from the point of OHS view, OHS statistics of our country between 1961 and 2009 can be observed. A general improvement curve can be realized with this observation in the field of OHS since 1961. Both improvement in the awareness of OHS throughout the years and technological development contributed to this decrease (of occupational accidents). Despite these improvements, our country has not reached the desired standards both in occupational diseases and accidents.

Key words: OHS, occupational diseases, occupational accidents

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Safety Culture Activities

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Personal level of protection and development of their health awareness, healthy and balanced diet, exercise and safe behavior for life as a result of increasing the awareness of society access to a safety culture, the country's prosperity and development make a positive contribution.

Safe for work and occupational health and safety of young people towards healthy life patterns of behavior is of great importance to be learned as a reflex. Before entering the working life of children and young people informed about the risks of working life, occupational health and safety skills training to gain in terms of giving the correct behavior patterns is of great importance. Giving is not just for the life of this culture study, is necessary for daily life, the culture of life to have a safe, healthy and safe life, an essential element. Therefore, occupational health and safety training constitutes an extremely important place for the settlement and become a habit of the security culture in society.

After the renewal of Business Law in 2003, the culture of prevention and protection came to fore as a new approach. Creating a safety culture in line with developed countries was carried out in Turkey.

In this context, seminars were held for the purpose that constitute a common safety culture in the working life and society, a habit of making healthy and safe behavior. Especially within these seminars that are held within 10 industrialized provinces, for the target groups in these provinces it is planned to create a permanent cultural movement by a training programme including subjects like proactive approach introduced by European Union legislation and risk assessment. Universities, public institutions and social partners are integrated in all about 600 people participated in the seminars.

For the Safety Culture Seminars, the parties' awareness needed to determine the topics in 2005, developed a questionnaire and was sent to all social partners

Keywords: OH & S, culture, protection, prevention

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Effectiveness of an Interdisciplinary 3-Pillar Prevention Approach for Occupational Skin Diseases (OSD) in Germany

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OSD are more than ever an emerging trend in view of the rising hazards, including new chemicals. In the EU, OSD are second on the list of occupational diseases and absence of efficient prevention of OSD is a top priority problem for the EU as OSD cost approx. € 5 billion per year in the EU. In Germany, OSD represent up to 25% of occupational diseases and costs of OSD-related medical treatment, sick leave and loss of productivity amount up to € 1.5 billion. OSD cause extensive suffering for workers. Especially long sick leave jeopardizes competitiveness of small- and medium-sized enterprises (SME). Over the past 15 years a hierarchical 3-pillar (primary, secondary, tertiary) prevention concept has been developed. It includes multidisciplinary workers' education programs for various high-risk professions to improve the high incidence of OSD. This intervention approach offers quick preventive help for all levels of severity of OSD. It involves both out-patient and inpatient treatment. The long-term investment in this innovative and successful prevention method has been demonstrated by in-depth research studies: Costs for retraining due to job loss by OSD



of persons has more than halved for the period 1995-2006 from € 40 million to less than € 15 million. Research data show that one year after applied individually-tailored prevention measures 84% of persons had fully resumed work and 73% showed significant reduction of severity of skin disease. The frequency of sick leave was reduced by 61%. In 79% followed-up cases, no sick leave due to OSD occurred in the one-year-observation period. Hence, the concerted effort of the various actors (social security, research, medicine and educational disciplines) has helped to come to grips with the exorbitant costs resulting from OSD in Germany.

Keywords: Interdisciplinarity, prevention measures, emerging risk, occupational skin diseases, chemical hazards, workers' education, health economics, social security, international transferability

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Study on Safety in Red Ceramic Industry in the State of Mato Grosso - Brazil

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The Red Ceramic Industry sector is a major supplier of raw materials used on construction. Studies on the risks of industrial accidents in this segment are required due to the diversity of risks in production, the low amount of work done and materials specific bibliographic found. The clay is crushed, ground and moistened to form a homogenous mixture that is extruded to manufacture bricks or pressed for production of tiles that pass through a drying process at 50°C and then by "burning" furnace that operates at about 800°C . The analysis of risks was performed in the production process since the capture of raw material passing through the stages of production, reaching the final product. In light intensity evaluation, measures were performed at various points of the chosen companies, and also the heat stress were evaluated making temperature measures in various parts of the factories that use continuous tunnel ovens of a kind and type of vault, based on the brazilians technical procedures, grounded in international standards. The results showed that most of the machines in the visited companies, the protection is suitable for their moving parts, but the electrical installations (building and machinery) are in bad condition, resulting in risks for the workers. It was discovered through measures that at some points, luminance levels are lower than recommended by current standards, requiring the increase of artificial light. It was also noted that in relation to heat stress, some workplaces do not respect the law and there are some cases that the heat stress levels are above the exposure limit. The results indicated the need to adopt control measures to work situations with greater exposure to agents, to be treated within the health and safety programs at work.

Keywords: Red ceramic industry, safety and health

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Work Days Lost Due to Health Problems in the Industry

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This study estimates the prevalence of work days lost episodes due to health problems, WDL-H, and identifies associated factors focusing industry workers. This is a cross-sectional study carried out with 3,403 workers from 16 to 65 years of age, who live in the city of Salvador, Bahia, Brazil. A simple random one-stage cluster area sampling design was used to recruit the study population. Data was obtained using household interviews. The prevalence of WDL-H episodes was 13.5% over one year, for work-related health problems WDL-H, 4.8%, and 3.8% for health conditions aggravated by work. No statistically significant difference of WDL-H prevalence among industrial workers when compared with other workers was found. In the group of industrial workers, perception of hazards in the workplace (Prevalence Ratio, PR=2.50; 90% Confidence Interval, CI: 1.19-5.25), history of work-related injury (PR=8.39; 90%CI: 4.72-14.80) and poor self-perceived health (PR=4.48; 90%CI: 2.37-8.45) were associated to WDL-HRT. Monitoring hazards and WDL-H is relevant for prevention programs, health promotion and for health

Keywords: Absenteeism, work days lost, sick leave

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The Analysis Attitude of Petroleum Engineering Students and Graduates toward Occupational Health and Safety

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The oil and gas exploration and production activities on onshore and offshore fields are carried out under very difficult circumstances by Petroleum Engineers. Petroleum Engineers are also working for pipeline transportation, petroleum refineries and marketing in Turkey. Therefore, the occupational safety of workers and the protection of environment are high priority responsibilities of oil companies. The published news on occupational accidents, hazards and environmental problems in petroleum industry reported the causes as improper engineering designs, technical incompetence and human error. The industry and academia should work cordially to enhance the programs and show progress on the reduction of causes for the problems. Positive safety attitudes, beliefs and practices of undergraduate students and graduates toward safety are crucial for insuring their educational opportunities are not hampered. The students and graduates participating in this study displayed positive concurrence toward common measures to exhibit safety consciousness. Finally, continued efforts should be spent towards enhancing the course programs having safety subjects in core curriculum. The study involved a survey of Petroleum Engineering undergraduate

students and graduates of METU about how, and to what extent, occupational safety is known by them and covered within the curricula of the programs. The curricula requirements set forth by the organization that accredits these programs –the Accreditation Board for Engineering and Technology (ABET). The survey results indicate that safety is covered primarily in Petroleum Engineering program, but to varying extent. It is anticipated that the study results will help the oil industry understand the level of safety preparedness of university graduates and the needs about the improvements in course programs.

Keywords: Petroleum,engineering,students

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Risk Assessment and Biological Monitoring Methods of Chemicals

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Many industrial processes involve chemical reactions in which substances toxic. The major hazards arise from dusts, fumes, mists, vapours, gases and solvents. Important chemical agents are; lead, solvents (alcohols, aliphatic and aromatic hydrocarbons, aldehydes, ketones, chlorinated hydrocarbons and carbon disulfide), carbonmonoxide, sulfur dioxide, skin irritants etc. These may act either singly or in combination. Occupational diseases and injuries result from specific exposures at work. In addition, work exposures may aggravate certain illnesses or be a factor of varying importance in causing diseases of multiple etiology. Risk assessment means to assess or estimate the possibility and degree of the workers health impairment which can be caused by exposure to chemical substances and to consider how to prevent exposure, or decrease exposure of workers. The purpose of the assessment exercise is to identify the measures the employer needs to take to comply with the requirements and prohibitions imposed on him or her by or under the relevant statutory provisions. Chemical Risk Assessments quantify "Risk in terms of likelihood and consequence. Many industrial processes involve chemical reactions in which substances toxic or hazardous to man are liberated. However, the degree of risk of handling a given substance depends on the magnitude and duration of exposure. The major hazards arise from dusts, fumes, mists, vapours, gases and solvents. At this point; determining the dangerous or harmful factor, risk assessment, making improving plans on the basis of the assessment and putting the improving plan into practice. After risk assessment of chemicals we must see if chemicals have any health effect on workers. In the biological monitoring we evaluate the quantify of harmful substance taken into a living subject and then we evaluate effect on a living subject in early stages and risk degree of health. Selecting the living subject to monitor is important part. It can be blood, urine, expiration (exhalation), nail and hair. The vanishing speed of a substance or its metabolite from expiration or blood or urine after exposure is expressed in half-life time.

Keywords: Biological monitoring, risk assesment, biological agents

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Problems with Preventive Examinations in Turkey

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New regulations require Health Surveillance (HS) for workers due to legislation and their risks. However, excluding dangerous jobs, information is unavailable about methods and frequency of Preventive Examinations (PE). Different practices are used in EU countries for PE. Turkey should accordingly adapt an approach compatible with ILO and EU standards, based on our own OHS culture and needs. Problems with PE should be solved by organizing necessary examination manuals. Conclusions on pending issues such as the frequency of PE can be drawn considering current scientific manuals and risk assessments until these arrangements are made. PE can be realized at intervals of shorter or longer than a year with the offer of occupational physicians and the consent of OHS board. PE should be classified as in other countries, compulsory for high-risk workers but discretionary for others. PE should be performed with the informed consent of workers. Workers refusing HS despite necessary information should be respected, avoiding discrimination. HS should aim at the promotion and improvement of health and include all workers. While planning OHS, regulations, current inspection protocols, risk exposure, environment analysis, OHS statistics, age, night shift, gender should be considered. PE should be performed considering occupational anamnesis, personal exposure level, preventive measures and job training. PE, if performed out of office, should be within working hours without bringing costs to workers. Results should be announced to workers and in particular occasions to the employer. Records should be kept in the restricted personal health file for at least 10 years. Following an occupational illness opinion, workers should be referred to hospital, the case reported to the employer, and if verified, declared to authorities. Focusing on the workers' health, occupational physicians should hold their ethical approach, independent and objective in professional decisions and attitude, respectful for privacy, unaffected by conflicts of interest.

Keywords: Preventive examinations, examination manual, record, ethics

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Challenges Facing Plantation Management from Accidents and its Impact on the Palm Oil Industry

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The statistic of accidents at plantation estates and oil mills gives us a picture that the industry is one of the critical sectors that need a huge and fast overhaul from the current site safety practices. Therefore, a study has been conducted to identify the causes of accidents by doing literature review and surveys using questionnaire from those involved in the industry. Respondents include plantation companies and contractors all around the world that are well versed in the sector. The finding of this study reveals that accidents are the result of several critical factors including unsafe methods, human element, unsafe equipment, job site conditions, management and the unique nature of the industry. Some of the causes of



plantation accidents include lack of proper training, migrant labour issues, language, manual work systems, total unawareness of ergonomics, deficient enforcement of safety, safety equipment not provided unsafe methods or sequencing, unsafe site conditions, not using provided safety equipment and poor attitude towards safety. The causes of accidents in Malaysia and the neighboring countries were found out to be similar to the literature review. The industry is one of the critical emerging sectors that need a huge and fast overhaul from the current site safety practices. In order to improve the overall safety performance we need to investigate the root causes of plantation accidents. There is a need to formulate better working conditions and environment in this industry. The high risk of accident occurrence are attributed to optimizing time, cost and quality; factors which are considered ahead of safety. Safety issues are always considered secondary and take a back seat in plantation. Most employers have not established comprehensive accident prevention policies but instead concentrate on maximizing profits. The paper will expose the root causes of plantation accidents in the world particularly Indonesia and Malaysia.

Keywords: Accident, prevention, oil palm

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Prevention of the Occupational Accidents in Turkey Construction Section

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Tangible and intangible losses which become after results of the occupational accidents in work life effects negatively both economy and social life. International efforts are managed to estimate negative effects of the occupational accidents, to reduce and to prevent occupational accidents. It is showed that how many important results of the occupational accidents with establishing Occupational Safety and Health Administration (OSHA), which is affiliated with International Labor Organization (ILO), in order to conduct these studies. Additionally those organizations in developed countries have been formed departments for each section to arrange and to control the occupational safety and health enforcements. This shows that how developed countries take occupational safety and health seriously It is commonly believed that the accidents is uncontrollable and depends on the destiny. However, all potential accidents could be predicted and could be prevented. At this point, the problem, which have to be solved, is to determine who is responsible form the potential accidents. There are legal regulations in the subject of Occupational Safety and Health in Turkey. But, the problem is not neither to have the regulation nor not to have. The problem is to make the regulation implementable and auditable over the industries. Remaining the regulations unaudited makes the occupational accidents increasing. Especially in the construction industry it is hard to audit the regulations. The reason is that there are many subcontractor companies in the construction sector in Turkey. Therefore, primarily it has to be arranged the relationship between the primary employer and sub-employer. In this study, cautions of the occupational accidents in Turkey construction section will be examined, and suggestions for prevention of the occupational accidents in construction section will be presented as three parts. The parts are suggestions intend to workers, suggestions intend to companies, and suggestions intend to government. Furthermore, to prevent occupational accidents in the construction industry these parts must be regulated by the qualified people. In the construction industry of Turkey, which develops rapidly, is indicated that how much



important to take precautions to prevent occupational accidents in this study with numerical data's. This study is aimed to contribute to reduce occupational accidents in Turkey construction industry.

Keywords: Construction, occupational accidents, prevention actions

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Evaluation of Occupational Hazards in Cast Iron Foundries

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The working environment of foundries is hazardous and characterized by multiple simultaneous chemical, physical exposure, which would lead to damages of foundry workers. The aim of the present work is to evaluate occupational hazards in twenty four cast iron foundries. An industrial hygiene and medical survey was conducted in cast iron foundries for evaluation of occupational hazards. At each foundry selected, inhalable dust, noise, gas, thermal comfort (heat stress level) and illumination measurements were done. 2168 workers in selected areas were underwent pulmonary function testing. Foundry dust hazard is a very important case which would lead to damages of foundry workers. The dust samples that are taken from workers at sand preparing, fettling, molding, casting hall and furnaces departments are analysed. According to analysis results the sand preparing and fettling departments are more critical and dangerous than the other ones. According to the pulmonary function testing results, workers who worked in the dangerous departments were more affected by dust than other workers. The present work is a case study, which highlights the occupational hazards in cast iron foundries in SME's in Ankara, Turkey.

Keywords: Cast iron foundry, small and medium enterprises, foundry dust hazard

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Approach on Risk Assessment at Work in Construction Field

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This study aims to analyze the risk assessment system for the construction industry, carrying out by employers and workers in Japan. After investigating a current state of risk assessment at work, new execution trend in the future is considered. To analyze it, example of the content executed in each organization based on the rule in the country was examined. The Ministry of Health, Labour and Welfare provided "Indicator concerning investigations of danger or hazardous property" in 2006, and the execution of the risk assessment was made an effort obligation. According to this basic policy, the Japan Industrial Safety and Health Association made examples according to work, and promotes the introduction system of risk assessment for manufacturing work. In the construction field, the Japan Construction Occupational Safety and Health Association developed "Risk assessment manual for

construction industry version", considering the feature of construction works. The concept of this scheme is that the risk assessment should be conducted as much as possible at the upstream stage of the work, such as design stage or planning stage. After the risk decrease measures is confirmed, work will be started. An approach on the risk assessment was just introduced to construction field. To activate the risk assessment promotion activity effectively, it is pointed out that an appropriate education and support are needed, especially for the small and medium-sized construction enterprises. It is shown that new educational and supporting activities to execute properly are now developing, including a web-based risk assessment system.

Keywords: Risk assessment, construction work, risk evaluation, safety education

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Musculoskeletal System Symptoms in the Workers Who Work in Noisy Workplaces

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Objective: The study is performed at TCDD Ankara, Behiçbey premises on 244 workers with the purpose of exploring the impact of the noise on their musculoskeletal system symptoms. **MATERIALS AND METHODS:** This is a case-control study. The noise measurements were performed in workplaces and 127 workers (cases) who work in places with loudness levels over 85 dB SPL (loud atmosphere) and 117 workers (control group) who work in quiet atmospheres that were included in the study. In both groups, hematological, biochemical parameters, and the musculoskeletal system complaints were examined and recorded. Data were analyzed to test whether there is any difference between the groups and any correlation with the demographic characteristics of the groups. **RESULTS:** The average age of the workers was 45.12 (range: 26 - 63years). Within the last year, the complaints of the workers about the musculoskeletal system symptoms were evaluated to be significantly higher in the group working in loud places and in the smoking group, compared to the group working in silent workplace and the nonsmoking respectively. It has been found that the workers who declared musculoskeletal system symptoms have seen doctors more frequently (%88.2), ($p= 0.004$) and they had more frequent sick leaves ($p= 0.000$). The results of the logistic regression analysis demonstrated that working in loud atmospheres and smoking are effective factors on musculoskeletal symptoms. The lower creatinine levels were detected in the workers who work in loud atmospheres. Lower creatinine level might be an important factor contributing musculoskeletal problems since it is an amino acid mainly involved in ATP production in muscle. **CONCLUSION:** Noisy working place is important cofactor for development of musculoskeletal system disease. In our study, we found that musculoskeletal symptoms were higher in workers with noisy working environment and we also detected significantly lower levels of creatinine.

Keywords: Noise, workers, creatinin, smoking

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The Skin Prick Test Results and Prevalence of Allergic Symptoms in Workers Exposed to Toluene

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Aim: Aim of this study was planned to determine the distribution of allergens and allergic symptoms according to occupation groups in those who work in which toluene exposure is in question, and who present with allergic rhinitis symptoms. **Material and methods:** Of the 2005 patients who underwent the allergy test with the prediagnosis of AR, the files of 138 patients who were exposed to toluene were analyzed retrospectively. **Results:** The mean age of the patients was 35 ± 10 years. Distributions of symptoms and allergens of 57 patients (41.3%) with negative skin prick test and 81 (58.7%) patients with positive skin prick test were analyzed according to occupation groups. There was no significant difference between the groups in terms of symptoms at presentation except for the symptom of runny nose ($p > 0.05$). The groups were compared in terms of complaints having begun above 16 years of age, this rate was found as 76.5% in the positive group and 91.2% in the negative group. **Conclusion:** Occupation should be questioned in patients who present with allergic symptoms; in particular, patients with negative skin prick test should be investigated in terms of occupational exposure.

Keywords: Allergic rhinitis, allergy, toluene, occupational disease

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The Effects of Noisy Workplace on Oxidative and Antioxidative Balance in Human Erythrocytes

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Reactive oxygen and nitrogen species have been implicated in the pathogenesis of noise-induced hearing loss. In this case-control study, we investigated the oxidative and antioxidative status of erythrocytes from workers in noisy workplace. For this purpose, blood from 127 workers in noisy workplace (WNW) and 117 workers in non noisy workplace (WNNW) from the same company were taken within heparinized tubes to obtain hemolysate. Total superoxide dismutase (SOD) and catalase (CAT) activities as the enzymes of antioxidative defence mechanism in the erythrocytes together with malondialdehyde (MDA) as the lipid peroxidation index and total nitric oxide (NO) as an index for nitrogen species analyses were done by spectrophotometric methods. SOD activity was found to be 450.0 ± 106.4 U/g Hb in WNW and 443.1 ± 83.1 U/g Hb in WNNW. The difference between the groups were not statistically significant ($p = 0.578$). CAT activity was found to be 426.0 ± 98.0 k/g Hb in WNW and 432.6 ± 109.0 k/g Hb in WNNW showing statistically insignificant difference ($p = 0.623$). MDA levels in erythrocytes from WNW was significantly higher when compared to WNNW (39.28 ± 10.22 nmol/g Hb and 32.51 ± 10.73 nmol/g Hb, respectively and



p value was 0.0001). NO levels were also significantly reduced in WNW (0.275 ± 0.187 $\mu\text{mol/g Hb}$) compared to WNNW (0.382 ± 0.284 $\mu\text{mol/g Hb}$) ($p=0.001$). It can be proposed that total antioxidant status including the parameters we studied and the other parameters that we did not study like glutathione peroxidase, glutathione reductase, antioxidant vitamins etc. may be changed in WNW and this may induce lipid peroxidation resulting in susceptibility of the cells much more to oxidative stress than the previous situation and may lead other pathologies even in the other organs of the body. Therefore, we may conclude that oxidative stress which is possibly propagated by the physical environment may have an important pathophysiological role in all the workers who work in noisy occupations.

Keywords: Superoxide dismutase, catalase, malondialdehyde, nitric oxide, oxidative stress noisy environment, worker

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Proactive and Preventative Approaches to Safety and Health at Work a Case Study of Kenya Traffic Police Exposure to Automobile Emissions

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Every person in Kenya is entitled to a clean and healthy environment and has a duty to safeguard and enhance it. According to WHO clean air is a basic requirement for human health and well-being. However, air pollution has continued to pose a significant threat to the health of persons worldwide as it interferes with air quality. Automobile emissions have been found to be the main source of air quality degeneration especially in urban centers. Epidemiological studies have further shown that the health of the public who are exposed to these emissions is negatively affected and the severity depends on a number of factors. Sadly Kenya has no pollution data yet this is vital for both research and policy development besides this being used in the implementation of an efficient Air Quality Management system. This has led to a false illusion that automobile air pollution is not a serious problem and in particular its impact on workers health especially the traffic police are not known. This study has been carried out to investigate the degree of air quality due to automobile emissions within Nairobi and to determine the health effects of exposure to these toxics in order to develop proactive intervention measures to tackle risks associated with automobile pollution. The study was conducted through non experimental cross sectional descriptive study employing both qualitative and quantitative data collection methods. Sampling was done through active air sampling at ten purposively selected sites within the Central Business District in Nairobi. Both stratified and convenience sampling procedures were used while data was analyzed by descriptive and inferential techniques at a level of 95% confidence or 0.05 significance.

Keywords: Pollution, air quality, prevention

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The Evaluation of Cancerogenic Gaseous Exposure and Occupational Health and Safety Applications at Petrol Stations

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Petrol is a highly flammable liquid and gives off flammable vapour even at very low temperatures. It tends to sink to the lowest possible level of its surroundings and may accumulate in tanks, cavities, drains, pits or other depressions. It floats on the surface of water and may travel long distances, eventually causing danger away from the place where it escaped. Petrol vapour can have acute or chronic effects if inhaled and therefore should be considered in the assessment required under the Control of Substances Hazardous to Health Regulations 2002 (COSHH). Aspiration is the entry of liquid into the lungs following swallowing and subsequent vomiting. Petrol is classified as 'Harmful by ingestion' owing to this aspiration hazard i.e. the risk of chemical pneumonitis, and not because of its acute toxicity i.e. poisoning, properties. Petrol is also classified as a skin irritant, due to its potential to cause dermatitis. A suitable and sufficient risk assessment is required for all jobs carried out involving petrol. This may involve emergency procedures (spillages or accidental ingestion), protective clothing to prevent skin contact and precautions to control exposure by inhalation. Protective clothing, such as footwear, gloves and goggles must be qualified and workers take care for their personal hygiene, need to wash their hands properly with plenty of soap and water after finishing work, or at any time when they get petrol or oil on their hands. Where petrol might be used, stored and dispensed as a fuel or gas (e.g. mobile equipment, generators) or workers exposed to other petrol fire/explosion risks (e.g. garage workshops) an assessment needs to be carried out on the risks involved to ensure that adequate control measures are taken. Look for the hazards, eliminate and control of risks, record the significant findings of the assessment, review the assessment from time to time and revise it if necessary.

Keywords: Petroleum stations, cancerogenic gases, risk assessment

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Drastic Reduction of Accident Figures in Forestry through Effective Health and Safety Measures

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Forestry work – especially during a timber harvest – is characterised by a high risk of severe accidents. To reduce the large number of accidents, the statutory insurance fund Unfallkasse Hessen and the German federal state of Hesse decided to set up and implement a joint health and safety management system. This was timed to coincide with the conversion of the state's Forestry Administration Department, Landesforstverwaltung, into a Forestry Operations Unit, Landesbetrieb Hessen-Forst, in 2004. The management of Hessen-Forst defined health and safety as a corporate objective and derived detailed targets and indicators for the level of target fulfilment. Besides their monthly salaries, foresters are now given



success bonuses which are based on two components: a minimum number of hours spent on the timber harvest and the results of the health and safety reports. This means that employees also have a financial incentive to ensure adequate health and safety. A further incentive was provided by Unfallkasse Hessen and the Hessen-Forst management through the provision of special awards for forestry offices with the highest health and safety standards. The health and safety management system led to a reduction in the number of reportable occupational accidents per 1,000 employees from 155 in 2004 to 90 in 2009. In particular, there was a noticeable downturn in the proportion of severe and very severe accidents. The number of accident-related times of absence per forester dropped from 25.5 to 10.6 hours per year. This development is all the more remarkable when we consider that several highly dangerous windthrow operations have become necessary after a number of heavy storms since 2007. The article provides details of the health and safety management system, its impact on forestry operations and the workforce and an outlook of the way the system may develop in the future.

Keywords: Health and safety measures, forestry, advisors, forestry accidents

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Motivation to Ensure Health and Safety Through the Central Recording of Health and Safety Measures

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Aiming to achieve a state-wide reduction of accident figures, the insurance fund Unfallkasse Hessen has developed an IT-based system for the central recording of health and safety measures of the monitored facilities, based on self disclosure through questionnaires. It did so under its statutory brief to advise and monitor facilities. As each question includes management information on the underlying technical and legal background of the questions, the survey also serves as a medium of information about the duties of those responsible. The information quality delivered by the respondents was tested through spot checks and was found to be good. The results of the survey are entered into a database where they are analysed electronically and translated into a traffic light system which allows an assessment of their general measures (green: exemplary, yellow: room for improvement, red: immediate action required). Upon participation, each facility is sent its classification, both electronically or by surface mail, indicating the issues that have been found and recommending possible measures to address those problems. The implementation of recommendations is monitored through spot checks. The state-wide pressure that is created through monitoring is thus largely automatic, and the relevant persons are suitably informed and motivated. To keep up the pressure created through monitoring, facilities are regularly asked to what extent they have implemented recommendations to improve their health and safety regime. These enquiries are also used as opportunities to make facilities aware of any amendments to regulations that may have become relevant. Surveys are now in place for small and medium-sized companies, for large facilities with central and local responsibilities and for educational establishments. This article provides information about the “central recording process”, the tools that have been developed, their results and the processes that have thus been initiated at the facilities.



Keywords: Health and safety measures, monitoring

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Taiwan National Profile on Occupational Safety and Health

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The total population of Taiwan is about 23 million people and the labor force is about 11 million with 10.5 million employed in manufacturing industry (37%), service industry (59%) and agriculture (4%). We prepared the first version of "Taiwan National Profile on Occupational Safety and Health" according to ILO's publication of Outline for compiling National Profile of Occupational Safety and Health. The Taiwan National Profile consists of nine chapters: 1) occupational safety and health (OSH) legislative framework, 2) national policy review mechanism, 3) coordination and collaboration mechanisms, 4) OSH technical standards, guidelines, and management systems, 5) OSH system implementation, 6) statistics, 7) policies and programmes, 8) regular activities and continuous work, and 9) general data. The followings are key contents of this profile. The Council of Labor Affairs (CLA) is the authority of the six main laws related to occupational safety and health: the Factory Law, the Labor Inspection Law, the Labor Insurance Act, Occupational Safety and Health Act, Labor Standards Act, and the Protection for workers Incurring Occupational Accidents Act. At this phase, the Council's visions are to create an equal, dignified, secure and humane work environment in Taiwan from the perspective of career development for laborers. The Occupational Safety and Health Act covers the basic idea of safety and health management, which is the key principle for carrying out safety and health obligations set on the employer. Taiwan has promoted BS 8800 and Occupational Health and Safety Management System (OHSAS18001) since 1996, and the CLA issued Guidelines of TOSHMS in 2007, which consists of elements of OHSAS 18001:2007 and relevant requirements of ILO-OSH 2001. Regular activities at the national levels related to OSH include occupational safety and health week and industrial safety awards. This profile will be regularly updated and can be accessed at <http://ihc.cph.ntu.edu.tw/NP/>.

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A Web-Based OHS Training Platform for SMEs: E-TPOHS

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Presentation of E-TPOHS (e-Training Platform for Occupational Health and Safety project, as result of international cooperation between Turkey Bulgaria, Slovakia and France, and the benefits of new training applications for SMEs.

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Concrete Plants Safety Competition

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In order to involve more concrete plants in carrying out measures to improve working conditions, safety techniques and increase production efficiency we have established a competition on safety so called " Blue Helmet Safety Competition". Construction industry is in the first place in accidents. Concrete industry is growing in the last decades and the safety issues become more important. Organizing a competition is a way of encouraging people to obey safety issues instead of giving a punishment. So to give more information to people what they should do for this issue a competition was decided. In the competition we focused on the new legislations and special topics in concrete industry. This was not only a competition, but was an organization each attendee learned something new. We asked questions on, educations, health controls, first aid, periodical controls on pressures tanks, lifting equipment, lighting, noise, chemicals, personal protective equipment, safety and health signs, emergencies, risk analysis, protection against machinery in motion, working at high, electricity. In this presentation we would like to give brief information about our findings.

Keywords: Safety, competition, association, concrete

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Women Employees and Being a Mother: An Example of Monitoring and Assistance

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The period of being a mother is a difficult process for women employees; because of physical, psychological, social and even economical changes are experienced in the same time. Although laws and legislations define the work conditions for women employees, there are still many things to do. In this presentation, the follow up process for pregnant and new mothers in telecom industry will be shared. In this follow up process, the objectives are to increase the awareness about pregnancy, and to monitor the progress of the pregnancy. Also, reserving "the mother room"s for breast feeding increased the hygiene and privacy. The main problem for new mothers is being seperated from their babies and they have questions for babies' health and development. The existence of an accessible, helper and supportive Company Health Service will reduce their distress. The presence and continuity of similar practices are critical for women employees' adaptation after birth and reducing absenteeism.

Keywords: Women employees, company health units, pregnancy, breast feeding, health

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The Content of 129 Numbered Convention of ILO and its Consonance with Turkey

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Turkey, a member of international labor organization, has accepted 56 ILO conventions since 1932. With the current contracts, inspection in industry and product industry has been tried to provided but the labour in agriculture has been ignored. In our country, there are 3.076.660 enterprises, 184.348.236 acres of farmland and 4.106.983 households engaged in agriculture. Considering the speed of technological developments and considering that Turkey is an agricultural country, it is appears that how important is this issue. On the other hand the population of Turkey's agricultural production is decreasing day by day. Beside some reasons of this subject, the fail of manufacturers' obtaining rights and the lack of social rights and inappropriate working conditions of workers who work in agriculture are among important reasons. To bring next level and to improve these conditions, the inspections in areas as agriculture, animal husbandry and forestry should be spread. Inspections carried out in these sectors will improve productivity as well as will help to bring the desired level of working conditions. Therefore, signing ILO's 129 Numbered Convention which is accepted by developed countries and creating the infrastructure will provide great benefits to agriculture in Turkey. In this paper, Turkey's agricultural and livestock sector will be mentioned also the content and benefits of 129 numbered Labour Inspection Convention in agriculture and its compliance with Turkey will be focused. In addition to this, proposals from countries which accepted this convention, to difficulties encountered in the implementation of this convention will be brought, predicted developments in legislation with this convention will be discussed and the innovations brought by this convention, economic, social and cultural sense will be explicated. Furthermore in this study, how labour inspection system in agriculture will revive the sector and the benefits of inspection will be analyzed with statistics.

Keywords: Labour inspection, agriculture, ILO, 129 Numbered Convention

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The Human Factor of the Industrial Disasters

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Stages of development for all nations is one of the process of industrialization which has created a serious cycle of production and consumption. For this reason, industry, economy, technology, and dozens sectors are continuing to change and develop. Competition is fierce, sources are declined to provide today's conditions to produce the desired time and the desired quality, this is the reason why use of serious information and technology is required. In order to survive in this rapidly increasing cycle research and development, manufacturing, production, quality and so on, it is forcing the limits of science and technology fields. Humans are a part of this process and naturally they are affected on a certain level. More production is realized and more consumption is done in order to meet the increasing world population.

In the variety of dangerous production processes it is possible to do any wrong / missing etc. operations and due to this it most likely to trigger accidents, environmental disasters, regional disaster and so on. Some of the most heard catastrophic industrial accidents in which more than 20,000 people died and more than 500,000 affected people for example the Bhopal Disaster (1984 / India) and the Chernobyl Nuclear Disaster (1986 / Ukraine).

Showing any weakness in safety and environmental issues will affect the nature and humans directly and as a result it will affect all the people and commodities. The main element underlying the "change and development" is the "human" factor.

Key words: Occupational Injury, occupational health & safety, disasters, Industrial disasters, environmental disaster, occupational illness, human factors in industrial accidents

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Occupational Health and Safety in Motor Vehicle Maintenance and Repair Sector in Turkey

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Today, motor vehicles became a indispensable part of our lives. Necessity of maintenance and repair of these vehicles created the repair industry which is a very large industry in Turkey. Besides the fact that sector is a labour intensive one, ages and field of expertise also greatly varies along the sector. Especially child labor which is a large problem in turkey is very common in small scale and unregistered enterprises in the sector. This makes the sector hard to trace and investigate by means of occupational health and safety. Statistcal studies conducted in Turkey maniny covers the midsized ana large enterprises, which are easily traced and investigated by state. But the main problem in the field of occupational health and safety arises from the small scale and unregistered enterprises. Accidents and occupational diseases which occur in those small enterprises, usually never reported tough never become a part of the statistics. For this reason it is very hard collect statistical data to determine the real life situation of the sector by means of occupational health and safety. In this thesis, sector employees are directly contacted and their oppinions and experience is used together whith current literature in order to determine major risks and solutions involved. An emphasis also is made on the current situation and necessity of improvement of the sector by means of occupational health and safety.

Keywords: Motor vehicles, maintenance, repair, risk, accident, injury, death

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Country Comparison of Services on Occupational Safety Expertise

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This study is based on how is the prevention and protection organized in different countries hence 10 countries as Austria, Belgium, Switzerland, Germany, Spain, France, England, Italy, Holland and Portugal were compared with Turkey. The study that was conducted on country practices shows that 89/391/EEC Framework Directive has an effect on occupational health and safety organization in EU member countries.

The improvements being experienced on occupational health and safety oblige the diversity of organization of services on prevention and protection. Rather than obligation, the employer prefers to take the services on occupational health and safety which are indispensable support to upgrade the level of workplace activities to better conditions.

In most of the countries, the criteria is defined as risks at workplace and number of employees in utilizing of external services on occupational health and safety. There is no difference in qualities of occupational safety experts between countries. In Austria, Switzerland and Germany the person who takes specific training even foreman level can perform as occupational safety expert. Provided that, the training which is obligatory to get, differs on the existing training level of person: For the foreman level 2 years of training, for the persons who have not technical training or application skill 4 years of training is foreseen. Trainings are generally given by the authorized training institutions and mostly in the form of seminars. In some countries as Germany and Turkey the distance learning and implementation trainings are carried on besides.

The Labour Law numbered 4857 which came into force in 2003 in Turkey enables the application of occupational safety expertise which is a basic component of occupational health and safety services. Occupational health and safety services, trainings and authorization of occupational safety experts was re-constituted within the last arrangements in the country. The training institutions authorized by the Ministry implement the programmes defined by the training commission via the authorized trainers.

The refreshment trainings of occupational safety experts in every 5 years are obligatory.

Keywords : Occupational safety expert, training

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Improving External OHS Services in Turkey

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To further implement external OHS services in Turkey and rise their quality by determining service criteria for persons or agencies that deliver external OHS services to enterprises. On behalf of the Netherlands Ministry of Foreign Affairs, the EVD implements the Matra Pre-accession Projects Programme (MPAP). This programme aims to assist the two new member states Bulgaria and Romania and three candidate member states: Croatia, Macedonia and Turkey, in meeting the criteria for EU membership through projects dealing with the (consequences of) implementation of European legislation. Programme objectives: 1. To support the governments of Bulgaria, Croatia, Macedonia, Romania and Turkey with EU related issues; 2. To foster bilateral government to government co-operation. In 2008 the

EVD approved the global project plan “Improvement in quality of external occupational health and safety services”, drafted by the Dutch Ministry of Social Affairs and Employment in cooperation with the counterpart Ministry of Labour and Social Security (MoLLS) General Directorate for Occupational Health and Safety in Turkey. The aim of the project is to further implement external OHS Services in Turkey by determining (service) criteria for persons or agencies that deliver external OHS Services. The Dutch Ministry of Social Affairs and Employment (SZW) will advise the Turkish Ministry of Labour and Social Security (MoLLS) for these criteria with the aim to implement and improve the quality of the external OHS services in Turkey. 1. Policy research has been done on EU Member State’s legislation and implementation of external OHS services. 2. General Directorate for Occupational Health and Safety has received clear advice as to the secondary legislation related to external OHS services. 3. General Directorate for Occupational Health and Safety has a clear understanding as to the implementation of the OHS system for external OHS services in Turkey.

Keywords: OHS services, external OHS services, OHS units

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Psycho-Social Factors at Work Place and Suicide

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Today, the importance of health and safety at work is not only regarded within the context of preventing occupational accidents and illnesses, the psycho-social factors have been put special emphasis on as having an important effect on staff health. Psycho-social environment at work related to the health is described as the interaction between the perceptions, sensations and behaviours of the individuals and with the concrete and social environment. There are many factors that influence psycho-social environment, such as work load, working environment, working hours, job security, career opportunities, wages, and staff relations. Negative psycho-social environment causes job stress. Job stress may result in decline in the performance of the employees, decline in employee relationships, and work accidents. If these unfavourable conditions continue, they cause disorders in employees, like anxiety and depression. The studies carried out recent years reveal that there is an important correlation between work stress and suicides, the higher the work stress the higher the tendency of committing suicide. According to the report of fatal work injuries in the USA, between the years 1992-2008 the suicides at work place were investigated and a 22,4% increase in suicide rate was found out. The suicides are social problems, which besides economical losses, result in psychological and social losses and could be prevented, if they are detected in time. In order to prevent the work related suicides, there is a need of awareness raising about the importance of the psycho-social factors and improving the working conditions in terms of employee health.

Keywords: Work place, psycho-social environment, suicide

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Participation and Safety in Nursing Homes. The Workers' Point of View. Cases Study in Sweden and in Italy

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The education on safety and wellness is considered a fundamental tool to prevent accidents in workplaces. Research on safety education in care environment and its outcome on workers' psychosocial health, turnover rates, job satisfaction and productivity are here explored. Objectives This study investigates the relationship between workers' participation in safety training and their improvement in safety and wellness perception in the context of nursing homes. The second aim is to explore how environmental and personal factors can influence the workers' learning process. Methodology The theoretical source is based on Donald Alan Schön's studies, whom concept of reflective practice inquiry affected teacher education, health professions and architectural design. Empirical studies based on the experience of the workers in nursing homes were carried out in Sweden and in Italy through a survey and focus groups where data analysis was presented and future possible scenarios were identified. Interviews with experts on safety issues in work environments, on workers' rights and in care environments are compared with the theoretical sources. Results and discussion The research pointed out how traditional methods in education could remain far away from the specific needs of workers in care, where the functional management plays an important role for the perception of safety in the work environment. The paper providing a systematic approach on evaluating how the technical and functional performance of training activities, opens the discussion on the effectiveness of a participatory approach in the training process on health and safety at work, topic where tradition and expediency may be standing in for knowledge.

Keywords: Participation, education, wellbeing, working environment, interdisciplinarity, environmental psychology, safety, risk perception, risk communication

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The Implementation of Guardrails as a Collective Method of Fall Prevention at Construction Sites

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OBJECTIVE Provide technical and legal grounds to companies involved in the construction sector for the implementation of guardrails as a collective method of fall prevention from heights and thus minimize the occurrence of serious and fatal accidents at building sites. **DESCRIPTION** At the start, a complete diagnosis is carried out at each of the building sites taking part in the project. Based on the results of the diagnosis recommendations are made to reduce the risks. Among these recommendations is the implementation of guardrails as a collective method of fall prevention in areas where the potential risk exists. Following meetings with those in charge at each of the sites a plan is agreed for the implementation of the recommendations; the construction of the guardrails along the exposed areas identified



at the different sites begins in accordance with the technical specifications included in Resolution 3673 of September 2008 in which the minimum requirements for their implementation are specified; the agreed material for the construction of the guardrails is guadua, a thick form of bamboo, a material frequently used in the building sector due to its resistant qualities, ease of use and low cost. The guardrails are fastened and secured using recycled structural steel from the productive process and inserted into the slab and walls of the building to facilitate their installation and guarantee the required strength. Site visits are made during the process to verify the compliance with the recommendations. RESULTS 100% protection against the risk of falls from heights due to the use of guardrails, benefitting 1195 workers exposed to such risks in the companies taking part. 92% reduction in the severity of accidents of falls from heights generated when workers move around the site. The paradigms concerning the relation between cost and the benefits of improving the working conditions were broken.

Keywords: Guardrails, guadua, fall protection

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Adaptive Safety - The Next Generation of Safety Management

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SKM is a leading Engineering and Project Delivery company, working in the mining, energy, and infrastructure sectors. Catastrophic events in the Gulf of Mexico and San Bruno demand that we challenge our models for safety management of complex systems. At SKM we have been analysing the learning's from catastrophic failures, reviewing the latest thinking and evidence to formulate our safety management framework, Adaptive Safety. Adaptive safety is a dynamic safety management model for complex systems that empowers people to make informed safety decisions, and cultures innovation to improve safety and wellness for our business activities. Our concepts and program is the result of a partnership with Professor Dennis Else and the University of Ballarat, where we are drawing upon the thinking of Resilience engineering through Professor Holnagel's and Professor Deckers work. We have developed a safety management framework built on the pillars of Lean Thinking, where we have structured our program on Philosophy, Practice, People and Performance. Adaptive safety has four foundation cultural characteristics being: Empowerment; Adaption; Learning and Just Culture. Through our framework and our characteristics we provide a delivery and practice system for the concepts of Resilience Engineering. Adaptive Safety is designed to lift engagement, sponsor innovation and problem solving to deliver dynamic, productive and safe operations.

Keywords: Adaptive safety

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Ergodesign as a Part of Risk Assessment for Physical Overload in Hospitals and MSD Prevention

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Introduction: 118 health care institutions—hospitals, old people's homes and hospices for disabled people—were inspected by the National Labour Inspectorate of Estonia in 2007. 9141 workers handled loads manually there. 61 of them provided hospital service, 45 old people's home service and 26 institutions provided care for disabled people. The total number—132—is due to the fact that some of them have been active in many fields. East-Tallinn Central Hospital took part in the investigation. It has 2000 workers. A half of them are engaged in lifting of sick people. AIM: to carry out risk assessment in East-Tallinn Central Hospital towards clearing the possibilities to diminish the musculoskeletal disorders (MSD) from lifting of sick people in the hospital. Material and Method: 890 workers were questioned and risk assessment was carried out by the British Standard 8800 in their workplaces in the hospital. Results: The risk level for the hospital health care workers is 4 (in the 5 level system). It is not acceptable. The risk has to be decreased to the levels II and III. The workers offently are ill and are away from work caused by the MSD-s. MSD prevetion possibilities: Training system on prevention of MSD was worked out and training for staff was organised. Safety instructions on manual handling of loads were worked out. Workers are provided periods of breaks to avoid overload. It was evident that the larger the care institution, the better MSD prevention could be organized. It could be expected as there were more workers among whom different responsibilities could be divided. It is more likely that a work environment council has been set up there and it has been active. The Labour Inspectorate is on the opinion that the MSD campaign achieved its aims, drawing workers', employers' and labour inspectors' attention to health problems connected with lower back pain, also taking measures to prevent musculo-skeletal disorders by reducing manually handling loads.

Keywords: Ergodesign, physical overload, MSD prevention

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Roll Over Risk of Agricultural Self Propelled Machines

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Many agricultural self-propelled machines present roll-over risk without fitting a ROPS. This problem has been aroused by the Italian occupational safety authority (INAIL ex ISPESL) and, nowadays, a specific standard EN ISO 16231 is being developed concerning roll over risk assessment and technical measures to reduce it. In the mean time, INAIL ex ISPESL during its market surveillance activity had to deal with several machines which were not in compliance with health and safety requirements 3.4.3 roll-over and tip-over of annex I of machinery directive 2006/42/EC. The main typologies of the encountered machines were

grape harvester, hazelnut harvester, liquid fertilizer sprayers and hay rakes. In many of these cases the roll over risk was not deeply investigated by the manufacturer even if it was accounted for. The main reason of not installing a proper roll over protective structure (ROPS) lied down on the lack of technical information for its designing and testing. Thus, INAIL ex ISPESL developed a specific investigation in order to verify if standards used for different kind of machines (e.g. forestry self propelled machines, earth moving machines and tractors) but technically similar with reference to roll over risk could be applied also for agricultural self propelled machines. The results of this investigation revealed that OECD code 4 used for agricultural and forestry tractors and OECD code 8 used for tracklaying agricultural and forestry tractors could be successfully used. Hence, with the support of Italian testing centre in Cadriano and Treviglio, the manufacturers of the machines under investigation developed experimental tests on the after market ROPS realized based on the aforementioned OECD codes. Moreover, the results of the experimental tests developed on these machines revealed that, even if the main frame of the machine was not designed to fit a ROPS, it was able to sustain the forces/energies required by the applied OECD code.

Keywords : Agricultural self-propelled machines, ROPS

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Work Related Early Wear. Ergonomic Research Perspective

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This paper presents some results of a longitudinal study concerning the survey of a group of employees in the power field, aiming to: establish a system of exposure indicators and biological response to the identified occupational risks and a long term monitoring procedure of the physical and psychophysical capacities and health state; settle measures to maintain the safety and health at work as well as working capacity all along the working life. The study involved a multidimensional methodology, taking into account the premise of the human operator situation in a complex work system which parts are interconnected and, so, the influence of work on health state should be holistically analyzed. The task analysis emphasized the exposure of personnel to a cumulus of accident and illness risk factors: accident risks; work environment risk factors; ergonomic risks (high physical load, manual handling, awkward postures, high demanding gestures, height work, covering difficult routes in extreme climate conditions, long term static postural load in the absence of adequate ergonomic conditions); psychosocial risks (work difficulty, work rhythm, break regime, temporal demands, high precision, high responsibility, mental demands etc.). The existence / influence of occupational risk and overload factors are reflected in the personnel morbidity, the cardiovascular and musculoskeletal disorders being rated on the first places. From mental health perspective, the investigated group is inside the limits of a total normality, with the absence of eventual significant psychopathological symptoms. The physical and physiological capacities show good physical effort capacity, depending on the task demands and correlating with the periodic medical investigations. The study emphasized the occupational risk factors which can contribute, together with the extra-occupational and individual factors, to the etiological-pathogenesis of the investigated personnel' possible illnesses and the needed measures in the organisation OSH policy.



Keywords: Ergonomics, early wear, risk factors

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Working in Isolation in Hydro-Power Stations. OSH Guidelines

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The paper presents some results recorded in a field study which aimed to investigate and analyze the isolated workplaces in hydro-power stations (from technical, organizational and psychosocial perspectives) in order to identify the risk factors for health state and safety of the employees and to establish the technical and organizational solutions for reducing / eliminating the risks for the lone workers and protect the personnel health state. The study involved a multidimensional methodology included a wide analysis of the European and Romanian legislative and non-legislative requirements concerning work in isolation and a field research to identify the risk factors in isolated workplaces; presenting the criteria to establish the isolated workplaces; establishing the effects of work in isolation. The study aimed to draw up an OSH guide tackling working in isolation. Guidelines have been established to provide guidance to managers and supervisors, to minimize the risks to staff, also requirements placed on staff for taking reasonably practicable steps to ensure their own safety and personal security when working in isolation and the preventing health and safety program for the situations where employees work.

Keywords: Work in isolation, health and safety, occupational risk factors, OSH guidelines

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Experience of E- Learning in Ergonomics and OHS Education in University

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In the 21st century new challenges for ergonomics and OHS are opened. according to new changed situations and new risks in working life New modern ergonomics and OHS strategies are needed. New challenges for ergonomics and OHS education in universities are opened. For developing new ergonomics and OHS strategies modern methods of ergonomics and OHS education are needed. New solutions of e-learning are opened by rapid development of ICT and social media. In this paper it is argued that blended learning with web-based support by the Moodle e-learning environment based on social constructivist learning theory is an effective tool for teaching and learning ergonomics and OHS education for future managers and engineers. The author has ten years experience of computer based teaching and learning and five years experience providing the courses of ergonomics and OHS as blended learning with web-based support by the Moodle e-learning environment to more than 1000 students. The author's own teaching experience of the Moodle e-learning environment for creating and providing courses in Tallinn University of Technology (TUT) for



future managers and engineers will be presented. According to the questionnaires given to students at the end of each course, the teaching and learning in the Moodle e-learning environment as blended learning is very useful for development of a learning culture and efficiency. The efficiency and motivation for learning are higher than providing traditional methods of learning. New possibilities and dimensions for teaching and learning are opened. The future development of courses by implementing modern ICT and social media solutions for higher ergonomics and OHS education is ongoing. New ergonomics and OHS strategies in better relation of governmental activities will be developed by improving the modern ergonomics and OHS education for future managers and engineers.

Keywords: Ergonomics, OHS, e-learning, education, ergonomics and OHS strategies

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Ergonomic Study on Facilities and Environment Aspect of Gadjah Mada University, Yogyakarta, Indonesia (Consolidation of Education Tourist Attraction in World Class University)

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Gadjah Mada University is the largest university and the oldest one in Indonesia. Since a few years, it has been listed as one of world-class universities. Based on this achievement, the university leaders have been intensifying the efforts to consolidate the university to get superior degree in various fields, compatible to the mission and purpose of the institution. Currently, one of the significant things being developed is establishing the university as tourist attraction of international connoisseurs. Currently, the university has become an interesting destination for official visits both school students and university students from various cities. They want to see the education process and its facilities. Having beautiful environment and full amenities faculties, the campus can trigger the development of education tourist attraction visitors. However, the visual seen in the various facilities available and the physical environment around it is not ideal conditions for the achievement of the ergonomic standards. Ergonomic in this case focused on the environmental aspects ("safety, health, security, and convenience factor"). In addition, the provision of public facilities (for tourists) is not adequate, indeed. This paper aims to describe the visual aspects of facilities and environmental education tourist attraction of Gadjah Mada University, from the perspective of ergonomics. Specific study is conducted with the descriptive approach to literature study. Clear picture of the place where unergonomics attraction found is detailed, photographed, and analyzed with the causal relationship approach. Observations and measurements show that many places and environment in the campus are unergonomic and can emerge the risk and danger. Practical and theoretical comments and recommendations are given to improve the situation and the risky condition. The conclusion is that Gadjah Mada University needs various physical improvements to realize a "safe and convenient" education tourist destination for visitors.

Keywords: Ergonomics, tourist attraction, university, facilities.

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Safety Study on Facilities and Environment of "Taman Sari" Water Castle Historical Tourist Attraction in Yogyakarta, Indonesia

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Taman Sari water castle is a well-known historical tourist attraction in Yogyakarta. It used to be a part of the Yogyakarta Sultanate Palace building where the royal family spent their time and enjoyed the scenic environment. This water park with water channels and hundreds of flowering trees was built in 18th century. Currently, it's one of the most attractive tourist attractions and visited by many tourists, both domestic and foreign ones. This tourist attraction has been set and preserved as a historical and cultural heritage that then includes in a list established by the UNESCO. The most interesting thing to review on this tourist attraction is the aspect of facilities and environment factors in "the safety and convenience" for tourists. Therefore, it's necessary to provide facilities for realizing "safety and convenience" for tourists. Complete protection facilities for the risk of slipping, falling, falling of attractions, stumbling, crashing, and the like, must be provided adequately and meet "the safety standards". This paper aims to describe the visual aspects of facilities and environment of Taman Sari water castle tourist attraction, from the perspective on "safety and comfort" factors in traveling. Specific study is conducted with the descriptive approach to literature study. Clear picture of unsafety attractions are detailed, photographed, and analyzed with the cause-effect approach. Observations and measurements show that many places and areas in Taman Sari are potential to cause various types of accidents and inconvenience for tourists. Practical and theoretical comments and recommendations are given to improve the situation and the risky condition. To conclude this study is that Taman Sari still needs various physical improvements to realize a "safe and convenient" for tourists. Safety perspective approach can be applied in managing this historical and cultural tourist attraction facilities and environment.

Keywords: Safety, tourist attraction, facilities

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Stretching as a Workplace Intervention to Reduce Soft Tissue Injuries

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Purpose: Stretching programs have been used by a number of companies and workplaces to address work-related soft tissue injuries/illnesses. URS, a major international engineering and construction management company, designed and implemented a stretching program in 2005 and has analyzed the program and tracked injury rates since that time. This presentation will examine injury trends and observations regarding the design and implementation of the program and will provide recommendations for future research needs. The study included ergonomic program design considerations, injury-illness data analysis/trending, and worker interviews and videotape analyses. Findings: Sprains and strains were the major source of occupational injury for the URS Energy & Construction



business in 2003 and represented a significant workplace medical cost. In 2005, soft tissue strains and sprains represented 33 percent of all workplace injury claims for the company. A company-designed stretching program was developed to reduce strain and sprain injuries. After implementation, there was an observed 36 percent reduction in strain injuries and a 39 percent reduction in sprain injuries overall. The average medical cost of a sprain injury was reduced by 18 percent and the average cost of a strain injury was reduced by 30 percent. While improvement in injury reduction has been seen at many of the projects tracked, some types of work environments did not show significant improvement. There was an overall indication that the workplace stretching programs may have had a positive effect when implemented properly. This multi-year and multi-project research examined trends observed in injury reduction and also addressed problems of implementation, including management commitment, worker involvement in the program, and workplace psychological/social conditions.

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Welding of Aluminium Alloys: Health Hazards of Lung and Airways

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Aim of the Study Aluminium (Al) is becoming more and more popular in the construction of boilers, vessels, railway and motor cars and others. Al as powder is known to cause lung fibrosis. This study is to find out, whether also Al welders are subject of lung damage by welding fumes. Subjects and methods: We investigated 46 Al- welders from five enterprises (railway waggon, vessel and container fabrication) with a long term welding history (welding total: 22 years; Al welding: 10 ys in the average) and a control group over 5 years. Ambient and biological monitoring, pulmonary function tests and high resolution computertomography (HRCT) of the lungs were performed. Ambient Monitoring: Respirable dust concentrations in the breathing zone (Personal Air Sampling) behind the welders' mask: Median = 6.2 mg / m³ (range: 0.5 - 17.3). Biological Monitoring of urinary aluminium post shift: Median = 86 µg / g creatinine (range: 18 - 399). Ozone in the breathing zone: short term values during arc time: range = 0.02 – 0.7 ppm. In the first cross section in 7 of the 46 welders (13 %) the HRCT revealed symptoms of inflammation, in the course of the follow-up studies another 2 cases. The lung function showed (in the average) a decrease of vital capacity of 35 ml per year of welding experience beyond the expected age-controlled reference values as well as in comparison with a control group. Conclusions Al welders in various industries may be exposed to high concentrations of Al containing fumes and to a high internal Al load of the organism. The welders seem at higher risk of early stages of alveolitis and bronchiolitis. After longer latency periods these impairments may result in lung fibrosis (aluminosis). An improvement of the preventive measures at these workplaces and medical examinations of the welders are needed.

Keywords: Aluminium, lung fibrosis, welding

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Periodic Examination in a Transport/Logistics Company in Thailand

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Background: Since 2009 new regulations of periodic examination have been established to help improve the health quality of workers and the surveillance for their health hazard which can affect their general health problem. However, these new regulations do not specify any particular laboratory testing or screenings for these periodic examinations. As a result, the examination varies from one industry to another. The aim of this study: To survey the general health problems of the transportation/logistics workers. Methods: A cross-sectional survey was conducted during 2010 among workers. Data was collected through periodic examination, blood test and chest X-ray. A total of 3,180 people participated in the study (2,450 males, 730 females). Results showed that the top 3 health problems were hypercholesterolemia, abnormal body mass index and hypertension. The report of hypercholesterolemia were 2,127 (67%) employees, 1,047 (49.2% of this group) had high LDL. There were 1,203 (56.5%) employees who had low protective factor or low HDL. The second problem was abnormal BMI. There were 1,429 (44.9%) employees who were overweight and 420 (13.3%) employees with obesity BMI. Based on a 12 -year cohort study of diabetes that has been conducted among Thai population, it could be predicted that this company will contribute to having about 335 new cases of DM in the next 10 years. For hypertension, there were 1,235 (38.8%) employees who were diagnosed with this. The screening chest x-ray was done in this study and there were 423 (13.3%) with abnormal results e.g. fibrosis, lung infiltration in upper lobes. In conclusion, this study shows that prevalence of general health problems of Thai workers does not differ from those among normal population. Education for prevention of chronic diseases and health hazardous must be provided. In terms of health risks, e.g. respiratory tract problem, a walkthrough survey should be considered in order to compare the correlation of health data and the work environment. This method will be more useful in analytical process than to conduct a check-up in the employees.

Keywords: Periodic examination, transport/logistics company

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Temporary Employment and its Adverse Effect on Safety and Health Programs in Developing Countries

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Employment of short-term workers is a serious and newfound problem in some developing countries that has influenced the occupational safety and health programs. Recently, due to privatization and economic revolution policies in these countries, the majority of works, especially in industries, are implemented by contractors that have very authority in workers employment. On the other hand, because of uncontrolled and irregular population growth during last decades, the cheap and unemployed workforce are available. So, the contractors prefer to use the workers in temporary status. In this form of work contract, the contractors

are not enforced to insure the employee due to labor law and legislation weakness. So, they have one-sided authority to do not extend the contract without any social insurance coverage and compensation payment to the worker. Based on this fact, the employers have not serious commitment to secure, preserve and improve the workers safety, health and wellbeing. In this situation, any complaint about safety and health problems may be resulted in deporting of worker. Meanwhile, any planning and attempt to monitor and surveillance the safety and health of such workers will be nearly ineffective and useless. So, training the employers and contractors to promote their knowledge and attitude about workers humanity and social right, along legislation of deterrent laws would lead to avoid short term employment and its further problems.

Keywords: Temporary employment, safety and health, developing countries

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Statistical Analysis of Fatal Occupational Accidents of Shipbuilding Industry in Turkey

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Occupational accident is a phenomenon that instantly occurs and gives harm to the worker when he/she was going to work, or training, working in the plant, or performing the maintenance task of the machinery. Accidents cause the workers to lose their lives or experience physical and psychological damage, as well as the capital loss and compensations which the employee may face. Although in recent years there is a relative decrease in the occupational accidents in our country the severity and especially the fatal rate of the accidents have almost doubled. Shipyard industry in our country have shown an extraordinary growth in recent years and especially the businesses in the “Tuzla Shipbuilders Area” have become the center and locomotive of the shipbuilding industry in our country after the conversion of Tuzla Port to “Shipbuilding Industry Area for Private Sector”. This area, with its employment share of 50%, is seen as the heart of the Shipbuilding in Turkey, and has shown an increasing rate of heavy injuries and fatal accidents in recent years. In this study, the records of the fatal accidents occurred in Tuzla Shipbuilding Industry Area were gathered, definitive statistical analyze of the reasons of fatal accidents occurred in shipbuilding and repairing activities was conducted and some suggestions were made to prevent the possible accidents in the area. Analyses show that in this study most of the fatal accidents in shipyards occurs in the first shift (59%), experience under one year (39%), age under 25 (32%), primary school graduates (70%), welding and mounting workers (33%) and by falling from a high place (27%). It was also seen that in the shipyards that experienced more than one accident, the accidents had repeated in 80% of the firms.

Keywords: Occupational safety, shipbuilding, accident

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The Effectiveness of Foot Activities on Reduction in Lower Extremity Discomforts During Prolonged Standing Work

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Many occupations require workers to stand for prolonged periods, which cause discomfort and pain. This study examines the effects of three foot activities in relieving lower extremities pain or fatigue during prolonged standing work. Ten paid male subjects are enrolled in this study, and who performed three foot activities under a hard floor while standing for 4 h in a laboratory. Each 1-h experimental test had two phases - 50 minutes of standing with 10 minutes of rest. During the standing session, the foot activities included one of the following three movements: without any movement (no change of posture), ankle movement (twice 2-minute movement), and hip movement (twice 2-minute movement). Observation results indicated significant differences in the amount of foot swelling among the three foot activities. Hip movement reduced significantly the increment of thigh and shank circumferences during prolonged standing compared with without any movement, and ankle movement. This study suggests that subjects could take a short hip movement after each half hour prolonged standing to improve musculoskeletal discomforts.

Keywords: Prolonged standing, foot activities, lower extremities discomfort

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(P: 578)

Anxiety Levels and Its Influences on Health and Safety Issues among Site Employees in Construction Sector

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The aim of this study was to determine the anxiety levels of site employees in construction sector and its effects on health and safety issues according to some variables which were thought to have influence on anxiety. 120 employees from four construction sites were participated in the study. The sites were selected randomly, however they were remarkable projects from diverse parts of Istanbul. Turkish version of Spielberger's Trait-Anxiety Inventory (TAI) and Individual Information Questionnaire (IIQ) were used to assess the anxiety levels and the differences between two groups. Group 1 was constituted by construction engineers and technicians, whereas Group 2 was constituted by foremen, craftsmen and other workers. Although the anxiety levels of two groups were found to be in normal rank points (36-41), Group 2's standard deviation (43.20 ± 8.01) was found higher than two standard deviation points. Recent research claims that employees working in physically demanding jobs with high anxiety levels might prone to involve in accidents. However, more studies are needed in order to determine the source of anxiety as well as its influences on employees' productivity. The variables of this study were age, education level, income, years of experience, daily working hours, having an occupational illness and accident involvement which were thought to have influence on anxiety. Because the findings of this study are still in evaluation process, results will be described in the presentation.

Keywords: Construction sector, anxiety, health and safety

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(P: 579)

The Performance of Cooperation Between Schools and Exhibition Hall of Occupational Safety and Health in Taiwan: School to Work Perspective

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Implementation of occupational safety and health education concerns a company's sustainable development. But promotion of Taiwan occupational safety still revolves around occupational safety and health cognition education. The result can only arrive at "awareness" of occupational safety and health and may not be able to translate into individual behavior. As a result, this study aimed to discuss the effects of cooperation between Taiwan's secondary vocational education and the Exhibition Hall of Labor Safety and Health (EHLSH) outside school, in school to work (STW) occupational health education and training. First, this study analyzed the effects of planning content of occupational safety and health courses at technological and vocational schools and the current situation of their implementation. Then, this study described cooperation models of the Ministry of Education and the EHLSH in technological and vocational education. Finally, this study discussed the effects of STW cooperation implementation with valid samples of 866 participants. The result shows that: 1.Cooperation between secondary vocational high schools and the EHLSH had reached 15,000 person-times on average annually. 2.Occupational school students were significantly satisfied with the EHLSH's "faculty lineup" and "professional knowledge". 3.Occupational school students were significantly satisfied overall over the occupational safety and health STW education model. 4.Students were significantly willing or higher to share knowledge they had learned at the EHLSH and experience with their friends and family.

Keywords: Occupational safety and health education, school to work (STW), secondary vocational education

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(P: 580)

Neck Pain, Low Back Pain and Psychosocial Factors

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Work-related musculoskeletal disorders represent the most important health problems in the world and the psychosocial factors are now considered emerging risks at work, holding the same importance as (or even more) the known classical risks. Their study has an increasing interest worldwide, to which various instruments have been developed to measure them. In the present research the short version of COPSOQ 2: ISTAS, was used in 30 workers at a call center. Of the six (6) dimensions evaluated with ISTAS, three (3) dimensions presented the worst score, represented in red. Located in the most unfavorable situation were: first, insecurity, 86.7 % of workers polled in this level of danger, followed by social support and quality of leadership with 83.3 % and third, psychological demands with 70%. These 3 areas have a significant influence on the work performed by the employees under the study and potentially could cause health issues. Within the development of this study, labor instability in

the company was also significant, which might have influenced the results in red dimension "insecurity" evaluated with the ISTAS; dimension that reflected the worst score. In the group of study no significant associations were determined in relation to the 5 dimensions assessed with the ISTAS in the development of neck and back pain, but it was found a positive relation between psychological demands and the occurrence of these symptoms ($p = 0.024$). In conclusion we recommend including psychosocial aspects when evaluating a work place, as these under certain conditions of intensity and exposure time can become a risk and generate adverse effects to the health and well-being, affecting not only workers but the organization.

Keywords: Psychosocial factors, neck pain, low back pain, emergin risks

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(P: 581)

Survey of Workers Safety Attitude and its Relation to Accident in an Industrial Plant in Tabriz-Iran

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When Henrich presented at early 1930s his famous theory about accident causes and announced that unsafe acts on behind most of the accidents (88%), the safety professionals decided to direct part of their accident prevention activities towards human behavior at the work place. This study is cross-sectional and descriptive-analytical and study sample include 100 workers from one of the matches factory. At the first data collected with safety attitude questionnaire (5 degree in Likert scale). Questionnaire that mentioned above prepared with use of scientific references and thinking alike with safety, psychological and statistical professor, and the reliability and validity of this questionnaire was considered. There is not significant difference between safety attitude and age, marriage and occupation satisfaction ($P > 0.05$). But there is significant difference between safety attitude and precedent, education, lost work days and accident ($P < 0.05$). Occurred accident in the past year hasn't significant difference with variable such as age, marriage and occupation satisfaction ($P > 0.05$). On the other hand occurred accident in the past year has significant difference with precedent, education and safety attitude ($P < 0.05$). There is not significant difference between various dimension of safety attitude (cognitive, behavioral and feeling) and age, lost work days, marriage and occupation satisfaction ($P > 0.05$). Relative between safety attitude and education was significant and increased safety attitude with education increase, because the people with high education has more knowledge about safety and can use better from safety training in the workplace. With increase of precedent the safety attitude became negative because old people have more pride then they think that it isn't necessary to follow the safety rules. This study also show the significant difference between safety attitude and accident in the past year, because safety attitude effect the behavior and people with negative safety attitude had more hazardous behavior and more accident.

Keywords: Safety attitude, accident, behavior, matches industry

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(P: 582)

Work Conditions and Health Status of Workers of Asbestos-Cement Enterprises in Ukraine

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It is established by the conducted studies that dust, containing chrysotile asbestos, is the main unfavorable factor in the asbestos-cement production. Its content in the airborne dust exceeded 50%. The exceeding TLV for dust ($2,0 \text{ mg/m}^3$) was recorded; • by shift average concentrations – 1,6-5,8 times at all workplaces; • by the content of asbestos fibers in the air in cm^3 - at workplaces of asbestos dosing men and operators of the preparation department (1,5 - 3,5 times by the USA standards, 1986). The air temperature at workplaces, when the ambient temperature was more than 25°C , exceeded standard values by $2-6^\circ\text{C}$. Main types of pathology of respiratory organs are chronic bronchitis ($12,4 \pm 3,2\%$) and chronic obstructive lungs diseases ($2,4 \pm 1,5\%$). By the data of the computed tomography of high resolution (CT) interstitial changes in lungs of a diffusive character, which can be related to chrysotile-asbestos dust, have been found in 21,4% examined workers. Almost in half of them ($44,4 \pm 16,6\%$) changes covered all areas of both lungs, and the average meaning of the summary degree of their prevalence made 5,5 according to the criteria of the International Classification of HRCT for occupational and environmental respiratory diseases. Pleural changes by the data of the roentgenography were recorded in $16,7 \pm 5,7\%$ workers, whereas by the results of CT in $40,5 \pm 7,6\%$, including $11,9 \pm 5,0\%$ pleural patches. Among additional CT symptoms have been found: “frosted glass symptom” in $52,4 \pm 9,5\%$ cases, lungs emphysema in $30,9 \pm 7,1\%$ cases, non-pneumoconiotic calcium granuloma in $26,2 \pm 6,8\%$ cases. The decrease of the risk of asbestos-related diseases at asbestos-cement enterprises can be achieved by using means of mechanization and automation of the work process, using hermetic equipment, rational ventilation system, individual protection means for respiratory organs.

Keywords: Dust, chrysotile asbestos, computed tomography of high resolution (CT)

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(P: 583)

Workplace Organizing Unit, OHS Board's Activity: Examples of Bursa

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According the ILO's basic approach - joint responsibility must be taken by all concerned parties for the provision of occupational health and safety - in workplaces workplace OH&S Committees are the most effective units. There is a strong connection between OH&S Committees' effectiveness and success of OH&S policies. Indeed, the Labour Law No. 4857 came into force in 2003 have several regulations as binding decisions to enforce the decisions of OH&S committees.

In Turkey, relation to OH & S policies two important developments occurred in 2010. First, the Ministry of Labour and Social Security has begun preparatory of "National Occupational



Health and Safety Strategy" in order to determine the next period of OH&S policies. One of the four main headings in the Strategy Plan is to underline the effectiveness of OH & S boards. Secondly, The Ministry of Labour and Social Security has launched preparations for an independent Health and Safety Law. Research of OH&S Committees effectiveness since Law No. 4857 will contribute to disposing the right steps for new OH&S act regulations.

There is very few academic studies are performed on OH&S committees effectiveness in Turkey yet. In this study, the effectiveness of OHS Committees; the formation of committees, the parties' participation in decision-making process, implementation of board decisions, binding, enforceable, and the results have been identified through the movement. This study is performed on leading sectors of automotive, textile and food industries in Bursa. The research was carried out by performing all OH&S members in workplaces by using our "prepared questionnaire".

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Analysis of the Accidents Occured in Iron-Steel Industry in Karabük

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The biggest problem in Iron-Steel Industry in Turkey, in which one third of Karabük's population is being employed, is the occupational accidents. In Karabük, the occupational accident occurrence in this sector is more frequent than the other industry branches, and thus the amount of workday loss is higher as well. This study aims to contribute to precautions, which can be taken for protecting workers in Iron-Steel Industry in Karabük from possible occupational accidents. In this study, 1194 occupational accidents, occurred in the Iron-Steel companies in Karabük city, were analyzed. Accidents were analyzed according to HDM Hazard Diagnosis Model), a risk analysis method. Data's analysis was completed in a short time by using special software, which is the first program developed in this area, and the precautions for minimizing occupational accidents in Iron-Steel Industry in Karabük were extracted from these analysis results and listed in the result part of the study.

Keywords: Hazard assessment, computer aided risk analysis, hazard diagnosis model

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(P: 585)

Evaluation of the Working Environment Based on the Self Reportings of Nurses Working at Ibni Sina Hospital of Ankara University Faculty of Medicine: Sick Building Syndrome

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Sick building syndrome (SBS) is used to describe a situation in which the occupants of a building experience acute health - or comfort - related effects that seem to be linked directly to the time spent in the building. Because SBS reduces work efficiency and increases



absenteeism, a great many studies are carried out recently. The purpose of this study is to document the nurses' perceptions related to both living and working environments so to evaluate the conditions with respect to health. The descriptive study has been carried out at Ibni Sina Hospital. Study group consists of the nurses (n=119) of the clinics. The self-reported four part questionnaire was applied during 1 -15 January 2011. The work environment and symptom assessment parts were Likert type scales. Chi-square-ANOVA test was used in data analysis. Mean age was 34.81 ± 6.57 (95% CI: 33.61-36.00), the average working period at the organization was 13.95 ± 7.89 (95% CI: 12.52-15.38). 12 of the participants reported working 45 hours and over per week. As regard to working environment assessment "Inadequate ventilation" (n=81) at the top, followed by "dry condition" (n=78), "crowded" (n=75). Reported most common symptoms were fatigue (n=71), headache (n=67), dry and sore throat (n=44), flu symptoms (n=42), menstrual problems (n=37) and "coryza" (n=33) in order. These symptoms which improved after leaving in the workplace environment were headache (n=27), fatigue (n=23) and "coryza" (n=20). According to the self-reporting two thirds of the study group reported a negative situation and at least one health problem occurring in the hospital. This study is based on self-reportings and a preliminary work related to cross-sectional monitorization of the indoors of the Faculty of Medicine. A closer look at the various factors that might contribute to making the hospital sick seems necessary and to conduct a long term intervention study for indoor monitorization and improvement.

Keywords: Sick building syndrome, hospital, nurse

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(P: 586)

Servant Leadership Model to Reinforce Workplace Safety Climate

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The expenditure resulting from the workplace injuries in Turkey is reported by The Turkish Minister of Labor and Social Security to be 4 billion lira that is 20 times more than the UK. That is a huge statistics taking into consideration that there are 8 million more workers in the UK than Turkey. (Radikal, 12/03/2010). Due to the workplace injuries, there has been a loss of one million 865 thousand and 115 work days. The SME (small and medium enterprises) are at the top of the list where there is less workplace safety. The 81% of the workplace injuries happens to take place at the SMEs in Turkey. The metal (15%) and mining industries (10%) top the list with the construction sector ranking the third with a 7.5 %. According ILO reports of 2003-2008, in terms of the huge numbers of workplace accidents, Turkey has been reported to be the third ranking country after Russia and India (Etkin News Agency / 17 June 2010). Thus the existing situation calls for immediate action for recovery. It has been reported that the inspectors will reward the good practices and there will be awareness seminars at workplaces, yet the call for an effective leadership model at workplaces is required.

Keywords: Workplace safety, influence workers

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(P: 587)

Determining the Possible Health Effects of Ionizing Radiation on Health

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This study aims to determine possible health effects of ionizing radiation on health personnel working with radiation sources in a university hospital. This study is a cross sectional study performed in the Gazi University Faculty of Medicine Hospital in Ankara during November 2009- November 2010. The participant of the study was 242 people with radiation effect and working in the Department of Radiology, Cardiology, Radiation Oncology, Nuclear Medicine, Neurosurgery and the division of the Pediatric Cardiology in the Gazi University Faculty of Medicine Hospital but 231 were successful (95.5%). The majority of the study participants are physicians (40.7%). The majority of the participants don't have any previously disease diagnosed. %67.1 of the participants don't have any complains during the study. The participants told that they have been working with ionizing radiation related works for 7.7 ± 6.5 years. 64.1% of the participants told that he had not used personal preservative clothing, 13.1% told that dosimeter measurements had expressed over the limits at least once during the last year, 1.7% told that he had a radiation accident and 27.7% told that he exposed to diagnostic or therapeutic radiation during the last year. 1.6% of the women participated in the study, declared that she had at least one death-birth, 7.1% had at least one unwanted miscarriage. 0.4% of the participants reported that he had child with disability. Specialty was detected in 5.2% in hand skin examination and in 7.7% in blood-lymphatic system examination. No pathology related to ionizing radiation was found in fundus examination. Limit excess in last year's dosimeter measurements was reported in 33.3% of people having specialty in hand-skin examination, in 20.0% of people having specialty in blood and lymphatic system examination, 33.3% of people having pathologic blood test results, in 11.1% of women having unwanted miscarriage, in 5.0% of women having menstrual irregularity. Based on the results of this study, taking necessary precautions would be appropriate for the subsequent years to be more informed and to minimize the possible effects of ionizing radiation. To emphasize the importance of the issue to the health workers, organizing training programs would be a good starting point for measures to be taken.

Keywords: Ionizing radiation, hospital, health workers, occupational health, disease, symptoms

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(P: 588)

The Analysis and Suggestion on the National Standards of Dangerous Chemical Toxicity Test in China

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Purpose: To response the limitation and impact of our chemical export by REACH regulation in Europe, the 39 national standards of dangerous chemical toxicity test method had been formulated according to chemical test guidelines of OECD and promulgated in 2008. Instrument-Method: The optimized part and exiting problem of standards had been



analyzed and we made the suggestion to improve the quality and level of chemical toxicity test. Findings: The analysis showed that: the technical contents of standards are completely consistent with OECD. In order to explain the evolution process, the difference of new and old version and notice, some new standards kept the “instruction” and “initial considerations” parts which could be useful to guide the choice of test. The 3R principle is showed in toxicity methods of some new standards. New evaluation indicators are added in some standards which will be prospective to test development in this field. On the other hand, the problems reflected in two ways: Some methods are short of maneuverability for GLP system is not carried out in our toxicity test generally. Some methods emphasize more on the test principle and less on concrete operation method. Discussion & Conclusion: From above, the standards instruction or guidelines must be formulated as soon as possible; the catalogues of revised and abolished standards need to be drawn up; the GLP laboratory of toxicity test in line with general international standards should be authenticated.

Keywords: Analys, national standards, chemical toxicity test

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(P: 589)

The Evaluation of Occupational Health Practise in Paints and Solvents Worked Workplaces: A Research

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Since the beginning of 20 th century, solvents were currently being used in making cosmetics and pharmaceutical but later it has been one of the most common used chemicals in industry and daily life. Pharmaceuticals, cosmetics, paint, varnish, rubber, detergents, pesticides, plastics, adhesives, inks and many other products contain solvents. Adverse human health effects of solvents were proven with scientific studies, and use of some, were forbidden. The purpose of this study is, to present the occupational health practices in workplaces which used paint and solvents in production progress and to provide a guide for occupational health physicians. A survey has been organized in some workplaces which are the members of Association of Occupational Physicians. The survey results showed that, although awareness of danger of paints and solvents were at adequate levels, the follow- up of taken precautions is not at desired levels. Acute and chronic effects of solvent exposure and which systems it has damaged most, is very important. In risk assessments that will done in the future; type, duration and severity of employee’s exposure should be presented. The precautions after risk assessment results, environment and personal exposure measures, health surveillance (medical exams ect.) requirement and frequency must be determined. In addition, it’s valuable to check solvent metabolites in blood and urine at regular intervals that will determine personal solvent exposures. It will be more easy to give final decision about the size of exposure with these metabolite results, other medical examinations and tests (CBC, liver enzymes, creatinine, BUN, blood smear, pulmonary function test, chest X-ray, urinalysis, electromyography, electrocardiography). It should be one of the priority targets for Occupational Health Physicians to determine solvent exposure and to prevent occupational diseases that may arise.

Keywords: Solvents, personal exposure, solvent metabolites



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(P: 590)

Application of Reach Legislation on the Use of Hazardous Substances in the Wood and Furniture Industry in Greece

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The operations of wood processing and furniture industry expose workers to various hazardous substances such as wood dust, organic solvents, adhesives, varnishes and paints. Exposure to chemicals, however, has to be monitored according to European Directive 1907/2006 (REACH). To that end SLIC – the Senior Labour Inspectors' Committee of the EU- has launched in 2010 a campaign of communication, information and inspection for risk assessment on the use of hazardous substances in workplaces. Greece, through its Labour Inspectorate, participates in the campaign as well inspecting, among others, the industrial wood processing and furniture industry. The campaign comprises information given to employers in the form of posters and brochures, organisation of related events and a website. In parallel to this campaign the Greek labour inspectors have asked the wood industry owners or their safety delegates to fill in a questionnaire regarding their opinion about the REACH law implementation. The objective of this initiative is to reveal areas in which the employer is not in conformity, or where the employees feel unable to apply the legislation. The main questionnaire items comprise: risk management in the work place, personal protective equipment, listing of dangerous substances, and labeling of the work place. More than 25 work places have been visited in two regions of Greece, where questionnaires have been collected and analyzed. The responses were of three types: a) yes-no, b) multiple (up to five) predefined answers, and c) open questions with free text answers. All replies have been statistically analysed to identify the non-conformity areas, together with the attitude of responders to this implementation. Results showed the most common items in which the wood processing and furniture industry does not conform REACH legislation and reasons behind this. The findings will help the improvement of working conditions in the wood processing and furniture sectors.

Keywords: Furniture industry, REACH, Greece

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Indicators for Evaluating OSH Performance in Companies

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Evaluation of OSH performance plays an important role in improving OSH management in a company and should be based on appropriate and reliable indicators. The most commonly used for this purpose are still the outcome indicators which can evaluate an effectiveness of the preventive actions taken in the past. Activities indicators (or positive performance indicators) should be implemented to receive more information necessary to improve OSH



performance. To support implementing such kind of indicators in companies a number of different guidance documents have been developed (for example: Guidance on Developing Safety Performance Indicators related to Chemical Accident Prevention, Preparedness and Response by OECD, 2008). The questionnaire survey has been performed in 60 companies with the purposes: to identify indicators used for evaluating OSH performance and to assess different activities indicators which could be implemented for evaluating OSH performance. The OSH specialists have answered to the questions related to implementation of specified outcomes and activities indicators and assessed different activities indicators which can be used in the process of the OSH evaluation. The results confirm that in a majority of the surveyed companies the evaluation of the OSH performance is based on outcome indicators such as occupational accidents and diseases rates which influence the insurance premium to be paid by a company. As indicators characterizing OSH performance the number of nonconformities identified in monitoring and audit processes are usually used. The majority of the listed in the questionnaire activities indicators have been assessed as useful for evaluating OSH performance. At the same time the OSH specialists indicated the need to develop methods and tools supporting their implementation.

Keywords: OSH performance indicators, outcome indicators, activities indicators

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(P: 592)

Respiratory Symptoms and Ventilatory Function in Workers Exposed to Mixtures of Organic Solvents

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Background: Occupational exposures to mixtures of organic solvent (toluene, xylene, benzene, and trichloroethylene) have been associated to deteriorations in lung function. Recent studies have linked solvent exposure to respiratory symptoms and spirometry abnormalities. Regular use of appropriate personal protective equipment could protect workers from adverse respiratory health effects. This study explores the prevalence of chronic respiratory symptoms and ventilatory function among workers with occupationally exposure to mixtures of organic solvent. Material & Method : An interviewer- administered questionnaire was used to collect information on sociodemographic characteristic, smoking profile and history of respiratory health among 180 spray painters at a automobile production plant (exposed group), and workers occupationally unexposed to dust , fumes and gases (unexposed group). Workers who had a history of smoking were excluded. Pulmonary function was assessed for both groups. Result: A higher percentage of the exposed workers reported recurrent and prolonged respiratory symptoms including cough (15%), phlegm (21%), wheeze (7%), dyspnoea (6%), shortness of breath (7%) and bronchial asthma (6%). Among the unexposed, prevalence of these symptoms were 7, 12, 2, 2, 3, and 1%, respectively. FEV1 and FEF25-75% was significantly lower in the exposed workers compared with unexposed workers. Logistic regression analysis showed that the risk of respiratory symptoms increased 2.1 fold in solvent exposed workers when compared to controls. Conclusion: This study suggests an increase of adverse respiratory health effects (reduction in lung function and a rise in respiratory symptoms) in workers with solvent mixtures exposure. We conclude that long term exposure to solvent mixtures is associated with obstructive lung disease. This phenomenon not observed at control group.

Keywords: solvent, obstructive lung disease, spirometry , respiratory symptom

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(P: 593)

Medical Surveillance at Welding

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Medical Surveillance At Welding Welding has many difficulties emanated from working environment such as; fire, burning, radiating heat, ozone, nitrogendioxide, carbonmonoxide, flour, metal fume, other air pollutioners, electricity, slips, falls, working in confined places. Being affected via respiratory system is important for welders. Because of welding fume; lung, throat, urinary tract carcinomas, mesothelioma, pneumoconiosis, asthma, COPD, heart, skin, gastroduodenal diseases, renal and reproductive problems, weakening of speech and movement might occur. Therefore periodical checks of respiratory system is essential. Before taking up the job, basic assessment should focus on respiratory system. Medical, environmental, occupational history, frequency, intensity, duration of welding fume exposure should be questioned, detailed physical/neurological examination, spirometry, chest x-rays, questioning of respiratory complaints, detailed tobacco history, eye examination, audiometry should be performed. Welders should be educated about work related hazards, welding fume, early signs of health problems, ergonomics, lifting. Welders should use personal protective equipments such as; safety goggles, welding shields, helmets, gloves, sleeves, encapsulating suits, particulate respirators and if needed respirators. Preventive periodical examination should focus on respiratory system but also eye, skin, heart, ear and kidney should be evaluated. Examination intervals should rely on frequency of welding. General physical examination, eye examination (cataract, acromatopsia), chest x-ray (evaluated by pneumoconiosis reader), spirometry, audiometry, heavy metal in blood (Pb, Fe, Cd, Cr, Ni), liver tests, if necessary GFR, urea, creatinine, heavy metals in environmental air (Pb, Cd, Cr, Ni, Zn, Cu, Mn, Fe), personal exposure tests, continuing checks and follow ups of working area, conditions and process that depends on health and safety rules should be done. Efficient protection could diminish health risks, but safety of welding area is also important.

Keywords: Welding, medical surveillance, preventive periodical examination

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(P: 594)

An Analysis of the Occupational Injuries and Occupational Diseases During the Last 5 Years in Kırıkkale Province

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This study was performed in Kırıkkale Province with the purpose of analyzing the frequency, and the content of the records with respect to the occupational injuries and occupational diseases. MATERIALS AND METHODS: This study was carried out in December, 2010, in Kırıkkale Province by the examination of Kırıkkale Province Social Security Institution (SGK) records of 934 employees who have had occupational accidents and occupational diseases in the years between 2006 and 2010. FINDINGS: It has been observed that approximately



17.6% of the 16 parameters in the Occupational Accidents and Occupational Diseases Declaration Forms sent by the employers to the SGK were not filled. In 5 years, 931 occupational accidents and 3 occupational diseases have been observed. Within the injuries 43.0% were at the upper extremities, 27.7% were at the lower extremities, 14.3% were at the head, 1.8% were at the abdomen, and 4.7% were at the body. The rate of the employees who had accidents within the first month of their employment is 10.3%, whereas the rate of the employees who had accidents in their first working days is 0.6%. When the accident liability was examined, according to the forms filled by the authorities, it was observed that 41.5% of the occupational accidents occurred due to the carelessness of the workers, 41.5% due to the imprudence of the workers, and 1.8% due to the negligence of the workers (data was not available for 37.2% of the cases). **CONCLUSION:** The Occupational Accidents and Occupational Diseases Notification Forms which are sent to the SGK are incomplete. For this reason, the accuracy of the national data which is established on the grounds of this information needs to be verified. As known, in the matter of the occupational accidents, the authorities do not investigate the unsafe working conditions and hold responsible only the persons who act unsafely. The rate of the accidents which occur on the first work day demonstrate that, for the uninsured employment, this is a serious social security issue which needs to be emphasized

Keywords: Medical records, Occupational injuries, occupational diseases, workers responsibility, employer responsibility