



## PEROSH news

### PEROSH contributes to the Future “EU 2020” Strategy

In November 2009, the EU launched a consultation process to prepare a new strategy for growth and employment for the next ten years.

The Commission’s objectives for Europe, that were outlined in its Strategy paper, are “to lead, compete and prosper as a knowledge-based, connected, greener and more inclusive economy, growing fast and sustainably, creating high levels of employment and social progress.”

By contributing to the EU 2020 Strategy, PEROSH intends to add value by providing input based on its research, statistics and foresight studies on the future of the European labour market.

In the contribution, PEROSH calls to acknowledge the impact of the working environment on the overall societal competitiveness and development. As productivity and quality of work are closely intertwined, improvement and development of the working conditions will lead to more sustainable jobs and will prevent early exclusion from the labour market. Moreover, investment in prevention of accidents and work-related illness as well as promotion of health and wellbeing at work pays off both for the individual employee and for enterprises and the EU.

The public consultation attracted some 1500 comments. Following the consultation, the Commission has identified three key drivers for growth, to be implemented through concrete actions at EU and national levels: smart growth (fostering knowledge, innovation, education and digital society), sustainable growth (making our production more resource efficient while boosting our competitiveness) and inclusive growth (raising participation in the labour market, the acquisition of skills and the fight against poverty).

The EU’s heads of state and government will discuss and approve the strategy by the end of March. Specific agendas will

### PEROSH news 1

PEROSH contributes to the Future “EU 2020” Strategy 1

PEROSH seminar on working environment challenges for the future 2

New PEROSH project on worker well-being 2

### News from the members 3

TNO: Continuing, healthy and motivated 3

INSHT: 5th objective of the Spanish strategy on OSH (2007- 2012): Improving the information and research in safety and health at work. Steps forward. 4

CIOP-PIB celebrates its 60th anniversary 5

IFA: The importance of life cycle concepts for the development of safe nanoproducts 6

IFA: From workplace air measurement results toward estimates of exposure? Development of a strategy to assess exposure to manufactured nano-objects 6

IFA: Finger and hand protection on circular table and panel saws 7

IFA: The MGU - a monitoring system for the collection and documentation of valid workplace exposure data 7

FIOH: NANOSH - Inflammatory and genotoxic effects of engineered nanomaterials 7

Prevent: Young people and wellbeing at work: What young people know about it, and what companies assume 9

BAuA: Ambient Intelligence (Aml) - Work assistance systems as a field of action for OSH 10

NRCWE: Return To Work Interventions on a National Scale – Research in Action 11

support the growth plan, such as a new innovation policy, a stronger industrial policy and an agenda for new jobs.

Read the PEROSH contribution on: [www.perosh.eu](http://www.perosh.eu)

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## PEROSH seminar on working environment challenges for the future

An ageing workforce, increased migration, poor lifestyle habits, new technologies and the effect of globalisation on the economic system as well as more “traditional” occupational safety and health risks are only some of the challenges the world of work will face during the years to come. The topics were put forward as main priorities by the international experts that were invited to the National Research Centre for the Working Environment in Copenhagen to present their scientific views on the future of the working environment.



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forward as main priorities by the international experts that were invited to the National Research Centre for the Working Environment in Copenhagen to present their scientific views on the future of the working environment.

The seminar taking place in Copenhagen on 24-25 September 2009 was organised by the National Research Centre for the Working Environment and funded by the Danish Working Environment Authority as part of a consultation process to gain input for the New Danish Working Environment Strategy 2010 – 2020.

### Scientific views on the OSH challenges of the future

The seminar brought together 14 senior experts from the PEROSH member institutes as well as from the European Agency for Safety and Health at Work (Bilbao), the European Foundation for the Improvement of Living and Working Conditions (Dublin) and l'Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST - Canada).

During the presentations, the experts called attention to the following priorities for the prevention of future occupational safety and health problems:

- Social and demographic changes due to the ageing workforce and increasing migration.
- Poor lifestyle habits in youth such as a physical inactivity and poor dietary practices.
- New work processes and risks due to the emergence of new technologies, materials and products such as bio- and nano-technology, IT and automation.
- Economic changes and the effect on the quality of the employment conditions, and potentially leading to psychosocial problems and mental disorders.
- Musculoskeletal disorders and the effect of combined exposures including the relation with mental health.

### Research challenges

During the concluding panel discussion, the experts pointed out a number of specific research topics and needs related to the future working environment challenges:

- The importance of a scientific assessment of the effects of health and safety interventions at the workplace.
- The need for a systematic review of the existing occupational safety and health knowledge.
- Attention to the relations between private life, working life and well being throughout the life course.
- Research on specific occupational groups that need special attention such as chronically ill, migrant workers, elderly and young workers.
- Particular attention to the combined exposure and their interactions.
- Research into the economic aspects of OSH.
- The implementation of OSH management in small and medium-sized enterprises.

### Proceedings and video presentations on line

The Seminar proceedings “Working Environment Challenges for the Future” contain 11 expert views and a Danish and English summary. The papers, presentations and videos of the presentations can be accessed via the PEROSH website: [www.perosh.eu](http://www.perosh.eu).

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## New PEROSH project on worker well-being

In November 2010, the Health and Safety Laboratory (HSL) hosted a workshop to provide an opportunity for PEROSH



member representatives to discuss well being and work, with a primary purpose of information sharing.

Worker well being has become a central theme adopted by both policy makers and researchers around Europe offering great potential to improve working lives.

The workshop format included individual member presentations and small and whole group discussions, which culminated in the identification of a set of specific well being research ideas.

### Understanding well being

In order to understand well being, various themes were discussed including acceptance that wellbeing is not just the lack of mental ill health but incorporates social and physical functioning. PEROSH members described the concept of wellbeing in OSH as a positive, sustainable concept of optimal function-

ing. It was also thought that wellbeing should be proactively promoted at work within a pragmatic approach that focuses on what is required and what can actually be changed. It was recognised that well being should be meaningfully recognised at personal, group and organisational levels with the emphasis on positive consequences to workability and creativity.

### Drivers for well being

Suggested drivers to research this area more comprehensively included societal costs, governmental policy, legislative positions, altruism and moral arguments within civilised societies. There is also a scientific need to understand wellbeing interventions given changing worker demographic and rapid changes in organisational structure.

### Further steps

Following the first workshop, a paper was drafted by HSL to present the comments and observations of the participants on well being, to highlight the common areas of well being research interests for the PEROSH partners and to present the range of suggestions for specific PEROSH research.

In February, a second workshop led by FIOH and HSL was held in the frame of the conference on well being organized by FIOH in Helsinki.

During the workshop, partners elaborated on the results of the first workshop and agreed on a joint project to be further developed. Subsequently, the results of the workshops were presented by HSL as part of the well being conference in order to present the status quo and research ideas to a wider audience.

Further steps will be the refinement of the project goals and plan in order to further develop the project.

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## News from the members

### TNO: Continuing, healthy and motivated



As a good employer the Rotterdam Port Authority now and then considers the question of keeping their employees - older



ones too - healthy and motivated at work. TNO identified the work load for various jobs in the nautical sector. TNO's Erik Jan van Dalen: 'The Rotterdam Port Authority is already pretty well

organised but we have still been able to make recommendations for a few problem areas.'

Operating within the nautical sector of the Rotterdam Port Authority can be strenuous work. Since the company works all day and night, employees are confronted with irregular schedules and night shifts. Sometimes they run physical safety risks, for instance, when they move from one vessel to another. Posture can also be awkward, especially in small engine rooms. Finally, employees are sometimes confronted by human suffering, for instance when having to come to the rescue of someone drowning or someone who leaps off a bridge.

### Four aspects

The Port Authority asked TNO to investigate the workload of a number of job groups. 'We focused on four aspects of the load: physical, environmental, psychological and perceptual (which demands alertness and reaction speed, for example),' explains senior researcher Erik Jan van Dalen. 'For each aspect we looked at the intensity of that load and how frequently a peak occurs, linking data on absence, employee satisfaction and information from the RI&Es (risk inventory and evaluations). This created a good picture of the workload per job.' The next question was to ask whether the workload could be reduced, the aim being to enable employees to work longer in a healthy and motivated way. 'As people get older, their physical capacity diminishes, they process information less quickly and become more susceptible to sleep disruption,' according to Van Dalen. 'But there are certain ways of adjusting to this.'

### Tangible recommendations

TNO presented several recommendations. Van Dalen: 'It makes sense to see whether some night-time tasks can be shifted to daytime, particularly the complex kind of work that can be performed better during the day.' Furthermore, it is important to put a system of job rotation into place: 'Prevent people getting stuck in a rut in their jobs and the lack of options that they have as they get older.' By allowing colleagues to experience

each other's work generates confidence. Finally, TNO argues for variety in the crew aboard the vessels. 'If people aboard the vessel are of different ages, the more strenuous work can be better shared.' Jurgen Troost of the Rotterdam Port Authority: 'Our management will be consulting the representative advisory council about the proposed recommendations.'

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## **INSHT: 5th objective of the Spanish strategy on OSH (2007- 2012): Improving the information and research in safety and health at work. Steps forward.**



In order to design effective policies in the area of safety and health at work, the INSHT is working to improve the information and research management. To this goal, several initiatives have been set-up.

### **Information platform**

The National Observatory of Working Conditions was created as a platform to spread information on socio-economic factors, working conditions trends, and health and work accidents indicators.

It offers synthetic information using a great deal of indicators gathered from many available resources. The National Survey on Working Conditions plays an important role as information source. This survey represents a consolidated tool with accurate statistical representation at sector and territorial level throughout the whole country. This survey draws the Spanish working conditions panorama, taking into account the workers' opinions.

### **Survey on OSH management**

Another surveillance tool describes the current OSH management scenery. The latest survey on OSH management will be published in April 2010. Focused on employers, this second instrument searches key-points in OSH management systems, prevention organization and the preventive activities developed.

### **Statistics on occupational accidents**

The National Observatory of Working Conditions also provides, every three months, updated information about statistics on national accidents at work and publishes specific studies about

emerging issues. The site has recently provided comprehensive studies about: causal patterns of mortality at work, women at work, self-employed and immigrants.

On the other hand, the approach of Research, Development and Innovation activities on OSH, in the Spanish Strategy, includes two areas: Study and prevention of work accidents and occupational diseases and the identification of new and emerging occupational risks. On this particular field, a network of public Institutes for OSH research is being created. The OSH Institutes linked to the Labour Administrations, from Spanish Autonomous Regions, agreed to join up this project which is coordinated by the INSHT. In the coming future, this network will take into account other research bodies, as well as universities and enterprises.

### **Research grants**

Other actions nested in the 5th objective are focused on external investigation promotion. The INSHT fosters, supports and launches biannual OSH research grants for enterprises, universities and OSH researchers. Some projects at final phases are: Ageing at work; Glutaraldehyde exposure in health care workers; Process to promote the prevention culture; Hand-wrist vibration; and the Design and assessment of psychosocial risk in hospitals.

Apart from these research activities, built upon the OSH National Strategy baseline, the INSHT keeps on working on specific research projects conducted by its National Centres sited in Barcelona, Sevilla, Madrid and Vizcaya. Some outstanding ongoing projects are focused on: Mechanical vibrations; Machinery characteristics audit in medium size enterprises; Occupational carcinogens exposure estimation; creation of a Biological agents database; tools for Psychosocial risk assessment and Physical strain risk assessment.

Finally, the INSHT is strengthening collaborations with stakeholders and other Spanish Administrations Bodies to carry out those mandates commanded by the OSH National Commission. Some on-going working groups of the OSH National Commission are: Work accidents; Asbestos; Construction sector; Agriculture sector; Self-employed; Threshold limit values; Training and education; Temporary employment sector and the "Prevea" Plan (a voluntary programme to decrease the work accidents rates).

Beyond these areas, the INSHT is highly concerned to consolidate the OSH culture in small enterprises. A specific and complex project is being conducted to reach this goal where the coordination emerges as a capital issue to guarantee its own success.

## CIOP-PIB celebrates its 60th anniversary



2010 is going to be a very intensive year for the Central Institute for Labour Protection-National Research Institute. The CIOP-PIB celebrates its 60th anniversary. The Institute was established in 1950 by the act of the Polish Parliament of 4 April 1950. There are a number of events planned to commemorate this occasion. One of them would be an exhibition of posters on occupational safety and health. It will be organised in the Old Town of Warsaw between 10 May and 30 May 2010. The selected posters are the winners of the Occupational Safety Poster Competition, which is periodically organised by CIOP-PIB in cooperation with the Academies of Fine Arts in Krakow, Łódź and Warsaw since 1997. The exhibition includes 60 posters on different subjects, inter alia stress at work, occupational risk, noise, work culture, accidents at work.

### Posters competition on lighting of the work place

At the beginning of April 2010, the 19th edition of the Occupational Safety Posters Competition will be announced. This year the theme is Lighting of the working area and workstations. The results of the competition will be presented in June 2010. The Occupational Safety Poster Competition is intended for professional artists and students of the academies of fine arts.

### Conference on noise control

The XV International Conference on Noise Control (Noise Control 2010) will take place in the Książ Castle near Wrocław, Poland, June 6–9, 2010. The conference is addressed to specialists dealing with noise and vibration control, as well as with noise-related issues in research and development, occupational safety and health management, technical consultancy, training courses, and legislative and standardization work. It is also aimed at manufacturers of measurement apparatus and sound/vibration absorbing materials and equipment. More information can be found on the website: <http://www.ciop.pl/20280.html>.

### Healthy workplaces. Good for you. Good for business

On 27 April 2010 CIOP-PIB organises a national conference which opens a Polish edition of the European campaign 2010-2011 – “Healthy workplaces. Good for you. Good for business”, of the the European Agency for Safety and Health at Work in Bilbao. The conference will take place during the International Fair of Work Protection, Fire-Fighting and Rescue Equipment (SAWO) in Poznan. SAWO is the most important Fair on OSH in this part of Europe. They are organised every

two years in rotation with Fair A+A - Personal Protective Equipment, Occupational Safety and Health in Dusseldorf. Most of institutions and companies involved in the OSH issues, fire fighting and rescue service take part in the SAWO Fair.

### International projects, recently awarded i-Protect

CIOP-PIB is a coordinator of FP7 project: i-Protect (Intelligent PPE system for personnel in high risk and complex environments), which is carried out within NMP theme.

The main objective of the 4-year project (2009-2013) is to develop intelligent personal protective equipment (PPE) system that will ensure active protection and information support for personnel in high risk and complex environments, in particular chemical rescue teams, firefighters and mine rescuers, who are exposed to fire, explosions, high temperature, dangerous substances, limited visibility, high humidity and limitation of breathable air.

### PRIMAeT - Psychosocial Risk Management – Vocational Education and Learning.

The project has been awarded by the European Commission in the frame of the Lifelong Learning Programme: Leonardo da Vinci – Multilateral Projects for the Development of Innovation. The Coordinator of the project is the University of Nottingham, UK. Project timeframe is: 2009 - 2011.

The PRIMAeT project will focus on the development of knowledge and skills through an education and training tool. Since vocational education and training (VET) is regarded in the EU as crucial to the maintenance of employment (Wieringen & Attwell, 1999), the project aims to improve the quality of training systems through the development of innovative contents for psychosocial risk management delivered by means of a virtual learning environment.

### INGENIOUS

INGENIOUS - the FP7 project, coordinated by TNO Science and Industry, is a collaboration between European and Russian R&D institutes in the field of organic and large area electronics. “INGENIOUS” stands for “INnovativE Nanostructures Optochemical Sensors”.

The main objective of the project to be carried out in 2009-2012 is the development, evaluation and validation of novel ultra-sensitive and selective nanostructured optochemical sensors for the detection of PAHs and BTX from complex mixtures.

For more information visit the project website: <http://www.ingenious-project.eu>.

## IFA: The importance of life cycle concepts for the development of safe nanoproducts

Claudia Som, Markus Berges, Qasim Chaudhry, Maria Dusinska, Teresa F. Fernandes, Stig I. Olsen and Bernd Nowack



Whilst the global players in industry are rapidly moving forward to take advantage of the new opportunities and prospects offered by nanotechnologies, it is imperative that such developments take place in a safe and sustainable manner. The increasing use of engineered nanomaterials (ENMs) in consumer products has raised certain concerns over their safety to human health and the environment. There are currently a number of major uncertainties and knowledge gaps in regard to behavior, chemical and biological interactions and toxicological properties of ENMs. As dealing with these uncertainties will require the generation of new basic knowledge, it is unlikely that they will be resolved in the immediate future. One has to consider the whole life cycle of nanoproducts to ensure that possible impacts can be systematically discovered. For example, life cycle assessment (LCA) - a formalized life cycle concept - may be used to assess the relative environmental sustainability performance of nanoproducts in comparison with their conventional equivalents. Other less formalized life cycle concepts in the framework of prospective technology assessment may uncover further detailed and prospective knowledge for human and environmental exposure to ENMs during the life cycle of nanoproducts. They systematically reveal impacts such as cross product contamination or dissipation of scarce materials among others. The combination of different life cycle concepts with the evolving knowledge from toxicology and risk assessment can mitigate uncertainties and can provide an early basis for informed decision making by the industry and regulators.

The project was carried out by the following institutes: Institute for Occupational Safety and Health of DGUV (IFA), Germany; Empa, Swiss Federal Laboratories for Materials Testing and Research, Technology and Society Laboratory, Switzerland; Central Science Laboratory, United Kingdom; Norwegian Institute for Air Research, Norway; School of Life Sciences, Edinburgh Napier University, United Kingdom; Technical University of Denmark, Department of Management Engineering (DTU-MAN), Denmark.

Source: *Toxicology. Preprint 2009.*

## IFA: From workplace air measurement results toward estimates of exposure? Development of a strategy to assess exposure to manufactured nano-objects



In the past few years, an increasing number of studies on workplace air measurements on manufactured nano-materials and -objects have been published. Most of the studies had a more explorative character, so a direct interpretation to workers' exposure for a given exposure situation, activity, or process is not a straight-forward process. In general, the studies use a quite similar package of devices for near real-time monitoring of particle number- and mass concentration in size ranges <100 nm up to 10 µm, and the collection of samples for off-line characterization of air samples. Various approaches for addressing background concentrations and its use to indicate the potential for exposure to nano-objects could be observed. Within the EU-sponsored NANOSH project, a harmonized approach for measurement strategy, data analysis and reporting was developed. In addition to time/activity-concentration profiles as reported by most studies, this approach enables a first step to estimate the potential for exposure to manufactured nano-objects, more quantitatively. The NANOSH data will be collated into a base, which may form the starting point for a harmonized database facilitating overall analysis in near future, to derive estimates for exposure for several exposure situations.

The following project partners collaborated in the project: Finnish Institute of Occupational Health, FIOH; Institute for Surgical Research, University of Munich, LMU-Muenchen; Central Institute for Labour Protection-National Research Institute, CIOP-PIB; Netherlands Organisation for Applied Scientific Research, TNO; Health and Safety Laboratory, HSL; Institute for Occupational Safety and Health of the German Social Accident Insurance, IFA; Cancer Biomarkers and Prevention Group, University of Leicester, ULEIC

More information: *Journal of Nanoparticle Research 11 (2009) No. 8, pp. 1867-1881.*

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## IFA: Finger and hand protection on circular table and panel saws

*Dietmar Reinert, Oliver Schwaneberg, Norbert Jung, Sven Ullmann, Wilfried Olbert, Dieter Kamin and Rudolf Kohler*



Several hundred accidents involving the use of circular saws and resulting in injury, to hands or fingers occur each year in Germany. In the presented project, new approaches for the prevention of hand injuries and for the contactless detection of fingers are being investigated for comprehensive protection on circular saws. The basic principles can be applied to other machines with manual loading and/or unloading. This paper describes several principles to distinct human skin and wood and a safety guard that prevents touching the rotating blade. In a first approach a reliable protective device with functional diversity has been developed using a passive infrared sensor in combination with a capacitive field sensor. Second the distinction between skin and wood or other material is done by a dedicated kind of spectral analysis in the near infrared region. With a kind of light curtain the intrusion into the dangerous zone near the blade can be prevented. The safety guard protects the operator's hand within 50 ms. The forces of the protective system peak at no more than 120 N. We are presenting a complete strategy for such different tasks as cutting wedges, stopped cutting and hidden cutting, which have a very high odds ratio.

Project partners: Institut für Arbeitsschutz der Deutschen Gesetzlichen, Unfallversicherung (IFA), Germany; Hochschule Bonn-Rhein-Sieg, University of Applied Sciences, Germany; Holz Berufsgenossenschaft, Germany

*More information: Safety Science 47 (2009) No. 8, pp. 1175-1184.*

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## IFA: The MGU - a monitoring system for the collection and documentation of valid workplace exposure data

*S. Gabriel, D. Koppisch, D. Range*



Health and safety at workplaces in Germany, especially with respect to chemical and biological risks, are monitored by the German Social Accident Insurance Institutions in line with their legal obligations. For this purpose, the MGU measurement system for exposure assessment has been in place for almost 30 years now, formerly abbreviated as BGMG in German. The article gives an overview of the system and describes the methods of data collection and quality assurance measures applied. In this specialized system data on workplace conditions, job titles and activities along with information on measurement conditions and exposure values are recorded and documented in the database MEGA. Emphasis is given to the coding of the work areas. It is proposed to use them e. g. in the description of exposure scenarios under REACH.

*More information: Gefahrstoffe - Reinhaltung der Luft 70 (2010) No. 112, pp. 43-49*

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## NANOSH - Inflammatory and genotoxic effects of engineered nanomaterials

*Kai Savolainen, MD, Professor, Coordinator, NANOSH, Lea Pylkkänen, PhD, Project Manager, NANOSH*



NANOSH is an EU FP6 STREP-funded three years' research project started in November 2006. The final reporting of the project is currently in progress and a summary of all the achievements of the project will be published by the European Commission during spring 2010.

Nanotechnologies are rapidly growing technologies that provide new and innovative solutions into many industrial sectors. They will have a major impact on the everyday life of people in both industrialized and developing countries. As the use of

engineered nanoparticles continues to expand, the number of exposed workers continues to increase, and exposure becomes an issue in many different fields of industries. Therefore, it is understandable that there are increasing demands by the society to obtain reliable information on the possible health effects of engineered nanoparticles and of the significance of these effects. Out of all research in nanotechnology, only about one percent targets the exposure to engineered nanoparticles or the health effects of these particles, and about 99% is aimed at developing of novel nanoparticles and nanotechnologies. Consequently, the gap between the progress of the technology and safety information is growing rapidly.

NANOSH focuses on occupational exposure to nanoparticles and their health effects. The overall goal of the project is to delineate exposure and health effects of selected nano-sized particles relevant to the occupational environment. The consortium consists of seven partners with scientific and technical excellence in research areas relevant to nanoparticles and their effects:

- FIOH - Finnish Institute of Occupational Health, Helsinki, Finland
- LMU - Institute for Surgical Research, University of Munich, Germany
- CIOP - Central Institute for Labour Protection, National Research Institute, Warsaw, Poland
- TNO - Netherlands Organisation for Applied Scientific Research, Zeist, Netherlands
- HSL - Health and Safety Laboratory, Buxton, UK
- DGUV - BGIA - BG Institute for Occupational Safety and Health, Sankt Augustin, Germany
- ULEIC - Cancer Biomarkers and Prevention Group, University of Leicester, UK

### Main objectives

The main objectives of the NANOSH project can be divided into two categories:

- Characterisation and exposure:

Characterization of nanoparticles and definition of exposure levels in laboratory conditions and in workplaces.

- Health effects:

Assessment of the genotoxic, inflammatory and microcirculatory effects of nanoparticles.

In more detail, the scientific and technological objectives of the project are:

- Particle and exposure characterization:

- exposure levels of commercially relevant nanoparticles under laboratory conditions and in selected workplaces;

- particle size distribution, dissolution, agglomeration properties, surface area and surface activity of various nanoparticles.

- Genotoxicity of nanoparticles:

- nanoparticle induced oxidative DNA damage in lung cells;

- nanoparticle induced DNA strand breakage in pulmonary cells;

- nanoparticle induced chromosomal damage in pulmonary cells.

- Pulmonary inflammation induced by nanoparticles:

- direct effects of nanomaterial exposure on pulmonary inflammation;

- modulatory effects of nanomaterial exposure on the development of allergic asthma;

- nanomaterial induced inflammatory responses in pulmonary cells.

- Effects of nanoparticles on microcirculation:

- the effects of nanoparticles on microvascular thrombus formation;

- potential prothrombotic and proinflammatory effects of nanoparticles in the microvasculature;

- the role of nanoparticles in consequences of post-ischemic injury.

The occupational hygienic task is to characterize the levels of exposure to specific engineered nanoparticles in certain selected workplaces. Exposure levels are evaluated both under laboratory conditions, and also during the manufacture of the particles. The particles are characterized with respect to their morphology and particle-size distribution, surface activity, and potential for agglomerate formation.

The health effects that are under focus concentrate on effects in target organs. The analyzed effects include genotoxicity and inflammatory responses in airways. Genotoxicity, a short-term indicator of potential carcinogenicity, is assessed in pulmonary measuring oxidative DNA damage, DNA strand breakage, and chromosomal damage. The parameters which will evaluate pulmonary inflammation include alterations in the panorama of pulmonary inflammatory cells as well as expression of biochemical markers of inflammation, i.e. cytokines and chemokines, and markers of cell death. To assess the effects of nanoparticles on the vasculature, the potential of nanoparticles to induce proinflammatory or prothrombotic effects in the microcirculation of experimental animals is explored.

Safety risks of nanoparticles have aroused debate particularly among health-care and medical researchers worldwide. It is crucial to the industries that the risks and liabilities of adopting new technologies are under control. Assuring the safety of new nanomaterials will be a crucial prerequisite for successful promotion of nanotechnological innovations and their applications in the future. NANOSH project aims at creating a reliable and sound foundation for the assessment of safety of production and consume of nanoparticles and is this way to encourage nanotechnological advances to support the European national economies, as well as the prosperity and wellbeing of citizens in the EU Member States.

## Prevent: Young people and wellbeing at work: What young people know about it, and what companies assume

Odette Wlodarski



As part of a project on young people's health and safety at work being carried out by Prevent, Institute for Occupational



Safety and Health, at the request of Assuralia (Belgian Association of the Insurance companies), the institute has conducted two surveys: one among students and the other among compa-

nies. The following is a review of the main results from these surveys.

### Two surveys

The first survey was conducted among students in secondary and higher education who had already had some experience of the working world through an internship or holiday job. Its goal was to gather information about students' perceptions of the issues of health and safety at work. The second survey focused on companies who had taken on young graduates or interns in the course of the last five years. The goal was to examine companies' views of young people's knowledge in this area and their receptiveness to prevention messages.

### First survey: "Young people: safe at work?"

The first survey was conducted from December 2008 to June 2009. A total of 2,630 young people, mainly students in secondary education in the Flemish and French Communities, replied to the questionnaire. Most of them were between 16 and 18 years old. Over 40% of the respondents were in vocational education.

### Personal experience

Nearly 70% of the young people in vocational education knew someone in their immediate circle of acquaintances who had had an accident at work or health problems associated with work. The proportion was 67% for students in technical education and nearly 50% for students in general education. Students in vocational education were also most likely to state (nearly 40% of them) that they had been exposed to risks during an internship or holiday job. Among students in technical education, the proportion was still 30%. Among those in general education, it was only around 15%.

### Knowledge of the risks

When enquired about their ability to identify risk situations, slightly over half of the young people considered that they were perfectly able to do so. Although students from vocational education were slightly more likely to answer in the affirmative here, the differences of proportion between the education types were not very marked.

Among those students who stated that they were able to identify dangerous situations, 22% did not explain how they had acquired this ability. Moreover, barely 11% made clear reference to courses they had attended. Slightly over 19% stated that they had acquired this ability thanks to experience «on the job». But the majority of those who explained their answer in some way claimed that they were simply confident in their own ability (nearly 60% of those who explained their answer).

### Information

Among young people who had attended a company internship, 77% stated that they had received information about health and safety in connection with the internship. In most cases, the information had been passed on orally. This had been done by the employer, the internship supervisor in the company, the teacher coordinating the internship or, to a lesser extent, colleagues.

### Second survey: "Companies and young workers"

The second survey conducted by Prevent was sent to companies. It examined their views of young people's knowledge and attitudes with regard to health and safety at work. A total of 288 companies replied to the questionnaire. The analysis related to young people under the age of 25, some of whom were students and others of whom were young graduates who did not yet have much experience. Practically 20% of the companies which took part in the survey were industrial companies. The construction sector and public services were also well represented, with proportions of 11% and 10% respectively. The vast majority of companies which responded were fairly sizeable (66% employed over 100 workers).

### Evaluation of young workers' knowledge

Overall, 66% of the companies partaking in the survey believed that young workers' knowledge was limited. 10% regarded their knowledge as adequate, while just over 12% believed that young people had no knowledge of how to work safely. If the results are examined in the light of education type attended by the young person, the survey shows that workers from vocational education obtain the worst scores, followed by those from technical education. Obviously, the requirements to which they are subject are more significant, as they are often performing the highest-risk tasks. However, 30% of companies specified that young people sometimes spon-

taneously report dangers and indicated that young workers sometimes find out about what preventive measures should be taken. 68% of them also thought that young people displayed some degree of interest in the information or training provided about working safely. By contrast, just under 20% thought they had no interest at all.

### Attitudes

Over 60% of the companies indicated that they had already observed risky attitudes in their young workers. More generally, half the companies thought that young people were less aware of risks than other workers. However, a quarter of the respondents believed that they were at least as aware of risks as other workers in the company. According to many respondents, young people think that nothing can happen to them, because they are less experienced and too confident in their abilities. But others said that after a «safety induction», they were more inclined to put their new knowledge into practice. They were more curious and more «flexible» regarding new instructions.

### Training and awareness-raising

A clear majority of companies (80%) mentioned that initial training did not do enough to ensure that young people were aware of the risks at work and how to prevent them.

However, few respondents acknowledged that education and awareness-raising should start from a very young age (just 27% thought that primary education had a role to play here). A relatively low percentage also thought that education in these areas should take place in certain types of education or at certain educational levels. Parents' role was only seen as important by a third of respondents.

Generally speaking, companies recognised that they too have a role to play in this area. However, only just over half (54% of companies) clearly stated that they had performed an analysis of the risks to which their young workers were exposed, and that they had taken any measures required and informed the people concerned. In connection with the admission of interns, no more than 40% had performed a risk analysis.

## BAuA: Ambient Intelligence (Aml) - Work assistance systems as a field of action for OSH



The term „Ambient Intelligence“ (Aml) embraces activities of research and development with the intention of enhancing private and work life by automated, so-called intelligent, features. The aim is to network sensors, radio modules and computer processors in order to advance safety, health and efficiency both in private and in work life by the help of technological support. The current research- and development activities focus on the production of hardware-architecture, sensor technology and software engineering as well as on the design and the analysis of the new human-machine interfaces.

A survey of scientific findings makes clear that these visions and scenarios are contrasted by considerable knowledge deficits when it comes to functional security, the integration of man into technical systems that have a nearly unpredictable system performance, or the consequential effects the simulation of natural environments can have on humans.

In January 2010, BAuA organised a symposium on ambient intelligence and ergonomics – chances and risks of new information & communication technologies in the working environment. It was the official kick-off for the scientific development of BAuA's activities within the field of Aml.

By means of concrete scenarios like

- the „smart factory“ where a person is included both in the process control and process cycle via micro PCs and telematics
- the „smart office“ where the regulation of facility techniques (e.g. lighting, air conditioning) is performed by the help of pre-determined desired values that have been fitted to the circadian rhythm or the physiologic optimum parameters of man.
- the “wearable computing“ which by the help of sensor technology recognises possible dangers, reports physiological parameters to the user and eases the communication.

The work at the Federal Institute for Occupational Safety and Health (BAuA) aims at pointing out how work assistance systems can – and will – influence both work tasks and -processes as well as the users' goods and services and health.

Further aims of the BAuA on Aml is showing fields of action for safety and health and employment protection and stimulating discussions on further fields of topics.

BAuA's research concentrates on a strategy-based programme research and systematic activities for the predictive scientific analysis of relevant trends and developments in the framework of safety and health at work ("forecast of emerging risks"). The future research programme is geared to the long term (5-10 years). Ambient intelligence belongs to the main focus "effects of new technologies on health and safety at work", which is one in three main research focuses in the R&D programme of the Federal Institute for Occupational Safety and Health.

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## **NRCWE: Return To Work Interventions on a National Scale – Research in Action**



### **Return to Work (RTW) – an intervention project**

Denmark and other countries have acquired extensive experience by focusing on the therapeutic effect of work on the recovery of people on sick leave. This effect is of benefit to the life quality of the individual, workplace efficiency, and the national economy. However, previous experiences have typically been made on a relatively small scale.

In Denmark the Prevention Fund has granted 32 Million EUR (240 million DKK) to a two year socially innovative national intervention project involving 22 of the 98 municipalities in the country. The project is based on a research design in order to enable a subsequent scientific evaluation of the effect of the interventions.

#### **Key findings applied on a large scale**

The RTW-project builds on emerging evidence from small studies in Denmark and abroad. Particularly three efforts have shown to have a positive effect in relation to a timely return to work for people on sick-leave. These efforts are all addressed in the current RTW-project:

- Multidisciplinary clarification of the individual sick-leave case
- Better coordination between employer, health care, social system etc.
- Early and regular contact with employees during sickness absence

#### **Guidance by specially trained RTW co-ordinators**

The intervention focuses on citizens on long-term sick leave at risk of losing their attachment to the labour market. The sickness absence case will be clarified by a so-called RTW co-

ordinator after eight weeks of sick leave at the latest. The co-ordinator will typically be an experienced caseworker who has received special supplementary training through the RTW-project. The RTW co-ordinator will be crucial for the co-ordination between the relevant players including employers, health authorities and the RTW-teams in the municipalities together with a clinical unit which the municipality collaborates with.

The RTW-team consists of a psychologist and a person experienced in occupational physiology and rehabilitation, whereas the clinical unit delivers expertise within psychiatry and occupational, social and general medicine.

Based on previous experiences, it is estimated that the RTW co-ordinator will be able to handle approximately half of the cases alone by co-ordinating the intervention for the person on sick leave. The other half of the cases will require a multi-disciplinary intervention involving the RTW-team and possibly a clinical unit.

### **Evaluation of process and effect on physical and mental health**

As part of the project it is evaluated if the intervention has a measurable effect on long-term sickness absence. Earlier studies have primarily focused on physical disorders, but this RTW-project will focus both on physical and mental health.

At the same time, the intervention process is evaluated in order to establish whether the model is workable in practise, and if it can be integrated and implemented in all municipalities.

In connection with the project, two PhD-theses and several research projects on sub-groups on sick-leave and their return to work will be carried out. Moreover, an overall evaluation report to be presented and discussed at a national conference in 2012 will be prepared.

### **Coordination by the National Research Centre for the Working Environment**

A total of 22 municipalities have been selected to participate in the project. As participants in the intervention project they have to set up a RTW co-ordinator, a RTW-team, and a formal cooperation with a clinical unit. During the first year there will be 9 control municipalities which will not need to set up co-ordinators etc. in the first year. In the second year, the control municipalities will participate on equal terms with the intervention municipalities.

The National Research Centre for the Working Environment (NRCWE) has designed the project as part of its "research in action"-effort and will develop the tools and instruments for the RTW co-ordinator, the RTW-teams, and the clinical units.

Training of the co-ordinators, teams and the clinical units takes place in cooperation with external partners. Subsequently, the NRCWE carries out an evaluation of the processes and effects of the interventions.

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Partnership  
for European Research  
in Occupational Safety  
and Health

### About PEROSH

PEROSH is a cooperation of European working environment research institutes aiming to collaborate and to coordinate their research and development efforts for healthier, longer and more productive working lives.

### Member Institutes

- Federal Institute for Occupational Safety and Health (BAuA), Germany, [www.baua.de](http://www.baua.de)
- Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA), Germany, [www.dguv.de/ifa](http://www.dguv.de/ifa)
- Central Institute for Labour Protection - National Research Institute (CIOP-PIB), Poland, [www.ciop.pl](http://www.ciop.pl)
- Finnish Institute of Occupational Health (FIOH), Finland, [www.ttl.fi](http://www.ttl.fi)
- Health and Safety Laboratory (HSL), United Kingdom, [www.hsl.gov.uk](http://www.hsl.gov.uk)
- Institut National de Recherche et de Sécurité (INRS), France, [www.inrs.fr](http://www.inrs.fr)
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- National Institute for Occupational Safety and Prevention (ISPESL), Italy, [www.ispesl.it](http://www.ispesl.it)
- National Research Centre for the Working Environment (NRCWE), Denmark, [www.nrcwe.dk](http://www.nrcwe.dk)
- Institute for Occupational Safety and Health (Prevent), Belgium, [www.prevent.be](http://www.prevent.be)
- National Institute of Occupational Health (STAMI), Norway, [www.stami.no](http://www.stami.no)
- Netherlands Organisation for Applied Scientific Research (TNO), Netherlands, [www.tno.nl](http://www.tno.nl)
- Occupational Safety Research Institute (VUBP), Czech Republic, [www.vubp.cz](http://www.vubp.cz)

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