

**Conclusions** Our findings point to some possible causes of the variation and lack of transparency in disability evaluation. More formal and explicit approaches to a professional consensus informed by up-to-date research findings would increase the trust in the final judgments. Measures to reduce the unwanted variation need to be tested in further research.

## 25 THE OCCUPATIONAL HEALTH INVESTIGATION OF GRADUATE PROGRAMS IN COLOMBIA: TOPICS AND CHALLENGES

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**Objective** Human talent is a major component of the coordinated action that is needed to conduct preventive efforts in Occupational Health. While a large number of graduate programs in Occupational Health have been recently created in Colombia; little is known about the knowledge that is being developed out of those programs. This study aimed to assess the contribution that recent thesis works have made to the Occupational Health field in Colombia.

**Methods** We attempted to identify and systematically describe by major topic, assessed risk factors, occupational health disease of interest and features of the study design all the thesis works produced during the last 8 years in accredited programs in the country.

**Results** We identified 466 works from 6 academic institutions. However, we could find information for only 355 of those works. Most of the studies were found to have medium quality. Most studies tried to evaluate working conditions (84.5%) and were observational field studies (70.1%); however, the employed evaluation criteria were typically missing in the reports. Also, there were a large number of reviews (18.7%). The most commonly investigated area was ergonomics (55.3%); and within that area, the most commonly analysed topic was the psychosocial risk factors and the risks associated with physical demands. Accordingly, the most attention was given to musculoskeletal disorders. The general topic with the least number of contributions was Occupational Medicine (6.7%).

**Conclusions** This distribution of thesis works generally corresponds with the needs of the country based on the official country's prevalence of occupational disease. Nevertheless, we recommend that more efforts are dedicated to study vulnerable populations in the informal sector that makes up most of the working population in the country and are not subjected to official recording. Also, efforts should be made so that academic programs define minimum thesis' scope and quality requirements.

## Session: D. Exposure assessment II

### 26 NATIONWIDE MACHINE SAFETY INITIATIVE FOR SMALL METAL FABRICATION BUSINESSES

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Machine-related injuries are a persistent risk for workers in fabricated metal products manufacturing. Smaller establishments

are of particular concern because these firms typically have limited access to safety and health resources. A research partnership with worker's compensation insurers was created to develop, implement, and evaluate a program to help small (< 150 employees) metal fabrication businesses prevent machine-related injuries. The National Machine Guarding Program is a widely applicable, sustainable machine safety intervention being delivered on-site to firms throughout the US.

A fundamental objective of this intervention is to assist metal-working firms with interpretation and implementation of applicable Occupational Safety and Health Administration (OSHA) and American National Standards Institute (ANSI) standards. Beyond this, the partnership has developed methods and materials to help small businesses establish their own programs and policies within four topic areas: safety leadership, lockout/tagout, job hazard analysis, and machine safeguarding.

Each participating business will receive four on-site visits: a baseline safety evaluation, intervention delivery visits at 3-months and 6-months, and a follow-up safety evaluation at 12 months. Insurance safety consultants serve as field staff for this program and receive extensive training to perform machine safety audits and deliver the intervention.

Technical checklists are used to evaluate 26 different types of metal fabrication machinery. Checklist data are entered into software developed for this project. The software compiles category scores from all checklist responses into a concise report that is provided to each business.

The presentation will provide attendees with an understanding of the design, implementation, and evaluation of a computerised safety management system for metal fabrication industries. Preliminary results will be presented as a summary of baseline machine safety data collected at participating businesses during 2012–2013.

### 27 SICK BUILDING SYNDROME IN PUBLIC SERVICES OF EURE-ET-LOIR'S DISTRICT, FRANCE

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In September 2010, a sick building syndrome occurred after the relocation of three public services of Eure-et-Loir's district, France, in a renovated building in which foul odours have been perceived.

The establishment of a coordination unit allowed an interdisciplinary approach including clinical, epidemiological, psychosocial and environmental investigations. Concerning the epidemiological field, a transversal study has been realised by administering a questionnaire to volunteered officers (n = 48 out of 54). The study period was from september 2010 to september 2011. Univariate and multivariate analysis allowed studying risk factors for symptoms apparition.

During the study period, 84% of the officers reported symptoms. Those were mainly distributed into three types: irritatives (63%), general (51%) and ears nose and throat symptoms (27%). Multivariate analysis showed that: agents affected by irritative symptoms were originally in good health (OR = 20.32; [2.5–162.0]); the risk for all symptoms increased with the rise of the number of hours at work (OR = [1.1–1.4] and for workers in offices with old floor lining (OR = 22.0[1.8–265.5]). The building had an inappropriate ventilation system for a tertiary

use and some pollution sources have been noticed during the environmental investigations, although no emanation at a toxic level was detected. The psychosocial investigations emphasised a real suffering of the agents and a communication problem towards the events.

The results allowed us to make some recommendations which are currently being applied. Since the beginning of their application, no more complaints have been reported.

### 28 PARA-OCCUPATIONAL LEAD EXPOSURE IN CHILDREN OF WORKERS IN FACTORIES USING LEAD

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**Objectives** After reporting 2 children lead poisoning (>100 mg/L), environmental investigation identified parental occupational exposure as the most likely source. A cross-sectional survey was implemented in September 2010, its aim was to estimate and analyse the para-occupational exposure of employee's children of two factories in the Centre Region (France) and their subcontractors.

**Methods** Children were screened for blood lead level on a voluntary basis. Individual and family data on potential lead exposure were collected using a questionnaire and analysed using SAS®9.1. Risk factors for lead contamination were identified using univariate logistic regression.

**Results** Overall, 87 children from 0 to 18 years (40 boys and 47 girls) with at least one parent occupationally exposed to lead, were screened (participation rate was 31.5%). Arithmetic and geographic means of blood lead levels were respectively 34.2 mg/L and 26.9 mg/L. The prevalence of contamination (between 50 and 99 g/L) was 17.2% and that of intoxication ( $\geq 100$  g/L) is 1.15%. Risk factors for contamination were age under 6 (RR = 2.11  $p = 0.09$ ) and living in a home built before 1948 (RR = 3.96  $p = 0.02$ ). Children under 6 had a blood lead level average of 46.9 mg/L, significantly higher than that of children aged 6–12 and 12–18 (respectively 32.4 and 25.1 mg/L). A significant correlation was observed between blood lead level of children and that of their exposed parent ( $p < 0.001$ ).

**Conclusion** The geometric mean of blood lead levels (26.9) in these children with occupationally exposed parents was nearly twice higher than that observed in the Centre region (14.7 mg/L) and similar to those obtained in the framework of the national monitoring blood lead levels in children in 2005–2007 (33.6 mg/L), which targets at-risk children. This confirms existence of exposure to lead in these children of workers in factories using lead.

## Session: E. Sustainable employability

### 29 WHAT EFFECT DOES LIVER TRANSPLANT IN ADULTS HAVE ON EMPLOYMENT? - A SYSTEMATIC REVIEW

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**Objectives** Return to work after liver transplantation was last reviewed in 2000. Changes have occurred to transplant

programmes since that time. As such, a review of recent publications was undertaken to identify if the employment experience has altered in the past 12 years.

**Methods** A literature search was performed in PubMed and Embase. Papers published from January 2000 to December 2011 in the English language were included in the review. 181 papers were identified. After removal of duplicates 117 abstracts and titles were screened and 29 papers considered for eligibility. 24 papers were included in this review.

**Results** 10 papers were from the USA and 14 were from other countries. The number of cases followed up ranged from 8 to 471 (total 3,222) with a mean age of 51.9 years. The follow-up period ranged from 2 to 20 years (mean 6.1 years). 10 studies included pre and post-transplant employment rates. Pre-transplant rates ranged from 40–75% (mean 63.8%). Post-transplant the rates ranged from 22–57% (mean 37.1%). In 9 studies the employment rate fell. Post-transplant employment rates fell with duration of follow-up (7 studies;  $p = 0.016$ ). Cross-sectional analysis showed recipients had lower physical component scores on SF-36 compared to the general population. Longitudinal data showed improvement in physical function between pre- and post-transplant assessment. The results were lower than the general population but better than those with chronic liver disease. One paper identified depression as a factor associated with higher unemployment post-transplant.

**Conclusions** The review indicates that post transplantation employment rates are lower compared to pre-transplantation rates, despite improved physical function. Rates appear to fall with duration of follow-up over the first 6.5 years after transplantation. A study with follow-up at intervals after transplantation would improve understanding of the return to work issues and help plan suitable interventions.

### 30 PREDICTORS OF PROLONGED WORK PARTICIPATION IN WORKERS WITH AND WITHOUT CHRONIC DISEASE: A 3-YEAR PROSPECTIVE COHORT STUDY

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**Objectives** The workforce is shrinking, as more people retire than start their career. It is therefore important to maintain older workers in the workforce. The prevalence of chronic disease increases with age. It is unknown whether predictors of prolonged work participation differ between workers with and without chronic disease. The aim of this study was to investigate differences and similarities in predictors of prolonged work participation in workers aged 55+ years with and without chronic disease.

**Methods** All workers aged 55–62 years were selected from the 2002–2003 cohort of the Longitudinal Ageing Study Amsterdam ( $n = 333$ ). Potential predictors at baseline were: health, personality, work characteristics, and demographics. Per potential predictor, a logistic regression coefficient for involvement in paid work in 2005/2006 was calculated, separately for workers with and without chronic disease. Next, a pooled estimate was constructed. Using a  $\chi^2$  test for coefficients, differences between the pooled estimate and the coefficients were tested.

**Results** The prevalence of chronic disease was 59% and 67% was still involved in paid work three years later. Follow up data was available of 316 workers (95%). Physical workload ( $\chi^2: 5.37; DF = 1$ ) and psychosocial resources at work ( $\chi^2: 5.94; DF1 =$ ) differed between the groups with and without