

**Results** RCS-levels among highly exposed workers were five times higher than the OEL and ten times higher in the early 1970s compared with 2000. Workers exposed to RCS had an increased risk of mortality from respiratory diseases, SMR 1.75 (95% CI 1.22–2.44). The risk was more pronounced in men, SMR 1.86 (1.22–2.70). Among women, mortality from diseases of the circulatory system was increased, although not statistically significant.

A non-significant increase in the incidence of AMI was also observed, with slightly higher point estimates for women than for men. No dose-response relationship was observed in any analysis. We observed eight cases of silicosis, and seven appeared with more than 30 years latency.

**Conclusions** The RCS-levels at the porcelain factory were well above the OEL in the 1970s. We found an increased mortality from respiratory diseases which can be attributed to the harmful effects of RCS on the lung.

### 13 FACTORS ASSOCIATED WITH LONG-TERM SICKNESS ABSENCE DUE TO MENTAL AND BEHAVIOURAL DISORDERS

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**Objective** To evaluate the factors associated with long term absences from work due to mental and behavioural disorders, including the interactions of two theoretical models of occupational stress.

**Methods** A case control study was conducted among workers seeking social security benefits in São Paulo, Brazil. They were absent from work more than fifteen days due to medical conditions, confirmed by social security medical doctors. Cases were workers diagnosed with mental and behavioural disorders. Controls were patients with clinical disability due to other medical problems. Both groups, 160 cases and 225 controls, were randomly selected in an agency of Brazilian Social Security Institution. They were interviewed and answered a comprehensive questionnaire about sociodemographic data, habits and lifestyle, occupational information, perception of work conditions and clinical history. Multiple logistic regressions were performed to evaluate the hierarchical association of independent variables with the outcome.

**Results** Mental and behavioural disorders were associated with females (OR 2.48, 95% CI 1.43–4.30), self-reported skin colour as white (OR 2.16, 95% CI 1.30–3.59), higher school education (OR 2.07, 95% CI 1.15–3.71), high tobacco consumption (OR 5.10, 95% CI 1.55–16.80), high alcohol intake (OR 8.91, 95% CI 1.26–62.90), employed by a public company (OR 3.33, 95% CI 1.01–10.97), exposure to violence at work (OR 4.23, 95% CI 1.92–9.28), perception of high strain combined with low social support and effort-reward imbalance combined with high overcommitment at work (OR 5.70, 95% CI 2.67–12.18), and more than two clinical disorders in the past year (OR 2.66, 95% CI 1.59–4.43).

**Conclusions** There are variables in all hierarchical levels associated with long term sickness absence due to mental and behavioural disorders. Occupational stressors are strongly associated with these conditions. The public health policies must consider social security data to establish guidelines for health promotion in primary level, in order to minimise social and economic impacts.

### 14 ASSOCIATIONS BETWEEN COMMUTING AND SOCIAL CAPITAL IN A CROSS-SECTIONAL POPULATION SURVEY IN SOUTHERN SWEDEN

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**Objectives** Commuting has been claimed to increase the material wealth. Through geographically expanding peoples labour markets, through increased commuting possibilities, more work opportunities occurs that will strengthen the economy. Although economy and flexibility to choose where to live and work will improve for the individual, several studies have shown that health become aggravated with increased commuting. One plausible explanation to the negative health is reduced social capital. Social capital is a resource emerging from social relations and the strength of those, on an individual and societal level. This resource can be used to solve problems of individual and collective character. Our primary hypothesis is that the longer the commuting time the less time for social participation and thereby a lower social capital.

**Methods** The study design is cross-sectional and the study material consists of two retrospective data sets collected through questionnaires in 2004 and 2008. The study population consist of respondents working more than 30 h/week, 18 to 65 years old and answering questions about commuting (N = 21,088 persons). Commuting is defined as transportation from the home to the work place, characterised by duration one way (<30 min, 30–60 min, >1 h) and mode (active, car, public). Social capital is defined as a combination of questions on social participation and generalised trust to other people. Relationships between social capital and the exposure variable will be investigated with log-binomial regression. Social participation and generalised trust to will also be investigated separately.

**Results** Has not yet been produced but a primary analysis done with logistic regression (as an indicator, instead of log-binomial regression) seems to show an association between social participation and increasing commuting time both with car and public, compared to active commuting. Low generalised trust seemed not to be strongly associated with commuting.

(Results will be presented on EPICOH 2013)

### 15 REPRODUCTIVE HEALTH OUTCOME FROM CHEMICAL EXPOSURE IN A DRUG LABORATORY IN MALAYSIA

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**Introduction** Chemicals in the workplaces have been known to cause various health effects to the workers range from just irritation to causing cancers. A risk assessment was conducted in a hospital based dangerous drug monitoring laboratory in Kuala Lumpur, Malaysia.

**Methods** The method is a Qualitative Risk Assessment method using the combination techniques of Hazard Identification, Risk Assessment and Control (HIRAC) and the Job Safety Analysis (JSA). A questionnaire survey on the medical and health problem faced by the staff was also distributed during the survey.

**Results** The assessment found that four of the workers gave adverse reproductive health outcome; a 25 years old female worker having history of spontaneous abortion and was unable to conceive, a 51 years old female worker has two spontaneous

abortions and ectopic pregnancy, and a 33 years old male and 32 years old female worker with primary infertility. The risk assessment has identified all workers were at risk of exposure to hazardous chemicals due to the general ventilation. The chemicals are Chloroform, n-Hexane, Methanol, and Isopropyl alcohol which are known to have evidence of reproductive effect.

**Discussion** Earlier researches have shown an association between exposure to chloroform and volatile organic compound to infertility and abortion. This study had found the association between exposure to chloroform and VOC with abortion and infertility. There should be more emphasis on the safety and health of workers working with chemicals in the workplace.

#### 16 EPIDEMIOLOGICAL INVESTIGATION OF A COLLECTIVE CONTAMINATION BY LEAD DURING A RENOVATION OF OLD BUILDINGS, CENTRE REGION, FRANCE, 2010

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Following several cases of lead poisoning among building workers in the Centre region (France), the regional office of French Institute for Public Health conducted a retrospective cohort study between May 2008 and December 2009 among the workers involved three renovation projects.

Attack rate for lead contamination (100 mg/L  $\leq$  Pb) and poisoning (Pb  $\geq$  400 mg/L) were calculated. An questionnaire was designed to investigate risk factors for lead contamination: 1) exposure to lead on site in relation to work location and duration, compliance with protective measures, 2) other exposure to lead, in professional and personal settings 3) knowledge on the risks associated with occupational lead exposure. This survey involved 53 individuals including painters (29%), roofers (21%) and electricians (17%) and others (33%). Only 11% were aware of the lead risk on site and 51% had some knowledge of health hazards related to lead exposure. Of the 44 workers screened for blood lead level, 24 were contaminated, i.e. an attack rate of 54.5%, and 12 were poisoned i.e. an attack rate of 27.2%. Regarding prevention measures, 27% to 50% of the cases wore respiratory protection depending on the type of activity and the protection was adapted in about 25%. The risk of contamination/poisoning was associated with: age ( $p = 0.003$ ), having worked more than a week on site ( $RR = 5$ ,  $p = 0.003$ ) and being directly exposed to lead during their intervention ( $RR = 12$ ,  $p < 10^{-6}$ ). All intoxicated workers have been directly exposed to lead. This study shows the importance of the health risks associated with lead contamination for workers in old building renovation projects without adequate protection. Poor knowledge of lead-related risks as well as at-risk behaviours were highlighted. Thus, efforts should be made to increase awareness and implement measures to minimise the risks associated with lead exposure.

#### 17 LEAD, BLOOD PRESSURE: A CASE-CONTROL STUDY

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In this study, we investigated the relationship between lead and blood pressure of 265 persons (aged 21–59 years)

occupationally exposed to inorganic lead (PbB between 12.50 and 82.90 mg/dl) and 265 people (aged 23 to 59 years) who have ever been exposed to lead (blood lead levels between 0.5 and 5 mg/dl). At the time of hiring none of these people had high blood pressure or kidney disease or diabetes. The seniority of these workers varies from 1 year to 35 years. Apart from the basic blood pressure (Bp1: measured at the time of hiring) Blood pressure (Bp2) considered in this study or related to the first measurement of arterial hypertension or to the blood pressure measured in 2010 if the subject is normotensive. The results show that the difference in blood pressure between the 2 groups at the time of hiring (Bp1) is not statistically significant. By contrast for the Bp2 there is a statistically significant difference between the two groups. The study of the survival curves also show a significant difference between the two groups in terms of systolic pressure diastolic.

In the exposed cohort, a multivariate analysis taking into account the covariates and interrelation between the variables shows a an increase in systolic blood pressure and diastolic according of blood lead levels.

In Conclusion Results show that in this study there is a relationship between increased blood pressure and increased levels of blood lead.

## Session: C. Health Impact I

#### 18 EVIDENCE-BASED CLINICAL QUALITY INDICATORS FOR OCCUPATIONAL HEALTH SERVICES IN THE NATIONAL HEALTH SERVICE (NHS)

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**Objectives** The use of clinical quality indicators (QI) has been shown to raise standards and reduce variability in clinical care. Clinical QI can also be used for benchmarking and for commissioning services. Few occupational health QI are available. This project developed evidence-based QI for the spectrum of activities carried out by NHS occupational health services.

**Methods** A systematic literature search was performed, using a two-step hierarchical search strategy. Evidence-based national audits, national guidelines, Cochrane reviews, and systematic reviews were included. Evidence from the literature was translated into QI. Infeasible or irrelevant indicators and indicators based on low level evidence were excluded. Each indicator was assigned a score, reflecting its likely suitability for use in practice.

**Results** 151 evidence statements were extracted from 44 included publications, resulting in 131 QI. Excluding low grade evidence and irrelevant and infeasible indicators left 65 QI. From these the most suitable 18 QI were developed for activities relating to occupational health clinics, pre-commencement assessments, occupational health monitoring of organisations and occupational health interventions at an organisational level.

**Conclusions** These 18 QI will populate a new UK based occupational health data registry, the aim of which is to establish an evidence-based quality monitoring system for OHS in the NHS. However, many aspects are also applicable to services outside the NHS and outside the UK. Although these indicators were systematically developed and are based on best available evidence, further work needs to be done to validate these QI in practice.