

## Poster presentation

**Objectives** The aim is to examine occupational noise exposure as a risk factor for depression, utilising noise exposure as an objective measure of distressing working conditions that circumvents reporting bias.

**Method** In a 7-year cohort study we followed 109 378 industrial workers and 45 613 financial workers from 2001 or first year of employment thereafter until 2007. At start and end of follow up we recorded mean, full-shift noise exposure levels by personal dosimeters for 1077 workers from randomly selected companies. We assumed a linear relation with calendar year and predicted exposure levels by trade and occupation since 1980 and calculated cumulative noise exposure. Danish national registries provided complete employment histories since 1980, psychiatric diagnoses (1977–2001), and redemption of antidepressants (Selective Serotonin Reuptake Inhibitors, SSRI) (1994–2007). Workers with psychiatric diagnoses or use of antidepressants before 2001 were excluded.

**Results** During follow-up we identified 7754 incident users of SSRIs. Among women, risk of starting SSRI medication increased by cumulative noise exposure level OR=1.02 (95% CI: 1.01–1.02) per dB(A)-year when adjusted for age, calendar year and socioeconomic status. When excluding white-collar workers no effect was seen among women and no effect of noise was apparent among men overall.

**Conclusions** These preliminary results do not provide strong evidence that occupational noise exposure is a risk factor for depression. The increased OR seen among all women can be explained by differences in socioeconomic status between the blue-collar industrial workers and the white-collar financial workers since no trends were apparent in internal analyses among blue-collar workers.

#### 0181 ASSOCIATIONS BETWEEN PRE-DEFINED OCCUPATIONAL JOB TASKS AND BREAST CANCER RISK

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10.1136/oemed-2014-102362.261

**Objectives** The role of occupational exposures in agricultural and industrial settings has been addressed in several breast cancer studies. Recently, the influence of shift work in nurses added as an occupational hazard that has been intensively discussed. Here, we investigate the association of job tasks in the industrial and health sector and breast cancer in a large case-control study.

**Method** The population-based case-control study *Gene-Environment Interaction and Breast Cancer* (GENICA) was conducted in the Greater Region of Bonn, Germany. Occupational history and job task information were collected in computer-assisted interviews. Thirty pre-defined job tasks were assessed for 1143 cases and 1155 controls in addition to the occupational history. Risk estimates were calculated as odds ratios (ORs) with 95% confidence intervals (CIs) conditional on age and adjusted for potential confounders.

**Results** First preliminary results indicate an increased age-adjusted risk for women who ever worked in anaesthesia (OR

1.87; 95% CI 1.03–8.0), based on fourteen cases and five controls.

**Conclusions** Our study revealed an increased risk for ever working in anaesthesia. This elevated risk might originate from chemical exposures or night shift work. Interactions between exposures and night work might be relevant in the progression of breast cancer. However, the results of this study are limited by the low prevalence of risk jobs and specific exposures.

#### 0186 GENDER BIAS IN OCCUPATIONAL EPIDEMIOLOGY RESEARCH: A SYSTEMATIC REVIEW ON WORK-RELATED LUNG CANCER

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10.1136/oemed-2014-102362.262

**Objectives** The “one-eyed science” pointed out by some authors has contributed to the invisibilization of working conditions as a health determinant among women. Our objectives were to document current epidemiological practices in the assessment of work-related lung cancer risks, and to discuss how gender-related biases compromise the scientific validity of exposure and risk estimates among women, as compared to men.

**Method** A systematic literature review over the last 7 years was performed, and based on the screening of 410 abstracts retrieved from *PubMed*, 122 articles were retained. Data were collected through a questionnaire, and analysed both quantitatively and qualitatively. Articles were classified according to the gender distribution of the study sample as either **men only**, **women only** or **mixed**.

**Results** Androcentrism was present, as nearly 50% of studies recruited men-only participants. Moreover, 45% of them were subject to an **overgeneralization** of study results. **Gender-insensitivity** could be observed from the papers (35%) which did not provide justification for the gender composition of study sample. A **double standard** was also suspected in the exposure assessment methods. Sex and gender-related terms were found to be frequently used **interchangeably**.

**Conclusions** Upgraded results with an increased sample size are forthcoming. Meanwhile, these preliminary results raise the question of the “gender bias” in epidemiology, and how *sex* and *gender* should be taken into account in the design, conduct, analysis and dissemination of results in order to minimise gender-related biases and reinforce the scientific validity of research.

#### 0189 APPLICATION OF A DYNAMIC POPULATION-BASED MODEL TO ASSESS THE EFFECT OF SILICA EXPOSURE INTERVENTIONS ON COPD IN DUTCH CONSTRUCTION WORKERS: RESULTS FROM THE ‘RELIEVED WORKING STUDY’

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10.1136/oemed-2014-102362.263

**Objectives** A multidimensional intervention aimed at reducing silica exposure in the Dutch construction industry was performed. The objective of this study was to assess the effect of

the achieved reduction in exposure on the burden of chronic obstructive pulmonary disease (COPD) in construction workers.

**Method** The intervention aimed at technical, organisational and psycho-social factors and was performed in four construction companies. Pre and post intervention respirable quartz exposure measurements were taken in these and four additional control companies. A mathematical simulation model was used to generate COPD prevalences (GOLD stage  $\geq 1$ ) in response to silica exposure, population characteristics and Dutch trends in smoking behaviour for a population of 20–65 year old construction workers with lifetime silica exposure.

**Results** Pre-intervention exposure assessment demonstrated highest respirable quartz levels ( $\text{mg}/\text{m}^3$ ) for concrete drillers (GM: 0.20, GSD: 2.75), tuck pointers (GM: 0.18, GSD (2.18) and demolishers (GM: 0.12, GSD: 2.86), exceeding the Dutch occupational exposure limit (OEL) in 71, 92 and 97% of cases, respectively. Preliminary simulations estimated COPD prevalence at 21, 20 and 17% for these groups respectively, as compared to 14% when quartz exposure is reduced to the Dutch OEL and 8% with no exposure.

**Conclusions** For several job categories high exposure levels exceeding the Dutch OEL were observed. Reducing these levels to below the OEL would lead to a substantial reduction in the burden of disease. The post intervention exposure levels will become available early 2014. The effect on the burden of disease and economic impact will be assessed with an refined model incorporating population dynamics.

#### 0190 CARPAL TUNNEL SYNDROME AND CARPAL TUNNEL SYNDROME-LIKE SYMPTOMS IN RELATION TO MECHANICAL EXPOSURES ASSESSED BY A JOB EXPOSURE MATRIX: A TRIPLE CASE-REFERENT STUDY

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10.1136/oemed-2014-102362.264

**Objectives** To evaluate relations between occupational mechanical exposures and (1) carpal tunnel syndrome verified by ENG (ENG+CTS) and (2) CTS-like symptoms with normal ENG (ENG-CTS).

**Method** We plan a triple-case referent study of 1000 ENG+CTS and 1000 ENG-CTS cases identified at a university department of clinical neurophysiology. For each case, two sex, age, and primary care centre matched controls will be sampled (risk set sampling). Both retrospectively and prospectively identified cases will be included with standardised clinical examination of the last-mentioned group. Conditional logistic regression analyses will be performed comparing the two case control sets, while unconditional logistic regression will be applied comparing ENG+CTS cases to ENG-CTS controls. Questionnaire information will be collected on job history, lifestyle, symptoms, and disability. Job titles will be linked to a job exposure matrix (JEM) based on measurements of hand-wrist movements (goniometer measurements) and expert ratings.

**Results** The main hypothesis is that exposure-response relations will be found for ENG+CTS, but not for ENG-CTS with respect to forceful work and awkward wrist postures, while repetitive work will show exposure-response relations in both

groups. The Danish Working Environment Research Fund has granted financial support for a 3-year PhD project starting January 2014.

**Conclusions** The study will take advantage of specific and well documented case diagnoses and independent exposure assessment. The results are expected to produce new insights into exposure-response relations between occupational mechanical exposures and risk of CTS.

#### 0191 ARE INDOOR CONCENTRATIONS OF AIRBORNE MOULD SPORES IN NON-INDUSTRIAL ENVIRONMENTS SUFFICIENTLY HIGH TO CAUSE HYPERSENSITIVITY PNEUMONITIS?

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10.1136/oemed-2014-102362.265

**Objectives** Antigen exposure is the only diagnostic criteria specific for hypersensitivity pneumonitis (HP) compared with other interstitial lung diseases. Indoor mould exposure in non-industrial environments has been claimed to cause HP, but little is known about exposure levels. Our objective was to compare indoor concentrations of airborne mould spores for patients diagnosed with indoor HP with background levels and levels measured for patients diagnosed with farmers' lung and suberosis.

**Method** We included 8 patients diagnosed with HP based on characteristic clinical findings, signs of indoor mould growth at home or at their non-industrial work place, and increased levels of precipitating antibodies for moulds. We collected 110 air samples from all affected rooms, adjacent rooms, and outdoor.

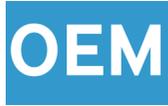
**Results** The average total spore concentrations varied between 22 000 and 36 000 spores per  $\text{m}^3$ , and the average viable concentrations between 35 CFU/ $\text{m}^3$  and 457 CFU/ $\text{m}^3$ , with no clear association between spore concentration and affected rooms, adjacent rooms and outdoor.

**Conclusions** The observed levels did not exceed usual indoor and outdoor levels and were orders of magnitude below levels measured for patients diagnosed with farmers' lung and suberosis, and we question if indoor mould levels in non-industrial environments are sufficient to cause HP. Relying solely on signs of moulds or presence of precipitating antibodies when diagnosing HP may cause other interstitial lung diseases to be overseen and patients may take initiatives such as quitting the job or leaving their homes that will not alleviate their disease but have significant social consequences.

#### 0192 PROFESSIONAL TRAJECTORY IS ASSOCIATED WITH MULTIPLE CARCINOGENIC EXPOSURES AT WORK AMONG MEN : DATA FROM A COHORT OF PATIENTS SUFFERING RESPIRATORY CANCER

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10.1136/oemed-2014-102362.266



## 0189 Application of a dynamic population-based model to assess the effect of silica exposure interventions on COPD in Dutch construction workers: results from the 'Relieved Working Study'

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*Occup Environ Med* 2014 71: A84-A85  
doi: 10.1136/oemed-2014-102362.263

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