

## Poster Presentation

## Cancer

## 0432 PARENTAL EXPOSURE TO PAINTS AND RISK OF CHILDHOOD CANCER

<sup>3</sup>Julie Volk\*, <sup>3</sup>Johanni Hansen, <sup>2</sup>Julia Heck, <sup>1</sup>Kjeld Schmiegelow. <sup>1</sup>Department of Paediatrics and Adolescent Medicine, University Hospital Rigshospitalet, Copenhagen, Denmark; <sup>2</sup>Department of Epidemiology, UCLA School of Public Health, California, USA; <sup>3</sup>Department of Diet, Genes and Environment, Danish Cancer Society Research Centre, Copenhagen, Denmark

10.1136/oemed-2017-104636.357

**Objective** Even though childhood cancer is a rare disease, it is one of the main causes of death among children in the Western world. Not much is known about the causes of childhood cancers but parental occupational exposures have been suggested by a number of epidemiological studies, including exposure to paints.

**Methods and materials** All childhood cancer cases (0–15 years) in Denmark from 1968–2012 (n=5,711) were retrieved from the Danish Cancer Registry and population controls (1:100) were randomly selected and matched by age and sex. Maternal and paternal occupational history was retrieved by the Supplementary Pension Fund. Potential confounders were retrieved through the Medical Birth Registry. Register linkages were conducted using the unique identification number assigned to all Danish residents.

**Results** Preliminary results for cancer of all sites show an OR of 0.89 (95% CI: 0.71–1.01) and 0.86 (95% CI: 0.73–1.01) for maternal and paternal exposure to paint, respectively, after controlling for potential confounders, including SES, maternal smoking, birth order, previous miscarriage, malformation and parental age. Increased but insignificant ORs were found for acute lymphatic leukaemia, non-Hodgkin lymphoma, ependymoma, astrocytoma, Burkitt lymphoma, central nervous system cancers, Ewing sarcoma, melanoma and hepatoblastoma for maternal exposure and acute myeloid leukaemia, glioma, melanoma, neuroblastoma and hepatoblastoma for paternal exposure.

**Conclusion** Preliminary results have shown little and insignificant effect of parental paint exposure in relation to childhood cancer risk.

## Poster Presentation

## Disease Surveillance

## 0433 TOWARDS AN IDEAL NATIONAL WORK-RELATED ILL HEALTH SURVEILLANCE SYSTEM IN GREAT BRITAIN

Yiqun Chen\*, David Fishwick, Andrew Curran. *Health and Safety Executive, Buxton, UK*

10.1136/oemed-2017-104636.358

Population-based occupational health surveillance includes work-related ill health surveillance and workplace health risk exposure surveillance. It is an important intelligence gathering system at the national level, which supports the planning, monitoring and evaluation of measures to prevent work-related ill health. The

intelligence is essential for targeted intervention, prioritisation, tracking progress and evaluation of impact.

To make best use of resources for intelligence gathering, the approaches used should be regularly assessed and monitored to ensure they remain fit-for-purpose, cost-effective and forward looking. In the context of the strategic approach for research planning and prioritisation in the Health and Safety Executive (HSE), a series of workshops were developed.

One of the HSE internal workshops was organised in January 2017. Some, 26 (90%) of the 29 invited stakeholders have participated to develop a common vision for a population-based work-related ill health surveillance system that will continue to meet HSE's intelligence needs now and in the future;

Following detailed assessments of the gaps in the current system, a wide range of innovative approaches were explored. Some practical first steps to improve the system were recommended with an emphasis on more systematic and strategic data collection. The key characteristics of an ideal system were also identified, including new features on case investigation and detecting new/emerging work-related ill health risks to inform timely preventative actions. The outputs of the workshop are presented. They have informed HSE priorities in the continued development of the system to support its mission to prevent work-related ill health.

## Oral Presentation

## Dusts and Fibres

## 0434 A META-ANALYSIS OF OCCUPATIONAL SILICA EXPOSURE AND RISK OF AUTOIMMUNE RHEUMATIC DISEASES: DOES STUDY QUALITY MATTER?

<sup>1</sup>Henrik A Kolstad\*, <sup>2</sup>Christiane Beer, <sup>3</sup>David Sherson, <sup>4</sup>Anne Trolborg, <sup>4</sup>Berit Dalsgaard Nielsen, <sup>5</sup>Anne Braae Olesen, <sup>6</sup>Gitte Jacobsen, <sup>4</sup>Søndergaard Klaus, <sup>2,7</sup>Schlünssen Vivi. <sup>1</sup>Department of Occupational Medicine, Danish Ramazzini Centre, Aarhus University Hospital, Aarhus, Denmark; <sup>2</sup>Department of Public Health, Danish Ramazzini Centre, Aarhus, Denmark; <sup>3</sup>Department of Occupational and Environmental Medicine, University of Southern Denmark, Odense, Denmark; <sup>4</sup>Department of Rheumatology, Aarhus University Hospital, Aarhus, Denmark; <sup>5</sup>Department of Dermatology, Aarhus University Hospital, Aarhus, Denmark; <sup>6</sup>Department of Occupational Medicine, Danish Ramazzini Centre, Hospital Region Vest, Herning, Denmark; <sup>7</sup>National Research Centre for the Working Environment, Copenhagen, Denmark

10.1136/oemed-2017-104636.359

**Objectives** Increased risks of rheumatoid arthritis, small vessel vasculitis, systemic lupus erythematosus, and systemic sclerosis have been observed following crystalline silica exposure. Our aims are to estimate pooled risk estimates and assess the impact of study quality.

**Methods** We followed the PRISMA criteria, identified 1162 articles, and included 21 studies that we classified according to eight quality parameters (high vs. low). We estimated pooled overall and disease specific odds ratios (ORs) with random effects meta-regressions.

**Results** We observed an increased overall OR of 2.3 (1.7–3.1, 21 studies) and for rheumatoid arthritis (OR 1.7, 95% CI 0.8–3.41, 6 studies), small vessel vasculitis (OR 2.4, 95% CI 1.2–4.7, 6 studies), systemic lupus erythematosus (OR 2.8, 95% CI 0.5–14.7, 3 studies), and systemic sclerosis (OR) 2.9, 1.7–4.9, 6 studies). The following high-quality characteristics

were associated with decreased ORs: appropriate control group, high response rate, appropriate confounder control, independent exposure information, and many participants; and with increased ORs: quantitative or semi-quantitative exposure measure, hospital based diagnosis, and well-defined diagnostic criteria. Only the latter was statistically significant ( $p < 0.05$ ). When we consecutively excluded low quality studies, the overall OR value decreased to 1.3 (0.4–4.2, 3 studies) but this exercise was sensitive to the order. Egger's test of no small study effect was highly statistically significant ( $p < 0.01$ ).

**Conclusion** This review provides some evidence that crystalline silica is associated with systemic sclerosis, systemic lupus erythematosus, rheumatoid arthritis, and small vessel vasculitis. However, more high-quality studies are needed to confirm or refute if this represents causal associations.

## Poster Presentation

### Exposure Assessment

#### 0435 PIGEON BREEDING AND THE RISK OF INTERSTITIAL LUNG DISEASE, DOES NUMBER OF PIGEONS MATTER?

<sup>1</sup>Christine Cramer\*, <sup>2,3</sup>Vivi Schlünssen, <sup>4</sup>Elisabeth Bendstrup, <sup>1</sup>Zara Ann Stokholm, <sup>1</sup>Jesper Medom Vestergaard, <sup>5</sup>Morten Frydenberg, <sup>1</sup>Henrik Albert Kolstad. <sup>1</sup>Department of Occupational Medicine, Danish Ramazzini Centre, Aarhus University Hospital, Aarhus, Denmark; <sup>2</sup>Department of Public Health, Danish Ramazzini Centre, Aarhus University, Aarhus, Denmark; <sup>3</sup>National Research Centre for the Working Environment, Copenhagen, Denmark; <sup>4</sup>Department of Respiratory Diseases and Allergy, Aarhus University Hospital, Aarhus, Denmark; <sup>5</sup>Section for Biostatistics, Department of Public Health, Aarhus University, Aarhus, Denmark

10.1136/oemed-2017-104636.360

**Objective** We recently showed an increased risk of interstitial lung disease (ILD) among pigeon breeders. The current study aims to explore this finding further by investigating the relation between the duration and intensity of the pigeon exposure and the risk of ILD.

**Methods** This is a retrospective follow-up study from 1980 to 2013 of pigeon breeders identified in the records of the Danish Racing Pigeon Association. Since 2000 the association has kept annual records on the number of pigeon leg bands purchased by each breeder. From this information and the average pigeon life expectancy we will calculate number of pigeons kept. Dates of enrolment and resignation in the association are used to assess duration of pigeon breeding. Hospital based diagnoses of ILD are identified by linkage with the National Patient Registry 1977–2013.

We will calculate hazard ratios with Cox regression analyses and censor participants at date of death, emigration, disappearance, diagnosis of connective tissue disease, or end of study by December 31 2013.

**Results** We have obtained information on number of pigeon leg bands and duration of membership for 2085 and 2656 pigeon breeders, respectively. Average number of pigeons kept is 132.73 per year and mean membership duration is 11.35 years. A total of 19 members are diagnosed with ILD. Statistical analyses are still pending but will be concluded before the conference, where results will be presented.

**Conclusion** This data provides a unique opportunity for investigating a possible exposure-response relation between pigeon related exposures and the risk of ILD.

## Poster Presentation

### Policy/Impact

#### 0436 COMPARISON OF OCCUPATIONAL PHYSICIANS WITH ATTENDING PHYSICIANS FOR OPINIONS ON COLLABORATION WITH THEIR COUNTERPARTS. HOW TO SUPPORT OF FITNESS FOR WORK OF EMPLOYEES WITH DISEASES

<sup>1</sup>Go Muto\*, <sup>1</sup>Kazuhiro Yokoyama, <sup>1</sup>Fumihiko Kitamura, <sup>2</sup>Motoki Endo. <sup>1</sup>Department of Epidemiology and Environmental health, Graduate school of Medicine, Juntendo University, Tokyo, Japan; <sup>2</sup>Department of Public health, Tokyo Womens' Medical University, Tokyo, Japan

10.1136/oemed-2017-104636.361

**Objectives** To compare occupational physicians (OPs) with attending physicians (APs) for opinions on collaboration with their counterparts. Another purpose is to estimate the determinants of success of the collaboration.

**Methods** A questionnaire was mailed to both OPs belonging to the subcommittee of Japan Society for Occupational Health and APs belonging to Japan Medical Association. The questionnaire assessed demographics, opinions regarding collaboration such as medical information exchange with their counterparts, and successful or failed cases of cooperation.

**Results** A total of 94 OPs and 150 APs responded. Each of them offered 212 and 222 collaboration cases, respectively. From the analysis of successful cases, both groups showed mental disorder had the highest necessity of collaboration although APs showed relatively lower percentage (37%) compared with that of OPs (52%). From the perspective of situation of collaboration, approximately 60% cases occupied return-to-work and 35% cases showed the prevention of diseases exacerbation, which was the similar tendencies on both groups. However, 95% cases on OPs groups started from OPs side although only 48% cases on APs groups started from OPs side. OPs may like to start collaboration with APs but are unwilling to respond to APs letters. Furthermore, from the analysis of successful and failed cases of collaboration in mental disorders using chi-square test, the factors such as strong understanding of attending physicians ( $p = 0.007$ ) and superiors of the employees ( $p = 0.041$ ) for the collaboration, and controlled severity of diseases ( $p < 0.001$ ) were suggested to be significantly important in successful cooperative support for employees.

## Poster Presentation

### Risk Assessment

#### 0437 EFFECT OF AGE AND BODY MASS INDEX AS RISK FACTOR FOR OCCUPATIONAL CONTINGENCIES IN HEALTHCARE WORKERS

Gonzalo Aicardi\*, Jonathan Alvarez, Fatima Cotobal, Marta Hernandez, Mercedes Cumplido, Lourdes Barrueco. SACYL, Salamanca, Castile and Leon, Spain

10.1136/oemed-2017-104636.362

**Objective** To determine whether overweight and obesity and age are associated with a higher risk of accidents at work and occupational disease.

**Background Data** During recent years, professional contingencies have been increasing at work, a change that coincides with a higher prevalence of obesity and older work population.

**Methods** This cross-sectional study was carried out among 1489 workers in healthcare industry. This study identified the prevalence of obesity and overweight in a hospital and its associations with occupational diseases and accidents at work over a 4 years' period. With and without absences from work and the length of the absences were recorded. Body mass index (BMI) and demographic details were recorded.

**Results** At baseline, 48,3% had normal-weight (BMI [body mass index]: 18.5–24.99 kg/m<sup>2</sup>), 34,3% were overweight (BMI: 25–29.99 kg/m<sup>2</sup>), 14,8% were obese (BMI  $\geq$ 30 kg/m<sup>2</sup>), and 2,6% were underweight (BMI <18.5 kg/m<sup>2</sup>). During the 4 years' period, with a mean of 46 years, 263 participants were diagnosed with a professional contingency (accident at work or occupational disease). Compared with normal-weight individuals, there was no statistically significant difference having an occupational contingency between overweight and obese workers (p-value 0,161). Although, we found that the age is a risk factor of having an accident at work.

**Conclusion** Obese and overweight persons are not at a higher risk of developing an occupational contingency. Furthermore, our results indicate that the age might be a novel explanation for the increased number of workers with accidents at work.

## Poster Presentation

### Methodology

#### 0438 FIELD STUDY POTENTIAL IN INDIA FOR OCCUPATIONAL HEAT STRESS – CHALLENGES AND OPPORTUNITIES

Vidhya Venugopal\*, Jeremiah Chinnadurai, S Rekha, K Manikandan, S Krishnan, K Latha, K Kumaravel. *Sri Ramachandra University, Chennai, Tamilnadu, India*

10.1136/oemed-2017-104636.363

Collecting information about health and productivity implications of occupational heat exposures directly from workers can have its own challenges but not impossible to accomplish. This is presented based on experiences from prior work in occupational setting-based participatory research with workers. Permissions from industries to conduct research and the initial lack of trust and scepticism from the workers is a major challenge. Lack of mutual understanding between the workers and the researchers' expectation, lack of understanding of the study objectives both by the untrained interviewer and workers, cognitive limitations and busy schedule of the workers create barriers to reliable and complete data collection. Apart from these, research logistics and procedures such as recruitment, travel and compensation for the research personnel, quality and interpretation of data, including issues of validity and reliability are other challenges. Strategic planning, consultation with employers, ethical and careful development of trust between the researcher, employer and the worker have been key to the success of the field study that

requires investment and deployment of time and resources. A well-thought through and validated questionnaire structured with contextual approaches, trained interviewers and conducting cohort studies in the same workplaces have also been successful methods in developing trust for eliciting reliable data from the workers. Collecting less structured data from workers is potentially very productive but requires the anticipation, avoidance, or negotiation of the challenges. Future work is necessary to better understand these challenges across different methods and settings, as well as to test and identify strategies to address them.

## Poster Presentation

### Musculoskeletal

#### 0440 SHOULDER REPETITIVENESS EXPOSURE THRESHOLD DETECTION USING ADJUSTED HAZARD MULTIVARIATE PARAMETRIC MODELLING FOR CUMULATIVE TRAUMA DISORDERS (CTD) PREVENTION AND CAUSAL ASSESSMENT

<sup>2,3</sup>David Alvarez Rincon\*, <sup>4</sup>Luisa Perez. <sup>1</sup>ICOH member, Milano, Italy; <sup>2</sup>EPICOH member, Utrecht, The Netherlands; <sup>3</sup>Provincial Workers' Compensation Board, Cali, Colombia; <sup>4</sup>University of Alberta OHS certificate, Edmonton, Canada

10.1136/oemed-2017-104636.364

**Background** Cumulative-Trauma Disorders are major loss causes in labour environments through the world, but few is known about quantitative workload exposure limits. The aim of this research was to define shoulder repetitiveness exposure threshold by assessing the risk of rotator cuff, biceps and bursal injuries in a cohort of workers.

**Methods** A retrospective cohort study was assembled with workers from different positions. Inclusion/exclusion criteria were rigorously applied. Clinical variables were extracted from each worker clinic history; dependent variable was obtained using NMR, ultrasound and/or surgical reports. Shoulders workload was assessed independently getting cumulative exposure time to repetitive motions adjusting by rest/break periods and other covariates, controlling confusing effects. The exposure threshold was acquired using the "David's cheese bread" method with an adjusted multivariate Weibull regression modelling, previously adopting Akaike Criterion. A Huber's M-estimator was performed warranting robust estimators for correcting both shoulders non-completely independent measures (two shoulders by worker). Final model was built according with Hosmer-Lemeshow-May's covariates purposeful selection principles.

**Findings/conclusions** 328 workers (656 shoulders) were included (95,8% sample power). At following-end, following span median was 21.6 years, age median was 42 years, 60% were women, 85% had non-university academic level and 77% had non-administrative positions. Age, handedness, academic level, work type and mood disorders were proved as significant or as confounding covariates within the final model. Cumulative  $4 \times 10^3$  effective working hours for shoulder repetitiveness exposure was established as threshold with adjusted HRR=1.93 (95%CI 1.04–3.59). No worker should be exposed more than that threshold in order to eliminate shoulder's CTD.