

among management occupations, may be due to screening. Further investigation is needed on job-specific exposures with better understanding on differences in rates across occupations.

## Poster Presentation

### Risk Assessment

#### 0340 INSIGHT INTO MEASLES EPIDEMICS

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In March 2017, 8 cases of measles appear (5 nurses, 2 students, 1 doctor) in the Emergency Department of a big Italian hospital in a national context of one of the worst measles epidemics in the post-vaccination era. How can we stop quickly the epidemics? Stopping measles in ED is what we verified.

## Oral Presentation

### Cancer

#### 0341 WELDING FUMES AND LUNG CANCER: A META-ANALYSIS BY IARC WORKING GROUP

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**Background** An estimated ~110 million workers are exposed to welding fumes worldwide. An IARC working group (WG) re-evaluated the carcinogenicity of welding fumes in 2017, previously classified as possibly carcinogenic to humans (Group 2B) in 1990, based on limited evidence for lung cancer in humans. The WG conducted a meta-analysis of peer-reviewed epidemiologic studies reporting a relative risk for welding (fumes) and lung cancer, accounting for confounding by exposure to asbestos and tobacco smoking.

**Methodology** After comprehensive searches in PubMed, Web of Science and Google Scholar databases and reference lists of relevant publications, 23 case-control and 36 cohort and nested case-control studies met our inclusion criteria. We attempted to remove overlapping populations for calculating summary-RRs.

**Results** The summary-RRs were 1.29 (95% CI: 1.24–1.34;  $I^2=47.5\%$ ) for “ever” compared with “never” being a welder or being exposed to welding fumes, 1.27 (95% CI: 1.22–1.32;  $I^2=44.7\%$ ) among cohort and nested case-control studies, 1.50 (95% CI: 1.34–1.67;  $I^2=39.9\%$ ) for case-control studies, 1.09 (95% CI: 0.98–1.20;  $I^2=23\%$ ) adjusted for smoking and asbestos exposure, 1.15 (95% CI: 1.02–1.28), among “shipyard welders”, 1.00 (95% CI: 0.84–1.17) among “stainless-steel welders” and 1.31 (95% CI: 1.03–1.60) among “mild steel welders”. The summary-RR was higher for “gas welders” compared to “arc welders”, but not statistically significant. Increased risks were observed over time periods, occupational settings and geographic locations support an evaluation for an increased risk of lung cancer among welders, independent of exposure to asbestos and tobacco smoking.

## Poster Presentation

### Psychosocial

#### 0342 PERCEPTION OF PSYCHOSOCIAL FACTORS AT WORK ACCORDING TO AGE

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The objective was to explore the effects of age on the perception of psychosocial factors (PSF)

SUMER, a cross-sectional survey, was designed to characterise occupational exposures in a large representative sample of French employees. In 2010, 26 762 males and 20 019 females, aged 18 to 65, filled in the Karasek (skill discretion and decision authority, job demands, social support from colleagues and supervisors) and Siegrist (esteem, job security, job promotion) questionnaires. Additionally, participants were interviewed by occupational physicians about their work situation and occupational exposures. Graphical representations were used to characterise the PSF scores according to age. Then, breakpoints were identified using multiple change-point models. Finally, seniority, and working conditions were included as dependent factors in piecewise linear models with age, separately in men and women.

The graphical representations highlighted that perceptions were different for young and old workers compared to the middle-range age in both genders. These trends were confirmed statistically for young (breakpoint at 30 years) and for older workers (breakpoint at 55 years) mostly for the Siegrist scores. When seniority was taken into account, the effect of age on PSF scores was intensified for young newly hired (less than 3 years of experience) for the Karasek scores.

Results confirmed that young, and to a lesser extent, senior workers have different perceptions of PSF compared to middle-age group. Particularly, the effect of age was strengthened in young newly hired workers. Given the well-known impact of the PSF on health, OSH prevention should pay attention to these groups of workers.

## Oral Presentation

### Cardiovascular Disease

#### 0344 ISCHAEMIC HEART DISEASE MORTALITY, DIESEL EXHAUST, AND RESPIRABLE PARTICULATE MATTER EXPOSURE IN THE DIESEL EXHAUST IN MINERS STUDY (DEMS)

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We examined the impact of exposure among non-metal miners to respirable elemental carbon (REC), a diesel exhaust surrogate, and respirable particulate matter from mine and ore dust (RPM), on ischaemic heart disease (IHD) mortality in the Diesel Exhaust in Miners Study (DEMS). DEMS was conducted by National Cancer Institute and National Institute for Occupational Safety and Health. Among males at 8 US mines, we estimated IHD mortality hazard ratios (HR) for cumulative exposure and for average intensity to REC and RPM among the 10 070 miners hired since dieselization. In addition, we employed the parametric g-formula to assess the impact of hypothetical REC and RPM interventions on IHD mortality adjusting for time-varying employment status to address healthy worker survivor bias. The HR (95% confidence interval (CI)) for the highest category versus lowest category of exposure were 1.18 (0.56, 2.24) for cumulative REC, 1.25 (0.78, 2.01) for cumulative RPM, 0.75 (0.39, 1.44) for average REC, and 2.58 (1.26, 5.28) for average RPM. Using the parametric g-formula, we estimated the cumulative risk under a hypothetical intervention where annual average daily exposures to REC is set to 0 and a joint intervention consistent with REC and RPM exposure limits of 0 and 0.5 mg/m<sup>3</sup> respectively. The ratios comparing the risk under the intervention on REC alone and for the joint intervention, each compared to the observed risk, were 0.86 (0.62, 1.17) and 0.84 (0.71, 0.98) respectively. Our study indicates that exposure to REC and PM may increase IHD mortality among workers in this cohort.

## Poster Presentation

### Methodology

#### 0345 THE ROLE OF THE OCCUPATIONAL PHYSICIAN IN THE DIAGNOSIS AND PREVENTION OF OCCUPATIONAL DISEASES IN THE 21ST CENTURY

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One of the most important tasks of the occupational physician in Belgium is the prevention of primary and secondary health damage related to the job.

An occupational disease (OD) is a disease that at least partially is caused by risk factors at work or in which the evolution is caused by risk factors in the working environment.

In different countries, the scientific literature about OD and the several registration systems in occupational health generates data about those risk factors responsible for the development of OD.

That data and the legislative framework can lead to preventive measures that can prevent OD, a task for the occupational physician.

In Belgium, the available data about OD, coming from occupational health context, appear to be rare. So to find out more about the incidence and the diagnosis of OD, we will use other existing systems of surveillance in Belgium.

We'll use two sentinel surveillance systems in primary care and one general health care surveillance system. With the use of specific questionnaires about the chosen OD, we search for the risk factors recorded by the attending physicians.

This poster presents you how we used the existing methods in the context of occupational health and explains how the OD and the search for the risk factors are questioned in the general health care surveillance systems.

Dr Bieke Claesen, PhD student University of Antwerp, Occupational Physician at IDEWE.

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## Poster Presentation

### Psychosocial

#### 0346 RELATIONSHIP BETWEEN PSYCHOLOGICAL STRESS-JOB SATISFACTION AND WEIGHT CHANGE IN EMPLOYEES AT A GLOBAL OIL AND GAS COMPANY

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In an era of uncertainty and falling oil prices, addressing work-related stress plays a vital role in maintaining safe operations, productivity, and decreasing turnover.

Employees have access to a confidential assessment which considers their lifestyle, health status, work and life outside of work. One section of the assessment measures psychological stress and job satisfaction. Psychological stress has been implicated as a risk factor for cardiovascular disease, cancer and weight changes.

This cross-sectional analysis aimed to examine the association between psychological stress, job satisfaction, and weight gain.

Self-administered health risk assessments from over 6000 employees were assessed. Questions about satisfaction with work decisions, job effort reward, time pressures at work, stress from mental fatigue at work were used to create a stress satisfaction score. Prevalence of stress was calculated and multivariate regression analyses, stratified by sex and age groups, were conducted.

Over 70% of respondents who reported stress assigned the cause of stress to be work-related. Female respondents indicated more stress than satisfaction in the workplace (p