Objectives Age at permanent retirement is of interest both from an occupational health perspective as an indicator of health risks and from a societal perspective, where keeping an ageing population at work is a priority. The Danish nationwide individual level database DOC*X includes labour market affiliation and job type for employed residents in Denmark in the years 1970–2012. The aim of this study is to investigate differences in retirement between job titles.

Methods Data on permanent retirement was obtained from administrative registries for the years 1980–1990 and 1994–2012. Each job title was coded by the Danish version of the International Standard Classification of Occupations (DISCO-88). We calculated mean age at retirement in years (MAR) and age-and-sex standardised retirement risk ratios (SRR) according to five year periods and DISCO-88 groups (first digit).

Results The number of employed persons varied between 2.0 and 2.7 million yearly, whereof job title was identified for around 75%.

MAR was substantially higher among persons with non-manual compared to manual jobs (men: 64.6 versus 61.6 years) and (women: 63.3 versus 60.8 years). In 2011–2012 SRR was between 0.44 and 1.55 for women and 0.40 and 1.12 for men. Manual jobs had consistently increased SSR throughout the study period, but the relative difference between manual and non-manual jobs increased from 2.0 in the early 1980'ties to 5.4 in the mid-1990'ties and decreased to 1.9 in the latest years.

Conclusion Manual jobs have an increased standardised retirement risk and a lower mean age of retirement compared to non-manual jobs.

Oral Presentation

Exposure Assessment

0337 MODELLING OF OCCUPATIONAL EXPOSURE TO INHALABLE NICKEL

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Objectives Exposure to nickel (Ni) is widely distributed in the production and processing of steel or alloys. We compiled concentrations of inhalable Ni together with information about the duration of the measurement, analytical method, and workplace characteristics in the MEGA database.

Methods This analysis was based on 8052 personal measurements of inhalable Ni collected between 1990 and 2009. Mixed-effects models were applied to the log-transformed Ni concentrations with imputed non-detects to assess the geometric means (GMs) of exposure to Ni in the various occupational settings adjusted by duration of sampling and calendar year.

Results Most of measurements (38%) were collected in welders, which we further detailed by welding technique. Major predictor of the concentration was the technique and material in welding-related tasks. Highest exposure levels were

estimated for welding materials of high Ni content with gas metal arc welding (48 $\mu\text{g}/\text{m}^3$; 95% CI 32–72 $\mu\text{g}/\text{m}^3$) and shielded metal arc welding (37 $\mu\text{g}/\text{m}^3$; 95% CI 24–57 $\mu\text{g}/\text{m}^3$). Furthermore, high GMs were estimated in metal sprayers (33 $\mu\text{g}/\text{m}^3$), in the manufacture of batteries (27 $\mu\text{g}/\text{m}^3$) and in forging-press operators (25 $\mu\text{g}/\text{m}^3$). We did not observe time trends of exposure to Ni in this period.

Conclusion Ni concentrations varied considerably between occupations and were influenced by process and Ni content of consumables in welders. In order to assess exposure to Ni in community-based studies, supplemental information on job tasks, processes and materials is essential in addition to job titles.

Oral Presentation

Cancer

0339 OCCUPATION AND RISK OF PROSTATE CANCER IN A NATIONAL POPULATION-BASED COHORT STUDY: THE CANADIAN CENSUS HEALTH AND ENVIRONMENT COHORT

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Prostate cancer is one of the most commonly diagnosed cancers in men and further evidence is needed on preventable risk factors. This study investigated the relationship between prostate cancer risk and occupation using a large Canadian cohort.

The Canadian Census Health and Environment Cohort was established by linking the 1991 Canadian Census Cohort to the Canadian Cancer Database (1969–2010), Canadian Mortality Database (1991–2011) and the Tax Summary Files (1981–2011). A total of 37 695 prostate cancer cases were identified based on age at diagnosis. Cox proportional hazards models were used to estimate hazards ratios (HR) and 95% confidence intervals (CI).

Overall, age standardised prostate cancer rates were observed to be highest in white collar workers and lowest in construction/transportation workers. In men aged 50–74 years, elevated risks were observed in agriculture management (HR=1.11, 95% CI 1.06–1.17), farm work (HR=1.12, 95% CI 1.02–1.23), firefighting (HR=1.16, 95% CI 1.00–1.35), military (HR=1.14, 95% CI 1.00–1.32), police (HR=1.28, 95% CI 1.14–1.42), senior management (HR=1.09, 95% CI 1.02–1.17), office (HR=1.16, 95% CI 1.08–1.24), and finance (HR=1.08, 95% CI 1.03–1.13). Similar findings were observed in men aged 25–49 years, with additional elevated risks in office management (HR=1.19, 95% CI 1.11–1.27) and education (HR=1.05, 95% CI 1.00–1.11). Decreased risks were observed in construction and transportation occupations in both age groups.

Findings across agriculture and protective services were consistent with previous studies. Some findings, particularly

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.