Our study population consisted of 31 733 individuals receiving a disability benefit from the Dutch Social Security Agency (SSA). Data were collected from the databases of the SSA. Disorders were assessed by an insurance physician at application. We tested for differences in socio-demographics, main diagnoses and comorbidity for those entering and leaving disability benefits.

Mental disorders were most often registered as the main diagnosis for work disability. Diagnoses differed between age groups and educational level categories. For younger and higher educated individuals mental disorders was the main diagnosis for work disability, and for older and lower educated individuals physical disorders (mainly musculoskeletal, cardiovascular and cancer). Five years after approval, 82% still received disability benefits. Outflow was lowest for individuals with (multiple) mental disorders and individuals with comorbidity of mental and physical disorders, and highest for individuals with (multiple) physical disorders.

Oral Presentation

Other

0158 WORK IN HEAT: A CHALLENGE FOR THE KIDNEYS

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10.1136/oemed-2017-104636.126

An epidemic of chronic kidney disease of unknown aetiology (CKDu) has emerged during the last decades, first seen in agricultural and disadvantaged communities along the Central American Pacific coast but now also evident in other countries like Sri Lanka and east India. The aetiology is likely multicausal, but occupational and environmental factors are in focus - in Central America heat stress during strenuous physical work with repeated fluid losses, in Sri Lanka environmental contaminants and agrochemicals. CKDu is a silent disease until late stages. Thus, screening with blood and urine sampling is needed for early detection

We now have good tools for CKDu research: Heat and humidity in the workplace can be monitored with affordable climatic loggers. Core body temperature can be exactly measured by swallowed sensors or estimated from heat strain models. Heart rate loggers and accelerometers enable estimations of workload. Exposure to toxins is assessed through environmental monitoring or by biomarkers of exposure. Standardised questionnaires for heat-related symptoms exist, and core protocols for assessment of renal function and kidney disease outcomes in epidemiological studies have been elaborated (the DEGREE initiative).

Occupational epidemiologists have an important role in the battle against CKDu. Collaborative and comparable studies are needed, aligned with mechanistic understanding. Such studies range from population-based prevalence studies (including also migrant workforces) to studies of the effect of piecework in hot climates, and evaluations of interventions to prevent heat

strain by access to water, shade and safe toiletry at the workplace.

Poster Presentation

Cardiovascular Disease

0159 RELATION BETWEEN WORK-RELATED SILICA EXPOSURE IN FOUNDRIES AND CARDIOVASCULAR DISEASES

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10.1136/oemed-2017-104636.127

Background Work-related exposure to silica is a health hazard worldwide causing i.e. silicosis. Some studies have also presented elevated cardiovascular disease mortality in relation to silica exposure. However, few studies focus on these diagnoses and there is lack of studies accessing morbidity. The aim of this study is to examine the morbidity and mortality of different cardiovascular diseases among Swedish silica-exposed foundry workers.

Methods Measurement database, consisting of historical and present measurements (1968–2006) of respirable silica exposure, are matched against job categories, the different foundries and 4 time periods (1968–1979, 1980–1989, 1990–1999, 2000–2006) using mixed model. The cohort morbidity and mortality data were matched against registries from the Swedish National Board of Health and Welfare. SPSS and STATA were used for statistical analysis, with STATA stratified for age, gender and year.

Results Cardiovascular disease (SMR 141, 95% CI 126–157) and stroke mortality (SMR 161, 95% CI 118–214) showed significant elevation. Myocardial infarction showed statistically significant reduction (SMR 73, 95% CI 60–89). Results of morbidity show significant elevation of stroke (SIR 134, 95% CI 120–150). Mean age at the time of first morbidity is 60–64 years.

Conclusions This study focused on the relation between silica exposure and cardiovascular disease morbidity and mortality. Our results suggest a relation with statistically significant SMRs and SIRs, and morbidity in stroke at a younger age than the general population. Cardiovascular disease is a major cause of death worldwide, and we find a need for further examination with more extensive mapping of confounders and medical history.

Oral Presentation

Other

0160 RETINAL DETACHMENT AND HEAVY LIFTING: FINDINGS FROM A REGISTER STUDY IN DENMARK

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10.1136/oemed-2017-104636.128

Introduction Candidate risk factors for retinal detachment (RD) include heavy lifting. To explore further this relationship, a population-based register study was carried out in a Danish working population.

Methods This study enrolled a dynamic cohort of all 20–59 year-old men in Denmark followed through the Danish Occupational Hospitalisation Register from 1995 to 2010 for rhegmatogenous RD as principal diagnosis. Four main occupational categories were identified according to their potential for heavy lifting: heavy lifters, manual workers unlikely to be heavy lifters, other manual workers, and non-manual workers unlikely to be heavy lifters. We compared the age-standardised rate of RD for heavy lifters with that recorded by the other three occupational categories. We estimated rate ratios (RRs) and 95% confidence intervals (95% CIs) by fitting a Poisson regression model adjusted for calendar period and age group.

Results Non-manual workers performing occupational activities unlikely to be associated with heavy lifting experienced the highest age-standardised rate of RD (18.0 cases/100,000 person-years). The RR for workers in jobs expected to involve a high frequency of heavy lifting compared to manual workers whose occupation was unlikely to be associated with heavy lifting was 0.91 (95%CI, 0.73–1.14); in comparison with other manual workers, the RR was 0.93 (95%CI, 0.78–1.11). The RR compared to non-manual workers in occupations unlikely to involve heavy lifting was 0.51 (95%CI, 0.43–0.60).

Conclusion The findings of this population-based register study do not support an association of occupational heavy lifting with RD. Further studies should use more specific measures of exposure and consider relevant confounders.

Oral Presentation

Shift Work

0161 THE ROLE OF PHYSICAL ACTIVITY IN THE ASSOCIATION BETWEEN SHIFT WORK AND BODY MASS INDEX

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10.1136/oemed-2017-104636.129

Background Shift work is increasingly being suggested to be associated with an increased risk for overweight. Physical activity (PA) has been hypothesised to play a role in the health effects of shift work, but research on this role of PA is scarce. This study aimed to examine the association between night shift work and body mass index (BMI) and the moderating role of PA therein.

Methods Data from 588 workers were used from the prospective cohort Klokwerk+ study, examining the health effects of night shift work in health care workers. BMI was calculated by measured body weight (in kg) divided by body height (in metre squared). PA was measured using the validated Short Questionnaire to ASses Health-enhancing PA (SQUASH)

questionnaire. Linear regression analyses were performed for the associations between shift work and BMI; interaction terms were added to determine the influence of PA.

Results Mean BMI for shift workers was 25.3 (SD=4.2) versus 25.4 (SD=4.2) for non-shift workers ($p>0.05$). Shift workers were more moderately active than non-shift workers (beta 318 min/wk, 95% CI 141–496). After adjustment, there were no significant differences in the amount of vigorous intensity PA (beta -43 min/wk, 95% CI -115–26). There was no significant interaction for either moderate or vigorous PA in the shift work-BMI association.

Conclusions Our study could not confirm the hypothesis that PA moderates the shift work-BMI relation. To confirm these findings and to get more insight into the moderating and mediating role of PA and other lifestyle behaviours, more longitudinal studies are recommended.

Poster Presentation

Cancer

0162 MORTALITY AMONG AUTOWORKERS MANUFACTURING ELECTRONICS IN ALABAMA, U.S.A

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10.1136/oemed-2017-104636.130

Former employees at a large automotive electronics manufacturing facility in Alabama, U.S.A. raised concerns over a suspected excess of cancer mortality among their fellow workers. The United Autoworkers (UAW) union sought the help of epidemiologists to investigate these concerns.

A cohort of 4396 workers employed at the facility between 1972 and 1993 was enumerated. Demographic and employment history information was obtained from union records. Follow-up to ascertain information about vital status and causes of death was conducted through 2016 drawing upon records of the U.S. Social Security Administration, pension records, voter registration records, and the U.S. National Death Index. Interviews with former employees have identified lead-based solder and chlorinated organic solvents as exposures of concern during the assembly of printed computer boards. Concerns were also raised about the presence of asbestos in the workplace. The mortality experience of the cohort is compared to expectations based upon national and regional reference rates using classical standardised mortality ratios as well as more novel comparisons of cumulative incidence (i.e., complement of survival) curves. Analyses also allow for internal comparisons according to job status and race.

We will report on preliminary results describing the characteristics and overall mortality experience of this cohort as part of our ongoing investigation, which is an example of a joint effort between the UAW and academic epidemiologists to directly address the health concerns of autoworkers using a cost- and time-efficient study design.