with Certain Functional Impairments (LSS) and require PA with their basic daily needs for more than 20 h a week. The aim of the study was to investigate how the LSS Act provides possibilities to work for people entitled to measures for special support and special service.
Method Cross-sectional analysis based on data from the Swedish Social Insurance Agency and from a questionnaire survey of a sample of people entitled to PA (total of 15515). The response rate was 67%.
Results Generally more men (27%) than women (21%) considered that PA is a prerequisite for their ability to work. Among those who were mentally retarded, were autistic or had a condition resembling autism (group 1), 33% responded positively. Persons belonging to the group with considerable and permanent, intellectual functional impairment after brain damage in adulthood (group 2), experienced least possibilities to work (11%). Among those with other lasting physical or mental functional impairments (group 3), 22% experienced that PA gave them a possibility to work. Of those who had responded positively, 25% were born in Sweden and 22% were born abroad.
Conclusions Personal assistance seems to provide possibilities of active participation in the labour market for persons with substantial and permanent disability.

0108 CHARACTERISATION OF WET WORK AND GLOVE USE IN HEALTHCARE OCCUPATIONS

Michael Humann, Abbas Virji, Xiaoming Liang, Marcia Stanton, Aleksandr Stefaniak, Paul Henneberger. *National Institute for Occupational Safety and Health, Division of Respiratory Disease Studies, Morgantown, WV, USA*

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Objectives Wet work (contact and/or use of liquids) could lead to skin exposures to chemical irritants and sensitizers among healthcare workers. The objective of this study was to characterise the frequency and duration of glove use when wet work was performed by healthcare workers.
Method Direct observational studies were conducted from 2009 to 2011 at five hospitals on selected healthcare occupations. Information on tasks, chemical product use, and glove use was collected at five-minute intervals by trained research technicians using a standardised data collection form.
Results Between five and 51 person-days were observed for each occupation. Any glove use during wet work ranged from 62% to 100% of person-days for occupations with more than 10 person-days observed. Endoscopy technicians had the highest proportion of time of glove use when wet work was observed (1845/2055 min = 90%), followed by medical equipment preparers, dental assistants, and housekeepers (1645/1950 min = 84%, 315/395 min = 80%, and 6090/7720 min = 79% respectively). Floor strippers/waxers (585/1225 min = 48%), respiratory therapists (65/160 min = 41%), and clinical laboratory technicians (10/60 min = 17%) had lower proportions of time of glove use. When a sensitizer was used during wet work, the proportion of time of glove use increased among all healthcare occupations with adequate data.
Conclusions This analysis demonstrates that the duration of wet work and glove use vary by healthcare occupation. This assessment will be valuable for developing health and safety training programs and identifying possible avenues for intervention.

0111 MORTALITY STUDY AMONG PARIS SEWAGE WORKERS

Eve Bourgkard, Régis Colin, Michel Grzebyk, Isabelle Urmes, Guy Hedelin. *INRS, Vandoeuvre-Lès-Nancy, France*

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Objectives To describe the mortality of sewage workers from Paris (France).
Method The cohort of 1594 Paris sewage workers since 1970 was set up in 2010 and followed-up on mortality from 1970 to 2010. Vital status and causes of death were determined by matching with national databases. Standardised Mortality Ratios (SMRs) were computed using local death rates by causes of death and 10-year employment duration classes. Data are currently analysed using relative survival techniques. This study was approved by the national ethic comity.
Results Statistically significant mortality excess was observed for all causes (SMR=1.34, 778 cases) and for cancer (SMR=1.49, 337 cases). SMRs were also statistically greater than 1 for malignant (SMR=1.74, 22 cases) and non-malignant (SMR=1.77, 43 cases) liver diseases, lung cancer (SMR=1.59, 97 cases), oesophagus cancer (SMR=2.35, 28 cases), all alcohol-related diseases (SMR=1.78, 128 cases), and suicide (SMR=3.64, 22 cases). Greater than 1 but not statistically significant SMRs were observed for infectious diseases and respiratory infectious diseases. The mortality from several diseases (all causes, all cancer, oesophagus cancer, lung cancer, chronic liver diseases, all alcohol-related diseases, and infectious diseases) increased with employment duration as a sewer worker. Except for lung cancer, the SMR for smoking-related diseases was not statistically greater than 1. Results of survival analysis are in progress.
Conclusions The increase mortality observed for lung cancer and infectious diseases with employment duration suggests possible occupational health effect among sewer workers. Conclusions will be completed from the survival analysis.

0113 OCCUPATIONAL RISK FACTORS FOR ENDOMETRIOSIS AMONG FLIGHT ATTENDANTS

Candice Johnson, Barbara Grajewski, Christina Lawson, Elizabeth Whelan, Stephen Bertke, Chih-Yu Tseng. *National Institute for Occupational Safety and Health, Cincinnati, OH, USA*

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Objectives Previous studies suggest that flight attendants could have a higher risk for endometriosis than women in other occupations. Our objectives were to compare the rate of endometriosis among flight attendants to the rate in a comparison group of teachers, and to investigate occupational risk factors for endometriosis among flight attendants.
Method We included 1780 flight attendants and 240 teachers aged 18–45 at enrollment. Endometriosis diagnosis was self-reported via telephone interview, and records of individual flights were retrieved from airlines to obtain work schedules and assess exposures for flight attendants. Cox regression was used to estimate odds ratios (OR) and 95% confidence intervals (CI) for associations between exposures and endometriosis, adjusting for body mass index at interview and using age as time scale.
Results Flight attendants were no more likely to report endometriosis than teachers (adjusted OR 1.3, 95% CI 0.7–2.3). Among flight attendants, there were no clear trends between yearly cosmic radiation exposure, hours worked during normal sleeping hours, or ergonomic factors and endometriosis. A greater

number of flights per day (adjusted OR 2.0, 95% CI 1.2–3.3 for 3+ versus 1 flights/day, p trend = 0.007) and fewer time zones crossed per flight (adjusted OR 2.0, 95% CI 1.0–3.7 for 0 vs. 2 + time zones/flight, p trend = 0.04) were associated with a higher rate of endometriosis.
Conclusions The rate of endometriosis increased with number of flights and decreased with time zones crossed, which might be surrogates for exposures specific to flying a series of short flights during the workday.

0117 NONMALIGNANT DISEASE MORTALITY AMONG STYRENE, FIBREGLASS, AND WOOD DUST EXPOSED WORKERS IN THE REINFORCED PLASTIC BOATBUILDING INDUSTRY

Alysha Meyers, Steve Bertke, Avima Ruder. *National Institute for Occupational Safety and Health, Cincinnati, Ohio, USA*

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Objectives To further evaluate the association of styrene, fibreglass, and wood dust exposure with non-malignant diseases, we extended follow-up through 2008 for 5203 workers exposed to styrene, fibreglass, and wood dust between 1959 and 1978 at two boat building plants.
Method We used a person-years analysis program, LTAS.NET to compute standardised mortality ratios (SMRs) using Washington State and U.S. rates, standardised rate ratios (SRRs), and 95% confidence intervals. SMRs were stratified by exposure category (low or high) and duration of employment category (≤ 1 year, 1+ years).
Results Overall, 1206 nonmalignant deaths occurred (WA SMR 1.14, CI 1.08–1.21), with excess mortality for chronic obstructive pulmonary disease (COPD) overall (n = 112, WA SMR 1.61, CI 1.32–1.93), and among 2063 workers highly exposed to styrene and fibreglass (n = 39, WA SMR 2.37, CI 1.69–3.25). Results were similar using U.S. mortality rates. Workers employed for less than one year had statistically significant increased mortality from several lifestyle-related outcomes (alcoholism, ischaemic heart disease, cirrhosis, accidental poisoning and homicide).
Conclusions The excess COPD mortality in this cohort is difficult to interpret. Recent reports associate styrene/fibreglass reinforced plastic manufacturing with another respiratory disease - bronchiolitis obliterans. Based on a review of COPD death certificates, bronchiolitis obliterans does not appear to be a contributing factor for excess COPD mortality. The COPD excess in this study points to a need for an in-depth investigation of respiratory disease and occupational styrene exposure. Short term worker results are consistent with other occupational cohort studies.

0119 SHIFT WORK, LONG WORKING HOURS, AND PHYSICAL LABOUR IN RELATION TO MENSTRUAL FUNCTION: THE NURSES' HEALTH STUDY 3

[1]Christina Lawson, [1]Candice Johnson, [2,3]Jorge Chavarro, [3]Eileen Lividoti Hibert, [1]Elizabeth Whelan, [1]Carissa Rocheleau, [1]Barbara Grajewski, [2,3]Eva Schernhammer, [2,3]Janet Rich-Edwards. *[1] National Institute for Occupational Safety and Health, Cincinnati, OH, USA; [2]Harvard School of Public Health and Harvard Medical School, Boston, MA, USA; [3]Brigham and Women's Hospital, Boston, MA, USA*

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Objectives We investigated associations between nursing occupational exposures and menstrual cycle regularity and cycle length.
Method Cross-sectional data were collected in 2010–2012 from 6309 nurses aged 21 to 45 from the Nurses' Health Study 3. We used multivariable regression modelling to analyse the associations between occupational exposures and prevalence of irregular cycles and long and short cycle lengths.
Results Cycle length was recorded as <21 days (1.5%), 21–25 days (15.6%), 26–31 days (69.7%), and 32–50 days (13.2%). In addition, 19% of participants reported irregular cycles. Working more than 41 h/week was associated with a 16% [95% confidence interval (CI): 4–29%] higher prevalence of irregular cycles and a higher prevalence of very short (<21 day) cycles [prevalence odds ratio (OR) 1.93, 95% CI: 1.24–3.01]. Irregular menstrual cycles were more prevalent among women working nights only (32% higher) or rotating nights (27% higher), and their prevalence was associated with the number of night shifts per month (p for trend <0.0001). Rotating night shift was also associated with long (32–50 day) cycles (OR 1.28, 95% CI 1.03–1.61). In addition, heavy lifting was associated with a higher prevalence of irregular cycles (34% higher), and the prevalence of cycles <21 days and 21–25 day cycles increased with increasing amount of heavy lifting at work (p for trend <0.02 for each endpoint).
Conclusions Night work, long working hours, and occupational physical labour might play a role in menstrual function disturbances.

0120 CLEANING TASKS AND RESPIRATORY, DERMATOLOGICAL AND MUSCULOSKELETAL SYMPTOMS AMONG CUSTODIANS USING TRADITIONAL AND GREEN CLEANERS

[1]Jennifer Cavallari, [1]Jennifer Bruno Garza, [1]Sara Wakai, [2]Nancy Simcox, [1]Paula Schenck, [3]Loyola Welsh, [4]John Meyer, [1]Tim Morse, [1]Martin Cherniack. *[1]University of Connecticut Health Center, Farmington, CT, USA; [2]University of Washington, Seattle, WA, USA; [3]Connecticut Employees Union Independent, Middletown, CT, USA; [4]Mount Sinai Hospital, New York, NY, USA*

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Objectives As part of a larger study investigating the transition from traditional to green cleaners, we sought to investigate the relationships between cleaning tasks and respiratory, dermatological and musculoskeletal symptoms among a population of custodians.
Method State-employed custodians completed a questionnaire to assess cleaning tasks and health symptoms using standardised questions when available. Associations between health outcomes and cleaning tasks were investigated using logistic regression after controlling for age, gender, and smoking status. Each health outcome was modelled individually and trends with increasing exposures are reported.
Results Questionnaires were completed by 329 custodians from three universities and one university health centre. Participants were 59% female, 53% reported English as their primary language, and 18% were current smokers. Health symptoms within the last month included dermatitis (26%), lower-respiratory complaints (30%), upper-respiratory complaints (43%), pain or discomfort in back (32%) and pain or discomfort in neck, shoulders or arms (44%). An increasing number of toilets cleaned was associated with increased odds of dermatitis (p for trend =0.0005), lower-respiratory symptoms (p = 0.007), and pain or discomfort in shoulders (p = 0.04). Increasing daily hours spent floor stripping was associated with increased odds of dermatitis (p = 0.02), lower- (p = 0.01) and upper- (p = 0.01) respiratory symptoms as well as pain or discomfort in back