Objectives To examine gender and racial disparities in heart disease mortality related to metalworking fluid exposures and in the healthy worker survivor effect.
Method We examined ischaemic heart disease (IHD) mortality from 1941 to 1995 in a cohort of autoworkers with quantitative exposure to cumulative respirable particulate matter from water-based metalworking fluids. Cox models were used to estimate the exposure-response to soluble and synthetic fluids separately in white men, black men, and white women. In separate analyses, we used g-estimation to adjust for the healthy worker survivor effect.
Results The risk of IHD was increased among black men (295 deaths) exposed to synthetic fluid with a hazard ratio (HR) of 3.47 (95% CI: 1.52, 7.92) in the highest cumulative exposure category. White women (119 deaths) had increased risk of IHD with increased soluble fluid (HR: 2.44 (0.93, 6.38)) in the second to highest category. However, Cox models show no increased risk in white men (2246 deaths). In contrast, g-estimation results indicate that if white men had been always unexposed to soluble and synthetic fluid, then on average for each case, 2.99 and 2.77 years of life would have been saved, respectively.
Conclusions We found increased risk of IHD for black men and white women exposed to metalworking fluids using Cox regression. After adjusting for the healthy worker survivor effect, increased risk was observed for white men. The ability to leave work for health related reasons may be an option more available to white male workers.

0105 FARM EXPOSURES, ALLERGY SYMPTOMS AND RISK OF NON-HODGKIN LYMPHOMA IN THE AGRICULTURAL HEALTH STUDY

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Objectives Exposure to allergens and microorganisms in the agricultural environment has been linked to altered immune response. Studies in the general population have reported reduced risks of non-Hodgkin lymphoma (NHL) among those with a history of atopic conditions, although results are inconsistent. To evaluate the allergy-NHL association in the context of farm exposures, we conducted an investigation in the Agricultural Health Study, a prospective cohort of farmers and spouses from North Carolina and Iowa.
Method Our study included 49 656 farmers and spouses with crop and animal exposures and allergy symptoms reported at baseline (1993–1997). We identified 418 incident cases of NHL (including chronic lymphocytic leukaemia and multiple myeloma) during follow-up through 2010 in North Carolina and 2011 in Iowa. Hazard ratios (HR) and 95% confidence intervals (CI) were calculated using multivariable-adjusted proportional hazards models.
Results At enrollment, over 80% of the study participants lived on farms growing grains or hay and 64% on farms raising livestock. Compared to individuals without allergy symptoms, those with symptoms had a reduced risk of NHL (HR=0.61, 95% CI=0.50–0.74). We observed a slightly greater reduction in NHL risk among participants whose allergy symptoms worsened after working with grains and hay (HR=0.53, 95% CI=0.41–0.69). The association between livestock and NHL was borderline significant overall (HR=0.82, 95% CI=0.66–1.01), and significant among those without allergy symptoms (HR=0.70, 95% CI=0.51–0.96).
Conclusions Our findings suggest that among individuals working and living on farms, allergy symptoms are associated with a reduced risk of developing NHL, and that risk may be influenced by particular farm characteristics.

0106 REDUCTION OF OCCUPATIONAL ACCIDENTS: EVIDENCE BASED PREVENTION AND THE PREVENTION INDEX (PI-TOP)

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Objectives Prevention Index (PI-TOP) is a practical measurement tool which is currently used to monitor injury prevention activities at workplaces. This 12-item scoring system has 3 subscales rating technical, organisational and personnel-related internal safety conditions of a company. The reliability and validity of this instrument were evaluated in a cross-sectional survey in the German metal industry during the time between December 2011 and May 2012.
Method The inter-rater-reliability of this instrument was examined by 2 trained supervisors of the German Social Accident Insurance Institution for the Woodworking and Metalworking Industries in 128 companies. The agreement of the double ratings was quantified by interclass correlation coefficient (ICC) and absolute agreement of the rating values.Construct validity of the score was examined by principle component factor analysis while content validity was evaluated by quantifying the association between PITOP-values and 5-years injury rates of 35 000 companies. Poisson regression analysis was performed to assess the strength of the association adjusted for company size and related industrial sectors.
Results Our analysis indicate a moderate to good inter-rater-reliability (ICC=0.46–0.75) of PITOP-values with an absolute agreement between 72% and 81%.

Factor analysis identified three component subscales which meet exactly the structural measure theory behind the score.

The Poisson regression analysis demonstrates that PITOP-values ≥7 in the T-, O- and P-subscales are associated with a decrease of injury rates.
Conclusions Because this analysis indicates that PITOP is a valid and reliable instrument, it will be used to monitor safety conditions at workplaces in a longitudinal practical approach.

0107 PERSONAL ASSISTANCE - A PREREQUISITE TO WORK FOR PERSONS WITH SUBSTANTIAL AND PERMANENT DISABILITY?

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Objectives In Sweden, people with a substantial and permanent disability have been entitled to personal assistance (PA) since the reform took effect in 1994. To qualify for government attendance allowance, a person must belong to one of the groups predefined in the Act Concerning Support and Service for Persons

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

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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

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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

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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