

Objectives The aim of this study was to investigate if mental health status in childhood determined future labour market participation, and to identify if effects varied across gender and social strata.

Method Of a cohort of 3681 born in 1989 in the county of Ringkjøbing, Denmark, 3058 (83%) completed a questionnaire in 2004. They were followed in a register on social benefits for 12 months in 2010–2011. Logistic regression was used to investigate associations between mental health in childhood measured with The Centre for Epidemiological Studies Depression Scale for Children (CES-DC) and future labour market participation, taking into account effects of socio-economic position, school performance, educational plans and vocational expectations.

Results A total of 17.1% (19.9% males, 14.4% females) received social benefits for at least 4 weeks during follow-up. Girls scored significantly lower on mental health than did boys. Labour market participation in early adulthood decreased with poor mental health in childhood, but only for boys: Boys with a baseline CES-DC score in the lowest quartile had a 70 % excess risk of low labour market participation after 7 years of follow-up. The association persisted when taking into account socio-economic position, but became borderline significant when adjusting for school performance, educational plans and vocational expectations. The negative effect was even across social strata.

Conclusions Despite girls scoring significantly lower on mental health than do boys, the effects on future labour market participation was only present among boys. The effect of poor mental health on future labour market participation did not vary across social strata.

0145 SURVEILLANCE OF MORTALITY BY SUICIDE AMONG FRENCH FARMERS

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Objectives An excessive risk of suicide among agriculture workers has been observed in several studies in France and abroad. Accordingly, French Institute for Public Health Surveillance and Social Insurance in agriculture sector launched collaboration with aim at producing indicators of suicide mortality among agriculture workers population on a regular basis.

Method The study population included all active farmers and their collaborating spouses. The study covered three consecutive years: 2007 to 2009. Mortality data by cause from death registrations were used to calculate standardised mortality ratios (SMRs) for both men and women.

Results The annual study population was around 500 000 subjects in average, including 68% of men. During the 3-year study period, 2769 men and 997 women were deceased. From these deaths, 417 deaths were due to suicide among men and 68 deaths among women. Suicides represented the third most important cause of death. The comparison of mortality among male study population with that of French national male population revealed a 28%-excess in mortality by suicide in 2008 and 22%-excess in 2009. This excess was particularly high among the 45–64 year age category and in cattle breeding-dairy and meat -sectors. These sectors presented the highest over mortality due to suicide in 2008 and 2009.

Conclusions The first results of this study confirm the necessity to continue the surveillance in this population. Especially, further analysis could provide more information to document risk factors of this excess.

0149 MODELLING OF OCCUPATIONAL EXPOSURE TO HEXAVALENT CHROMIUM

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Objectives To assess level and trend of exposure to hexavalent chromium (Cr(VI)) in chromium-exposed occupations for the estimation of lung cancer risks in community-based studies.

Method This analysis was based on 3666 personal measurements and auxiliary data compiled in the German MEGA database from 1988–2009. Cr(VI) was determined spectrophotometrically at 540 nm after reaction with diphenylcarbazide. We assigned jobs tasks with known Cr(VI) exposure using coded and textual information about the workplaces. Measurements below the limit of quantification (LOQ) were multiply imputed according to their distribution above LOQ. Statistical modelling was performed to the log-transformed Cr(VI) concentrations to adjust for duration and reason of sampling.

Results Cr(VI) exposure could be assessed for eight out of 30 jobs tasks with known Cr(VI) exposure. The majority of measurements (53%) were collected in welders (N = 1930), which we further detailed by welding technique. Spray painting and the welding of stainless steel with shielded metal welding were associated with adjusted geometric means above 5 µg/m³, the permissible exposure level of the U.S. Occupational Safety and Health Administration. We could not detect an overall time trend in the Cr(VI) concentrations.

Conclusions Exposure to Cr(VI) varied by occupation and job task, particularly between welding techniques, but less across calendar time. Supplemental occupational questionnaires should be administered in community-based studies when estimating the lung cancer risk of Cr(VI).

0150 RESPIRATORY EFFECTS OF AN EXPOSURE TO WHEAT DUST AMONG GRAIN WORKERS AND FARMERS: A LONGITUDINAL STUDY

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Objectives Agriculture is considered one of the occupations most at risk of acute or chronic respiratory problems. The aim of our study was to determine from which level of exposure to organic dust the respiratory function is chronically affected in workers involved in wheat grain or straw manipulation and to test if some of these working populations can recover their respiratory function after an exposure decrease.

Method 87 workers exposed to wheat dust: farmers, harvesters, silo workers and livestock farmers and 62 non exposed workers, were included into a longitudinal study comprising two visits at a six months interval with lung function measurements and symptom questionnaires. Cumulative and mean exposure to wheat dust were generated from detailed work history of each worker and a task-exposure matrix based on task-specific exposure measurements. Immunoglobulins (IgG and IgE) specific of the most frequent microorganisms in wheat dust have been determined.

Results FEV1 decreased significantly with the cumulative exposure and mean exposure levels. The estimated decrease was close to 200 mL per year of high exposure, which corresponds roughly to levels of wheat dust higher than 10 mg/m³. Peak expiratory flow and several acute symptoms correlate with recent exposure level. Recovery of the respiratory function six months after exposure to wheat dust and evolution of exposure indicators in workers blood (IgG and IgE) will be discussed.

Conclusions These results show a chronic effect of exposure to wheat dust on bronchial obstruction. Short term effects and reversibility will be assessed using the full study results.

0154 A NEW, EFFICIENT WEB-BASED TOOL TO COLLECT AND CODE LIFETIME JOB HISTORIES IN LARGE POPULATION-BASED STUDIES: THE COPD PROJECT IN THE UK BIOBANK COHORT

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Objectives The manual collection and coding of job histories is the standard method for assessing occupational exposure, but may be infeasible for large population-based studies such as the UK Biobank cohort. We aimed to develop a new web-based tool to automatically collect and code individual lifetime job histories in the UK Biobank cohort for investigating the causes and burden of work-related COPD in the UK.

Method UK Biobank is a population-based cohort of 502 682 subjects, aged 40–69 years, recruited in 2006–2010. Baseline spirometry data, current employment and smoking histories were collected. We developed a job questionnaire based on the hierarchical structure of the standard occupational classification (SOC) 2000 to allow participants to automatically self-collect and code their lifetime job histories. The web-based prototype (www.imperial.ac.uk/biobank/questionnaire) was pre-piloted in May–August 2013 among key job sectors using snowball sampling together with a feedback survey.

Results 171 subjects participated in both the pre-piloting and feedback survey. 91% completed the questionnaire in <20 min, 85% considered the instructions clear, and 80% found their job categories/titles easily. Overall, 96% judged the questionnaire to be clear and easy. A revised questionnaire has now been designed and will be accessible from different media including PCs/laptops, tablets and smart phones to encourage high response. A demonstration version will be made available to conference participants.

Conclusions Our web-based job questionnaire is an efficient new standard tool for collecting and automatically coding lifetime job histories in large population-based studies and is adaptable for use in many occupational health research projects.

0155 USE OF A PREDICTION MODEL OF ASTHMA WITH ANTI-ASTHMA DRUG CLAIMS FOR EPIDEMIOLOGICAL SURVEILLANCE OF ASTHMA IN SELF-EMPLOYED WORKERS IN FRANCE

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Objectives To estimate prevalence and risk of current asthma among affiliates to the health insurance for self-employed workers according to economic activities.

Method We defined current asthma using a prediction model developed in a study conducted in 2006 among workers aged between 18 to 65, affiliated to the *Régime Social des Indépendants* (RSI) in three French regions. The model used as predictors antiasthma drug claims data and the prescriber's medical speciality. In 2013, we obtained from the RSI, economic sectors and drug claims data of all French affiliates on whom we applied our prediction model. We used logistic regression to estimate asthma risk of each economic sector versus all the others.

Results The population comprised 967391 workers. In men, the asthma prevalence was 5.6%. Elevated odds-ratios were observed in the production of food products (OR=1.70 [95% CI 1.63–1.78]), recycling (OR=1.44 [95% CI 1.23–1.70]), health and social work (OR=1.34 [95% CI 1.16–1.54]) and land transport (OR=1.08 [95% CI 1.03–1.13]). In women, the asthma prevalence was 7%. High odds-ratios were observed in education (OR=1.27 [95% CI 1.08–1.50]), manufacture of medical and precision instruments (OR=1.25 [95% CI 0.99–1.58]), land transport (OR=1.11 [95% CI 0.98–1.25]) and hotel/restaurants (OR=1.10 [95% CI 1.05–1.15]).

Conclusions Prevalence estimated by the model was close to that observed among self-employed workers within a national survey conducted in 2003. Elevated risks were observed in several industries known to be at risk but also in those not expected. Prediction model approach will allow asthma surveillance in workers without interview with health insurance organisation data when occupational data are available.

0156 PREDICTORS OF SICKNESS ABSENCE IN PREGNANCY- A DANISH COHORT STUDY

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Objectives To investigate if parity, fertility treatment, body mass index (BMI), time to pregnancy (TTP), and engagement in physical exercise are risk factors for sickness absence during pregnancy weeks 10 to 30.

Method We use data from The Danish National Birth Cohort (DNBC) and the Danish Register for Evaluation of Marginalisation (DREAM). DNBC contains information on 100 418 pregnancies included from 1996 until 2002. Around pregnancy weeks 12–16 the participants were interviewed by telephone and provided information on potential predictors, on occupational exposures, lifestyle factors and health. We excluded women, who were no longer pregnant at the time of the interview, were unemployed, multiple pregnant or had an obstetrical event within one year before the DNBC pregnancy. This resulted in a study population of 65 047 pregnancies. Outcome data were retrieved from DREAM, which contains information on sickness absence on a weekly basis. Data will be analysed using multivariate logistic regression models.