

Objectives Prostate cancer is one of the most frequent cancers worldwide. Its aetiology is largely unknown with farming being suspected. Our aim was to identify occupational risk factors for prostate cancer in farmers in the French prospective cohort study AGRICAN.

Method During the period from enrollment (2005–2007) to 31 December 2009, 1664 incident prostate cancer cases were identified in the cohort ($n = 92669$) by linkage with cancer registries. Data on occupational history and agricultural exposures during lifetime on 13 types of crops and 5 types of animals were collected by the enrollment questionnaire. Hazard ratios (HR) were estimated using Cox regression analysis with attained age as underlying time scale.

Results Elevated risks were found for six agricultural activities: cattle, hogs, horses, grassland, wheat/barley and tobacco ($HR=1.07$ to 1.16 ; $p = 0.07$ to 0.23). Prostate cancer risk was related to duration of work in wheat/barley and tobacco productions, number of cattle and hogs, and grassland area. We also observed an increased risk for fruit growing, with both duration and area. Increased prostate cancer risk was associated with applying pesticides on wheat/barley ($HR=1.40$, $p = 0.06$) with a duration relationship, and with making hay ($HR=1.16$, $p = 0.03$).

Conclusions Our analysis suggests that the risk of prostate cancer is increased in some farming activities, mainly in crops. This work will be completed by a multivariate analysis, with variables positively associated with the outcome in the previous analysis. The possible association between use of some chemical classes of pesticides and prostate cancer occurrence will be analysed through a crop-exposure matrix (PESTIMAT).

0208 RESPIRATORY HEALTH AFTER STARTING WORK: THE APPRENTICE STUDY

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Objectives Young adults between 16 and 24 years of age represent only 13% of the working population in the UK, yet they have higher rates of work-related accidents and injuries compared to workers of other age groups. However, little is known about the incidence and risk factors for occupational diseases such as occupational asthma in these individuals.

Method The study was based on data from the Avon Longitudinal Study of Parents and Children (ALSPAC). At 16 and 18 years, participants were asked to report their employment, along with questions on respiratory health.

Results At 16 years, those who left education and were employed had less severe asthma compared to those in education. At 18, asthma prevalence was higher among the employed, but the severity of asthma in these individuals did not differ significantly from those staying in education and who were not employed. There was no obvious relationship between the prevalence of asthma or the major occupational groups and the proportion of respondents reporting time lost from work.

Of all respondents who had asthma at 18 years, 3% had lost time due to the condition, and 11% suggested the symptoms were better at weekends. Symptom improvement was mostly seen among waiters and waitresses, kitchen and catering assistants, and sales and retail assistants.

Conclusions The high prevalence of work-related symptoms suggests they may be substantial number of cases of occupational asthma in the young work force.

0209 SCREENING OF COMMON MENTAL DISORDERS AMONG OCCUPATIONAL GROUPS: A REVIEW OF DIMENSIONAL STRUCTURE OF SELF REPORTING QUESTIONNAIRE-SRQ-20

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Objectives The aim of this study was to evaluate the dimensional structure of the SRQ-20 in different occupational groups. It's a validation study that involved four sectional drawing surveys.

Method Individual analysis of the databases has been conducted by using the method of principal components. The latent class analysis has been used in the factor analysis of tetrachoric correlations in order to assess the dimensionality of the instrument, aiming to tailor the assessment method to the distribution of variable (categorical). The Vuong-Lo-Mendell-Rubin test adjusted Lo Mendell Rubin (*LRT Test*), the parametric bootstrap verisimilitude ratio test has been used to review the adequacy of the number of classes extracted in the reciprocity of the CMD. The reliability of the latent classes has been evaluated by *Latent Class Reliability Coefficient* (LCRC).

Results The factor analysis of tetrachoric correlations allowed the assessment of the dimensions of the SRQ-20 and the comparison between different categories of workers. As a complement, the latent class analysis permitted the interpretation of subgroups for expressions of common mental disorders in the occupational sphere, providing in-depth research.

Conclusions The study combined two methods of analysis for assessing the dimensional structure of the SRQ 20 among workers. The factor analysis of tetrachoric correlations enabled us to verify the dimensional stability of the instrument, since the number of extracted factors and dimensions represented maintained similarities in the groups assessed. The study points to the use of measures of SRQ 20 as valid for screening TMC occupational groups.

0213 THE RELATIONSHIP BETWEEN NIGHT WORK AND MENTAL HEALTH AMONG HOSPITAL WORKERS

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Objectives Night work is suggested as a risk factor for mental health. The objectives of this study were (i) to test the association between the duration of exposure to night work and mental health, evaluated through depression and minor psychiatric disorder (MPD) and (ii) to assess the relationship between intention to leave the night shift and mental health.

Method A cross-sectional study was conducted among 432 workers (physical doctors and nursing personnel) at two hospitals in Manaus, Amazonas State, Brazil. Depression condition and MPD were assessed by PHQ-9 and SRQ-20, respectively. The statistical analyses (bivariate, multivariate logistic and multinomial regression) were conducted at SPSS (v.18.0).

Results Female workers, those younger than 38 years old, with children under the age of 6 showed higher prevalence of depression and MPD compared to their counterparts. No significant association was detected between time of exposure to night work and mental symptoms. After adjusting for age, sex,

education and children's age, night workers that intended to leave this work schedule showed greater chance of MPD (OR=2.14; 95%CI:1.09–4.23) when compared to those who did not express such a will.

Conclusions The time of exposure to night work does not seem to be relevant for the symptoms of mental health here studied. Analysing the intention to leave night work revealed to be an adequate approach to identify workers who are less tolerant to night work, thus possibly detecting those with higher chances of being affected as to their mental health.

0214 CANCER MORTALITY IN THE BRITISH RUBBER INDUSTRY - A 45 YEAR FOLLOW-UP

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Objectives Working in the rubber and rubber product manufacturing industry has been classified by the International Agency for Research on Cancer (IARC) as definitely carcinogenic. However, given the complex nature of the chemicals, the phasing out of the use of certain chemicals, and the trend in reduction in exposures, there remains a great deal of uncertainty about the nature of the risks, if any, encountered by workers today.

Method We have at our disposal a large retrospective cohort study of 40 000+ workers who were aged 35+ in 1967, which was last followed up to 1976. We are carrying out an updated cancer mortality analysis adding 35 years to the previous cancer mortality follow-up. We will determine the nature of the dose-response relationships for important known and suspected carcinogens using quantitative exposure modelling based on available measurement data from the EXASRUB project (dust, fumes, solvents, and n-Nitrosamines).

Results We will report on progress to date with the study, which has received ethical approval and is currently seeking other clearances from the UK research governance system for such studies, and will further report on proposed exposure modelling strategies.

Conclusions This is the largest and statistically most powerful cohort of its type and will have an exhaustive, quantitative exposure assessment. This study will add substantially to our knowledge of the longterm risks associated with the chemicals present in the industry in the UK, including those from working conditions several decades ago, and will thereby also be important for exposure conditions in the developing world.

0219 THE ASSOCIATION BETWEEN SHIFT WORK AND OBESITY IN CANADA: A CROSS-SECTIONAL STUDY USING A NOVEL EXPOSURE ASSESSMENT TOOL

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Objectives Shift work entailing circadian rhythm disruption is linked to chronic disease. One suggestion is that obesity mediates the relationship, yet research investigating the link between shift work and obesity report mixed findings, with a propensity towards a positive association. Since a paucity of research in this area has been conducted in Canada, this study examined the association between shift work and obesity within two Canadian

studies; one of Ontario females, and the other, a highly educated nation-wide sample.

Method Healthy subjects from the Canadian Study of Diet, Lifestyle, and Health cohort study (CSDLH; 1447 males, 2170 females), and the Ontario Women's Diet and Health case-control study (OWDHS; 3474 female controls) were analyzed. Overweight was defined as BMI≥25, <30, and obesity: BMI≥30.

Reported occupation was linked to shift work exposure assessment, defined as regular evenings, nights, or rotating work, derived from Survey of Labour and Income Dynamic data. The association between shift work (tertiles), and obesity, separated by sex and dataset, was determined through polytomous and logistic regression controlling for potential confounders.

Results In adjusted regression (reference=lowest exposure), intermediate shift work was negatively associated with overweight for CSDLH females (OR: 0.51, 95% CI: 0.26–0.99), yet positively associated with obesity for OWDHS females (OR: 1.71, 95% CI: 1.08–2.71). For males, high shift work exposure was negatively associated with increased weight (OR: 0.57, 95% CI: 0.35–0.92).

Conclusions The association between shift work and obesity is multifaceted and depends on population factors. Further investigations within a highly educated and diversified workforce are warranted.

0221 MUSCULOSKELETAL DISORDERS (MSDS) AND WORKING RISK FACTORS

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Objectives In the Czech Republic the musculoskeletal disorders (MSDs) represent a major problem. Their frequency has been continually increasing to the degree that they currently rank as the second most frequent cause of temporary working disability. The MSDs represent 50% (607 cases) of the officially recognised occupational diseases (incidence 30.3/100 000 employees) and are the most frequent category of occupational diseases in the Czech Republic.

Method The authors describe the Czech Republic official national system of hazard identification and risk/exposure assessment ("Categorization of working operations") used as a basic tool for effective risk management in enterprises (database of 74 731 subjects/enterprises in 2011) and analyse 4353 occupational MSDs during 2005–2011.

Results Working population in the Czech Republic currently totals about 4.5 million people. Of them, about 117 thousand are exposed to vibrations (» 2.6% of total work force), about 739 thousand are exposed to overload by physical work (» 16% of total work force), and about 600 thousand are working in a bad working posture (» 13% of total work force). It follows that almost 30% of the Czech total work force is exposed to a risk factor for MSDs.

Conclusions The goal of the system of categorization of working operations is to get objective and comparable data for risk assessment, optimisation of working conditions, rational measures and handling problems. Authors emphasise consultative role of occupational health services (OHSs) in the hazard identification and risk/exposure assessment.

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