

Poster Presentation

Burden of Disease

0270 **MORTALITY FROM LUNG CANCER IN OCCUPATIONS WITH EXPOSURE TO ASBESTOS AMONG MEN IN ENGLAND AND WALES (1979–2010)**

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Background Estimating national burdens of lung cancer from occupational exposure to asbestos is challenging because of the potential for confounding by smoking.

Methods To generate a refined estimate, we analysed data on underlying cause of death and last full-time occupation for 3,688,916 deaths among men aged 20–74 years in England and Wales during 1979–2010, calculating proportional mortality ratios (PMRs) standardised for age and social class. We compared observed and expected deaths from lung cancer in 28 occupations with excess mortality from mesothelioma or asbestosis. To reduce the confounding effects of smoking, we adjusted the expected number of lung cancers in each occupation, according to its PMR for chronic obstructive pulmonary disease (COPD) in an analysis that excluded jobs with a known hazard of COPD.

Results Adjusted PMRs for lung cancer were elevated in all but one of the 28 asbestos-exposed occupations, but did not correlate with those for cancer of the pleura (Spearman correlation coefficient = -0.3). The total excess of deaths from lung cancer across the 28 occupations over the 31 years of study was 9561 (as compared with 3164 when no adjustment was made).

Conclusions Asbestos appeared to account for some 300 excess lung cancer deaths per year in England and Wales, which is approximately 70% of the annual number of deaths from mesothelioma. The lack of correlation between PMRs for the two diseases may reflect different exposure-response relationships.

Oral Presentation

Cardiovascular Disease

0271 **ADVERSE EFFECTS ON SPECIFIC MARKERS OF CARDIOVASCULAR RISK AMONG WORKERS EXPOSED TO MULTI-WALLED CARBON NANOTUBES**

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The increase in production of Multi-Walled Carbon Nanotubes (MWCNTs) goes along with growing concerns about health risks. Few, rather small, studies have reported biological effects of MWCNTs in humans including increased concentrations of cardiovascular markers fibrinogen, ICAM1 and IL-6, but findings are largely inconsistent. The objective of this study was to assess the association between occupational exposure to MWCNTs and biomarkers of cardiovascular risk.

A cross-sectional biomarker study was performed among workers of a company commercially producing flexible MWCNTs and a matched unexposed population. 12 cardiovascular markers were measured in participants' blood (phase 1). In a sub-population these measures were repeated after 5 months (phase 2). We analysed associations between MWCNT exposure and biomarkers of cardiovascular risk, corrected for age, BMI, sex and smoking.

22 exposed and 42 unexposed workers were included in phase 1 and a subgroup of 13 exposed workers and 6 unexposed workers in phase 2 of the study. Both in phase 1 and phase 2 we observed an upward trend in the concentration of endothelial damage marker ICAM-1, with increasing exposure to MWCNTs. This finding is supported by significantly elevated monocyte counts among the same workers. No significant associations were found between exposure to MWCNTs and the other cardiovascular markers tPA, Fibrinogen, VCAM-1, IL-6, E selectin, TNF- α and D-Dimer.

The results of the present study should be viewed as explorative and requires confirmation in larger studies. Our results for ICAM-1 point towards a potential for endothelial damage due to exposure to MWCNT.

Oral Presentation

Specific Occupations

0272 **FINDING A SPACE FOR HEALTH WITHIN THE CONTEXT OF 'OCCUPATIONAL RISK' AND FARM POLICY: IRELAND'S 'FARMERS HAVE HEARTS' WORKPLACE CARDIOVASCULAR SCREENING PROGRAMME**

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Background Irish farmers are a 'high risk' group in terms of CVD mortality compared to other occupation groups. Despite CVD being recognised as a work-related condition, the focus of farmers' occupational health policy remains firmly fixed on safety rather than health. The aim of this study was to investigate the cardiovascular health status of a sub-group of Irish livestock farmers who participated in a workplace screening programme, with a view to leveraging support for an increased focus on health within the context of 'occupational risk' and farm policy.

Methods In total, 310 farmers participated in this cross-sectional study. Consent included permission to analyse farmers' cardiovascular screening results, which included cholesterol and blood glucose levels, blood pressure, and anthropometric measurements. All data were entered into the SPSS (v22) for both in-depth descriptive and inferential statistical analysis.

Results Almost one in two farmers had high blood pressure (46%; n=140) and/or raised cholesterol (46%; n=140). Four in five farmers were overweight/obese based on body mass index (86%; n=267) and waist circumference (80%; n=244) measurements. The majority of farmers were found to have at least four risk factors for CVD (83%; n=255) increasing risk of a cardiac event by 3.2 times.

Discussion This prevalence of multiple risk factors for CVD among farmers is a particular cause of concern, and sheds light on the excess burden of CVD mortality among farmers in Ireland. There is an urgent need for a broader focus on health within the context of 'occupational risk' and farm policy.

Poster Presentation

Ageing Workforce

0273 TEACHERS' WELL-BEING AT WORK AND QUALITY OF LIFE: ANY DIFFERENCES ACCORDING TO YEARS OF EXPERIENCE?

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Objectives In a context of ageing workforce, this study aimed to evaluate, among teachers, differences of work and general well-being according to years of experience, and to suggest recommendations.

Methods In the population-based postal survey "Teacher's Quality of Life" (MGEN Foundation/Ministry of education), 2320 primary and secondary teachers were asked about their well-being at work (professional experience satisfaction, teaching experience evolution over the past five years, three dimensions of the Maslach Burnout Inventory) and general well-being (quality of life, perceived health, four scores of the WHOQOL-BREF questionnaire). These indicators were analysed in multivariate regression models adjusted on sociodemographic and occupational factors, according to the categories of years of experience: ≤ 5 , 6–29, ≥ 30 .

Results Compared to more experienced teachers, early-career teachers had less favourable work conditions and a lower environmental health score (–3 points 95%IC=[(–5.1)–(–1.0)]; $p=0.005$). Senior teachers were more likely than mid-career teachers to judge their work as becoming "more and more difficult" (OR=2.6 [2.0–3.4], $p<0.001$). They also tended to show more burnout symptomatology. They were less satisfied with their quality of life (OR=0.7 [0.5–0.9]; $p=0.009$) and their health (OR=0.7 [0.5–0.9]; $p=0.002$), especially from a physical and social relationship's point of view (–5.4 points [(–7.1)–(–3.8)]; $p<0.001$ and –3.0 points [(–4.8)–(–1.3)]; $p=0.001$ respectively).

Conclusion This study adds further evidence towards the hypothesis of a decrease in teachers' well-being at the end of their career, and supports the interest of carrying out targeted support and preventive actions. Attention should also be paid to early-career teachers who may face particularly difficult work conditions.

Poster Presentation

Ageing Workforce

0274 THE PROFILE OF INFORMAL CARERS IN A COHORT OF 50–64 YEAR-OLDS: RESULTS FROM THE HEALTH AND EMPLOYMENT AFTER FIFTY (HEAF) STUDY

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Background With increases in the UK pensionable age, people are now expected to work to older ages, but they may also have caring responsibilities which constrain their capacity to work and could affect their health. To explore the extent of the problem, we assessed the profile of unpaid carers in the HEAF study.

Methods 8134 men and women aged 50–64 were recruited from 24 English general practices. Socio-demographic, lifestyle and health characteristics were elicited by postal questionnaire, along with weekly hours giving personal care to someone in the home or family.

Results 644 (17.4%) men and 1153 (26.0%) women had caring responsibilities; of these, 93 (14%) and 199 (17%) reported caring for ≥ 20 hours/week respectively. Participants with low levels of education or social class, non-homeowners, and those struggling to manage financially were more likely to be carers. Carers of both sexes were less likely to be working and, if working, more likely to be part-time or often working shifts. Carers, and particularly those caring for ≥ 20 hours/week, reported worse health (self-rated, depression and sleep problems). Prevalence of chronic musculoskeletal pain was 32% and 44% respectively among men and women who cared ≥ 20 hours/week, in comparison with 25% and 27% amongst non-carers.

Conclusions The requirement to be a carer is common in the HEAF cohort. Those affected are less likely to be in full-time employment and more likely to be in worse health. There is a need for further research on how older workers with caring responsibilities can be better supported.

Poster Presentation

Burden of Disease

0276 PREDICTORS OF RETURN TO WORK 12 MONTHS AFTER SOLID ORGAN TRANSPLANTATION: RESULTS FROM A COHORT STUDY IN SWITZERLAND

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