

## 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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10.1136/oemed-2017-104636.221

**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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10.1136/oemed-2017-104636.222

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- $\alpha$  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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10.1136/oemed-2017-104636.223

**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.