In the 1970s, South Africa was the world's third largest producer of asbestos. The amphiboles, amosite and crocidolite, were mined in large quantities along with chrysotile. Most asbestos was exported but some was used locally to manufacture products including asbestos cement (AC) roof sheets which were used to build houses and schools. Although asbestos was banned in South Africa in 2008, there are over a million houses with AC roofs. Asbestos Regulations promulgated in 2002 prescribe the method for working with and demolishing asbestos containing materials and a key step is the identification of asbestos. The NIOH provides a national service to identify asbestos in materials and from 2003 to 2016, some 2657 samples have been analysed, including 155 roofs. Of these, 135 (87%) contained asbestos and 97 (72%) of the AC roofs contained amphibole asbestos fibres either alone or in a mixture. This suggests that several million people are living under a roof containing amphibole asbestos. Studies that sampled the air for asbestos fibres in a township built with AC roofs indicate that fibres are not normally liberated from the roofs. Another study in the same township has shown that over many years, asbestos can be leached from roofs by rainwater and fibres can be found in the soil below roofs which have no gutters. The legacy of AC roofs on homes and schools is a concern for residents and parents. The magnitude of the problem raises concerns about the safe removal, disposal and cost to replace these roofs.

Poster Presentation

Cancer

0253 ESTIMATED FUTURE INCIDENCE OF MALIGNANT MESOTHELIOMA IN KOREA : PROJECTION FROM 2015 TO 2034

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Background Malignant mesothelioma is a malignant tumour on the pleura or the peritoneum caused mostly by asbestos. Although asbestos is not currently used in Korea, the incidence of mesothelioma is increasing due to its long latent period. This study was the first to predict the future incidence of malignant mesothelioma in Korea over the next 20 years.

Method Mesothelioma incidence data from 1995–2014 was acquired from the Korea Central Cancer Registry (KCCR). Demographic data was acquired from the Korean Statistical Information Service (KOSIS) for 1995–2034. An APC model with Møller's power-link function was utilised to estimate the future incidence of mesothelioma.

Result It was predicted that 2684 and 1270 new cases of mesothelioma in men and women would occur over the next 20 years. For both sexes, the mesothelioma incidence rate was predicted to be greater in 2030–2034 (men, 0.622; women, 0.224) compared to that in 2010–2014 (men, 0.280; women, 0.152). The age-standardised incidence rate (ASR) was

predicted to be slightly greater in 2030–2034 (men, 0.229; women, 0.109) relative to the rate in 2010–2014 (men, 0.216; women, 0.104) in both sex. The changes in mesothelioma incidence were mostly caused by changes in the population structure of Korea due to ageing and not by changes in the mesothelioma risk ratio.

Conclusion The projected mesothelioma incidence continuously increases in Korea over the next 20 years. Although it was not related to an increase in the mesothelioma risk ratio, continuous preventive efforts are necessary.

Poster Presentation

Injuries

0254 OUTDOOR TEMPERATURE, AIR POLLUTANTS AND OCCUPATIONAL INJURIES RISK: A SYSTEMATIC REVIEW OF EPIDEMIOLOGICAL STUDIES AND A CASE-CROSSOVER STUDY

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Introduction We have carried out a systematic review of epidemiological studies about the association between extreme weather conditions and work-related injuries (WRI). Furthermore, we have analysed the association between extreme temperature, air pollutants and WRI in three Italian cities identifying more susceptible workers' categories by the means of a case cross over study.

Methods We have performed a systematic review of epidemiological studies concerning the risk of WRI for extreme temperature. All occupational injuries between 2001–2010 in Milan, Turin and Rome have been extracted from the Italian workers compensation claims archives. Associations between temperature (T), air pollutants (PM₁₀, NO₂, O₃) and WRI have been estimated using a time-stratified case-crossover study, separately in May–September (warm season, WS) and November–February (cold season, CS).

Results The epidemiological studies for estimating the association between extreme temperature and WRI appeared to be few and conducted with different methodologies. In our study exposure to NO₂ (lag 0–8) showed the highest positive effect on the risk of WRI ranging, in the warm season, between +20% (CI 95%: 1.16–1.24) in Milan and +30% (CI 95%: 1.24–1.37) in Turin. Temperature, in WS, was associated to an increased risk of WRI among those working in construction, transport and energy industry with bricklayer, metal-worker, mechanic, and asphalter as the most involved workers' categories.

Conclusions The findings of our study should be considered for planning health and safety prevention programs and correctly identifying measure targeted to risk mitigation for specific categories of workers.

Oral Presentation

Cancer

0255

LIFETIME CANCER RISK IN THE BRITISH RUBBER INDUSTRY: A RETROSPECTIVE COHORT WITH 49 YEAR FOLLOW-UP

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IARC concluded (IARC, 1982, 1987) there is sufficient evidence of a causal association between occupational exposures in the rubber-manufacturing industry and cancer. However, because of the complexity and variety of substances used in the process, a great deal of uncertainty regarding which specific exposures give rise to the increases in cancer remains. Moreover, since exposures in the rubber industry have decreased considerably and efforts have been made to remove confirmed carcinogens from the production process, it is unclear if increased cancer risks are (primarily) attributable to historical exposures.

To quantitatively evaluate exposure-response associations between specific long-term occupational exposure and cancer mortality, we updated a cohort of 40 867 men aged 35+ who were employed in the British rubber industry in 1967. A previous follow-up to 1976 identified excess risk of bladder cancer in men, excess death from lung cancer across the industry and excess stomach cancer mortality in the tyre sector.

Extending the mortality follow-up to 49 years, we are currently processing mortality data from NHS Digital and linking it to a population-specific quantitative job-exposure matrix for rubber (process) dust, rubber fumes, and n-Nitrosamines based on available data from the EU- EXASRUB project.

We hope to begin exposure-response analyses in April 2017 (and present the results at the conference). Few occupational cohorts of this size have such lengthy follow-up, so the presented analyses will provide an important overview of lifetime exposure-specific cancer mortality risks of specific exposures historically and currently encountered in the industry.

Oral Presentation

Other

0256

LABOUR MARKET SEGREGATION AND GENDER DIFFERENCES IN SICKNESS ABSENCE: TRENDS IN 2005–2013 IN FINLAND

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Introduction Women have higher work disability rates than men, but less is known of changes in this gap over time. We examined gender differences in sickness absence trends

focusing on sectoral and occupational gender segregation in the labour market.

Methods We used large representative register data on Finnish wage-earners aged 25–59 and generalised estimation equations based on repeated logistic regression to estimate the annual risk of having any long-term sickness absence.

Results Between 2005 and 2013, the predicted proportion of those with all-cause sickness absence decreased from the initial levels of 10.6 among men and 15.1 among women by 16.7% and 13.6%, respectively. The decreases were particularly large among male and female manual workers and among female upper non-manual employees, and there was further variation between different industrial sectors. Excess decrease among men mainly coincided with the peak of the economic recession in 2009. Widening of the gender gap was not influenced by differential distributional changes by employment factors, sociodemographic factors and previous sickness absence between the employed male and female risk populations, but it was influenced by differential within-group changes in sickness absence at the time of the recession between male- and female-dominated industrial sectors and occupational classes.

Conclusions Widening of the gender gap in sickness absence was largely explained by excess decrease in sickness absence in male-dominated sectors and occupations which were hit especially hard during the recent economic recession. The association may be related to reduced illness behaviour among employees experiencing greater labour market insecurity.

Poster Presentation

Psychosocial

0257

ASSOCIATIONS OF INDIVIDUAL LEVEL AND JOB-GROUP LEVEL ESTIMATES OF PSYCHOSOCIAL WORK FACTORS WITH DEPRESSIVE SYMPTOMS

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Background Job exposure matrix (JEM) methodology is useful in occupational psychosocial epidemiology for eliminating reporting bias and analysing low-prevalence outcomes in register based populations. This investigation aims to compare patterns of associations between psychosocial factors, assessed by JEM estimates and individual-level estimates, respectively, with depressive symptoms and to test the linearity of the associations.

Methods In this cross-sectional analysis, we used data from the Danish Work Environment Cohort Study 2000 (n=8583) to generate JEM and individual-level estimates of quantitative demands, work pace, influence, opportunities for development, emotional demands, and role conflicts at work. JEM estimates were attained from regression models providing sex- and age specific estimates for each job-group. Depressive symptoms were measured with the MHI-5 scale of the Short Form 36 questionnaire. The shape of the association between psychosocial exposures and depressive symptoms were assessed by use of linear splines. Using F-tests we tested whether reducing model flexibility (i.e. number of splines) led to statistically significant changes in model fit.