Results Women ever exposed to benzene had a significantly elevated risk of NHL (Hazard Ratio (HR) = 1.87, 95% CI = 1.19–2.96). Compared to unexposed women, significant trends in NHL risk were observed for increasing years of benzene exposure (p_{trend} = 0.009) and increasing cumulative exposure levels (p_{trend} = 0.01), with women in the highest duration and cumulative exposure tertiles having a significantly elevated association with NHL (HR = 2.07, 95% CI = 1.07–4.01 and HR = 2.16, 95% CI = 1.17–3.98, respectively).
Conclusions Our study is the first to our knowledge to evaluate this association in the context of a population-based prospective cohort of all women with diverse occupational histories. Our findings add to the evidence that benzene is associated with risk of NHL.

0330 A STUDY OF RADIOGRAPHIC ABNORMALITIES IN MINNESOTA TACONITE WORKERS

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Objectives A limited number of studies have been conducted in the taconite industry, typically without detailed exe posure information. We assessed occupational exposure to elongate mineral particles (EMP) in association with chest x-ray findings in a cross-sectional screening of 1188 current and former taconite workers.
Method Exposure was determined by a combination of some 1300 onsite measures taken by researchers and historical measures taken by mining companies. The NIOSH 7400 measurement method (PCM) was used to count EMP. Twenty-eight similarly exposed groupings (SEG) were developed and contained all jobs. Each SEG had multiple EMP measures as an anchoring point for historical exposure estimates. Work histories were standardised, mapped to SEGs and used to estimate exposures for each worker in each SEG. Chest x-rays were obtained using ILO methods, with two independent radiologists. Prevalence odds ratios were estimated by logistic regression for work duration and cumulative EMP exposure, adjusting for age, gender, BMI and occupations with high potential for asbestos.
Results Pleural findings occurred in 16.8% by consensus. Abnormalities were associated with duration of employment in the taconite industry for those working 21 years or more (OR=1.59, 95% CI=1.06–2.40). Pleural abnormalities were also associted with cumulative exposure to EMP for those cumulatively exposed to 1.16 EMP/cc-years or more (OR=1.93, 95% CI=1.32–2.83). Associations between parenchymal abnormalities and exposure were not observed.
Conclusions This study suggests that pleural abnormalities are related to duration of employment and to EMP exposure in taconite miners. Due to the measurement method, the specific type of EMP could not be described further.

0333 THE CONTRIBUTION OF OCCUPATIONAL STUDIES TO THE IDENTIFICATION OF CARCINOGENS IN THE IARC MONOGRAPHS AND HOW TO FURTHER IMPROVE IT

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Objectives To discuss the important role of occupational studies in identifying carcinogens and suggest how it could be still greater.
Method The contribution of occupational studies to the IARC monographs is reviewed.
Results Occupational epidemiology has made important contributions beyond developing knowledge to protect workers' health, notably in identifying carcinogens of concern for the general population. The IARC Monographs have evaluated many carcinogens for which occupational studies have provided key evidence. The recent classifications of diesel engine exhaust, trichloroethylene and polychlorinated biphenyls (PCBs) as human carcinogens, which depended heavily on data from occupational studies, are illustrative. In the evaluation of PCBs, for example, occupational cohort studies showing an exposure-related increase in the risk of malignant melanoma were pivotal for the conclusion of sufficient evidence of carcinogenicity. Despite such noteworthy contributions, the number of occupational studies that are ultimately informative tends to be relatively small relative to the number reviewed. The most informative studies tend to have common features, including clear reporting of methods and results, well-defined outcomes, quantitative estimates of exposure, adequate control of major confounders, and state of the art analytical methods, often with internal analyses of exposure-response. In contrast, studies that are too broadly focused and those with crude classifications of exposure or outcome, analyses by external comparisons alone or poor reporting of the methods and results are often less informative in the final evaluation.
Conclusions While occupational studies are important for carcinogen identification, their relevance could be further enhanced with improvements in study design, methods and reporting.

0344 20 YEARS (1989–2008) OF DIRECT COSTS ASSOCIATED WITH FALLS FROM HEIGHT AMONG UNION CARPENTERS, WASHINGTON STATE, USA

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Objectives To examine trends in workers' compensation payments for falls from height (FFH) among a large cohort of carpenters over a 20-year period (1989–2008). Cost data provide an important metric reflecting frequency of falls and severity of associated injuries.
Method Using combined administrative data we evaluated workers' compensation (WC) payments associated with FFH among a large (n = 24 830) 20-year cohort (1989–2008) of union carpenters in Washington State. Mean payments, costs rates and adjusted rate ratios based on hours worked were calculated using negative binomial regression to evaluate cost patterns based on age, union tenure, type of carpentry work and calendar time after adjusting and discounting to 2011 dollar values.
Results FFH accounted for $66.6 million in WC payments (a burden of $0.35 per hour worked) over the 20-year period. FFH were responsible for 5.5% of injuries but 15.1% of costs. Marked cost declines were observed over time, but not in a monotonic fashion. Reductions were more pronounced for indemnity than for medical care. Mean costs per fall were unchanged in the latter years of observation from those observed 1995–1996. Individuals performing millwrighting or drywall installation had cost rates over twice as high as commercial construction. Mean costs were 2.3 times greater among carpenters