worker’s maximum BL, were found for brain cancer (malignant and benign combined), Hodgkin’s lymphoma, lung cancer, and rectal cancer, while significant negative trends were found for colon cancer and melanoma. A borderline significant positive trend (0.05 < p < 0.10) was found for esophageal cancer. Significant interactions by country were found only for lung cancer, with Finland showing a strong positive trend and the UK showing only a modest trend. However, in general trends were marked in Finland and weak or inconsistent in the UK.

Conclusions We found strong positive incidence trends with increasing blood lead level, for several outcomes in internal analysis. Two of these, lung and brain cancer, were a priori suspected sites. Two of these outcomes are associated with smoking (lung and esophageal cancer), for which we had no data; however, we had no a priori reason to believe smoking differed between workers with different BL levels.

Discussion and conclusion A key strength of this study is the availability of high-quality measurement data covering workers’ occupational histories. The dust and fibre JEMs enable estimation of annual profession-specific exposure levels that will form the basis of quantitative exposure estimates in the study and consequently quantitative exposure-response analyses.

ASSESSMENT AND ASSIGNMENT OF EXPOSURE TO ASBESTOS FOR AN INDUSTRIAL COHORT OF CHRYSOTILE MINERS AND PROCESSORS

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Introduction Historical dust concentrations are available for an occupational cohort study of workers active for 12 months or more between 1975 and 2010 in a chrysotile mine and processing facilities in Asbest, the Russian Federation. The primary aim is to quantify exposure-response relationships for cancers potentially associated with chrysotile exposure. Some of those cancers are also tobacco-related; however individual-level information on tobacco use is not available for the full cohort. To address this gap, a cross-sectional study of current and retired workers from JSC Uralasbest was conducted to assess the relationship between smoking status and workers’ exposure to chrysotile.

Methods Self-administered questionnaires were completed by current workers during meetings organized by occupational safety specialists. Retired workers filled in questionnaires during Veterans’ meetings or were interviewed via telephone or at home. Estimates of exposure to chrysotile were available for 999 current and 3795 retired workers who were linked to the cohort study.

Results Among the 7451 respondents (n=3698 men and n=3753 women), 66% of men and 9% of women were ever-smokers. Smoking prevalence was stable across birth decades in men, but increased from <10% in women born before 1960 to 30% in women born after 1980. Among ever-smokers, men smoked more cigarettes per day than women. The smoking prevalence was similar in exposed and non-exposed men, and did not increase with exposure category. The greatest difference in the proportion of smokers among women was observed between non-exposed (4%) and all exposed categories combined (7.5%), whereas there was little variation across categories of exposure (7%–8%). Overall, the self-reported smoking prevalence may have been underestimated, especially in the older age categories due to survivor bias.

Conclusion While no adjustments for smoking among men appear necessary in the future analyses, including smoking propensity by birth cohort for women may be useful.