of 2 scales were compared in 4 groups of occupational and 3 groups of leisure time PhA. The differences in means were tested by significance level (p < .05). The statistical software SPSS 13.0 for Windows was used in the statistical analysis.

Results The prevalence of PD among seafarers was 9.3%, weak SOC 24.2%. Spearman’s correlation between SOC and PD was 0.211 (p < 0.01). SOC was correlated with occupational (Spearman’s correlation 0.108 (p < 0.05) and leisure time (Spearman’s correlation 0.114 (p < 0.05) PhA. SOC was weaker in the heavy occupational PhA group and showed no difference between leisure time PhA groups. The mean values of the GHQ-12 scale showed no differences in the occupational and leisure time PhA groups.

Conclusions Psychological distress was not more prevalent among seafarers as compared to the investigations among other occupations in Italy, UK, the Netherlands and Sweden. Sense of coherence among seafarers was weaker in the heavy occupational physical activity group, confirming the findings in the other investigations (weaker SOC in lower socioeconomic status groups).

0339 EVALUATING TEMPORAL TRENDS IN OCCUPATIONAL LEAD EXPOSURE USING META-REGRESSION OF DATA IN THE PUBLISHED LITERATURE

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Objectives The published literature provides useful data for examining exposure differences across industries, jobs and time periods, but the analysis is challenging because the data is usually in summary form. We used mixed-effects meta-analysis regression models, which are commonly used to summarise health risks from multiple studies, to predict temporal trends of lead blood and air concentrations in multiple US industries from the published data.

Method We extracted the geometric mean (GM) and geometric standard deviation (GSD) of blood and personal air measurements from US worksites from the literature. When not reported, we derived the GM and GSD from other summary measures. Industries with measurements in ≥2 years and spanning ≥10 years were included. Models were developed separately by industry and sample type. Each model used the log-transformed GM as the dependent variable and calendar year as the independent variable. It also incorporated a random intercept that weighted each study by the inverse of the sum of the between- and within-study variances. Within-study variances consisted of the squared log-transformed GSD divided by the number of measurements. Maximum likelihood estimation was used to obtain the regression parameters and between-study variances.

Results The blood measurement models predicted statistically significant declining trends (2–11% per year) in 5 of the 13 industries. The air measurement models predicted statistically significant declining trends (1–3%) in 2 of the 10 industries; increasing trends (7–10%) were observed for 2 industries.

Conclusions Meta-analysis provides a useful tool for synthesising occupational exposure data that can aid future retrospective exposure assessment.

0342 LUNG CANCER RISK ATTRIBUTABLE TO OCCUPATION: IN A CASE CONTROL STUDY IN BLACK SOUTH AFRICANS, 2001–2008

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Objectives Lung cancer is the 4th most common malignancy in South Africa. Although smoking is a well established risk factor, the role of occupational exposures in the local setting is not clear. We estimated the lung cancer risk attributable to occupations.

Method Data from on-going Johannesburg Cancer Case-Control Study of black African adult cancer patients (2001–2008) was used. Information from 579 lung cancer cases and 1120 frequency matched controls was analysed. Controls were randomly selected from cancers not known to be associated with the effects of tobacco, matched by sex and age (±5 years). Usual
occupation stated at interview were used as an indicator of occupational exposure. Odds ratios (OR) and 95% confidence intervals (CI) were estimated using unconditional logistic regression and attributable fraction (AF) by Miettinen’s formula, adjusted for smoking pack years, HIV status and domestic fuel type use.

**Results** The mean age of cases and controls was 56.0 and 57.1. Among men, adjusted OR for lung cancer was 3.0 (95% CI 1.4–6.4) in miners and 1.7 (95% CI 1.3–3.2) in transport occupations. In women, the adjusted OR in domestic workers was 7.3 (95% CI 1.7–11.3) whereas working in the food and beverage industry was 4.9 (95% CI 1.4–26.8). Occupation resulted in an AF of 14% in men and 26% in women.

**Conclusions** Occupational risk factors for lung cancer in South Africa are gender-specific, having more impact in women than in men. Further studies are needed to assess possible specific exposures in the mining and transport industries for men, and food industry and private homes for women.

**Objectives** Mesothelioma is a rare neoplasm which is caused by asbestos exposure. South Africa has mined and refined all three types of asbestos since 19th century with the peak of production in 1940–1980s. At present asbestos use and production is banned in South Africa. Trend 1995–2008 in mesothelioma rate was assessed to determine burden of asbestos related deaths due to mesothelioma by year and gender.

**Method** Death certificates with underlying cause of death stated as C45 were selected for the study in 1995–2008. For each year of study, age and gender distribution was obtained from the national statistical releases. Mesothelioma rates, 95% confidence interval were calculated for each year and sex, and for age groups and sex. Poisson regression was used to test for trend.

**Results** In total 2497 cases were identified of deaths due to mesothelioma by year and gender. Poisson regression was used to test for trend. Interval were calculated for each year and sex, and for age groups and sex. Poisson regression was used to test for trend. In women, the adjusted OR in domestic workers was 7.3 (95% CI 1.7–11.3) whereas working in the food and beverage industry was 4.9 (95% CI 1.4–26.8). Occupation resulted in an AF of 14% in men and 26% in women.

**Conclusions** Occupational risk factors for lung cancer in South Africa are gender-specific, having more impact in women than in men. Further studies are needed to assess possible specific exposures in the mining and transport industries for men, and food industry and private homes for women.