Results The general pattern of results was similar in both studies. Pooling the studies, we found no increased risk of lung cancer for cleaning-related occupations (odds ratio and 95% confidence interval (OR) for “ever employed in any cleaning-related occupation”: 1.0; 0.8–1.1) as compared to never cleaners. Among chemical exposures, we found a negative association of lung cancer with any occupational exposure to cleaning agents (OR: 0.9; 0.7–1.0), and biocides (0.8; 0.7–1.0). In a secondary analysis, restricting to subjects with a history of asthma, the OR between lung cancer and long duration employment in a cleaning-related occupation was 2.1 (0.9 to 5.0). The OR of lung cancer and cleaning agents was also higher, yet non-significant, among asthmatics (1.5; 0.8–2.8) than among non-asthmatics (0.9; 0.7–1.1).

Conclusions People employed in cleaning-related occupations or who had worked with cleaning agents had no increased risk of lung cancer. There was a suggestion that this overall result masked a possible increased risk of lung cancer among asthmatics with cleaning-related exposures and/or smoking.

Abstracts

**307 OCCUPATIONAL EXPOSURE TO PAH AND LUNG CANCER RISK IN THE SYNERGY PROJECT**

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**Objectives** To evaluate the association between occupational exposure to polycyclic aromatic hydrocarbons (PAH) and the risk of lung cancer, adjusted for tobacco smoking, in the SYNERGY project.

**Methods** The SYNERGY project pools data from 16 case-control studies conducted in Europe, Canada, China and New Zealand between 1985 and 2010. Lifetime occupational and smoking information was collected through interviews from 19,369 cases of lung cancer and 23,674 matched population or hospital controls. PAH exposure was estimated using a quantitative general population job-exposure matrix (SYNJEM) based on five-digit ISCO-68 codes (4021 cases, 4077 controls ever exposed). Odds ratios (ORs) and 95% confidence intervals (95% CI) of lung cancer risk were estimated using unconditional logistic regression models adjusted for age, sex, study centre, smoking behaviour, and ever employment in an occupation with known lung cancer risk.

**Results** We observed a modest increased risk of lung cancer associated with occupational exposure to PAHs according to various exposure metrics (ever/never, duration, cumulative dose, time since last exposure). The odds ratio (OR) for ever exposure to PAH was 1.09 (95% CI, 1.04–1.15) overall, 1.08 (95% CI, 1.02–1.15) among men and 1.20 (95% CI, 1.05–1.38) among women. These results are further supported by significant exposure response-relationships (p-value for trend < 0.05 for years of employment and cumulative exposure ([BaP] μg/m³-years)). When stratified by histological subtype, increased risks and positive exposure response-relationships were apparent only for squamous cell carcinoma and small cell lung cancer.

**Conclusions** Our pooled analysis suggests that occupational exposure to PAH is associated with a modest increase in the risk of lung cancer, after adjustment for tobacco smoking and exposure to other occupational lung carcinogens.