

## Oral Presentation

## Chemicals

## 0370 SYSTEMATIC REVIEW AND META-ANALYSIS OF OCCUPATIONAL EXPOSURE TO STYRENE AND LUNG CANCER

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Styrene is widely used in industrial settings, leading to important occupational exposure. Currently it is classified by IARC as “possibly carcinogenic to humans” based on limited evidence of an association with lymphohaematopoietic cancers. Several recent studies suggest increased risk of lung cancer may be associated with exposure to styrene. We conducted a systematic search and a meta-analysis of epidemiologic studies of exposure to styrene and incidence or mortality of lung cancer. Of 167 papers retrieved, 50 were found to provide pertinent data after screening the abstracts; 42 of these were occupational cohort studies conducted in 3 main work settings: chemical production, reinforced plastics manufacturing, and styrene-butadiene rubber production. There was significant overlap in the populations among published papers, which reported data from 7 separate cohorts and one pooled international cohort, some parts of which were also published separately. Meta-analysis showed an excess risk of lung cancer among workers ever exposed to styrene (RR 1.14, 95% CI 1.04–1.24, I<sup>2</sup>63%). The association was stronger when the analysis was limited to the reinforced plastics industry, where co-exposures are less important than in other industries (RR 1.20, 95% CI 1.10–1.31, I<sup>2</sup>72%). Meta-analysis of exposure-response relations in the subset of studies that reported quantitative or categorical exposure data are ongoing and will be reported.

## Oral Presentation

## Shift Work

## 0371 NIGHT SHIFT WORK AND PROSTATE CANCER RISK: RESULTS FROM THE EPICAP STUDY

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**Background** In 2007, the International Agency for Research on Cancer classified “shift work leading to a disruption of circadian rhythm” as probably carcinogenic to humans based on sufficient evidence from experimental animal models but limited evidence from epidemiological studies in humans. In this

context, we investigated the role of night shift work in prostate cancer based on data from the EPICAP study.

**Methods** EPICAP is a French population-based case-control study including 819 incident prostate cancer cases and 879 frequency matched controls. Cases and controls were face-to-face interviewed on their lifetime occupational history with details on work schedules for each job held for  $\geq 6$  months. Night work was defined as having performed permanent or rotating night shifts for at least 270 hours/year or 3 nights/month during  $\geq 1$  year.

**Results** Permanent and rotating night work were not associated with prostate cancer (OR=0.99 [0.78–1.26], OR=0.89 [0.66–1.20], respectively). However, permanent night work was associated with aggressive prostate cancer (OR=1.40 [0.97–2.03]), especially for a duration greater than 25 years (1.89 [1.15–3.11]). Interestingly, an association between night work and prostate cancer risk was observed for men with an evening chronotype (OR=1.82 [1.01–3.28]), especially for rotating night work (OR=2.34 [1.02–5.35]).

**Conclusion** Our results suggest that night work may be associated with prostate cancer, particularly in men with aggressive prostate cancer or with an evening chronotype. Further investigations are needed to confirm our findings and to take into account a potential influence of an individual susceptibility to circadian genes in this association.

## Oral Presentation

## Cancer

## 0372 OCCUPATIONAL EXPOSURE TO PAH AND LUNG CANCER RISK IN THE SYNERGY PROJECT

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**Objective** Using data from the SYNERGY project, we evaluated the association between occupational exposure to polycyclic aromatic hydrocarbons (PAH) and the risk of lung cancer, adjusted for tobacco smoking.

**Methods** For 16 901 lung cancer cases and 20 965 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 (4639 cases, 4713 controls ever exposed). Odds ratios (ORs) and 95% confidence intervals (95% CI) 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 ORs for ever exposure to PAH were 1.09 (95%CI, 1.04–1.15) overall, 1.08 (95%CI, 1.02–1.15) in men, 1.20 (95%CI, 1.05–1.38) in women, and 1.04 (95%CI, 0.88–1.22) in never smokers. These results are further supported by significant exposure response-relationships (p-value for trend <0.05 for years of employment and cumulative exposure [(BaP)  $\mu\text{g}/\text{m}^3\text{-years}$ ]). When stratified by