nasopharyngeal carcinoma and myeloid leukaemia. To provide further information on the risks of cancer from formaldehyde, we extended follow-up of 14 008 male chemical workers at six factories in England and Wales.

**Method** The cohort was identified from employment records, and exposures to formaldehyde were classified on the basis of job title. Subjects were traced through health service records, and their mortality was compared with national death rates by the person-years method. Associations of exposure with incident upper airways cancer and leukaemia were further explored in nested case-control analyses.

**Results** More than 2000 additional deaths had occurred since last follow-up of the cohort. Excess deaths were observed from cancers of the oesophagus (100 v 93.2 expected), stomach (182 v 141.1), rectum (107 v 86.8), liver (33 v 26.9) and lung (813 v 645.6), but none of these tumours exhibited a clear exposure-response relationship. In nested case-control analyses of 115 men with upper airways cancer (including one nasopharyngeal cancer), 92 with leukaemia, and 45 with myeloid leukaemia, there were no elevations of risk in the highest exposure category (>2 ppm for ≥1 year). When the two highest exposure categories were combined, the odds ratio for myeloid leukaemia was 1.26 (95% CI 0.39–4.08).

**Conclusions** Our results provide no support for a hazard of myeloid leukaemia, nasopharyngeal carcinoma or other upper airways cancer from formaldehyde, and indicate that any excess risk of these diseases, even from relatively high exposures, is at most small.

**Conclusions** Our findings supports the conclusion of IARC that workers exposed to silica dust increase lung cancer risk but adds new evidence on a positive additive interaction between silica and smoking.

**References**

1. Järvholm B, Åström E. The incidence of lung cancer was studied in Swedish factories in England and Wales.

2. Järvholm B, Åström E. We conducted a cross-sectional survey among commercial janitors, including both union and non-union workers, and a comparison group of union security guards using peer interviewers and electronic data collection.

3. Järvholm B, Åström E. Work intensity was measured using a 10-point scale and outcomes including injury, musculoskeletal pain, disability, and stress were assessed for the current year, and two previous years. The association between work intensity and each outcome was evaluated, controlling for group and demographics.

4. Järvholm B, Åström E. An anecdotal reports of increased workload among janitors are substantiated by the reported increase in work pressure over the past three years and its association with stress, pain and injury among janitors.
Results There were 600 cases of lung cancer in the highest exposed group and 668 in the lowest exposed group. The relative risk comparing high and low exposed decreased the years after exposure had stopped. It was 1.8 during the decade when the exposure come to an end, decreased to 1.5 (95% CI 1.3–1.9) the next decade, to 1.2 (95% CI 1.0–1.5) the decade later and finally to 1.0 (95% CI 0.8–1.2) three decades after the exposure to asbestos had stopped.

Conclusions The time pattern of asbestos related lung cancer seem to follow a similar pattern as the risk of lung cancer in ex-smokers.

0058 COLORECTAL CANCER RISK AND SHIFT WORK IN A POPULATION-BASED CASE-CONTROL STUDY IN SPAIN (MCC-SPAIN)

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Objectives Epidemiological cancer studies on shift work have focused on breast cancer while evidence on other tumours is limited. We evaluated colorectal cancer risk in relation to night and rotating shift work and genetic variation, in a population based case-control study in Spain.

Method 1066 male and 592 female incident colorectal cancer cases and 3388 randomly selected population controls of both sexes, enrolled in 11 regions of Spain, were included. Information was collected on socio-demographic, lifestyle, medical history and other variables by face-to-face interviews. Lifetime occupational history on daily time schedule of each job, day/night/rotating shifts, light at night exposure, and duration of different jobs, was used for exposure assessment. We used unconditional logistic regression adjusting for potential confounders.

Results Among controls 10% of males and 4% females had ever worked full time in permanent night shifts (working between midnight and 6am) and 24% of males and 14% of females in rotating shifts for ≥1 year. Having ever performed rotating shift work was associated with an increased risk for colorectal cancer history, and demographics were collected from 776 Boston area workers on their first day at one of seven commercial construction projects. Workers were classified as long-term workers (on-site greater than or equal to 30 days) or short-term workers (less than 30 days). Bivariate and multiple logistic regression analyses tested the relationship between term length and prevalence of self-reported musculoskeletal pain, adjusting for relevant covariates.

Results Of the 776 new workers, 344 (44%) were on-site after one month, 164 (21%) remained after two months, and only 74 (10%) remained after three months. Thirty-three percent of workers reported musculoskeletal pain at baseline. Short-term workers were 2.02 times (95% CI: 1.32, 3.08) more likely to report any musculoskeletal pain at baseline than long-term workers, when controlling for trade and tenure. Reporting of single- and multi-site pain was also associated with term length, with statistically significant adjusted odds ratios of 2.00 and 2.35, respectively.

Conclusions The observed excess of self-reported pain in short-term workers when compared to long-term workers mirrors disparities between temporary and non-temporary workers in other industries. This observed effect highlights the need to consider worksite mobility when analysing and interpreting data aimed at improving construction worker health and safety.

0056 PATTERNS OF SITE-EMPLOYMENT OF CONSTRUCTION WORKERS ON AND OFF COMMERCIAL CONSTRUCTION SITES IN NEW ENGLAND AND THE RELATIONSHIP TO MUSCULOSKELETAL PAIN

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Objectives Construction workers who work on multiple job sites have a high prevalence of musculoskeletal disorders. Yet, scant quantitative information exists in the scientific literature on the relationship between worksite mobility patterns and musculoskeletal disorders.

Method Self-reported musculoskeletal pain, as defined as pain experienced in one of seven body areas in the past month, work history, and demographics were collected from 776 Boston area workers on their first day at one of seven commercial construction projects. Workers were classified as long-term workers (on-site greater than or equal to 30 days) or short-term workers (less than 30 days). Bivariate and multiple logistic regression analyses tested the relationship between term length and prevalence of self-reported musculoskeletal pain, adjusting for relevant covariates.

Results There were 600 cases of lung cancer in the highest exposed group and 668 in the lowest exposed group. The relative risk comparing high and low exposed decreased the years after exposure had stopped. It was 1.8 during the decade when the exposure come to an end, decreased to 1.5 (95% CI 1.3–1.9) the next decade, to 1.2 (95% CI 1.0–1.5) the decade later and finally to 1.0 (95% CI 0.8–1.2) three decades after the exposure to asbestos had stopped.

Conclusions The time pattern of asbestos related lung cancer seem to follow a similar pattern as the risk of lung cancer in ex-smokers.