hair dyeing. The results were not driven by personal hair dye use, or smoking (key subjects additionally evaluated for cotinine). Analysis of a randomly chosen hair waving product confirmed the presence of o-and m-toluidine.

**Conclusions** Our observations indicate that hairdressers are currently exposed to an established (o-toluidine), and a suspected (m-toluidine), human carcinogen from permanent hair dyes (including light colours) and unexpectedly also from hair waving.

**Objectives** Controversies have long existed on causes for low back pain, and the role of occupational mechanical exposures, e. g. lifting has been debated for several decades. The aim of this study was to investigate if lifting is a risk factor for low back surgery.

**Method** The study is based on data from the Musculoskeletal Research Database at the Danish Ramazzini Centre, comprising nine previous studies on musculoskeletal symptoms in working populations, performed from 1993 to 2005. The study was limited to participants aged 18–65, yielding 39 258 individuals, 22 669 women (58%) and 16 589 men (42%). Mean age at baseline was 42.9 years. Occupational mechanical exposures were assessed by a job exposure matrix linking job title to expert ratings of e. g. lifting, which was divided into three groups based on daily lifting: 0 kg (representing minimal exposure), 1–1000 kg, and >1000 kg. Cases of first time surgery for herniated lumbar disc (n = 1025) or lumbar fusion (n = 447) until 2012 were identified in the Danish National Patient Register. In preliminary analyses, risk estimates were obtained by logistic regression analysis, adjusting for age, gender, and study.

**Results** An exposure response relationship was seen for herniated lumbar disc: OR=1.2 (95% CI 1.0–1.4) for 1–1000 kg/day, and OR=2.2 (1.9–2.6) for >1000 kg/day. For lumbar fusion: OR=1.5 (1.2–2.0) for 1–1000 kg/day, and OR=2.8 (2.4–3.5) for >1000 kg/day.

**Conclusions** Lifting was associated with later operations for both herniated lumbar disc and lumbar fusion. In further analyses, life style factors and occupational psychosocial exposures will be addressed.

**Objectives** To assess the short-term impact of expected exposure to PM10 due to a major construction site on the health of the population residing in the seven towns nearby (N = 235 000).

**Method** Estimates of PM10 short-term effects on all-cause and cause-specific mortality and on selected causes of hospital admissions were estimated for a pre-construction period (2007–2011) using Poisson regression models. Expected PM10 concentrations at ground level were estimated applying the ISCST3 Gaussian dispersion model to forecast PM10 emission rates due to the site. Mean counts of the 2007–2011 deaths and hospitalizations were taken to estimate the expected numbers of health events. The 2013–2015 impact was evaluated in terms of numbers of attributable deaths and hospitalizations during the construction site progress, under several counterfactual scenarios.

**Results** Between 2013 and 2015, PM10 levels exceeding the mean PM10 pre-construction concentrations would be responsible for 0.54 attributable deaths (0.13 cardiovascular and 0.04 respiratory) and for 0.14 cardiac, 0.05 cerebrovascular and 0.51 hospital admissions. If considering the EU limit of 40 μg/m³, PM10 levels would be responsible for 11.06 attributable deaths (2.69 cardiovascular and 0.90 respiratory) and for 2.81 cardiac, 1.17 cerebrovascular and 10.89 respiratory hospital admissions.

**Objectives** To consider the data shortcomings and methodological decisions involved in current burden of disease studies and the potential for these to be overcome or/and standardised.