

identified 20 relevant studies of prenatal noise exposure levels and health. Maternal tissues attenuate industrial noise by about 30 dB. The foetus responds the earliest to noise exposure from the 19th week of gestational age. There is some evidence of an increased risk of hearing loss at prenatal noise levels  $\geq 85$  dBA (8 hour average) and little evidence at lower levels. Increased risks for preterm birth, small-for-gestational-age and congenital malformations are seen as single study findings at levels  $\geq 90$  dBA. There is little evidence for how noise exposure may increase the risk of extra-auditive effects in the foetus. Methodological shortcomings and the scarce number of studies limit the conclusions that can be drawn. Still, we recommend pregnant women avoid working at noise levels  $\geq 85$  dBA.

### 01B.5 INFERTILITY IN A COHORT OF MALE DANISH FIREFIGHTERS

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**Introduction** Firefighters are exposed to many hazardous agents, including heat, stress, nightwork and chemicals, which may have negative impact on their fertility. Despite this, there is a lack of epidemiologic studies in the field. We aimed to examine infertility among male Danish firefighters.

**Methods** We established a cohort of 4710 male Danish firefighters born from 1964 to 1992 based on historical records from employers and trade unions. The firefighter's unique personal identification number, applied to all residents in Denmark, was used as a key identifier for linkage of information from nationwide registers. Information on vital status and female partners was obtained from the Danish Civil Registration System. Information on diagnoses of, conditions related to and treatments for infertility was retrieved from the *In Vitro* Fertilisation (IVF) Register and the National Patient Register (NPR). Hazard ratios and their 95% confidence intervals for both male factor and overall infertility were estimated through cox regression analyses comparing the firefighters to two reference groups: a) a random sample of employees and b) military employed men.

**Results** Among the full time firefighters (n=1,253), male factor infertility was significantly increased compared to the sample of employees (IVF model HR=1.5, 95% CI 1.1–1.9 and NPR model HR=1.5, 95% CI 1.2–2.). Results were less consistent using the military employees as reference. Further, the increase in infertility seemed restricted to the time employed as firefighter and, thus disappeared when the men quit firefighting. No increase in risk of either male factor or overall infertility was seen among the part time/volunteer firefighters (n=3,497).

**Conclusion** Full time firefighting was associated with an increased risk of being diagnosed with male factor infertility. This was not the case for part time firefighters. The increased risk seemed confined to actual firefighting time, indicating an occupational association,

### 01B.6 MATERNAL CUMULATIVE EXPOSURE TO EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS, PREMATUREITY AND BIRTH WEIGHT: A POOLED ANALYSIS OF TWO BIRTH COHORTS

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**Background** Data on the effects of extremely low frequency electromagnetic fields (ELF-EMF) on pregnancy outcomes are inconclusive.

**Objectives** To study the relation between maternal cumulative exposure to ELF-EMF during pregnancy and the risk of prematurity or small for gestational age in a pooled analysis of two French birth cohorts.

**Methods** Elfe and Epipage2 are both population-based birth cohorts initiated in 2011 and included 18 329 and 8400 births respectively. Health data and household, mother and child characteristics were obtained from medical records, by face-to-face interview at maternity, and completed during follow-up. A recently updated job-exposure-matrix (JEM) was used to assess cumulative exposure to ELF-EMF during three periods: 1) until 15, 2) until 28 and 3) until 32 weeks of gestation. Analyses were restricted to single live births in mainland France and to mothers with documented jobs (n=19,894). Differences in selection frame between the two cohorts were controlled using a propensity score weighting method. We used multiple imputation method to deal with missing data. Logistic regression models adjusted for the main potential confounders were used.

**Results** According to the period studied, 3.2% to 4% of mothers were classified as highly exposed to ELF-EMF. An increased risk of spontaneous prematurity was observed among the most exposed groups in period 2 and period 3. Overall, no consistent association with small for gestational age was found.

**Conclusion** This study, with substantial statistical power provides evidence of a possible association between cumulative exposure to ELF-EMF during pregnancy and the risk of spontaneous prematurity.