electricians of 0.71 (95%CI 0.48–1.06). Total person months at risk (excluding months with no sex, pregnancy, surgical sterility or menopause) were 12 696 for welders and 13 313 for electricians. Likelihood of conceiving in any month at risk was significantly reduced with use of better contraception, drinking >7 units of alcohol, increasing age, number of previous pregnancies and, for welders, smoking >10 cigarettes/day. No effect of either current or cumulative work in trade was evident having adjusted for confounding. HR for working as a welder was -0.07 95% CI -0.49 – 0.35 .

Conclusions Female infertility presents challenges as an outcome in occupational epidemiology, but data can be structured to allow for time at risk. Analysis to date has demonstrated no important effect of exposure to welding.

01B.2 PARENTAL OCCUPATIONAL EXPOSURE TO EXTREMELY LOW-FREQUENCY MAGNETIC FIELDS AND THE RISK OF LEUKAEMIA IN THE OFFSPRING

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Background Leukaemia is the most common cancer diagnosed in children worldwide, accounting for about one third of all paediatric malignancies in economically developed countries. Despite extensive research, the aetiology of this cancer remains largely unknown. Previous studies suggested that parental occupational exposure to extremely low-frequency magnetic fields (ELF-MF) may increase leukaemia risk in the offspring.

Objective We aimed to evaluate the association of parental occupational exposure to ELF-MF with the risk of acute lymphoblastic leukaemia (ALL) and acute myeloid leukaemia (AML) in their offspring.

Methods We pooled data from 11 case-control studies participating in the Childhood Leukaemia International Consortium (CLIC). The studies included 9723 childhood leukaemia cases and 17 099 controls. Data on parental job history and other characteristics of the study population were collected by questionnaires and interviews, except for the Finnish study where data was obtained from population registries and censuses. Parental occupational ELF-MF exposure was estimated by linking job histories to an independently developed international ELF-MF job-exposure matrix. Logistic regression models were used to estimate odds ratios (OR) and 95% confidence intervals (95% CI). We employed two analytical approaches to obtain summary risk estimates. First, we conducted pooled analyses of all studies combined. Second, we summarized ORs from individual studies in meta-analyses.

Results The summary OR estimates from pooled analyses for paternal ELF-MF exposure at conception were 1.04 (95% CI 0.95–1.13) for ALL and 1.06 (95% CI 0.87–1.29) for AML, at >0.2 microtesla (μ T) compared to ≤ 0.2 μ T. Corresponding estimates for maternal ELF-MF exposure during pregnancy, using again the 0.2 μ T cut-off, were 1.00 (95% CI 0.89–1.12) for ALL and 0.85 (95% CI 0.61–1.16) for AML. No trends with increasing exposure level were evident. Furthermore, no associations were observed in the meta-analyses.

Conclusion Our study did not find any associations between parental occupational ELF-MF exposure and childhood leukaemia.

01B.3 HYPERACTIVITY DISORDER IN CHILDREN WAS RELATED TO MATERNAL EMPLOYMENT STATUS DURING PREGNANCY AND POSTPARTUM DEPRESSIVE SYMPTOMS: A PROSPECTIVE COHORT STUDY

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Background Attention-deficit/hyperactivity disorder (ADHD) is one of the most common neurobehavioral disorders globally. Although some investigations implied a relationship between ADHD and maternal psychosocial stress exposure during pregnancy, little is known about the effects of maternal occupational exposure and even postpartum mental health. This study aimed to investigate whether maternal employment status during pregnancy and postpartum depressive symptoms are related to offspring hyperactivity, one of the key early symptoms of children ADHD.

Methods Taiwan Birth Cohort Study recruited representative mother-infant pairs, as a result of approximately 12% of all deliveries in 2005 using multistage stratified sampling. Employment status with or without job stress during pregnancy and postpartum depressive symptoms were inquired when the child was six months of age by face-to-face interview. Ever having hyperactivity syndrome as evaluated by physicians, psychologists, or special educators was inquired when the child was eight years of age. Factors of hyperactivity, including maternal employment, job stress, and postpartum depression were studied by adjusted odds ratios (aORs) and 95% confidence interval (CI) using logistic regression, adjusting for gender, urban/rural residence, birth season and household income.

Results 18 215 mother-infant pairs were included in the final analysis, where 421 (2.3%) of children had been diagnosed as having hyperactivity before 8 years of age. Comparing to mothers employed and without job stress during pregnancy, the aOR (95% CI) of child hyperactivity was 1.47 (95%CI: 1.12, 1.94) for mothers with job stress and 1.43 (95%CI: 1.12, 1.84) for mothers with no employment during pregnancy, respectively. Besides, children were 1.36 (95% CI: 1.07, 1.73) times more likely to receive an ADHD diagnosis if their mother experienced postpartum depressive symptoms.

Conclusions In this prospective birth cohort study, mothers' employment status, job stress during pregnancy, and postpartum depressive symptoms were risk factors for the occurrence of hyperactivity in their children.

01B.4 HEALTH EFFECTS OF PRENATAL OCCUPATIONAL NOISE EXPOSURE: A SYSTEMATIC REVIEW

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Current legislation and threshold limits for occupational noise exposure may not sufficiently account for higher vulnerability of the foetus. We conducted a systematic literature review and

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 ≥ 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 ≥ 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 ≥ 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.