restricted to nurses below 30 years of age, odds ratio (OR) 3.4 (95% confidence interval [CI] 1.0–12.4). A similar increase in risk for experiencing spontaneous abortions throughout life was found among permanent night-shift workers, OR 4.4 (95% CI 1.2–16.3), also in this case for nurses below 30 years of age. No increased risk of spontaneous abortions was found among nurses above 30 years of age.

Conclusions The findings suggest that night work may cause spontaneous abortion by disrupting the circadian rhythms, but other unknown mechanisms may also play a role. More studies of night-shift workers considering different age groups are needed to supplement the findings.

221 PSYCHOSOCIAL JOB STRAIN AND RISK CONGENITAL MALFORMATIONS IN OFFSPRING

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10.1136/oemed-2013-101717.221

Background Previous studies have shown a relationship between maternal stress during pregnancy and increased risk of malformations in children, eg: cleft lip, palate, neural tube and heart defects. To our knowledge no previous studies has had a job-related angle to maternal stress during pregnancy. The present project therefore examines if maternal exposure to psychosocial job strain (high demands and low control) measured by questionnaire early in pregnancy is associated with congenital malformations (all), cardiovascular malformations and malformations in the musculoskeletal system.

Methods We use the Danish National Birth Cohort with more than 100.000 children at baseline. In the present study 60,120 pregnancies are included due to inclusion criteria as: working, pregnant when interviewed, singleton pregnancy and information on exposure, covariates and outcome. Congenital malformations are available from the Danish Medical Birth Register with ICD-10 codes. Analyses are controlled for maternal age, BMI, parity, smoking, alcohol use, type of work, maternal serious disease and gestational age at interview.

Results In total 3,069 cases of malformations were registered in the study population, 582 of these were cases of circulatory malformations and 1,555 of musculoskeletal malformations. Logistic regression analyses showed that high strain was not associated with increased risk of any type of malformations (OR = 0.99, CI: 0.85–1.15), circulatory (OR = 1.04, CI: (0.75–1.44) or musculoskeletal malformations (OR = 0.88, CI: 0.70–1.10). The analyses were adjusted for maternal age, parity, smoking, alcohol, maternal BMI, type of work, maternal serious disease, gestational age at interview. Crude analyses did not change the results significantly.

Conclusion The results support the null-hypothesis; that the risk of having a child with congenital malformations is independent of psychosocial job strain in this sample from the Danish National Birth Cohort. As this contradicts previous findings (e.g. bereavement studies, with loss of a child or husband), a discussion regarding exposure and sample size could be beneficial.

Session: Parallel session 2 RICOH: Child behavior and semen quality

222 MALE REPRODUCTIVE TOXICITY OF PHTHALATES: A CROSS-SECTIONAL STUDY OF TESTOSTERONE AND TOTAL SPERM COUNT IN EUROPEAN AND INUIT POPULATIONS

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10.1136/oemed-2013-101717.222

Objectives Phthalates are widely used man-made chemicals that in spite of a short half-life in the organism are detectable in urine among more than 95% of investigated men and women. Phthalates are with varying potency anti-androgens through interaction with several metabolic steps involved in endogenous sex-steroid metabolism. Some cross-sectional studies have shown inverse associations between phthalates and plasma levels of testosterone and some semen characteristics, but the evidence base is limited and results are conflicting. The aim of this study was to examine the hypothesis that phthalates are associated with reduced levels of plasma testosterone and total sperm counts.

Methods Spouses of pregnant women from Greenland (n = 196), Poland (n = 190) and Ukraine (n = 203) were enrolled into the study. We measured six metabolites of di-2-ethylhexyl phthalate (DEHP) and diisononyl phthalate (DINP) in serum and concurrent testosterone, sperm concentration, sperm volume and total sperm count. Analyses were stratified by country as well as analysed across countries.

Results The most abundant metabolite from DEHP namely 5-cx-MEPP (mean concentration in serum 2.22 ng/ml) was negatively associated with testosterone, sperm volume and total sperm count in the overall analysis after adjustment for country, age, sexual abstinence time and current smoking. Testosterone decreased with 1.08% pr ng/ml 5-cx-MEPP (p = 0.032), volume with 1.59% (p = 0.043) and total sperm count with 3.47% (p = 0.030). When analysed by country the association was strongest in Ukraine and Poland, but the inverse relationship between 5-cx-MEPP and outcomes was observed in all three countries. No significant association between phthalate metabolites and sperm concentration was observed.

Conclusions These results are compatible with a weak anti-androgenic action of the DEHP metabolite 5-cx-MEPP on testosterone and total sperm count. Whether this cross-sectional association reflects causal mechanisms remains to be established.

223 MOTOR DEVELOPMENT FOLLOWING PRENATAL EXPOSURE TO P,P-DDE AND CB-153: A FOLLOW-UP STUDY OF INUIT AND EUROPEAN CHILDREN AGED 5–9 YEARS

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10.1136/oemed-2013-101717.223

Objectives Both PCB and DDE are lipophilic compounds which bio-accumulate in adipose tissue and cross the placental barrier. Prior studies of the association between prenatal exposure to