Reproductive effects/Outcomes

**0-140 EXPOSURE TO PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) DURING PREGNANCY AND MALE REPRODUCTIVE FUNCTION IN YOUNG ADULTHOOD**

1Kajsa Ugelvig Petersen, 2Katia Kegberg Havvig, 3Karim Serig Hougaard, 4Christian Lindh, 5Cecilia Høst Ramlau-Hansen, 6Gunnar Toft, 7Aleksander Giwercman, 8Birgit Bjørg Hoyer, 9Esben Meulengracht Flachs, 10Jens Peter Bonde, 11Sandra Segard Tøttenborg. 1Department of Occupational and Environmental Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark; 2Department of Occupational and Environmental Medicine, Copenhagen University Hospital – Bispebjerg and Frederiksberg, Copenhagen, Denmark; 3National Research Centre for the Working Environment, Copenhagen, Denmark; 4Division of Occupational and Environmental Medicine, Department of Laboratory Medicine, Lund University, Lund, Sweden; 5Department of Public Health, Research Unit for Epidemiology, Aarhus University, Aarhus, Denmark; 6Steno Diabetes Center Aarhus, Aarhus University, Aarhus, Denmark; 7Molecular Reproductive Medicine, Department of Translational Medicine, Lund University, Malmo, Sweden; 8Department of Regional Development, Region of Southern Denmark, Vejle, Denmark

Introduction Women of reproductive age may be exposed to per- and polyfluoroalkyl substances (PFAS) in a wide range of occupations. During pregnancy, PFAS may cross the placental barrier and disrupt fetal development with potential consequences for long-term health. In this study, we examined associations between maternal plasma levels of PFAS during early pregnancy and male reproductive function in young adulthood.

Materials and methods The study population consisted of young men (n = 864, age 18–21 years) from the Fetal Programming of Semen Quality (FEPOS) cohort. The mothers of these young men participated in the Danish National Birth Cohort (DNBC) between 1996 and 2002 and provided a blood sample in early pregnancy. Among the 15 PFAS measured in maternal plasma, seven compounds were quantified above the limit of detection in at least 80% of the samples. From 2017 to 2019, the young men completed an online questionnaire, a clinical examination and provided a blood and semen sample. We applied weighted quantile sum (WQS) and negative binomial regression to assess associations between combined and single substance exposure to PFAS and measures of semen quality, testicular volume and reproductive hormones. The study was approved by the Scientific Research Ethics Committee for Copenhagen and Frederiksberg, Denmark.

Results Higher maternal plasma levels of PFAS were associated with lower sperm concentration (WQS -8% difference, 95% CI -16, -1), total sperm count (WQS -10% difference, 95% CI -17, -2) and a higher percentage of non-progressive/immotile sperm (WQS 5% difference, 95% CI 1, 8) in the young men.

Conclusions Exposure to a range of common PFAS during pregnancy was inversely associated with key aspects of reproductive function in young men. Given the present concerns for reproductive toxicity of PFAS, continued awareness of exposures and efforts to limit these are needed.

Disease surveillance

**0-144 INCIDENCE OF OPIOID-RELATED HARM BY OCCUPATION IN ONTARIO, CANADA: FINDINGS FROM THE OCCUPATIONAL DISEASE SURVEILLANCE SYSTEM**

1Nancy Camide, 2Jeeva Shenharan, 3Choon-ray Song, 4Jill S Macleod, 5Fateme Koochki, 6Andrea D Furlan, 7Paul A Demers. 1Institute for Work and Health, Toronto, Ontario, Canada, Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada; 2Institute for Work and Health, Toronto, Ontario, Canada; 3Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada; 4Occupational Cancer Research Centre, Ontario Health, Toronto, Ontario, Canada; 5Toronto Rehabilitation Institute, University Health Network, Toronto, Ontario, Canada

Introduction The opioid crisis continues unabated in Canada, yet current health surveillance systems that monitor opioid-related harms have limited or no employment information. The limited opioid overdose fatality data available suggest certain occupational groups have been disproportionately affected among those with known employment, namely those in construction and trades occupations, but little is known beyond these data. The Occupational Disease Surveillance System (ODSS), designed to detect work-related disease in a large cohort of workers in Ontario (Canada), was recently expanded to identify opioid-related hospitalizations and emergency department visits. We sought to estimate associations between occupation and risk of opioid-related harms in the Ontario, Canada workforce.

Materials and methods The ODSS was established through linkage of Workplace Safety and Insurance Board accepted workers’ compensation lost-time claims data to hospitalization and emergency department data. Workers aged 18–65 were followed from 2006 to 2020 to identify incident opioid-related poisonings (p) and mental and behavioural disorders (mb). Cox proportional hazards models were used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for each of the opioid-related harms by occupation, adjusted for sex, age, and birth year.

Results We identified 10,066 poisoning cases and 11,762 mental and behavioural disorder cases during follow-up among 1.7 million workers. Preliminary findings...