

Session 1

Toxic exposures and vulnerable populations in diverse environments Monday, April 5 at noon

Well-water metal contamination and preterm birth: a mixtures approach

Lauren Eaves (PhD, 2022) – Advisor: Rebecca Fry

Abstract: While there is growing evidence that prenatal metal exposure may increase preterm birth risk, assessments of mixtures of metals have thus far been limited. The proposed work will identify the risk of preterm birth from exposure to mixtures of metals found in well water in North Carolina and will investigate potential molecular mechanisms within the placenta driving the risk.

About Lauren: In my research, I aim to integrate reproductive and environmental epidemiology, computational toxicology and systems biology to assess environmental risks to women's reproductive health. I am a trained doula and throughout grad school have supported women during labor at UNC Hospitals. I hope to have a career that combines high-impact environmental health research and clinical practice in the field of women's health.

Nutritional modulation of fetal susceptibility to lower birth weight in relation to inorganic arsenic (iAs) exposure

Jelilyah Clark (PhD, 2022) – Advisor: Rebecca Fry

Abstract: Potential mechanisms underlying iAs-induced fetal growth restriction are related to the nutritional status of the mother, suggesting that infants born to malnourished women may be at increased risk. The central hypothesis of this research is that maternal nutritional status and OCM-related genotype modify iAs methylation efficiency, influencing birth weight. Specifically, we hypothesize that higher B-vitamin bioavailability and genetic variants promoting iAs methylation protect against the disruption of biological pathways underlying the growth of the fetus (i.e., birth weight).

About Jelilyah: I am a third-year doctoral student applying epidemiological and environmental health approaches to the study of environmentally-induced diseases, specifically those occurring in relation to prenatal exposures. I am the first in my family to pursue a PhD, and much of my passion is rooted in my family's experiences of environmental injustice in eastern NC. In the future, I hope to do meaningful work that effects change at the community, state and/or national level(s).

Crude Oil Exposures in Bahia Fishing Communities: A Pandemic-Era Study Protocol

Francie Sentilles (BSPH, 2021) – Advisor: Amanda Northcross

Abstract: This presentation will discuss the process of designing an exposure assessment to document the health effects of a 2019 oil spill on Brazil's fishing communities.

About Francie: Francie Sentilles is a senior in the Environmental Health Sciences BSPH program. She is interested in environmental justice and the petrochemical industry, and she will be staying at Gillings after graduation to complete an MSPH with Dr. Amanda Northcross.

Work environment exposures and heritability drive occupational asthma risk

Laura Taylor (PhD, 2020) – Advisor: Leena Nylander-French

Abstract: Exposure to isocyanate chemicals in polyurethane paint and furniture polish drives occupational asthma development, and genetic and epigenetic markers involved in inflammatory response pathways may impact adverse health outcomes.

About Laura: My expertise is evaluating variability of inter-individual responses to occupational exposures using computational modeling. A fun fact about me is that I used to compete in figure ice skating and I love to play piano. In the future, I want to perform toxicology research that impacts United States policy to help protect people's health.