NCS Research Day Poster Abstract
Pacific Northwest Center for the National Children's Study (PNWNCS)

Analyzing the Stability and Variability of Environmental Contaminants in Housedust in Order to Optimize NCS Exposure Assessment (Dust Variability)

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This formative research project is identifying and informing best practices for collection and analysis of environmental contaminants in housedust. Housedust samples for this project were collected under a 15-year children's cohort study at the University of Washington Center for Child Environmental Health Risks Research (CHC). House and vehicle dust samples were collected for farmworkers and non-farmworkers during each three major seasons (harvest, thinning, and non-spray). Taken together with the complexity and depth of the CHC dataset, including multiple biomarkers of pesticide exposure across three seasons, the dust information has allowed us to assess both within-household and between-household variability. Understanding the stability of environmental contaminants in dust samples after long-term storage will help NCS to consider options for future analyses of collected samples. Preliminary repeatability analysis demonstrate a high stability of pesticides in stored samples. The reanalysis of 50 dust samples showed that after storage for 7 and 10 years there was no signs of deterioration of OPs. This trend was consistent for azinphosmethyl, chlorpyrifos and phosmet. Developing methods to predict correlations between environmental contaminants in housedust samples will enable NCS to reduce the number of samples and/or analyses per sample necessary to understand the likely profile of environmental toxicants to which study participants are exposed. Mold exposure studies evaluating the "mold Burden" in a home based on dust analysis will also be done. For comparison, two processes (Environmental Relative Moldiness Index (ERMI) and pyrosequencing) will be used to analysis and interpret the results.