Characterization of Exposures of Urban and Rural Cohorts to Airborne PCBs

The AESOP Study (Airborne Exposures to Semi-volatile Organic Pollutants) has assessed exposures and body burdens of atmospheric PCBs among an urban cohort of children and their mothers in an area contaminated with legacy pollutants and where dredging and filling of PCB-laden sediments is now underway.

The AESOP Study expanded its activities within the study communities by assisting residents of East Chicago, IN with their concerns over the revelation that the Calumet Housing Project and Gosch Elementary School were built on the site of a lead smelter. They made multiple trips to the community, measured metals contamination in the soil in situ, and brought samples to the laboratory for further testing.

The AESOP Study has enrolled and followed 381 subjects and provided new insight into airborne exposures and resulting body burdens. It has changed prevailing views on how most Americans are exposed to PCBs. We have demonstrated that our subjects have substantial exposure to PCB congeners from inhalation in addition to ingestion and their blood shows enrichment with lower-chlorinated congeners. This has important implications for children’s environmental health.

- **Project Leader: Peter S. Thorne, PhD**
  Dr. Thorne is a professor of toxicology in the Department of Occupational and Environmental Health at the University of Iowa with a secondary appointment in the Department of Civil and Environmental Engineering. He is serving as a principal investigator for this study. He has worked successfully with the community advisory boards and schools in Columbus Junction and East Chicago, and will oversee the enrollment of the cohorts for the project.

- **Keri C. Hornbuckle, PhD**
  Dr. Hornbuckle, professor of environmental engineering at the University of Iowa, will provide advice on fabrication and deployment of the passive monitors and high volume samplers, and she will provide guidance in the analysis of PCB congener-specific data. Her experience in measuring and modeling PCBs in urban and rural settings will be drawn upon in the interpretation of exposure data.

- **Michael Jones, PhD**
  Dr. Jones is a Professor of Biostatistics and has extensive experience developing and using
statistical methods for the analysis of multiple PCB-congener measures, many of which fall below the limit of quantification resulting in left censored data.

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