

Epidemiology and Environmental Exposure



RTI's epidemiological research is helping to illuminate the complex interactions of the environment, exposure, and disease. Our approach to understanding exposure-disease relationships is multidisciplinary, allowing us to offer a wide range of studies requiring data and specimen collection and analysis.

RTI chemists can isolate pesticides, metals, and other organic and inorganic compounds from urine, blood, household dust, and other media. Then, to obtain solutions, we draw on our versatility to form teams of RTI epidemiologists, laboratory specialists, field implementation experts, and professionals in data management and analysis.

Our Capabilities Cover Several Major Research Categories

Survey Studies

- Study design and sampling
- Sampling frame development
- Questionnaire and forms development
- Web data collection
- Multilingual, in-person interviews
- Computer-assisted questionnaire administration

Collection and Analysis

- Biological specimens
- Environmental specimens
- Innovative approaches to specimen collection from children
- Data management and analysis
- Laboratory analysis of environmental and biological specimens
- Information management/quality control
- Statistical analysis of epidemiological and laboratory data
- Literature reviews
- Clinical assessments

Selected Research Highlights

Environmental Exposure and Disease

- Collaborated with the U.S. Environmental Protection Agency (EPA) and other organizations on the National Human Exposure Assessment Study (NHEXAS). This complex, population-based study measured a broad range of chemical and environmental contaminants and routes of exposure that influence exposure-disease relationships.
- Developed a tool to evaluate state health departments' protocols for investigating cancer clusters with possible environmental causal links.
- Conducted a probability-based exposure study of Toronto residents to determine if they were exposed to high manganese levels from using gasoline with a manganese-derived additive.
- Conducted a case-control study to evaluate potential endocrine and reproductive ramifications of men's exposure to perfluorinated chemicals in the environment.
- Conducted a study in southern Michigan to ascertain whether estrogen-like agents from environmental sources affect fertility. Blood, urine, semen, and saliva were collected, shipped, and stored for analysis.

Pesticide and Environmental Exposure Estimation

- Conducted a prospective study for the EPA to address environmental risks to children's health. RTI collected, stored, and analyzed biological and environmental specimens, convened expert panels, and maintained a database of current literature related to biomarkers and pediatric environmental health.
- Conducted a prospective study of both children and adults to determine a possible relationship between household proximity to farm fields and exposure to pesticides.
- Tested urban and rural children for pesticide exposures relative to that of the adults in their homes.

Personal Dosimetry and Daily Diaries

- Conducted a 3-year study of air quality and activity of 40 Detroit residents, each equipped with diaries and personal monitors to measure factors regarding exposures to particulate matter.
- Conducted a field study of ultraviolet B (UVB) exposure and maintained daily diaries to assess seasonal changes to UVB exposure.

Geographic Information Systems (GIS) and Spatial Statistics

- Modeling spatially referenced and autocorrelated data.
- Modeling of Bayesian hierarchical data.
- Designing sample selection at a distance from contamination sites.
- Determining study participant locations during monitoring studies.

For more information, please contact

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