

Exposure Analysis Research



RTI International's Exposure Analysis Research Group brings together scientists in analytical chemistry, biological chemistry, biostatistics, and field-based studies. Our team works to understand the environmental contributors to human and ecological exposure to contaminants. This requires the development and application of determinative methods for a wide range of contaminant categories in relevant media. Our research includes *in vivo* animal studies and the broader environmental measurements important to indoor air pollution from consumer products and product usage.

Strengths

- Decades of experience in air, water, soil, dust, food and biological media
- Environmental analysis, methods development, and application
- Biological marker studies of exposure and effect
- Application of traditional analytical practices to address unique and unusual circumstances
- Statistical exposure, behavioral, and toxicology relationships (including animal studies)
- Development and validation of the modeling of exposure and adverse outcomes
- Ability to leverage other RTI research capabilities (e.g., biostatistics, aerosol and microbial science, health science) to formulate a "total package" deliverable.

Case Study in Disaster-Related Exposure

Client Problem: The Centers for Disease Control and Prevention (CDC) desired a comprehensive study on the health effects related to life in temporary housing trailers after the Gulf Coast hurricane disasters.

RTI Solution: Initiation of the CDC Children's Health After the Storms (CHATS) study. This study is designed to determine whether children whose lives were impacted by Hurricanes Katrina and Rita, especially those children who lived in temporary housing units, suffer any increased susceptibility to adverse health outcomes. Personal environmental and biological sampling is under way to assess contemporary exposures to volatile and semi-volatile organic compounds, particulate matter, irritant gases, and biological aerosols. These data are being integrated with extensive survey and clinical health data to determine if any long-lasting effects on the health of the children can be found.



Ensuring Data Quality for Clients

RTI is internationally known for excellence in performing trace measurements of a wide array of environmental sample matrices, including ambient air, workplace and industrial air, animal and plant tissues, soils and sediments, hazardous wastes, water, and physiological fluids.

Case Study in Organics Analysis

Client Problem: The National Institute of Environmental Health Sciences awarded RTI a grant to determine whether exposure to perfluorinated alkyl compounds impacted semen quality.

RTI Solution: Through a collaboration between RTI and Duke University, technical experts investigated the exposures of 256 men to perfluorooctanysulfonate (PFOS). Researchers measured and evaluated data against markers of male reproductive potential (semen quality) and hormones, including estradiol, testosterone, luteinizing hormone, follicle-stimulating hormone, prolactin, and thyroid hormones. This served to assess the potential for impaired fertility related to exposure.

Case Study in Water Contaminant Research

Client Problem: Dietary exposure effects of speciated inorganic elements conducted by the American Water Works Association (AWWA).

RTI Solution: This AWWA Research Fund grant was used to develop and apply inorganic and organo-arsenical speciation methods to foods and urine. RTI conducted an evaluation of the arsenic species to provide a more valuable measure of potential toxicity than did total arsenic analyses.

More Information

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