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NCASI Foundation: Technical Work to Improve the Scientific Basis of Environmental and Human Health Risk Assessment Approaches

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Project Summary:

Technical research to identify more robust methodologies to ensure the science used to inform environmental and human health risk assessments is of high quality and provides the appropriate strength and weight of evidence necessary to base risk management and regulatory decisions on.

Current Research Contract to: Johns Hopkins
Evidence Based Toxicology Collaboration

Project Summary:

Research and outreach to understand the data needs of risk assessors from epidemiology. Based on a 'matrix' of data elements that could potentially make epidemiology more useful and transparent for risk assessment and policy making.

Judy S. LaKind, Carol J. Burns, Giffe T. Johnson, Sabine S. Lange. 2023. Epidemiology for risk assessment: US environmental protection agency quality considerations and the Matrix. Hygiene and Environmental Health Advances. Volume 6,100059. <https://doi.org/10.1016/j.heha.2023.100059>.

Project Summary:

Develop approaches that replace deterministic (e.g. single, upper bound estimates) exposure model parameters with integrated distributions. This allows a reduction of compounded conservatism in risk assessment, uses more of the available exposure data to make risk management decisions, and more transparently links outcomes to stated objectives.

Barnhart, B., Flinders, C., Johnson, G., Wiegand, P., Anderson, P., Morrison, E. and Houck, G. (2023), Ambient water quality criteria derived using probabilistic risk assessment. *Integr Environ Assess Manag*, 19: 501-512.<https://doi.org/10.1002/ieam.4683>

Project Summary (New Focus Area):

Engage in research related to the scientific basis for cumulative risk assessment, which seeks to incorporate multiple chemical stressor data and non-chemical stressor data into environmental and occupational human health risk assessment.