

## Current Methods for Evaluating Children's Exposures for Use in Health Risk Assessment

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### ABSTRACT

Despite the relatively long history of incorporating child-specific safety or exposure factors into U.S. health risk assessments, there has been a growing perception that past scientific and regulatory approaches were not sufficiently protective of infants and children. To address these concerns, a wide range of activities have occurred over the last few years that will likely generate new information on child-specific issues and identify data gaps in current knowledge about children's exposures and health risks. For example, the new publication by the Centers for Disease Control and Prevention, *National Report on Human Exposure to Environmental Chemicals*, will provide unique information on environmental chemical exposures in the U.S. population using biomonitoring (i.e., blood and urine) analyses. Although preliminary reviews have attempted to summarize what is known about the factors that influence children's exposure and sensitivity to environmental contaminants, there does not appear to be a comprehensive published summary of children's exposure assessment methodologies, or clear guidance on how to prioritize future research needs or deal with data uncertainties. In this paper, we provide an overview of the traditional human health risk assessment paradigm, as well as a reasonably complete discussion of how to assess children's exposures for human health risk assessments via inhalation, dermal, and ingestion routes. Several additional approaches are also discussed that might be worthwhile components of future children's exposure assessments, including: (1) probabilistic (Monte Carlo) techniques, (2) formal expert judgment studies, and (3) value-of-information (VOI) analyses. The information presented here should be useful for persons involved in child-specific