

Cumulative risk assessments: Science and Decisions

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Cumulative risk assessments

- “Phthalates and cumulative risk assessment” (NAS, 2008)
- CRAs should be completed for groups of chemicals that have common adverse health outcomes.
- This is distinctly different from focusing on chemicals that have the same mechanism of action.

Cumulative risk: Science and Decisions

- The combination of risks posed by aggregate exposure to multiple agents or stressors in which aggregate exposure is exposure by all routes and pathways and from all sources of each given agent or stressor.
- Chemical, biologic, radiologic, physical, and psychologic stressors are all acknowledged as affecting human health and are potentially addressed in the multiple-stressor, multiple-effects assessments
- A population-focused assessment; including relevant, potentially vulnerable sub-populations

Cumulative risk vs. cumulative impacts assessments

- CRA—evaluating the array of stressors (chemical and non-chemical) to characterize human health or ecologic effects, taking into account vulnerability and background exposures
- CIA—would consider a wider array of end points, including effects on historical resources, quality of life, community structure, cultural practices, etc.

Cumulative risk assessment

- Involves bringing risk managers, risk assessors, and various stakeholders together early in the process to determine the major factors to be considered, the decision-making context, the timeline, and depth of analysis

Recommendations

- Maintain core components of CRA—including planning, scoping, problem formulation; explicit consideration of vulnerability; use of screening tools to assure complexity appropriate for the decision context
- Build assessments around risk management options
- Only a subset of exposures or stressors will be relevant in choosing among intervention options for a well-defined problem

Recommendations:

Incorporating non-chemical stressors

- Near-term: develop databases and default approaches to allow the incorporation of key non-chemical stressors in the absence of population-specific data
- Long-term: invest in research programs and develop capacity related to interactions between chemical and non-chemical stressors
- Build capacity in various epidemiologic disciplines

Recommendations

- Focus on developing guidelines and methods for simplified analytic tools for communities and other stakeholders to use in conducting assessments
- Work to ensure that CRAs guide future information and research needs AND inform near-term decisions, recognizing that decisions must be made with incomplete information