The Changing Toxicology Landscape: Challenges and the Future of Risk Assessment

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ATSDR Mission

ATSDR protects communities from harmful health effects related to exposure to natural and man-made hazardous substances. We do this by responding to environmental health emergencies; investigating emerging environmental health threats; conducting research on the health impacts of hazardous waste sites; and building capabilities of and providing actionable guidance to state and local partners.
Achieving the Mission

- Define the ongoing challenges
- Set research priorities [related to toxicology]
- Collaborate with partner agencies
- Coordinate activities through participation and support of interagency workgroups (ICCVAM, Tox21 etc)
- Participate at national and international conferences to harmonize methods development and chemical assessments
The Challenge for ATSDR and our Partners

Remove the uncertainties, and improve the precision and timeliness of health/risk assessments for the communities we serve.
What are the toxicology needs for ATSDR?

- Basic biological research on cellular pathways and mechanisms at environmentally-relevant concentrations
- Improved techniques for assessing harmful effects from co-exposures (Mixtures) and cumulative exposures
- Improved methods for assessing cancer risks
- Improved understanding of risks for susceptible populations
What are the toxicology needs for ATSDR?

- Harmonized approaches for developing HGV’s for emerging chemicals
- New and improved, validated tools for predictive toxicology
- Better use of probabilistic techniques for communicating ‘risk’ to communities
- New methods for incorporating ‘big data’ into health/risk assessments, esp human data (e.g., biomonitoring, epi studies, surveillance, medical health records)