United States Environmental Protection Agency

"Science: The Backbone of EPA Programs"

Office of Research and Development

September 29, 2009

United States Environmental Protection Agency

Introduction

Taking the Agency in a New Direction: Three Guiding Principles for Implementing the President's and Administrator's Priorities

- Science must be the backbone for EPA programs
- Adherence to the rule of law
- Actions must be transparent and collaborative

Administrator Jackson's Priorities

- Reducing Greenhouse Gas Emissions
- Improving Air Quality
- Managing Chemical Risks
  - "More that 30 years after Congress enacted the Toxic Substances Control Act, it is clear that we are not doing an adequate job of assessing and managing risks of chemicals in consumer products, the workplace and the environment. It is now time to revise and strengthen EPAs chemicals management and risk assessment programs"
  - "…we must be sensitive to the burdens pollution has placed on vulnerable subpopulations, including children, the elderly, the poor and all others who are at particular risk to threats to health and the environment. We must seek their full partnership in the greater aim of identifying and eliminating the sources of pollution in their neighborhoods, schools and homes."
- Cleaning up Hazardous Waster Sites
- Protecting America's Water

Source: Memo to EPA Employees, January 23, 2009
http://www.epa.gov/administrator/memotoemployees.html

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Strengthening EPA Research Organization

- ORD is providing critical support for EPA's mission.
  - The Administrator has turned to ORD on a number of problems of complex issues.
    - Dioxin
    - Chemical Assessments
    - Asbestos
  - Our Program and Regional Office partners increasingly require our expertise.
    - Beach Criteria
    - Innovative Ways to Manage Chemical risks
    - Chesapeake Bay and complimentary approaches to dealing with environmental issues.

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Addressing Administrator's Priorities
Managing Chemical Risks

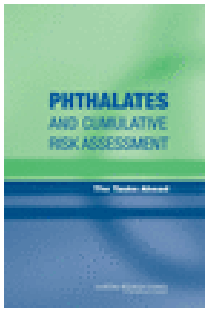
Background

- Assessing and reducing risks from exposure to environmental contaminants is a key EPA mission .
- We use tens of thousands of chemicals to enhance our productivity, comfort, and well-being.
- Current regulatory methodologies cannot be scaled to such large numbers of chemicals, and hence comprehensive data are only available for a handful of chemicals of concern.

Research Approach

- EPA is building upon newly available chemical, biological and computational tools (e.g. EPAs ToxCast program) to transform the ways we evaluate chemical exposure, hazard and risk.
- EPA research will incorporate understanding a chemical from the view of its life cycle as well as how exposures may change as function of life stage of an individual
- EPA program and regional offices, the states, national and international agencies and other stakeholders such as chemical producers and non-governmental organizations are being engaged in the design of the program
- The overall goal is to deliver high capacity decision support tools to enable a much more efficient and effective assessment of exposure, hazard and risk of chemicals.
- Key Short-Term Outputs: An applied, tiered decision-support process to facilitate the development of the safest chemicals possible over their life cycle.

NAS/NRC Consultations

2007	*Toxicity Testing in the 21st Century: A Vision and a Strategy*
2007	*Applications of Toxicogenomic Technologies to Predictive Toxicology and Risk Assessment*
2008	*Phthalates and Cumulative Risk Assessment*
2008	*Science and Decisions-Advancing Risk Assessment*
2009	*Toxicity Pathway-Based Risk Assessment: Preparing for Paradigm Change, May 11-13, 2009*

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Toxicity Testing in the Twenty-first Century: A Vision and a Strategy

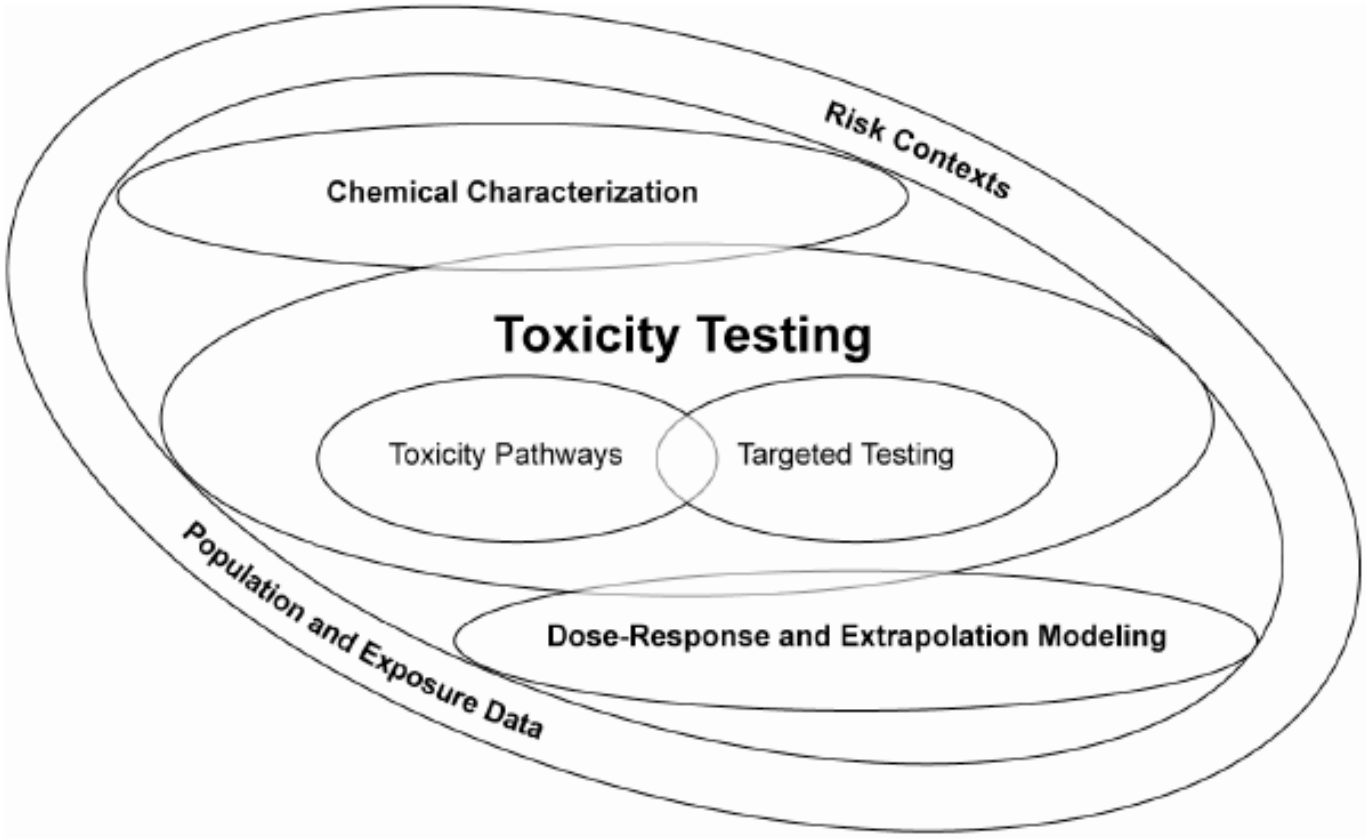
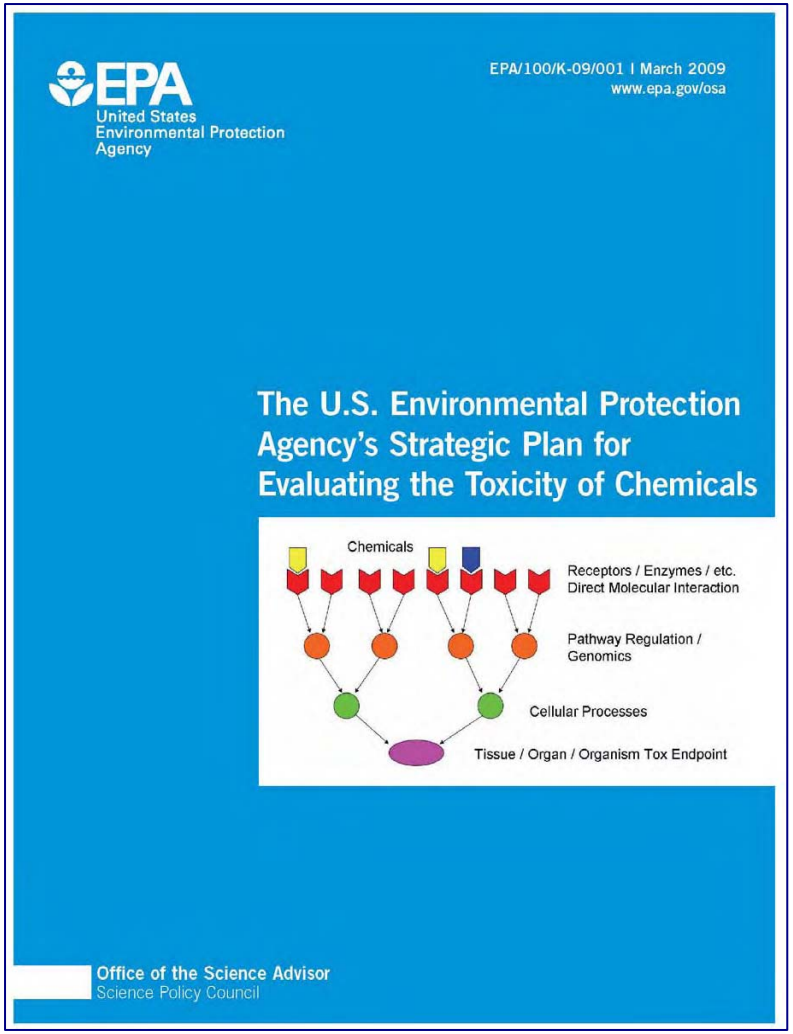


FIGURE 2-3 The committee's vision is a process that includes chemical characterization, toxicity testing, and dose-response and extrapolation modeling. At each step, population-based data and human exposure information are considered, as is the question of what data are needed for decision-making.

NAS, June 2007.

EPA Strategic Plan (2009)



Strategic Goals

- **Toxicity Pathway ID and Screening**
- **Pathway Based Risk Assessment**
- **Institutional Transition**