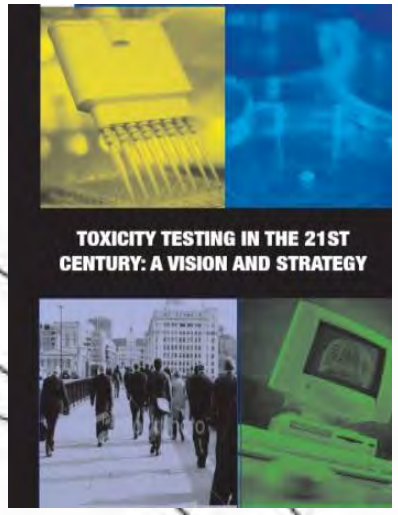
# 21st Century Toxicology/New Integrated Testing Strategies Workgroup

**Biomonitoring Subgroup**

**June 5, 2014**

# 2007 NRC Toxicity Testing in the 21st Century: A Vision & Strategy




Risk Contexts

Chemical Characterization

Toxicity Testing

Toxicity Pathways

Targeted Testing

Dose-Response and Extrapolation Modeling

Population and Exposure Data

# Biomonitoring Project History

- October 11, 2011 OPP hosted a day long public workshop to discuss the status and development of diagnostic tools and biomarkers in pesticide medical management, surveillance, and epidemiologic research

- Stakeholders recommend that the PPDC create a workgroup to develop a list of pesticide chemicals and diagnostic tools for future research.

- At the PPDC meeting on October 12, 2011, the 21st C PPDC workgroup offered to develop a proposal to advance biomarker issues for PPDC consideration/input in light of the information presented and stakeholder discussion during the workshop.

# 21st C Workgroup Proposals to PPDC

Presented two biomonitoring project proposals to the PPDC in May 2012

**Pesticide Priority List Proposal**

- Goal: Develop a priority list of candidate pesticides for exploring the process of developing human health pesticide biomarkers for research and clinical applications
- Key Activities:
- Identify and include broader expertise
- Develop a set of criteria for selecting priority pesticides
- Identify and review key information resources
- Develop the pesticide priority list

**Data and Information Proposal**

- Goal: Identify how existing data relevant to diagnosing overexposure to pesticides can be made more accessible and explore opportunities for additional information for clinician use to better identify worker and children overexposure to pesticides.
- Key Activities:
- Explore existing information and review relevant data and methods
- Determine existing needs for information and tools
- Review difference in needs and existing information

# Charge to the 21st C Workgroup

In June 2012, OPP provided a charge to the 21st C Workgroup in response to the biomonitoring project proposals

- Develop priority list of candidate pesticides for developing human health pesticide biomarkers for research and clinical applications. Convene expert group and agree upon criteria for developing list
- Create pesticide use case(s) to encourage funding for research on rapid diagnostic methods for pesticides to enable clinical trials and point-of-need diagnostics
- Identify existing data relevant to diagnosing overexposure to pesticides. Examples: information submitted to the EU and information contained in the WHO guidance *Triage and Clinical Management of Patients with Acute Pesticide Self-Poisoning Presenting to Small Rural Hospitals*.

# Developing a Priority List of Candidate Pesticides/Classes for Biomarker Research

- Expert group of scientists and public health professionals from industry, NGOs, academia, the medical community & EPA
- Charge: Establish prioritization criteria & make recommendations on pesticides that should be the focus of further biomarker research and development
- Conferred from January 2013 until Spring 2014
- Identified need for rapid diagnostic testing tools for clinicians to test for pesticide exposure
- Developed criteria for prioritizing pesticides/pesticide classes for biomarker research
- Identified data sources to inform prioritization
- Developed draft list of candidate pesticides/pesticide classes

# Workgroup Feedback

- The workgroup discussed the draft list developed by the expert group at our regular bimonthly meeting on May 13, 2014
- Some members voiced concern that a draft list of pesticides could be misunderstood and/or misinterpreted
- All members acknowledged the ultimate goal of encouraging research on pesticide biomarkers
- Workgroup decided to use the draft list as a working tool.

# Next Steps

- The workgroup will continue discussions on developing an example from the draft list. Proof-of-principle case(s) to discuss with researchers.
- Based on this, begin discussions with organizations interested in biomarker research.