July 28, 2016 Meeting of the Scientific Guidance Panel for Biomonitoring California

Summary of Panel Input and Recommendations

The Scientific Guidance Panel (SGP) for the California Environmental Contaminant Biomonitoring Program (also known as Biomonitoring California) met on July 28, 2016 in Richmond. This document briefly summarizes the Panel's input and recommendations on each agenda item and related public comments. Visit the July 2016 SGP meeting page to access the presentations, other meeting materials, and the meeting transcript.

Program News and Updates

Presentation: Robin Christensen, M.S.,
Biomonitoring California Grant Coordinator, Sequoia Foundation

The Panel:

- Supported the Program's development of a multi-regional study across California and provided suggestions on study design, including:
  - Oversample populations particular to California, such as the US-Mexico border population, school children with potential for high pesticide exposures, and unique immigrant groups (e.g., Iraqi).
  - Address specific exposure concerns, such as populations that obtain their drinking water from untested wells.
  - Consider options for designing a geographically representative sample.
- Discussed planned environmental justice projects:
  - Reiterated the importance of using CalEnviroScreen to inform choices of impacted populations to study.
  - Noted the environmental justice aspects of studying pesticide exposures.
  - Reviewed Program plans for: the expansion of the Asian/Pacific Islander Community Exposures (ACE) project to the Vietnamese community; and study of diesel exhaust exposure in impacted communities.
- Discussed the elevated inorganic arsenic results observed in Expanded Biomonitoring Exposures Study (BEST) and the protocol for flagging elevated levels[1].

[1] Elevated inorganic arsenic was identified based on a cut-off level of 20 µg/L determined by the Centers for Disease Control and Prevention as the 95th percentile of the sum of inorganic arsenic-related species based on 2003-2004 NHANES data.

- Requested an update on Program progress on untargeted analytical approaches (to be presented at the November 2016 SGP meeting).

Updates from CDC's National Biomonitoring Program

Presentation: Benjamin Blount, Ph.D., Tobacco and Volatiles Branch, Division of Laboratory Sciences, National Center for Environmental Health, Centers for Disease Control and Prevention (CDC)

Panel members and the audience discussed a wide variety of topics with Dr. Blount, some of which are highlighted below. Refer to the transcript for the complete discussion.

- Tobacco biomarker and related research:
  - Evaluation of biomarker levels (e.g., benzene) compared to toxicological benchmarks
  - Distinction between biomarkers for primary vs. secondhand smoke
  - Exposures from e-cigarettes and predicted trends for children
  - Biomarkers for marijuana exposure and potential for exposure to pesticide residues on marijuana
- Perchlorate exposures:
  - Potential for early life exposures via breast milk
  - Higher measured levels in young children (under six years old)
  - How increased demand on the thyroid during pregnancy could affect susceptibility to perchlorate exposures
  - Importance of sufficient iodine intake
  - Potential for exposure to perchlorate in food packaging

Afternoon Session

Agricultural Pesticide Mapping and Proximity to Public Schools

Presentation: Paul English, Ph.D., M.P.H., Branch Science Advisor, Environmental Health Investigations, California Department of Public Health (CDPH)

Considerations in Biomonitoring Pesticides

Presentation: Asa Bradman, Ph.D., Chair, Scientific Guidance Panel (SGP)

Possible Pesticide Classes for Future Consideration as Potential Designated Chemicals

Presentation: Shoba Iyer, Ph.D., Staff Toxicologist, Office of Environmental Health Hazard Assessment (OEHHA)

The afternoon session included presentations from the speakers listed above, followed by a discussion with the Panel and audience on pesticide exposures, issues in biomonitoring pesticides, and possible pesticide classes for the Panel to consider in the future as potential designated chemicals.

Selected topics discussed by the Panel, presenters, and audience are listed below. Refer to the transcript for the complete discussion.

- Various aspects of the methodology used in the Environmental Health Tracking Program's 2014 report on Agricultural Pesticide Use Near Public Schools in California, including the approach for linking pesticide usage to specific fields
- Accounting for pesticide drift in understanding pesticide exposures
- Dust sampling as one way to examine potential take-home pesticide exposures
- Collection of repeated samples over time to examine intraindividual variability in pesticide exposure
- Consideration of pesticide toxicity in comparing exposures and evaluating impact of cumulative exposures
- Robustness of pesticide sales information to estimate consumer use
- Environmental justice considerations in selection of pesticide air monitoring sites
- Clarification that "organophosphorus pesticides" is a class defined by chemical structure only and not mechanism of action or toxicity
- Relative toxicities of organophosphorus pesticides and neonicotinoid pesticides
- Toxicity of organophosphates previously in wide use compared to toxicity of organophosphorus pesticides now increasing in use
- Importance of availability of a laboratory method as a criterion for selecting a pesticide class

➢ Panel members indicated that the class of "organophosphorus compounds used as pesticides" is of interest for consideration in 2017 as potential designated chemicals. They also recommended continued tracking of neonicotinoid pesticides, to be brought back to the Panel at a later date.

Public comment:

Ms. Rachel Kubiak, of the Western Plant Health Association, praised the comprehensive nature of pesticide use data collected by the California Department of Pesticide Regulation compared to that of other states. She noted that glyphosate's identification by the International Agency for Research on Cancer as "probably carcinogenic to humans" has been debated in the scientific community.

Ms. Emily Marquez, with the Pesticide Action Network, identified subpopulations of importance for biomonitoring, including children in agricultural areas and farmworkers exposed to priority pesticides flagged in the Environmental Health Tracking Program's 2014 report. She also noted the value of collecting biomonitoring data in areas with pesticide air monitors. Ms. Marquez also raised the possibility of using silicone bracelets, which can be used to track chemical exposures, to complement urinary biomonitoring data.

Dr. Veena Singla, of the Natural Resources Defense Council (NRDC), highlighted the strong support of NRDC and the Breast Cancer Fund (BCF), along with numerous other organizations, for the newly funded environmental justice work that Biomonitoring California is undertaking. She advocated continued biomonitoring and tracking of organophosphate pesticides, for which the Program currently has analytical methods, in particular to evaluate children's exposures. Dr. Singla also strongly supported the Program bringing forward the class of organophosphorus pesticides as potential designated chemicals.

Ms. Nancy Buermeyer, of BCF, also expressed her support for considering the class of organophosphorus pesticides as potential designated chemicals.

Open Public Comment

Ms. Nancy Buermeyer, of BCF, emphasized the importance of Biomonitoring California and described the efforts of stakeholders to obtain the environmental justice funding augmentation for the Program. She cited the HERMOSA study as particularly useful for talking with legislators about the effectiveness of biomonitoring in showing drops in chemical levels after an intervention (in that case, a change in personal care products used by participants). She also noted the importance of community partners, highlighting the role played by APA Family Services in explaining to legislators the value of the ACE project.