July 16, 2015 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 16, 2015 in Oakland. This document briefly summarizes the Panel's input and recommendations on each agenda item and related public comments. Visit the July 2015 SGP meeting page to view or download the presentations, other meeting materials, and the meeting transcript.

Prior to beginning the meeting, SGP members, State staff, and attendees took a few moments to pay tribute to Dr. George Alexeeff, former Director of the Office of Environmental Health Hazard Assessment who passed away in June 2015.

Update from CDC: Phthalates and Phthalate Alternatives

Presentation: Antonia Calafat, Ph.D., Chief, Organic Analytical Toxicology Branch, Division of Laboratory Sciences, National Center for Environmental Health, Centers for Disease Control and Prevention (CDC)

The Panel discussed a number of issues with Dr. Calafat, including:

- Approaches for grouping chemicals based on analytical, toxicological, or functional use considerations.
- Using non-targeted screening approaches to look first for chemicals in environmental samples, like dust, as a way to identify targets for measurement in human biomonitoring studies. Dr. Calafat noted that environmental samples generally have higher levels of environmental chemicals compared to human samples, like urine.
- Importance of considering the temporal variability of chemicals with short half-lives and/or episodic exposures, such as phthalates, when designing a sample collection approach (*e.g.*, spot samples, multiple samples collected over time, 24-hour samples, pooled samples etc.).
- Feasibility of combining analytical methods for chemicals with similar physicochemical properties and employing non-targeted approaches to expand the numbers of chemicals captured by particular methods, and thereby increase program efficiency and decrease cost. Dr. Calafat noted that the design of analytical methods depend in part on the purpose of the measurements. For example, the national survey requires analytical testing with high reproducibility.

Including too many analytes in a method can negatively impact this.

- Patterns of exposure to certain phthalates and phthalate alternatives in the US versus Europe. Dr. Calafat noted that in comparing results from different studies, study design is a very important consideration in evaluating if differences actually exist. For example, detection frequency can be different in two studies simply because of different method detection limits.
- Potential impacts of metabolic differences, such as those due to genetic polymorphisms, on detection frequencies for some phthalate metabolites. Dr. Calafat noted that the commonly observed wide variability in phthalate metabolite concentrations, due to exposure variability and short half-lives, would likely make it difficult to study possible contributions from metabolic differences.
- Need for a database of chemical exposure levels with associated chemical toxicity or health outcomes to better inform decision-making.

Public comment:

Nancy Buermeyer of the Breast Cancer Fund (BCF) commented that biomonitoring data from CDC and the State of California is invaluable to the BCF's efforts to make the case for the need for controls on chemical exposures. Ms. Buermeyer requested that detection frequencies be made publicly available in the National Report on Human Exposure to Environmental Chemicals, especially for phthalates with multiple metabolites. Dr. Calafat provided guidance on how to obtain the data from the "document file" posted on the CDC website and calculate detection frequencies.

Dr. Veena Singla of the National Resources Defense Council (NRDC) highlighted the elevated risk of phthalate exposure for specific occupational populations, especially low income and minority populations working in beauty and nail salons and in cleaning professions, compared to the general population.

Update on MAMAS[1] and Other Projects

Presentation: Nerissa Wu, Ph.D., Chief, and Robert Voss, M.P.H., Research Scientist, Chemical Exposure Investigations Unit, Environmental Health Investigations Branch, California Department of Public Health (CDPH)

Panel members:

[1]Measuring Analytes in Maternal Archived Samples

- Highlighted the importance of studying pregnant women and children and the potential of the Measuring Analytes in Maternal Archived Samples (MAMAS) study to approximate statewide sampling.
- Encouraged the Program to obtain more detailed demographic or health outcome information from birth certificates or from the Genetic Disease Screening Program (GDSP) to inform interpretation of biomonitoring results.
- Suggested additional analytes for measurement in MAMAS samples, including:
    - Chemicals that are known to impact child development.
    - Cotinine and other tobacco related biomarkers. These could be informative in the absence of questionnaire data on tobacco use, exposure to secondhand smoke, or other important exposures.
- Discussed possible demographic differences between women who participate in the GDSP compared to those who do not participate. For example, older women and women with high-risk pregnancies are less likely to go through the State screening program and instead go to non-state diagnostic centers.
- Discussed contamination issues encountered in measuring metals in MAMAS samples and implications for measuring other analytes. *Program staff noted that, before embarking on MAMAS, the Environmental Chemistry Laboratory carried out a limited evaluation of contamination by persistent organic pollutants and did not identify a concern.*
- Suggested that a future collaboration with GDSP could involve collection of urine from GDSP participants. *Program staff noted that a CDPH study, Project Baby's Breath, could serve as a model for this type of collaboration with GDSP.*
- Asked about the potential to use newborn blood spots as a complement to MAMAS and a way to link mother/child pairs. *Program staff confirmed that it is possible to link the corresponding maternal serum and newborn blood spot samples.*

Public Comment:

Dr. Veena Singla of NRDC suggested targeting chemicals with known prenatal toxicity concerns such as organophosphate pesticides, phthalates, and phenols. She also highlighted the importance of continuing to study populations in agriculturally intensive communities, such as the Central Valley, as particularly important for California. *Program staff noted that MAMAS chemical selection is limited by the biospecimen (i.e., serum; the chemicals Dr. Singla mentioned are measured in urine)*.

Nancy Buermeyer of BCF highlighted the significance of studying children as a vulnerable population, and particularly prenatal exposures. She also encouraged the

Program to incorporate available information on occupation, health outcomes, and birthweight in the MAMAS study.

Updates from the Safer Consumer Products Program

Presentation: Karl Palmer, Chief, Safer Consumer Products Branch, Department of Toxic Substances Control (DTSC)

The Panel discussion covered a range of topics including:

- The importance of capturing current use chemicals in choosing priority product/chemical combinations.
- Conducting intervention studies as a way to determine sources of chemicals and inform alternative product selection by consumers.
- How the Safer Consumer Products (SCP) program could inform Biomonitoring California chemical selection activities by sharing data collected on potential substitutes and market shifts.
- The use of functional or structural categories to capture large groups of priority chemical/product combinations and increase the efficiency of the SCP program efforts.
- Using data on emerging chemicals from non-targeted screening conducted by Biomonitoring California to inform the SCP program.
- The effectiveness and timeframe of SCP regulatory options.
- The specificity required in choosing priority chemical/product combinations that will be subject to SCP regulations.

Public comment:

Nancy Buermeyer of BCF noted that it is generally not possible to “shop your way out of” chemical exposures. She discussed efforts by the BCF to increase disclosure of cleaning product ingredients as a way to inform consumers’ purchasing decisions. She highlighted the importance of Biomonitoring California data to inform priority chemical/product selections.

Alexander Hoepker of University of California (UC) Berkeley Center for Green Chemistry asked if the information gathered by the SCP program from private industry would be publicly available. Mr. Palmer responded that while California law and the SCP regulation allow for trade secret protection for companies, all other information and documents will be made publicly available.

Potential Designated Chemicals: *ortho*-Phthalates

Document: *ortho*-Phthalates

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

Panel members:

- Unanimously voted to recommend adding "*ortho*-phthalates" to the list of designated chemicals for Biomonitoring California.

Public comment:

Dr. Veena Singla of NRDC spoke in favor of adding the class "*ortho*-phthalates" to the list of designated chemicals for Biomonitoring California.

Ms. Buermeyer of BCF commented on the importance of considering cumulative effects for chemicals and discussed the approach CHAP[2] took in evaluating anti-androgenic effects in deciding on bans for certain phthalates. She recommended adding *ortho*-phthalates as designated chemicals and considering this class as potential priority chemicals at a future SGP meeting.

Alexander Hoepker of the UC Berkeley Center for Green Chemistry asked about plans to pursue inclusion of other plasticizers, such as aliphatics and epoxies, in a larger use-based category. *Program staff noted additional plasticizers were previously screened by the Program and discussed with the SGP.*

Panel Business

Dr. Luderer announced that Dr. Asa Bradman will be taking over as Chair of the Panel beginning at the November 18, 2015 SGP meeting.

[2] The Consumer Product Safety Commission's Chronic Hazard Advisory Panel (CHAP) on Phthalates