July 10, 2014 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 10, 2014 in Oakland. This document briefly summarizes the Panel's input and recommendations on each agenda item and related public comments. Visit the July 2014 SGP meeting page to view or download the presentations, other meeting materials, and the full transcript.

Program Update

Presentation by: Michael DiBartolomeis, Ph.D., D.A.B.T., *Chief of the Exposure Assessment Section, California Department of Public Health (CDPH) and Lead of Biomonitoring California*

Panel members:

- Asked the Program to synthesize results and conclusions from Biomonitoring California studies so far and present them at a future SGP meeting.
    - *Program staff indicated that in depth presentations of study results would be developed and collaborators would be invited to participate in discussions at future SGP meetings.*
- Commented on the Program's success in returning results to biomonitoring study participants and inquired whether any participants had called with concerns about their results.
    - *Program staff replied that no calls had been received; additionally that participants with elevated urinary arsenic levels had been contacted recently and did not call in with concerns. Dr. Asa Bradman noted that the Program's experience was similar to his, and helps dispel the concept that returning biomonitoring results would create undue concerns among study participants.*
- Asked about how the reduced funding situation will impact Program activities.
    - *Program staff commented that efforts are underway to prioritize various Program goals to take forward over the next few years.*

Laboratory Update

Presentation by Jianwen She, Ph.D., *Chief of the Biochemistry Section in the Environmental Health Laboratory Branch (EHLB), CDPH*

Presentation by Myrto Petreas, Ph.D., M.P.H., *Chief of the Environmental Chemistry Branch in the Environmental Chemistry Laboratory (ECL), Department of Toxic Substances Control (DTSC)*

Panel members:

- Praised the Program's methods development and innovation to date and inquired about the impact of the reduced budget on the laboratory going forward.
    - *Program staff indicated that with less funding the laboratory will need to seek a*

balance between data production and methods development, recruit visiting scholars as possible, and look for efficiencies, such as bundling or expanding on existing methods.

- Commented on several aspects of the Three Generations Study (3Gs):
  - Noted that the 3Gs study had remarkable value in demonstrating changes in exposures to persistent organic pollutants (POPs) over the various generations and examining predictors of the exposures based on questionnaire data and demographics.
  - Asked about possible explanations for observed generational changes in levels of perfluorochemicals (PFCs) in blood.
    - *Program staff indicated that market shifts to different PFCs over time is a likely explanation, and that other possible factors will be analyzed based on questionnaire data. Staff noted the importance of the 3Gs study in tracking the emergence of new PFCs.*
  - Noted that the 3Gs study includes a project advisory group of mothers, daughters, and sons, as one step in making the study a community-based participatory research project.
- Suggested the Program look into accessing data for California from the national survey (NHANES) or appropriate regional subgroups as comparison groups for Biomonitoring California studies.
  - *Program staff noted that access to state or region-specific data from NHANES is extremely limited.*
- Recommended evaluating cotinine levels and smoking status in both the Biomonitoring California group and the NHANES comparison group to ensure the groups are comparable.
- Highlighted the issue of mercury in cosmetic creams and inquired about how this could be further addressed.
  - *Claudia Polsky, a Deputy Attorney General at the California Department of Justice (DOJ), explained that mercury-adulterated products are illegal under federal and state law and the supply chain is international and difficult to trace, making enforcement extremely challenging. She noted that DOJ is actively investigating this issue and working to get information out to communities who often use these types of products so they can better protect themselves.*
- Commented on considerations for non-targeted screening for unknowns:
  - Encouraged the Program to include metabolites, in addition to parent compounds, in database(s) used to match unknown peaks to possible chemical identities.
  - Recommended that the Program discuss possible ethical implications of non-targeted screening before laboratory analyses begin and explicitly exclude drugs of abuse.

Public comment:

Dr. Veena Singla of the Natural Resources Defense Council (NRDC) encouraged the Program to develop methods for halogenated and non-halogenated organophosphate flame retardants, as both classes are used as replacements for PBDEs.

Ms. Nancy Buermeyer, of the Breast Cancer Fund (BCF), asked about the plans to collect dust from firehouses around the country and inquired how BCF could participate in this effort.

Program staff noted that this project (supported by funding other than Biomonitoring California) is in the early development stages, and a key study goal is to measure emerging flame retardants in dust samples.

Afternoon Session

Biomonitoring & Consumer Product Regulation in California
Presentation by: Claudia Polsky, M. Appl. Sci., J.D., Deputy Attorney General, California Department of Justice

Chemical Exposures from Cosmetics: A Case Study of Nail Care Products
Presentation by: Thu Quach, Ph.D., M.P.H., Research Scientist II, Cancer Prevention Institute of California

Informing Safer Consumer Products Decisions through Biomonitoring
Presentation by: Meredith Williams, Ph.D., Deputy Director, Safer Products and Workplaces Program, DTSC

The afternoon discussion covered a wide range of topics related to biomonitoring chemicals in consumer products. Some goals of this discussion were to:

- Identify ways that Biomonitoring California can work with other State programs, such as the Safer Consumer Products (SCP) program and the Safe Cosmetics Program to achieve common goals.
- Obtain input on additional chemicals in consumer products or types of products that should be considered for biomonitoring, beyond those already on the designated list.
- Discuss particular chemical/product combinations and relevant populations to study in the future.

Selected input and recommendations from the discussion are listed below:

- Recommended that the Program systematically review chemicals in consumer products that are not currently included in Biomonitoring California, which would include.
    - Locating lists and databases of chemicals in consumer products and comparing those to the list of designated chemicals to identify potential candidates for consideration.
    - Reviewing current laboratory capability and determining feasibility for adding new consumer product chemicals, for example by building on or expanding existing methods.
- Named some chemicals of concern in consumer products for possible future consideration as potential designated or priority chemicals, including:
    - Fragrance compounds
    - Phthalates (as a class)

  - Phthalate substitutes
  - PFCs (as a class)
  - Antimicrobials
  - UV stabilizers
  - Solvents (e.g., N-methylpyrrolidone)
  - Isocyanates
  - Acrylates (e.g., methyl methacrylate)
- Discussed the importance of measuring exposures to volatile organic compounds associated with consumer products, while noting the practical limitations of biomonitoring these chemicals.
- Emphasized the importance of considering health effects beyond cancer and reproductive effects in evaluating chemicals for biomonitoring.
  - Highlighted the examples of skin and respiratory sensitization and asthma, especially for workers with repeated exposures and other sensitive subpopulations.
- Discussed specific ways that Biomonitoring California could collaborate with other State programs to identify and assess chemical exposures from consumer products, including:
  - Sharing Biomonitoring California's chemical selection experience and biomonitoring results to inform and support the DTSC Safer Consumer Products (SCP) program in:
    - Selecting priority chemical/product combinations.
    - Evaluating safer alternatives and avoiding regrettable substitutions.
    - Tracking the efficacy of SCP program efforts to reduce specific chemical exposures.
  - Partnering with the SCP program to conduct complementary biomonitoring and dust studies, to better evaluate consumer product exposures and investigate specific sources.
    - For example, non-targeted approaches could be applied in these studies to identify emerging chemicals of concern.
  - Partnering with California Air Resources Board (CARB), for example to:
    - Use data collected in CARB's consumer products surveys.
    - Consider how biomonitoring results could support CARB's efforts to develop Airborne Toxic Control Measures.
- Discussed the importance of developing case studies and messaging to clearly demonstrate the utility of biomonitoring as part of documenting the public health benefits of various regulations.
- Highlighted intervention studies (e.g., the HERMOSA[1] study), in which biomonitoring is conducted before and after a change in consumer product use, as a way to link the product with exposure to specific chemicals.

[1] Health and Environmental Research in Make-up of Salinas Adolescents (HERMOSA) Study

- Described pre- and post-shift studies of workers as a way to characterize occupational exposures to particular chemicals (e.g., phthalates in nail salon workers), link them to specific products in the workplace, and separate out non-occupational exposures.
- Noted the emergence of "scent branding" as a marketing approach, resulting in daily worker exposures to fragrance compounds, and the gaps in regulation of these substances.
- Discussed effect markers (e.g., immune response markers) as a way to measure ongoing, transient exposures to very low levels of potentially harmful chemicals.
- Discussed a wide range of challenges associated with measuring exposures to chemicals in consumer products and evaluating potential health effects, including:
    - Limited data on identity of chemical ingredients in many consumer products.
        - Limited disclosure requirements under the Safe Cosmetics Act (e.g., no requirement to disclose chemicals with endocrine effects).
    - Difficulty linking measured chemical levels in biological samples to specific sources.
    - Lack of toxicological data on emerging chemicals in consumer products.
    - Lack of authoritative lists of asthmagens and sensitizers.
    - Difficulty studying potential connection between biomonitored levels and cancer, due to long latency period.
- Emphasized the importance of developing appropriate strategies for communicating results to biomonitored populations, including clear messaging on potential health impacts and uncertainties in interpreting the data.

Public comment:

Dr. Dave Edwards, manager of the Consumer Products Implementation Section in CARB, described their consumer product survey that will gather sales data and ingredient information for about 430 categories of products. Aggregate survey data by category will be publicly available; more detailed data could potentially be shared with state agencies under confidentiality agreements.

Mr. Ernest Pacheco, from Communications Workers of America (CWA), extended support for funding the Program and expressed interest in a biomonitoring project focused on workers exposed to flame retardants, such as flight attendants exposed to tricresyl phosphate.

Ms. Nancy Buermeyer, of BCF, supported collaborative efforts of Biomonitoring California with other State programs. She offered BCF's help with developing messages to inform public health action. Ms. Buermeyer suggested Washington State's database[2] on chemical ingredients in children's products as an important resource for consumer product information. She suggested that the Panel consider phthalates as a class at a future meeting. She also advocated development of a publication on the Program's successful results return efforts, to demonstrate to other programs and researchers the feasibility and importance of returning biomonitoring results to study participants.

Dr. Veena Singla, of the NRDC, called attention to pesticide exposures as an area for further discussion at a future meeting, in terms of how the Program could generate useful data to

inform pesticide policy and regulation. She also highlighted the issue of regrettable substitution, which can lead to new chemical exposures that are difficult to avoid for both consumers and workers.

Ms. Trudy Fisher commented on the importance of investigating ongoing low dose exposures to multiple chemicals and associated health effects, such as sensitization. Ms. Fisher also suggested fabric softeners as a product category of interest.

Open Public Comment Period

Ms. Nancy Buermeyer, of BCF, expressed support for the Program to systematically review consumer product chemicals on Biomonitoring California lists and requested that there be an opportunity for public input into this process. She also emphasized the importance of continued Program funding and proposed development of a letter of support.

The Panel reached consensus to send a letter of support for Program funding.

Dr. Brian Endlich, a toxicologist with DTSC, suggested collaborating with immunology groups at universities as one way to explore the utility of immune response markers, such as cytokines, chemokines, and histamines, as biomarkers for fragrances and other irritant sensitizers.

[2] Data submitted pursuant to the Children's Safe Product Act; database available at: https://fortress.wa.gov/ecy/cspareporting/