March 8, 2017 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 March 8, 2017, in Sacramento. This document briefly summarizes the Panel's input and recommendations on each agenda item and related public comments. Visit the March SGP meeting page to access the presentations, other meeting materials, and the meeting transcript.

Biomonitoring California – Where We Are Now

Presentation: Nerissa Wu, Ph.D., Acting Chief, Exposure Assessment Section, Environmental Health Investigations Branch, California Department of Public Health (CDPH)

The Panel provided extensive input on the design of the multi-regional study, including:

- Expressed interest in pairing household exposure assessment work with the multi-regional biomonitoring study.
- Discussed the usefulness of measuring more than one member per household, including children, in the regional study.
- Proposed a vetting process for the exposure questionnaire for the regional study, which would include contacting California experts for proposals on the top five questions to include.
- Advocated for doing more than one region per year, pending resources, and suggested choosing regions close in location for efficiency.
- Expressed support for including the broader panel of perfluoroalkyl and polyfluoroalkyl substances (PFASs) in the regional study.
- Discussed the importance of incentives for participants.
- Suggested looking for existing databases with demographic information to link to randomized addresses in a region, to help evaluate the representativeness of responses (for example, to the postcard).
- Obtain census-tract level data for the region being studied and look at the CalEnviroScreen (CES) information for those census tracts. The CES information could be used to aid recruitment and better understand the population being studied, and later could be linked to the biomonitoring results.
- Noted the importance of using multiple languages on the recruitment postcard to be as inclusive as possible.
- Consider adding study of 1-nitropyrene to the multi-regional study as a way of evaluating traffic impacts.

Public comment: Nancy Buermeyer, with Breast Cancer Prevention Partners, noted the particular interest in biomonitoring among communities in Los Angeles County with oil and gas extraction facilities. She suggested considering these communities during the recruitment phase of the multi-regional study, while also acknowledging that the laboratory panels to be included may not be relevant to those types of exposures.

The Importance of Biomonitoring in Addressing National, Regional, and Community Chemical Exposures

Presentation: Patrick Breysse, Ph.D., Director, National Center for Environmental Health, Centers for Disease Control and Prevention (CDC)

The Panel discussed a wide range of topics with Dr. Breysse, including:

- The importance of state biomonitoring programs, including Biomonitoring California, in supplementing the National Biomonitoring Program by providing data on regionally specific chemical levels and local determinants of exposures. Understanding chemical exposures at the local level can help drive policy.
- How the rich biomonitoring dataset at the national and state levels aids the public health community in generating hypotheses for epidemiological studies.
- The emergence of new perfluoroalkyl and polyfluoroalkyl substances (PFASs) in environmental sampling highlights the importance of measuring an expanded panel of PFASs in biomonitoring studies.
- The factors CDC has to evaluate when considering adding an emerging chemical of interest as a new analyte, such as the feasibility of measuring it in the blood volume collected.
- The critical role of the CDC's National Biomonitoring Program in generating representative national data that can be used as comparison values in biomonitoring studies. The availability of this comparison dataset was a key factor in obtaining Institutional Review Board approval to return results to participants in biomonitoring studies led by UC Berkeley, for example.
- The benefits of long-term storage of biological samples, including resource-efficiency in maximizing use of already collected samples and creating opportunities for future testing, such as of health biomarkers.
- The complexity of making a decision to give archived blood samples to researchers for a particular study now, because that removes the possibility of future tests of currently unknown chemicals or health biomarkers.

Public comment: Dr. Marion Guyer, an internist with the Alameda Health System, inquired about the opportunities for private/public partnerships with health organizations to obtain NHANES samples. Dr. Breysse responded by noting that CDC is involved in many collaborative studies across the country with a variety of partners.

Looking Forward for Biomonitoring California – Discussion

Background Information

The focus of this discussion item was, "Given limited resources, what should be the main priorities of Biomonitoring California going forward?" The following three guest discussants kicked off the discussion by providing their views on that question.

> Irva Hertz-Picciotto, Ph.D., Professor and Director, Environmental Health Sciences Center and Vice Chair for Research, Department of Public Health Sciences, School of Medicine, UC Davis
>
> Tom Webster, D.Sc., Professor, Environmental Health, Boston University School of Public Health - Presentation
>
> Julia Brody, Ph.D., Executive Director and Senior Scientist, Silent Spring Institute

Dr. Gina Solomon, Deputy Secretary for Science and Health at the California Environmental Protection Agency, facilitated a discussion among the Panel, guest discussants, Dr. Breysse, and the audience. The wide-ranging input to the Program on the above discussion question included:

- Review the enabling legislation (SB 1379) for the Legislature's findings on the potential beneficial outcomes of setting up the Program, and use those to help prioritize future projects.
- Continue the Program's efforts to carry out a statewide representative sample and identify and study highly exposed communities, while also seeking opportunities to generate biomonitoring data that could help further other goals noted by the Legislature, such as:
    - Validate exposure models.
    - Support epidemiologic studies that explore the linkage between chemical exposures and health outcomes.
    - Inform public health responses to emergencies involving chemical exposures.
- Build on and expand the Program's efforts to generate data that support the evaluation of regulatory actions and other interventions to reduce specific chemical exposures.
- To design successful interventions, exposure sources must be well understood, and that requires information complementary to biomonitoring data, such as environmental monitoring data.
- Continue to develop the capability for non-targeted analyses, which can generate hypotheses for future studies and support early detection of emerging chemicals of health concern. Non-targeted analyses of dust, for example, can reveal new priorities for measurement in biomonitoring studies.

- In choosing highly exposed populations to study, consider communities impacted by oil and gas extraction activities, such as in Kern County, or by those affected by forest fires.
- Highlight the value of Biomonitoring California in conducting exposure surveillance, which is a fundamental public health practice.
- Continue to focus on collecting biomonitoring data that can reveal time trends in exposures, including the continually changing exposures to flame retardants and emerging PFASs.
- Keep abreast of work that academic researchers are doing to advance the field of biomonitoring and consider adopting validated approaches that are relevant to the goals of Biomonitoring California.
- Evaluate options for developing broad screening methods that can be applied in larger numbers of people, including via pooled samples. For example, there are newly developed methods to measure total organic fluorine and total organic bromine, which could give a more complete picture of exposures to these types of chemicals.
- Consider ways to better study chemical mixtures and groups of chemicals, versus focusing on individual compounds. For example, examining patterns in data can identify highly correlated compounds, for which measuring one or two biomarkers could be enough to represent the group. As a second example, measuring biological activity can integrate the effects of a group of chemicals present at low levels and acting together to affect the endocrine system.
- Continue to generate data on specific analytes in individual participants, which is essential for understanding variability, identifying highly elevated levels, and obtaining information on exposure sources.
- Continue to survey the scientific literature and government databases to watch for emerging chemicals of importance to measure, with a focus on those of greatest potential health concern.
- Continue to investigate the ongoing issue of regrettable substitution, in particular for chemicals that will end up in dust in indoor environments.
- Embrace results communication to participants as a central part of Biomonitoring California's public health work and not an ancillary task. Making biomonitoring data relevant for public health includes communicating findings in an understandable way to study participants, as well as the general public.
- Continue to pursue options for digital results return, as a resource-efficient approach and also for the flexibility an electronic platform can offer to individuals exploring their results.
- Think about ways a biomonitoring project could improve identification of exposure sources and support participants in taking action to reduce their exposures.
- Expand Program efforts in communicating findings to the general public and policy-makers.

- Continue to focus on environmental justice issues and engage with California's diverse population, including immigrants and refugee populations, in future studies.
- Include a broader range of ages in biomonitoring studies, including young children.
- Analyze the Program's overall budget to determine what the biggest expenses are, as a way to understand the resource issue in more detail. Consider contracting to outside laboratories if that would be more cost-effective for some analyses.
- Continue to identify ways to collaborate with outside partners, such as the UC Davis Environmental Health Sciences Center. Look for institutions that may have already collected samples the Program could access. Consider collaborating with researchers investigating epigenetic effects.
- Recognize and build on the contributions that Biomonitoring California's work has already made to other state programs, including the Safer Consumer Products program.
- Seek resource-efficient ways to advance multiple Program goals in future projects. Grapple with the ongoing funding challenges to design studies that incorporate, as much as possible, the diverse priorities of the Program, including:
    - Identifying and engaging with highly exposed communities.
    - Sampling large numbers of people across widely varying geographic regions in the state.
    - Integrating environmental justice principles, respecting the diversity of Californians and examining differential impacts of chemical exposures by socioeconomic status and other factors.
    - Expanding laboratory capability with both targeted and non-targeted approaches
    - Identifying and measuring emerging chemicals before they become widespread exposure and health concerns
    - Communicating findings in an understandable way.
    - Choosing studies that are meaningful for public health and generate data to help evaluate efforts to reduce potentially harmful chemical exposures.

Public comment: Davis Baltz, formerly of Commonweal, reviewed some of the history of the establishment of the Program, including the intent to regularly measure a statewide representative sample, conduct studies of highly exposed communities, and carry out the mandate of returning results to study participants. He acknowledged Program staff and the SGP in the accomplishments achieved over the first 10 years. Mr. Baltz highlighted the challenge of the Program's always-limited budget that is now shrinking further. He encouraged the public interest community to work to ensure the Program not only survives, but also strengthens and grows. He highlighted the importance of making sure the Legislature fully understands the role of Biomonitoring California in advancing public and occupational health and addressing environmental

issues. He discussed how a fully funded Program could reduce costs to the State in other areas, such as reducing medical costs through chemical exposure reduction. He also emphasized that Biomonitoring California is a scientific program, and the importance of preserving and strengthening science in the current climate. He spoke about ensuring that biomonitoring results continue to be available to the public and the need to expand the database even further, such that the fundamental goals of the Program can be achieved.

Adjourn SGP Meeting for 10th Anniversary Event and Reception

After the SGP meeting, a celebration of the Program's 10th anniversary was held. Click on the following link for more information about the event:
http://biomonitoring.ca.gov/10th-anniversary