November 2, 2010 Meeting of the Scientific Guidance Panel for Biomonitoring California

Summary of Panel Recommendations

The Scientific Guidance Panel (SGP) for the California Environmental Contaminant Biomonitoring Program (also known as Biomonitoring California) met on November 2, 2010 in Sacramento. The SGP's recommendations and suggestions on various topics are summarized below. Meeting materials, including the agenda, presentations and transcript, are available here: https://biomonitoring.ca.gov/events/biomonitoring-california-scientific-guidance-panel-meeting-november-2010.

Program and Laboratory Updates

Program staff gave an update on progress toward meeting the objectives of the Cooperative Agreement with the Centers for Disease Control and Prevention (CDC). This included updates on the Maternal and Infant Environmental Exposure Project (MIEEP) and the Firefighter Occupational Exposures (FOX) Project. The Program's efforts to establish a collaboration with the Kaiser Research Program on Genes, Environment, and Health were also briefly introduced. Other items of interest were the new Biomonitoring California logo, the completion of a draft brochure on Biomonitoring California in English and Spanish, and participation of Program staff in an effort spearheaded by the Association of Public Health Laboratories to develop national biomonitoring guidelines.

A Panel member recommended carrying out a power calculation for MIEEP to see if the size of the Project is sufficient to answer the question, "Is this population of women systematically different in their exposures compared to the national NHANES survey population?" The availability of adequate funding was discussed. A Panel member commended the Program's progress on the smaller projects being conducted in the absence of funding for a statewide survey.

Laboratory staff gave an update on activities since the last SGP meeting and a preview of upcoming work. The California Department of Public Health Environmental Health Laboratory is expanding existing methods (such as increasing the number of phthalates that can be analyzed), continuing work on methods in progress (such as environmental phenols), and increasing laboratory capacity. The Department of Toxic Substances Control Environmental Chemistry Laboratory reviewed already validated methods and results obtained using these methods, reported on methods under development (new or alternative brominated flame retardants, such as polybrominated ethylbenzene) and previewed future work (such as developing methods for phenolic compounds). The Panel commended the laboratories for the continued progress.

Designated Chemical

The Panel voted unanimously to recommend adding manganese to the designated chemical list. Panel members noted that before considering manganese as a potential priority chemical, the Program should research the pharmacokinetics and laboratory methods for manganese.

Draft Public Involvement Plan

Program staff presented the key elements of the draft Public Involvement Plan that has been released for public comment, the approaches being undertaken to solicit comments, and the timeline for finalizing the Plan. The Panel discussed the Plan and provided input. Individual Panel members suggested that the Program:

- Consider developing a media strategy or other method to amplify the message.
- Partner with community organizations to reach people we would otherwise miss by our use of online tools.
- Do outreach to various groups (e.g., labor groups, professional associations, medical providers) to involve them in the Program.
- Keep a focus on the statewide survey in designing public involvement efforts.
- Convey to the public the importance of biomonitoring by making a connection to green chemistry.
- Seek wide input on the subject of biomonitoring reference levels from a variety of groups and individuals with relevant interests, such as those in the role of talking to patients and others about biomonitoring results.

Introductory Discussion of Biomonitoring Reference Levels

Program staff gave a presentation introducing the concept of "biomonitoring reference levels" – concentrations in biological media (e.g., blood or urine) that would be useful to compare with biomonitoring results. The Program is using the term broadly to include things like measured levels in relevant populations (e.g., NHANES) and levels used to derive guidance values or standards (e.g., blood lead level used to derive drinking water standard). The Program sought the Panel's perspectives on the use of biomonitoring reference levels and their suggestions for the March workshop on this topic. Individual Panel members (not necessarily the entire Panel) expressed their opinions and recommended that the Program:

- Consult with experts on nutrient loadings, radioactivity, and pharmaceuticals as part of researching biomonitoring reference levels.
- Be aware of the large uncertainties in attempting to develop reference levels. Don't assume that simple translations between biological levels and health effects will exist in all cases. Reference levels for a single chemical may differ between groups of people because of genetic variation, for example.
- Recognize that there will not be information on health-based levels of concern for

many of the chemicals of great interest to the Program, because the Panel has focused on "staying ahead of the curve" and recommending that emerging chemicals be biomonitored.

- Be very cautious in taking a poor toxicity data set and attempting to extrapolate to obtain a biological equivalent. Consider carefully if we should attempt to include chemicals with sparse or no data on health effects or pharmacokinetics. Distinguish between a screening level assessment and a full risk assessment.
- Be aware that developing biomonitoring reference levels could subject the Program to controversy or even derail the Program.
- There is a need to provide a health context for biomonitoring results, particularly when returning results to individuals. People will ask questions about the meaning of their results in terms of their health and we have a responsibility to respond.
- Provide proper guidance on how any levels developed by the Program should be viewed (i.e., not as a standard or a regulatory level).
- Discuss a probability or risk-based interpretation for noncancer health effects versus the reference dose approach.
- Look at mixed exposures particularly for chemicals that have similar mechanisms. Even if chemicals do not act in the same way, cumulative exposures to multiple chemicals should be considered and evaluated.
- Be clear about the difference between exposure assessment and health risk assessment. Biomonitoring is a measure of exposure. CDC has reported results and avoided health-based interpretations. The Program has been on a path of identifying the presence of chemicals in the body; developing reference levels goes down a different path of attempting to determine how much harm is acceptable.
- Do not attempt to say that a particular level of a chemical in the body is okay. The uncertainties are too great to make those kinds of conclusions.
- Recognize that developing reference levels sets the Program on a very different path than simply identifying the presence of chemicals in blood or urine. Others have chosen not to go down this path. For example, the Royal Commission on Environmental Pollution took the position that rather than embarking on a risk assessment strategy around chemicals identified in people, they simply stated that steps should be taken to reduce the use of substances that appear in humans and in higher mammals. The European REACH regulation classifies substances that are very persistent and very bioaccumulative as chemicals of a high concern, regardless of questions of risk.
- Understand that there is value in a simple translation between a blood level and an intake level, without considering health risks.
- Make the focus of the workshop broader than just reference levels. Frame the workshop as a discussion of ways to provide context for biomonitoring results, with biomonitoring reference levels as one way to do that. Consider how to interpret biomonitoring results for individuals and groups. For example, the Program might consider providing context by using measured levels in relevant populations (e.g., NHANES), calculating levels for certain chemicals, or declining

to provide context in some cases and figuring out a good way to explain to people why no context is given.

Chemical Selection Planning

Program staff gave an overview of selected chemicals and groups of chemical that are being tracked as possible candidates for consideration as potential designated chemicals, including: plasticizers, a non-halogenated flame retardant (triphenyl phosphate), emerging disinfection byproducts, two organotins (tributyltin and dibutyltin), nonylphenols and nonylphenol ethoxylates, and pesticides. Panel members expressed particular interest in triphenyl phosphate and non-halogenated flame retardants in general. Other categories of interest were pesticides, emerging disinfection byproducts and organotins,.

The Panel recommended that the Program briefly summarize the following information when reviewing possible candidates for designation: the extent and type of use, indicators of environmental persistence and/or bioaccumulation, existing data from biomonitoring studies or studies of dust levels, and evidence of toxicity. A further recommendation was to consider looking at the hazard traits that OEHHA recently defined as part of their green chemistry work.

One technical listing proposal was also considered: Should the Program automatically add to the priority list chemicals that are newly being measured by CDC and are part of a group that the Panel already recommended as priority? For example, the Panel moved the entire group of phthalates that were already designated to the priority list. CDC has recently begun measuring isodecyl phthalate. Under the proposed approach, this new phthalate would be automatically added to the priority list under phthalates, instead of being brought to the Panel for approval. The Panel unanimously agreed to the proposal.

Firefighter Occupational Exposures (FOX) Project

Dr. Leslie Israel of the University of California Irvine gave an update on the FOX Project. As of November 1, 18 participants had been recruited, with a goal of 100 participants. The Program does not anticipate any difficulties in reaching that goal. The Panel inquired about other aspects of the project, including the questionnaire, the firefighters' chemical exposures, the results return process and approaches being considered to provide context for the results. For the complete discussion, refer to the full transcript available here: https://biomonitoring.ca.gov/events/biomonitoring-california-scientific-guidance-panel-meeting-november-2010.