Biomonitoring California Update

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Biomonitoring California
Scientific Guidance Panel Meeting
March 16, 2011
Oakland, California
Program Updates

• Funding
• Staffing changes
• Program timeline
• Strategies for statewide sampling
• Lab analyses
• Ongoing projects
• Outreach and engagement
Continued Funding

• Toxic Substances Control Account (TSCA)
  – Funding maintained for 2010-2011 at $1.9 million

• CDC Cooperative Agreement
  – Renewed for 2010-2011 at $ 2.6 million
  – Project Officer: Lovisa Romanoff, MS
Staffing Changes

• New Hires:
  – Two Environmental Laboratory Scientists
  – Administrative Assistant
  – Health Educator

• Two Visiting Scholars

• Vacancies:
  – Two Research Scientists
Senate Bill 1379 is passed, establishing The California Environmental Contaminant Biomonitoring Program (CECBP)

State General Fund contributes $5.2 million, supporting 13 FTEs and one-time equipment costs

Biomonitoring listserv established
Program website created

Scientific Guidance Panel (SGP) selected
First SGP meeting held
2008

Toxic Substances Control Account (TSCA) Funding: $1.9 million

Work with CDC’s National Center for Health Statistics on state-wide sampling design and resources

Three public input sessions

Workshop on Chemical Selection

SGP meetings held in June and October

2009

Request for Information distributed to researchers
2009

- TSCA funding stable at $1.9 million
- Awarded 5-year CDC Cooperative Agreement:
  - $2.6 million in funding per year
  - 8 new staff hired in 2009

2010

- Pilot Project: Maternal and Infant Environmental Exposure Project (MIEEP) formed; collaboration with UCSF and UC Berkeley
- Lab analysis of Tulare County samples

New Equipment:
- ICP-MS for metals
- HPLC-MS/MS for PFCs
- HPLC-MS/MS for phthalates
- HRGC-MS for OH-PAHs
- HRGC-MS/MS for PBDEs and PCBs
2010

TSCA funding stable at $1.9 million

CDC funding stable at $2.6 million
• 5 new staff hired in 2010

Occupational Pilot: Firefighter
Occupational Exposures (FOX)
Project formed, with UC Irvine

Lab analysis of RFI and CYGNET samples

Recruitment starts for MIEEP

Recruitment starts for FOX

New Equipment:
GC-MS/MS for OP metabolites & pyrethroids
HPLC-MS/MS for environmental phenols

2011

Public Involvement Plan

SGP meetings held in February, May and November
2011

- Revise and test results report back template
- “What is Biomonitoring?” brochure
- Regional Sampling:
  Biomonitoring Exposures Study with Kaiser Permanente Research Program for Genes, Environment, and Health
- Ongoing lab analyses of FOX and MIEEP Samples

2012

- New Equipment:
  ICP-MS for metals in urine
  SPE System for ECL
  SPE System for EHL

- SGP Meeting and Workshop held in March
## SGP Chemical Selection

<table>
<thead>
<tr>
<th><strong>Designated chemicals</strong></th>
<th><strong>Priority chemicals</strong></th>
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<tbody>
<tr>
<td>Diesel exhaust</td>
<td>Arsenic, cadmium, lead, mercury</td>
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<tr>
<td>BFRs and CFRs*</td>
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<tr>
<td>Antimicrobials used in food production</td>
<td>Bisphenol A, Triclosan</td>
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<td>Synthetic hormones used in food production</td>
<td>Perchlorate</td>
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<tr>
<td>Cyclosiloxanes*</td>
<td>Tobacco smoke (cotinine)</td>
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<tr>
<td></td>
<td>Diesel exhaust</td>
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<tr>
<td></td>
<td>BFRs and CFRs*</td>
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<td></td>
<td>Three PAH metabolites</td>
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<tr>
<td></td>
<td>Organophosphorus insecticides**</td>
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<td></td>
<td>Pyrethroid pesticides**</td>
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<tr>
<td>Pyrethroid pesticides*</td>
<td>Cyclosiloxanes*</td>
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<tr>
<td>Iprodione, Octhilinone, Fipronil</td>
<td>Perfluorinated chemicals**</td>
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<tr>
<td>Pendimethalin</td>
<td>DDT, 2,4-D, p-Dichlorobenzene</td>
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<tr>
<td>Triclocarban</td>
<td>PCBs**</td>
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<tr>
<td>Manganese</td>
<td>Parabens**</td>
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* Entire class of chemicals
** Those chemicals in this class that were already designated
Strategies for Statewide Sampling

- **National Health and Nutrition Examination Survey (N-HANES) Model**
  Contracted with CDC National Center for Health Statistics to develop statewide representative survey
  
  - Pros:
    - Scalable operations plans
    - Develop California database of chemical results
    - Infrastructure to maintain program
  
  - Cons:
    - Cost of program: estimated $9-10 million per year
    - Cost of IT systems to support this program: one-time costs of approximately $18 million; $3 million annual operation
Strategies for Statewide Sampling

• Dried blood spots
  – Pro: collected from over 99% of infants born in CA
  – Con: group (pooled) analyses

• Maternal alpha-fetoprotein in serum
  – Pro: collected from 70-80% of pregnant women
  – Con: group (pooled) analyses

• Regional Sampling
  – Pro: can be expanded to capture trends
  – Con: resource intensive
Laboratory Accomplishments

• Completed Projects
  – CHAMACOS: Center for the Health Assessment of Mothers and Children of Salinas
  – CYGNET: Cohort Study of Young Girls’ Nutrition, Environment, and Transitions
  – Environmental Health Tracking – Tulare County
  – MARBLES: Markers of Autism Risk in Babies–Learning Early Signs

• Currently developing criteria to evaluate outside requests for sample analyses
Ongoing Collaborations

• MIEEP: Maternal and Infant Environmental Exposure (Chemicals in Our Bodies) Project

• FOX: Firefighter Occupational Exposures Project

• BEST: Biomonitoring Exposures Study
MIEEP Pilot

• Mothers and infants were identified by the SGP as a susceptible population
• Collaboration with UCSF and UC Berkeley
• Not a hypothesis driven study; number of participants determined by resources
• Designed to demonstrate ability
  – To capture samples in a labor and delivery setting
  – To test protocols for sample collection, data collection, and sample management
MIEEP Update

• Recruiting extended through April 2011
• Over 70 participants recruited
• Received:
  – Urine from 58 mothers
  – Blood from 55 mothers and 43 cord bloods
FOX Pilot

- Firefighters were identified as an occupational cohort likely to be exposed to chemicals of interest
- Tests protocols and procedures in
  - Worker cohort
  - Distant location
FOX Update

- Enrollment/biosample collection
  - Completed!!!
  - 101 participants

- Fire station dust collection completed

- Ongoing
  - Biological sample analyses
  - Dust sample analyses
  - Data analysis
  - Best practices for reporting results
    - Field test template materials
Outreach and Engagement

• Public Involvement Activities
• Brochure
• Legislative Report
Stakeholder Input:
Design of Public Involvement Activities

• Needs assessment survey results
  – Meeting preferences

• Outreach on draft Public Involvement Plan

• Next steps
Survey Summary:
Meeting Preferences

- **Respondents:** N=95, About half from government or academia

- **Meeting location:** Oakland, Sacramento preferred
  - Southern CA may be under-represented in listserv

- **Webinar:** Webinar or teleconferences favored over in-person meetings

- **Time:** Morning and early afternoon preferred

- **Meeting format:** Half presentations and half public comment preferred by most
Public Involvement Plan Outreach

• Teleconferences – 26 participants
• Survey – 55 respondents
• Comments via email – 5 sets

Results: More than 200 specific suggestions, e.g.,
  – How to reach out to more diverse groups
  – Best ways to share findings with the public
  – Concerns about materials used to return results to individuals
Next Steps

• Draw on comments and survey results in revising Public Involvement Plan

• Conduct additional needs assessment using online surveys and in-person interviews

• Complete the revised Public Involvement Plan by June 2011
Biomonitoring Brochure

**Chemicals in Everyday Life**

We come into contact with many chemicals each day. They are used in industry and agriculture. They are in common products, such as cosmetics, toys, and plastics.

Some of these chemicals get into our air, water, soil, dust, and food. As a result, all of us have chemicals in our bodies. We may have more or fewer chemicals—depending on the products we use, the jobs we do, and the places we live.

**Chemicals and Our Health**

Some chemicals can harm our health. They can cause birth defects, learning problems, weight gain, cancer, asthma, and other illnesses. However, many chemicals have not been well studied, so we do not know if they affect our health.

**What is Biomonitoring?**

Biomonitoring (bi-o-MON-i-tor-ing) is a way to measure the chemicals in a person's body. It can tell us which chemicals are there and how much.

Scientists usually test for chemicals in samples of blood and urine. There are only a few labs that can do this testing.

**Why is Biomonitoring Important?**

Biomonitoring helps us learn which chemicals get into our bodies. This information can be used to:

- Learn more about how chemicals affect our health.
- Help keep harmful chemicals out of our environment and the products we buy.

**Taking Part in a Biomonitoring Project**

Biomonitoring California is a state government program. You may be asked to take part in one of the Biomonitoring California projects. If you agree to participate:

- You will be asked to provide blood, urine, or other samples for testing.
- You can see your results.
- Your results will be confidential.
- You will learn if you have chemicals in your body that might be harmful. However, safe amounts for most chemicals are not known.
- You will learn ways to help keep some chemicals out of your body.
Legislative Report

• The CECBP 2010 Report to the Legislature is now available at:

• The Program is currently preparing the next report, due January 2012
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Questions?