

BIOMONITORING CALIFORNIA

Program Update

Michael J. DiBartolomeis, PhD, DABT
California Department of Public Health

Biomonitoring California
Scientific Guidance Panel Meeting
August 14, 2013 – Oakland, CA

Outline

1. Staffing

2. Projects

Maternal and Infant Environmental Exposure (MIEEP)

Firefighter Occupational Exposures (FOX)

Biomonitoring Exposures Study (BEST)

3. Results Return

4. Website

Staff Changes

- Thank you and farewell to Sandy McNeel and Sara Encisco
- Welcome to Xirui Wang, Yu-Chen Chang, and Meredith Anderson

Prior MIEEP Status (April 11, 2013)

Recruitment	Collection	Data	Results
Recruit, enroll, and consent participants	Collect maternal urine	Analyze 1 st set of chemicals	Translate materials into Spanish
Preliminary interview	Interview participants	Analyze 2nd set of chemicals	Return 1 st set of results (Oct. 2012)
Distribute exposure questionnaires	Collect take-home questionnaire	Abstract medical records	Return 2 nd set of results (by May 2013)
	Collect maternal blood	Enter questionnaires & medical records	Analyze participant understanding (UCB collaborators)
	Collect umbilical cord blood	Analyze OH-BDEs	Return 3 rd set of results (Fall 2013)
		Data analysis (ongoing)	

Legend
Complete
<i>Complete since last SGP</i>
Ongoing
Not yet started

Current MIEEP Status (August 14, 2013)

Recruitment	Collection	Data	Results
Recruit, enroll, and consent participants	Collect maternal urine	Analyze 1 st set of chemicals	Translate materials into Spanish
Preliminary interview	Interview participants	Analyze 2 nd set of chemicals	Return 1 st set of results (Oct. 2012)
Distribute exposure questionnaires	Collect take-home questionnaire	Abstract medical records	<i>Return 2nd set of results (May 2013)</i>
	Collect maternal blood	Enter questionnaires & medical records	Analyze participant understanding (UCB collaborators)
	Collect umbilical cord blood	Analyze OH-BDEs	Return 3 rd set of results (Fall 2013)
		Data analysis (ongoing)	

Legend
Complete
<i>Complete since last SGP</i>
Ongoing
Not yet started

MIEEP Lab Analyses

Analyte	April 2013	August 2013
Metals in blood	Complete	Complete
Perfluorinated compounds (PFCs)	Complete	Complete
Polybrominated diphenyl ethers (PBDEs)	Complete	Complete
Polychlorinated biphenyls (PCBs)	Complete	Complete
Organochlorine pesticides (OCPs)	Complete	Complete
Creatinine	Complete	Complete
Phthalates	Complete	Complete
Hydroxy polycyclic aromatic hydrocarbons (OH-PAHs)	Complete	Complete
Environmental phenols	Complete	Complete
Pyrethroid and organophosphate (OP) metabolites	Complete	Complete
Dialkyl phosphate metabolites (DAPs)	Complete	Complete
Metals in urine	Complete	Complete
Arsenic speciation	Complete	Complete
OH-BDEs	Pending	<i>In Progress</i>

MIEEP Publication

Dickenson, CA, Woodruff, TJ, Stotland, NE, Dobraca, D, and Das, R (2013). Elevated mercury levels in pregnant woman linked to skin cream from Mexico. *Am J Obstetrics Gynecol.* 209(2):e4-e5

Prior FOX Status (April 11, 2013)

Recruitment	Collection	Data	Results
Recruit participants	Collect blood and urine	Data entry	Return 1 st set of results (Jan. 2012)
Enroll participants at wellness exam	Collect exposure assessment questionnaire	Analyze 1 st set of chemicals	Return 2 nd set of results (June 2013)
	Abstract information from medical record	Analyze 2 nd set of chemicals	Analyze participant understanding
	Collect environmental samples	Evaluation and review of data	
	Collect information on firehouses	Analyze & review environmental sample data	

Legend
Complete
<i>Complete since last SGP</i>
Ongoing
Not yet started

Current FOX Status (August 14, 2013)

Recruitment	Collection	Data	Results
Recruit participants	Collect blood and urine	Data entry	Return 1 st set of results (Jan. 2012)
Enroll participants at wellness exam	Collect exposure assessment questionnaire	Analyze 1 st set of chemicals	<i>Return 2nd set of results (June 2013)</i>
	Abstract information from medical record	<i>Analyze 2nd set of chemicals</i>	Analyze participant understanding
	Collect environmental samples	Evaluation and review of data	
	Collect information on firehouses	Analyze & review environmental sample data	

Legend
Complete
<i>Complete since last SGP</i>
Ongoing
Not yet started

FOX Lab Analyses

Analyte	April 2013	August 2013
Metals in blood	Complete	Complete
Perfluorinated compounds (PFCs)	Complete	Complete
Polybrominated diphenyl ethers (PBDEs)	Complete	Complete
Polychlorinated biphenyls (PCBs)	Complete	Complete
Organochlorine pesticides (OCPs)	Complete	Complete
Creatinine	Complete	Complete
Phthalates	Complete	Complete
Hydroxy polycyclic aromatic hydrocarbons (OH-PAHs)	Complete	Complete
Environmental phenols	Complete	Complete
Pyrethroid and organophosphate (OP) metabolites	Complete	Complete
Metals in urine	Complete	Complete
Arsenic Speciation	Under Review	Complete

Prior Pilot BEST Status (April 11, 2013)

Recruitment	Collection	Data	Results
Recruit participants from random sample	Collect blood and urine	Enter data	Usability testing – English
Schedule home visits	Collect exposure assessment questionnaires	Analyze 1 st set of chemicals (Cd, Hg, Mn, Pb and PFCs)	<i>Return 1st set of results (Dec. 2012)</i>
Consent & enroll participants at visit	<i>Abstract information from medical records</i>	Analyze 2 nd set of chemicals	Return 2 nd set of results
		Analyze data	Analyze participant understanding

Legend	
Complete	Ongoing
<i>Complete since last SGP</i>	Not yet started

Current Pilot BEST Status (August 14, 2013)

Recruitment	Collection	Data	Results
Recruit participants from random sample	Collect blood and urine	Enter data	Usability testing – English
Schedule home visits	Collect exposure assessment questionnaires	Analyze 1 st set of chemicals (Cd, Hg, Mn, Pb and PFCs)	Return 1 st set of results (Dec. 2012)
Consent & enroll participants at visit	Abstract information from medical records	Analyze 2 nd set of chemicals	Return 2 nd set of results
		Analyze data	Analyze participant understanding

Legend	
Complete	Ongoing
<i>Complete since last SGP</i>	Not yet started

Pilot BEST Lab Analyses

Analyte	April 2013	August 2013
Metals in blood	Complete	Complete
Perfluorinated compounds (PFCs)	Complete	Complete
Polybrominated diphenyl ethers (PBDEs)	Complete	Complete
Polychlorinated biphenyls (PCBs)	In progress	In progress
Organochlorine pesticides (OCPs)	In progress	In progress
Creatinine	Pending	Pending
Phthalates	Pending	<i>In review</i>
Hydroxy polycyclic aromatic hydrocarbons (OH-PAHs)	Pending	<i>In progress</i>
Environmental phenols	Pending	<i>In progress</i>
Pyrethroid and organophosphate (OP) metabolites	Pending	<i>In review</i>
Dialkyl phosphate metabolites (DAPs)	Pending	<i>Cancelled</i>
Metals in urine	Pending	<i>In progress</i>
Arsenic Speciation	Pending	Pending
Perchlorate	In Progress	In Progress

Results Return

- Required for all study participants, upon request
- Easy-to-understand format
- Results for 95 analytes have been returned
- 20 fact sheets in English; 15 in Spanish
 - Sources of chemical/analyte in the environment
 - Possible health concerns
 - Recommendations for reducing exposure
- Project-specific documents
 - Why Firefighters?
 - FAQs about BEST

Why are We Studying Firefighters?

Firefighters may be exposed to more toxic chemicals than the general population. During a fire or overhaul process, firefighters may inhale gases, vapors, or dust particles, and may ingest particles. Chemicals in building structures and contents can be released and new chemicals can be formed during a fire. Firefighters may also be exposed to chemicals while responding to incidents involving spills or leaks.

Only a few studies have looked at chemicals in firefighters. In the Firefighter Occupational Exposures (FOX) Project, we are measuring levels of more than 75 chemicals in firefighters. This information can be compared to levels in the general population.

Your participation in this important project helps us learn about chemical exposures in California residents. Your results are part of a larger anonymous database that includes findings from other Californians. Information from FOX and similar studies, combined with other research, can be used to learn more about how chemicals may affect health. Biomonitoring can also support government efforts to reduce exposures to harmful chemicals. By participating in FOX, you have made a valuable contribution to other firefighters and to Californians in general.

What Can Firefighters Learn from FOX?

- You will find out the levels of some chemicals in your body and how those compare to other OCA firefighters who participated in FOX.
- You can compare chemical levels in OCA firefighters with chemical levels in the general U.S. population.

What Can't Firefighters Learn from FOX?

For most of the chemicals that we biomonitor, there is not enough scientific information available to know how much can be in anyone's body without causing harm. Therefore, we cannot tell you whether your chemical levels might affect your health.

Can the Amount of a Chemical in a Person's Body Change Over Time?

Yes. The amount of a chemical in your body depends on many factors, including how much and how often you have had contact with that chemical, and how long it takes for your body to remove it.

What are Some Ways for Firefighters to Protect Themselves from Chemical Exposures on the Job?

- Wear your personal protective equipment and follow other on-the-job procedures to protect yourself.
- Wash your hands regularly with soap and water, especially before preparing or eating food.

Your Lab Results for Parabens

We tested your urine for parabens. Parabens are widely used as preservatives in personal care products, such as cosmetics, lotions, shampoos, and conditioners. Parabens are also used as preservatives in some over-the-counter and prescription medications.

Did you find parabens in my urine?

Yes. We found 4 parabens in your urine.

What can I compare my results to?

You can use the table in this packet to compare each paraben result to:

Other firefighters in this study. We found some parabens in [all/most of the/some of the] 101 firefighters tested.

Middle level in the U.S. Half the adults tested in the U.S. had a result below the middle level and half above.

95th percentile in the U.S. 95% of adults tested in the U.S. had a result below the 95th percentile.

The U.S. middle levels and 95th percentiles do not tell us anything about what levels of parabens in urine might be a health concern. We are providing this information so that you can compare your results to those of other U.S. adults.

No state or federal agency has established a level of concern for any paraben. Scientists are still studying how parabens might affect health. The next page contains a table with your paraben results, followed by a page that explains more about parabens.

Frequently Asked Questions about Organophosphate Pesticides

Where are organophosphate pesticides found?

- Some flea and tick collars, shampoos, sprays, and powders for dogs and cats.
- Some garden pest control products and no-pest strips.
- Some fruits and vegetables. Small amounts of organophosphate pesticides found in these foods come from agricultural pesticide use.
- Air and dust in areas where organophosphate pesticides are used, such as some farms or home gardens.
- Some treatments for head lice.

What are possible health concerns?

Some organophosphate pesticides:

- May affect the nervous system.
- May harm the developing fetus, possibly affecting later learning and behavior.

What are possible ways to reduce exposure?

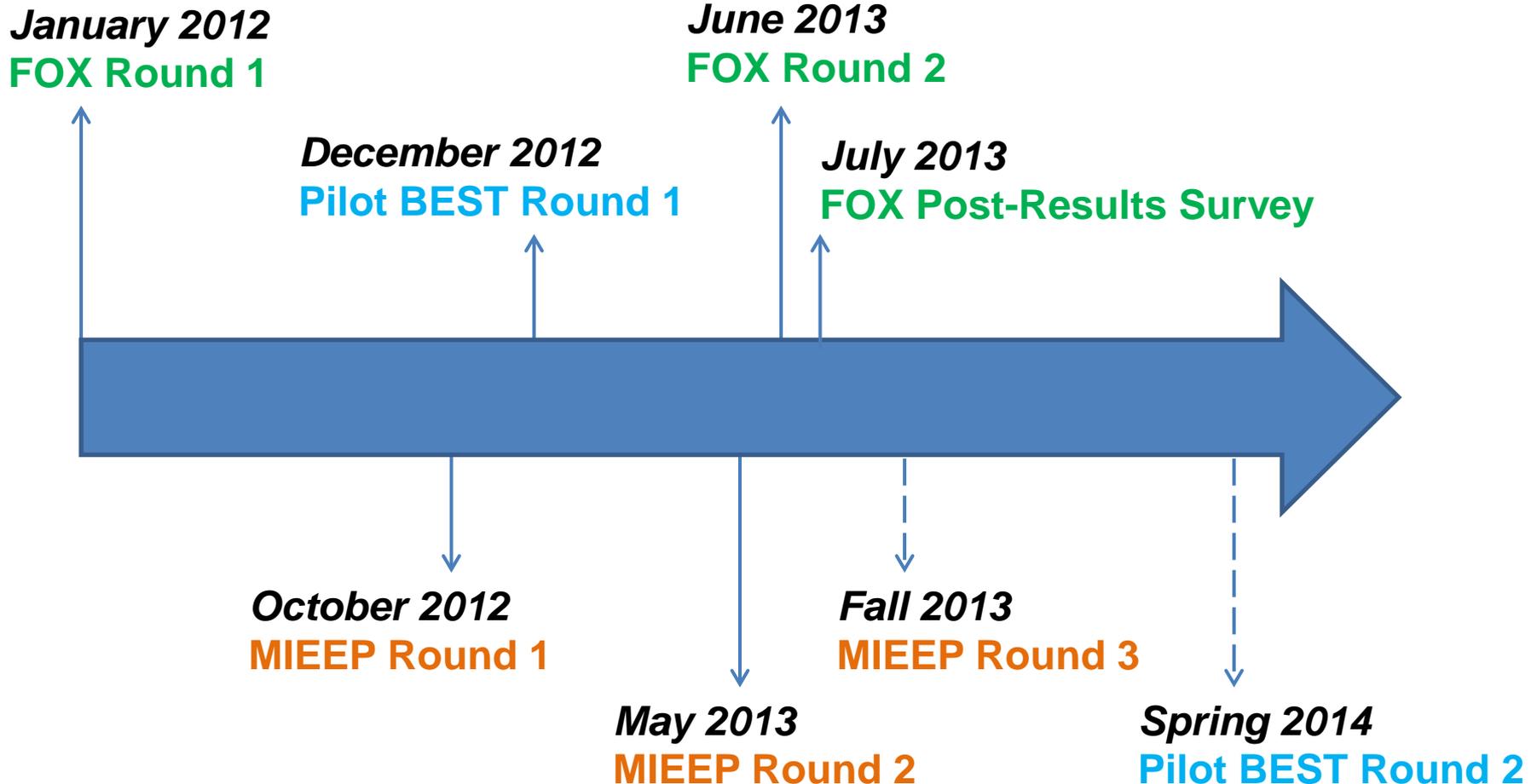
- Use pesticide-free methods for pest prevention in your home and garden. If you choose to use pesticides, consider baits and traps instead of sprays. Always follow directions for use, storage, and disposal.
- To help control fleas without pesticides, comb pets with a flea comb, regularly bathe pets with pesticide-free shampoo, and wash pet bedding.
- If a pesticide is needed for flea control, consider safer spot-on treatments or oral medications for your pet. Ask your veterinarian about the safest choices.
- Wash all fruits and vegetables before eating them.
- Consider choosing organic or pesticide-free fruits and vegetables.
- Because pesticides can be in dust, wash your hands often, especially before eating or preparing food, clean your floors regularly, and use a damp cloth to dust.

For More Information

Tips for pest prevention: www.cdpr.ca.gov/docs/dept/factshts/pull2.pdf

Find local disposal site for pesticides: Visit www.1800recycling.com, enter your zip code, choose "Hazardous", and check box for "Pesticides"; or call 1-800-CLEANUP (253-2687).

Results Return



Results Return - Challenges

- Translating biomonitoring results into plain language
- Organizing information & information overload
- Interpreting results (e.g., few analytes have established “levels of concern” for clinical health)
- Evaluating participant understanding
- Timing
- Resources/cost

Website Launch

The screenshot displays the Biomonitoring California website. At the top, there is a header with the CA.GOV logo, the site title "BIOMONITORING CALIFORNIA", and a search bar. Below the header is a navigation menu with links for HOME, ABOUT, PROJECTS, CHEMICALS, RESULTS, RESOURCES, MEETINGS, and GET INVOLVED. The main content area features a large banner on the left with the text "Learn more about Biomonitoring California" and a button that says "visit our online Biomonitoring Guide". To the right of the banner is a section titled "What is Biomonitoring?" with a sub-section "What is biomonitoring?" containing text and a small image of a person in a lab. Below this is a list of topics: "Chemicals in everyday life", "Chemicals and our health", and "Why is biomonitoring important?". A call-to-action button says "Click here to learn more about Biomonitoring California". At the bottom left, there is a section titled "Biomonitoring California" with a paragraph describing the program's purpose and a list of three objectives. To the right of this text is a video player titled "Biomonitoring California: Measuring Chemicals in Everyday Life" with a play button. At the bottom right, there is a profile for Governor Edmund G. Brown Jr. with a "Visit his Website" button, and a section for "What is Biomonitoring?" with a "Learn more about Biomonitoring California" button. At the very bottom right, there are links for "Printer-friendly version", "PDF version", and "Share".

CA.GOV BIOMONITORING CALIFORNIA

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A joint program of
California Department of Public Health
Department of Toxic Substances Control
Office of Environmental Health Hazard Assessment

HOME | ABOUT | PROJECTS | CHEMICALS | RESULTS | RESOURCES | MEETINGS | GET INVOLVED

Learn more about Biomonitoring California

visit our online Biomonitoring Guide

What is Biomonitoring?

What is biomonitoring?

Chemicals in everyday life

Chemicals and our health

Why is biomonitoring important?

Click here to learn more about Biomonitoring California

Biomonitoring California

The purpose of the California Environmental Contaminant Biomonitoring Program, also called Biomonitoring California, is to:

1. Determine levels of environmental chemicals in a representative sample of Californians
2. Establish trends in the levels of these chemicals over time
3. Help assess the effectiveness of public health efforts and regulatory programs to decrease exposures to specific chemicals.

Click to play video about Biomonitoring California

Office of Governor Edmund G. Brown Jr. Visit his Website

Learn more about Biomonitoring California

Printer-friendly version
PDF version
Share

www.biomonitoring.ca.gov

Website Launch

- Launch date: July 3, 2013
- The new website expands on previous content with:
 - Details on each of the Biomonitoring California projects
 - Information on the chemicals being measured
 - User-friendly Biomonitoring Guide
 - Additional materials in Spanish
 - Aggregate results posting

Website Development Team

- Uli Weeren, Studio Weeren
- Amy Dunn
- Sara Hoover
- Laurel Plummer
- Laurie Monserrat
- Duyen Kauffman



