



# Program Update & Future Directions

---

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

Biomonitoring California  
Scientific Guidance Panel Meeting  
April 11, 2013 – Oakland, CA

# Outline

---

## **1. Staffing**

## **2. Projects**

Maternal and Infant Environmental Exposure (MIEEP)

Firefighter Occupational Exposures (FOX)

Biomonitoring Exposures Study (BEST)

## **3. Legislative and Interim Progress Reports**

## **4. Public Availability of Results**

## **5. Future Directions**

# Staff Changes

---

- Thank you and farewell to Amiko Mayeno

# Prior MIEEP Status (Nov 8, 2012)

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

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

# Current MIEEP Status (April 11, 2013)

Recruitment	Collection	Data	Results
Recruit, enroll, and consent participants	Collect maternal urine	Analyze 1 <sup>st</sup> set of chemicals	Translate materials into Spanish
Preliminary interview	Interview participants	<b>Analyze 2<sup>nd</sup> set of chemicals</b>	Return 1 <sup>st</sup> set of results (Oct. 2012)
Distribute exposure questionnaires	Collect take-home questionnaire	Abstract medical records	Return 2 <sup>nd</sup> 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	
		Data analysis (ongoing)	

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

# MIEEP Analyses

Analyte	Nov. 2012	April 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)	Under review	<b>Complete</b>
Metals in urine	Under review	<b>Complete</b>
Arsenic speciation	Pending	<b>Complete</b>
OH-BDEs	Pending	Pending

# Prior FOX Status (Nov. 8, 2012)

Recruitment	Collection	Data	Results
Recruit participants	Collect blood and urine	Data entry	Return 1 <sup>st</sup> set of results (Jan. 2012)
Enroll participants at wellness exam	Collect exposure assessment questionnaire	Analyze 1 <sup>st</sup> set of chemicals	Return 2 <sup>nd</sup> set of results
	Abstract information from medical record	Analyze 2 <sup>nd</sup> set of chemicals	Evaluation survey
	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 (April 11, 2013)

Recruitment	Collection	Data	Results
Recruit participants	Collect blood and urine	Data entry	Return 1 <sup>st</sup> set of results (Jan. 2012)
Enroll participants at wellness exam	Collect exposure assessment questionnaire	Analyze 1 <sup>st</sup> set of chemicals	Return 2 <sup>nd</sup> set of results
	Abstract information from medical record	Analyze 2 <sup>nd</sup> set of chemicals	Evaluation survey
	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 Analyses

Analyte	Nov. 2012	April 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	Under review	<b>Complete</b>
Phthalates	Under review	<b>Complete</b>
Hydroxy polycyclic aromatic hydrocarbons (OH-PAHs)	Under review	<b>Complete</b>
Environmental phenols	Under review	<b>Complete</b>
Pyrethroid and organophosphate (OP) metabolites	Under review	<b>Complete</b>
<del>Dialkyl phosphate metabolites (DAPs)</del>	<del>Under review</del>	<i>Removed</i>
Metals in urine	In progress	<b>Complete</b>
Arsenic Speciation	Pending	<b>Under Review</b>

# Prior Pilot BEST Status (Nov 8, 2012)

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	<b>Analyze 1<sup>st</sup> set of analytes (Cd, Hg, Mn, Pb and PFCs)</b>	Return 1 <sup>st</sup> set of results
Consent & enroll participants at visit	Abstract information from medical records	Analyze 2 <sup>nd</sup> set of analytes	Return 2 <sup>nd</sup> set of results
		Analyze data	Evaluation survey

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

# Current 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 <sup>st</sup> set of analytes (Cd, Hg, Mn, Pb and PFCs)	<b><i>Return 1<sup>st</sup> set of results (Dec. 2012)</i></b>
Consent & enroll participants at visit	<b><i>Abstract information from medical records</i></b>	Analyze 2 <sup>nd</sup> set of analytes	Return 2 <sup>nd</sup> set of results
		Analyze data	Evaluation survey

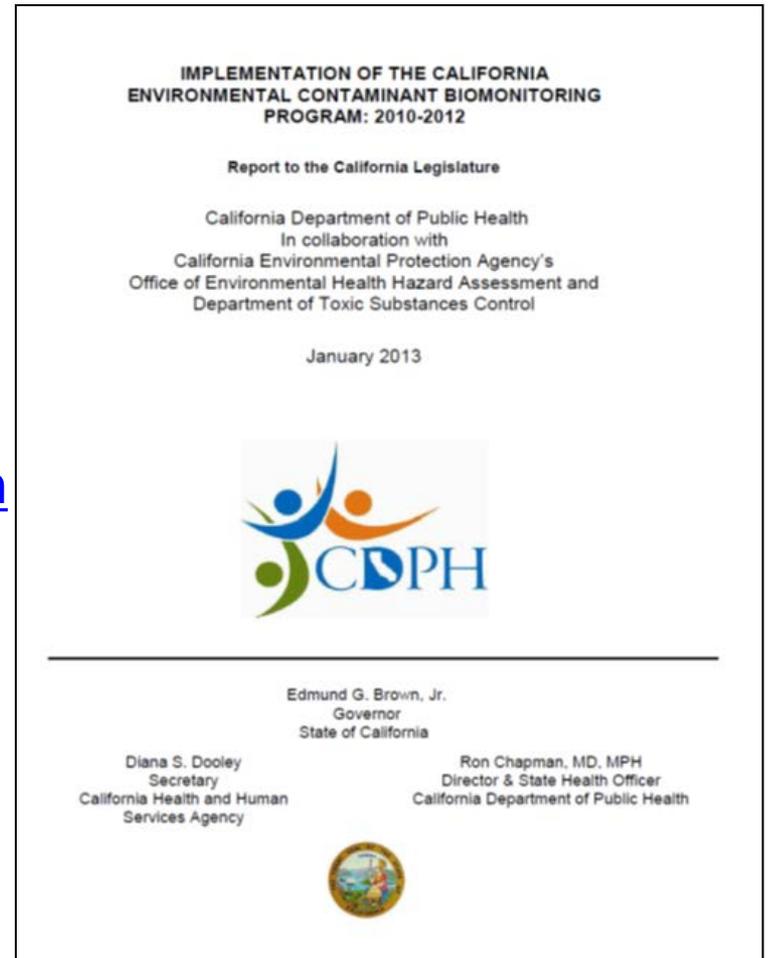
Legend	
Complete	Ongoing
<b><i>Complete since last SGP</i></b>	Not yet started

# Pilot BEST Analyses

Analyte	Nov. 2012	April 2013
Metals in blood	Complete	Complete
Perfluorinated compounds (PFCs)	Complete	Complete
Polybrominated diphenyl ethers (PBDEs)	In progress	<b>Complete</b>
Polychlorinated biphenyls (PCBs)	In progress	In progress
Organochlorine pesticides (OCPs)	In progress	In progress
Creatinine	Pending	Pending
Phthalates	Pending	Pending
Hydroxy polycyclic aromatic hydrocarbons (OH-PAHs)	Pending	Pending
Environmental phenols	Pending	Pending
Pyrethroid and organophosphate (OP) metabolites	Pending	Pending
Dialkyl phosphate metabolites (DAPs)	Pending	Pending
Metals in urine	Pending	Pending
Arsenic Speciation	Pending	Pending
Perchlorate	Pending	<b>In progress</b> <sub>12</sub>

# Legislative Report

- 2nd report approved and released to the Legislature in February 2013
- Posted and available at: <http://oehha.ca.gov/multimedia/biomon/reports/2ndLegreport.html>
- Initiated preparation of the third report, due **January 2014**



# Legislative Report

---

## Table of Contents

<b>Executive Summary .....</b>	<b>5</b>
<b>I. Introduction and Background .....</b>	<b>9</b>
<b>II. Program Structure and Resources .....</b>	<b>11</b>
<b>III. Scientific Guidance Panel and Chemical Selection.....</b>	<b>14</b>
<b>IV. Biomonitoring California Study and Sample Design.....</b>	<b>18</b>
<b>V. Biomonitoring California Laboratory Status .....</b>	<b>22</b>
<b>VI. Public Participation Activities .....</b>	<b>26</b>
<b>VII. Conclusions and Recommendations.....</b>	<b>28</b>
<b>APPENDICES .....</b>	<b>30</b>

# Interim Progress Report to CDC

---

Highlights from laboratory and program work:

- 100% of the originally proposed lab methods (16) have now been established and validated
- Much progress was made in generating and analyzing laboratory results for the various projects and collaborations associated with the Program

# Proposed Activities

---

- Program evaluation (initiated)
- Finalize and disseminate report on survey of county health officers and environmental health officials (August 2013)
- Continue to explore the feasibility of using Genetic Disease Screening Program samples
- Explore methods development for chemicals (e.g., synthetic musk oil) in personal care products

# Proposed Activities

---

- Continue to work toward a capability for non-targeted laboratory analyses to identify and quantify unknowns
- Continue to explore and develop methods for BPA analogs and derivatives and non-PBDE flame retardants (e.g., phosphate flame retardants)
- Continue to participate in CDC's Biomonitoring Proficiency Program and other proficiency testing programs

# Public Availability of Results

---

Making results publicly available is a high priority for Biomonitoring California:

- Revised website design and content
- Publication
- Website posting



# Future Directions

---

- Plan for a sustainable Biomonitoring California
- Include biomonitoring as an element in the broader context of assessing chemical impacts on human health
- Continue to identify and explore source-exposure relationships (environmental, occupational, consumer products)
- Design biomonitoring activities in consideration of the environmental justice framework