



## Program Update

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Biomonitoring California  
Scientific Guidance Panel Meeting  
November 14, 2013 – Sacramento, CA

# Outline

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## **Program Update**

- Maternal and Infant Environmental Exposure Project (MIEEP)
- Firefighter Occupational Exposures (FOX) Project
- Biomonitoring Exposures Study (BEST)

# Prior MIEEP Status (August 14, 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	Analyze 2 <sup>nd</sup> set of chemicals	Return 1 <sup>st</sup> set of results (Oct. 2012)					
Distribute exposure questionnaires	Collect take-home questionnaire	Abstract medical records	<b><i>Return 2<sup>nd</sup> set of results (May 2013)</i></b>					
<table><tr><th>Legend</th></tr><tr><td>Complete</td></tr><tr><td><b><i>Complete since last SGP</i></b></td></tr><tr><td>Ongoing</td></tr><tr><td>Not yet started</td></tr></table>	Legend	Complete	<b><i>Complete since last SGP</i></b>	Ongoing	Not yet started	Collect maternal blood	Enter questionnaires & medical records	Analyze participant understanding (UCB collaborators)
	Legend							
	Complete							
	<b><i>Complete since last SGP</i></b>							
Ongoing								
Not yet started								
Collect umbilical cord blood	Analyze OH-BDEs	Return 3 <sup>rd</sup> set of results (Fall 2013)						
		Data analysis (ongoing)						

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Collect umbilical cord blood	<i>Analyze OH-BDEs</i>		Return 3 <sup>rd</sup> set of results (Fall 2013)				
		Data analysis (ongoing)					

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# MIEEP Lab Analyses

Analyte	August 2013	Nov 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	In Progress	<b>Complete</b>

# Prior FOX Project Status (August 14, 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	<b><i>Return 2<sup>nd</sup> set of results (June 2013)</i></b>
	Abstract information from medical record	<b><i>Analyze 2<sup>nd</sup> set of chemicals</i></b>	Analyze participant understanding
	Collect environmental samples	Evaluation and review of data	
	Collect information on firehouses	Analyze & review environmental sample data	

Legend
Complete
<b><i>Complete since last SGP</i></b>
Ongoing

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	Collect information on firehouses	Analyze & review environmental sample data	

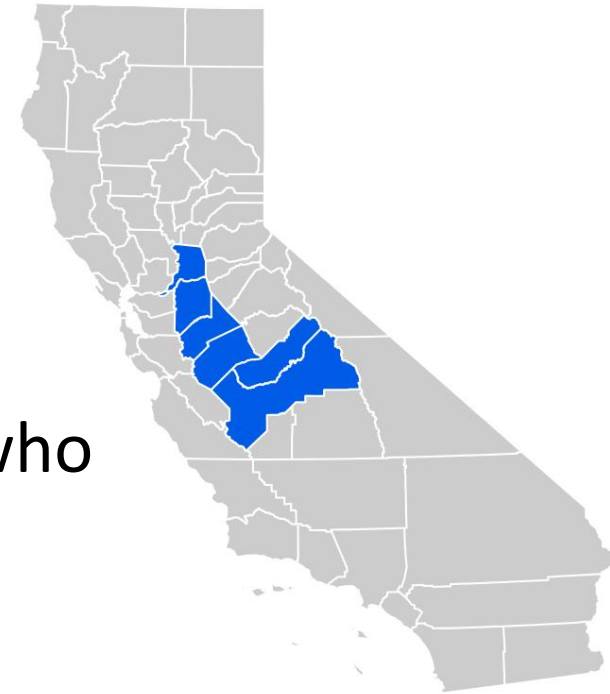
Legend
Complete
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Ongoing

# Pilot Biomonitoring Exposures Study (BEST)

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*Collaboration with Kaiser Permanente Northern California (KPNC) Division of Research*

- 6 counties in the Central Valley
- Equal recruitment across
  - Race/ethnicity
  - Gender
  - Age
- Samples collected by phlebotomist who conducted home visits
- 112 enrolled participants



# Pilot BEST Enrollment

	TARGET		ENROLLED PARTICIPANTS*	
Race/Ethnicity	n	%	n	%
Hispanic	25	25%	<b>20</b>	<b>18%</b>
Asian and Pacific Islander	25	25%	<b>20</b>	<b>18%</b>
White	25	25%	<b>40</b>	<b>36%</b>
Black	25	25%	<b>32</b>	<b>28%</b>
Gender				
Male	50	50%	<b>61</b>	<b>54%</b>
Female	50	50%	<b>51</b>	<b>46%</b>
Age				
< 55	50	50%	<b>47</b>	<b>42%</b>
≥ 55	50	50%	<b>65</b>	<b>58%</b>
Total	100		<b>112</b>	

\*These participants have completed the consent form & questionnaire and donated samples at a lab.

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

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

Analyze data	Analyze participant understanding
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\*Data analysis has continued since the last SGP in August 2013.

# Pilot BEST Lab Analyses

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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	<b>Complete</b>
Phthalates	In review	<b>Complete</b>
Hydroxy polycyclic aromatic hydrocarbons (OH-PAHs)	In progress	<b>Complete</b>
Environmental phenols	In progress	In progress
Pyrethroid and organophosphate (OP) metabolites	In review	<b>Complete</b>
Metals in urine	In progress	<b>Complete</b>
Arsenic speciation	Pending	<b>In progress</b>
Perchlorate	In progress	<b>In review</b>

# Expanded BEST

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- 7 counties in the Central Valley
- Recruitment aims:
  - Oversample for Hispanics and Asian and Pacific Islanders
  - Include monolingual Spanish speakers
  - Equal distribution across gender and age
- Utilizes KPNC lab infrastructure for sample collection



# Expanded BEST Enrollment

	TARGET		ENROLLED PARTICIPANTS* as of 10/23/13	
Race/Ethnicity	n	%	n	%
Hispanic	150	36%	<b>122</b>	<b>40%</b>
Asian and Pacific Islander	150	36%	<b>100</b>	<b>33%</b>
White	60	14%	<b>43</b>	<b>14%</b>
Black	60	14%	<b>38</b>	<b>13%</b>
Gender				
Male	210	50%	<b>133</b>	<b>44%</b>
Female	210	50%	<b>170</b>	<b>56%</b>
Age				
< 44	210	50%	<b>131</b>	<b>43%</b>
≥ 45	210	50%	<b>172</b>	<b>57%</b>
Total	420		<b>303</b>	

\*These participants have completed the consent form & questionnaire and donated samples at a lab.

# Expanded BEST Enrollment (cont'd)

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- Recruitment activities are complete!
- Sample collection (final step for enrollment) will continue until the end of November
- Sample collection challenge:  
Kaiser labs had to integrate our lab *research protocol* into their everyday *clinical* lab activities

# Expanded BEST Status (November 14, 2013)

Recruitment	Collection	Data	Results
<i>Recruit participants from random stratified sample</i>	<i>Collect consent forms &amp; exposure assessment questionnaires</i>	Enter data	Return 1 <sup>st</sup> set of results
	Collect blood and urine	Analyze 1 <sup>st</sup> set of chemicals	Return 2 <sup>nd</sup> set of results
	Abstract information from medical records	Analyze 2 <sup>nd</sup> set of chemicals	Analyze participant understanding
		Analyze data	

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

# Pilot vs. Expanded BEST

	Pilot BEST	Expanded BEST
<b>Location</b>	Central Valley	Central Valley
<b>Study period</b>	2011 - 2012	2013
<b>Enrolled participants</b>	112	303 ( <i>as of 10/23</i> )
<b>Language</b>	English	English and Spanish
<b>Recruitment oversampling</b>	Equally distributed race/ethnicity	Oversampled Hispanics and Asian and Pacific Islanders
<b>Recruitment method</b>	Letter in the mail and follow-up phone call	Letter in the mail
<b>Consent form and questionnaire</b>	In person (during home visit for sample collection)	Online (electronic) form or hardcopy
<b>Sample collection</b>	Phlebotomist at home visit	KPNC lab order system

# Acknowledgements

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