

BIOMONITORING CALIFORNIA

Program Update

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

Outline

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 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

Current MIEEP Status (November 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	Return 2 nd set of results (May 2013)
	Collect maternal blood	Enter questionnaires & medical records	Analyze participant understanding (UCB collaborators)
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		Data analysis (ongoing)	

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

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	Complete

Prior FOX Project 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

Current FOX Project Status (Nov. 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	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

Pilot Biomonitoring Exposures Study (BEST)

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

*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 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

Current Pilot BEST Status (November 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

*Data analysis has continued since the last SGP in August 2013.

Pilot BEST 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)	In progress	In progress
Organochlorine pesticides (OCPs)	In progress	In progress
Creatinine	Pending	Complete
Phthalates	In review	Complete
Hydroxy polycyclic aromatic hydrocarbons (OH-PAHs)	In progress	Complete
Environmental phenols	In progress	In progress
Pyrethroid and organophosphate (OP) metabolites	In review	Complete
Metals in urine	In progress	Complete
Arsenic speciation	Pending	In progress
Perchlorate	In progress	In review

Expanded BEST

- 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	
	n	%	n	%
Race/Ethnicity				
Hispanic	150	36%	122	40%
Asian and Pacific Islander	150	36%	100	33%
White	60	14%	43	14%
Black	60	14%	38	13%
Gender				
Male	210	50%	133	44%
Female	210	50%	170	56%
Age				
< 44	210	50%	131	43%
≥ 45	210	50%	172	57%
Total	420		303	

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

Expanded BEST Enrollment (cont'd)

- 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 & exposure assessment questionnaires</i>	Enter data	Return 1 st set of results
	Collect blood and urine	Analyze 1 st set of chemicals	Return 2 nd set of results
	Abstract information from medical records	Analyze 2 nd 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
Location	Central Valley	Central Valley
Study period	2011 - 2012	2013
Enrolled participants	112	303 (<i>as of 10/23</i>)
Language	English	English and Spanish
Recruitment oversampling	Equally distributed race/ethnicity	Oversampled Hispanics and Asian and Pacific Islanders
Recruitment method	Letter in the mail and follow-up phone call	Letter in the mail
Consent form and questionnaire	In person (during home visit for sample collection)	Online (electronic) form or hardcopy
Sample collection	Phlebotomist at home visit	KPNC lab order system

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