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Maternal Infant Environmental Exposure Project (MIEEP)

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MIEEP Pilot Study Objectives

CDC Cooperative Agreement (CECBP and UCSF)

1. Conduct a biomonitoring pilot study of at least 50 mothers and their newborn infants for exposure to toxic chemicals.

The California Wellness Foundation (CECBP, UCSF and UC Berkeley)

1. Identify sources of exposure to selected chemicals through the use of an interviewer-administered questionnaire.
2. Develop a protocol for informing participants of their biomonitoring results.
3. Inform policymakers, opinion leaders and others about the pilot study results and its implications for the environmental health of California residents.

CDC Cooperative Agreement **Pilot Study Approach**

- **Recruit pregnant patients at the San Francisco General Hospital Women's Health Center**
 - Ethnically diverse population
 - Lower socioeconomic status
- **Collect, process and ship biological specimens**
 - Enroll 100 women during third trimester
 - Urine sample during third trimester (target n=100)
 - Maternal and umbilical cord blood at delivery (target n=50)
- **Measure and compare levels of chemicals in pregnant women and their infants**
 - Chemical analyses by CECBP and CDC
 - Data analysis and report generation

The California Wellness Foundation **Pilot Study Approach**

- **Develop questionnaire on sources of exposure to select chemicals**
 - Low literacy, monolingual Spanish and English
- **Develop protocol for informing participants of their biomonitoring results**
 - Usability tests will shape report-back materials
 - In-home visit with semi-structured interviews to assess participants' reaction to results
- **Results communication**
 - Scientific publications and reports
 - “Best practice” for communicating results
 - Communication to policy makers and other key audiences

UCSF General Hospital Prenatal Population

- **Serves the San Francisco population**
- **Prenatal patients are about**
 - 60% Latina
 - 20% African American
 - 12% Caucasian
 - 8% Asian/Pacific Islander
- **Patients are low income, tend to be uninsured**
- **Tend to be low literacy**
- **More than ½ are primary Spanish speakers**

Process

- **Recruit women during the third trimester**
 - Decreases the time to collecting cord blood samples
 - 2nd visit after recruitment
 - Collect urine
 - Conduct exposure source questionnaire interview
(*contingent upon TCWF funding*)
- **Collect maternal blood and cord blood at time of delivery**
 - Patients must be identified as being in the study when enter labor and delivery
- **Process blood/urines at UCSF**
 - Must occur within 4 hours of collection
- **Ship to the State for further processing**

Post delivery Process

- **Biological samples analyzed by state and CDC**
 - Time frame 3 months to over 1 year depending on analyte
 - Possibly only use state lab
- **Participants will be contacted one more time for report back (*contingent upon TCWF funding*)**

Next steps for MIEEP

- **Determine chemicals of interest**
 - Some consideration of who will analyze samples – state and/or CDC?
- **Develop more complete study design**
- **Prepare IRB materials**
- **Questionnaire development and testing**
 - What are the focus areas for the questionnaire?
- **Define data analysis plan**
- **Prepare recruitment materials**

Draft List of Chemicals for MIEEP

- 1. Cotinine**
- 2. Environmental phenols** (Bisphenol A*, Benzophenone-3, Triclosan*)
- 3. Heavy Metals*** (lead, mercury, arsenic, and cadmium)
- 4. High-use pesticide(s)** (e.g., organophosphates*, pyrethroids*)
- 5. Mono-ortho polychlorinated biphenyls (PCBs*)**
- 6. Perchlorate*, nitrate and thiocyanate**
- 7. Phthalates***
- 8. Polybrominated Diphenyl Ethers (PBDEs)***
- 9. Perfluorinated compounds***
- 10. New/Emerging chemical of concern**

* Can be measured by the state

Challenges

- **Institutional protocols and cooperation**
 - Working with clinic staff to ensure successful implementation
 - Participant recruitment and questionnaire administration
 - Cord blood collection and processing

Key Collaborators

- **CECBP staff**
- **UC Berkeley**
 - Raquel Morello-Frosch
 - Holly Brown Williams
- **UCSF**
 - Tracey Woodruff
 - Jackie Schwartz
 - Naomi Stotland
 - Rebecca Jackson