

The Chemicals in our Bodies Project



UCSF Program on
Reproductive Health and
the Environment (PRHE)



A Joint Project of

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- Biomonitoring California
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- University of California Berkeley
 - PI Rachel Morello-Frosch

UCSF Study Personnel

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Project Goals

1. To measure and compare levels of about 100 chemicals in 75-100 maternal-infant pairs;
2. To identify leading sources of exposure to a subset of these chemicals;
3. To develop and test an approach to provide chemical biomonitoring results to participants; and
4. To evaluate the association of chemical exposure and pregnancy and birth outcomes.

Research Design and Methods

- Recruit and enroll 75-100 maternal-infant pairs at San Francisco General Hospital
- Interview women on potential sources of exposure to chemicals (diet, home environment, workplace, etc)
- Collect biological specimens (urine, maternal and umbilical cord blood)
- Develop report back materials for participants to understand their chemical biomonitoring results (Rachel Morello-Frosch previously presented)

Recruitment

Eligibility:

1. English and Spanish-speaking
2. 18 and older
3. Due Date within Recruitment Timeline
4. Delivering at SFGH
5. No high risk pregnancy

Recruitment Sites:

1. Centering Groups (Homeless Prenatal, Good Samaritan)
2. OB Continuity Clinic (SFGH)
3. Nurse Practitioner Clinic (SFGH)
4. Midwives Clinic (SFGH)
5. Family Planning Center (SFGH)

Questionnaire Chemical Focus Areas

- Pesticides
- Perfluorinated Chemicals
- BPA

Interview- Administered Survey

Sections:

- **Food, Water and Cooking**
- **Home** (e.g. nail polish, dyes, paint, installation, furniter)
- **Pesticides**
- **Occupation**
- **Reproductive History**
- **Tooth Fillings**
- **Demographics**

Typical Questions:

- How many times a day, week, month or year do you eat (Red Meat) ?
- Since you became pregnant have you used any (nail polish or nail polish remover) ?
- In the past 30 days, did you or anyone else in your home use chemicals or pesticides....
- For birth control have you ever used (Mirena or other type of hormone-releasing Intrauterine Device)?

At-Home Survey

Sections:

- Personal Care Products
- Hair Care Products
- Make-up
- Body or Face Products
- Cleaning
- Bedroom, Closet, Home, Electronics

Typical Questions:

- Is your mattress treated for stain protection or water resistance?
- Do you usually sleep with a regular foam or memory foam pillow?
- Do you own any clothing that is labeled wrinkle-resistant or stain-resistant (e.g. shirts or blouses, pants, suit jackets)?

Chart Abstraction

- Prenatal Charts: (age; ethnicity; medical history; previous pregnancies; pregnancy dating; emotional status; education/employment/finances; prenatal nutrition; weight history)
- Labor and Delivery Charts: (past obstetric history; medications; psychosocial history; past medical history; health history; initial newborn exam)
- Birth Center Charts (newborn care; admission assessment; biophysical baseline)

Biological Specimen Collection

- **Maternal Urine: collected at time of exposure assessment interview** (Creatinine, Phthalates, Perchlorate, Bisphenol A, Triclosan, Mercury, Pyrethroids (3-PBA), Chlorpyrifos metabolite (TCP), OH-PAHs (3 Phen), Metals (Pb, Cd, As, U), Speciated Arsenic)
- **Maternal and Umbilical Cord Blood: collected at delivery** (Metals (mercury, lead, cadmium), Perfluorinated chemicals, PCBs, Brominated Flame Retardants (PBDEs, PBBs and FireMaster 550, etc.), DDT/DDE (pesticide), Hexachlorocyclohexane (HCH, a pesticide – ex: Lindane))

Educational Materials

Each Participant Received an End of Study Packet:

- Healthy Everyday
- Green Cleaning Recipes
- Instructions on the safe removal of ants, cockroaches, mice
- Lead Brochure
- EWG's Guide on PFCs and Triclosan
- Dirty Dozen
- NRDC's Fish Guide



This brochure tells you about 25 things you can do every day to be healthy and keep chemicals out of your body.

Most things in our lives are made with chemicals. Chemicals are used to make our food and drinks, the products we use, the homes we live in, and the cars, buses and trains we travel in.

Because of the way chemicals are used, chemicals also pollute our air, water and food.

Many chemicals get inside our bodies when we breathe polluted air, eat polluted food, drink polluted drinks or when products get on our skin. Some of the chemicals that get inside our bodies can harm our health.

We can't keep all chemicals out of our bodies. But, we can protect ourselves and our families from some of the chemicals that can harm our health.

Recruitment Statistics

- Started July 2010 - ended June 2011
- Recruited ~ 5 participants/week
- Enrolled 92 participants
- ~ 65% of eligible participants are approached by our study team*
- ~ 50.1% of approached participants enrolled*
- Some reasons for not enrolling:
 - Disinterest in subject matter
 - Not enough time to participate and/or interview
 - No childcare, no transportation, etc.

*calculated for days in which there were eligible appointments

Specimen Collection Success Rates

- We collected
 - 83% of participant's maternal blood
 - 98% of participant's maternal urine
 - 67% of umbilical cord blood
- Some reasons for missed collection :
 - Women delivered before able to interview i.e. urine
 - Delivered before being able to “flag” charts i.e. blood
 - Emergency or scheduled c-section i.e. cord blood.

Preliminary Results

- Blood lead levels
 - Reported to SFDPH for additional follow-up
 - Letter and brochure sent to participants
- Elevated mercury
 - Conducted home assessment with SFDPH, US EPA Region 9 to determine sources of exposure
 - Provided health education to participant

Next Steps

- Data validation and analysis
- Presenting and publishing results

Acknowledgements

- The California Wellness Foundation
- US Centers for Disease Control and Prevention
- Louise Dimattio and Ocean Berg
- Kathleen Flanagan, RN
- 5M & 6C Clinical Staff