

THE MOUNT SINAI CENTER FOR CHILDREN'S ENVIRONMENTAL HEALTH AND DISEASE PREVENTION RESEARCH:

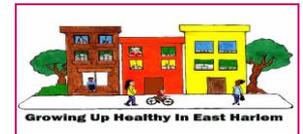
Inner City Toxicants, Child Growth and Development in New York City Children

PROJECT & CORE LEADERS:

Mary Wolff, PI; Stephanie Engel, Susan Teitelbaum, Barbara Brenner, Maida Galvez, Luz Claudio, James Wetmur, Dana Barr, Antonia Calafat, James Godbold, Gertrud Berkowitz, Jia Chen, Richard Canfield, Tom Matte, Andrea Gore

COMMUNITY PARTNERS:

Boriken Neighborhood Health, Little Sisters of the Assumption Family Health Center, Children's Aid Society, Union Settlement Association, Settlement Health, Mount Sinai and North General Pediatric Clinics



**MOUNT SINAI
SCHOOL OF
MEDICINE**

The Center first focused on PCB & Pesticide Neurotoxins (1998-2003)

Project 1 – Growing Up Healthy in East Harlem, Barbara Brenner, DrPH

Project 2 – Exposure to Indoor Pesticides and PCBs and their effects on Growth and Neurodevelopment in Urban Children, Gertrud Berkowitz, PhD

Project 3 – Genetics of Chlorpyrifos Risk in Minority Populations, James Wetmur, PhD

Project 4 – Prenatal PCB Exposure and Neurodevelopmental Outcomes in Adolescence and Adulthood, Thomas Matte, MD

Project 5 – Neuroendocrine Mechanisms for Environmental Toxicants during Development, Andrea C. Gore, PhD (new investigator)

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two inner city, multiethnic birth cohorts

Longitudinal cohort studies on PCB and pesticide exposures, susceptibility, growth, and neurotoxicity in New York City children and in a rodent model

Pesticide exposures are common, PCB & DDE body burdens very low

A non-pesticide intervention can reduce cockroach infestation in the inner city

Susceptibility to pesticide toxicity varies by race-ethnicity and is greater in infants than adults

Pesticides are associated with reduced birth size & cognitive development in PON1-susceptible infants

PCB related neurologic deficits are lasting (17 yr)

GnRH dysregulation implicates broad neuroendocrine risks from PCB and chlorpyrifos

The Center shifted focus to endocrine disruptors in the 2nd 5 years (2004-2009)

Prevalent, relevant emerging exposures in the 21st century

Project 1 – Growing Up Healthy in East Harlem - Barbara Brenner, Maida Galvez, Susan Teitelbaum

Project 2 – Pesticides, Endocrine Disruptors, Childhood Growth and Development - Gertrud Berkowitz, Stephanie Engel

Project 3 – Genetics of Phthalate and Bisphenol A Risk in Minority Populations - James Wetmur, Jia Chen



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new directions led to original findings (2004-2009)

- **phthalates and phenols: wide, high exposure, sources and variation of exposure, child obesity, built environment (pre/postnatal)**
- **prenatal phthalates associated with neurodevelopment (first findings on executive function)* more than growth**
- **phenols related to growth and puberty (prenatal and postnatal exposures)**
- **UGT genotype predicts levels of biomarkers, association with DNA methylation**

*not with PCB, DDE, OPs, phenols (OPs=IQ)



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successes and setbacks

Several firsts from IMSSM birth cohort (“the 404”)

- +Phthalates wrt body size and wrt social behavior (pre & postnatal)
- +Phenols and body size
- +OP pesticides \pm *PON1* wrt cognitive, birth size
- issues with sample size for continued funding

Opportunity to expand sample size by pooling with 2-4 other centers’ birth cohorts

- +some successes and publications, all recent (OP & phthalates)
- some issues with pooling methods

Methods development by service cores (Exposure, Biometry, COTC)

successes and setbacks

Extended research within 2cohorts, pooling projects with other Center cohorts, infrastructure for additional projects

Continued ongoing analyses (particularly S.Engel's students at UNC)

Pooling with other CC's -- OPs, phthalates and birth size, child obesity, neurodevelopment, *PON1*

Piggy-back grants and ancillary studies on pregnancy exposures

Superfund

Related research on PCBs & EDs

BCERP cohort

Hormonal effects of environmental exposures on pubertal milestones in girls

WTC

Effects on maternal and infant health, able to launch based on CC cohort

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