Children's Health & Air Pollution Study - San Joaquin Valley: Transit Exposure during Pregnancy Study
Research Project goes into the Classrooms for Students' Learning

Presented by:

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Objectives of CHAPS-SJV:

Understand risks of air pollution exposure to children's health

Reduce the risks of air pollution exposure

Partnership

University of California, Berkeley
Stanford University
University of California, San Francisco-Fresno
California State University, Fresno
Sonoma Technology, Inc.

Funding

National Institute for Environmental Health Sciences
U. S. Environmental Protection Agency

Four Projects

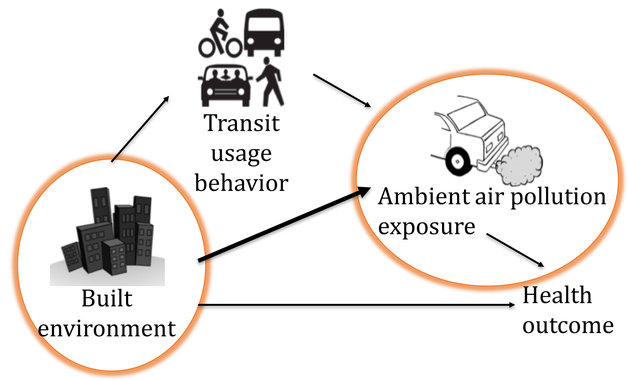
1. Exposures to air pollutants, modifying genes, and risk of birth defects and preterm births
2. Mechanisms of polycyclic aromatic hydrocarbon-linked development of hyper-allergenic immune system responses
3. Chronic exposure to air pollutants and risk of obesity and glucose dysregulation
4. Transit exposures during pregnancy

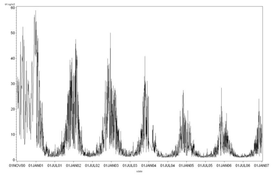
Specific Aims of Transit Exposures During Pregnancy:

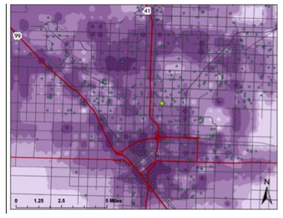
AIM I: Defining neighborhoods within Fresno, CA by characterizing assets and liabilities: Students research neighborhoods in Fresno, CA

AIM II: Estimating the indirect effects of neighborhood assets and liabilities on ambient air pollution. Students collect personal exposures to $PM_{2.5}$, Ultrafine particles, Black Carbon, and Polycyclic aromatic hydrocarbons.

AIM III: Evaluating changes to neighborhood characteristics that would have the greatest potential to reduce transit-related exposures during pregnancy.







Research in the class and field study

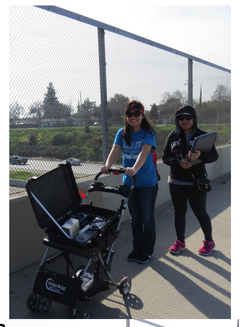
Public health students are learning how to characterize neighborhood built environment assets, and how to measure environmental exposure to different particulate matters in the neighborhood using real-time aerosol monitors and GPS loggers.

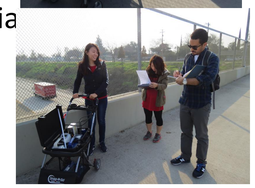
The courses provide research opportunity to students: PH131, PH170, PH175

Over 90 students have participated since Spring 2014.

Two students will present the research at Central California Research Symposium on April 22 2015.

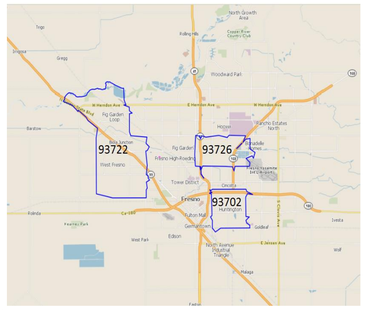
Students shares authorship of the Conference abstract submitted to ISES International Society of Exposure Science, Las Vegas

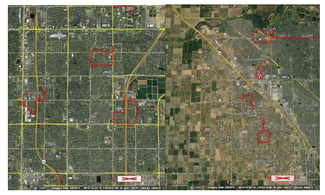




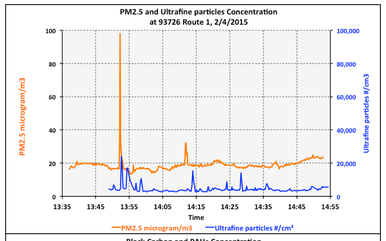
Fresno zip codes areas characterized Fall 2014 (93702, 93722, 93726). Google Earth tracks recorded by GPS loggers during the monitoring. Neighborhood characterization results.

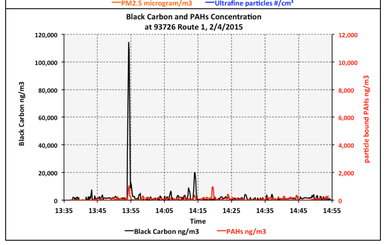
Zip Codes in Fresno

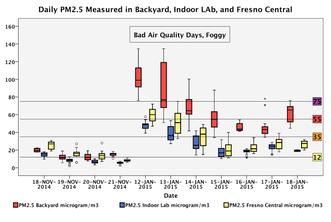




Zip Code	93726	93722	93702
Walk Score	35.4	16.3	39.9
Pollution Burden Score	4.8	6.4	6.6
CES Deprivation Score	7.2	6.9	9.1
CES Pollution Burden Score	34.56	44.16	60.06
Disorder-Walking	436.55	67.83	48.1
Disorder Institution	10.83	0.27	12.12
Order-Walking	70.18	59.35	39
Order Institution	11.48	2.66	2.3







Research Outreach Community

The Center for Advanced Research and Technology (CART), the high school Science program of the Clovis and Fresno Unified School District.

PIs from Fresno State and UC Berkeley mentor team of students for personal exposure measurement during commute.

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