



BIOMONITORING CALIFORNIA

Program Update

Presentation to the Scientific Guidance Panel
November 14, 2025
Nerissa Wu

Program Updates

- **Surveillance**
- **Community-focused studies**
- **Laboratory work**
 - Environmental Chemistry Lab
 - Environmental Health Lab
- **Outreach and communications**

Surveillance Studies

Study	Coverage	Sample Collection	Analytes
CARE: California Regional Exposure Study	3 regions	2018 – 2020	Perfluoroalkyl and polyfluoroalkyl substances (PFASs), metals, phenols, 1-nitropyrene
STEPS: Studying Trends in Exposure in Prenatal Samples	3 counties	2015 – 2027	PFASs
MAMAS: Measuring Analytes in Maternal Archived Samples	3 regions	2012, 2015-2016	PFASs, Persistent Organic Pollutants (POPs)
Future Surveillance	TBD	2028 onward	TBD

CARE: California Regional Exposure Study

- New publication on PFAS exposures:
 - Associations Between PFASs in Public Water System Drinking Water and Serum Among Southern California Adults. J. Expo Sci Environ Epidemiol. (Fillman, et al.)



CARE Study: Inorganic Arsenic and Phenols

- CARE-LA
 - Meeting with interested research partners
 - Data exploration in progress
 - Erratum: Small error in summary statistics will be corrected
- CARE-2
 - Laboratory results for speciated arsenic finalized
 - Phenols analysis initiated

STEPS: Studying Trends in Exposures in Prenatal Samples



Sample Collection Location/Years	# Samples Acquired	Status
Orange County (2015-2021)	521	All samples analyzed for PFASs ECL conducting QA
Fresno County (2015-2021)	523	388 samples analyzed for PFASs
Los Angeles County (2024)	1856	Sample selection and analysis not yet initiated



Updates on Community-Focused Studies

- ACE: Asian/Pacific Islander Community Exposures Project
- BiomSPHERE: Biomonitoring component of the San Joaquin Valley Pollution and Health Environmental Research Study
- CHAIRS-LA: Community Health and Air Quality Implications of Refinery Retirements in Los Angeles

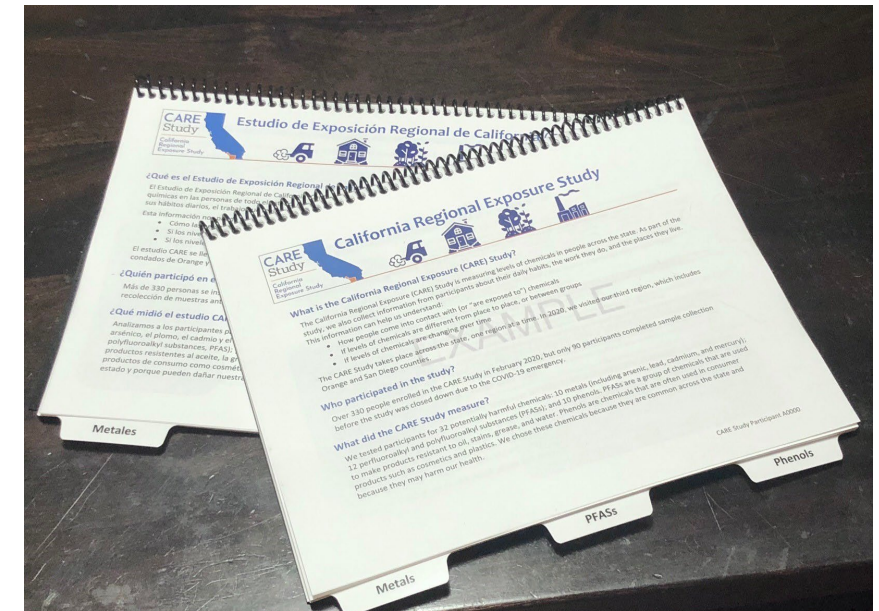
ACE: Asian/Pacific Islander Community Exposures Project

- Manuscript accepted
- Community outreach – working to get findings out in a variety of ways to maximize impact
 - Two-pager
 - Postcard
 - Community events
 - Social media



BiomSPHERE

- Collaboration with UC Merced and Central California Asthma Coalition (CCAC) to evaluate results materials:
 - Twenty-five one-on-one interviews about participant experiences with results materials
 - Three focus groups to collect feedback on paper materials and the Silent Spring Digital Exposure Report Back Interface (DERBI)



CHAIRS-LA: Community Health and Air Quality Implications of Refinery Retirements in Los Angeles Study

- **Objective:** to determine whether the retirement of two petroleum refineries is associated with changes in exposure to air pollutants and health markers
 - Fresh Air wristbands
 - Stationary monitors
 - Blood pressure, lung function and airway inflammation



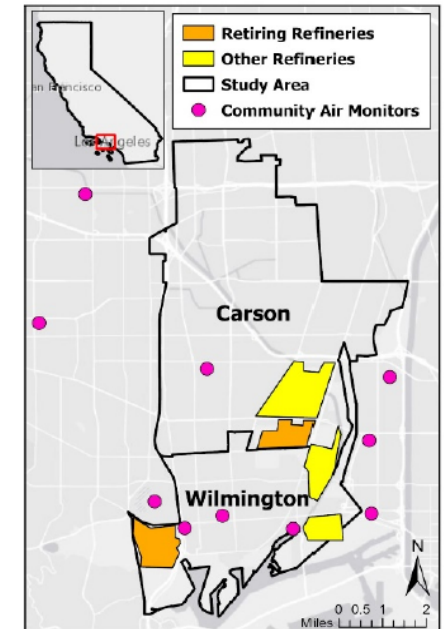
UCLA



Yale

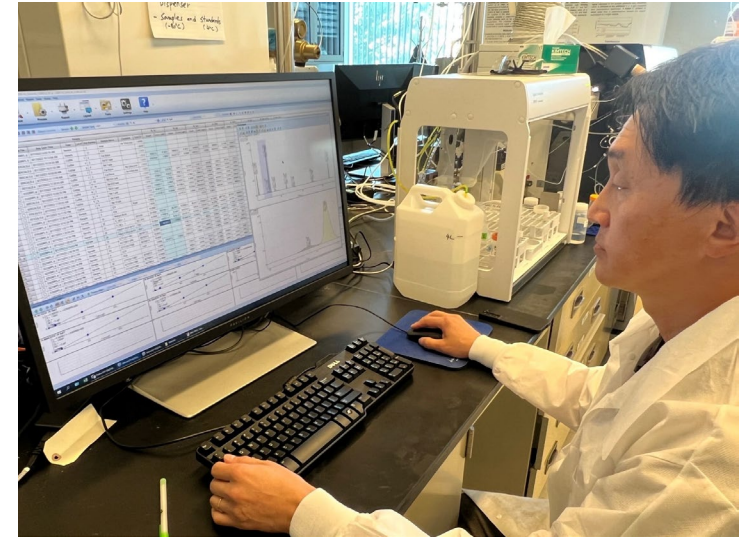
CHAIRS-LA: Biomonitoring Component

- Up to 150 residents of Carson, Wilmington, and adjacent communities will participate in CHAIRS-LA
- Participants will provide four urine samples: two while the refineries are active (Fall 2025) and two after the refineries are retired (Fall 2026)
- Urine will be analyzed for metals, specific gravity, and creatinine
- Aliquots will be stored for potential analyses of VOCs and PAHs



Environmental Health Laboratory

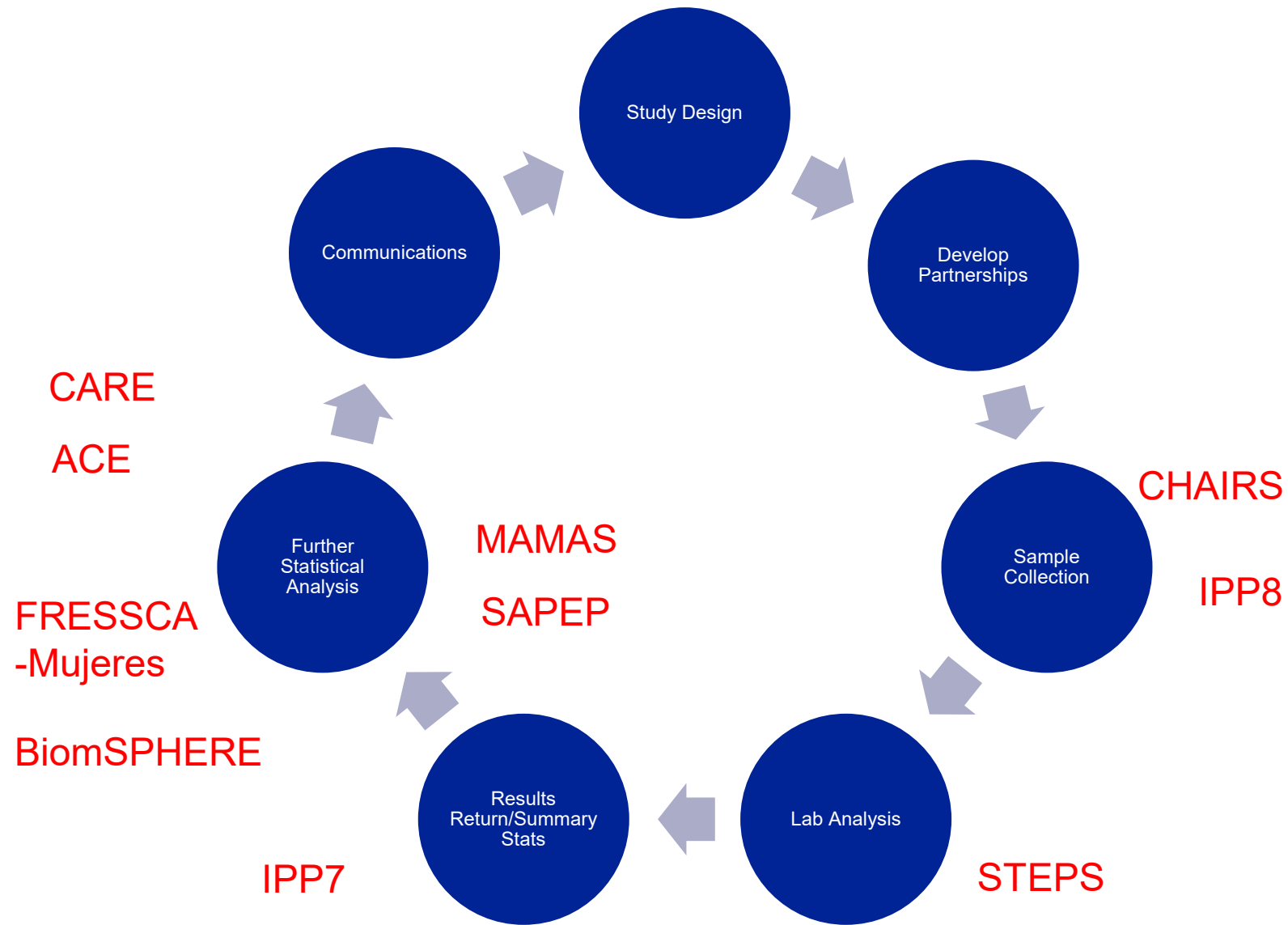
- **California Regional Exposure (CARE) Study**
 - CARE-2: Arsenic speciation analyses reported (n=299)
 - CARE-2: Phenols analyses initiated (n=194)



Environmental Chemistry Laboratory

- Continued analysis of STEPS samples
- Completion of proficiency testing for persistent organic pollutants (POPs) including PCBs, PBDEs, and organochlorine pesticides





Active Studies

- CARE
- ACE
- MAMAS
- STEPS
- BiomSPHERE
- FRESSCA-Mujeres
- SAPEP
- CHAIRS
- IPP

Current Status Biomonitoring California Studies

Sample Collection	Lab Analysis	Results Return/Summary Stats	Further Statistical Analysis	Communications
<ul style="list-style-type: none"> • CHAIRS • IPP-8 	<ul style="list-style-type: none"> • STEPS-OFC (PFASs) • STEPS-LA (PFASs) • CARE-2 (phenols) 	<ul style="list-style-type: none"> • IPP-7 (PAHs) • CARE-2 (arsenic) 	<ul style="list-style-type: none"> • CARE (arsenic) • MAMAS (POPs, PFASs) • SAPEP (PAHs, VOCs) • BiomSPHERE (PAHs, VOCs) • FRESSCA-Mujeres (PAHs, VOCs, metals) 	<ul style="list-style-type: none"> • Publications (FREES, ACE, CARE, SAPEP, MAMAS) • Factsheets and other public facing material (FREES, ACE, CARE, SAPEP, MAMAS)

Program Support and Development

- Development of laboratory methods
- Evaluation and standardization of statistical methods
- Creation of templates and graphics for communications materials
- Review of current scientific literature
- Assessment of field methods
- Development of new study designs

Staff Update

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^ New staff

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Questions?