Program Update

Nerissa Wu, PhD, MPH
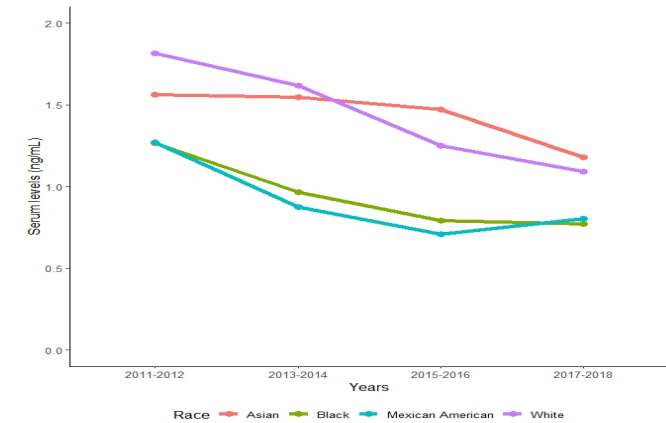Presentation for the Scientific Guidance Panel Meeting
July 19, 2024

Program Goals

- Evaluate the presence of chemicals in a representative sample of Californians
- Establish trends in the levels of chemicals over time
  - Assess effectiveness of public health efforts and regulatory programs
  - Assess exposures related to climate change
- Identify highly exposed communities
- Evaluate strategies for exposure reduction
- Expand the reach and sustainability of the program

Surveillance

- On-going systematic collection, analysis, and dissemination of data
- Characteristics of surveillance include:
  - Representativeness
  - Acceptability
  - Stability

Surveillance

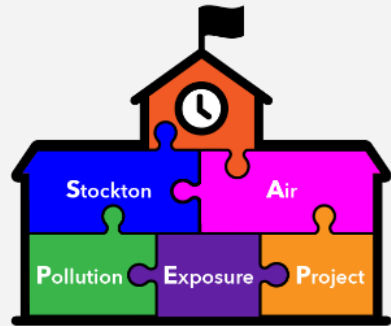| Study	Coverage	Sample Collection	Analytes
California Regional Exposure (CARE) Study	Los Angeles Region 2 (San Bernardino, Riverside, Imperial, Inyo, Mono counties) Region 3 (San Diego, Orange counties)	2018 – 2020	PFASs, metals, phenols, 1-nitropyrene
Studying Trends in Exposure in Prenatal Samples (STEPS)	Orange, Fresno, and Los Angeles counties	2015 – 2027	PFASs+
Future Surveillance	TBD	2028 onward	TBD

Studying Trends in Exposures in Prenatal Samples (STEPS)

Sample Collection Location	Birth Year	# Samples	Status
Orange County	2015 2018 2021	175 174 172	All 521 samples acquired 240 samples analyzed ⭐
Fresno County	2015 2018 2021	174 175 174	All 523 samples acquired
Los Angeles County	2024		Acquiring 155 samples per month*

* Eligibility of samples will be determined following linkage to birth records

Future Surveillance

- Scheduled to start in 2028
- Program goal is to work with an existing sampling frame and incorporate:
  - Random population-based sampling
  - Exposure questionnaires
  - Urine, blood, and serum samples

Community Biomonitoring Studies

- Asian/Pacific Islander Community Exposures (ACE) Project

- East Bay Diesel Exposure Project (EBDEP)

- Stockton Air Pollution Exposure Project (SAPEP)

- Biomonitoring component of the San Joaquin Valley Pollution and Health Environmental Research Study (BiomSPHERE)

- Farmworker women & Respiratory Exposure to Smoke from Swamp Cooler Air (FRESSCA–Mujeres)

Updates on Community Biomonitoring Studies

BiomSPHERE

- Preparing results return packets for urinary biomarkers of response

- Evaluating air monitoring and questionnaire data

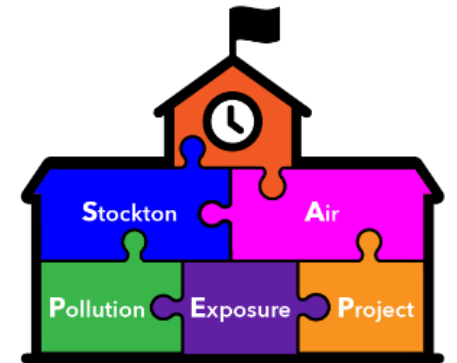- Recently received PAH and VOC data

FRESSCA-Mujeres

- Evaluating air monitoring and questionnaire data

- Laboratories analyzing urine samples

- Community meeting planned for August 2024 to report air monitoring results

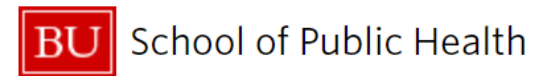# Updates on Community Biomonitoring Studies

SAPEP

- Additional laboratory analyses of naphthalene metabolites did not indicate exposure to carbaryl

- Community meeting held in April 2024

Identifying Exposure Sources

- Using environmental data and exposure questionnaires to understand important sources of exposure
  - CARE Study questionnaires and residential addresses are being used to evaluate diet and drinking water as sources of PFAS exposure
  - Questionnaire data from the ACE Project identified fish as an important source of PFAS exposure
  - For AB 617 studies, questionnaires and concurrent air monitoring data is being used in conjunction with biomonitoring data to understand exposures

Expanding the Reach and Sustainability of Biomonitoring California

Continued Method Development

- PAHs
- VOCs
- Cyclosiloxanes
- Non-targeted analysis

The California Regional Exposure (CARE) Study
2018 – 2020

Estudio de Exposición Regional de California (CARE)
2018 – 2020

BIOMONITORING CALIFORNIA

California Department of PublicHealth

SAPEP Community Meeting

- Study participants, families of students at All Saints Academy, and Stockton community partners were invited

- Enabled discussion of local exposure sources, exposures in the home, and from consumer products

Acompáñanos para escuchar sobre los resultados del:

¡Proyecto de Exposición a la Contaminación del Aire de Stockton (SAPEP)!

Aprenda del equipo SAPEP sobre l los niños a la *contaminacion del* Habrá oportunidad para pre

¡Esperamos ver

Lunes, 1
6:00PM

https://us02

Habrá una r
Se propo

Si tiene

Please join us to hear results from the:

Stockton Air Pollution Exposure Project (SAPEP)!

Learn about children's *air pollution exposure* in Stockton from the SAPEP team. There will be opportunity for questions and discussion.
We hope to see you on Zoom!

Monday, April 15th
6:00PM – 7:00PM PDT
Join at
https://us02web.zoom.us/j/87960621167

Gift cards will be raffled during the meeting!
Live Spanish interpretation will be provided.

For questions, please contact: biomonitoring@oehha.ca.gov

Laboratory Updates

➢ **CARE-LA**
- 310 of 346 samples analyzed for phenols
- All 308 samples analyzed for speciated arsenic

➢ **BiomSPHERE**
- Specific gravity and creatinine: all results reported (n=194)

➢ **FRESSCA Mujeres**
- Specific gravity: results reported (n=155)
- Creatinine: analyses completed & data under review
- OH-PAHs: analyses completed for 54 of 155 samples

➢ **Intra-program Pilot Project (IPP)-7**
- OH-PAHs and VOCs: analyses completed and under review (n=38)

➢ **STEPS**
- 240 of 521 Orange County samples analyzed for PFASs

Laboratory Updates

➢ **Environmental Health Laboratory**

- Agilent 8900 ICP MS installed to replace Agilent 7700 for total metal analysis

- Agilent 7250 GC-QTOF installed to improve non-targeted analysis and identification of biomarkers of effect

Various Studies in Progress

Planning Phase	Sample Collection	Lab Analysis	Summary Stats (Results Return/Website)	Deeper Data Dive	Communications
• Exposures associated with oil/gas extraction (AB 617) • Other community studies • New surveillance study	• STEPS-LA	• STEPS-OFC • FRESSCA-Mujeres • BiomSPHERE • CARE - arsenic speciation/ phenols	• IPP • CARE • BiomSPHERE • FRESSCA	• CARE – metals • CARE – PFASs • ACE – PFASs • EBDEP – VOCs • MAMAS – POPs, PFASs • SAPEP – PAHs, VOCs	• Publications – FREES, ACE, CARE, SAPEP • Factsheets and other public facing material

Lab Methods in Development

- PAHs
- VOC metabolites
- Speciated mercury
- Nickel
- Cyclosiloxanes
- Additional PFASs
- NTA

Staff Update

Dinesh Adhikari	Julian Edwards	Emilie Kadhim	Jianwen She
Kathleen Attfield	Toki Fillman	Amber Kramer	**Wenlu Song ^**
Hyoung Gee Baek	Jonathan Gallardo	Ilaria Lentrichia	Dan Sultana
Paramjit Behniwal	Songmei Gao	Kiera Melton	Sayaka Takaku-Pugh
Emily Beglarian	Qi Gavin	Meltem Musa	Darcy Tarrant
Rebecca Belloso	Ranjit Gill	Bishnu Neupane	McKenna Thompson
Kelly Chen	Emily Gokun	June-Soo Park	Jeff Wagner
Key-Young Choe	Amanda Hooker	Eimi Percival	Miaomiao Wang
Josephine DeGuzman	Susan Hurley	Aalekhya Reddam	Shizhong Wang
Jagdish Dhaliwal	Stephanie Jarmul	Martha Sandy	Yunzhu (Judy) Wang
Joginder Dhaliwal*	Duyen Kauffman	Roshni Sarala	Nerissa Wu
Dina Dobraca			Ruihong Xiao

Join our staff: https://biomonitoring.ca.gov/career-opportunities-biomonitoring-california

^ **New staff**
* **Departed staff**

Questions?