Program Update and Options for Statewide Surveillance

Nerissa Wu, PhD, MPH

Presentation to the Scientific Guidance Panel Meeting

March 8, 2021

CDPH California Department of PublicHealth

Center for Healthy Communities
EHIB/Biomonitoring California

Staff Updates

Dinesh Adhikari*
Kathleen Attfield
Lauren Baehner^
Hyoung Gee Baek
Paramjit Behniwal
Key-Young Choe
Sabrina Crispo Smith
Adam D'Amico
Josephine DeGuzman
Jagdish Dhaliwal*

Joginder Dhaliwal
Jeff Fowles
Qi Gavin
Songmei Gao
Sara Hoover
Susan Hurley
Simon Ip
Shoba Iyer
Stephanie Jarmul
Ting Jiang^

Duyen Kauffman
Alveen Kumar
Jennifer Mann
June-Soo Park
Myrto Petreas
Martha Sandy
Jianwen She
Dan Sultana
Julia Varshavsky
Jed Waldman

Miaomiao Wang
Shizhong Wang
Yunzhu Wang
Nerissa Wu
Marley Zalay^

* New staff
^ Former staff – thank you!

CDPH California Department of PublicHealth

California Regional Exposure (CARE) Study

CARE-LA

- Spring 2018
- 430 participants
- LA County

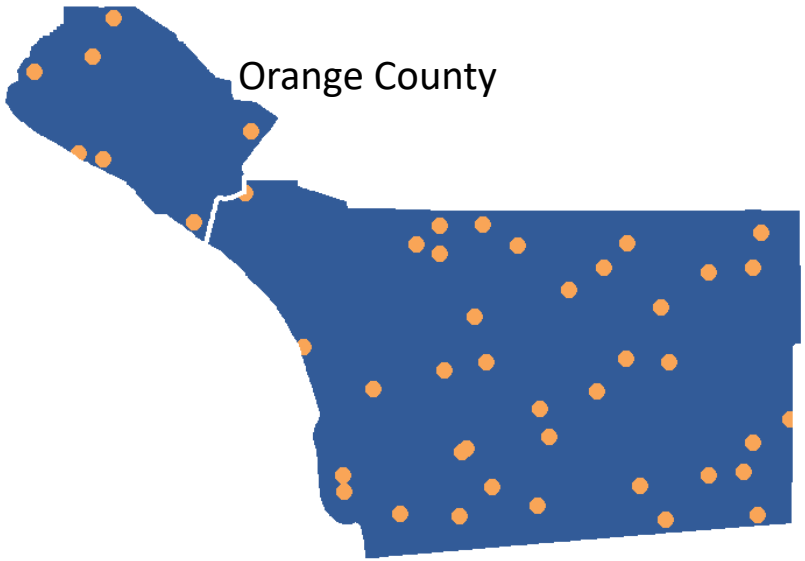
CARE-2

- Spring 2019
- 359 participants
- Riverside, San Bernardino, Imperial, Mono, and Inyo counties

CARE-3

- Spring 2020
- 90 participants
- San Diego and Orange counties

CARE-3 Participants



- 2/20/2020 – First participants selected
- 2/26/2020 – San Diego office opens for sample collection
- 3/12/2020 – Second round of participants selected
- 3/15/2020 – CARE-3 closed

CARE-3 Participants Compared with Regional Demographics

Race/Ethnicity	CARE-3 Participants	% Region 3 (ACS 2017)
Asian	8 (9%)	15%
Black	6 (7%)	3%
Hispanic	21 (23%)	34%
White	50 (56%)	44%
Multiracial/Other	5 (6%)	4%

CARE-3 Participants Compared with Regional Demographics (cont.)

Sex	CARE-3 Participants	% Region 3 (ACS 2017)
Male	37 (41%)	49%
Female	51 (57%)	51%
Prefer not to answer/Other	2 (2%)	

Education	% CARE-3 Participants	% Region 3 (ACS 2017)
High school or below	7 (8%)	32%
Above high school	82 (91%)	68%
Prefer not to answer/Other	1 (1%)	

Status of CARE Study

	CARE-LA	CARE-2	CARE-3
Early notification of metals results	X	X	X
Results return	X	X	
Summary data posted to Biomonitoring CA website	X	X	
Public meeting	X		
Publications/reports			

Biomonitoring study in AB 617 community

- Identifying a facility for intervention study to examine the effectiveness of air filtration
  - Focusing on schools that have recently upgraded air filtration systems and/or installed stand-alone air filters
- Incorporating laboratory analyses of biomarkers and air measurements into University of California, Berkeley contracts
- Fieldwork projected to be completed by December 2021
- Detailed update will be provided at the July 16 Scientific Guidance Panel Meeting

BIOMONITORING CALIFORNIA

OEHHA California Office of Environmental Health Hazard Assessment

Berkeley UNIVERSITY OF CALIFORNIA

CDPH California Department Of PublicHealth

Statewide surveillance

Reminders

- Statewide surveillance is mandated and prioritized in enabling legislation
- Surveillance is to be used to:
  - evaluate levels of chemicals in a representative sample of Californians
  - establish trends in the levels of these chemicals in Californians' bodies over time
  - assess effectiveness of public health efforts and regulatory programs

Characteristics of Successful Surveillance

Ongoing systematic collection, analysis, and dissemination of data

- Representativeness – does the study population reflect the overall population?
- Usefulness – can the data collected be used to impact public health?
- Acceptability – will selected individuals be willing to participate in the study?
- Stability – can the study reliably collect data?

Feasibility

- Budget for Biomonitoring California is insufficient to support the CARE Study
- Program budget does not cover contracts, supplies, and other field expenses
- Participant recruitment (outreach, enrollment, and management) and field work are very resource intensive components of the CARE Study

Input from November 2020

- Tracking temporal trends is a high priority
- Examining differences between urban and rural populations is important
- Focus should be on unique aspects of California, including population and exposures
- Existing studies may be a potential source of samples

Potential Study Approaches

- Obtain banked samples from existing health or exposure studies
- Partnership with high-coverage programs
  - health care provider
  - blood collection program
- Focused-area surveillance

Examples of Studies with Stored Samples

	Study Population	Representative Sampling	Sample Collection Period
Children's Health and Air Pollution Study (CHAPS)	Pregnant women and children in Fresno	No	2014 – ongoing
All of Us	U.S.	No	2018 – 2024
Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS)	Salinas Valley women and children	No	1999 – 2018

Partner with High-Coverage Health Care Provider

- Could cover statewide, regional, or focused area
- Randomly select members
- Potential Partner: Kaiser Permanente – Northern California (KPNC), Division of Research
  - KPNC would conduct participant enrollment and consent
  - Samples can be ordered through medical request system and collected through Kaiser labs

Partnership with High-Coverage Health Care Provider (cont.)

BENEFITS

- Ability to do probability sampling
- Potential for study of health outcomes
- No need for field office

CHALLENGES

- Program would not be involved with consent and lab collection process
- Would require ongoing partnership with health care provider
- Cost per participant unknown
- Participation limited to members

Partnership with High-Coverage Sample Collection Program

- Could cover statewide, regional, or focused area
- Randomly select samples from eligible pool
- Potential partner: CDPH Genetic Disease Screening Program (GDSP)
  - Program includes 60-70 percent of pregnant women in California
  - Samples and data requested through GDSP

Partnership with High-Coverage Sample Collection Program (cont.)

BENEFITS

- Ability to do probability sampling
- No field office or participant management
- Samples can be analyzed for PFASs and potentially used to screen for emerging chemicals

CHALLENGES

- Low volume serum samples only
- Samples cannot be used for most metals
- Participation limited to pregnant women who enroll in state prenatal screening program
- No exposure information or interaction with participants

Focused-Area Surveillance

- Limit area of recruitment
- Potential to conduct probability sampling or quota sampling
- Conduct surveillance every 2 years to capture temporal trends
- Potential to include additional geographic areas as comparison

Focused-Area Surveillance (cont.)

BENEFITS

- Ability to do probability sampling
- Field work and travel demands reduced
- Detection of temporal trends in specific area

CHALLENGES

- Requires purchase of sampling frame
- Extensive participant management and field presence
- Does not provide statewide data

Comparison of Surveillance Options

	Partnership with KPNC	Partnership with GDSP	Focused-Area Surveillance	CARE-LA/2
Population	Statewide or select area	Statewide or select area	Select area	CARE Regions
Sampling method	Probability	Probability	Probability or Quota	Quota
Reflective of diversity	Yes	Yes	Maybe	Yes
Determination of temporal trends	Maybe	Yes	Yes	No
Expandable	Maybe	Yes	Yes	Yes

Comparison of Surveillance Options (cont.)

	Partnership with KPNC	Partnership with GDSP	Focused-Area Surveillance	CARE-LA/2
Sample media	Blood/Urine	Serum	Blood/Urine	Blood/Urine
Exposure information	Yes	No	Yes	Yes
Ability to intervene for PH benefit	Yes	No	Yes	Yes
Results Return	Yes	No	Yes	Yes
Cost per Px	Unknown	Low	Medium	High
Data on health outcomes	Yes	Maybe	No	No

Next Steps

- Collect input from Scientific Guidance Panel and other stakeholders
- Continue developing potential study design
- Gather information for cost estimates
- Goal: Re-start surveillance studies by July 2022