



BIOMONITORING CALIFORNIA

Program Update

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Presentation to the Scientific Guidance Panel Meeting

March 4, 2020 – Sacramento, CA

East Bay Diesel Exposure Project (EBDEP) Update

- Individual results returned to participants in October
- Community meeting held in West Oakland in February
- Richmond meeting tentatively planned for the summer



East Bay Diesel Exposure Project (EBDEP) Update, cont'd

Ongoing data analyses will examine associations with:

- Traffic and other diesel exhaust exposure sources, including at work
- Time at home vs. other locations
- Weather conditions

AB 617 Activities

The Office of Environmental Health Hazard Assessment (OEHHA) is:

- Coordinating with California Air Resources Board staff
- Continuing engagement with AB 617 communities and local air districts
- Developing external agreement for first-year contract funds, which will include:
 - Scoping out and designing three targeted biomonitoring studies in AB 617 communities in Northern, Central, and Southern California
 - Implementing one targeted biomonitoring study



CARE Study

California Regional
Exposure Study



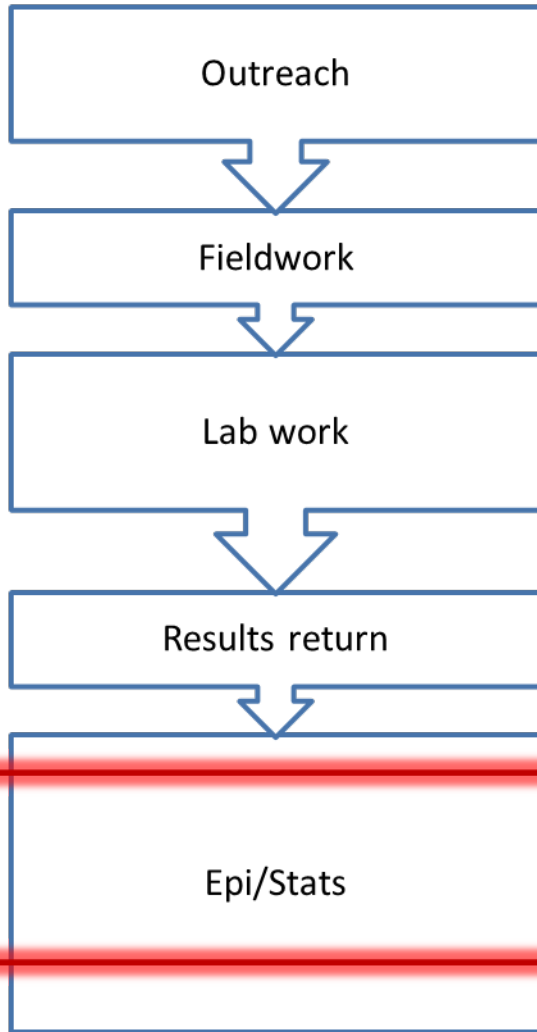
California Regional Exposure (CARE) Study

- Eight regions, based on geography and population
- Conduct sampling in approximately one region/year, with 300-500 participants per region
- Biomonitoring for metals and perfluoroalkyl and polyfluoroalkyl substances (PFASs) and collection of exposure data
- Potential to include analysis for additional chemicals

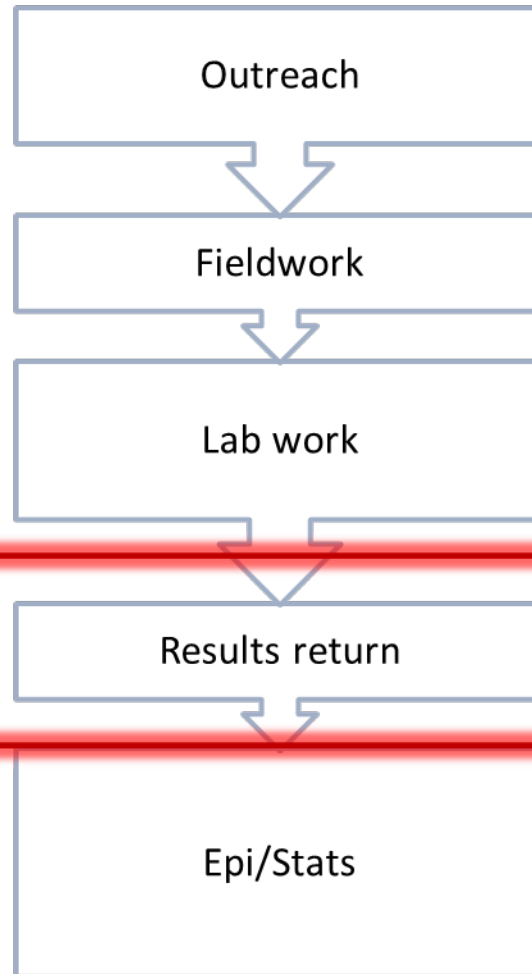


CARE Timeline

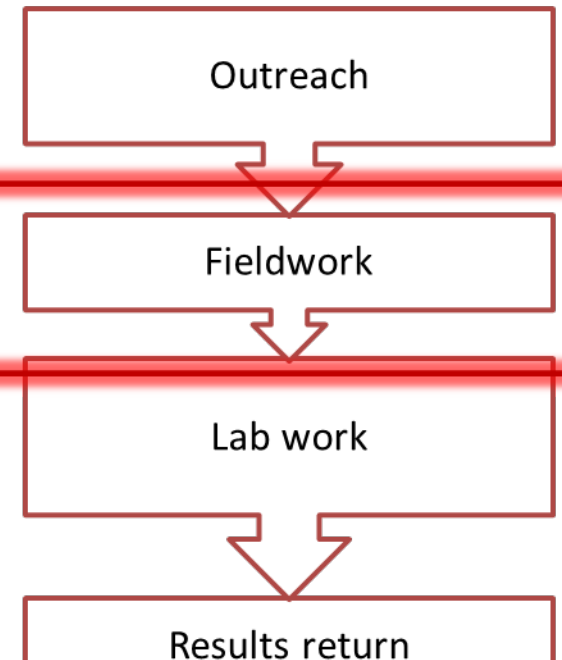
CARE-LA



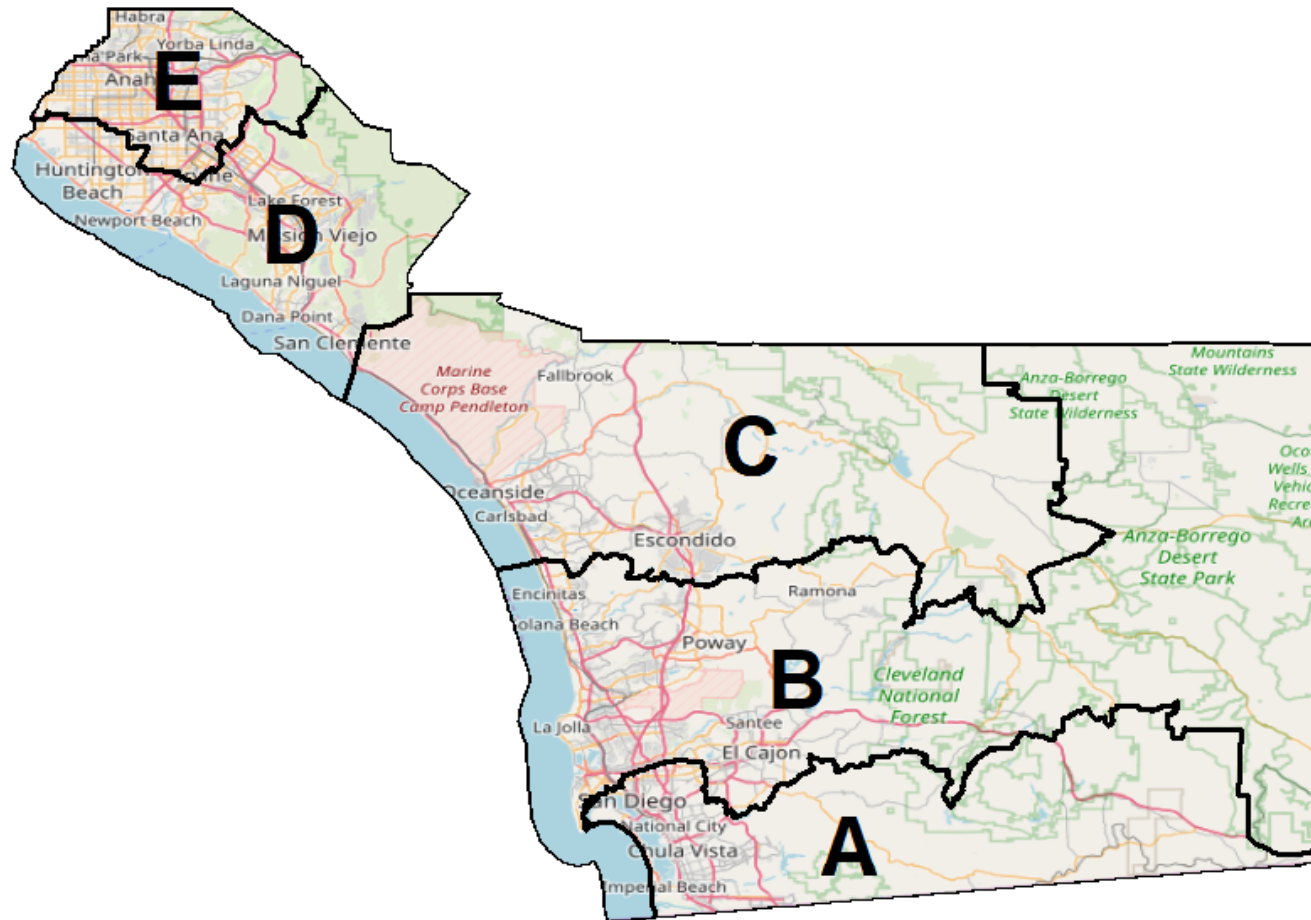
CARE-2 Inland Valley



CARE-3 San Diego/Orange



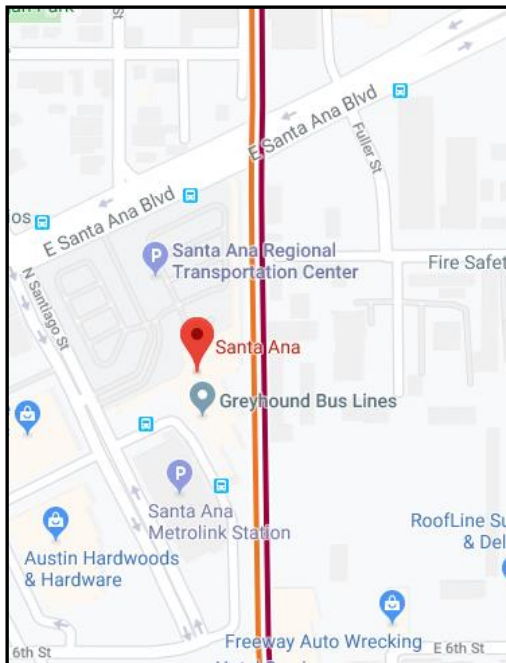
CARE-3: San Diego and Orange Counties



CARE-3 Field Offices

Orange County

Regional Transportation Center



San Diego

Collective Impact Center



CARE-3 Field Work



- February 5 - Postcards mailed
- February 20 - First participants selected
- February 26 - First samples collected
- Field work will continue through May 2020

CARE-3 Recruitment*

Pre-screened individuals: 714

Invited participants: 378

Enrolled: 167

Scheduled appointment: 148

Completed sample collection: 13

* As of March 2

CARE-2 Results Return

Total Number of Participants

CARE 2	359
Results wanted	354
Analyses completed	
Metals, PFASs only	109
Metals, PFASs, phenols	87
Metals, PFASs, 1-NP	96
Metals, PFASs, phenols, 1-NP	63

Blood Metals in CARE

	CARE-LA Detection Frequency (%)	CARE-LA Geometric Mean (µg/L)*	CARE-2 Detection Frequency (%)	CARE-2 Geometric Mean (µg/L)*
Cadmium	99	0.30	98	0.27
Lead	100	0.78 µg/dL	100	0.68 µg/dL
Manganese	100	10.3	100	10.2
Mercury	95	1.0	95	0.65

* Except where indicated

Urinary Metals in CARE (Creatinine-Adjusted)

	CARE-LA Detection Frequency (%)	CARE-LA Geometric Mean ($\mu\text{g/g}$)	CARE-2 Detection Frequency (%)	CARE-2 Geometric Mean ($\mu\text{g/g}$)
Antimony	25	*	18	*
Arsenic	100	12.1	100	8.0
Cadmium	100	0.25	95	0.24
Cobalt	100	0.31	94	0.26
Manganese	15	*	19	*
Mercury	98	0.27	87	0.21
Molybdenum	100	42.7	100	41.4
Thallium	100	0.24	100	0.20
Uranium	49	*	53	*

* Geometric mean not calculated when detection frequency is below 65%.

Elevated Metals Levels in CARE

	CARE-LA	CARE-2	Level of Concern
Blood Mercury	27 (6%)	14 (4%)	≥ 5.8 µg/L for women 18-49 yrs ≥ 10 µg/L for all others
Urinary Mercury	0 (0%)	1 (0%)	≥ 10 µg/L
Inorganic Arsenic	20 (5%)	10 (3%)	≥ 20 µg/L
Lead	1 (0%)	3 (1%)	≥ 5 µg/dL


PFASs in CARE

PFAS	CARE-LA Detection Frequency (%)	CARE-LA Geometric Mean (µg/L)	CARE-2 Detection Frequency (%)	CARE-2 Geometric Mean (µg/L)
Me-PFOA-AcOH	100	0.07	79	0.04
PFOA	99	1.0	99	0.98
PFHxS	99	0.61	100	0.78
PFOS	98	2.1	98	2.4
PFNA	97	0.30	92	0.21
PFUA	82	0.08	59	*
PFDeA	70	0.10	66	0.08

Detection frequencies for PFHpA, Et-PFOA-AcOH, PFOA, PFBS, and PFDoA were below 65% in both CARE-LA and CARE-2.

* Geometric mean not calculated when detection frequency is below 65%.

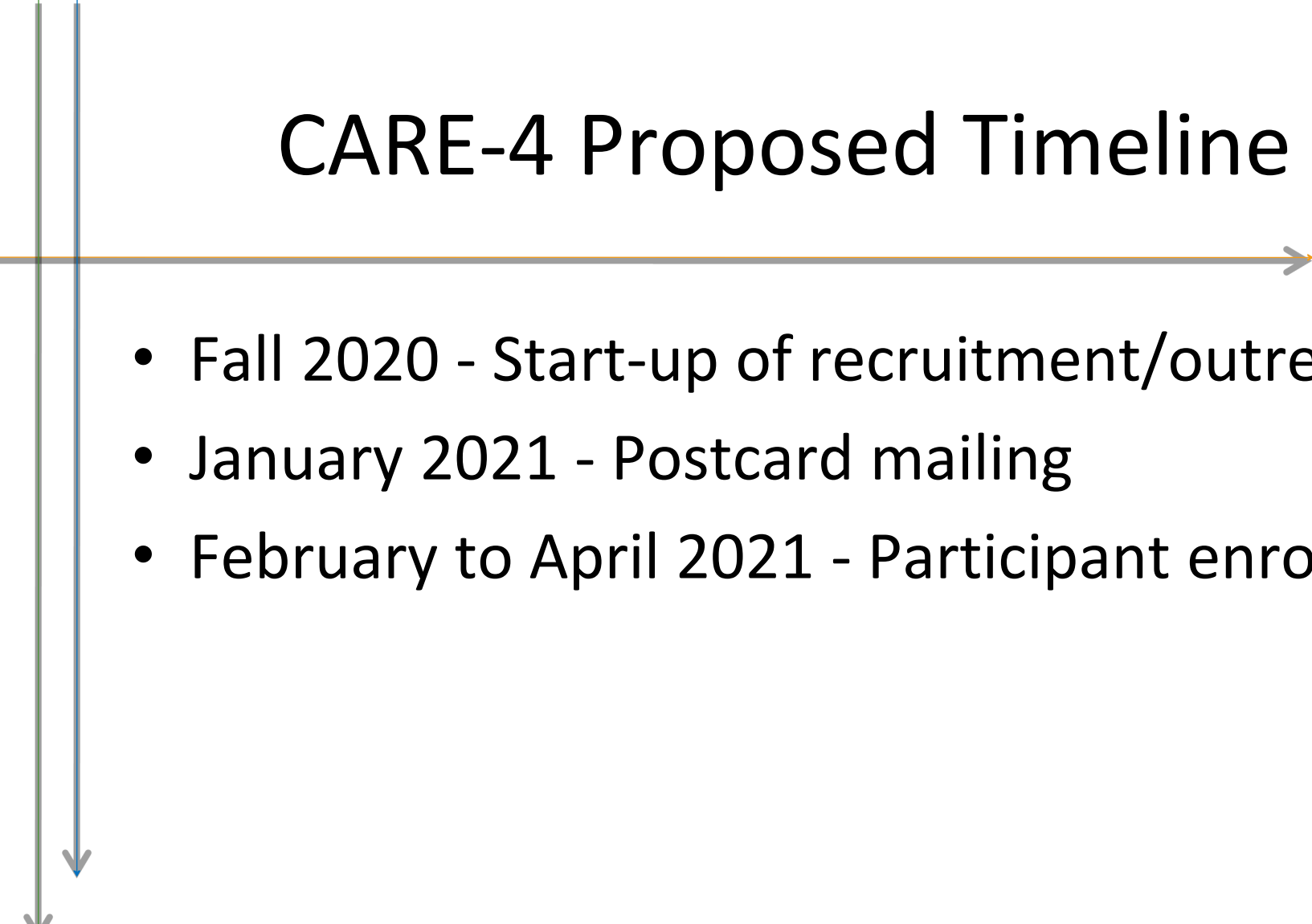
Status of Data Release



	CARE-LA	CARE-2
Early notification of metals results	X	X
Results return	X	X
Summary data posted to Biomonitoring CA website	X	
Public meeting	X	
Publication of additional analyses		



CARE-4 Proposed Timeline

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- Fall 2020 - Start-up of recruitment/outreach
 - January 2021 - Postcard mailing
 - February to April 2021 - Participant enrollment

CARE-4 Proposed Timeline

- Spring 2021- Preparation for Region 4
- July 2021 - Postcard mailing
- August to October 2021 - Participant enrollment

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Manuscripts In Progress

- Metals in the Biomonitoring Exposures Study (BEST)
- Metals in the Asian/Pacific Islander Community Exposures (ACE) Project
- PFASs in BEST and the ACE Project

Laboratory Collaborations

- Camp Fire Firefighter Study (n=80)
 - Metals, polyaromatic hydrocarbons (PAHs), PFASs, polybrominated diphenyl ethers (PBDEs)
- Tobacco-related studies
 - Maternal Cotinine and Autism (MACOTA) Study (n= 997)
 - Tobacco-Related Disease Research Program (n=1800)

Laboratory Collaborations, cont'd

- PFASs
 - DTSC, UCSF, and University of Illinois-Urbana Champaign: Environmental Influences on Child Health Outcomes (ECHO) (n=500)
- Non-targeted analyses
 - DTSC and UCSF study of novel environmental chemicals in maternal-infant pairs (n=600)
 - DSTC, UC Berkeley, and Silent Spring: Women Workers Study (n=172)
 - DTSC and OEHHA study of Fresno maternal-infant pairs (n=132)

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**Goodbye and Thank You,
Russ!**

Christopher Ranque