



Update on the Community Air Risk Evaluation (CARE) Program

**Contra Costa County Hazardous
Materials Commission**



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Bay Area Air Quality Management District
April 24, 2014

Community Air Risk Evaluation (CARE) Program

- Background
- Purpose/Goals
- Accomplishments
- Key Findings
- Next steps

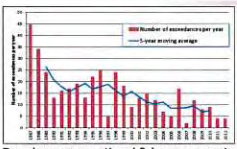
**IMPROVING
AIR QUALITY & HEALTH
IN BAY AREA COMMUNITIES**

Community Air Risk
Evaluation Program
Retrospective &
Path Forward
(2004 - 2013)
April 2014

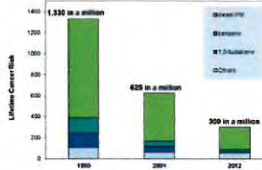



BAY AREA AIR QUALITY MANAGEMENT DISTRICT 2

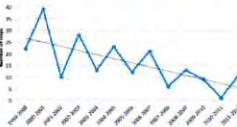
Air Quality is Improving in the Bay Area



Days/year over national 8-hour ozone standard



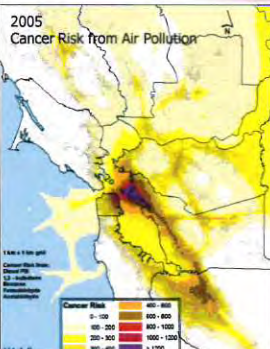
Lifetime cancer risk from air pollutants



Winter days over national 24-hour PM_{2.5} standard

3

But Air Quality Challenges Remain



- Some communities have higher air pollution exposures and health impacts
- Near-source exposures, especially particles and toxic air contaminants
- Episodes with higher levels of fine particles and ozone

4

CARE Program Goals

- Evaluate regional and community health impacts from outdoor air pollution
- Identify sensitive populations
- Focus health risk mitigation measures on locations with higher impacts and sensitive populations



5

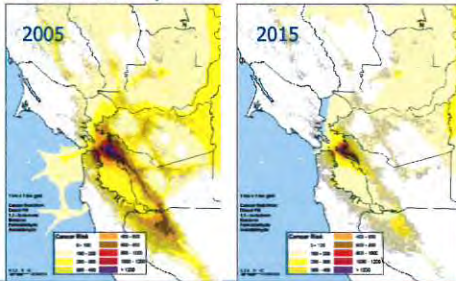
CARE Program Accomplishments

- Scientific studies: regional-scale & local-scale
- Mapping impacted areas
- Helping to prioritize Air District actions to support healthy communities
- Productive CARE Task Force meetings
- CARE Summary Report documents program accomplishments and future direction

6

Regional-Scale Studies

- Goal: Develop regional maps of risks from toxic air contaminants to complement regional assessments of ozone and fine particulate matter



7

Local-Scale Studies

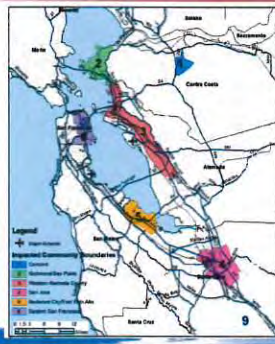
- Goal: Develop information to understand and reduce health impacts from exposure to local sources of air pollution
- West Oakland Case Studies
 - Diesel Particulate Matter Health Risk Assessment
 - West Oakland Truck Survey
 - Drayage Truck Plume Measurements
 - West Oakland Monitoring Study
- Measurement studies Near Industrial Facilities and Near Roadways



8

First Identified Cumulative Impact Areas (2009)

- Based on
- Elevated cancer risk
 - High emissions of toxic air contaminants (TAC)
 - Vulnerable populations
 - Youth
 - Seniors
 - Low-income families



9

Why Update Maps?

- Same goal as current maps:
 - Focus actions/engagement where most needed
- Use latest data
- Consider additional air pollutants
 - In addition to toxics: fine particles and ozone
- Use new methods
 - Estimate health outcomes from air pollution
 - Use health records to reflect vulnerability
- Consider different types of impacts
 - Cumulative impacts: multi-pollutant, vulnerable populations
 - Exceedances: particles, ozone above standards

10

Health Effects of Air Pollutants

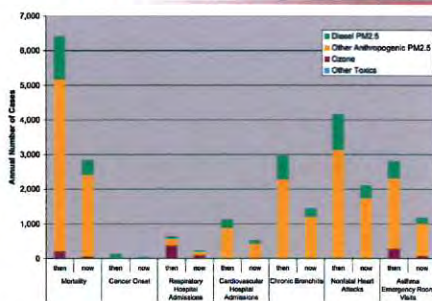
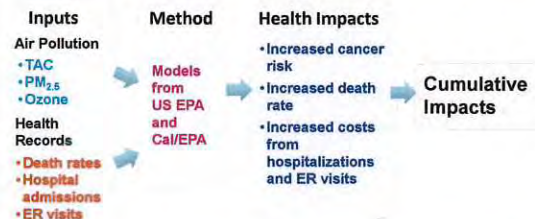


Figure A-1. Incidence of selected health effects among Bay Area residents from air pollution today versus without air quality improvements. "Then" is 1970 for ozone, and the late 1980s for toxics and PM2.5. "Now" is 2008.

11

New Method for Identifying Cumulative Impacts

- Considers air pollution levels and community health



12

Revised Cumulative Impact Areas

- Map areas with greatest impact
- Develop boundaries to encompass areas with highest impacts
- Consider where emissions are also high
- Use major roadways, geographical features to form boundaries

13

Update to Cumulative Impact Areas

2009

2013

14

Episodic PM_{2.5} and Ozone Exceedance Areas

PM_{2.5} Exceedance Areas

Ozone Exceedance Areas

15

Uses of Maps

- Cumulative impact maps support and focus localized mitigation activities
 - Clean Air Communities Initiative
- Exceedance maps support and focus regional mitigation activities
 - Clean Air Plan policies and programs
 - Identify and reduce upwind sources of precursor emissions
 - Public outreach

16

Reducing Health Impacts

- Prioritize grant funding
- Focus outreach and education
- Focus enforcement activities
- Coordinate planning efforts
- Develop regulations targeted to source categories
- Prioritize local-scale measurement and modeling studies

Clean Air Communities Initiative

17

Clean Air Communities Initiative: Examples

- Grants
 - Prioritize grant funding to reduce emissions in impacted areas
- Enforcement
 - Focus enforcement of CARB's diesel rules for sources in impacted areas

18

Clean Air Communities Initiative: Examples

- **Regulations**

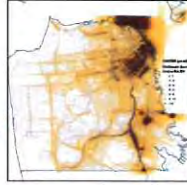
Develop regulations targeting pollutants and sources of concern in impacted areas

- New Source Review
- Source-specific regulations

- **Planning**

Support infill development and minimize exposure to air pollution

- CEQA guidelines
- Technical assistance to local staff
- Community Risk Reduction Plans



19

Key Findings of the CARE Program

- Diesel PM is a significant contributor to cancer risk from toxic air contaminants
- Fine PM of all types is linked to poor health outcomes and mortality
- The updated method for identifying cumulative impact areas did not use socio-economic information. But, high impact areas have
 - lower household incomes
 - lower education levels
 - higher percentages of non-white residents

20

Key Findings of the CARE Program

- Grants, regulatory programs, and enforcement efforts are resulting in significant health benefits
- Exposures to local air pollution sources are important in determining health impacts, even in impacted areas
- Infill development can safely proceed in areas identified as impacted, if localized air pollution sources are avoided or mitigated
- Maps of episodic exceedance areas complement maps of cumulative impact areas

21

Next Steps

- Use updated maps to prioritize Air District programs and policies
- Continue to collaborate with other agencies
- Develop improved datasets, tools, and guidance to support healthy infill development
- Track personal exposures to air pollution
- Consider climate change in assessing community impacts and evaluating co-benefits of reducing pollutants

22