

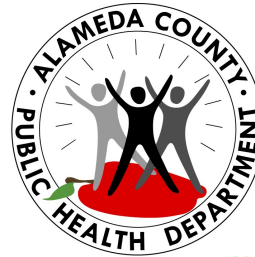
Climate Change, Equity, and Respiratory Health: Communicating with Our Clients

April 4, 2018

This presentation has been edited for external sharing.



Welcome



Goals for This Workshop

- To **familiarize attendees** with the effects of climate change, including projected increases in heat and wildfire risk, on the respiratory health of their clients, and the connection to racial equity.
- To **explore preventive and emergency communication strategies** for use with a wide range of client populations served by the Public Health Department.



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CLIMATE CHANGE AND HEALTH EQUITY



Preparing for the future and now! #EJ4ALL #CBECAI



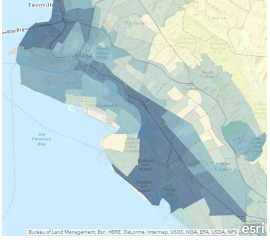
CARE Project Objectives

- To show how impacted residents can create climate adaptation solutions that address the needs of vulnerable communities
- We are also rooted in the fact that these vulnerable communities are impacted by the transportation, refining, and, in Wilmington, extraction of fossil fuels.

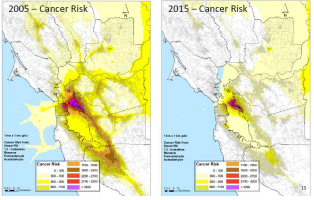
Climate change intensifies existing injustices

- Environmental Racism:
 - Environmental racism is the social injustice represented by the disproportionately large number of health and environmental risks cast upon peoples of color in the communities in which they live.
 - These minorities are the most common victims of toxic landfills, waste incinerators, industrial dumping, uranium mining, and other environmentally-detrimental activities.
 - As a practice-- whether purposeful or unintended-- it is often reinforced by government, legal, economic, political, and military institutions, because it occurs simultaneously with other racial inequities-- high poverty rate, deteriorating housing and infrastructure, economic disinvestment, inadequate schools, acute unemployment, and poor or inaccessible medical services."
 - -- November 1995, "Environmental Liberty and Social Justice for All."






Overall Air Pollution Down, but High Risks in Some Communities Remain



2005 - Cancer Risk 2015 - Cancer Risk

Exposure to pollution

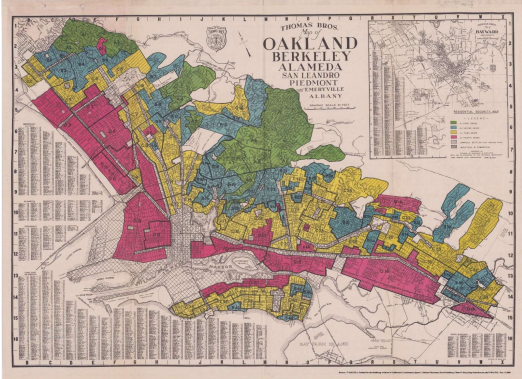


Climate Change in Environmental Justice Communities

Long-term exposure to poor air quality

Disinvestment

- Industrial lands
- Urban heat Island
- Lack of trees
- Roads



Historical Disinvestment

Lack of access to services + basic needs



What have we learned?

Residents want:

- Access to services and assets
 - Transportation to medical appointments
 - Cooling Centers
 - Community Education
- Access to information
 - Updates on emergency planning (especially for flooding, tsunamis, heatwaves, wildfires, and industrial disasters)
 - Availability of information in other languages
- Funding resources for low-hanging adaptation projects
 - Maintenance of trees
 - Flood protection
 - Home Weatherization
 - Cooling Centers
- And more...



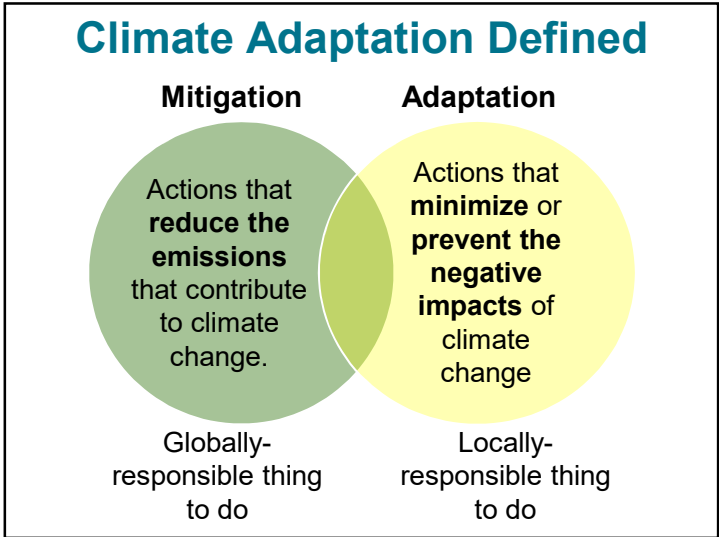
Questions?

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Director
Communities for a Better Environment

earevalo@cbeval.org

ALAMEDA COUNTY & CLIMATE





Alameda County Climate Adaptation

ALAMEDA COUNTY CLIMATE ACTION PLAN FOR GOVERNMENT SERVICES AND OPERATIONS THROUGH 2020
EXECUTIVE SUMMARY 2010

Coastal Conservancy

Adapting to Rising Tides

Alameda County **SUSTAINABILITY**
Local Action, Global Impact.

Agencies Already Taking Action

-  Climate-smart agriculture
-  Responding to vegetative fires
-  Mosquito-borne disease tracking
-  Salt ponds as buffer to flooding
-  Emergency preparedness training

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Agenda

8:30am-1:00pm

Refreshments Provided

- Climate & Health Equity
- Climate Impacts on Air Quality & Health
- Looking Back: Impacts and Responses During Nearby Fires
- Communication Strategies
- Breakout Group Activity
- Report Out & Next Steps



CLIMATE IMPACTS AND AIR QUALITY



Range of Implications

Increased Global Temperatures



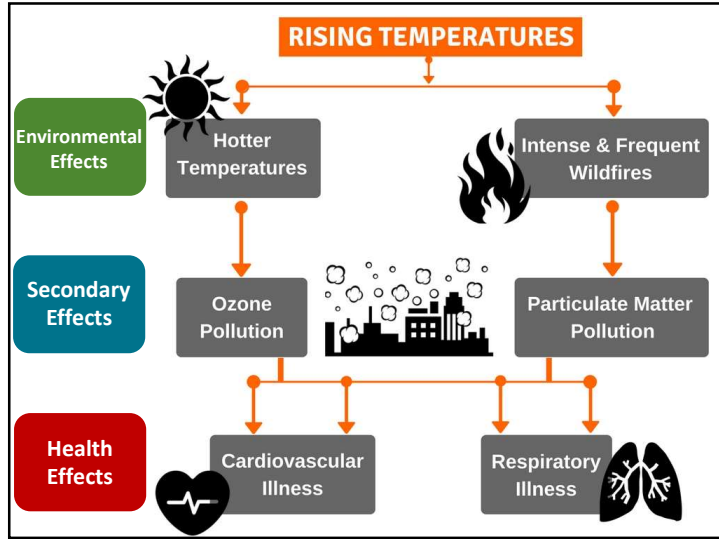
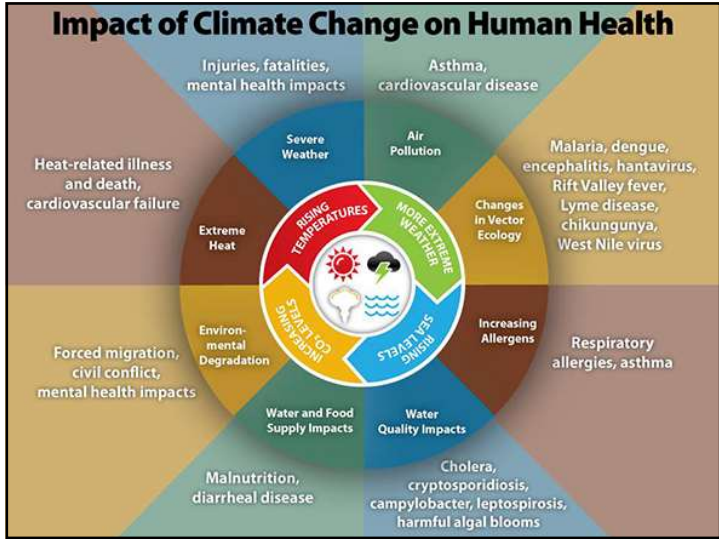
Sea Level Rise



Droughts & Wildfires



Extreme Weather



What Contributes to Poor Air Quality?

Ozone

- Pollutants that react chemically with sunlight

Particulate Matter (PM)

- Mixture of air-borne pollutants and liquid droplets

Major Sources:

Increased Temperatures

2050

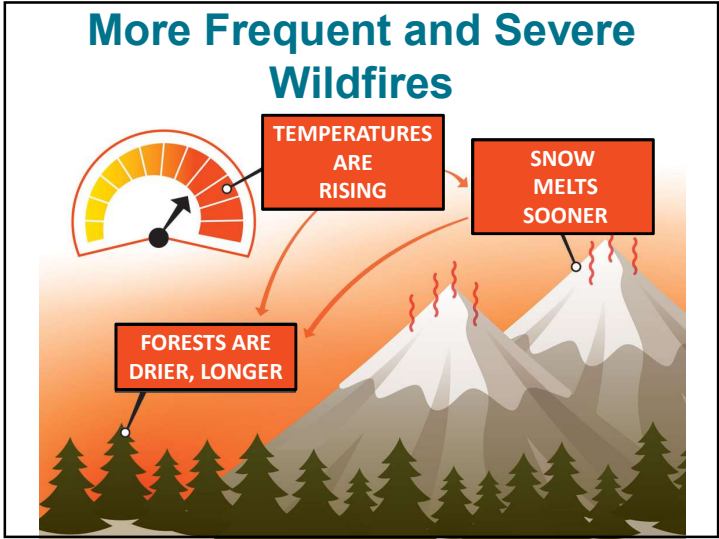
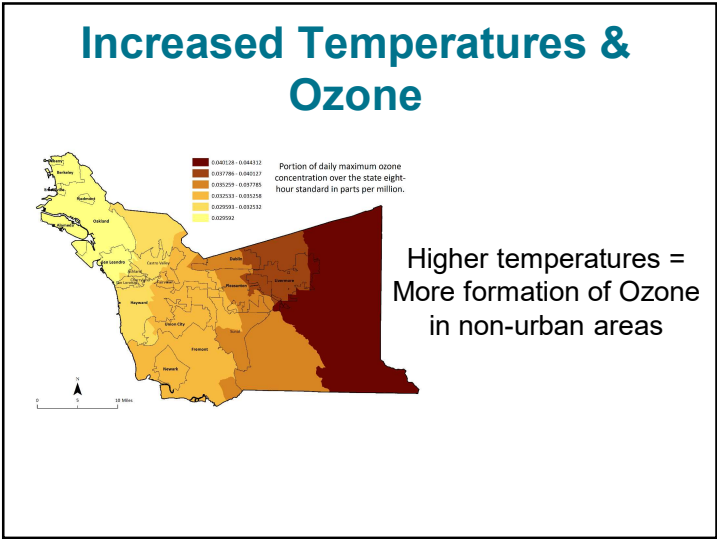
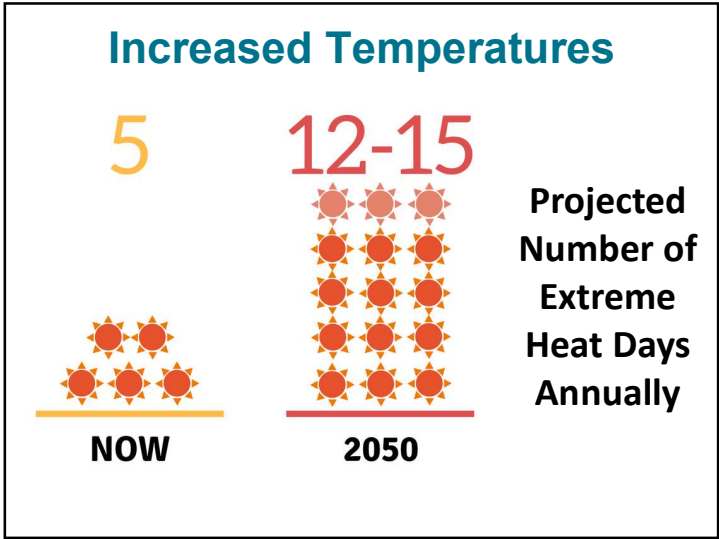
HIGH + 5.6 °F

LOW + 3.0 °F

NOW 59.0 °F (HISTORICAL AVERAGE)

Climate change will cause increases in average temperatures across the County.

Alameda County **SUSTAINABILITY**
Local Action, Global Impact.



The Impacts Can Already Be Felt

San Francisco Chronicle

Wildfire-ravaged Sonoma County grapples with reality: It will burn again

By RUBEN VIVES, MELISSA ETERHAD and JACLYN COSGROVE | DEC 10, 2017 | 3:00 AM | VENTURA, CALIF.

Southern California's fire devastation is 'the new normal,' Gov. Brown says

KQED SCIENCE LISTEN TRENDING PROGRAMS

NEWS

Bay Area Air Quality Has Been Worst on Record -- Check Out Your City

AUTHOR: Lesley McClurg
Published on Oct 11, 2017

Wildfires and Particle Pollution



Annual average PM levels from wildfires expected to **increase 32-66%** by 2050



Air Quality Readings: Oct 12, 2017

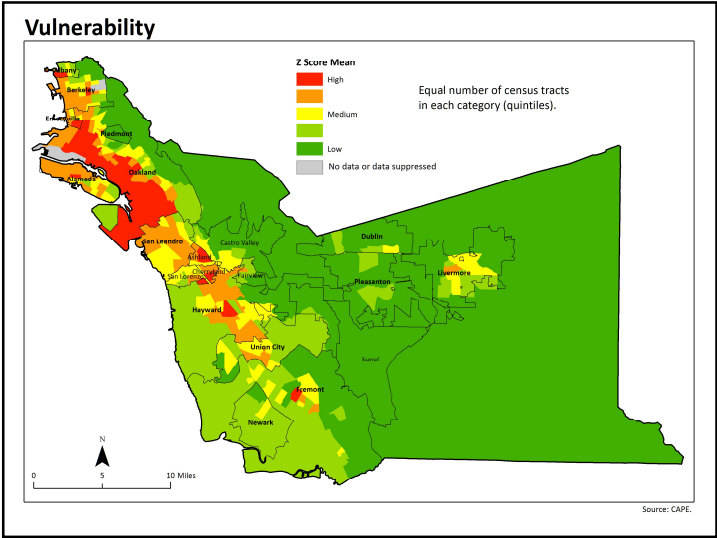


Vulnerability Factors

- Persons <5 Years
- Persons 65+ Years
- Persons with Disability
- Persons <200% Poverty
- Persons living alone
- Citizenship
- Mobility
- Households with no a/c
- Persons African American
- Persons without HS Degree
- Unemployment
- Ozone
- Limited English Households
- Zero-Vehicle Household
- Ozone

Vulnerability by Jurisdiction

	Biological Factors				Socioeconomic Factors				Social Exclusion Factors				Vulnerability Factors				Average Standard Score
	% <5 Years	% 65+ Years	% With Disability	% Persons <200K Federal Poverty Level	% Persons Living Alone	% African American	% Persons 25+ Years Without HS Degree	% Persons Using a Language Other Than English	% Persons Not a Citizen	% Households Limited English Proficiency	% Persons Moved From Different County in Past Year	% Households Without a Vehicle	% No Tree Canopy	% Impervious Surface	% Households Without Air Conditioning	% Ozone*	
Alameda County	6.1%	13.0%	9.5%	27.4%	9.0%	10.7%	13.1%	8.3%	14.8%	10.0%	6.5%	10.1%	NA	NA	NA	NA	High
Alameda	7.2%	9.2%	10.4%	24.0%	7.8%	9.3%	13.2%	11.1%	17.0%	11.0%	3.9%	1.4%	10.1%	12.2%	19.3%	79.3%	0.0312
Alameda	4.1%	8.7%	8.4%	19.7%	8.5%	16.4%	13.4%	10.6%	15.8%	3.8%	9.2%	14.7%	14.6%	14.6%	25.2%	62.2%	0.0321
Alameda	6.8%	12.9%	11.1%	27.1%	13.2%	24.2%	19.6%	14.7%	17.9%	6.4%	17.2%	8.4%	8.4%	21.4%	21.0%	61.0%	0.0298
Alameda	4.0%	12.2%	10.2%	22.2%	10.0%	19.6%	13.1%	6.5%	10.7%	6.6%	10.0%	10.0%	10.0%	10.0%	10.0%	60.0%	0.0298
Alameda	5.1%	11.7%	10.4%	23.9%	5.9%	9.4%	16.0%	10.2%	11.0%	5.2%	6.2%	91.6%	12.2%	24.2%	74.2%	0.0317	
Alameda	1.8%	10.0%	10.2%	20.9%	9.6%	10.1%	17.6%	8.2%	14.9%	11.6%	3.5%	8.2%	18.2%	11.0%	16.0%	66.0%	0.0298
Alameda	1.8%	14.0%	10.0%	10.9%	5.9%	3.8%	17.6%	11.2%	11.0%	7.5%	3.2%	10.0%	10.0%	10.0%	10.0%	60.0%	0.0324
Alameda	4.0%	13.2%	8.4%	13.2%	14.1%	8.6%	4.3%	8.2%	12.0%	4.4%	10.0%	10.0%	10.0%	10.0%	10.0%	71.5%	0.0298
Alameda	5.2%	10.1%	9.2%	21.2%	11.6%	5.2%	8.7%	7.7%	8.9%	9.1%	7.1%	7.6%	18.5%	16.0%	19.0%	60.0%	0.0298
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Alameda	8.0%	13.6%	8.5%	23.8%	8.0%	4.9%	12.2%	7.5%	16.7%	13.0%	4.5%	6.7%	84.0%	29.1%	72.6%	0.0343	
Alameda	7.0%	12.3%	8.2%	21.9%	4.6%	3.7%	12.3%	6.4%	11.9%	7.2%	3.6%	3.6%	10.0%	10.0%	59.1%	0.0353	
Alameda	5.2%	13.4%	17.4%	26.9%	7.3%	7.2%	18.8%	8.7%	14.8%	7.9%	4.0%	3.8%	83.2%	18.4%	76.4%	0.0324	
Alameda	5.4%	10.4%	10.4%	17.0%	3.9%	17.6%	7.2%	8.5%	9.9%	6.7%	3.9%	1.9%	76.3%	24.4%	73.6%	0.0353	
Alameda	10.0%	12.0%	7.4%	15.5%	5.0%	2.6%	7.7%	6.4%	15.7%	9.9%	6.0%	4.3%	10.0%	10.0%	10.0%	60.0%	0.0353
Alameda	6.0%	12.8%	3.2%	17.4%	6.9%	1.7%	8.5%	5.1%	8.3%	4.1%	4.6%	3.8%	10.0%	10.0%	10.0%	60.0%	0.0343
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Alameda	3.2%	10.4%	7.1%	14.7%	8.9%	0.1%	8.0%	5.7%	4.5%	2.2%	0.8%	0.8%	76.2%	4.5%	NA	NA	Low



AIR QUALITY AND RESPIRATORY HEALTH

Introductions

Share:

- Name and Program
- Clients population you serve

Effects of Poor Air Quality

- Dizziness
- Wheezing, Coughing, and Difficulty Breathing
- Pulmonary Inflammation
- Chest Pain
- Heart Attack
- Associated Health Risks
 - Asthma
 - Chronic lower respiratory disease
 - Stroke
 - Heart Attacks
 - Cancer
 - Lower life expectancy

Whose Health is Disproportionately Impacted?



People with Asthma



Elderly



People with Cardiovascular Disease



Low Income Communities of Color



People Experiencing Homelessness



People with Disabilities

Medically-Based Vulnerability



People with Asthma



Elderly



People with Cardiovascular Disease

- More likely to have other health concerns, exacerbating effects
- More susceptible to changes in air pollutants
- More likely to suffer long term health impacts from poor air quality



Access-Based Vulnerability

- May not have the ability to find indoor shelter
- May not have the resources to leave the area
- May not be able to get to spaces with cleaner air



Low Income Communities of Color



People Experiencing Homelessness

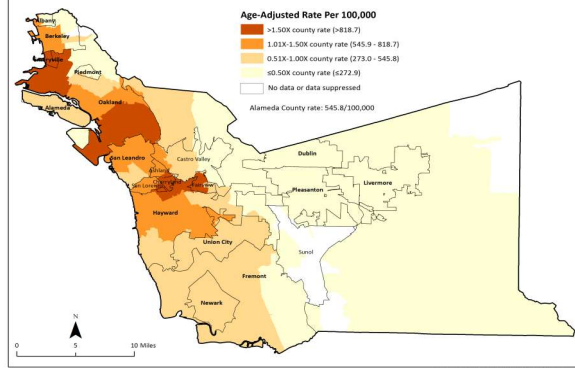


People with Disabilities

Areas with a high burden of asthma emergency department visits.

45

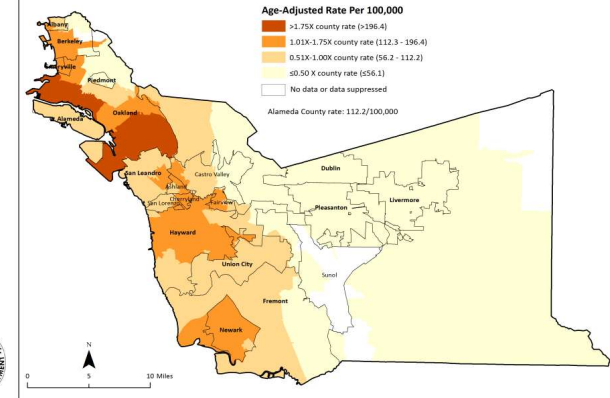
Asthma Emergency Department Visits



Areas with a high burden of asthma hospitalizations

46

Asthma Hospitalizations, All Ages



Air Pollution Contributes to Cumulative Health Impacts



Discussion



Stretch Break



Alameda County
SUSTAINABILITY
Local Action, Global Impact.

COMMUNICATION WITH CLIENTS



Alameda County
SUSTAINABILITY
Local Action, Global Impact.

Communication with Clients – *Beforehand*



- Share information
- Remind them to prepare
- Give suggestions/instructions
may be tailored for
populations at risk



Alameda County
SUSTAINABILITY
Local Action, Global Impact.

Communication with Clients - *During*

- Alert them to conditions
- Give suggestions/instructions
- Provide resources for further help



Alameda County
SUSTAINABILITY
Local Action, Global Impact.

Effective Communications



Discussion



Community-Based Social Marketing

Principles of effective behavior change

- Messenger matters 
- Location/timing matters (prompts) 
- Vivid images help 
- Make it doable (even easy!) 
- What motivates them? 

CALIFORNIA STATE GUIDANCE & RECOMMENDATIONS



Air Quality Index (AQI) Categories

Good (<50)
Moderate (51-100)
Unhealthy for Sensitive Groups (101-150)
Unhealthy (151-200)
Very Unhealthy (201-300)
Hazardous (>300)

California State Guidance: Messages for Clients (1)

AQI Category	Health Effects	Cautionary Statements	Other Protective Actions
Good	None Expected	None	None
Moderate (51-100)	Possible aggravation of heart or lung disease	Unusually sensitive clients should consider limiting prolonged or heavy exertion <ul style="list-style-type: none"> People with heart or lung disease should pay attention to symptoms and contact health care provider if symptoms worsen. 	<ul style="list-style-type: none"> If symptomatic, reduce exposure to particulates by following advice in box below.

California State Guidance: Messages for Clients (2)

AQI Category	Health Effects	Cautionary Statements	Other Protective Actions
Unhealthy for Sensitive Groups (101-150)	Increasing likelihood of respiratory or cardiac symptoms in sensitive individuals, aggravation of heart or lung disease, and premature mortality in persons with cardiopulmonary disease and the elderly.	Sensitive groups: <ul style="list-style-type: none"> Limit time spent outdoors Avoid physical exertion People with asthma should follow asthma management plan If symptoms worsen, contact healthcare provider 	<ul style="list-style-type: none"> Keep doors and windows closed Avoid using exhaust fans (Kitchen, bathrooms, clothes dryer) If cooling is needed, turn a/c to re-circulate mode in home and car or use ceiling/portable fans Avoid indoor sources of pollutants (tobacco smoke, frying food, vacuuming, using cleaning products) Keep at least a 5-day supply of medication available

California State Guidance: Messages for Clients (3)

AQI Category	Health Effects	Cautionary Statements	Other Protective Actions
Unhealthy (151-200)	<i>Above plus:</i> Increased respiratory effects in general population	<i>Above plus:</i> Everyone limit prolonged or heavy exertion.	<i>Above plus:</i> Sensitive Groups: <ul style="list-style-type: none"> Go to a "cleaner air" shelter or possibly out of area
Very Unhealthy (201-300)	<i>Above plus:</i> Significant respiratory effects in general population.	<i>Above plus:</i> Avoid prolonged or heavy exertions. Stay indoors.	<i>Above plus:</i> If symptomatic, evacuate to cleaner air shelter or leave area if safe to do so.
Hazardous (>300)	<i>Above plus:</i> Significant aggravation of heart or respiratory issues.	<i>Above plus:</i> Avoid any outdoor activity	See above.

California State Guidance: Communications Process (1)

AQI Category	Recommended Actions
Good (0 to 50)	<ul style="list-style-type: none"> If smoke event forecast, implement communication plan
Moderate (51 to 100)	<ul style="list-style-type: none"> Issue public service announcements (PSAs) advising public about health effects, symptoms and ways to reduce exposure Distribute information about exposure avoidance Prepare for full implementation of School Activity Guidelines
Unhealthy for Sensitive Groups (101-150)	<ul style="list-style-type: none"> If smoke event projected to be prolonged, evaluate and notify possible sites for cleaner air shelters If smoke event projected to be prolonged, prepare evacuation plans Evaluate implementation of School Activity Guidelines

California State Guidance: Communications Process (2)

AQI Category	Recommended Actions
Unhealthy (151-200)	<ul style="list-style-type: none"> Consider canceling outdoor events (e.g., concerts and competitive sports), based on public health and travel considerations Full implementation of School Activity Guidelines
Very Unhealthy (201-300)	<ul style="list-style-type: none"> Cancel outdoor events involving activity Consider cancelling outdoor events that do not involve activity Schools move all activities indoors or reschedule them to another day Consider closing some or all schools Cancel outdoor events
Hazardous (>300)	<ul style="list-style-type: none"> Consider closing workplaces not essential to public health If PM level is projected to remain high for a prolonged time, consider evacuation of at-risk populations Consider closing schools



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- Sun Icon: *Sasha Willins, Noun Project (slide 25)*
- Pollution Icon: *Gan Khoon Lay, Noun Project (slide 25, 33)*
- Fire Icon: *Aaron K. Kim, Noun Project (slides 25, 26, 31, 33, 63)*
- Heart Icon: *Artem Kovyazin, Noun Project (slides 25, 41, 42)*
- Lung Icon: *Brennan Novak, Noun Project (slide 25)*
- Factory Pollution Icon: *Shashank Singh, Noun Project (slide 26)*
- Car Exhaust Icon: *Adrien Coquet, Noun Project (slide 26)*
- Vulnerability Maps (Ozone, Composite, Asthma): *Courtesy of Matt Beyers, Alameda County Public Health Department (slides 29, 37, 44, 45)*
- Wildfire Intensity and Frequency: *Union of Concerned Scientists, 2013 (slide 30)*
- Air Quality Reading Oct 12, 2017: *Bay Area Air Quality Management District (slide 34)*
- People with Asthma Icon: *Luis Prado, Noun Project (slides 41, 42)*
- Elderly Icon: *Marie Van den Broeck, Noun Project (slides 41, 42)*
- People with Disabilities Icon: *Mike Ashley, Noun Project (slide 41,43)*
- Low Income Communities of Color Icon: *Gerald Wildmoser, Noun Project (slides 41,43)*
- Homelessness Icon: *Nayeli Zimmermann, Noun Project (slide 41, 43)*
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- Thumbs Up Icon: *Iyicon, Noun Project (slide 63)*
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