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.

Goals for this Workshop

- Strategies developed will inform, as appropriate:
  - Development of materials and methods for speaking or sharing information with clients in preparation for heat and fire events,
  - Coordination between case managers, home visiting staff, emergency response staff, and policy staff to develop protocols for emergency communication with clients during events
CLIMATE CHANGE AND HEALTH EQUITY

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."
Exposure to pollution

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

Climate Change in Environmental Justice Communities
Long-term exposure to poor air quality

Historical Disinvestment
Lack of access to services + basic needs

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?
Ernesto Arevalo | Temporary NorCal Program Director
Communities for a Better Environment
earevalo@cbecal.org

ALAMEDA COUNTY & CLIMATE
Climate Adaptation Defined

**Mitigation**
Actions that **reduce the emissions** that contribute to climate change.

**Adaptation**
Actions that **minimize or prevent the negative impacts** of climate change.

Globally-responsible thing to do

Locally-responsible thing to do

Alameda County Climate Adaptation

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:**
- [Image of smokestacks and combustion]

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**Increased Temperatures**

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

- **High:** +5.6°F
- **Low:** +3.0°F

![Graph showing temperature increase from 2050](image-url)
Increased Temperatures

5 12-15
NOW 2050
Projected Number of Extreme Heat Days Annually

Increased Temperatures & Ozone

Higher temperatures = More formation of Ozone in non-urban areas

More Frequent and Severe Wildfires

TEMPERATURES ARE RISING
SNOW MELTS SOONER
FORESTS ARE DRIER, LONGER

Longer Wildfire Season

1970
"We're about to have a firefighting Christmas."
-Jerry Brown Governor of CA

TODAY
The Impacts Can Already Be Felt

Wildfires and Particle Pollution

More Wildfires
more PM Formation

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

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>% Persons &lt;200% Federal Poverty Level</th>
<th>% Persons 25+ Years Without HS Degree</th>
<th>% Unemployed</th>
<th>% Persons Not a Citizen</th>
<th>% Persons Moving From Different County In Past Year</th>
<th>% Households Limited English</th>
<th>% Households Without Air Conditioning</th>
<th>Ozone* Average Standard Score</th>
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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

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

![People with Asthma](image1.png)
![Elderly](image2.png)
![People with Cardiovascular Disease](image3.png)

### 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](image4.png)
![People Experiencing Homelessness](image5.png)
![People with Disabilities](image6.png)
Areas with a high burden of asthma emergency department visits.

Areas with a high burden of asthma hospitalizations.

Air Pollution Contributes to Cumulative Health Impacts

Discussion
Communication with Clients – 

Beforehand

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

Communication with Clients - 

During

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

<table>
<thead>
<tr>
<th>AQI Category</th>
<th>Health Effects</th>
<th>Cautionary Statements</th>
<th>Other Protective Actions</th>
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<tbody>
<tr>
<td><strong>Good</strong></td>
<td>None Expected</td>
<td>None</td>
<td>None</td>
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<tr>
<td><strong>Moderate</strong></td>
<td>Possible aggravation of heart or lung disease</td>
<td>Unusually sensitive clients should consider limiting prolonged or heavy exertion.</td>
<td>People with heart or lung disease should pay attention to symptoms and contact health care provider if symptoms worsen.</td>
</tr>
</tbody>
</table>

- If symptomatic, reduce exposure to particulates by following advice in box below.

### California State Guidance: Messages for Clients (2)

<table>
<thead>
<tr>
<th>AQI Category</th>
<th>Health Effects</th>
<th>Cautionary Statements</th>
<th>Other Protective Actions</th>
</tr>
</thead>
</table>
| **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:  
  - Limit time spent outdoors  
  - Avoid physical exertion  
  - People with asthma should follow asthma management plan  
  - If symptoms worsen, contact healthcare provider |  
  - 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)

<table>
<thead>
<tr>
<th>AQI Category</th>
<th>Health Effects</th>
<th>Cautionary Statements</th>
<th>Other Protective Actions</th>
</tr>
</thead>
</table>
| **Unhealthy (151-200)** | Above plus: Increased respiratory effects in general population | Above plus: Everyone limit prolonged or heavy exertion. | Above plus:  
  - Sensitive Groups:  
  - Go to a “cleaner air” shelter or possibly out of area  
  - If symptomatic, evacuate to cleaner air shelter or leave area if safe to do so. |
| **Very Unhealthy (201-300)** | Above plus: Significant respiratory effects in general population. | Above plus: Avoid prolonged or heavy exertions. Stay indoors. |  |
| **Hazardous (>300)**  | Above plus: Significant aggravation of heart or respiratory issues. | Above plus: Avoid any outdoor activity | See above. |

### California State Guidance: Communications Process (1)

<table>
<thead>
<tr>
<th>AQI Category</th>
<th>Recommended Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Good (0 to 50)</strong></td>
<td></td>
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</tbody>
</table>
  - If smoke event forecast, implement communication plan |
| **Moderate (51 to 100)** |  
  - 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)** |  
  - 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 |
<table>
<thead>
<tr>
<th>AQI Category</th>
<th>Recommended Actions</th>
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<tbody>
<tr>
<td><strong>Unhealthy</strong> (151-200)</td>
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</tbody>
</table>
|  • Consider canceling outdoor events (e.g., concerts and competitive sports), based on public health and travel considerations  
|  • Full implementation of School Activity Guidelines  
|  • 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 |
| **Very Unhealthy** (201-300) |  
|  • Consider closing workplaces not essential to public health  
|  • Cancel outdoor events  
|  • If PM level is projected to remain high for a prolonged time, consider evacuation of at-risk populations  
|  • Consider closing schools |
| **Hazardous** (>300) |  
|  • Cancel outdoor events  
|  • Consider closing some or all schools  
|  • 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 |
In order of appearance in presentation. Photos not listed are labeled for reuse without attribution.

- Impact of climate change on health: Center for Disease Control, 2014 (slide 24)
- Sun Icon: Sasha Willins, Noun Project (slide 25)
- Pollution Icon: Gan Khoon Lay, Noun Project (slides 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 (slide 41, 43)
- Homelessness Icon: Nayeli Zimmermann, Noun Project (slide 41, 43)
- Handshake Icon: Artem Kovyazin, Noun Project (slide 63)
- Clock Icon: Hare Krishna, Noun Project (slide 63)
- Thumbs Up Icon: Iyicon, Noun Project (slide 63)
- Eyes Icon: Vicons Design, Noun Project (slide 63)