Wildfire Smoke & Worker Health

UCLA Labor Occupational Safety and Health Program
Introductions/Ice breaker

1. Introductions
2. Icebreaker question
   - Share one word to describe how you are feeling.
Agenda

1. Introduction to wildfires
2. Wildfire smoke and health effects
   1. Cal/OSHA protections
   2. N95 respirators
Objectives

- Identify health effects caused by wildfire smoke
- Describe Cal/OSHA worker protections against wildfire smoke
- List the benefits and limitations of N95s
Wildfires in California

- Out of the 10 most largest fires in CA history, 7 have occurred in the last 3 years
  - 5 of which occurred in 2020
    - North Complex - Butte
    - LNU lightning Complex - 6 counties
    - SZU lightning Complex - Santa Cruz
    - Glass Fire
    - Creek Fire - Fresno

*Updated on 11/12/2020*
Bobcat Fire

- San Gabriel Mountains - Angeles National Forest
- Started September 6th
- Burned 114,103 acres, now 62% contained
- One of the largest wildfires of the past century in Los Angeles County
Other Recent Wildfires

Springs Fire - April 2021
Discussion

1. Were you or someone you know affected by fires (wildfires or residential fires)?

1. What type of workers do you think are exposed to wildfire smoke?
What type of workers do you think are exposed to wildfire smoke?
(Jamboard)
Workers exposed to wildfire smoke

- Gardeners
- Construction workers
- Warehouse workers
- Delivery service workers (Instacart, UberEats)
- Landscapers
- Exterior painters
Wildfires bring unhealthiest air in the nation to Southern California

“Water truck operator is overcome with smoke after running through the advancing Silverado fire in Orange County…”
Incarcerated Firefighters
Frontline Workers

- Paid $2 a day, $1 an hour when fighting an active fire, & earn time off their sentences.

- "Without the training I can't get certain jobs," he said. "I can't do what an EMT does. So it limits me and it would limit me for promotions."

- AB 2147: Bill allowing incarcerated firefighters to have their records cleaned
Due to COVID-19 guidelines, businesses have moved outdoors, increasing workers’ exposure to smoke.
Wildfire Smoke & Health Impacts
Wildfire Smoke

Includes ash and tiny particles
(which are made up of whatever is being burned, not only plants and vegetation)
Smoke from West Coast wildfires travels to Europe

*The smoke is moving east while still creating hazardous conditions in the West.*

By Julia Jacobs

September 17, 2020, 10:23 AM • 4 min read
Tiny Particles (PM 2.5)

- Particles (or “particulate matter”) with a diameter of 2.5 micrometers or less
- About 3% the thickness of a strand of human hair
- Size of PM2.5 particles allows them to reach deep into lungs
100 PM
Trapped in the nose

10 PM
Trapped in the throat

2.5 PM
Reaches deep into the lungs

1 PM
Enters the bloodstream
Health Effects of Wildfires

- burning eyes
- runny nose
- chest pain
- fatigue
- coughing
- rapid heartbeat
- difficulty breathing
How does wildfire smoke affect health?

- Long term health problems:
  - reduced lung function
  - chronic bronchitis
  - worsening of asthma
  - heart failure
- Adults over 65 years of age, children, and individuals with existing health conditions are at higher risk
WHAT do YOU NEED to KNOW about WILDFIRE SMOKE & YOUR HEALTH?

Osmosis KNOWLEDGE SHOT
Worker Protections against Wildfire Smoke
Have you previously received training at work about wildfires?
• California Occupational Safety and Health Administration
  ○ State program responsible for protecting health and safety of workers
  ○ Ensures employers follow occupational safety and health regulations
CCR Title 8, §5141.1
Cal/OSHA Wildfire Smoke Emergency Standard
Wildfires are a year-round threat in California

**December 2018:**
Worker support organizations urged Cal/OSHA to take measures to protect workers against this issue.

**July 18, 2019:**
Cal/OSHA Standards Board voted to adopt an emergency temporary standard.

**July 29, 2019:**
Emergency standard went into effect and will remain effective until Jan 2021.

**Cal/OSHA is working on a permanent standard.**
**AQI: Air Quality Index**

<table>
<thead>
<tr>
<th>Air Quality Index - Particulate Matter</th>
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<tbody>
<tr>
<td>301 – 500</td>
</tr>
<tr>
<td>Hazardous</td>
</tr>
<tr>
<td>201 – 300</td>
</tr>
<tr>
<td>Very Unhealthy</td>
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<tr>
<td>151 – 200</td>
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<tr>
<td>Unhealthy</td>
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<tr>
<td>101 – 150</td>
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<tr>
<td>Unhealthy for Sensitive Groups</td>
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<tr>
<td>51 – 100</td>
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<tr>
<td>Moderate</td>
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<tr>
<td>0 – 50</td>
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<tr>
<td>Good</td>
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</tbody>
</table>

Shows air pollution and associated health concerns
• Real-time AQI for any location in the U.S is available at: www.airnow.gov

• LA Black Worker Center zip code: 90043

*Updated on 4/8/2021*
Weather App

Can also check weather application on cellphone to find the local AQI
When are employers required to act?

- Emergency standard applies when **AQI for PM2.5 is 151 or higher**
- Employers must monitor air quality using publicly accessible forecasts of AQI for PM2.5 or by directly measuring PM2.5 levels at worksite
Who does this standard apply to?

● Outdoor and indoor workers exposed to wildfire smoke for more than 1 hour a day, even if they are not directly impacted by fires

● This may include:
  ○ Construction Workers
  ○ Painters
  ○ Warehouse Workers
  ○ Sanitation Workers
  ○ Does not apply to wildland firefighters or indoor workers with filtered air
Employers are required to:

1. **Provide training** on the health effects of wildfire smoke, protections available to them, and procedures for obtaining medical treatment

2. **Communicate with workers** about current AQI for PM2.5 at the worksite
Employers are required to:

3. **Reduce workers’ exposure** to wildfire smoke by:
   - relocating work where AQI for PM2.5 is lower than 151
     - Example: enclosed building with filtered air
   - changing work schedules, lessening work intensity, and accommodating longer rest breaks
Employers are required to:

4. **Provide respirators** (NIOSH-approved N95 filtering facepiece respirators) and encourage their voluntary use
   - requires respirator use along with mandatory fit testing for workers if 
     **AQL for PM2.5 exceeds 500**
N95 Respirators
N95 Respirators

- Evaluated, tested and approved by NIOSH (National Institute for Occupational Safety and Health)
- Reduces wearer’s exposure to particles including small particle aerosols and large droplets (only non-oil aerosols)
- N95 = Not resistant to oil, filters out at least 95% of airborne particles
- Tight-fitting, when fitted properly minimal leakage occurs
- Ideally should be discarded after every use
N95 Limitations

- No protection from exposure to any chemicals odors, gases (e.g., methane, carbon monoxide), or vapors (e.g., organic solvents, formaldehyde)
- May be difficult for first-time users to put an N95 respirator on properly
  - Practice putting it on before an emergency arises
- Fit test and medical evaluation is required for optimal fit
  - If wearer's face changes during the year (e.g., major weight loss or gain) another "fit test" should be performed
Place the respirator facepiece under your chin and over your nose
**DO**

- Place straps against head
- Shave facial hair
- The mask should feel snug all around your face

**DON’T**

- Don’t put straps over hat
- Don’t have facial hair that prevents a tight seal

Check face seal, tighten nose clip
Wildfires and COVID-19

- Respiratory protection needed for both
- Lack of N95s
  - Other controls?
  - Solution for one hazard may create other problems
Module Evaluation

- Please complete the evaluation:

  https://forms.gle/LsRsYcmLd9Y538kk9

*Updated 4/8/21

Thank you!