



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*



LNU Complex Fire, 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



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



A water truck operator is overcome with smoke after running through the advancing Silverado fire in Orange County on Monday. Two fires in Orange County are contributing to "unhealthy" air in Southern California, the worst in the nation. (Allen J. Schaben / Los Angeles Times)

“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



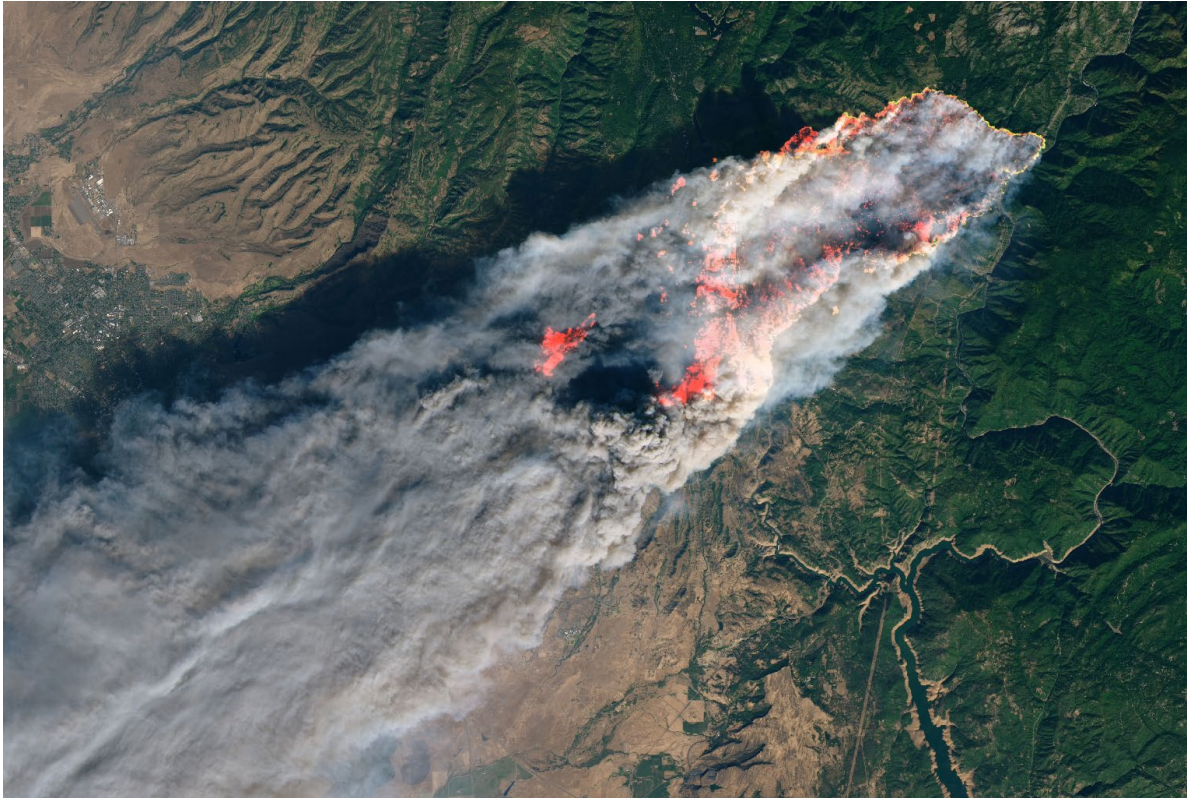
Due to COVID-19 guidelines, businesses have moved outdoors, increasing workers' exposure to smoke



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.

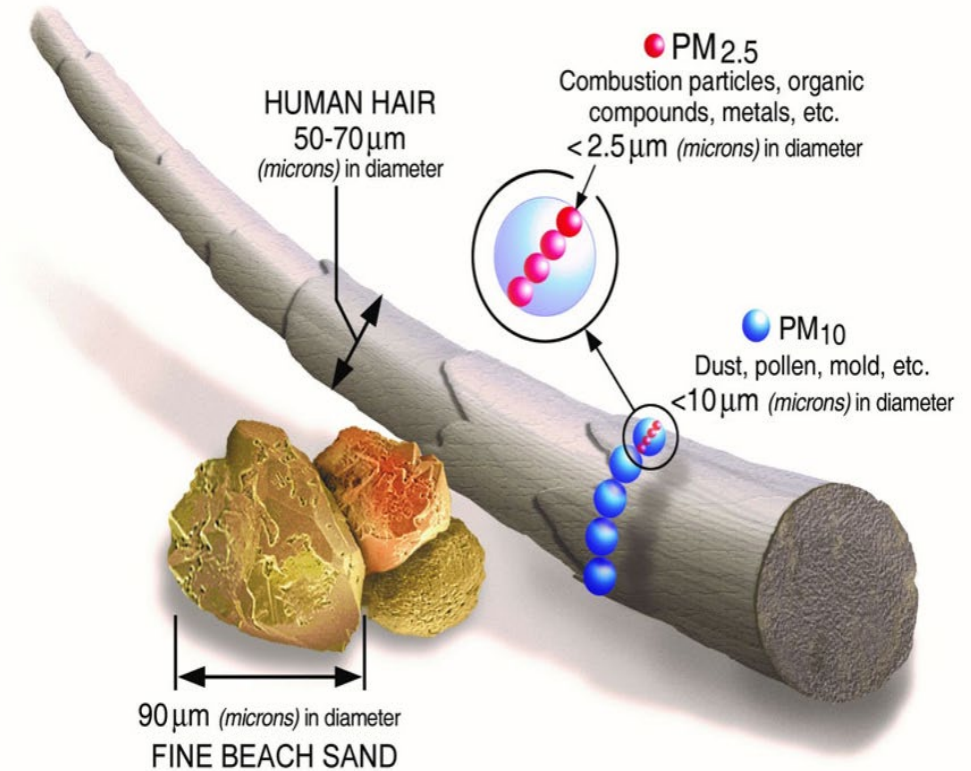
By **Julia Jacobo**

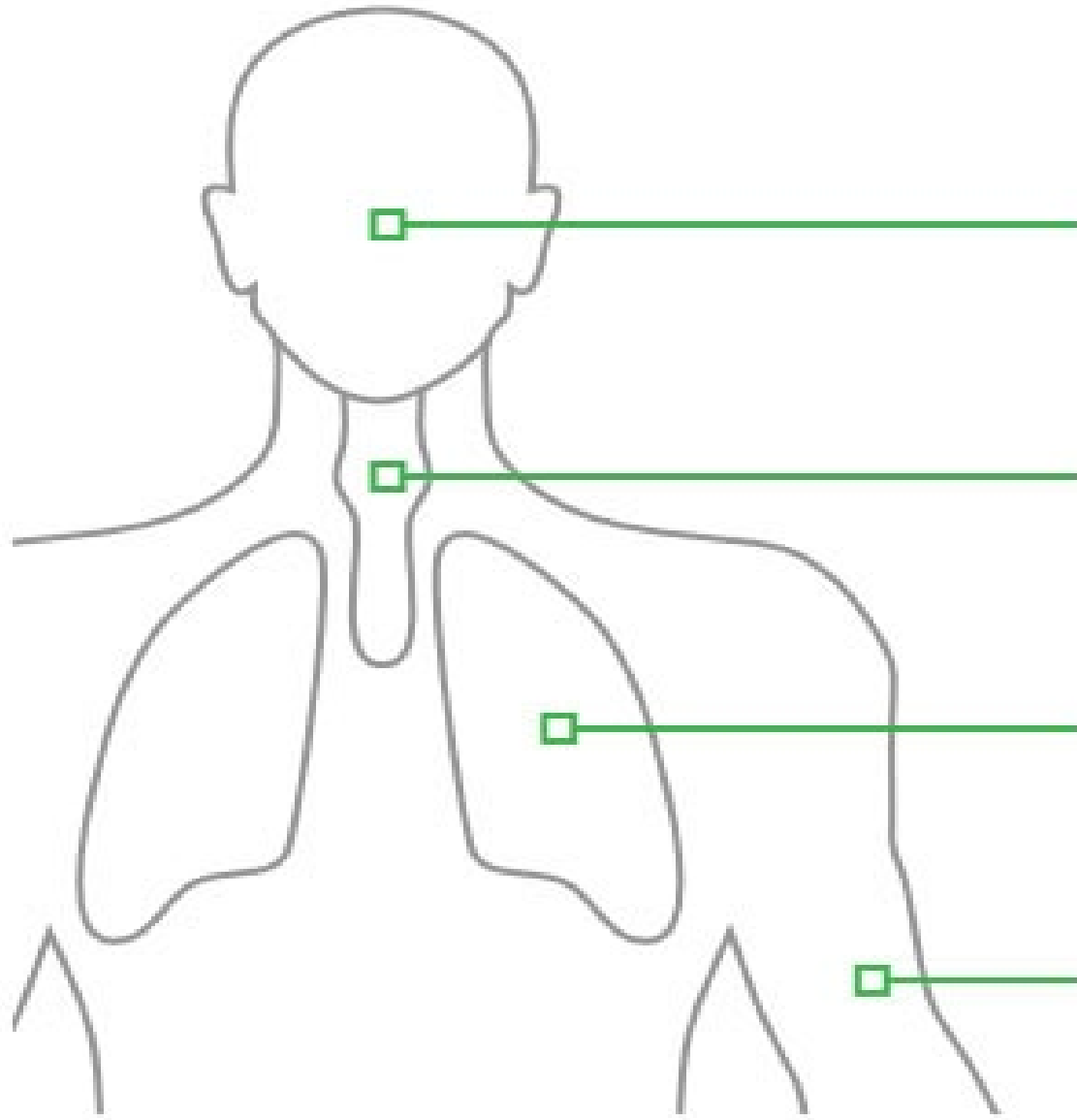
September 17, 2020, 10:23 AM • 4 min read



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

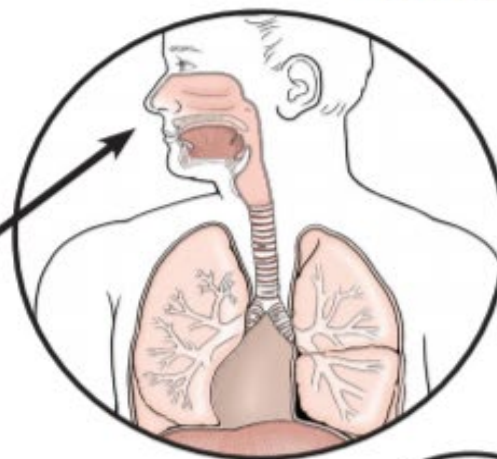
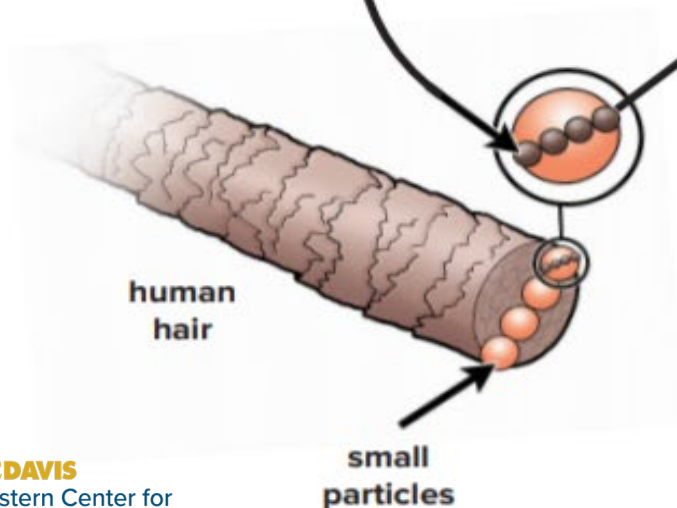
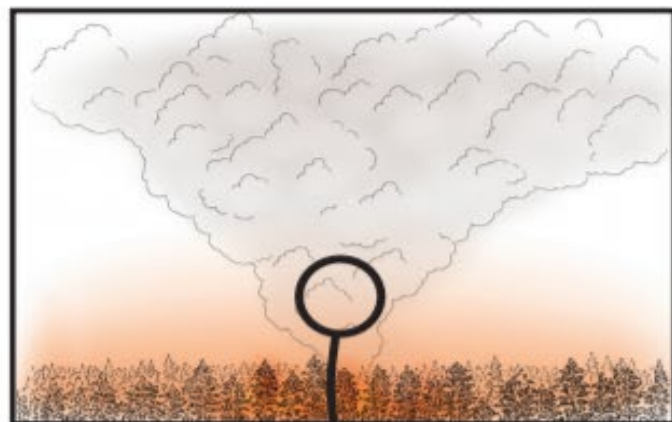
Reaches deep into the lungs

1 PM

Enters the bloodstream



Health Effects of Wildfires



burning eyes



runny nose



chest pain



fatigue



coughing



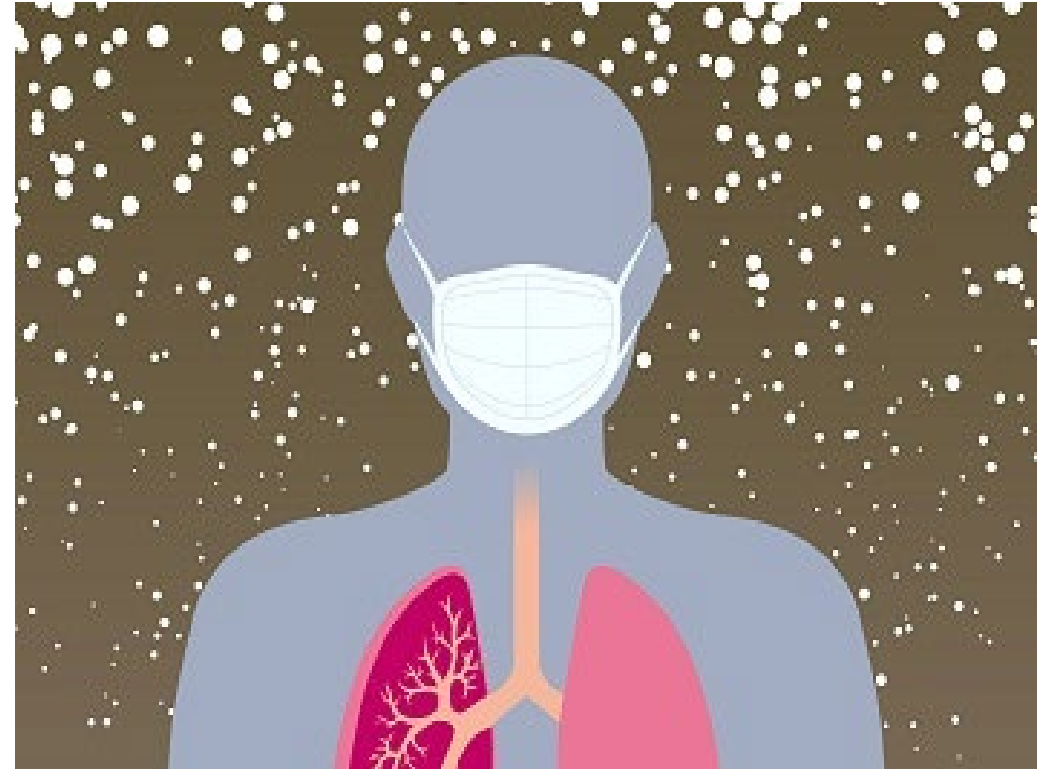
rapid heartbeat







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



Cal/OSHA Emergency Standard Timeline

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

Shows air pollution and
associated health
concerns

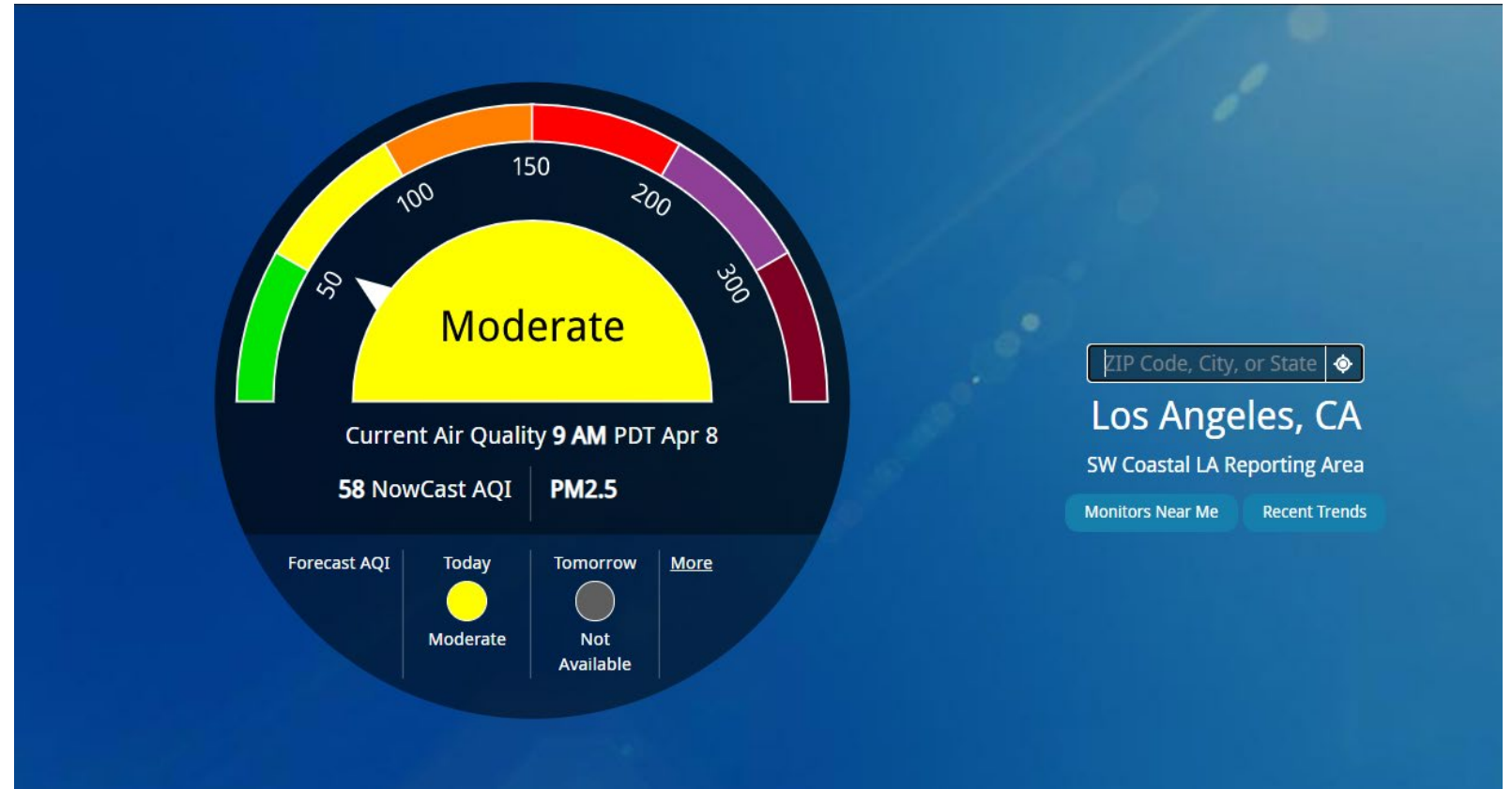
Air Quality Index - Particulate Matter

301 – 500	Hazardous
201 – 300	Very Unhealthy
151 – 200	Unhealthy
101 – 150	Unhealthy for Sensitive Groups
51 – 100	Moderate
0 – 50	Good





- 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

Air Quality Index - Particulate Matter

301 – 500	Hazardous
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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:

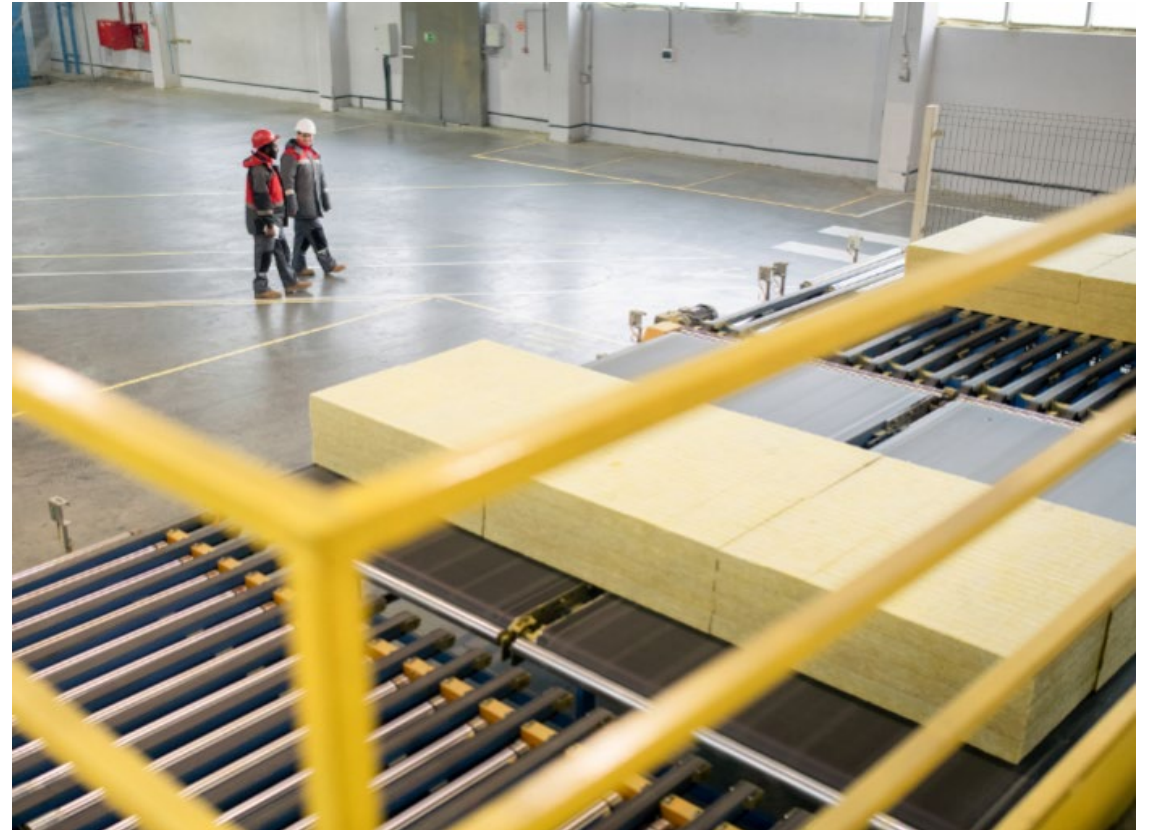
1. **Provide training** on the health effects of wildfire smoke, protections available to them, and procedures for obtaining medical treatment
2. **Communicate with workers** about current AQI for PM_{2.5} at the worksite



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 **AQI 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

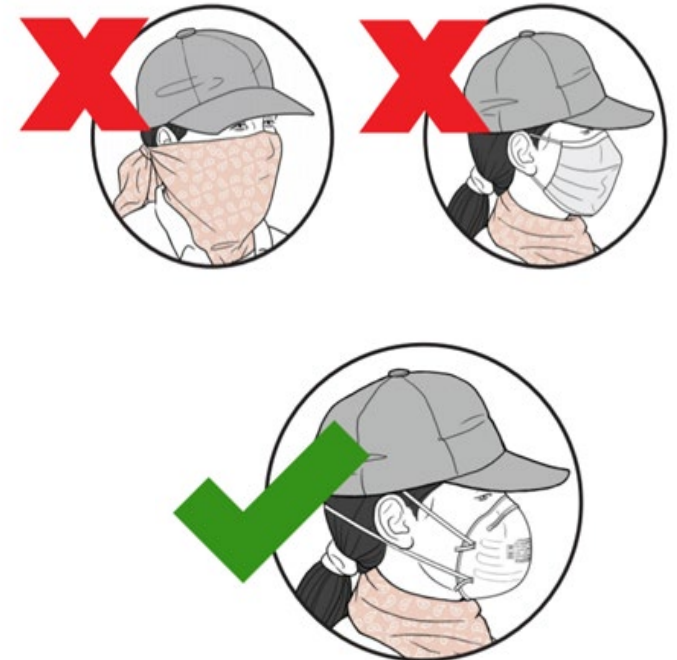
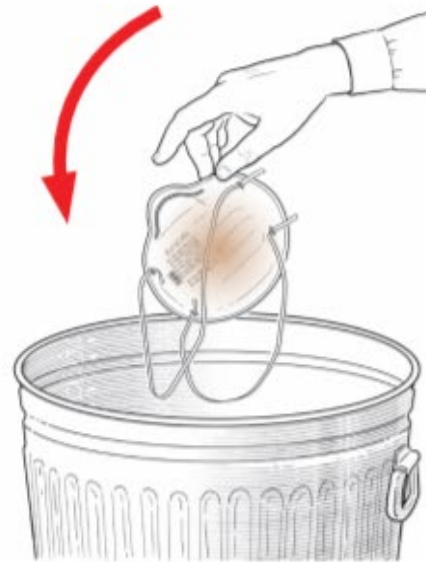
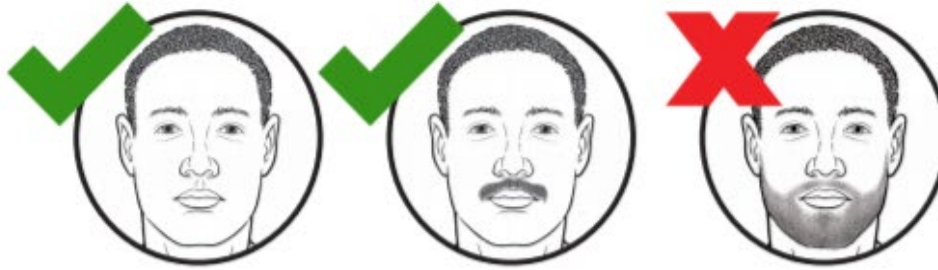
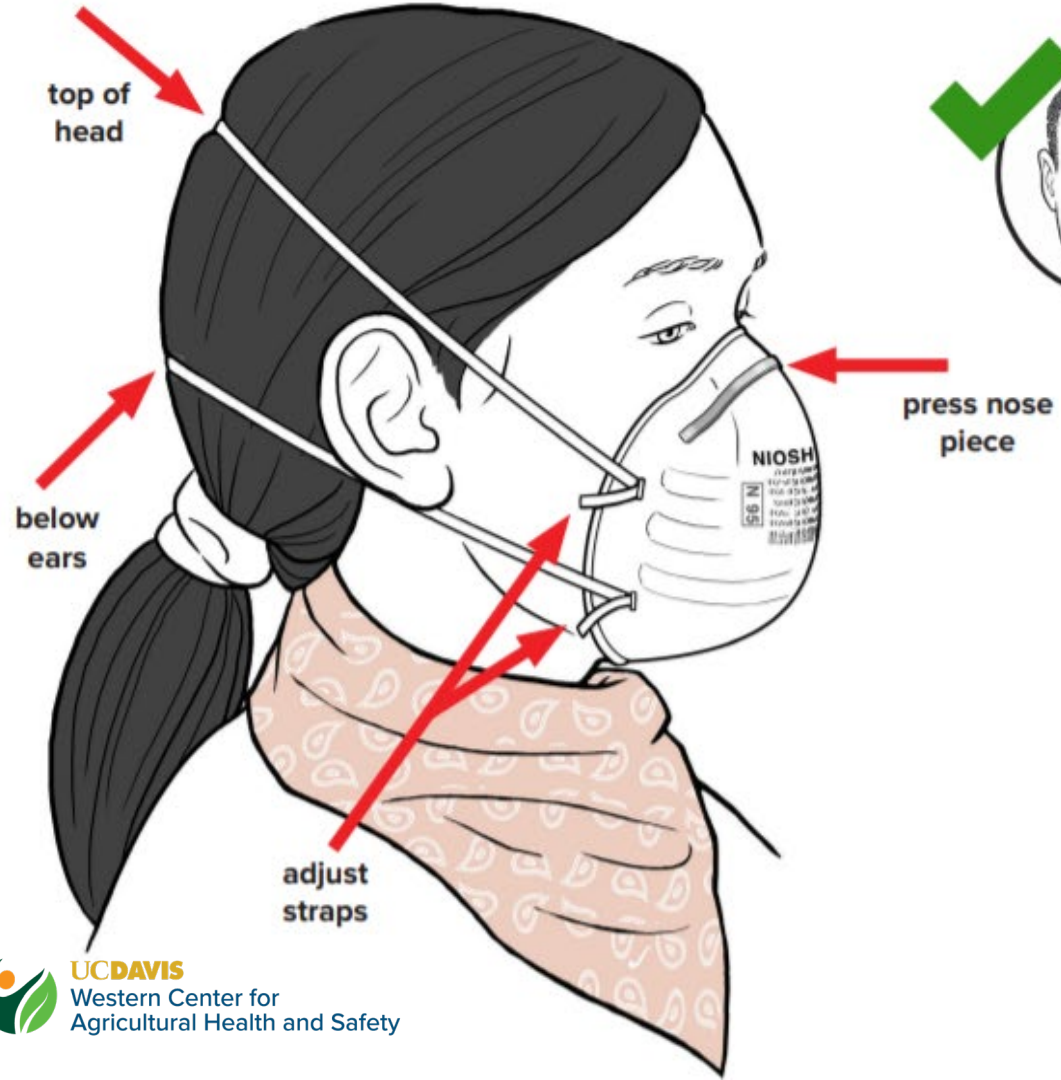
- No protection from exposure to any chemicals odors, gases (e.g., methane, carbon monoxide), or vapors (e.g., organic solvents, formaldehyde)
- May be difficult for first-time users to put an N95 respirator on properly
 - Practice putting it on before an emergency arises
- Fit test and medical evaluation 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

A man with short brown hair is shown from the chest up, holding a blue and grey respirator facepiece with both hands. He is looking directly at the camera. The background is a solid blue color. The text "Place the respirator facepiece under your chin and over your nose" is overlaid in white at the bottom of the image.

**Place the respirator facepiece
under your chin and over your nose**



Respirators



DO

DON'T



Place straps
against head

Check face
seal, tighten
nose clip

The mask should
feel snug all
around your face

Shave facial hair

Don't put straps
over hat

Don't have facial
hair that prevents
a tight seal

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!

Contact us



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