



Poor Air Quality due to Wildfire Smoke: Protecting Staff, Patients, and Visitors

by Mary C. Meyer, MD MPH

Regional Medical Director, Emergency Management
Kaiser Permanente NCAL

How to determine the Air Quality Index? [AQI Basics](#) | [AirNow.gov](#)

AQI Basics for Ozone and Particle Pollution			
Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

Cal/OSHA Section 5141.1: California Code of Regulations, Title 8, Section 5141.1. Protection from Wildfire Smoke.

Worker Safety and Health in Wildfire Regions

Engineering Controls:

The employer shall reduce employee exposure to PM_{2.5} to less than a current AQI of 151 by engineering controls whenever feasible, for instance by providing enclosed buildings, structures, or vehicles where the air is filtered.

- Enclosed buildings or vehicles
- Close doors, windows, bays
- Restrict entry points
- Increase cleaning frequency at entry points to decrease particulate entering facility
- Consider placement of mobile air scrubbing units at high volume facility entry points and areas of high air movement, such as elevator foyers

Administrative Controls:

The employer shall implement administrative controls, if practicable, such as relocating work to a location where the current AQI for PM_{2.5} is lower, changing work schedules, reducing work intensity, or providing additional rest periods.

- Move workers indoors or reduce the time spent outdoors
- Reduce work intensity
- Provide additional breaks/rest periods

Control by Respiratory Protective Equipment:

When the current AQI for PM_{2.5} is equal to or greater than 151, the employer shall provide a sufficient number of respirators to all employees.

- N95 respirators
- Half or full-facepiece elastomeric respirators or powered air-purifying respirators (PAPRS)

Outdoor workers:

- **When the AQI for PM_{2.5} is 151-500:** medical facilities must provide Cal/OSHA "Appendix B" and offer NIOSH-approved respirators. Use of the respirator is voluntary and fit-testing is not required for outdoor workers between AQI for PM_{2.5} 151-500. Employees should be strongly encouraged to use the respirators.
- **When the AQI for PM_{2.5} is 501 or greater:** use of the NIOSH-approved N95 respirator is mandatory. Medical facilities must provide a medical evaluation, training and fit testing.

Patients/Visitors:

- Respirator use/distribution is voluntary and fit-testing is not required
- Patients/visitors who request an N95 respirator for protection against poor air quality when they are **outside** may be given a NIOSH-approved N95 respirators
- Consider distributing a "Talking Points" memo with distribution of N95 respirators

Indoor workers:

- Respirator use/distribution is voluntary and fit-testing is not required
- Indoor workers who request an N95 respirator for protection against poor air quality when they are **outside** may be given a NIOSH-approved N95 and Cal/OSHA "Appendix D"



Figure 1. Fine, inhalable particulate matter (PM_{2.5}) is the air pollutant of greatest concern to public health from wildfire smoke because it can travel deep into the lungs and may even enter the bloodstream.

Why worry about wildfire smoke?

WILDFIRE SMOKE: A GUIDE FOR PUBLIC HEALTH OFFICIALS ([airnow.gov](#))

Respiratory effects:

- Cough, bronchospasm, bronchitis, exacerbation of asthma and chronic lung diseases, reduced lung function

Cardiovascular effects:

- Heart failure, exacerbation of pre-existing cardiovascular disease, premature mortality

Other health effects:

- Eye irritation, systemic inflammation

Effects on healthcare:

- Increased use of medication, school absences, sick leaves, respiratory-related emergency department visits and hospital admissions

Who is at risk?

- **People with cardiovascular disease, older adults**
- **Children, pregnant women**
- **Low socioeconomic status**
- **Outdoor workers**

Who are outdoor workers?

- **Groundskeepers, construction workers, security guards, parking lot attendants, shuttle drivers**
- **Single-point-of-entry workers**
- **Staff in outdoor swabbing/testing/vaccination stations**