

# PROTECT YOUR HEALTH: Understanding Air Quality

Protecting your health during periods of poor air quality requires an understanding of what air quality is, how it is evaluated, and the most important indoor and outdoor safety measures to take when air quality is unhealthy. Use this guide for information and resources to protect your health and the health of your household.



## What is air quality?

Air quality refers to the density of pollutants in the air and the impacts they may have on people or the environment.

## Understanding the United States Air Quality Index (AQI)

The U.S. Air Quality Index is the [Environmental Protection Agency's](#) (EPA) index for reporting air quality. The AQI runs from 0 to 500, with higher numbers indicating higher pollution and health risks. According to the EPA, an AQI level less than 50 is ideal, but below 100 is considered acceptable. Levels of 100–150 are considered dangerous for “sensitive groups.” Levels higher than 150 are unhealthy for all groups, and levels over 300 are considered an emergency and requiring action.

EPA defines **sensitive groups** as:

- People with heart or lung diseases.
- Older adults (older than 60 years old).
- People with diabetes.
- Children (less than 18 years old).

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.

SOURCE: [www.airnow.gov/aqi/aqi-basics](http://www.airnow.gov/aqi/aqi-basics)

## Accessing local air quality information

Daily AQI reports are required for metro areas with a population of over 350,000 people; however, many other areas also report AQI as a public service. Daily AQI measurements are available on [AirNow.gov](https://www.airnow.gov) and many health department websites.

## Areas at higher risk of air pollution


AQI may not accurately capture air quality near some pollution sources. Air monitors that measure AQI are often found in or near urban areas, not necessarily next to industrial polluters outside of urban areas. Certain communities and individuals are systemically exposed to transportation and industrial pollution and are at higher risk of air pollution.

## Health effects of poor air quality

[The World Health Organization](https://www.who.int) emphasizes that almost every organ in the body can be impacted by air pollution. The conditions most strongly linked to poor air quality exposure include stroke, heart disease, chronic obstructive pulmonary disease (COPD), lung cancer, pneumonia, and cataracts (household air pollution only).

## What leads to a decrease in air quality?

The AQI covers five major pollutants, each of which has a national air quality standard set by the EPA to protect public health.



**Sulfur oxides** (from the burning of fossil fuels by power plants and other sources)

**Ground-level ozone** (a combination of pollutants that chemically react in sunlight)

**Carbon monoxide** (such as from vehicles or machinery that burn fossil fuels, and leaky gas stoves)

**Nitrogen oxides** (such as plant and vehicle emissions)

**Particle pollution or "particulate matter"** (such as vehicle emissions, cigarettes, and wildfire smoke)

# Routine and Emergency Protections Against Harmful Air Quality

Routine and emergency safety measures can help you protect yourself and your family from the harmful effects of air pollution.



**Plan ahead for hazardous air quality.** Prepare for environmental emergencies that create sudden unsafe outdoor conditions (such as wildfires or dust storms). Keep an extra supply of necessary medications, and consider stocking up on items like nonperishable food, face masks, and air cleaning supplies.



**Read local air quality reports.** Stay up to date on local information. Air quality levels can change quickly, and local officials can provide the most up-to-date and accurate information to keep you safe.



**Use air cleaners, purifiers, and filters.** Choose an air cleaner or purifier that has an appropriate clean air delivery rate (CADR) and use high-efficiency particulate air (HEPA) filters to help keep the air in your space clean. Existing furnaces and HVAC systems can also work to filter the air when operating for long periods if high-efficiency filters are used. Use the [EPA's Guide to Air Cleaners in the Home](#) for information on choosing the right equipment for your space.



**Limit outdoor work and exercise.** To decrease the amount of exposure to unhealthy air particles, limit, pause, or reschedule outdoor activities.



**Wear a mask.** The type of mask you wear matters. If you must go outside when air quality is unhealthy, properly fitted [high filtration masks](#) such as N95s, KN95s, and KN94s provide the best protection.



**Understand the effects on "sensitive groups."** When air quality reaches unhealthy levels, sensitive groups—defined by the EPA as people with heart or lung diseases, diabetes, older adults, and children—should [take greater precautions](#), particularly outdoors.



**Monitor your health.** Stay up to date on routine health screenings and notify your healthcare provider of any concerns, symptoms, or health changes you experience.



**Minimize personal impact on air quality.** Consider reducing travel in cars, use of gasoline powered motors, outdoor burning, and other common activities that may increase poor air quality.

## For more information, visit the following resources:

[AirNow.gov](#). AirNow is a partnership of the U.S. Environmental Protection Agency, the National Oceanic and Atmospheric Administration (NOAA), National Park Service, NASA, the Centers for Disease Control, and tribal, state, and local air quality agencies.

[Lung.org](#). The American Lung Association works to save lives by improving lung health and preventing lung disease through education, advocacy, and research.