



Air Pollution & Air Quality

What is Air Pollution?

Air pollutants are substances in the air that can have a negative impact on human health and the environment. Toxic air pollutants are known or suspected to cause serious health effects such as cancer, reproductive effects or birth defects, asthma and chronic obstructive lung disease, and other disorders. Emissions from cars and trucks; coal, oil, and other fossil fuels; and manufactured chemicals can all contribute to air pollution. ⁽¹⁾

How is Air Quality Measured?

Air quality is measured through the use of the Air Quality Index (AQI), which provides information on how clean the air is on a given day and the health issues that may arise. Below is a breakdown of the AQI.

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
<i>When the AQI is in this range:</i>	<i>...air quality conditions are:</i>	<i>...as symbolized by this color:</i>
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

What Causes Air Pollution?

Air pollution can come from either natural or manmade sources. ^(1,2,3)

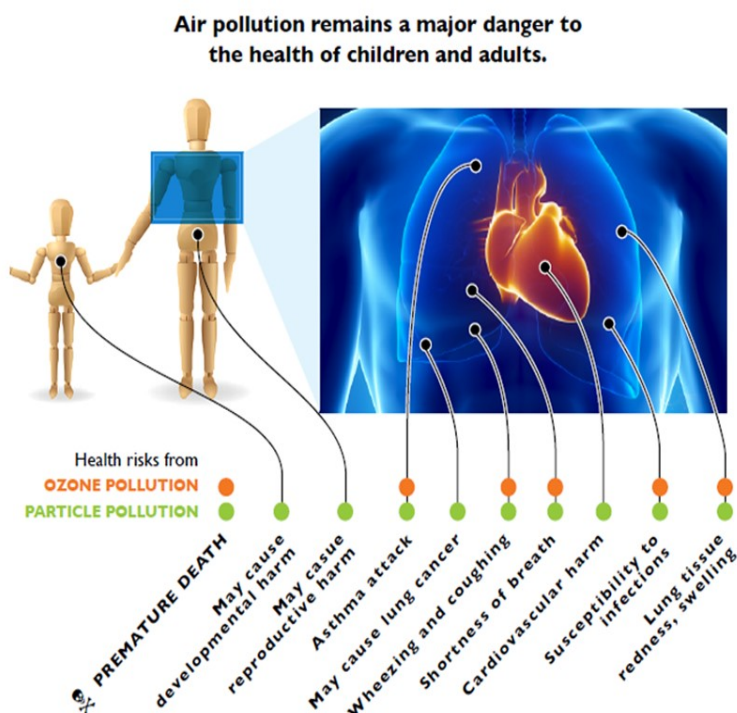
Natural Sources	Manmade Sources
<ul style="list-style-type: none"> • Ground dust • Vegetation • Salt spray from oceans • Natural sources that give off hydrogen sulfides • Ash from volcanic eruptions • Smoke and gas from fires (i.e. forest, grass, swamp) • Radon • Fog • Mist 	<ul style="list-style-type: none"> • Coal fired power plants • Oil refineries • Highways • Motor vehicle emissions & other transportation services • Trash disposal • Nuclear waste disposal • Large livestock farms • PVC, metal, and plastic factories • Landfills

The Clean Air Act

The Clean Air Act was first passed in 1970 and led to the creation of the Environmental Protection Agency (EPA). This law sets limits on certain air pollutants which helps to ensure basic health and environmental protection from air pollution for all Americans. In 1990, Congress passed an expanded Clean Air Act which is still in effect today. The EPA identified six common air pollutants that are found all over the United States. The criteria pollutants are: particle pollution (often referred to as particulate matter or PM), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. ⁽¹⁾

Health Impacts of Air Pollution

Two types of air pollution are most prevalent in the United States: ozone pollution and particle pollution. Exposure to these pollutants has decreased significantly due to the Clean Air Act; however, more than 4 in 10 people still live in an area where pollution levels are often too dangerous to breathe. Exposure to these air pollutants can increase the risk of heart disease, lung cancer, asthma attacks and premature death. Children are uniquely vulnerable to air pollution because their lungs are still growing and they are so active. The burden of air pollution is not evenly shared, as poorer people and minorities often face higher exposures. ⁽³⁾



Ozone Pollution

Ozone is a gas molecule composed of three oxygen atoms that aggressively attacks lung tissue. Ozone develops when gases that come out of tailpipes, smokestacks, and other sources come into contact with sunlight. Winds can carry ozone far from where it began. Five groups of people are especially vulnerable to effects of breathing ozone: children and teens, those over age 65, people who work or exercise outdoors, people with existing lung diseases such as asthma or COPD, and people with cardiovascular disease. ⁽³⁾

Particle Pollution

Particle pollution is a mix of very tiny solid and liquid particles in the air we breathe. The particles themselves are different sizes and their size makes a big difference on how they affect us. Our bodies can protect us from larger particles by coughing or sneezing. However, particles that are less than 10 micrometers in diameter get trapped in our lungs and can move into our bloodstream. Particle pollution is produced through two separate processes—mechanical and chemical. Mechanical processes primarily produce coarse particles, and chemical processes create most of the tiniest fine and ultra-fine particles. ⁽³⁾

What Can I Do?

- Pay attention to forecasts for high air pollution days to know when to take precautions. <http://www.iowadnr.gov/Environment/AirQuality/AirQualityIndexAQI.aspx#LiveTabsContent248211-lt>.
- Avoid exercising near high-traffic areas.
- Avoid exercising outdoors when pollution levels are high, or substitute an activity that requires less exertion.
- Support national, state and local efforts to clean up sources of pollution!