

Air quality and your health

Air pollution can affect our health in many ways. Both short- and long-term exposure can lead to health concerns such as respiratory and cardiovascular disease. Everyone from government to industries as well as individuals can play a part in reducing air pollution.

Outdoor air pollution

Outdoor air pollutants are also known as ambient air pollutants and can include particles suspended in air, smoke, gases, and aerosols. Sources of outdoor air pollution include industries, motor vehicle emissions, household combustion devices, bushfire smoke and natural events such as dust storms. Some allergy-causing airborne particles such as pollen and mould spores can also affect air quality and can cause or worsen respiratory and cardiovascular conditions in some people.

Common air pollutants

- **Particulate matter** – also known as PM, is not any one particular pollutant but made up of a variety of components which can include dust particles, smoke, diesel exhaust, and sea spray. Airborne particles can carry harmful substances like metals, organic compounds, sulfates, nitrates, as well as allergens like pollen. PM usually comes from industry, motor vehicles, wood burning and bushfires and dust storms. Fine PM is often invisible to the eye, so poor air quality is not always obvious. Health effects of PM are determined by the particle size:
 - PM10 (particles with a diameter of 10 micrometres or less): these are small enough to be inhaled and enter the lungs.
 - PM2.5 (particles with a diameter of 2.5 micrometres or less): these are small enough to be inhaled into the lungs and enter the blood stream (note that PM2.5 forms part of the PM10 fraction).
 - Another measure of airborne dust is total suspended particulates (TSP) which includes all airborne particles with diameters up to around 100 micrometres. The health effects for TSP mainly arise from the fraction of particles below PM10, but larger particles can also be irritating to the eyes and nasal passages.
- **Ozone** – in the upper atmosphere ozone provides protection by filtering out ultraviolet radiation from the sun. However, at the ground level ozone is formed by an interaction between sunlight and motor vehicle and industrial emissions and is the main component of smog. The highest levels of ozone occur in summer and during the early evening.
- **Nitrogen dioxide** – a component of traffic-related pollution as well as industrial emissions. Unflued gas-heaters and gas stoves also emit nitrogen dioxide.
- **Carbon monoxide** – produced by combustion heaters and barbecues, portable generators and vehicle engines which are generally safe to use in an outdoor setting but not indoors.
- **Sulphur dioxide** – is formed during fossil fuel combustion at power plants and other industrial facilities, or during the smelting of metal ores.

Indoor air pollution

Air quality indoors can be compromised by both outdoor and indoor sources of pollution. Some common sources of indoor air pollution include using wood burners and gas appliances for heating or cooking, smoking and vaping, burning of candles and scented sticks, home renovation activities, mould and dampness, and the use of air fresheners, cleaning products and perfumed personal care products.



Air pollution and your health

The quality of air that we breathe can have both temporary and lasting health impacts depending on the type of pollutants we are exposed to and how long the exposure continues. Some of the health impacts of short-term exposure to air pollution include allergic reactions and asthma or exacerbation of existing cardiovascular and respiratory conditions.

Long-term exposure to lower levels of air pollution can impact human health in various ways. Respiratory and cardiovascular diseases are common health effects; however, ongoing research has identified other diseases associated especially with prolonged exposure to fine particulate matter (PM10, and PM2.5 in particular) such as type 2 diabetes, cognitive decline, and specific cancers. Exposure to nitrogen dioxide can lead to the development or exacerbation of asthma, particularly in young children. Long-term ozone exposure can contribute towards chronic obstructive pulmonary disease.

Particles that are too large to enter the blood stream through inhalation can instead irritate our skin, eyes, nose, throat, and lungs. Extended exposure to coarse particulate matter can increase susceptibility to upper respiratory infections, such as colds and flu.

Children, pregnant women, older people, and people with pre-existing medical conditions are more vulnerable, and children and older people with pre-existing respiratory and cardiovascular conditions are highly sensitive. See your doctor if you are experiencing health issues, in particular if you experience eye or skin irritation, coughing, wheezing and shortness of breath. If you have an existing medical condition such as asthma, follow your action plan or talk to your doctor to see if your action plan needs to be updated.

Managing South Australia's air quality

The [South Australian Environment Protection Agency](#) (SA EPA) monitors and regulates South Australia's air quality. SA EPA works with industry and the community to manage air quality; SA Health works with SA EPA to understand the impacts of poor air quality on the health of South Australians. There are national standards for common air pollutants to minimise the impact on human health and wellbeing known as the National Environment Protection Measure (NEPM) – Ambient Air Quality. Industries are working on minimising air pollution and individuals can remain informed about air quality through a range of sources including online resources and apps.

Further information

For more information contact health.chemicalandenvironmentalhazards@sa.gov.au

SA EPA - https://www.epa.sa.gov.au/environmental_info/air_quality

NEPM - <https://www.nepc.gov.au/nepms/ambient-air-quality>

AirRater - <https://airrater.org/>

Department of Health and Aged Care - <https://www.health.gov.au/topics/environmental-health/about/air-quality>

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