

Understanding Outdoor Air Pollution

What is outdoor air pollution?

Outdoor air pollution refers to particles and gases in the atmosphere which are released from both man-made and natural sources. Air pollution can have negative effects on the health of humans, animals, and the environment. Reducing air pollution is important to protect health. For healthy lungs, it is essential that the air we breathe is clean and safe from harmful pollution. Air quality is the measure of how clean the air is while air pollution is the measure of the pollutants in the air. Air pollution can occur both indoors and outdoors. Outdoor air pollution is sometimes called ambient air pollution.

Health impacts from air pollution

There is no safe level exposure to air pollution. Even low levels of exposure are linked to a range of health impacts. **Short-term exposure** is when you have contact with the pollutant over a few days or weeks, such as in the case of extreme events like bushfire and dust storms. **Long-term exposure** is when you are continuously exposed to air pollution over a long period of time, usually months or years.

Potential short-term/long-term impacts

Short-term health impacts:

- Breathlessness, wheeze and dry cough
- Irritation of the eyes, nose and throat
- Fatigue
- Nausea
- Headaches and dizziness.

Long-term health impacts:

- Chronic Obstructive Pulmonary Disease; asthma
- Cardiovascular disease
- Stroke
- Lung cancer
- Breathing problems - irritation, inflammation, infections and reduced lung function.

Causes of outdoor air pollution

Air pollution comes from a range of sources. Examples of natural and man-made sources include:

Natural sources



Wildfires: bushfires, forest/savanna fires

Dust storms

Man-made sources



Vehicles and road traffic

Power generation from coal-burning power stations

Monitoring pollution

Pollution is the introduction of harmful particles into the environment. These harmful particles are called pollutants. The following pollutants are monitored in Australia.

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| Particulate matter (PM2.5 & PM10) | Particulate matter is made up of tiny particles, which are so small they can be inhaled and cause serious health problems. They can go deep into the lungs and bloodstream. |
| Ozone (O ₃) | Ozone is a reactive and unstable gas. It can damage living cells, especially those present in the linings of human lungs. |
| Nitrogen dioxide (NO ₂) | Nitrogen dioxide is present in the air due to the burning of fuel from vehicle emissions, power plants, and off-road equipment. It has harmful effects on the respiratory system. |
| Sulphur dioxide (SO ₂) | Sulphur dioxide is a reactive air pollutant gas from fossil fuel combustion that irritates the lining of the nose, throat and lungs. |
| Carbon monoxide (CO) | Carbon monoxide is found in the fumes produced when burning fuel. This pollutant also contributes to the formation of ozone air pollution. |

Who can be affected by air pollution?

Air pollution can affect everyone, but some people will be more vulnerable to the impact of exposure. For example, pregnant women, infants, children, elderly people, and those living with a pre-existing lung disease.



People living with a lung condition are more vulnerable to the effects of air pollution. Exposure to air pollution can cause inflammation and worsen symptoms. If you are living with a lung condition, you can find more information on the **Outdoor Air Pollution: Living with a Lung Condition factsheet**.

Tips to protect yourself and your loved ones

1. **Check air quality in your area.** Inform yourself by checking real-time air quality. There are a range of sources, including online via www.bom.gov.au.
2. When air pollution is poor your indoor air may be better for your health. **Closing windows** and **setting the air conditioning to the internal circulation mode** can help protect you.
3. **Maintaining strong lung health.** For example, staying up-to-date with vaccinations, avoiding smoking and vaping and being physically active. Regular outdoor physical activity is good for your lung health, however, consider avoiding exercising near areas of high traffic when air pollution is high, and select routes that avoid roads and stick to off-road paths where possible.
4. During extreme events like bushfires, controlled burning, and dust storms, consider **wearing a mask** as this can help filter out air pollution and protect your lungs.

Wearing a face mask



When extreme air pollution events such as bushfires occur, **N95 face masks** can provide the best protection. Surgical masks or cloth masks can be considered as alternatives, but are less effective.

Wearing a mask can make some people feel like it is harder to breathe. Consult your healthcare provider if you have difficulty wearing a mask.

Ways to contribute to cleaner air

There are many ways you can help contribute to clean air, see some examples below.



Transportation

- **Choose clean transportation:** Reduce the frequency of driving, and where possible use public transport and try to commute by cycling and walking.
- **Change driving habits:** Avoid idling or sudden acceleration when you are driving. This can not only help with reduction of outdoor and in-vehicle air pollution, but also help to save fuel.



Vehicles

- **Vehicle repair and maintenance:** Regularly check your tyre pressure. If the tyres are under-inflated, the fuel efficiency is reduced. Regularly empty the particulate filter if you use a diesel engine.
- **Purchase vehicles with lower emissions:** when purchasing a car, consider buying electric or hybrid vehicles. Try to avoid buying diesel powered vehicles and check the emissions.



In your home

- **Heating:** Avoid using wood burning stoves or fireplaces to reduce levels of particulate matter pollution both indoors and outdoors. Try to opt for reverse cycle air conditioners instead.
- **Recreational:** It is best to reduce the burning of charcoal or wood for recreational use which includes backyard firepits and braziers.
- **Avoid burning your garbage or leaves** in your garden. It is illegal in some regions and the smoke from the fire will pollute the air.
- **Garden equipment:** Consider using lawn equipment which is hand or electric powered.
- **Planting trees:** Planting trees can be helpful to reduce air pollution. Trees can absorb CO₂ and the leaves can trap particulate matter. However, consider low allergen trees.
- **Save energy:** Use renewable energy (e.g., solar power). Check the energy efficiency star rating labels on appliances when purchasing.

You can share your voice and story to highlight the impacts of air pollution and advocate for cleaner air in Australia. The power of your individual voice helps make change. For example, you can speak to your community, local government, and politicians. Lung Foundation Australia advocates for clean air and lung health, to support our advocacy visit our website.

Lungfoundation.com.au | Freecall 1800 654 301 | enquiries@lungfoundation.com.au

Note to reader: This information is intended as a general guide only and is not intended or implied to be a substitute for professional medical advice or treatment. While all care is taken to ensure accuracy at the time of publication, Lung Foundation Australia and its members exclude all liability for any injury, loss or damage incurred by use of or reliance on the information provided. Always consult with your doctor about matters that affect your health.