

# Outdoor Air Pollution: Living with a Lung Condition

## What is outdoor air pollution?

Outdoor (ambient) air pollution refers to harmful 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. These pollutants can enter the lungs and cause harm such as irritation and inflammation to the lining of the airways and lungs. The differences between air quality and air pollution is that air quality is the measure of how clean or polluted the air is, while air pollution is the measure of the pollutants in the air. Air pollution can occur both indoors and outdoors.

## Air pollution and lung conditions

Air pollution is not only related to the development of lung diseases, such as Chronic Obstructive Pulmonary Disease (COPD), bronchitis and asthma, but also worsens the symptoms of these diseases. The following table shows some examples of lung conditions which are susceptible to air pollution.

COPD	Exposure to air pollution can worsen COPD symptoms including shortness of breath, coughing and wheezing. This can affect the airways and make it difficult to breathe.
Bronchitis	Exposure to air pollution can cause inflammation of the airways, and leads to coughing, increased mucus production, and shortness of breath.
Asthma	Exposure to air pollution can trigger asthma symptoms, including coughing, wheezing, and shortness of breath. For individuals with severe asthma, air pollution exposure can be life threatening.

## 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.

Particulate matter (PM <sub>2.5</sub> & PM <sub>10</sub> )	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.
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Ozone (O <sub>3</sub> )	Ozone is a reactive and unstable gas. It can damage living cells, especially those present in the linings of human lungs.
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Nitrogen dioxide (NO <sub>2</sub> )	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.
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Sulphur dioxide (SO <sub>2</sub> )	Sulphur dioxide is a reactive air pollutant gas from fossil fuel combustion that irritates the lining of the nose, throat and lungs.
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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.
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## Managing a lung condition during extreme air pollution events

Here are some tips on how to manage your lung condition during extreme air pollution events, such as bushfires or dust storms.

1. Reduce your time outdoors.
2. Use telehealth options to access health services where possible.



### What is telehealth?

Telehealth allows patients to have a consultation with a healthcare professional by phone or a video call.

3. Consult your treating healthcare team to get advice on the management of your condition and clarify if you are administering your medicines and devices properly (e.g., inhaler technique).
4. Check the expiry dates and the supply of your commonly used medicines.
5. Observe if symptoms are worsening and respond to them early.
6. If you are using oxygen cylinders, get in touch with your supplier and plan to deliver oxygen to your home.

### Tips to stay well when exposed to air pollution long-term

1. Attend regular health check-ups and ensure you are using your medication correctly. If your symptoms change or worsen, seek advice from your treating doctor as soon as possible.
2. Lifestyle management:
  - a. **Quit smoking:** avoiding cigarette use and second-hand smoke can help to reduce the inflammatory responses, especially in those with COPD and asthma.
  - b. Nutrition and weight management:
    - i. **Nutrition:** A diet with more vegetables and fruits (e.g., berries, red cabbage, spinach) can help to reduce the risk of lung inflammation, because these foods are high in antioxidants.
    - ii. **Weight management:** Keep your weight in the healthy range. You can consult your health provider during your annual health check-ups.

## Tips for patients and caregivers

1. **Check air quality in your area:** You can use online resources to check real-time air quality in your area such as the Bureau of Meteorology website.
2. **Pay attention to air pollution alerts:** From local newspapers, TV news, radios, and weather forecasts, especially when extreme air pollution events such as bushfires occur. Be aware of the alerts and take actions to minimise your exposure to air pollutants.

### Can I wear a mask when the level of air pollutants is high?



Before using a mask, you should consult your healthcare provider. This is because masks may increase respiratory resistance. **N95 face masks** can provide the best protection against air pollutants. Surgical masks or cloth masks can be considered as alternatives. Ensure you follow the instructions on the package to correctly use the mask.

3. **Don't cycle or walk near the main road or during rush hours**
  - a. Air pollution may reduce your lung function, and this will counteract the advantages of exercise.
  - b. Select routes that avoid the main roads and use off-road paths.
4. **Exercise regularly**
  - a. Regular outdoor physical activities benefit lung function.
  - b. Pay attention to the local outdoor air quality and don't exercise near traffic hot spots.
  - c. Start slowly and build up your level of exercise.
  - d. If you experience symptoms like coughing, severe shortness of breath, being unable to talk or chest pain, stop exercising and seek help from a health professional.

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](https://lungfoundation.com.au) | Freecall 1800 654 301 | [enquiries@lungfoundation.com.au](mailto: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.