Respiratory Care WA
Asthma | COPD | Respiratory Health

Air Pollution and Asthma

Air pollution occurs when gases and tiny particles contaminate the air we breathe, both indoor or outdoor, changing its natural quality. Air pollution is a significant health concern in Australia and worldwide.

For people living with asthma and other respiratory conditions, air pollution can be particularly harmful. Children, older adults and people with existing health conditions are especially vulnerable to the effects of poor air quality.

Components of air pollution

Air pollution comes from a range of sources. Common components include:

- **Particulate matter (PM10 and PM2.5)** – Tiny particles in the air produced by car and diesel engines, industrial activity, bushfires and dust. PM2.5 particles are very small and can travel deep into the lungs and even enter the bloodstream.
- **Nitrogen dioxide (NO2)** – A harmful gas mainly produced by vehicle exhaust and industrial activity.
- **Ozone (O3)** – A gas that forms on hot, sunny days and is a key component of summer smog.
- **Sulfur dioxide (SO2)** – A gas released mainly from industrial processes and the burning of fossil fuels.

Indoor air pollution

Air pollution doesn't only affect outdoor air. The air inside your home can also be polluted by:

- **Volatile organic compounds (VOCs)** – Gases released from household products such as cleaning sprays, paints, and new furniture (including couches and mattresses).
- **Smoke** – From wood heaters, unflued gas heaters, or tobacco smoke.
- **Cooking fumes** – Produced when using gas stoves or during high-heat cooking.
- **Outdoor pollution entering the home** – Vehicle exhaust, bushfire smoke or dust from outside.

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How air pollution can impact asthma

Short-term exposure to air pollution (over hours or days) can trigger asthma symptoms such as coughing, wheezing, shortness of breath, and chest tightness.

Air pollutants can irritate the eyes, throat, and airways. In the lungs, they may cause swelling and narrowing of the airways, which may lead to an asthma flare-up.

Long-term exposure to air pollution can reduce lung function and increase the risk of developing or worsening heart and lung conditions. It may also reduce life expectancy.

What can I do?

If air pollution is one of your asthma triggers, you can protect your health by:

- Staying indoors on days when air pollution levels are high.
- Avoiding heavy outdoor exercise on high pollution days.
- Using your reliever inhaler (e.g. Ventolin®, Asmol®, Airomir® or Bricanyl®) 5–10 minutes before going outside if needed.
- Following your Asthma Action Plan on days when air quality is poor.
- Talking to your healthcare professional about your symptoms and asthma management plan.
- Avoiding smoke from bushfires, wood heaters and unflued gas heaters.
- Keeping your car well-maintained and consider taking public transport to reduce emissions.
- Use online tools such as the RAC Air Health Monitor and Emergency WA to stay alert for when air quality is poor.

Sources:

1. Australian Institute of Health and Welfare. *Monitoring the Impact of Air Pollution on Asthma in Australia.* 2010.
2. Continental Hospitals. *How does Air Pollution impact Respiratory Health?* 2023.
3. Australian Institute of Health and Welfare. *Natural Environment and Health.* 2024.
4. World Health Organization. *What is Air Pollution?* 2019.

How we can help

Respiratory Care WA has a team of respiratory healthcare professionals here to provide information and support for Western Australians living with asthma and COPD. We offer in-person education and support at our respiratory hubs or via telehealth. Our team can also visit schools, workplaces or community and sporting groups to deliver free asthma management sessions.
Email **ask@respiratorycarewa.org.au** to find out more.