

Bushfire smoke affects children differently. Here's how to protect them

February 23 2024, by Dwan Vilcins, Nicholas Osborne and Paul D. Robinson



Credit: Vladyslav Dukhin from Pexels

Bushfires are currently burning in Australian states including [Victoria](#), [Tasmania](#), [Western Australia](#) and [South Australia](#). In some areas, fire

authorities have warned residents about the presence of smoke.

[Bushfire smoke](#) is harmful to our health. Tiny particles of ash can lodge deep in the lungs.

Exposure to this type of smoke may worsen existing conditions such as asthma, and induce a range of health effects from [irritation](#) of the eyes, nose and throat to changes in the [cardiovascular system](#).

Public health recommendations during smoke events tend to provide general advice, and don't often include advice specifically geared at children. But children are not just little adults. They are [uniquely vulnerable](#) to [environmental hazards](#) such as bushfire smoke for a number of reasons.

Different physiology, different behavior

Children's lungs are [still developing](#) and maturing.

Airways are smaller in children, especially young children, which is associated with greater rates of [particle deposition](#)—when particles settle on the surfaces of the airways.

Children also [breathe more air](#) per kilogram of body weight compared with adults, and therefore inhale more polluted air relative to their size.

Further, children's detoxification systems are still developing, so environmental toxins [take longer](#) to effectively clear from their bodies.

Meanwhile, children's behavior and habits may expose them to more environmental toxins than adults. For example, they tend to do more physical activity and spend more time outdoors. Higher levels of physical activity lead to more air inhaled per kilogram of body weight.

Also, a normal and important part of children's early play is exploring their environment, including by putting things in their mouth. This can result in kids ingesting soil, dust and dirt, which often contain [environmental contaminants](#).

For these reasons, it's important to consider the specific needs of children when providing advice on what to do when there's smoke in the air.

Keeping our environments healthy

The Australian government [offers recommendations](#) for minimizing the [health risks](#) from exposure to bushfire smoke. The main advice includes staying indoors and keeping doors and windows closed.

This is great advice when the smoke is thick outside, but air pollutants may still accumulate inside the home. So it's important to air your home once the smoke outside starts to clear. Take advantage of wind changes to open up and get air moving out of the house with a cross breeze.

Kids are natural scientists, so get them involved. For example, you and your child can "rate" the air each hour by looking at a landmark outside your home and rating how clearly you can see it. When you notice the haze is reducing, open up the house and clear the air.

Because air pollutants settle onto surfaces in our home and [into household dust](#), an easy way to protect kids during smoky periods is to do a daily dust with a wet cloth and vacuum regularly. This will remove pollutants and reduce ingestion by children as they play. Frequent hand washing helps too.

Healthy bodies and minds

Research exploring the effects of bushfire smoke exposure on children's health is sparse. However, during smoke events, we do see an increase [in hospital visits](#) for asthma, as well as children reporting irritation to their eyes, nose and throat.

If your child [has asthma](#) or another [medical condition](#), ensure they take any prescribed medications on a regular schedule to keep their condition well controlled. This will minimize the risk of a sudden worsening of their symptoms with bushfire smoke exposure.

Make sure any action plans for symptom flare-ups are up to date, and ensure you have an adequate supply of in-date medication somewhere easy to locate and access.

Kids can get worried during [bushfires](#), and fire emergencies have been linked with a reduction in children's [mental health](#). Stories such as the [Birdie's Tree books](#) can help children understand these events do pass and people help one another in times of difficulty.

Learning more about air pollution can help too. Our group has [a children's story](#) explaining how air pollution affects our bodies and what can help.

It's also important for parents and caregivers not to get too stressed, as [children cope better](#) when their parents manage their own anxiety and help their children do the same. Try to strike a balance between being vigilant and staying calm.

What about masks?

N95 masks can protect the wearer from [fine particles in bushfire smoke](#), but their use is a bit complicated when it comes to kids. Most young children won't be able to [fit properly](#) into an N95 mask, or won't tolerate

the tight fit for long periods. Also, their smaller airways make it harder for [young children](#) to breathe through a mask.

If you choose to use an N95 mask for your children, it's best to save them for instances when high-level outdoor exposure is unavoidable, such as if you're going outside when the smoke is very thick.

N95 masks should be replaced after [around four hours](#) or when they become damp.

If your child has an existing heart or lung condition, consult their doctor before having them wear an N95 mask.

Our team is currently recruiting for a study exploring the effects of bushfire smoke in children. If you live in south east Queensland and are interested in participating in the event of a bushfire or hazard reduction burn near your home, please [express your interest here](#).

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