

## Research Summary

### Blood pressure in young children who were exposed to smoke from the Hazelwood mine fire

June 2025



## Background

The fire in the Morwell open cut brown coal mine adjacent to the Hazelwood Power Station blanketed the town of Morwell and the surrounding area in smoke and ash for six weeks in February and March 2014. The smoke event was recognised as one of the most significant air quality incidents in Victoria's history. It caused considerable community concern within Morwell and the broader community. In response to these concerns, and following extensive community consultation, the Hazelwood Health Study (HHS) was established to examine the impacts of the mine fire. The HHS involves multiple research streams targeting different health outcomes and different vulnerable groups.

The Latrobe Early Life Follow-up (ELF) Study is part of the Hazelwood Health Study that follows the health and growth of children who were younger than two years old when the fire happened. This includes children whose mothers were pregnant with them at the time.



## Analysis aims

This research aimed to discover if infant exposure to smoke from the mine fire, either during pregnancy or during the first 2 years of childhood, was associated with their blood pressure up to 9 years later.



## What we did

We invited children from the ELF Study to have their blood pressure measured at 3, 7 and 9 years after the fire. A total of 293 children participated, including 100 exposed to mine fire smoke during their mother's pregnancy (exposed prenatally), 122 exposed during their first 2 years of life (exposed during infancy), and 71 who were not exposed. By tracking each child's location on each day of the fire and the pollution levels in those areas, we were able to estimate the amount of smoke each child was exposed to. We took into consideration other factors that could influence blood pressure, such as age, sex, height, weight, social circumstances, smoking during pregnancy, and birth weight.

Hazelwood Health Study website: [www.hazelwoodhealthstudy.org.au](http://www.hazelwoodhealthstudy.org.au)



## What we found

Among children who were exposed to mine fire smoke during infancy, those with higher levels of exposure had slightly higher blood pressure 9 years later than those with lower levels of exposure. That is, as the coal mine fire smoke exposure level increased, blood pressure measured 9 years later increased. We did not find any consistent pattern with blood pressure in children in the prenatal exposure group.

A detailed paper describing the findings from this analysis can be requested from [contact@hazelwoodhealthstudy.org.au](mailto:contact@hazelwoodhealthstudy.org.au)

## Meet the team

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## Considerations

The increases in blood pressure were relatively small. They are unlikely to be important for future heart health unless other risk factors for heart disease are also present or develop in the future. Many factors can affect blood pressure throughout life including genetic make-up, air pollution from other sources, physical activity, and diet. The ELF study was the first of its kind and had a relatively small number of children participating. To be confident in understanding the health implications of smoke exposure during infancy we would need to see similar results from studies in a wide range of settings.



## Where to from here?

More research is needed to better understand the effects that severe air pollution events could have on children's blood pressure.

The Latrobe ELF Study is led by the Menzies Institute for Medical Research at the University of Tasmania with collaborations from Melbourne University and the Telethon Kids Institute.

The HHS is led by Monash University with collaborators from Menzies Institute for Medical Research, Federation University, The University of Adelaide and CSIRO.

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