

Research Summary

No evidence of lung inflammation in children exposed to mine fire smoke during infancy

April 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 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 the part of the Hazelwood Health Study that follows the health and growth of children who were younger than two years old when the fire occurred. This includes children whose mothers were pregnant with them at the time.

Analysis aims

Seven and nine years after the mine fire, this research aimed to discover whether smoke from the fire contributed to lung inflammation in very young children from the Latrobe Valley, including children whose mothers were pregnant with them at the time.



What we did

We invited children from the ELF Study who were exposed to mine fire smoke during infancy or in the womb, along with children who were not exposed to mine fire smoke, to attend clinical testing in 2021 (7 year follow-up) and 2023 (9 year follow-up). We measured lung inflammation using the fractional exhaled nitric oxide (FeNO) test. This test may be helpful in predicting future risk of asthma or impaired lung growth. We worked out how much smoke each child had been exposed to by looking at where the child was each day during the fire and how polluted the air was in that area. This included the locations of the pregnant mothers, because fine air pollution particles can pass through the placenta into the developing baby. We also took in consideration other factors that could influence lung inflammation, such as age, sex, exposure to tobacco smoke and socio economic status.

Website: www.hazelwoodhealthstudy.org.au



@hazelwoodhealthstudy



What we found

In children whose mothers were pregnant with them, and those who were aged up to 2 years at the time of the fire, we found no evidence that mine fire smoke exposure was linked to lung inflammation when measured 7- and 9-years later.

A detailed paper describing the findings from this analysis can be found at www.hazelwoodhealthstudy.org.au/publications



Meet the team

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Considerations

Our group of participants was relatively small, which meant that the results could have been influenced by just a few participants. Additionally, many factors can affect lung inflammation, such as genetics, air pollution from other sources and seasonal changes. Those factors may have influenced our findings in ways we could not fully account for.

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.

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