

## Research Summary

### Continuing risk of death from heart conditions in smoke impacted areas after the Hazelwood mine fire

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 was established to examine the impacts of the mine fire. The Hazelwood Health Study involves multiple research streams targeting different health outcomes and different vulnerable groups.

### Analysis aims

Previous Hazelwood Health Study research showed that in the six months after the mine fire, there was an increase in deaths from cardiovascular (heart) conditions in Morwell. New research now aims to determine whether smoke exposure from the mine fire has continued to contribute to any increase in deaths within the local community.



## What we did

In 2016/2017, approximately 2.5 years after the mine fire event, 2,115 Morwell and 610 Sale residents completed the Hazelwood Health Study Adult Survey and consented to link their survey responses to national death records. Participants answered questions about their locations on different days during the mine fire e.g. home, work or travel. Based on those locations, air pollution data modelled by CSIRO were used to estimate each participant's level of exposure during the fire, to fine airborne smoke particles < 2.5 thousandths of a mm in diameter (PM<sub>2.5</sub>). Particles this fine can travel deep into people's lungs and bloodstream.

We used national death records up to June 2023 to calculate the rates of death during the years following the Adult Survey, in the smoke exposed Morwell participants and unexposed Sale participants. We took into consideration other factors that could influence long term health, such as age, sex, socioeconomic status, pre-existing medical conditions and tobacco use.

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



## What we found

When all deaths were counted (regardless of the cause of death), the overall risk of death in Morwell participants was 11%, exactly the same as in Sale participants. However, when deaths from heart conditions were investigated separately, we observed an association between level of smoke exposure and rate of death. That is, as mine fire smoke exposure levels increased, rates of death from heart conditions over several years also increased. In fact, small rises in smoke exposure levels were followed by at least 17% rises in rates of deaths from heart conditions over the 6-7 year follow-up period.

A more detailed paper describing these findings can be found at [www.hazelwoodhealthstudy.org.au/study-findings/publications](http://www.hazelwoodhealthstudy.org.au/study-findings/publications)



### Meet the team

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## Considerations

The rates of deaths, observed in this study, were only for the Adult Survey participants and not for other residents who chose not to participate. Also, because the Adult Survey did not commence until early 2016, people who died in the first two years after the mine fire could not be included in this analysis. These factors mean that the results may not reflect the exact size of the impact of the mine fire smoke on deaths.



## Where to from here?

These findings will be shared with relevant health and emergency services to help inform future responses to air pollution events.

The Hazelwood Health Study 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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