

Research Summary

The Adult Survey Cohort: ambulance, emergency department and hospital use 8 years after the 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 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.

The Hazelinks Stream of the HHS investigates the long-term health of the smoke-exposed communities by using administrative health datasets, such as ambulance, hospital, Medicare, pharmaceutical, cancer and death records.



Meet the team

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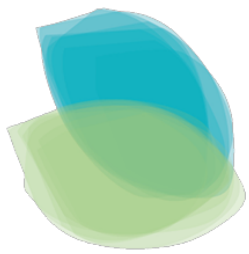
Analysis aims

This analysis aimed to see whether people who were most exposed to smoke from the Hazelwood mine fire were more likely to have used an ambulance, presented to a hospital emergency department or be admitted to a hospital in the 8 years following the event, compared with people who were less exposed or not exposed.



What we did

Approximately 2.5 years after the Hazelwood mine fire, 4,056 residents from Morwell (exposed to the mine fire smoke) and Sale (unexposed) participated in the HHS Adult Survey. Each participant filled in a time-location diary to show where they were on each day and night of the mine fire period. This was important because the smoke levels varied quite a bit from day to day. Using the diaries and air pollution modelling conducted by CSIRO, we calculated each participant's level of exposure to mine fire smoke. Consent was given by 2,725 of the Adult Survey participants for the researchers to access their ambulance attendance data held by Ambulance Victoria, and their emergency department and hospital admissions data held by the Department of Health, for the period January 2009 to June 2022.



What we found

Compared to participants with lower levels of mine fire smoke exposure, there was some evidence that participants with higher levels of exposure were more likely to use an ambulance for respiratory (lung) health reasons, or to present to an emergency department for cardiovascular (heart) health reasons. These mine fire smoke effects were evident during the first 2 ½ years after the fire, but not later, and were more observable among women than men. Participants with higher levels of mine fire smoke exposure were also more likely to have injury-related ambulance attendances and emergency department presentations, and these mine fire smoke effects persisted across the 8 years of follow up.

A more detailed paper describing these findings can be requested from contact@hazelwoodhealthstudy.org.au



Considerations

The mine fire smoke effects observed in this study were present after the statistical analyses accounted for other factors, reported by participants, which might have influenced health service use. These included previous medical history, age, cigarette smoking and employment in jobs that involved exposure to dust, fumes, smoke, mist or gas. However, there remains a possibility that additional unmeasured factors influenced health service use. Further, because a proportion of adults from Morwell did not participate in the Adult Survey, it is possible that the findings do not truly reflect that community.



Where to from here?

These ambulance and hospital findings will be looked at alongside other findings which used Medicare, pharmaceutical, cancer and death records, self-reported symptoms and clinical examinations of participants, to provide a comprehensive overview of the long-term effects of the Hazelwood coalmine smoke on the health of adults in the Latrobe Valley.

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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Hazelwood Health Study website: www.hazelwoodhealthstudy.org.au