



Research Summary

Ambulance callouts, Emergency Department presentations and hospital admissions 8 years after the fire

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Analysis aims

This study aimed to investigate whether smoke from the mine fire resulted in increased ambulance attendances, hospital Emergency Department (ED) presentations or hospital admissions during the 8 years after the event.



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 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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What we did

We obtained daily ambulance attendances data for the period January 2013 to December 2021 and daily ED presentations and hospital admissions data for the period January 2009 to June 2022. We used air pollution data modelled by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to estimate smoke levels across Morwell (highest smoke exposure), compared with the wider Latrobe Valley (lower smoke exposure) and the rest of regional Victoria (no smoke exposure) during the mine fire. A statistical method called time series analysis was used to examine whether ambulance attendances, ED presentations or hospital admissions increased during the 8 years after the mine, and whether any increases were associated with mine fire smoke levels. We combined all types of medical conditions together but also looked at heart, lung and mental health-related conditions separately. The analysis took into account the influences of other contributing factors such as season and temperature.

Hazelwood Health Study website: <http://www.hazelwoodhealthstudy.org.au/>



What we found

Compared with before the fire, and compared also with service use trends in the rest of regional Victoria, hospital ED presentations increased by 15% in Morwell and 9% in the wider Latrobe Valley, and hospital admissions increased by 9% in Morwell and 8% in the wider Latrobe Valley during the 8 years after the mine fire for all medical conditions combined. There was no clear change in the rate of ambulance attendances.

When we looked at heart, lung and mental health-related conditions separately, once again compared with before the fire, and with service use trends in the rest of regional Victoria, we found that heart-related ED presentations increased by 9% in Morwell but remained unchanged in the wider Latrobe Valley, and heart-related hospital admissions increased by 13% in Morwell and 6% in the wider Latrobe Valley.

Lung-related ED presentations and hospital admissions remained unchanged in Morwell. However, lung-related ED presentations in the wider Latrobe Valley slightly increased by 3% and lung-related hospital admissions in the wider Latrobe Valley increased by 5%.

The largest increases were for mental-health-related conditions. Mental health-related ED presentations increased by 10% in Morwell but remained unchanged in the wider Latrobe Valley. Whereas mental health-related hospital admissions substantially increased by 46% in Morwell and 42% in the wider Latrobe Valley during the 8 years after the mine fire.

A detailed paper describing the findings from this analysis can be found at <https://hazelwoodhealthstudy.org.au/study-findings/publications>



Considerations

It is possible that long-term health effects of smoke from the mine fire contributed to increased hospital ED presentations and/or hospital admissions in the 8 years after the event. It is also possible that the mine fire event, and consequent establishment of health-related entities such as the Hazelwood Health Study and the Latrobe Health Assembly have led to behavioural change in the community. For example, people in the region may be more likely to seek medical care regardless of whether their health condition was a result of the fire or not. Such a change in health seeking behaviour could explain the increases in hospital ED presentations and/or hospital admissions in Morwell and the wider Latrobe Valley.

Where to from here

To complement these findings, the study continues to investigate a range of health outcomes including lung function, cardiovascular health, child development, community wellbeing, educational outcomes and cancer.

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

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