

Risk of death in Morwell, the broader Latrobe Valley and surrounding smoke impacted areas during and after the Hazelwood mine fire **Research Summary**

October 2020

Analysis aims

This research aimed to determine whether death rates increased during or after the mine fire and whether these rates were affected by changes in the levels of mine fire smoke pollution.



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, with the concentration of smoke contaminants reaching high levels.

The smoke event caused considerable community 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 Study involves multiple research streams targeting different health outcomes and different vulnerable groups.

Meet the team

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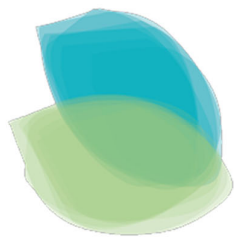


What we did

For this research we defined the 'mine fire period' as the 30 days from 9 February to 10 March 2014. After these dates the smoke levels dropped quickly. We used national death records to calculate the rates of death during the mine fire period, and during the six months after the mine fire, in Morwell, in the broader Latrobe Valley, and in surrounding smoke impacted areas. We also calculated the rates of death after daily changes in smoke levels. The national death records provided information about the cause of death which was defined as the disease or injury that led to the death (for example asthma, heart disease or an accident). The term *cause of death* did not relate to whether the mine fire smoke pollution contributed to the death, but assisted us to investigate whether certain types of deaths were more common during or after the mine fire. We took in to consideration other factors that could influence death rates such as season, temperature and the age of the population.

A detailed report describing the findings from this analysis can be found at
hazelwoodhealthstudy.org.au/study-findings/study-reports





What we found

When all deaths were counted (regardless of cause of death), the overall risk of death in Morwell and in other smoke impacted areas was similar to what would usually be expected during the 30 day mine fire period. However, in the six months after the mine fire, the overall risk of death in Morwell (but not in other smoke impacted areas) was slightly higher than what would usually be expected.

When specific causes of death were investigated, the following results were found.

During the 30 day mine fire period, in the Latrobe Valley:

- there was an increase in the risk of death from injury. The greatest increases in risk of death from injury during the mine fire period were observed in men and in residents aged 80 years and older. Across all smoke-impacted communities, there were approximately 11 extra deaths from injury during the mine fire period.

In the six months after the mine fire, in the Latrobe Valley and particularly Morwell:

- there was an increased risk of death from cardiovascular conditions, particularly ischaemic (coronary) heart disease. Greatest risks were observed in men and residents aged 80 years and older. There were approximately 26 extra deaths in Morwell from cardiovascular conditions in the six months after the mine fire.

There was no association between mine fire smoke and an increased risk of death from respiratory conditions.

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 will continue to monitor the long-term health of communities impacted by the mine fire.

The Hazelwood Health Study is led by Monash University with collaborators from Menzies, Federation University, The University of Adelaide and CSIRO. The research was funded by the Department of Health and Human Services.

Considerations

Some of the findings from this research were based on quite small numbers of deaths. When numbers are small, it is possible that the increases in risk of death have occurred by chance. It is not possible from these records to tell what activity or behavior led to the injury related deaths that were observed in this research.

The finding of no association between mine fire smoke and respiratory-related deaths does not mean that the smoke was safe for people with respiratory illnesses. Instead it is possible that some people with chronic respiratory illnesses took precautionary action during the mine fire, such as leaving the smoky areas, staying indoors and/or taking additional medication. These actions may have prevented some potential respiratory-related deaths and contributed to the lack of an association between the mine fire and respiratory deaths. Other Hazelwood Health Study research has shown that the mine fire smoke contributed to a worsening of respiratory symptoms.

Even though the researchers were able to investigate changes in the rates of death across the community that might have been associated with the mine fire smoke, the data did not allow the researchers to answer questions about whether any individual person's death was caused by the fire.