



## Research Summary

### Research on cancer, 8.5 years after the mine fire

November 2024

#### 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 a diagnosis of cancer during the 8.5 years following the event, compared with people who were less exposed or not exposed.



#### 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 Cancer Stream of the HHS uses Victorian Cancer Registry (VCR) records to investigate rates of new cancers, and survival from pre-existing cancers, in the smoke-exposed communities.



#### What we did

We searched the VCR for any records matching 2,223 Morwell residents who were exposed to the mine fire smoke, and 649 Sale residents who had low or no exposure, and who had previously participated in the HHS Adult Survey and agreed to VCR linkage. Each participant had 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 a lot from day to day. Using the diaries and air pollution modelling conducted by CSIRO, we calculated each participant's level of smoke exposure during the fire. We then looked at new cancers diagnosed between 9 August 2014 and 31 December 2022. Cancers usually take a long time to develop and, for this reason, cancers diagnosed within 6 months after the mine fire were not included as they were very unlikely to have been caused by the smoke.

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



## What we found

We found that the rate of new cancers was higher in Morwell than in Sale during the 8.5 years after the mine fire. However, within exposed Morwell participants, we did not observe a difference in cancer rates between highly exposed and less exposed participants. That is, we observed a difference in overall cancer rates between the two towns, but no strong evidence that cancer rates were associated with smoke exposure. This suggests the possibility that the difference in cancer rates between the two towns may not have been caused by the mine fire. When we looked at specific cancer sites such as lung, colorectal and urinary tract cancers, numbers were too small to show any definite evidence of a difference between the two towns or between higher and lower smoke-exposed participants.

A detailed paper describing the findings from this analysis can be found at

<https://hazelwoodhealthstudy.org.au/study-findings/publications>



## Considerations

The analysis used a number of statistical methods to account for other factors that might have influenced cancer rates, such as age, sex, education, smoking history and employment in jobs that involved exposure to dust, fumes, smoke, mist or gas. We did not find that these factors explained the difference in cancer between the two towns. There remains the possibility that factors other than the mine fire smoke influenced the difference in cancer between Morwell and Sale, such as other differences in job types or diet. Further, because not all adults from Morwell and Sale participated in the Adult Survey, it is possible that the findings do not truly reflect those communities. Finally, an 8.5 year follow up period is too brief to detect some cancers which can be very slow to develop.

## Meet the team

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## Where to from here

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

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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