



Research Summary

Did mine fire smoke exposure increase rates of cancer in exposed communities?

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Analysis aims

There are studies which show that air pollution can increase rates of cancer in exposed communities. Our study investigated whether exposure to smoke from the Hazelwood mine increased yearly rates of cancer in Morwell or the rest of Latrobe Valley during the 7 years after the fire, taking into consideration trends in cancer rates in the rest of regional Victoria.



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 Cancer Stream of the HHS investigates the long-term health of the smoke-exposed communities by using records from the Victorian Cancer Registry (VCR).

Meet the team

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What we did

We searched the VCR for all new cancers diagnosed between 2009 and 2021. We then limited the analysis to cancers in people aged 40+ due to very small numbers in younger people. We compared the yearly trend in new cancers diagnosed before the 2014 mine fire, with the yearly trend after. The theory was that, if there was a change in the yearly trend of new cancers diagnosed in smoke effected areas after the fire compared with before, that was not seen in other parts of regional Victoria, then a likely cause was the mine fire.

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



What we found

We identified 851 new cancers in Morwell after 2014, and 2,460 in the rest of the Latrobe Valley. When we combined all cancer types together and compared the years before the mine fire with the years after in both areas, we found no difference in the yearly trend of new cancer cases. That is, after the mine fire we could see no increase in the overall rates of cancer.

When we looked at people of different ages, we saw a small increase after the mine fire in cancers diagnosed among people aged 60–69 years in ‘the rest of the Latrobe Valley’. However, the evidence for this was weak and this was not likely to be an effect of mine fire smoke because the same trend was not observed in Morwell where smoke exposure levels were higher.

When we divided cancers into different subtypes, we found a decrease (improvement) after the mine fire in the yearly rate of newly diagnosed blood-related cancers in Morwell; those include leukaemia, lymphoma and myeloma. There are a number of chemicals including solvents, pesticides and herbicides, and jobs such as farming, painting and construction, that have been linked to blood cancer. Possible explanations, for this decrease in the rate of new blood cancers, could be closure of industries in or around Morwell that had exposed workers to those sorts of chemicals, or relocation of previously exposed workers out of Morwell. Alternatively, this may have been a chance finding

A detailed paper describing the findings from this analysis is available by contacting us at contact@hazelwoodhealthstudy.org.au



Where to from here

Further VCR data are being collected to detect any new cancers diagnosed in the 2200+ members of the Hazelwood Health Study Adult Cohort. For those people we have detailed mine fire smoke exposure data and also comprehensive information about other factors which could contribute to health such as family medical history, cigarette smoking and alcohol use, marital status and socioeconomic status. Those data will provide further information about whether the mine fire contributed to new cancer cases in the years after exposure.

Considerations

There is currently no conclusive evidence that air pollution from the mine fire increased cancer rates in the Latrobe Valley. However, it can take many years for some new cancers to appear after a toxic exposure. Therefore, future research will provide more accurate information.

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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