Hazelwood HEALTH STUDY

Birth outcomes using anonymous Victorian Perinatal Data Collection Records

Research Summary

December 2018

Analysis aims

We aimed to find out whether babies born to pregnant mothers exposed to mine fire smoke were born earlier or smaller compared to those born to mothers who were not exposed during pregnancy.

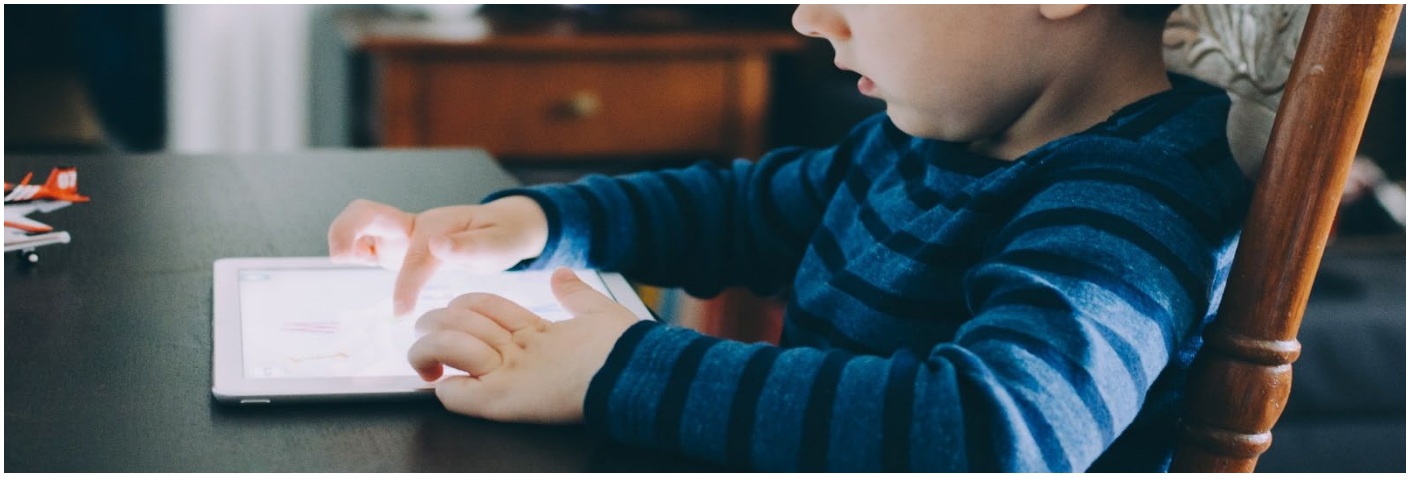
Meet the team

Fay Johnston
Shannon Melody
Alison Venn
Karen Wills
Jane Ford
Marita Dalton
Grant Williamson

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 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 **Latrobe Early Life Follow up (ELF) Study** is the part of the Hazelwood Health Study that follows the health and growth of children who were younger than two years old when the fire happened. This includes children who were in the womb and had not been born yet.



What we found

In general, we found that babies born to mothers who were exposed to the coal mine fire smoke during pregnancy, compared to mothers who were not exposed, were no different in their birthweight, were not more likely to be born small nor to be born too early. This supports findings that we have previously reported, where we collected birth details through a survey of families enrolled in the Latrobe ELF Study.

However, we did find that smoke exposure was linked to birthweight in some babies, but only if the mother had a diagnosis of gestational diabetes. These babies were more likely to be heavier at birth by approximately 100 grams, compared to babies born to exposed mothers without gestational diabetes. This effect was in addition to the higher birthweight that you would expect from gestational diabetes alone.

To view a copy of the full report go to https://hazelwoodhealthstudy.org.au/study-findings/publications **or** https://doi.org/10.1016/j.envint.2019.03.028

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What we did

- After obtaining ethical approval for this research, we obtained anonymous birth records held by the Victorian Perinatal Data Collection for all babies born in the Latrobe Valley before, during and after the fire (born 1st March 2012 to 31st December 2015).
- To estimate how much mine fire smoke pregnant women had been exposed to during the fire, we used air pollution data provided by CSIRO and the recorded home address at the time the baby was born.
- We looked to see if different amounts of mine fire smoke exposure were associated with birthweight and when babies were born. When we analysed the data, we took into account other factors that can affect birthweight and maturity, including infant sex, the mother's age, health and smoking status during pregnancy.

Considerations

We calculated exposure based on the mother's address at delivery. This means we may not have captured changes in smoke exposure that resulted from movement within and outside of the Latrobe Valley during the fire.

Where to from here?

These findings will be shared with relevant organisations and the scientific community to ensure they are used to shape services for the future health of the Latrobe Valley. Additionally, findings will help guide responses to severe smoke events in the future. We will also be investigating whether exposure to smoke from the coal mine fire was linked to onset of pregnancy complications, including gestational diabetes mellitus.

The Latrobe ELF Study is led by the Menzies Institute for Medical Research at the University of Tasmania with collaborators from Melbourne University and the Telethon Kids Institute.

We are grateful to CCOPMM for providing access to the de-identified data used for this project and for the assistance of the staff at the Consultative Councils Unit, Safer Care Victoria. The views expressed in this paper do not necessarily reflect those of CCOPMM

The HHS is led by Monash University with collaborators from Menzies, Federation University, The University of Adelaide, and CSIRO.

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