



LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry: Inquiry into the Health Impacts of Air Pollution in Victoria

Hearing Date: 28 June 2021

Questions taken on notice

Directed to: Professor Michael Abramson and Associate Professor Fay Johnston, Centre for Air Pollution, Energy and Health Research

1. Dr Cumming Page no. 36

Question asked.

Happy to provide the committee with more information further down the track re Potential airborne hazards that affect health & might have other research or that you can point us in the right direction in some way.

Could you add anything to this inquiry that might help all of these different concerns my constituents have about what might be contributing to the air around us as well as any knowledge that you have around filters and mitigation that we could actually use on factories or air stacks when it comes to the West Gate Tunnel Project or world-best practices in any which way or form?

Response:

Whilst not within our main area of expertise, there is technology available to reduce emissions from factory chimneys and ventilation stacks. The potential health effects of air pollution from changes in traffic associated with the Lane Cove Tunnel in Sydney were investigated by research led by our fellow CAR investigators Guy Marks and Christine Cowie. Residents living around the eastern tunnel ventilation stack reported increased nose, throat and chest symptoms following operation of the tunnel. However the authors could not attribute this finding to stack emissions(1). Their randomised controlled trial (Picnic study) investigated the effects of short-term exposures to emissions from the western ventilation stack. Apart from increased reporting of dry nose, there were no effects on lung function, airway inflammation or other respiratory symptoms(2). We have no specific knowledge of the Westgate Tunnel Project and would refer the committee to the Environmental Effects Statement.

2. Dr Ratnam Page no. 40

Question asked.

You talked about approximately 4 per cent, which you think is probably a Victorian average for wood-smoke heater use, which is useful to know because we do not have other data. But you talked about 25 per cent exposure. Do you remember that data or quote in your submission? I was just wondering if you could explain what that meant.



Response:

By exposure – we meant the percentage of particulate air pollution in the air that was estimated to have come from wood heaters. This information came from a research paper by CAR colleagues and collaborators(3). The paper described an assessment of the impact on mortality of eight major sources of particulate air pollution (PM_{2.5}) in Sydney for the year July 2010 to June 2011. They reported that although just 4.4% of Sydney residents used wood as their primary source of heating(4), wood heaters were the largest single source of PM_{2.5} in the city and are responsible for about 24% of the total PM_{2.5} concentrations.

The estimated proportion of Victorian households who used wood as their main source of heating was very similar to the estimates for New South Wales. For Melbourne this was 4% and for the remainder of Victoria approximately 25%(4).

Dr Cumming Page no. 40

Question asked.

Will provide slides.

Response:

See attached file.

3. Dr Cumming Page no. 41

Question asked.

Could the EPA do with more resources? Do you also feel that we should spend some more money on research to find out more about the things that we do not know, such as industry pollution or pollutants from container ships or other sources?

Response:

The first part of the question was answered during our appearance and subsequent clarification was provided by the Chair. There is a substantial body of literature relating to the health effects of air pollution from heavy industry. A classic example is studies conducted by C. Arden Pope and colleagues of PM₁₀ from a steel mill and mortality in the Utah Valley, USA(5). Our CAR colleague Geoff Morgan led a study which found that ships were an important source of PM_{2.5} in Sydney and action to reduce the sulphur content of fuel would reduce the effect on mortality(6).

While more research would clarify many unanswered health questions, there is an urgent need for funding to implement what we already know about the harms from the most important sources of air pollution. These include wood heater management, mitigation of bushfires and their impacts, and replacing fossil fuels with cleaner sources of energy, and promoting active and public transport.



References

1. Cowie CT, Rose N, Ezz W, Xuan W, Cortes-Waterman A, Belousova E, et al. Respiratory health before and after the opening of a road traffic tunnel: a planned evaluation. *PLoS ONE* 2012;7(11):e48921.
2. Cowie CT, Ezz W, Xuan W, Lilley W, Rose N, Rae M, et al. A randomised cross-over cohort study of exposure to emissions from a road tunnel ventilation stack. *BMJ Open* 2012;2(4):e001201.
3. Broome RA, Powell J, Cope ME, Morgan GG. The mortality effect of PM_{2.5} sources in the Greater Metropolitan Region of Sydney, Australia. *Environment International* 2020;137:105429.
4. Australian Bureau of Statistics. *Environmental Issues: Energy Use and Conservation*. Canberra 2014. 4602.0.55.001.
5. Pope CA, Schwartz J, Ransom MR. Daily mortality and PM10 pollution in Utah Valley. *Arch Environ Health* 1992;47:211-217.
6. Broome RA, Cope ME, Goldsworthy B, Goldsworthy L, Emmerson K, Jegasothy E, et al. The mortality effect of ship-related fine particulate matter in the Sydney greater metropolitan region of NSW, Australia. *Environment International* 2016;87:85-93.