

**INQUIRY INTO HEALTH IMPACTS OF EXPOSURE TO
POOR LEVELS OF AIR QUALITY RESULTING FROM
BUSHFIRES AND DROUGHT**

Organisation: Associate Professor Fay Johnston, Environmental Health Group,
Menzies Institute for Medical Research, University of Tasmania

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The Hon Greg Donnelly MLC
Chair, Portfolio Committee No. 2 - Health
Parliament House
Macquarie Street
SYDNEY NSW 2000

Dear Mr Donnelly,

SUBMISSION TO THE INQUIRY INTO THE HEALTH IMPACTS OF EXPOSURE TO POOR LEVELS OF AIR QUALITY RESULTING FROM BUSHFIRES AND DROUGHT

Thank you for the opportunity to provide a submission to the *Inquiry into the health impacts of exposure to poor levels of air quality resulting from bushfires and drought*.

Population exposure to poor air quality resulting from bushfire smoke constitutes a major public health concern. The most significant health risk derives from bushfire emissions of fine particulate matter, or PM_{2.5}, due to the capacity of this form of pollution to penetrate deep into the respiratory system and bloodstream.

There is incontrovertible evidence that PM_{2.5} exposure has short and long-term health impacts that incur substantial social and economic costs.¹ Mortality rates, hospital admissions, emergency department presentations, ambulance call outs and general practitioner consultations all increase during periods of severe PM_{2.5} pollution, particularly but not only for respiratory conditions. Some of this evidence, including for increased mortality, derives from studies of prior episodes of bushfire smoke in Sydney, when pollution levels were less severe and far less prolonged than those experienced in the 2019-20 bushfire season.²

Groups particularly vulnerable to the impacts of PM_{2.5} pollution include those with respiratory disease, cardiovascular disease, diabetes, women who are pregnant, children and older people.³ The longer-term health impacts of sustained poor air quality are known to include respiratory illnesses, some cancers and heart disease; *however long-term health impacts of severe exposure lasting weeks to months, remain a key research gap*.

As a research group we are amongst Australia's leaders in bushfire-smoke research, having published extensively on the public health and clinical impact of smoke from bushfires, the long-term health implications of early-life exposure to severe air pollution, and interventions to reduce the public health impact of severe smoke episodes.

We actively translate our knowledge into policy and practice, including via the AirRater app (<http://airrater.org>), which we developed in 2015. AirRater supports vulnerable sectors of the

¹ Reviewed in Johnston 2017; Vardoulakis et al. 2020, attached.

² See Johnston et al. 2011, Johnston et al. 2014, Horsley et al 2018, attached.

³ Vardoulakis et al. 2020, attached.



community to reduce their exposure to environmental health hazards by providing local information in near-real time. This includes the provision of hourly PM_{2.5} pollution information from government monitoring networks; in NSW using data provided by the Office of Environment and Heritage.

During the 2019/20 bushfire season, AirRater was downloaded by >30,000 residents of NSW, primarily in Sydney, **demonstrating strong public demand for easily accessible, near-real time air quality information.** Our team was inundated with hundreds of emails from individuals seeking personal advice and support, and in addition, we were contacted by numerous organisations, including the Maritime Union of Australia, the Transport Workers Union and multiple sporting bodies, all in need of health protection decision-making advice.

These interactions clearly demonstrated that during the summer of 2019/20:

- *The current air quality monitoring network has inadequate reach, failing many vulnerable individuals in regional and remote areas who need access to air quality information to protect their health.*
- *The provision of a 24-hour rolling Air Quality Index was inadequate to support vulnerable individuals to make key health protection decisions.*
- *There was considerable public confusion due to nationally inconsistent air quality reporting and advice.*
- *Organisations, in particular those with outdoor workers, need better guidance to support operational decisions during prolonged bushfire smoke episodes.*

These findings have since been validated by an extensive evaluation we have conducted of the experiences of AirRater users during the 2019/20 bushfire period (publication in preparation).

On this basis and our broader research, we argue that the following measures are imperative to protect health during future bushfire smoke episodes:

- 1. Increased density of air quality monitoring stations.**
- 2. Provision of timely air quality information and support for tools, such as apps, to make environmental information such as real time air quality and air quality forecasts readily accessible to community members**
- 3. Provision of nationally consistent air quality information.**
- 4. Development of appropriate workplace health and safety guidance for outdoor workers.**
- 5. Meaningful action to address the drivers of climate change to minimise future sustained periods of poor air quality.**

Thank you for the opportunity to submit our evidence-based perspective to this Inquiry. We would be pleased to provide further verbal or written evidence to the Inquiry should any further details assist with the Inquiry's progress.

Yours faithfully

A/Prof Fay Johnston – Founding Research Lead

Environmental Health Group
Menzies Institute for Medical Research
University of Tasmania

Co-signatories:

Prof David Bowman – Professor of Environmental Change Biology, School of Natural Sciences, University of Tasmania

Dr Penelope Jones – Research Fellow, Menzies Institute for Medical Research, University of Tasmania

Dr Amanda Wheeler – Senior Research Fellow, Mary McKillop Institute for Health Research, Australian Catholic University

Dr Grant Williamson – Senior Research Fellow, School of Natural Sciences, University of Tasmania

Dr Chris Lucani – Research Fellow, School of Natural Sciences, University of Tasmania

Ms Sharon Campbell – PhD Candidate, Menzies Institute for Medical Research, University of Tasmania