

Royal Commission into National Natural Disaster Arrangements

Submission by Asthma Australia, June 2020

EXECUTIVE SUMMARY

Asthma Australia welcomes the opportunity to submit to the Royal Commission into National Natural Disaster Arrangements. This submission represents the needs and experiences of people with asthma in our community during the unprecedented Black Summer bushfire season and is informed in part by a survey of over 12,000 people during December 2019 and January 2020. (The survey report will be launched on 4 June and we will be willing to share the survey report on request.)

We hope to cast light on the less visible sufferings of people away from the fire front, in particular the people with asthma who went to great lengths – often unsuccessfully – to avoid the toxic smoke that blanketed some regions for weeks and caused asthma flare ups. A recent study estimated the smoke from these fires caused over 400 deaths, with the study’s lead author suggesting 80% of the Australian population was exposed to the smoke.ⁱ

We have addressed the Royal Commission Terms of Reference (TOR) that are most relevant to the experience of people with asthma during this unprecedented national natural disaster. Our main focus is on the impact of prolonged and sustained bushfire smoke and, where possible, we have made recommendations for policy interventions that would improve the health and wellbeing of people with asthma – and likely many other people in the community – in the event of another bushfire season with significant smoke pollution.

SUMMARY OF KEY TERMS OF REFERENCE AND RECOMMENDATIONS

TOR (a) The responsibilities of, and coordination between, the Commonwealth and State, Territory and local Governments relating to preparedness for, response to, resilience to, and recovery from, natural disasters, and what should be done to improve these arrangements, including with respect to resource sharing.

Recommendation 1

The Meeting of Environment Ministers develop a uniform approach to measuring and reporting air quality which consists of:

- a) Separating out PM2.5 in reporting of air quality data;*
- b) Requiring PM2.5 to be reported as an hourly average;*
- c) Using consistent terminology and measures to describe categories of air quality; and*
- d) Introducing strong compliance and enforcement mechanisms to prevent non-compliance.*

TOR (b) Australia's arrangements for improving resilience and adapting to changing climatic conditions, what actions should be taken to mitigate the impacts of natural disasters, and whether accountability for natural disaster risk management, preparedness, resilience and recovery should be enhanced, including through a nationally consistent accountability and reporting framework and national standards.

Recommendation 2

The Australian government take action to mitigate climate change and the associated weather conditions causing longer bushfire seasons and sustained periods of poor and hazardous air quality.

TOR (d): Any relevant matter reasonably incidental to a matter referred to in paragraphs (a) to (c).

Recommendation 3

The Australian Institute of Health and Welfare (AIHW) be commissioned to work with states and territories to develop models for improved data collection in Australian hospitals and other health settings to adequately and promptly enable capture of data relevant to crises, such as bushfires.

Recommendation 4

The Medical Research Future Fund commission research into:

- *Preparing for sustained periods of exposure to poor and hazardous air quality;*
- *Better understanding the adverse health impacts of exposure on children and the broader community;*
- *What populations are considered most at risk of negative health consequences as a result of poor and hazardous air quality; and*
- *Trends in consumption of pharmaceuticals during bushfires.*

Recommendation 5

The Australian Government Department of Health engage with pharmacists, pharmaceutical companies and pharmaceutical wholesalers in the lead up to bushfire seasons to ensure that there will be sufficient stocks of medication available that are used to prevent and manage asthma.

Recommendation 6

The Australian Government Department of Health allow and appropriately regulate the sale of preventer asthma medication over the counter during crisis events to ensure that people get the medication that they need when they need it.

Recommendation 7

The Australian Government continue to support telehealth and expand services so people with asthma can access medical care in periods of poor air quality.

Recommendation 8

The Australian Government fund campaigns to increase awareness of Medicare rebates for mental health care and telehealth access to mental health care so people with asthma can access mental health support during periods of prolonged bushfire smoke.

Recommendation 9

The Medical Research Future Fund commission research into health information and advice being provided to the community, as well as measures to reduce exposure to bushfire smoke. Research undertaken should consider:

- *The effectiveness of health advice being provided during times of sustained exposure to smoke;*
- *The interpretation and application of this health advice by the community; and*
- *The level of environmental health literacy in the broader community.*

Recommendation 10

Health departments develop and implement an Air Smart campaign including:

- *Year-round information to improve environmental health literacy;*
- *Funding for non-government health organisations to deliver air quality education;*
- *Targeted information for people with asthma on actions to take to prepare for expected poor air quality events; and*
- *Increased crisis response for periods of sustained poor air quality, such as during bushfires.*

Recommendation 11

Health departments provide financial assistance to people with asthma for air purifiers:

- a) Health departments develop a scheme to provide subsidies or loans to people with asthma to help with the cost of renting or purchasing air purifiers.*
- b) The Australian Government Department of Health provide financial assistance to people with asthma towards the energy costs associated with using air purifiers and air conditioning to avoid asthma flare ups by:*
 - i. Extending the 'Essential Medical Equipment Payment' to include asthma as an 'eligible medical condition'; and*
 - ii. Adding air purifiers with a HEPA filter to the list of 'eligible medical equipment'.*

Recommendation 12

The Australian Government Department of Health develop a strategy on access to and use of face masks by people with asthma during air pollution events, covering:

- a) Maintaining a stockpile of appropriate face masks and developing a strategy to distribute them to people in all areas affected by poor air quality, particularly in high risk groups.*
- b) Providing clear guidance on the optimal way to use face masks, including risks and limitations.*

Recommendation 13

The Chief Medical Officer and State and Territory Chief Health Officers develop and release a national policy framework to guide institutional responses to air quality protection in early learning centres, schools, universities, workplaces, sporting associations and for outdoor events.

Recommendation 14

Building standards be reviewed so that homes can be better protected against air pollution during periods of poor air quality.

Recommendation 15

An accreditation scheme be developed to identify public buildings which meet certain clean air criteria such as: they are well-sealed, have air filtration and air conditioning, and can be easily accessed by the community in times of poor air quality.

ADDRESSING THE TERMS OF REFERENCE

TOR (a): The responsibilities of, and coordination between, the Commonwealth and State, Territory and local Governments relating to preparedness for, response to, resilience to, and recovery from, natural disasters, and what should be done to improve these arrangements, including with respect to resource sharing.

Asthma Australia priority: Governments provide timely and appropriate information on air quality, including approaches to planning and risk reduction of adverse health impacts from exposure to poor air quality.

Government's role in measuring and reporting on air quality

Bushfire smoke emits particulate matter, and exposure to PM2.5 is especially concerning as these tiny particles can penetrate deep into the lungs and blood stream, causing adverse health impacts in the short and long-term.ⁱⁱ However, air quality information provided to the public during the catastrophic Black Summer bushfires was inconsistent, meaning people in different jurisdictions received different information. Governments should record air quality information, and release it to the public, in a nationally consistent way.

At the Federal level, the National Environment Protection Council (NEPC) identifies National Environment Protection Measures (NEPMs) and assesses and reports on these measures.ⁱⁱⁱ NEPC established national ambient air quality standards, which include standards for PM10 and PM2.5. NEPM also sets goals for not exceeding agreed maximum allowable exceedances of PM2.5.

The NEPC air quality standards require PM2.5 be measured as a 24-hour average. This is in line with the World Health Organization's (WHO) air quality guidelines.^{iv} However, air quality can vary throughout the day resulting in times when it is safe to go outside and times when air quality is poor or hazardous. Presenting air quality data solely as a 24-hour average is inadequate for people who use this data to inform their activities, including many people with asthma because it fails to account for changes in air quality throughout the day, and doesn't identify the times when it is safe to go outside – or when they need to be indoors.

There are also variations in the way jurisdictions report air quality data, including:

- The interval at which air quality is reported (eg hourly average vs daily average).
- The terminology and thresholds used to describe the different categories of air quality.
- What is being measured (eg composite data for a number of pollutants vs a specific measure for PM2.5).

Policy response

The Meeting of Environment Ministers (MEM) comprises environment ministers from the Federal, state and territory Governments. It provides a forum to pursue harmonisation of air quality reporting across states and territories. It should also introduce mechanisms for compliance with air quality standards. Without strong compliance and enforcement mechanisms, there is no incentive for Australian governments or polluters to minimise exposure to pollutants, such as PM2.5, which cause short- and long-term adverse health impacts.

Recommendation 1

The Meeting of Environment Ministers develop a uniform approach to measuring and reporting air quality which consists of:

- (a) Separating out PM2.5 in reporting of air quality data;*
- (b) Requiring PM2.5 to be reported as an hourly average;*
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- (d) Introducing strong compliance and enforcement mechanisms to prevent non-compliance.*

TOR (b): Australia’s arrangements for improving resilience and adapting to changing climatic conditions, what actions should be taken to mitigate the impacts of natural disasters, and whether accountability for natural disaster risk management, preparedness, resilience and recovery should be enhanced, including through a nationally consistent accountability and reporting framework and national standards.

Asthma Australia priority: Take action to address climate change to reduce the frequency and severity of catastrophic bushfires and associated hazardous air quality.

Climate change is an existential threat that creates ill health through impacts on air quality, drinking water, food supply and safe shelter.^v A 2020 WHO-UNICEF-Lancet analysis raised climate change and ecological degradation among the greatest issues threatening children’s health and futures, and stated, ‘Governments must harness coalitions across sectors to overcome ecological and commercial pressures to ensure children receive their rights and entitlements now and a liveable planet in the years to come.’^{vi}

Climate change is resulting in hotter days and more frequent heatwaves.^{vii} In 2008, Professor Ross Garnaut was commissioned by the Federal, state and territory governments to examine the impacts of climate change on Australia and to recommend policy frameworks. His final report predicted that longer and more intense fire seasons would be “directly observable by 2020”.^{viii} There has also been a rising trend in bushfire danger, with the annual accumulated McArthur Forest Fire Danger Index (FFDI) increasing across most of Eastern Australia, indicating an increase in the frequency and severity of dangerous fire conditions.^{ix}

In some areas of southern Queensland and southern New South Wales and Victoria, the trend towards a lengthened fire season has already been detected.^x Future projections also show an increase in FFDI due to increased greenhouse emissions over the course of the century.^{xi} This data suggests that sustained periods of poor and hazardous air quality as a result of bushfires are likely to be more frequent in the future.

Policy response

Any action to minimise the adverse health impacts of bushfire smoke on the health of the community and people with asthma needs to include a robust response to mitigating climate change. A recent rapid review of the health advice needed to protect communities from bushfire smoke concluded that “Working towards ambitious climate change mitigation targets is an essential long-term strategy for managing the underlying causes of the increasing bushfire risk in Australia and overseas.”^{xii}

The 2015 Paris Agreement's long-term temperature goal is to limit the global average temperature increase to well below 2°C above preindustrial levels and to pursue efforts to limit the temperature increase to 1.5°C.^{xiii} To contribute to this goal, Australian governments will need to take decisive and evidence-based actions to reduce emissions, achieve this target and show leadership in this area.

Recommendation 2

The Australian government take action to mitigate climate change and the associated weather conditions causing longer bushfire seasons and sustained periods of poor and hazardous air quality.

TOR (d): Any relevant matter reasonably incidental to a matter referred to in paragraphs (a) to (c).

Asthma Australia priority: Improve the collection of data and undertake research on the short and long-term health impacts of poor air quality, particularly for children.

Collection of information about exposure to bushfire smoke by health services

The health impacts of sustained exposure to poor and hazardous air quality may be delayed or seem unrelated to the exposure. As a result, health services including hospitals and general practitioners may not always record exposure to bushfire smoke as a factor in a person's presentation to the service, and exposure to smoke may not be revealed as a cause of death on a death certificate.

Further, there is limited research into the health impacts of prolonged exposure to poor and hazardous air quality resulting from bushfires. Research has focused on short term exposure because bushfire events have typically been brief in the past.^{xiv}

One piece of research that focused on long term effects is a longitudinal study examining the impacts of exposure to six weeks of smoke from the 2014 Hazelwood coal mine fires. The results indicated that more than a year after the fire, adults had increased rates of respiratory symptoms and children who were exposed in the womb or up to the age of two had increased respiratory tract infections and increased lung stiffness.^{xv}

There is particular public health concern about exposure to particulate matter because there is no evidence of a safe level of exposure to PM2.5 or PM10.^{xvi}

Policy response

Data collection needs to be improved to ensure that bushfire smoke is recorded as a cause of morbidity or mortality across the healthcare system and help us understand the impacts of bushfire smoke on short- and long-term health conditions. The Australian Institute of Health and Welfare (AIHW) should be commissioned to investigate current practice when recording bushfire smoke exposure in presentations to emergency departments and recording in other health data, such as the National Minimum Data Set.

Recommendation 3

The Australian Institute of Health and Welfare (AIHW) be commissioned to work with states and territories to develop models for improved data collection in Australian hospitals and other health settings to adequately and promptly enable capture of data relevant to crises, such as bushfires.

Funding for research into the health impacts of bushfires

The Australian Government's commitment of \$5 million from the Medical Research Future Fund for research into the health impacts of the bushfires is a welcome first step to better understanding the adverse health impacts of exposure to bushfire smoke. However, more research is needed.

Priority questions for research include:

1. How can the Australian Government and other organisations (eg emergency management organisations) better support communities to plan and prepare for periods of sustained poor and hazardous air quality?
2. What is the efficacy of health advice on reducing the impact of exposure to bushfire smoke and broader health outcomes?
3. What are the short- and long-term health impacts of bushfire smoke on children?
4. What are effective measures in addressing the short- and long-term health impacts for children?
5. What are the short- and long-term health impacts of bushfire smoke on the broader population?
6. Which populations are most at risk of the negative health consequences of heat, bushfires and poor air quality?
7. What are the trends and patterns of consumption of over-the-counter (OTC) pharmacy products and prescriptions as a result of the bushfires?
8. Is it feasible to develop a coordinated approach of real-time tracking of adverse health impacts associated with bushfire smoke?

Recommendation 4

The Medical Research Future Fund commission research into:

- *Preparing for sustained periods of exposure to poor and hazardous air quality;*
- *Better understanding the adverse health impacts of exposure on children and the broader community;*
- *What populations are considered most at risk of negative health consequences as a result of poor and hazardous air quality; and*
- *Trends in consumption of pharmaceuticals during bushfires.*

Asthma Australia priority: Managing the adverse health impacts of poor air quality through targeted support for people at greater risk, including people with asthma.**Health impacts of exposure to bushfire smoke**

Certain people in the community are disproportionately impacted by the adverse health impacts of periods of poor or hazardous air quality. People who have respiratory conditions including asthma, pregnant women, infants and children, older people and people with cardiovascular disease and Type 2 diabetes are particularly vulnerable to the negative impacts of exposure.^{xvii} For people with asthma, increased exposure to PM2.5 from bushfire smoke has been shown to have a greater association with worsening asthma symptoms than particulate matter from urban sources, such as vehicle emissions.^{xviii}

A preliminary analysis of the Black Summer bushfires estimated that bushfire smoke caused 1,305 emergency department attendances for asthma as well as 2,027 hospital admissions for respiratory problems, and 1,124 hospital admissions for cardiovascular problems. The same study estimated 417 excess deaths due to the smoke.^{xix}

Asthma Australia conducted a survey of 12,152 people during the December 2019-January 2020 bushfire period (the Survey). People with asthma reported taking a range of actions to manage/relieve symptoms caused by bushfire smoke, summarised in the table below:

Actions taken by people with asthma to manage/relieve symptoms due to bushfire smoke in Dec 2019/Jan 2020	Number	Percentage (%)
Increased reliever inhaler	5,508	76
Increased existing preventer dose/frequency	3,011	41
Visit a GP	1,699	23
Steroids (oral or injection)	1,189	16
Administered asthma first aid	587	8
Was prescribed a preventer	522	7
Attended ED	431	6
Hospital admission	175	2
Source: Asthma Australia, n=12,152		

The Survey results also illustrate an overall increase in the prevalence of asthma symptoms during the Black Summer bushfire season. More than 4 out of 5 participants reported having respiratory symptoms due to bushfire smoke: while 94% of participants with asthma reported symptoms, 70% of participants without asthma also reported respiratory symptoms.

Sustained poor and hazardous air quality from bushfire smoke can impact the ability to maintain good health, for example through physical activity and connecting with other people. The Survey found the impact on people with asthma was significant:

- 66% had reduced capacity in their daily activities.
- 33% were sick for more than one week.
- 35% had to cancel an important sport or social engagement.
- 29% were absent from work or school.
- 25% experienced financial stress.
- 10% lost salary.^{xx}

This can have a negative impact on physical and mental health and wellbeing. One study found that people exposed to long-term, poor air quality are more likely to experience depression.^{xxi} Many participants in the Survey cited mental health effects including new or increased anxiety and depression. This was often perceived by participants to be an indirect result of bushfire smoke which prevented them from going out to exercise or walk the dog. Reporting of mental health issues was more common in the 18-35 year old age group.

“It has affected my mental health. I have clinical depression and part of my self-care plan is to spend some time outdoors in the sun each day. Haven’t been able to do that much since the bushfire season started.” (18-35 year old respondent)

Policy response

During periods of sustained poor and hazardous air quality, people with asthma may require additional preventer medication, use of a reliever medication or more systemic corticosteroids. The demand for these medications is greater during these periods because of the tendency for bushfire smoke to trigger asthma flare ups in many people.

During the 2019-20 bushfire season, the Federal Government introduced policy changes that allowed those affected by the bushfires to access full quantities of prescription-only medicines without a prescription and with Pharmaceutical Benefits Scheme (PBS) subsidy.^{xxii} These arrangements were in place until 31 March 2020. In the lead-up to the bushfire season, it is important that areas likely to be impacted by smoke have sufficient stocks of medications to manage and treat asthma. If another bushfire crisis event occurs, preventer medication should again be sold over the counter during the crisis period to ensure people can access the medication they need, when they need it.

There is also a need for access to telehealth during bushfire events to ensure that people with asthma can maintain continuity of care without having to expose themselves to poor or hazardous air quality, or if they are unable to access health care providers in person due to fires. Funding to support the rollout of telehealth during the response to the COVID-19 pandemic should become permanent. Further, telehealth should continue to include mental health and efforts made to ensure the public is aware that there are Medicare rebates available for mental health care.

Recommendation 5

The Australian Government Department of Health engage with pharmacists, pharmaceutical companies and pharmaceutical wholesalers in the lead up to bushfire seasons to ensure that there will be sufficient stocks of medication available that are used to prevent and manage asthma.

Recommendation 6

The Australian Government Department of Health allow and appropriately regulate the sale of preventer asthma medication over the counter during crisis events to ensure that people get the medication that they need when they need it.

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The Australian Government continue to support telehealth and expand services so people with asthma can access medical care in periods of poor air quality.

Recommendation 8

The Australian Government fund campaigns to increase awareness of Medicare rebates for mental health care and telehealth access to mental health care so people with asthma can access mental health support during periods of prolonged bushfire smoke.

Providing health information and advice on air quality

The provision of health information about poor or hazardous air quality should not be left to times of crisis. Instead, information on air quality should be provided year-round, with a focus on improving environmental health literacy so that the community is able to interpret health advice when it is provided in times of crisis. The Public Health Association of Australia has proposed an Air Smart program that would educate Australians around air quality the same way the Sun Smart program provided education around sun protection.^{xxiii} In addition to improving understanding of pollution levels, Air Smart campaigns could educate the public on strategies to minimise the impact of poor and hazardous air quality.

Health advice provision in the leadup to bushfire season can educate people about what to do in a crisis and understand how to best manage their health and reduce their risk of adverse health impacts of smoke exposure. This is particularly important for people who are vulnerable to poor and hazardous air quality.

This information should also include general health advice that is likely to reduce the adverse health impacts including maintaining a healthy diet and keeping well hydrated.^{xxiv}

Ongoing education campaigns should encourage people with asthma to ensure that their Asthma Management Plans are up to date ahead of the bushfire season so that they have plans in place to prevent and manage their health during periods of poor and hazardous air quality. People with asthma can also be advised more frequently to take their preventer medication the two to three weeks leading up to an event.

Health information and advice messaging should increase during times of crisis, such as sustained periods of poor and hazardous air quality due to bushfires, with messaging targeted to conditions.

Over December 2019 and January 2020, calls and referrals to Asthma Australia's helpline increased by 58% per cent from the December-January period in the previous year. There was also a 300% increase in traffic across website and social media pages, with people seeking information and advice on what to do in events of poor and hazardous air quality.

It is also vital that any health information or advice is provided in culturally appropriate ways to people from Culturally and Linguistically Diverse (CALD) backgrounds and people with lower environmental health literacy.

Asthma Australia is well placed to provide ongoing education to people with asthma as well as information on the risks associated with poor and hazardous air quality due to our networks of health professionals, health agencies and people with asthma. Funding is required for ongoing information provision and preparation for a crisis event and for increasing support at high risk times, such bushfire season and other crises.

Recommendation 9

The Medical Research Future Fund commission research into health information and advice being provided to the community, as well as measures to reduce exposure to bushfire smoke. Research undertaken should consider:

- *The effectiveness of health advice being provided during times of sustained exposure to smoke;*
- *The interpretation and application of this health advice by the community; and*
- *The level of environmental health literacy in the broader community.*

Recommendation 10

Health departments develop and implement an Air Smart campaign including:

- *Year-round information to improve environmental health literacy;*
- *Funding for non-government health organisations to deliver air quality education;*
- *Targeted information for people with asthma on actions to take to prepare for expected poor air quality events; and*
- *Increased crisis response for periods of sustained poor air quality, such as during bushfires.*

Asthma Australia priority: Provide support for individual and institutional interventions to reduce the risk of adverse health impacts from bushfire smoke.**Home air filters**

People with asthma may need to operate air purifiers with HEPA filters or run air conditioning during periods of poor air quality to reduce the risk of an asthma flare up. Air purifiers can be highly effective in minimising exposure to bushfire smoke when used as recommended by the manufacturer in a well-sealed room.^{xxv} However, the costs to purchase and power air purifiers during periods of sustained poor air quality can be prohibitive. Running air conditioners can be essential when people have to stay indoors during summer fire events, but the energy costs can again be high.

The Australian Department of Health provides people with an eligible medical condition an annual payment of \$160 towards the energy costs for 'medically required heating or cooling, and each piece of qualifying essential medical equipment'.^{xxvi} However, the current scheme does not include asthma as an eligible medical condition to receive the payment for medically required heating or cooling. Further, the current scheme does not include air purifiers in the list of eligible medical equipment. Extending the 'Essential Medical Equipment Payment' to people with asthma and air purifiers with HEPA filters would be particularly beneficial to people who have lower socio-economic status.

Recommendation 11

Health departments provide financial assistance to people with asthma for air purifiers:

- (a) Health departments develop a scheme to provide subsidies or loans to people with asthma to help with the cost of renting or purchasing air purifiers.*
- (b) The Australian Government Department of Health provide financial assistance to people with asthma towards the energy costs associated with using air purifiers and air conditioning to avoid asthma flare ups by:*
 - i. Extending the 'Essential Medical Equipment Payment' to include asthma as an 'eligible medical condition'; and*
 - ii. Adding air purifiers with a HEPA filter to the list of 'eligible medical equipment'.*

Face masks

One recommendation to reduce the risk of harm from poor and hazardous air quality was to use P2/N95 facemasks. During the Spring/Summer 2019-20 period, the Australian Government distributed more than 3.5 million P2 masks to states and territories for use by people in bushfire affected communities, the Australian Defence Force, Australia Post and Australian Federal Police personnel.^{xxvii} However, there were still shortages of masks in some areas heavily affected by bushfire smoke at times when poor and hazardous air quality peaked.

There are some concerns over the efficacy of face masks, for example, they need to fit the face and be well sealed around the mouth and nose, they are not always suitable for younger children, infants, or people with facial hair, and poorly-fitted masks make it harder to breathe which leads to re-breathing of expired air containing high carbon dioxide levels. They may also give a false sense of security which results in a person staying outdoors for longer.^{xxviii}

Research is needed into different types of masks for different face types and the advice provided to the community about the use of masks to ensure that they are providing the protection needed.

Despite concerns over masks, the stockpiling and provision of the most appropriate masks as part of a broader response to reducing the risks of poor and hazardous air quality is still recommended to ensure they are available to consumers during periods of sustained poor and hazardous air quality. We also need a strategy for how these masks will be distributed to people experiencing the greatest disadvantage and most at risk. This should include organisations in contact with at-risk communities. Asthma Australia has a role to play in communication about access to and use of face masks.

Recommendation 12

The Australian Government Department of Health develop a strategy on access to and use of face masks by people with asthma during air pollution events, covering:

- (a) Maintaining a stockpile of appropriate face masks and developing a strategy to distribute them to people in all areas affected by poor air quality, particularly in high risk groups.*
- (b) Providing clear guidance on the optimal way to use face masks, including risks and limitations.*

Institutional responses

Sustained periods of poor air quality were not common in Australia before the Black Summer bushfires and most institutions including workplaces, universities, schools, early learning centres, sporting associations and venues and cultural events did not have air quality policies in place. During the long periods poor and hazardous air quality over the 2019-20 Spring and Summer, some agencies released policies providing guidelines for managing air quality. For example, the ACT Education Directorate released a policy on 'Managing Air Quality in Schools' with an 'Air Quality Impact and Response Guide for Schools' and a risk assessment framework. The information included actions such as remaining indoors, limiting physical activity and the cancellation of excursions.^{xxix}

In contrast, Singapore experiences regular 'haze' events as a result of forest burning in neighbouring countries to clear land for agricultural use.^{xxx} Singapore's Ministry of Education has developed 'haze management plans' that can be implemented by schools when required.^{xxxi} These plans include a measure that when air quality is considered 'unhealthy', "Students, including those with pre-existing lung or heart conditions, will be in an enclosed indoor space with air purifiers deployed."^{xxxii}

Policies and guidelines should be developed across institutions based on evidence from a central health authority, such as the Federal Government Chief Medical Officer, so that it is consistent. In January 2020, the Chief Medical Officer and State and Territory Chief Health Officers released brief 'guidance on health effects of exposure to bushfire smoke'.^{xxxiii} It provided high level information on the impacts of PM2.5 on people's health and possible actions to reduce these impacts, but needs to be expanded with more detailed advice to guide institutional responses.

Workplaces have a responsibility to provide a safe working environment. Safe Work Australia provided information on 'Bushfires and air pollution' stating 'workplaces must have measures in place to protect worker health and safety and manage risks'.^{xxxiv} Safe Work Australia also specified that workplaces 'must have measures in place to manage the risks to health and safety when air quality is reduced' and outlined actions such as working inside, rescheduling outdoor work and providing personal protective equipment such as P2 face masks.^{xxxv}

For people with asthma who have a flare up due to the smoke, flexible policies are needed to allow them work from home when there are sustained periods of poor or hazardous air quality.

Recommendation 13

The Chief Medical Officer and State and Territory Chief Health Officers develop and release a national policy framework to guide institutional responses to air quality protection in early learning centres, schools, universities, workplaces, sporting associations and for outdoor events.

Recommendation 14

Building standards be reviewed so that homes can be better protected against air pollution during periods of poor air quality.

Recommendation 15

An accreditation scheme be developed to identify public buildings which meet certain clean air criteria such as: they are well-sealed, have air filtration and air conditioning, and can be easily accessed by the community in times of poor air quality.

ⁱ Arriagada N., Palmer A., Bowman D., Morgan G., Jalaludin B., and Johnston F., 'Unprecedented smoke-related health burden associated with the 2019-2020 bushfires in eastern Australia' (Medical Journal of Australia) 12 March 2020.

ⁱⁱ Brook RD, Rajagopalan S, Pope CA 3rd, et al. Particulate matter air pollution and cardiovascular disease: an update to the scientific statement from the American Heart Association. *Circulation* 2010; 121:2331–2378, as cited in Vardoulakis. S, Jalaludin. B, Morgan. Hanigan. I & Johnston. F (2020) Bushfire smoke: urgent need for a national health protection strategy, *Medical Journal of Australia*, doi: 10.5694/mja2.50511

ⁱⁱⁱ National Environment Protection Council (NEPC), <http://www.nepc.gov.au/>

^{iv} World Health Organization, Ambient (outdoor) air pollution, 2 May 2018, [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)

^v World Health Organization, Climate Change and Health, 1 February 2018, <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

^{vi} Clark, Helen et al., A future for the world's children? A WHO–UNICEF–*Lancet* Commission, *The Lancet*, Volume 395, Issue 10224, 605 - 658 <file:///C:/Users/cater/OneDrive/Consultancy/2020%20-%20Asthma%20Australia/Background%20materials/Asthma%20Aus%20policy/UN%20Lancet%20-%20Climate%20Change%20and%20Children%20.pdf>

^{vii} Climate Council, 'This is Not Normal': Climate change and escalating bushfire risk, 12 November 2019 https://www.climatecouncil.org.au/wp-content/uploads/2019/11/bushfire-briefing-paper_18-november.pdf

^{viii} Garnaut, Ross. (2008). The Garnaut Climate Change Review.

^{ix} Australian Government Bureau of Meteorology, Special Climate Statement 71—severe fire weather conditions in southeast Queensland and northeast New South Wales in September 2019,

24 September 2019, <http://www.bom.gov.au/climate/current/statements/scs71.pdf>

^x Australian Government Bureau of Meteorology, Special Climate Statement 71—severe fire weather conditions in southeast Queensland and northeast New South Wales in September 2019,

24 September 2019, <http://www.bom.gov.au/climate/current/statements/scs71.pdf>

^{xi} Australian Government Bureau of Meteorology, Special Climate Statement 71—severe fire weather conditions in southeast Queensland and northeast New South Wales in September 2019,

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^{xii} Vardoulakis. S, Jalaludin. B, Morgan. Hanigan. I & Johnston. F (2020) Bushfire smoke: urgent need for a national health protection strategy, *Medical Journal of Australia*, doi: 10.5694/mja2.50511

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