

*From the President's Office
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NSW Independent Bushfire Inquiry
GPO Box 5341, Sydney
NSW 2001

By Email: inquiries@bushfireinquiry.nsw.gov.au

Re: NSW Independent Bushfire Inquiry

Thank you for the opportunity to provide a submission to the NSW Independent Bushfire Inquiry. AMA (NSW) wishes to acknowledge the courage and tenacity of the NSW RFS in the face of what was the one of the longest and most devastating bushfire seasons the State has ever faced.

We would also like to commend the numerous healthcare professionals who worked tirelessly to attend to the acute health effects of the bushfires during this time and who continue to support those communities as they deal with the long-term physical and mental health impacts.

Lastly, we want to acknowledge the tragic bushfire-related deaths of 34 people – 25 of whom were killed in NSW.

The Inquiry is to consider, and report to the Premier on, the following matters.

1. The causes of, and factors contributing to, the frequency, intensity, timing and location of, bushfires in NSW in the 2019-20 bushfire season, including consideration of any role of weather, drought, climate change, fuel loads and human activity.
2. The preparation and planning by agencies, government, other entities and the community for bushfires in NSW, including current laws, practices and strategies, and building standards and their application and effect.
3. Responses to bushfires, particularly measures to control the spread of the fires and to protect life, property and the environment, including:
 - immediate management, including the issuing of public warnings
 - resourcing, coordination and deployment

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- equipment and communication systems.
4. Any other matters that the inquiry deems appropriate in relation to bushfires.

And to make recommendations arising from the Inquiry as considered appropriate, including on:

5. Preparation and planning for future bushfire threats and risks.
6. Land use planning and management and building standards, including appropriate clearing and other hazard reduction, zoning, and any appropriate use of indigenous practices.
7. Appropriate action to adapt to future bushfire risks to communities and ecosystems.
8. Emergency responses to bushfires, including overall human and capital resourcing.
9. Coordination and collaboration by the NSW Government with the Australian Government, other state and territory governments and local governments.
10. Safety of first responders.
11. Public communication and advice systems and strategies.

AMA (NSW) would like to address those aspects of the Inquiry that relate to public health; the health system – infrastructure and organisation; and the role of medical professionals.

CAUSES Bushfire seasons are starting earlier and finishing later. Extreme weather conditions caused by climate change make these fires more intense and difficult to control.

The AMA's Position Statement Climate Change and Human Health - 2004. Revised 2008. Revised 2015ⁱ outlines the link between climate change, bushfires and drought and the effects of these on human health.

By 2030, temperatures are forecast to rise by 0.6 to 1.5°C across Australia compared with the 1980-1999 average, noting that temperatures already rose by an average of 0.6°C by 1990 compared with 1910.ⁱⁱ

By 2070, temperatures are anticipated to rise by 1.0 to 2.5°C and 2.2 to 5.0°C.ⁱⁱⁱ

The effects of these changes will likely vary by region. Further decreases in average rainfall and more frequent and severe droughts are expected over southern Australia. While average rainfall in northern Australia may increase or decrease.^{iv}

The number of extreme fire-weather days is anticipated to increase across southern and eastern Australia.^v

Climate change is expected to have direct and indirect impacts on health.^{vi vii viii ix x xi}

The direct effects of climate change include injuries and deaths from increased heat stress, floods, fires, drought, and increased frequency of intense storms. The indirect effects include adverse changes in air pollution. Increased frequency and intensity of drought, dust storms and bushfires, with increases in particulate matter (PM) levels, is also likely to lead to increased asthma exacerbations, respiratory medication use and hospital admissions for asthma and other respiratory conditions.^{xii xiii}

In addition, climate-related disasters, including persistent and severe drought are associated with significant mental health risks.^{xiv} These impacts may be especially acute in rural communities where climate change places additional stresses on livelihoods.^{xv xvi}

Rural Australians, low-income individuals and families, people with chronic diseases, children and elderly people, outdoor workers and Indigenous Australians will disproportionately feel the negative health impacts of climate change.^{xvii}

We must act now on climate change to curtail the increasing risk of drought and extreme bushfires and pollution events.

The AMA has called on the Australian Government to:

- Adopt mitigation targets within an Australian carbon budget.
- Promote the health benefits of addressing climate change.
- Develop a National Strategy for Health and Climate Change.
- Promote an active transition from fossil fuels to renewable energy.
- Establish a National Sustainable Development Unit to reduce carbon emissions in the healthcare sector.

The NSW Government has a responsibility to reduce carbon emissions and maintain its commitment to achieve net zero emissions by 2050. The State also has a responsibility in promoting the health benefits of addressing climate change. A State-wide transition from fossil fuels to renewable energy is necessary and the development of a renewable energy target is an important step in this transition. AMA (NSW) recommends the State ramp up adaptation action to address climate change.

HEALTHCARE RESPONSE During the 2019-2020 bushfire crisis, the Ministry co-ordinated its emergency response via the Health Functional Area Coordinator (HSFAC) and a team from the State Health Emergency Operations Centre.

This linked into the State Emergency Operations Centre that coordinated the whole of government response.

In addition, metro local health districts (LHDs) partnered with rural LHDs to manage hospital-based need and volunteers.

PHNs, which have been developing their disaster management pathways ahead of the 2019 bushfire season, enlisted local GPs to work in evacuation centres.

Meanwhile, health stakeholders held meetings to discuss how best to coordinate the general practice and primary health care workforce support response to the NSW Bushfires.

NSW Rural Doctors Network supported this coordination by providing a centralised portal for expressions of interest from healthcare professionals interested in providing assistance and relief in communities.

The aim of this centralised portal was to ensure resource investment was targeted for maximum effectiveness with minimised duplication or interference to the localised responses.

Collectively, the newly-formed NSW General Practice and Primary Care Workforce Emergency Response Partnership Group of about 20 health stakeholders, including AMA (NSW), acknowledged that the response should focus on the short term (January 2020), medium term (February to June 2020) and the long term (June 2020 onwards).

In addition to providing respite locums, the group agreed to aggregate 'on the ground' intel relating to primary health workforce and health service needs; collate and distribute useful resources; develop a 'practice buddy' program; encourage greater engagement of general practice and primary care in disaster management protocols; and coordinate industry debriefs and learnings. This work is ongoing.

ROLE OF GPs General practitioners must be involved in future disaster and emergency planning to ensure primary healthcare is coordinated and ready when bushfires occur.

GPs manage the burden of healthcare throughout Australia, so when access to this care is disrupted the impact is extensive. GPs have a high level of local knowledge and are a good resource for immediate medical treatment, but their role is not clearly defined in the current system of disaster management.

As trusted members of the community and with strong linkages to the local population, GPs are often first responders in a disaster. Patients often seek out the services of their general practitioner, and in return GPs have demonstrated a high level of willingness and capacity to respond.

In previous disasters – the bushfires of 2013, the Victorian bushfires in 2009 – GP clinics became 'safe spaces' for many in the community. In follow up interviews, general practitioners indicated patients often sought out medical practitioners to help them de-stress during these times.

In the response phase of a disaster, GPs can play a significant role by providing extended hours/afterhours services to take load off EDs, accepting patients from neighbouring practices, providing prescriptions and care at evacuation centres, providing home care to help keep patients out of hospitals, and assisting with surge in EDs if needed.

GPs also have an integral role in the recovery phase of a disaster – providing continuity of care in the medium to long term. There is also the risk of deterioration in chronic disease, or the emergence of new conditions, such as respiratory conditions, ischaemic heart disease, or hypertension. There may also be increased substance abuse problems or mental health conditions, such as anxiety, post-traumatic stress disorder.

During the 2019/20 bushfires, general practitioners in bushfire-affected communities felt the role of the GP was being ignored in the emergency response.

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Bureaucracy and jurisdictional division were partly to blame for the exclusion of general practice; while disaster planning is the domain of State and Territory governments, general practice is the responsibility of the Federal Government.

Greater coordination between the Federal Government and State/Territory Governments is needed to ensure there is seamless and immediate provision of quality primary health care for victims of disasters and the aftermath, including at temporary locations such as evacuation centres and disaster sites.

In NSW, disaster management pathways were developed, released and adapted by many PHNs in November 2019, in anticipation of the bushfire season.

The current system approach is to connect GPs via PHNs, which are linked to LHDs, which link to the broader disaster system.

While there were significant improvements in communication and linkages between primary health networks and general practices, this was not uniform across all areas in NSW. Further development and strengthening of these linkages is necessary to improve response during future disasters.

Anecdotal evidence from general practitioners working in the immediate aftermath of these bushfires suggested there was a gap in communication between primary care providers and pharmacy operators. As a result, GPs had trouble directing patients to operational pharmacies – many of which were closed as a result of power outages.

Other communication difficulties related to inability for healthcare providers and residents to access mobile phone services. Service outages are common during bushfire disasters as fire damage to infrastructure can disrupt connection from signal towers to the rest of the network.

This is particularly dangerous for residents trying to decide whether to stay or leave. This also creates chaos in the immediate aftermath of the fire as patients try to connect with healthcare providers. While telecommunications is beyond the remit of AMA (NSW), we recognise the importance of improving these capabilities to better deliver healthcare services in the response phase of a bushfire crisis.

MENTAL HEALTH The severity and length of the 2019/20 bushfire season had profound effects on the mental health of residents in bushfire-affected communities. Many residents faced imminent threats of fire to their properties and businesses more than once – with fires flaring up repeatedly in different directions around them. Australians in these communities faced trauma from lives lost, families separated, wildlife completely destroyed, homes, property and possessions lost, as well as the destruction of their businesses, livelihoods and community infrastructure.

While bushfire cause acute mental health distress, the mental health impacts can be felt for years post disaster, which highlights the need to support the mental health and wellbeing of Australians both immediately, as well as providing ongoing long-term interventions.

The Federal Government announced \$76m in funding to support the mental health of individuals, families, communities and first responders in bushfire-affected communities. This funding is useful in the recovery phase of the 2019/20 bushfire disaster.

However, there is still a need for a national coordinated response that addresses the short, medium and long-term recovery phases of bushfire disasters.

We need a national emergency response framework that includes mental health, that can be employed in future disasters.

The bushfire crisis also highlights the need to build and sustain a mental health workforce in regional and remote areas of NSW.

AMA (NSW) has called for increased numbers of funded psychiatrist trainee places, along with an increased investment in workforce training and support for other mental health workers, especially mental health nurses, and has previously highlighted the maldistribution of psychiatrists, psychologists and other mental health service providers in regional areas.

Other frontline workers, including Emergency Department staff, GPs, paediatricians, psychiatrists as well as psychologists and mental health nurses must be supported in regional Australia.

ABORIGINAL COMMUNITIES Aboriginal communities and residents were directly impacted by the bushfire crises of 2019/20. Aboriginal Australians have a deep connection to the land and the decimation caused by the bushfires compounded trauma from dispossession and colonial legacies of eradication, assimilation and racism.

Disaster management strategies and resources need to include and address specific areas of need in Aboriginal communities. Aboriginal communities were dealing with very tangible issues in the immediate and medium phase response phase of the bushfire crisis – such as lack of access to power, water, medication and accommodation.

While recovery efforts were implemented widely and immediately in the aftermath of the bushfires, Aboriginal Community Controlled Health Services' faced significant hurdles in providing support to the workforce and communities.

BUSHFIRE SMOKE

AMA (NSW) prepared a submission for the NSW Inquiry into Health impacts of exposure to poor levels of air quality resulting from bushfires and drought and has included information from that below.

There is currently no evidence, despite extensive epidemiological research, of a threshold below which exposure to particulate matter does not cause any health effects. Health effects can occur after both short and long-term exposure to particulate matter.

Bushfire smoke contains particulate matter (PM2.5) and gases that is known to contribute to a range of acute and chronic health problems and, potentially, premature mortality.

Fine particles can penetrate deep into the respiratory system causing an inflammatory response and enter the bloodstream to affect other parts of the body. The higher the

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exposure to air pollution, the greater the health risk. Exposure to smoke can result in mild symptoms, including sore eyes, runny nose, throat irritation, headaches, shortness of breath and cough. For most people, mild symptoms are temporary. However, smoke from bushfires can exacerbate chronic lung and heart conditions, causing severe illness. People with emphysema, angina, and asthma may experience worsening of their conditions causing an asthma attack or heart attack.

Australian research on the acute effects of exposure to bushfire smoke indicates that there is a substantial health burden associated with smoke from bushfires and hazard reduction burns, including premature deaths.^{xviii xix}

Health effects from poor air quality also strain the NSW Health system. Health authorities recorded a 30% increase in ambulance call outs across NSW, and hospitalisations for respiratory issues rose by 25% in early December 2019.^{xx} This coincided with data from the NSW Department of Environment which showed Sydney's air quality during the 2019 bushfire season was three times worse than any moment in the past five years.^{xxi}

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.

Sydney Air Quality 10 December 2019 recorded at 0900am:

Sydney East	1517
Sydney North West	1789
Sydney South West	1042

Source: <https://hsu.net.au/2019/12/ohs-nsw-bushfires/>

When combined with high temperatures, the health risks associated with poor air quality are heightened, with increased effect on mortality.^{xxii}

Research published in the *Medical Journal of Australia* found a 'substantial' health impact in bushfire-affected communities in NSW, Victoria, ACT and Queensland between 1 October and 10 February 2020.^{xxiii} Furthermore, it concluded that three-quarters of the population were exposed to prolonged levels of bushfire smoke, and conservatively estimated bushfire smoke caused 417 excess deaths and more than 1300 emergency hospital visits for asthma alone.

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The devastating 2019/2020 bushfires in NSW were unique in that the extended period of bushfire activity resulted in residents experiencing poor levels of air quality for longer periods of time than previous bushfire seasons.

As bushfire seasons continue to get longer – starting earlier and finishing later – and extreme weather conditions caused by climate change make these fires more intense and difficult to control, the dangers of poor air quality will increase.

At-risk groups Australian research found excess deaths caused by landscape fire smoke exposure were likely to be in vulnerable groups, such as young children, older people, pregnant women, outdoor workers and people in lower socio-economic groups. ^{xxiii xxiv}

Age is a determining factor in the health risks associated with poor air quality. Young children are at greater risk from exposure to smoke as they breathe in more air per bodyweight and their lungs are still developing. Older people face increased risk because of their age and or the existence of a pre-existing chronic health condition, such as diabetes, asthma, chronic obstructive pulmonary disease or other respiratory condition, or cardiovascular illness.

There is evidence that suggests exposure to bushfire smoke during pregnancy is associated with reduced birthweight and increased risk of gestational diabetes in pregnant women. ^{xxv}
^{xxvi}

People who spend more time outdoors are also at risk. This includes outdoor workers and homeless people.

People in lower socio-economic groups are potentially at risk, as they may face insecure housing, or poor housing, lower health literacy and inability to take preventative measures. People in this socio-economic population are more likely to live in areas with high pollution levels (e.g. close to major roads or industrial facilities, where house and land prices are usually less expensive). People in low socioeconomic populations also have higher rates of chronic disease, which can exacerbate negative health impacts from poor air quality. ^{xxvi}

Aboriginal and Torres Strait Islander communities also face significant health impacts from poor air quality, particularly from bushfires and dust. In addition, Indigenous Australians experience higher rates of chronic health conditions making individuals more susceptible to the health effects of poor air quality.

There is limited research on the health effects of poor air quality on vulnerable and disadvantaged communities. One study, which involved an exposure response analysis of the health effects of PM10 from ambient biomass smoke in Darwin, found a disproportionate risk for respiratory and cardiovascular hospital admissions in the Indigenous populations. ^{xxvii}

The AMA supports further research be undertaken to investigate the impact of poor air quality on Indigenous populations as a priority, and recommends a precautionary principle

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should guide the development and implementation of air quality standards and management policies relating to vulnerable or disadvantaged groups, including Indigenous communities, children, and people from low socio-economic backgrounds.^{xxviii}

Medium term exposure and long-term impacts

There is limited research about the impacts of medium-term exposure to smoke pollution (weeks and months).

However, The Hazelwood Health Study investigated the health outcomes of populations exposed to six weeks of smoke from the 2014 Hazelwood coal mines in Victoria and found more than a year after the event occurred, adults had increased rates of respiratory symptoms. Parents also reported that children who were exposed to fire smoke from the mine either in the womb or in their first two years of life had more respiratory tract infections. In addition, the study found a link between fire smoke exposure and increased lung stiffness in children who were aged up to two at the time of the fire.^{xxix}

A 2013 review conducted by the World Health Organisation (WHO) found long-term exposure to fine particles (PM2.5) can result in atherosclerosis, adverse birth outcomes and childhood respiratory diseases.^{xxx}

It also suggested a link with neurodevelopment, cognitive function and diabetes, and indicates that recent research has further strengthened the causal link between PM2.5 and cardiovascular and respiratory deaths.^{xxxi}

The lack of clinical and public health research evidence about the long-term impacts of exposure to poor air quality made public education challenging during the 2019/2020 bushfires. More research into bushfire smoke will provide greater insight into prevention measures and arm doctors with better clinical solutions to care for communities affected by future extreme bushfires and other air quality emergencies.

The AMA supported the Federal Government's \$5 million funding commitment for research into both the physiological and mental health impacts of prolonged exposure to bushfire smoke. We support research that builds on existing knowledge of air quality and human health, in particular, research on the impact of the 2019/20 bushfires. The findings of this research could be applied into clinical and public health practice across Australia, to facilitate comprehensive care and treatment and improve health literacy.

We support extra funding to aid researchers in completing this work ahead of future bushfire and hazardous air quality emergencies.

Effectiveness of protective materials/strategies

During periods of poor air quality due to bushfire smoke, health advice is related to short-term measures aimed at reducing exposure. People who are sensitive to smoke, particularly those with pre-existing heart and lung conditions are advised to take extra care. These

measures include remaining indoors, with windows and doors closed, and avoiding use of evaporative air conditioners which draw air into the house from outside. People are also advised to avoid strenuous exercise outdoors.

Other general advice includes urging residents to ensure they have access to medication and continue taking as prescribed. People with asthma are encouraged to follow their asthma action plan. While anyone experiencing wheezing, chest tightness, or difficulty breathing are advised to seek urgent medical attention, and in the event of a medical emergency call triple-zero (000).

Evidence shows P2 and N95 masks do filter some smoke and are most commonly used in occupational settings where exposure to airborne particles occur on a regular basis. However, they cannot completely eliminate exposure to smoke, as they can be difficult to fit and use appropriately, particularly for children. They are not recommended for use in the general community as an alternative to avoiding outdoor exposure.

We also note that the provision of protective materials such as P2 and N95 masks during periods of poor air quality poses significant issues, such as resource allocation. Prioritisation of scarce resources can place practitioners and health agencies in an ethical dilemma. Practical and medical considerations must also inform decisions about whether to recommend and distribute facemasks during periods of poor air quality to vulnerable populations, outdoor workers and the general public.

Advising residents – particularly outdoor workers – to stay indoors is impractical for long periods of time, as it limits a range of necessary daily activities. As well, it impacts on residents' ability to exercise, particularly those without access to indoor sports facilities.

Furthermore, advising NSW residents to stay indoors is also made problematic due to the housing construction in Australia – with older homes allowing bushfire smoke to leak indoors over time creating unhealthy indoor air quality conditions. Modern apartments, shopping centres, new office buildings, and some public places such as libraries, typically have well sealed, air conditioned environments; however, these are not accessible to all residents – particularly those with restricted mobility or older residents. Other measures, such as temporarily relocating vulnerable groups to safe indoor locations could be impractical for large population centres, expensive and potentially stressful for residents.

Giving residents more specific information regarding air quality forecasts and patterns of PM2.5 concentrations would help people to plan their daily activities and exercise to coincide with lower levels of smoke exposure.

Residents need timely and relevant public health advice when bushfire smoke exposure does occur, particularly those who are most susceptible to the health effects of air pollution. Coordination with health professionals is necessary to ensure early warning systems incorporate relevant information, such as preventative health and protective actions, and are communicated appropriately.

Communication of health messaging is important and must be specific for at-risk groups. It's important to recognise information in electronic media may not reach groups such as older people, and therefore a means of more effective communication targeting that population is necessary.

Yours sincerely,



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ⁱ <https://ama.com.au/position-statement/ama-position-statement-climate-change-and-human-health-2004-revised-2015>

ⁱⁱ Bureau of Meteorology (BOM) and Commonwealth Scientific and Industrial Research Organisation (CSIRO), *The Report - State of the Climate 2014*. 2015, Commonwealth Government of Australia.

ⁱⁱⁱ Ibid.

^{iv} Ibid.

^v Ibid.

^{vi} Smith, K.R., et al., *Human health: impacts, adaptation, and co-benefits.* , in *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*, C.B. Field, et al., Editors. 2014: Cambridge, United Kingdom and New York, NY, USA. p. pp. 709-754.

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