# *Submission to the Senate Standing Committee on Environment and Communications*

# *Inquiry into Recent trends in and preparedness for extreme weather events*

***Australian Medical Association***

***January 2013***

## Introduction

The increasing frequency and severity of extreme weather events has significant implications for public health in Australia. Amid a backdrop of record temperatures, unprecedented heatwaves, and bushfire destruction, the capacity of communities and services to respond to climatic extremes is under intense scrutiny. The current parliamentary inquiry into extreme weather events therefore represents a timely and important opportunity to review Australia's preparedness for such events, including the capacity to meet the health impacts of extreme heat, bushfires, flood, severe storms, and drought. As the peak professional organisation representing medical practitioners in Australia, the Australian Medical Association (AMA) welcomes the opportunity to make this submission and contribute to the ongoing discussion around an important public policy challenge.

It is beyond the scope of this submission to quantify the extent and distribution of future changes to the climate, or to comprehensively address the policy implications of weather extremes. This submission focuses instead on the specific health implications of extreme weather events, and is framed around the inquiry's terms of reference and their specific relevance in terms of health and health services. It summarises the key health risks associated with extreme weather events; assesses the state of preparedness for these risks within and outside the health sector; and recommends steps needed to improve Australia's capacity to meet the health impacts associated with extreme weather events.

Critically, this submission highlights fundamental gaps in Australia's capacity to minimise and respond to the health impacts of extreme weather events. While progress has been made on some fronts, a number of cross-cutting problems remain:

- ***Government policy is fragmented.*** Australia still lacks a nationally coordinated approach to managing the health impacts associated with extreme weather events and climate change. Information on the likely health risks associated with extreme weather events is fragmentary and dispersed, and inhibits effective adaptation at the local, regional, state and national levels. Policy fragmentation is compounded by the complexity of interjurisdictional arrangements, and inconsistencies between policies of different departments within jurisdictions.
- ***Lack of understanding of the health implications of extreme weather events.*** Despite growing awareness about the links between climate change and extreme weather events, there is a general lack of understanding of the scope and scale of implications for human health within communities, across the various tiers of government, and within the health sector itself.
- ***Information deficits.*** Information on the likely health risks associated with extreme weather events is fragmentary and dispersed, and this in turn inhibits effective adaptation at the local, regional, state and national levels. In particular, there is no consistent framework that links health databases with real-time monitoring and prospective assessment of weather, climate, and geographic data, nor are there a consistent early warning systems.
- ***Lack of sustained investment and long-term planning.*** In most jurisdictions, the focus has been on immediate response arrangements rather than preventative measures and longer-term planning (e.g. implementing structural changes that

would reduce the impact of future events, or investing in the capacity and resilience of health services in areas at high risk of extreme weather).

- ***Lack of supportive regulations, legislation, standards and codes.***
- ***Failure to sufficiently engage health professionals and health sector in the planning and preparation for extreme weather events.***

Despite the challenges posed by climate change and extreme weather events, it is imperative measures are put in place to reduce the health impacts and costs arising from future events. This submission identifies a range of options to achieve this, and draws upon the AMA's existing position statements on *Climate Change and Human Health* and *The Involvement of GPs in Disaster and Emergency Planning.* These position statements are appended to this submission.

## *Costs of extreme weather events and impacts on social infrastructure and health*

Changes in the frequency, intensity and duration of future weather events will expose growing numbers of Australians to hazards that affect their health. Although it is difficult to precisely quantify the extent and impacts of these changes, it is predicted that Australia will experience more heat waves, extreme fire weather, severe storms, and drought across southern parts of the continent.[1,2,3] Some of the health effects accompanying these changes will be direct, such as increases in mortality and morbidity associated with heat waves. Other health impacts will be indirect, including damage to health infrastructure, depression and post-traumatic stress disorder, increasing health inequities, and an erosion of the social determinants of good health. When estimating the overall financial costs associated with extreme weather events, it is imperative that consideration is given to the significant costs arising from health impacts.

Although the health impacts associated with more prevalent and severe extreme weather events will be profound, these impacts will not be evenly distributed, and are dependent on specific geographic, demographic, health and social contexts. The growing chronic disease burden and population ageing are critical considerations, and will act to magnify the health effects of extreme weather. Current and future mitigation and adaptation strategies will also determine the extent of localised health impacts and the associated costs. Accounts of the health effects of climate-influenced disasters suggest that a lack of adequate health service planning and support is often a necessary (but not sufficient) cause of the health consequences of such events, especially for vulnerable groups.[4] This is especially so in rural and regional areas where, as was seen in the case of the 2011 Queensland floods and the 2009 Victorian bushfires, deaths and injuries are more likely in areas that are more isolated and lack ready access to emergency services support and centralised preparatory planning and risk management services.[5]

Understanding the interaction between these various factors is essential for mapping the health risks associated with weather extremes, and is a prerequisite for effective planning and preparation and the strategic allocation of resources. Despite the pressing need for such analysis, limited work has been undertaken at a local or regional level to systematically map the health risks and projected costs associated with extreme weather. Planning and preparation for these impacts is hampered by a lack of localised information that combines projected weather changes with relevant health and demographic data.

Although the magnitude and distribution of health impacts – and their resulting costs – is yet to be comprehensively determined, a number of studies have documented the likely health implications of extreme weather trends and projections in Australia, as summarised below.

### Extreme heat and bushfires

Modelling of future climate change predicts that Australians will face extreme hot weather far more often, with the number of days with temperatures over 35°C predicted to double by 2030 for major cities in southern Australia.[1,2,3] As well as becoming more frequent, heatwaves are likely to increase in intensity and duration,

thereby compounding the adverse consequences of such events.

The health implications of these projections are profound. Heatwaves have a greater impact on population health in Australia than any other natural hazard, and are associated with significant increase in mortality and morbidity rates.[6] Figure 1 depicts the estimated increase in mortality associated with extreme heat events, and compares rates for 2011, 2030 and 2050.* As this figure reveals, deaths associated with extreme heat are predicted to more than double if Australia does not improve the way these events are handled.[7]

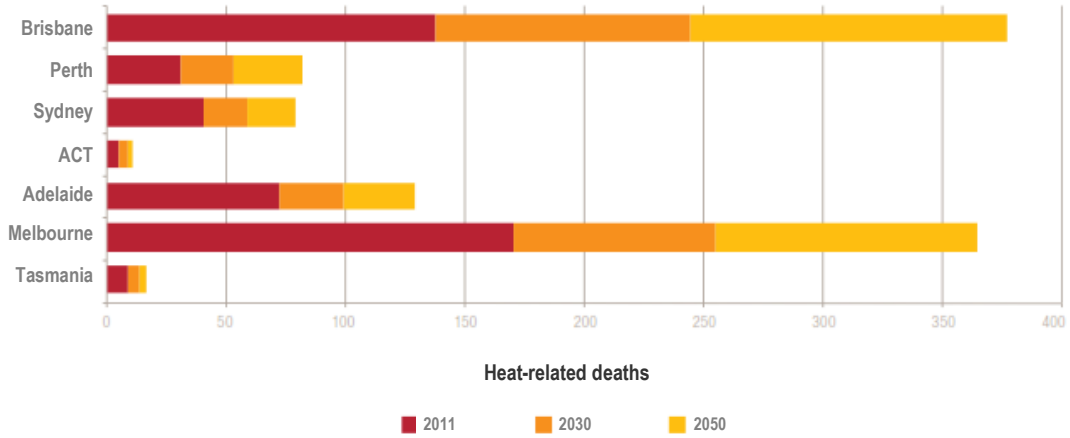


**Figure 1**. Estimates of extreme heat-related deaths for 2011, 2030 and 2050

(adapted from 2011 PricewaterhouseCoopers Report, 'Protecting human health and safety during severe and extreme heat events'[8])

Extreme heat events have been linked to increased GP visitations, ambulance callouts, presentations to emergency departments, and hospital admissions for conditions relating to heat stress and dehydration, or as a result of heat exacerbating pre-existing conditions.[9] The risk of heat-related mortality and morbidity is increased for people with pre-existing illnesses, including cardiovascular disease; psychiatric, neurological and cognitive impairment; diabetes, cancer and obesity.[10] Some medications used to increase these conditions may also increase vulnerability to heat-related health effects by compromising thermoregulation, thermal awareness, mobility, or the ability to adopt protective behaviours. An additional area of concern is occupational heat stroke, particularly for outdoor workers and indoor workers with minimal access to cooling systems while working.[11]

* Based on modelling that incorporates relevant climate data, health data, and population data and projections.

### Bushfires

A particular risk in hot weather in Australia is bush fires and related health risks from smoke and burns. In addition to large scale loss of life and injury, the effects of increased air pollution can impact on respiratory disease among populations that are not directly affected by fire. Bushfire can damage local infrastructure, lead to the contamination of water supplies, and disrupt the delivery of health services. Long-term health consequences include post-traumatic stress, depression and anxiety.[12]

### Wind, storms and floods

The health costs arising from extreme wind, storm and flood events are significant, and can stem from short-term (e.g. drowning and physical trauma), medium-term (e.g. spread of infectious and vectorborne diseases), or long-term (e.g. post-traumatic stress and depression).[12] Such events cause significant damage to infrastructure, thereby hindering the delivery of health services both during and after of such events. Damage to water supplies and sewerage treatment facilities can contribute to contaminated water and facilitate the spread of infectious disease.

### Drought

Drought can indirectly contribute to health risks by reducing the supply and quality of water and food, increasing the probability of bushfires, and creating an environment conducive to the spread of vectorborne diseases.[12] The potential mental health effects of drought are significant, particularly among rural communities. Prolonged drought may also affect the cost and availability of food, leading to dietary changes and intensifying cost of living pressures for people on low incomes.

## Vulnerable populations

There is a growing recognition that the distribution of weather-related health impacts has been, and will continue to be, uneven, falling more heavily on low-income populations and those with chronic health conditions. Other factors associated with increased vulnerability include age, disability, homelessness, social isolation, poor English language skills, and residing in rural and remote communities. Vulnerability to health impacts is considered to be particularly elevated for Indigenous people living in remote communities.

Identifying populations or regions where vulnerability is particularly high can help to quantify the potential costs associated with extreme weather, and to clarify where efforts to increase the adaptive capacity should be focused. Such analysis, however, is limited in Australia, particularly at a localised level. Despite acceptance that the health impacts and costs arising from extreme weather events will be unevenly distributed, limited research has been undertaken to more precisely estimate these differential impacts, nor has systematic modelling been undertaken to furnish local governments with the data and information they require to identify areas of heightened vulnerability.[13,14] It is imperative such knowledge and information gaps are addressed if we are to better understand the potential health-related costs arising from future weather events, and to develop strategies to minimise these costs.

***Recommendation: A systematic analysis of the health costs associated with increased weather events is yet to be undertaken in Australia, and it is imperative that there is a better understanding of the full extent of potential health impacts. Quantitative modelling of the health impacts and costs associated with extreme weather events should be undertaken, including identification of highly vulnerable groups and regions. In conjunction with this, local governments should be equipped with the support tools and relevant data and information required to undertake local health impact assessments and vulnerability mapping.***

***Recommendation: Future estimates of the economic impact of extreme weather events should incorporate costs associated with the widespread health effects of such events.***

## *Preparedness of key sectors for extreme weather events*

Australia is ill-prepared to deal with the health impacts of increasingly frequent and intense extreme weather events. This preparedness gap includes not just infrastructure and capacity, but also limitations in knowledge and awareness, in the availability of reliable decision support tools, and in mechanisms for coordinating the efforts of different sectors and various tiers of government. The health impacts of extreme weather will intensify the demand and strain on health services, and amplify existing disorders and health inequities. Critically, however, mitigation and preparatory activities for these health impacts need to take place within both the health and non-health sectors. Extreme heat events, for example, can place strain on electricity supply networks, resulting in outages that not only limit access to air-conditioned environments and increase the incidence of heat stress, but also interfere with the operation of health services.

### Addressing information and knowledge deficits

A sound understanding of the health impacts and implications of extreme weather is vital to mobilise action and ensure communities, services, and local governments are adequately prepared. There is, however, limited understanding – both within and outside the health sector – about the risks to health from extreme weather and climate change. As the preceding discussion has indicated, information on the likely health costs associated with extreme weather events is fragmentary and dispersed, and this inhibits effective adaptation and planning across a range of sectors and settings. At present, there is no consistent framework that links health datasets with real-time monitoring and prospective assessments of weather, climate and geographic data. This not only prevents health services from receiving timely information, but also limits the capacity of other sectors to factor relevant health considerations into planning and preparation.

To motivate appropriate responses across all sectors of society, further research is required to identify how to communicate most effectively the health risks associated with extreme weather, and the possible health benefits of mitigation and adaptation options to address these risks.

***Recommendation: It is imperative greater efforts are made to communicate to the public, and to policy makers, the health threats posed by extreme weather events.***

***Recommendation: To inform future communication strategies that raise awareness of weather-related health impacts, a comprehensive evaluation should be undertaken of existing risk communications, and research should be undertaken to identify effective messaging, modes of delivery, and specific communication strategies targeting vulnerable populations.***

**Developing standardised and effective early warning systems**

Evidence demonstrates that early warning systems can reduce the morbidity and mortality associated with extreme weather events.[15] Accurate and timely alert systems are therefore critical for managing and minimising the health impacts associated with extreme weather events. To be effective, early warning systems need to be communicated in a timely and relevant manner to services, and should form an integral part of the operational decision-making process in the health sector. For example, emergency departments in hospitals need to be alerted in time to manage an increase in admissions associated with heat waves or other extreme weather events. Community and service providers also need to be equipped to take the appropriate course of action and preventative measures if warnings are issued.

Despite the demonstrated importance of early warning systems, there are significant gaps and inconsistencies in early warning systems across Australia. Effective early warning systems should initiate a range of interventions in response to a warning. However, of those warning systems that are currently in place in Australia, few have been evaluated for their effectiveness. In addition, greater efforts need to be made to include input from the health sector and health professionals to ensure early warning systems incorporate relevant information and are communicated appropriately. This may include, for example, understanding the temperature thresholds for issuing warnings associated with extreme heat, and identifying preventative health and protective actions that need to be initiated when such alerts are issued.

***Recommendation: Early warning systems need to be maintained and strengthened to improve the capacity of services and communities to respond to extreme weather events.***

**Improving the preparedness of the health sector**

Extreme weather events pose numerous challenges to health services, and it is imperative a more sustained and coordinated response is developed to better equip the health sector for future events. Simultaneous or successive weather events have the potential to place an enormous strain on health resources, yet, in general, the health sector is ill-prepared for the potential demands that may arise from such events.

One of the fundamental issues that has undermined preparedness across the health sector is a gap in policy leadership at the federal level and from the federal health bureaucracy. In 2007, COAG identified the need for a national strategy specifically designed to drive and coordinate actions to reduce the health impacts of climate change and climate-related events. Despite the recognised need for this coordinated and strategic response, policies to support the preparedness of the health sector are yet to be put in place, and the existing *National Environmental Health Strategy* does not fulfil this purpose. The AMA believe that a National Strategy for Health and Climate Change should be urgently developed. This strategy should in turn underpin

future efforts to improve the capacity of the health sector to respond to the challenges posed by extreme weather events.

In addition to policy leadership, there are a range of factors that can compromise the preparedness of the health sector, including:

- lack of long-term planning to improve the resilience of services;
- limited understanding of the risks to health from extreme weather events;
- lack of relevant and accessible information on trends and likely impacts to inform future planning and strategic allocation of resources;
- insufficient surge capacity for responses to extreme weather events and increased health care demand;
- lack of accurate and timely alert systems; and,
- failure to adequately engage the health sector and health professionals in mitigation/adaptation strategies and local disaster management plans.

Extreme weather events have the potential to amplify the effects of chronic disease and, in the context of population ageing and the increased incidence of extreme weather, health service planning needs to incorporate the potential healthcare demands that may arise.[16] Despite the synergistic effects of increasing chronic disease and more extreme weather, limited attention has been given to integrating climate and weather-related factors into the current health policy and planning.

An increase in the frequency and intensity of extreme weather has the potential to magnify health inequities, and exacerbate the strain on health services in rural and remote regions.[17] Greater efforts are required to boost the capacity and resilience of health services in areas with a heightened vulnerability, including rural and remote areas, and in remote Indigenous communities.

Preparing the health sector for future extreme weather events requires a thorough understanding of the potential health risks, areas likely to experience pronounced increases in service demand, the possible impacts on infrastructure, and what constitutes effective strategies to protect health in the context of such events. Health professionals are ideally placed to identify the ways in which extreme weather events may impact on people's health, and to communicate this to the public and to policy makers. Within the health sector, however, knowledge and awareness around the health impacts of climate change and extreme weather events is variable. Increasing awareness among health professionals could assist in developing more effective responses, as well as facilitate communication with the public about the risk to health and preventative or health protection strategies. Moreover, greater awareness among public health bureaucrats and policy makers is imperative if relevant considerations are to be factored into policy and planning processes.

***Recommendation: A National Strategy for Health and Climate Change should be developed and implemented to ensure Australia can respond effectively to the health impacts of climate change and extreme weather events, and to improve the preparedness of the health sector.***

***Recommendation: A communication strategy for the health sector should be developed and implemented to raise the level of knowledge and awareness of climate- and weather-related health risks. Increasing awareness among health professionals is necessary to develop more effective adaptive responses, and to***

***support better communication with the public about risks to health and effective strategies for health protection. Funding should be made available for the development and delivery of quality professional development for health and other community services personnel on the health impacts of climate change and extreme weather events.***

***Recommendation: Improve existing public health surveillance systems to ensure they are sufficiently comprehensive and sensitive to monitor the effects of climate change and extreme weather on health morbidity and mortality.***

***Recommendation: When designing and implementing health impact assessments and vulnerability mapping associated with extreme weather, ensure input is sought from health professionals and the health sector. Ensure the outcomes of these assessments and mapping are incorporated into future planning and preparedness strategies for health services.***

**Improving coordination and intersectoral linkages**

***Recommendation: Strong and active communication linkages between hospitals, major medical centres and local weather forecasters and emergency response agencies should be maintained to maximise timely response and efficient use of health resource in extreme weather events.***

## *Preparedness and adequacy of resources in the emergency services to prevent and respond to extreme weather events*

Given the projected increases in extreme weather events, and the increased likelihood of simultaneous or successive events, greater attention needs to be given to the preparedness and adequacy of emergency services and the resultant pressures in emergency and high acuity health services. Ensuring emergency services are appropriately coordinated with health professionals, medical centres, clinics, hospitals and other health care facilities is critical to manage increased demand and the infrastructure disruptions that may accompany major emergencies.

The AMA's position statement *Involvement of GPs in Disaster and Emergency Planning* outlines key considerations that should inform emergency planning, and is appended to this submission. As this statement indicates, planning for GP involvement at the time of disasters has been ad hoc and variable across jurisdictions, and improved coordination and communication mechanisms are required to better utilise primary care practitioners during extreme weather events.

***Recommendation: The input of medical practitioners, including GPs, should be incorporated in emergency response planning, and as part of response teams, across all jurisdictional layers.***

***Recommendation: Emergency services and local emergency response plans should maintain databases to record primary care practitioners who have the appropriate training and are willing to participate in medical response teams, or to assist in delivering medical services during extreme weather events.***

***Recommendation: Coordinated planning and policy procedures need to be established in high-risk regions to manage climate-related contingencies and 'surge capacity' demands. This includes improved communication mechanisms between emergency services and primary health care providers; strategies to upscale emergency and high acuity health services as needed; and ensuring essential infrastructure, hospitals and other services are designed to withstand threats to energy supply (e.g. during heatwaves) and direct climatic impacts (e.g. coastal inundation).***

## *National coordination of climate change response and risk management*

Despite the profound health risks posed by climate change and extreme weather events, the response to these risks has been characterised by a lack of national coordination and policy leadership. In 2007, COAG committed to developing a national strategy specific to health as part of the *National Climate Change Adaptation Framework*. This Framework, however, is yet to be developed.

Planning for the impacts of climate change and extreme weather requires efforts beyond any single agency or portfolio, and greater efforts are required to achieve a whole-of-government approach and better coordination across agencies and portfolios, and across different tiers of government. For example, the last risk assessment by the Commonwealth Department of Health an Ageing was undertaken in 2002, and the department is yet to develop resources on health adaptation or mitigation strategies in response to extreme weather events or climate change, either for health professionals or for the public.

Political will to address the health risks of extreme weather events is essential. This includes developing strategic policy frameworks, implementing adaptation plans, and ensuring effective monitoring and management. It is also necessary to build coalitions between relevant sectors and partners, and to encourage public understanding and support. Greater national consistency is also required in key elements underpinning planning and response arrangements. This includes developing consist methodologies for forecasting heat events and triggering public health warnings. At present, there is no nationally agreed definition of what constitutes a heat wave or heat event.

***Recommendation: A national heat event strategy should be developed and maintained, complimenting the* National Strategy for Disaster Resilience, *and with appropriate consideration given to the significant health implications and health service demands associated with extreme heat.***

## *Gaps in Australia's Climate Change Adaptation Framework*

To improve policy coordination and leadership, there is a need to refresh the National Climate Change Adaptation Framework. Aside from research efforts, there has been little visible progress on this framework, which was agreed by COAG in 2007.

As it is currently articulated, the national framework perpetuates the silo mentality that demarcates policy into discrete areas, and provided little impetus for the whole-of-government response needed to respond to climate change. Health is not integrated across the strategy, but is instead sequestered in a discrete section of the

document. It is critical a refreshed national framework supports improved communication and joint planning between portfolios, including health and ageing, environment, and infrastructure. Greater consideration is also needed to link the framework into other relevant national strategies and actions plans, and to articulate the respective roles and responsibilities of different tiers of government.

As indicated above, a critical shortcoming in the current Adaptation Framework is the failure to develop a National Strategy for Health and Climate Change. The AMA recommends that this strategy be developed to complement the National Adaptation Framework, and to ensure Australia can better respond to the future health impacts of climate change and extreme weather events.

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