

Resilient health systems: preparing for climate disasters and other emergencies

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A system that integrates all aspects of health care is essential for facing future challenges

After another Australian summer of record-breaking temperatures, bushfires, floods and widespread drought, it is clear that our health systems should be strengthened to cope with the challenges of climate change. We must also reduce the carbon footprint of health care,¹ and continue to advocate that Australia play its part in dealing with the fundamental causes of climate change. In May, the 21st biennial congress of the World Association for Disaster and Emergency Medicine (WADEM) will be hosted by Brisbane. The congress will bring together investigators and practitioners from around the world to discuss disaster health care, future risks, community vulnerabilities, and the strategies required by resilient health systems.

The threats resulting from climate change will differ according to location. The rise in temperatures will not be consistent across the planet, and may increase or reduce local rainfall, depending on other factors.² The effects of climate change will also vary regionally as individuals and societies adapt behaviourally, structurally, and physiologically. Effective adaptation will require economic competence and leadership.

Australia is geophysically stable, protecting us to some extent from catastrophic events such as earthquakes and tsunamis, but we are vulnerable to climate-related disasters and emergencies, including heatwaves, bushfires, droughts, cyclones and floods, the frequency, intensity and duration of which are being amplified by climate change.²

Rising temperatures affect the health and wellbeing of people directly, causing heat stress, hyperpyrexia and heat stroke, as well as indirectly through their impact on individuals with chronic cardiovascular, respiratory and renal diseases or mental health problems, and by changing the distributions of allergens and pathogens and their vectors. These effects can be moderated by adaptive strategies but exacerbated by other factors, such as pollution and humidity, as well as by dehydration, exercise, and infectious diseases and other health conditions. Climate change will affect whole communities, and migration and relocation of populations are likely, determined by the habitability of particular localities and the economic viability of certain industries.

The health consequences of disasters require nuanced assessment to ensure that our responses are targeted appropriately. Identifying immediate direct effects (injuries and deaths) is relatively straightforward, but longer term impacts and indirect health consequences are less clear. For example, while 64 deaths in Puerto Rico could be directly attributed to Hurricane Maria in 2017, the estimated increase in all-cause mortality over the following 3 months was 4645 deaths.³ Even in high income countries such as Australia, the long term consequences —



particularly the long term mental health effects — of climate-related events are difficult to predict, and the strategies required to minimise them will depend on the overall effectiveness of our health system. Indeed, lack of access to ongoing health care is often the greatest threat to health and wellbeing after disasters and emergencies in highly developed countries. At the same time, we need to consider the risks of relying on electronic systems and ensure that structural redundancy and cybersecurity measures are in place.

So how do we prepare our health systems for climate-related disasters and emergencies? We need to plan to safeguard both their capability and capacity to respond to these situations. Firstly, we need to take a whole-of-system approach, integrating all elements of population health and health care throughout the continuum of preparedness, response, and recovery. As Burns and her colleagues argue in this issue of the *MJA*,⁴ it is particularly important to better incorporate primary care into such planning. While Australia has a relatively resilient health care system, it is subject to the routine pressures of a growing and ageing population. We have never experienced an emergency event with 22 000 casualties — but every day 22 000 people attend hospital emergency departments.⁵ We need systems that can respond with standardised policies and procedures to a wide range of problems, from the routine to the unexpected, and to do so for both small and large scale events. This also demands an integrated approach that brings together state and federally funded organisations. A system that integrates all areas of health care — community, primary, hospital, and aged care, as well as public and mental health care — is essential for facing future challenges.

Secondly, we need to improve the timeliness of surveillance. Current disease notification systems are slow, and monitoring of the response capacity of the health system relies on individuals recognising and reporting emerging problems. Enhanced real time surveillance of ambulance, emergency department,

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and hospital capacities and of patterns of demand should enable more timely recognition of new problems and increase the response capability of the health system.

Thirdly, we need to determine the standards of care relevant to particular situations. In extreme events, this includes sympathetic care for people who cannot be saved.

A comprehensive whole-of-system approach will help Australia build a resilient health system that can adapt to the challenges of climate change. The task will not be easy, and there will inevitably be difficult discussions for all health professionals. Whole-of-system approaches are feasible if they are built upon routine processes and they respectfully engage all elements of the health system, both institutional and community-based. The article by Burns and colleagues in this issue of the Journal can help start the discussion, and the WADEM congress in May will develop it further.

Competing interests: No relevant disclosures.

Provenance: Commissioned; not externally peer reviewed. ■

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