

# General practice in the era of planetary health

## *Responding to the climate health emergency*

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### Background

It has been a decade since a landmark *Lancet* publication declared that 'climate change is the biggest global health threat of the 21st century'. Since then, Australia has experienced unprecedented warming related to climate change and an associated increase in the frequency and intensity of extreme weather events, including heatwaves, droughts, storms, bushfires and air pollution. These events have had major impacts on community physical and mental health.

### Objective

The aim of this article is to describe the health impacts of climate change and the role of general practitioners (GPs) in responding to these impacts.

### Discussion

While the clinical skills that underpin general practice have not changed, the environmental and planetary context has shifted. A 'planetary health' approach is required. Climate change should now be considered a health emergency. GPs have a critical role in mitigation and adaptation. Responding to climate change aligns with principles of preventive health and can produce 'co-benefits' for individual and population health.

**IT IS BECOMING** increasingly evident that climate change is resulting in significant morbidity and mortality.<sup>1-7</sup> Climate change has been declared a health emergency by a number of medical colleges and organisations, including The Royal Australian College of General Practitioners and Australian College of Rural and Remote Medicine.<sup>8</sup> The practice of medicine now requires greater appreciation of the impact of environmental systems on human health, as well as the impact of human systems on environmental health.<sup>9-12</sup> As frontline healthcare providers, general practitioners (GPs) have a central role in responding to the health impacts of climate change. This article provides an update on the effects of climate change on human health, introduces the concept of planetary health and discusses actions that can be taken by GPs.

### Health impacts of climate change

It has been a decade since a landmark *Lancet* publication declared that 'climate change is the biggest global health threat of the 21st century'.<sup>6</sup> In that time, many of the anticipated health impacts of climate change have become manifest. The 2018-19 summer was Australia's hottest on record, with 206 extreme weather records broken, continent-wide heatwaves, bushfires and flooding in northern Queensland.<sup>13</sup> The 2019-20 summer was also one of extremes, with record hot days and unprecedented, catastrophic bushfires.<sup>14,15</sup> Millions of people have

experienced prolonged exposure to hazardous levels of air pollution from bushfire smoke,<sup>16-18</sup> which was pronounced a public health emergency by 28 health organisations.<sup>19</sup>

An increase in the frequency and severity of extreme weather events is one of the hallmarks of anthropogenic global heating and climate change. The most direct impact of climate change on human health is through greater exposure to more frequent, intense and prolonged extreme heat events.<sup>2,3,20</sup> Extreme heat can cause heat stroke, heat stress and acute kidney injury, and can exacerbate cardiovascular disease. At a population level, extreme heat events have been associated with significant increases in mortality and stress on health infrastructure.<sup>2,3,21</sup> During the 2003 European heatwave, 70,000 excess deaths were recorded.<sup>22</sup> A 62% increase in all-cause mortality was recorded in Victoria during the 2009 January-February heatwave. Ambulance Victoria experienced a 46% increase in emergency cases over the three hottest days in the metropolitan region. There was a 12% increase in Victorian emergency department presentations, with a greater proportion of more severe presentations, including a 64% increase of patients requiring immediate resuscitation.<sup>23</sup> Those particularly vulnerable to the effects of heat include: the elderly, young children, people with pre-existing chronic disease (including cardiovascular disease, diabetes and respiratory disease) and those experiencing homelessness, poor

housing, mental illness, socioeconomic disadvantage and social isolation.<sup>2,3,21,24,25</sup>

Climate change has led to an increase in bushfire danger.<sup>14,26</sup> Bushfires can result in injury, loss of homes and fatalities.

Exposure to increased concentrations of particulate matter (PM2.5 and PM10) from bushfire smoke has been associated with premature mortality as well as increased hospital attendance and hospitalisation, especially for respiratory presentations. It is estimated that the increase in average PM2.5 concentration in Sydney during December 2019 was sufficient to result in at least a 5.6% increase in daily all-cause mortality.<sup>18,27</sup>

Climate change also affects health through greater incidence of diarrhoeal disease, increased range and transmission activity of vector-borne diseases such as dengue and Ross River virus, food insecurity due to reduced crop yields and impacts on fish stocks, and water insecurity.<sup>2-4,6,7</sup> Worsening drought conditions threaten food production and the viability of some rural communities.<sup>7,28</sup> Warmer temperatures are associated with an increase in airborne allergens, which can trigger asthma, dermatitis and allergic rhinitis.<sup>29</sup> The social and emotional costs of a changing climate and extreme weather events can significantly affect mental health.<sup>2-4,7,25</sup>

The fossil fuel emissions that drive global heating and climate change are also directly detrimental to health. Ambient (outdoor) air pollution is estimated to cause 4.2 million deaths globally<sup>30</sup> and 2566 deaths in Australia each year.<sup>31</sup> Air pollution causes premature morbidity and mortality by increasing rates of ischaemic heart disease, stroke death, chronic obstructive pulmonary disease, lung cancer and lower respiratory tract infections.<sup>30</sup> Air pollution has also been associated with adverse pregnancy outcomes, including low birth weight and stillbirth. Warmer temperatures are also associated with preterm birth, low birth weight and stillbirth.<sup>32-34</sup>

### Widening health inequities

Without robust adaptation and mitigation, climate change will exacerbate existing

health inequities, both nationally and worldwide. Globally, people living in low- and middle-income countries will be most affected.<sup>2,6</sup> In the Asia-Pacific region, populations most at risk include: those living on small island nations, the millions of people living in low-lying river deltas and those dependent on Himalayan ice melts for their fresh water supply.<sup>6,20,35</sup> Forced migration and the creation of large numbers of climate refugees are expected to be among the more significant impacts of climate change.<sup>2,3,6,20</sup>

In Australia, Aboriginal and Torres Strait Islander communities in remote locations are among those most at risk. Australia's First Nations peoples have proved to be highly resilient in adapting to changing environmental conditions. However, remoteness, poor-quality housing, limited access to healthcare services and the persistence of health inequities increase the vulnerability of many Aboriginal and Torres Strait Islander individuals and communities to the health impacts of climate change. The changing climate threatens to displace communities and disrupt connections to traditional lands of cultural significance.<sup>3,7,21,28,36,37</sup> Remote Aboriginal communities in arid regions are facing severe heat and water stress and struggling to cool water sufficiently to run dialysis machines.<sup>38,39</sup>

### Cutting carbon emissions

The health impacts of climate change that have been experienced to date have occurred at 1.1°C of average global heating above the pre-industrial era.<sup>40,41</sup> Many of the impacts of global heating are occurring earlier than predicted, and there is evidence that global heating may be accelerating.<sup>5,40-42</sup> We may already have breached the planetary boundaries that define the safe operating space for humanity.<sup>43-45</sup> If we remain on our current 'business-as-usual' emissions trajectory, global heating is likely to have exceeded 4°C by 2100.<sup>20</sup> The potential for largescale disruption to the planetary and ecosystem services that act as life-support systems for human health and development has been described as an existential threat.<sup>42,46,47</sup> Altered planetary conditions

combined with direct disruption to health infrastructure and services would profoundly transform the practice of medicine.<sup>6,46</sup>

The internationally agreed goal has been to limit warming to 1.5°C.<sup>48</sup> Limiting average global heating to 1.5°C, compared with 2°C, could reduce the number of people exposed to climate risks by several hundred million by 2050. It is uncertain whether achieving net zero emissions by 2050 will be sufficient to limit global heating to 1.5°C.<sup>5</sup> To avert the imminent health risks posed by climate change, the World Medical Association and British Medical Association have advocated for the adoption of a target of net zero emissions by 2030.<sup>49,50</sup> Australia's per capita emissions rank among the highest in the world,<sup>51</sup> and Australia continues to be one of the world's largest exporters of coal.<sup>52</sup> An urgent reduction in greenhouse gas emissions is needed, in Australia and globally, to mitigate the potentially catastrophic impacts of climate change on human health.<sup>2,5,6,42</sup> Rapid decarbonisation should include targeted support for low-income households and communities that are economically dependent on the fossil fuel industry.<sup>53</sup>

### General practice in the era of planetary health

While the clinical skills that underpin the practice of medicine have not changed, the environmental and planetary context has shifted. The need for greater recognition of the impact of planetary systems on human health, and the impact of human actions on planetary systems, has led to the emergence of 'planetary health'.<sup>10-12</sup> According to the Lancet Commission on Planetary Health: 'Put simply, planetary health is the health of human civilisation and the state of the natural systems on which it depends'.<sup>54</sup> There are a number of practical measures that GPs can take to integrate a planetary health approach within their personal, practice and professional spheres.<sup>9,55</sup>

Within their personal sphere, GPs can show leadership by individually reducing their carbon footprint. Reducing air travel, decreasing consumption of meat and dairy,

switching to a green electricity provider and preferentially using active or public transport all reduce emissions.<sup>9,55,56</sup> GPs can support a planetary health approach by actively supporting stronger emission-reduction policies and divesting from fossil fuels. Sharing actions with personal networks can magnify their impact. The Climate Council have released a toolkit to support climate action.<sup>56</sup>

Within the practice sphere, GPs have a key role in supporting adaptation to the health impacts of climate change. Many GPs have experience being on the frontline of emergency responses to extreme weather events. GPs have a key role in contributing to the development and implementation of emergency response plans that need to reflect the evolving threat of extreme weather events.<sup>57</sup> With regard to extreme heat, supporting vulnerable patients can reduce heat-related morbidity and mortality. GPs can actively work to ensure vulnerable patients are aware of the dangers of extreme heat, support the adoption of protective behaviours and adjust medications to reduce risk.<sup>21,58</sup>

Within their practice, GPs can also promote 'co-benefit' actions that improve individual health and also reduce greenhouse gas emissions. For example, using active transport and increasing consumption of plant-based foods not only reduces carbon-emissions but also improves health and decreases the burden of chronic disease through the benefits of greater exercise, healthier diets and reduced air pollution. Implementing sustainable workplace practices is another opportunity to reduce environmental footprints and promote planetary health approaches among patients and colleagues.<sup>2,9,55</sup> For those engaged in educational practice, it is also

important to ensure general practice and medical education and training reflect a planetary health approach.<sup>55</sup>

Collective advocacy within the professional sphere provides an opportunity to support larger-scale decarbonisation and transition towards an environmentally sustainable economic system.<sup>2,6</sup> A number of prominent medical colleges and organisations have declared that climate change is a health emergency requiring urgent adaptation and mitigation.<sup>8</sup> Many GPs are engaged in civil society and health groups that promote actions addressing the health impacts of climate change (Box 1). Advocating for the adoption of a planetary health approach in public policy can increase capacity to prevent and manage climate-related health risks.<sup>6,55</sup>

### Conclusion

It is difficult to overstate the scale of the transition that must take place over the next decade to shift us from our current trajectory.<sup>2,5,6,44</sup> However, the COVID-19 pandemic has demonstrated the extent to which society can rapidly implement an evidenced-based response to public health emergencies. By embracing a planetary health approach, we can avert the worst impacts of climate change and safeguard a healthy and sustainable future. GPs have a key role to play in this transition.

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### Box 1. Australian health groups supporting general practitioners to take action on climate change

- The Royal Australian College of General Practitioners (RACGP) Environmental Impacts in General Practice Special Interest Group: open to RACGP members
- Doctors for the Environment Australia: open to Australian doctors and medical students
- Climate and Health Alliance: open to Australian health professionals and health organisations
- Healthy Futures: open to Australian health professionals

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