

Cardiovascular Nursing and Climate Change: A Call to Action From the CSANZ Cardiovascular Nursing Council



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This Call to Action aims to provide key considerations for cardiovascular nursing, related to climate and environmental impacts. Strategies to optimise nursing preparation, immediate response and adaptation to climate emergencies are crucial to ensure those at greatest risk, including First Nations peoples, are protected from potentially avoidable harm. Professionals who manage climate consequences must also understand the impact of their care on the root cause of the problem.

Keywords

Cardiovascular nursing • Climate change • Climate disaster • Climate hazard

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Background

Climate Hazards, Environmental Disasters and Nurses

Environmental health ultimately determines human health. Both climate change hazards and environmental disasters adversely affect individuals, their families, communities, and socio-ecological systems [1]. Acute hazards, including heat, erosion, pollution, drought, bushfires, floods, dust storms, and tropical cyclones, and their impact on cardiovascular health will increase as our climate deteriorates. Awareness of hazards is fundamental to reducing the severity of climate disasters [2]. Disasters represent a complex combination of physical hazard processes, social vulnerability, response, and adaptive capacity [3,4]. In environmental disasters, factors such as population densities and distribution, socio-economic status, living conditions, vulnerability and resilience, health literacy, adaptive capacity, disaster preparedness, and active management determine how many people are impacted and to what extent. Health care system responsiveness to hazard mitigation, reduction of inequity, and prioritising environmental protections are vital for globally, sustainable population health in climate crises [5].

Recent bushfires (East coast of Australia, 2019–20) and floods (South-East Queensland and Northern Rivers, Central Coast and Sydney NSW, Australia 2022) highlight the critical importance of health systems, service planning, and preparedness when communities face disasters, threats to safety, isolation, and partial or total loss of housing. These events reinforce the necessity of disaster preparedness strategies to optimise preparation for immediate response, adaptation to climate emergencies, and of robust inclusive strategies to ensure those at greatest risk are protected from potentially avoidable harm. People living with cardiovascular disease (CVD), those with CVD risk factors and those at increased risk of acute CVD events are particularly vulnerable to the impact of climate change, and its related health outcomes [6,7]. This necessitates urgent and thoughtful planning, preparation, and action by all cardiovascular clinicians, researchers, and health policymakers.

Nurses comprise the single largest profession within the Australian and Aotearoa New Zealand (NZ) health workforce, transecting primary and acute care services, and provide critical care coordination and service delivery. They are well placed to lead necessary interdisciplinary planning and adaptation. The discussion points raised in this CSANZ Cardiovascular Nursing Council call to action highlight key mediating factors; climate change effects on CVD, mental health and wellbeing, and health care services are presented in the context of highlighting hazard awareness and disaster preparedness. CVD care adaptation underscores the need for vital interdisciplinary engagement. Actions to mitigate climate change-related risks for CVD include targeted patient assessment, education and counselling, and care coordination, and individual and collective reductions in the

environmental impact of cardiovascular care. Effective change will require culturally appropriate care, mindful of the impact of climate hazards and disasters on: First Nations peoples; vulnerable populations such as frail older people; and low-socioeconomic status (SES) households [8]. These groups may be unable to safeguard against the shock of climate events or engage in critical actions that reduce their impact on CVD health. The aim of this Call to Action is to provide key considerations for cardiovascular nursing, related to climate and environmental impacts. **Box 1** provides a summary of the principles, priorities and recommendations of the Call to Action.

Climate Change and Cardiovascular Health

Until recently, the association between cardiovascular events and climate change disasters received little attention despite the increased prevalence of acute coronary syndrome (ACS) presentations coinciding with extreme events [9], and robust evidence underpinning the pathophysiological impact of environmental factors on CVD, such as air pollution [10], temperature increases and seasonal variations in heart failure (HF) hospitalisations [11]. Short- [12] and long-term [13] air pollution exposure increases hospitalisation for ACS [14], stroke and mortality [15]. The Global Burden of Disease (GBD) consortium linked pollution to nine million deaths worldwide in 2019; five million were due to CVD [16]. Temperature change extremes also influence CVD incidence [17,18]; Each one-degree Celsius increase in temperature is associated with a 6% increase in CVD [18] and increases in hospitalisation [19]. Social determinants of health further impact many people, due to the link between socio-economic status (SES) and CVD.

The causal relationship between stressor events (such as disasters) and increased sympathetic activation of the autonomic nervous system (increasing blood pressure, heart rate, myocardial contractility and, consequently, myocardial oxygen demand), is well established [20]. Increased platelet aggregability, other prothrombotic changes, and altered intravascular shear stress may disrupt atherosclerotic plaques resulting in coronary artery occlusion and ischaemia. Takotsubo cardiomyopathy is colloquially known as “broken heart syndrome” or “stress cardiomyopathy” acknowledging its frequent association with extreme emotional or physical stressors. The exact mechanism of this acute cardiomyopathy is unclear but likely secondary to abnormal responses to acute catecholamine surges [21]. Rates of ACS increase after climate change disasters; following the Christchurch NZ, earthquakes in 2010–2011, presentations of ACS, stress cardiomyopathy [9] and CVD-related mortality [22] increased. The onset of ACS is associated with acute physiological stress, from everyday triggers including circadian rhythm (peak prevalence in the morning hours) to physical activity and severe meteorological events. Given that Takotsubo cardiomyopathy has been under-recognised and mimics ACS, we suspect it may explain some

Box 1. Summary of the principles, priorities and recommendations of the call to action.**Principals of the call to action**

Strategies to optimise nursing preparation, immediate response and adaptation to climate emergencies are crucial to ensure those at greatest risk are protected from potentially avoidable harm.

Adaptation to mitigate the impact of climate change on communities depends on:

1. The impact of climate change-related hazards on cardiovascular health, and
2. The impact of climate change-related disasters on delivery and access to care.

Priorities of the call to action

The greatest effect can be achieved through:

1. Embedding environmental health and disaster preparedness into routine care with education, counselling, pre-discharge assessment and discharge planning
2. Resilient health care services prepared for rapid adaptation in disaster situations, and
3. Actively adapting cardiovascular care to reduce environmental impact

Key recommendations of the call to action

Harness the power, skill and expertise of the nursing profession who transect acute and primary care to lead change

Climate hazards and disasters provide acute CVD triggers compounded by social determinants of health. Health impacts are core knowledge for all health care workers

Urgent practice adaptation so climate-aware assessment, education, discharge planning and care coordination are usual practice

First Nations people have sovereignty over their response to climate change. Health care is culturally appropriate and understands climate change impact on First Nations peoples

Vulnerable populations are at greater risk and need targeted preventive actions and support

Education is the cornerstone to mitigating impact of climate change on health by reducing hazard risks and establishing safety strategies

Health care is part of the solution and the problem. Professionals who manage climate consequences must also understand the impact of their care on the root cause of the problem

Abbreviation: CVD, cardiovascular disease.

historically recognised instances of increased ACS during/ shortly after climate-change disasters [20].

Climate Change, Mental Health and Wellbeing

The traumatic effect of climate-related disasters, most recently catastrophic emergency events, is largely untold and almost impossible to accurately quantify. The immeasurable loss of family, friends, and communities is distressing. Cataclysmic change has dire consequences for mental health, and for years after the actual disaster [23] post-traumatic stress disorder (PTSD) is not unusual. Challenges with accessing urgent care, engaging in active treatment during or post-disaster, adhering to planned treatment, and maintaining continuity of care amplify the vulnerabilities of various disadvantaged groups and test the resilience of even the most prepared. The acute impact of disaster will inadvertently lead to worsening mental and physical well-being, multimorbidity, and increased rates of hospitalisation and mortality [4,20,24].

Climate Change and Health Care Service Provision

Despite clear evidence linking health outcomes to climate change, discourse specifically devoted to climate change and health care has been scant, at least until relatively recently. In 2012, Australia's Productivity Commission launched a national inquiry into barriers to effective climate change adaptation across diverse sectors. There was not a single submission from a health service agency, indicative of a lack of health sector engagement regarding health risks from climate change and the potential value of effective adaptive responses [25]. A decade later, as we adjust to 'living with COVID-19', it could be argued that the unprecedented combination of fires, floods and a global pandemic has forced the hand of health services to recognise and respond to emergencies at scale. The 2019 Australian bushfires triggered climate change discourse, but inter-sectoral and inter-governmental climate-health responses remain lacking. While jurisdictional governments in Australia are developing policies and processes to enable responsive actions for

climate change emergencies in relation to health, much work remains to be done.

Priorities For Adapting Cardiovascular Care

Adapting cardiovascular care to mitigate the impact of climate change on our communities requires astute consideration of the two equally important factors highlighted above:

- 1) The impact of climate change-related hazards on cardiovascular health, and
- 2) The impact of climate change-related disasters on delivery and access to care. Clinician knowledge, patient education and adapting nursing coordination of care practices in patient assessment and discharge planning, are priorities for timely planning, preparation, and action. A broad lens, inclusive of acute and community care factors, could assist in practice adaptation so those most vulnerable to climate change are provided optimal, culturally appropriate care.

Understanding the Impact of Climate Change on First Nations Peoples

First Nations peoples are particularly vulnerable to the effects of climate change. Well publicised inequities in Māori manawa ora (cardiac health) and the cardiovascular health of Aboriginal and Torres Strait Islander people, will be further exacerbated by climate-related change without timely intervention. Climate-related events such as heavy rain and flooding, extreme temperatures, dust, dampness, poor water quality, reduced food and bush tucker sources, and damaged/unstable remote community infrastructure increase risk of pre-existing cardiovascular conditions such as HF or ACS [26–30].

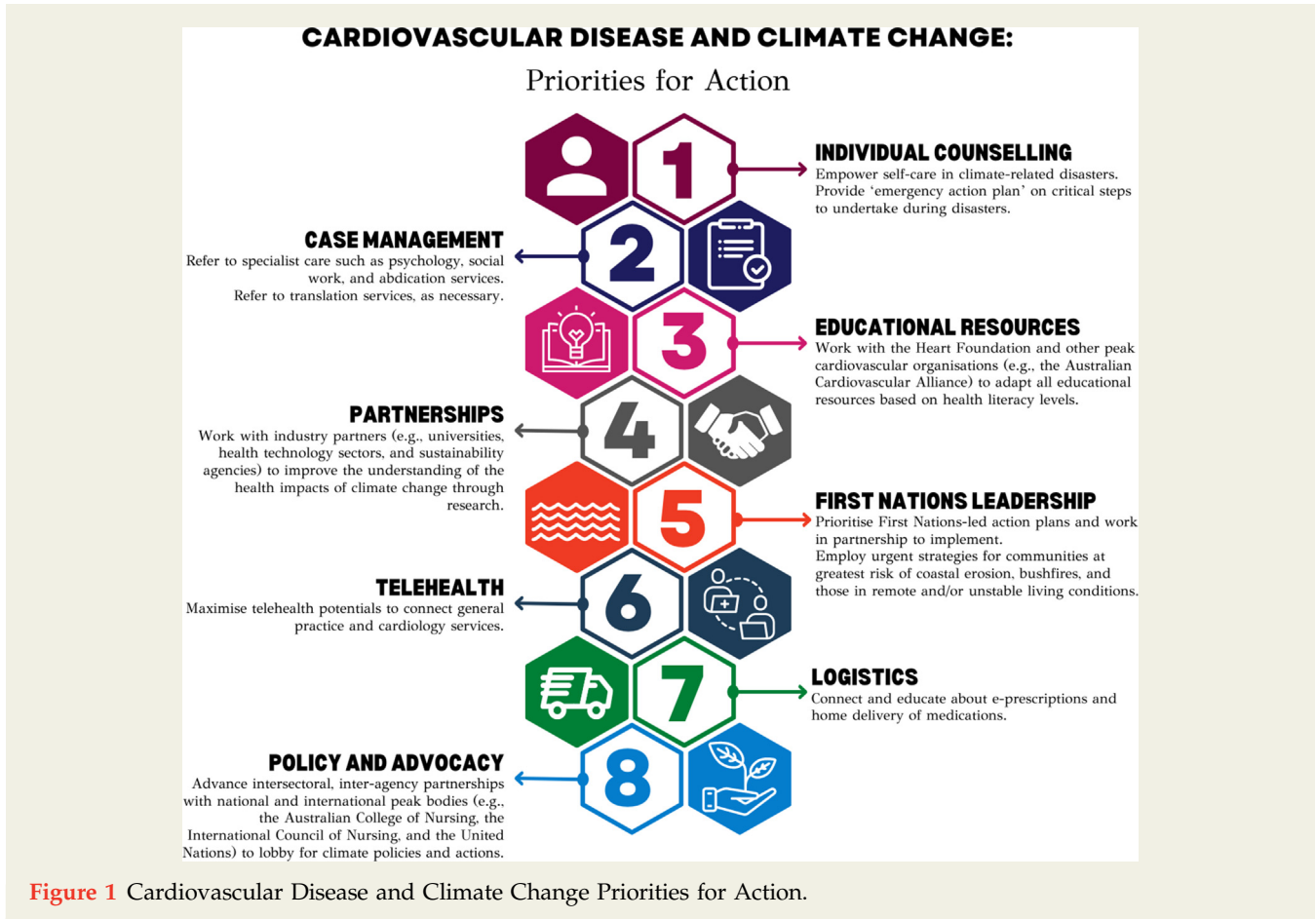
Biologically mediated events, such as an increase in infectious diseases affecting the heart, elevated dietary risk factors as a result of an insecure global supply chain increasing food prices, ocean acidification threatening fisheries a traditional food resource, or social impacts resulting from geographical relocation all contribute to the complex interplay between climate change and negative cardiovascular impacts in these populations [31]. Māori connection to the Whenua (land) along with Mātauranga Māori (knowledge in its broadest sense) held by local iwi (tribe) will be affected by rising sea levels and coastal erosion. Culturally significant places that hold connections to tupunā (ancestors) are at risk of possible loss of urupā (burial grounds) and marae (tribal meeting place), resulting in a devastating effect on health including wairua (spirituality), and hinengaro (mental health) that worsen access to health care and increase cardiac risk factors [6,32].

As the “Climate Change Adaptation in New Zealand” paper discusses, Māori will define their own goals, active solutions and approaches to ensure their adaptation to climate

change utilising te ao Māori (world view) [31]. Depending on geography, each hāpu (sub-tribe) or iwi will be affected differently, therefore each whānau, community and tribe will need to plan their response. “Care should be taken to make sure climate-related policies do not further compound historic grievances for Māori. To give effect to the Treaty Partnership, the central and local government need to acknowledge iwi/Māori rights to exercise rangatiratanga (sovereignty) and kaitiakitanga (guardianship) in a joint plan to reduce emissions” [31]. Governing bodies have been called to action by Māori climate campaigners calling for more effective climate change action due to its failure to act quickly enough to protect Māori from the effects of climate change [33].

As stated previously, it is well recognised that Aboriginal and Torres Strait Islander people experience disproportionate rates of CVD, inequity in access to health care, and associated poor health outcomes—exacerbated by climate-related events [30]. Importantly, the spiritual connection to traditional homelands or ‘country’ is vital for cultural wellbeing. Displacement from country following a climate-related disaster or disruption to local ecosystems due to climate change is exceptionally damaging to physical, spiritual, social, and mental health [34]. Rising sea levels in the Torres Strait Islands have been identified as an urgent priority area. First Nations people living on these islands, frustrated by the lack of government action, recently lodged a complaint to the United Nations Human Rights Council demanding stronger government action on climate damage [35]. Catastrophic flooding along the East Coast of Australia, and devastating widespread bush fire events of 2019–20, have further highlighted the urgent need for a National Climate Action Plan with specific strategies for Australia’s First Nations peoples. Recognition and acknowledgement of the devastating effects of colonisation are imperative. Before colonisation, Aboriginal and Torres Strait Islander people were the sole caretakers of this land, providing sustainable and nurturing safekeeping and management for more than 50,000 years. For an Australian Climate Action Plan to be successful, it must be developed in close partnership with Aboriginal and Torres Strait Islander community leaders, elders, and holders of ancestral cultural knowledge and customs; a respectful partnership with community organisations would reduce current inequities in cardiovascular health.

First Nations peoples must have sovereignty over their response to climate change. Kaupapa Māori (Māori approach, by Māori for Māori) and Aboriginal and Torres Strait Islander community-led and co-owned research is required to determine how climate-related cardiovascular risk can be reduced and to develop practical and tangible approaches to combat this critical issue. Utilising preventative strategies focussed on community and person-centred awareness, and strengthening relationships between community health providers and specialised cardiac services is essential to providing culturally safe care that aligns with relevant cultural protocols and Te Tiriti o Waitangi. To reduce existing inequities, we need to reshape health care services with robust planning to prevent climate change widening disadvantage and to increase climate disaster



preparedness in vulnerable settings e.g., remote communities, in our Māori, Aboriginal and Torres Strait Islander, Pacific, older adult, socioeconomically disadvantaged and rural populations. Understanding local vulnerabilities is essential to implement care from the micro to macro level, from person and family centred planning, telehealth, and digital technologies, strengthening relationships between First Nations and community health providers, and specialised cardiac services to targeted health and governing policies.

Climate Change and Cardiovascular Disease Intersect in Vulnerable Populations

Vulnerability refers to the quality or state of being exposed to the possibility of being attacked or harmed, either physically or emotionally. The understanding of social and environmental vulnerability involves analysis of risks and assets in disadvantaged groups [4]. In the context of hazards and disasters, vulnerability is a concept that links the relationship people have with their environment, social forces and institutions, and the cultural values that sustain and contest them. The concept of vulnerability expresses the multidimensionality of disasters by focussing attention on the totality of relationships in each social situation that constitute

a condition that, in combination with environmental forces, produces a disaster. It is also the extent to which changes could harm a system, or to which the community can be affected by the impact of a hazard or exposed to the possibility of being attacked or harmed, either physically or emotionally. In climate change events, apart from First Nations peoples, the most vulnerable are predominantly the frail, disabled, elderly and those with literacy and socio-economic disadvantage [8].

From the perspective of the Australian and Aotearoa (NZ) population, those with cardiovascular risk factors and those at risk of an acute cardiovascular event represent a significant proportion who are vulnerable to climate change. Among those with, or at risk of, CVD, there are distinct groups considered vulnerable; risk is intensified by stress related to the acute onset of the disaster, lack of knowledge and understanding, grief and loss, and insecure access to health services and medication, during or following climate change events. To reiterate, climate disasters have an immediate impact on access to food, water and medication, vector-borne diseases, social disruption, displacement, injuries and risk of death, with significant implications for vulnerable populations with chronic health conditions [36]. These immediate and shorter-term impacts on health and wellbeing are further compounded by longer-term impacts

due to loss or damage to housing, personal possessions, and community infrastructure.

Critical Actions to Reduce the Impact of Climate Change

In our view, the greatest effect on reducing climate change impact on health outcomes of people with CVD can be achieved through:

- adapting and embedding environmental health and disaster preparedness into routine care such as patient education, counselling, pre-discharge assessment and discharge planning
- ensuring health care services are resilient, robust and prepared for rapid adaptation in disaster situations
- actively adapting cardiovascular care and practice to reduce environmental impact, with implementation of environmentally sustainable health systems. Priorities for action are illustrated in [Figure 1](#).

Education is the Cornerstone to Mitigating Impact

As leaders in patient education and advocacy, the nurses' central role in the coordination of care provides opportunities to engage, initiate and reiterate the benefits of improved knowledge of the impacts of climate change. Nurses can support self-management strategies for risk mitigation associated with climate change hazards and disasters. The multidisciplinary cardiovascular health professional community needs to plan and develop clear, concise, and culturally safe education on disaster preparedness. Such education should incorporate strategies to alleviate the impact of environmental factors (such as smoke, heat, and mould) on health for people with CVD, tailored for delivery across the spectrum of health care settings. "A central principle of public health is to provide individuals with sufficient knowledge to take action to prevent disease and promote health" [37]. This principle is core to nurses' roles. Benefits of educational-behavioural interventions include decreased hospitalisation, general practitioner and emergency department visits, improvements in quality-adjusted life years, and reduced loss of productivity [37]. Despite increasing awareness, evidence indicates many health professionals do not have a clear understanding of their professional responsibilities in the context of climate change to improve knowledge, health or practice [38]. This is a cause for concern given nurses' and health professionals' critical role in the prevention of climate change impact [36] and urgent action in response to climate disasters [20].

Nurses need to be clear in their educational strategies to improve people's knowledge of climate-related modifiable risk factors for the prevention of CVD. This should include engaging with the patient and empowering them to (self) manage risk factors where possible, considering exposure to air pollution and the extremes of heat and cold are

convincingly associated with an increased risk of incident ACS [15,17,30]. There is an urgent need for robust research into the optimal education strategies, and approaches to improve health professionals' and communities' knowledge of how climate can influence human health, both directly and indirectly [39]. Education on how to be prepared for climate disaster and concurrently reduce the risks of exposure to environmental factors could be incorporated into established patient and carer education about self-management of CVD symptoms, medication adherence and when to seek medical care. For example, in areas prone to bushfires or floods, health-related education should include information for safe evacuation preparation and exit in an emergency, including essential items, such as medications to ensure effective ongoing management of existing health conditions [40].

Embedding Disaster Preparedness into Pre-Discharge Assessment and Planning

Transition from hospital is a critical time for assessment of patients' living arrangements, social supports, health knowledge and health behaviours. Assessment should consider challenges that may arise secondary to current, recent, or at-risk climate disasters or events. This is especially important when preparing patients for discharge from a metropolitan setting back to their regional, rural, or remote area of residence. Knowledge and awareness of a patient's local situation may not be as apparent at the time of discharge relative to environmental hazards or disasters that have received broad media coverage or those that impact the area local to the hospital of admission.

As a result of disaster, for example, accommodation may no longer be safe or liveable. Basic services such as electricity, water and sewerage may not be adequately functioning during or immediately following a disaster. It is crucial to determine whether patients can safely access basic human necessities such as food, water, and medication supply before their discharge. If assessment findings raise issues, then consideration needs to be given to social support and community disaster support, including alternative accommodation.

Resilient Health Care Services Ready for Climate Disasters

The most recent Conference of the Parties (COP26) has called for health services to respond to climate change via two key pathways: building adaptation and resilience; and setting a course for low carbon and sustainable health care. Australia's lack of action has been called to account by our neighbours in the Pacific nations [41]. Commonwealth nursing leadership is necessary to unify legislation and policy requirements that can provide functional frameworks for health service redesign [42]. Coordinated responses that traverse all jurisdictions must cross interdisciplinary and system boundaries, including services such as transport, infrastructure, and digital communication systems as well as care delivery.

Box 2. Global Green and Healthy Hospitals Network: 10 Sustainability Goals.

Sustainability Goals



1. **Leadership:** prioritise environmental health
2. **Chemicals:** substitute harmful chemicals with safer alternatives
3. **Waste:** reduce, treat and safely dispose of health care waste
4. **Energy:** implement energy efficiency and clean, renewable energy generation
5. **Water:** reduce hospital water consumption and supply potable water
6. **Transportation:** improve transportation strategies for patients and staff
7. **Food:** purchase and serve sustainably grown, healthy food
8. **Pharmaceuticals:** safely manage and dispose of pharmaceuticals
9. **Buildings:** support green and healthy hospital design and construction
10. **Purchasing:** buy safer and more sustainable products and materials

Accessed on 9 September, 2022: <https://www.greenhospitals.net/sustainability-goals/>

Nurses are pivotal in multilayered responses, coordinating key stakeholders as the conduit between those stakeholders and end-users [43]. However, to ensure adaptation and resilience, co-design with multi-sectoral partners is key.

Nurses can empower communities to make adaptive and mitigative changes in response to climate change. Those changes should be led by First Nations peoples, with financial, legislative, and nursing workforce support as a matter of urgency. Co-design will ensure community-driven, culturally safe, informed and appropriately resourced disaster responses. Traditional custodians have knowledge developed over millennia that when shared can guide climate change policy and practice to minimise risk and maximise opportunity. If adequate community engagement is secured, upstream action will support longer-term prevention, early intervention, and the reduction of low-value care to mitigate the effects of climate change, inhibit unnecessary burden on the health care system and strengthen resilience.

In the shorter term, capacity development that begins within the health sector workforce and extends outwards to the wider health care system, will set the course for sustainable health care from the bedside to the bench. During recent catastrophic events and emergencies, health care services were innovative by necessity, with clinicians at the heart of driving spectacular changes in health care delivery to manage acute cardiovascular events and chronic condition management. Pandemic responsiveness during COVID-19

highlighted the strengths of a competent, flexible cardiovascular workforce and swift successful innovations for nurse-led care delivery redesign [44]. Options including the use of telehealth, digitisation of prescriptions for medication, and home delivery, online education and real-time remote communication and assessment were largely person-centred and well received [45]. These services should be strengthened and underpinned by a robust technology infrastructure that can operate during extreme weather and disaster situations [1].

Reducing the Impact of Cardiovascular Care on the Environment

System-level approaches facilitate a collective response to climate; clinicians, as individuals within such systems, can drive positive change to reduce our carbon footprint [46]. Global health care generates approximately 4.4% of all greenhouse gas emissions; the Australian health care system generates almost 7% of annual national emissions [47]. A national survey of health care professionals (n=875) conducted in 2020 revealed 70% believed climate change was hurting health in Australia; 55% of respondents had experienced an extreme weather event in the preceding 12 months that impacted on their workplace [48]. The Climate and Health Alliance released a national strategy framework called "Healthy, Regenerative and Just" in October 2021 [49].

This framework outlines a shared agenda to manage and address health risks of climate change, promote the health benefits of climate actions, and ensure a healthy, regenerative, and just future for all. There are foundational principles in this framework that support key policy recommendations, one of which is to achieve a sustainable and climate-resilient health care sector by decarbonising health care and supporting the health care sector to mitigate health care related greenhouse gas emissions.

Personal, professional, community and policy level changes are required [39] to address discipline-specific climate change impact [7]. Several recommendations have been made in health care settings, primarily focussed on education, training, and resources. Local level responses include recycling for waste reduction, and telehealth expansion to reduce carbon footprint [7] but there is much to be done to achieve a net zero in health care. Paradoxically, health care systems are both part of the problem and the solution. Change is required at the national policy level across interdisciplinary and system boundaries if our multilayered health care systems are to be effective in climate action. Health care professionals who manage the consequences of climate change need to understand the impact of their care on the root cause of the problem; they need to champion care with a climate focussed lens to positively influence CVD outcomes.

While most of our carbon emissions are embedded in supply chains, institutions are formalising strategies to improve sustainability and enhance clinician awareness of the climate impact of their practices. Embedding sustainability policy initiatives will require behaviour changes driven by both active and passive decision-making [50]. More than 1,700 facilities have voluntarily joined the Australian and Aotearoa (NZ), Global Green and Healthy Hospitals (GGHH) Network to focus on achieving at least 2 of 10 sustainability goals [51] listed in [Box 2](#). This group provides tools for network members to share active strategies. Examples of success to date include a move by Ambulance Victoria to purchase power via a renewable energy wind farmer [52] and multiple centres across Australia and Aotearoa (NZ) reducing anaesthetic gas use [53,54].

Passive decisions are more likely made by individuals who can inspire others to follow their lead. Anecdotal evidence indicates communities of interest are common within specific health services, often led by a “climate change champion” (e.g Environmental Sustainability Project Officers), working within the group and able to make an impact through facilitating local and health service wide initiatives. Understanding impact and then setting an agenda for change is creating a ground swell of interest at the bedside. Recent research by a group of interventional radiologists evaluated the impact of maintaining climate-controlled rooms over a one-week interval for 98 procedures. These investigators claimed that it would take 389 young trees more than a decade to sequester the carbon released because of emissions burned in that week. Plans are underway to evaluate

streamlining services [55]. Another area of debate is the ecological impact of conference travel [56]. Vidovich [57] postulated the benefits of electronic platforms as a panacea for the replacement of print journals and conferences to adapt ecologically and economically. Conferences and meetings moved online during the pandemic, transforming collaboration and communication to overcome the challenges of geographic boundaries. These changes by necessity underscore consideration of the impact of our practices as clinicians and clinician-researchers on climate change and how we can all take responsibility to minimise our own contribution.

Conclusion

“Unprecedented” is no excuse for being underprepared; recent climate emergencies have brought climate hazards to the fore, testing and revealing existing weaknesses in health care. To mitigate cardiovascular risk posed by climate change, well-funded, responsive, and nuanced preparedness for adaptation to multiple physical, mental, economic, and social impacts in the community is needed. Research—that takes a holistic view of vulnerability, appreciating the dynamic and bidirectional interactions between exposure to hazards and disasters, and pre-existing social, health and economic factors that contribute not only to a community’s vulnerability but also its resilience—can underpin this preparedness [58]. In this paper, we have emphasised the synergies between CVD and climate change. Priorities for adapting cardiovascular care, cognisant of First Nations and vulnerable populations, have been discussed. The need for critical actions to mitigate future disasters, in the context of ever-increasing hazards, has been argued. Cardiovascular nurses are pivotal for system change; instrumental in care coordination, they provide a critical juncture to engage in the crucial co-design needed to for long-term change that can result in a resilient, robust, and ecologically sound health care system.

Conflict of Interest

There are no conflicts of interest to report.

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