Australian Government
Department of Health and Aged Care

NATIONAL HEALTH AND CLIMATE STRATEGY

Detailed submission form

This form allows you to provide responses to the full set of questions in the Consultation Paper available here.

Alternatively, you may wish to complete the briefer online survey available here.

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Respondent details

What is your name?
[redacted]
What is your email address?
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What is your organisation?
Planetary Health Equity Hothouse School of Regulation and Global Governance The Australian National University
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
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Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
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Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative ☒ Academic or Researcher ☐ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

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Questions for feedback from the Consultation Paper

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?
The development of a National Health and Climate Strategy is a crucial step and a key enabling mechanism to achieve the coordinated response that is required to prevent and address health harms from climate change. The vision of the Strategy as it stands, and therefore its Objectives, is too limited. The Strategy must expand beyond a focus on the health care system. The vision as stated in the consultation paper, "of protecting the health and wellbeing of Australians from the impacts of climate change" will not be achieved unless a holistic, intersectoral approach is taken that recognises the inextricable crises of climate change, social inequity, and poor health. A key objective of the Strategy should be the achievement of planetary health equity (PHE) – the equitable enjoyment of good health in a stable ecosystem. This definition of PHE recognises the impact of climate change on health and health inequities via social factors. It also recognises the importance for health equity of addressing the underlying drivers of climate change. Systematic and growing levels of climate change, inequality, and poor health indicate that there is a structural problem. Any Strategy that aims to protect population health and wellbeing must therefore adopt a structural and intersectoral approach. The introduction to the Strategy mentions the need for a holistic response and acknowledges that decisions outside the health system influence the social, economic, cultural, environmental, and commercial determinants of health. However, this is inadequately reflected in the Strategy's vision (page 4), which focuses largely on the health system, aside from brief mention of a Health in All Policies (HiAP) approach. The introduction states that "The Strategy will align with the Government's broader climate mitigation and adaption policies and take account of work already underway." and that "Further consultation will identify where the Commonwealth can facilitate a common approach." Beyond mere alignment, the health sector must be integrated and provide leadership in climate action across the Commonwealth. The health sector has an important informational and steering role to play within the government's climate change commitments across all sectors – demonstrating the multiple environmental, social, and health benefits. This role for the health sector should be embedded within formal intersectoral institutions, with explicit mandates to promote health equity via multiple determinants. **Objective #4 on HIAP requires strengthening; an explicit mandate including the multiple determinants of health equity and clear institutional strategies identified and articulated.** **None of the current objectives mention equity; the objectives of this Strategy should align with wider policy objectives to reduce health inequities, as further discussed below.**
2. How could these principles be improved to better inform the objectives of the Strategy?

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We support all of the principles identified in the consultation paper, particularly that of First Nations leadership. We offer these recommendations for their improvement:

Principle 2, tackling health inequities, should explicit identify the need for multisectoral action, as well as consideration of the equity implications of mitigation actions, not merely adaptation responses.

A tsunami of health inequities will result from anthropogenic climate change, as pre-existing inequities in daily living conditions ensure that climate change disproportionately impacts socially disadvantaged groups. Climate change-exacerbated social inequity adds to existing inequities in disease burdens and premature mortality. Attention to climate adaptation therefore must be multisectoral, e.g. good and equity-focused infrastructure policy is good and just climate adaptation and transition policy, and it is good health equity policy.

Equity impacts must also be considered within assessment and selection of climate change mitigation strategies, in terms of the intended and unintended consequences of actions for social and health equity outcomes. Regressive policies that primarily benefit those who are already most advantaged within the population, or worse, lead to further disadvantaging marginalised populations, must be avoided through in-depth policy analysis and drawing on existing evidence. The work of the ANU Planetary Health Equity Hothouse can support in this regard – we are currently undertaking the development of a planetary health equity impact assessment framework, which will be applied to Australian and international climate change policies, aiming to identify ways to optimise environmental, social, and health outcomes.

Principle 3 on prevention frames the three stages of public health prevention as assisting mitigation and adaptation. This principle should identify ambitious climate change mitigation as the ultimate primary prevention approach. Given the impacts of climate change on population health, ambitiously stopping the emissions that drive global warming and climatic changes is a crucial upstream preventative policy approach to protect public health. This implies a role for the health sector in championing efforts for structural change and ambitious climate change mitigation action in all sectors across the Commonwealth, not merely within the health system.

When nations attempt to recover from devastating disasters such as the Australian bushfires and floods, they usually focus on immediate repair, to the exclusion of long-term prevention. Human activity and associated greenhouse-gas emissions are the main causes of climate change. For an adequate strategy to address health and climate change, therefore, we need to disrupt the consumptogenic system – the system of institutions, policies, commercial activities, norms and behaviours that encourage and reward excessive production and consumption of fossil fuel-reliant goods and services that are unhealthy and inequitably valued and distributed (Friel 2019). Action on the consumptogenic system entails a responsibility for the health sector to engage with wider social, political, and economic drivers of planetary health inequities, through formal intersectoral mechanisms within government.

We support Principle 5, which calls for evidence-based policymaking alongside the precautionary principle, and particularly the prioritisation of actions based on health gains, equity, and human rights. These issues/actions should be elevated to the level of importance given to cost-effectiveness.

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We support Principle 6, which calls for partnership approaches, particularly for health sector engagement across all sectors of government. However, we call for clear and transparent mechanisms for assessing and preventing structural and institutional conflicts of interest in working with non-governmental actors (Ralston et al. 2021).

References:
Friel, S. (2019). Climate Change and the People's Health. Oxford, Oxford University Press.
Ralston, R. et al. (2021). Towards Preventing and Managing Conflict of Interest in Nutrition Policy? An Analysis of Submissions to a Consultation on a Draft WHO Tool. International Journal of Health Policy and Management, 10(5): 255–265.

3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?

All categories of emissions – Scope 1, 2, and 3 – should be included in the Strategy's emissions reduction efforts.

The health implications and impacts of emissions beyond the health system should also be considered within the Strategy, and within an intersectoral role for the health sector in climate change policymaking, as articulated above. In particular, the economic, energy, and food policy systems are the key drivers of emissions. These policy systems also offer incredible opportunities to improve population health and health equity.

4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?

5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

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Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?
7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?
Measurement related to health and climate change in a National Health and Climate Strategy should not be conceptualised as merely pertaining to health system emissions. If this Strategy is to achieve its HiAPs objective, it must contribute to measuring the impacts of climate change, and of mitigation and adaptation strategies, on population health and social equity outcomes that shape the social determinants of health, particularly for marginalised and disadvantaged populations. The health sector should take a leadership role in this, coordinating with other bodies such as the Climate Change Authority's assessment of the impacts of climate change and associated policies on specific priority groups. Collaboration is needed between the health sector and across other sectors and levels of government involved in wellbeing and equity measurement frameworks (e.g. Commonwealth Measuring What Matters; ACT government wellbeing framework; Queensland equity framework). Within this, for example, the Strategy should identify measurement of DALY, life expectancy, and costs to the health care system due to CC, for intersectoral advocacy by contributing to economic rationales for ambitious CC mitigation action. Measurement should also encompass the social determinants of health and assess how climate change and the various policies affect social inequity more generally. Who benefits and who loses from the policies? Do they widen inequities? This approach provides a more systemic lens, ensuring that unintended social impacts do not occur. Our review of mitigation policies and PHE impacts, described below, will directly inform this systemic approach.

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Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?
Emissions reduction objectives, as with the rest of the Strategy, must go beyond the health care system. Given the tremendous threat posed to public health by climate change, especially for the most disadvantaged populations, and the potential for health co-benefits of specific climate change mitigation approaches, this national strategy must adopt a structural and intersectoral approach. The health sector's involvement in emissions reduction policy and planning must go beyond the health care system's emissions to fully embrace a HiAP approach and include health leadership in climate change mitigation planning across policy domains. This role for the health sector should be embedded within formal intersectoral institutions, with explicit mandates to promote health equity via multiple determinants. This includes ensuring that emissions reduction actions are not regressive and promote co-benefits for disadvantaged populations.
9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?
10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?
11. Which specific action areas should be considered relating to **supply chain**, over and above any existing policies or initiatives in this area?
12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?
13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?
14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?
15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?

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16. Where should the Strategy prioritise its emissions reduction efforts? a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas? b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?
The Strategy should prioritise areas where emissions are the highest. Ambitiously stopping the emissions that drive global warming and climatic changes is a crucial upstream preventative measure for public health, therefore the Strategy should focus on intersectoral action to mitigate the greatest sources of emissions. Unless we stop emitting greenhouse gases, everything else is academic. Economic, energy, and food systems are the systems where the most impactful action can happen on climate change mitigation, and these are also key areas for driving improvements in health and health equity. These dual benefits should guide the priorities of the nation's strategy for health and climate change.
17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?

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Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?
Attention to climate adaptation must be equity-informed, multisectoral, and structural. Equity-focused upstream social and economic policies that target fundamental determinants of health are vital for climate change adaptation, and also for health and health equity.
19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes: a. What are the key considerations in developing a methodology? b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally? c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?
No, the Australian government should not separate adaptation and mitigation plans and have a greater focus on adaptation. Adaptation efforts are necessary and important, but without ambitious climate change mitigation it will be increasingly difficult to adapt and prevent disastrous health consequences. These domains are fundamentally inter-linked and synergistic, and should be addressed together in the National Strategy.

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20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?
21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?

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Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?

A holistic, intersectoral approach is required in this Strategy, recognising the inextricable crises of climate change, social inequity, and poor health. Formal mechanisms are required to ensure collaborative and coordinated policymaking across fundamental social, economic, environmental, and commercial drivers of these intersecting challenges. Structural and systemic understandings and actions are needed to underpin this intersectoral institutional collaboration, which is part of what the research in the Planetary Health Equity Hothouse is building toward.

Australian economic growth model

At the ANU Planetary Health Equity Hothouse we have undertaken an exploratory analysis of the PHE implications of the macroeconomic and political economy underpinnings of the Australian growth model. We have demonstrated that the Australian growth model depends on asset and credit-financed consumption to drive economic growth. Growth over the last three decades has been driven by rising property prices and a historically permissive credit environment. From a political economy perspective, a coalition of interests made up of producer groups from sectors tied to property or finance, labour concentrated in the construction industry, and property-owning Australians support the operation of this growth model. We show how the current manifestation of the growth model, and the dominance of its supporting growth coalition, poses risks for PHE in Australia by encouraging excessive consumption and associated emissions and driving economic inequality, both of which contributes to negative physical and mental health outcomes for Australians. Our research suggests that the underpinnings of Australia's macroeconomic model are no longer fit for purpose. Moving forward, macroeconomic policy could be designed to maximize its wellbeing and PHE impacts rather than pursue growth based on asset-price inflation and a permissive credit environment.

Planetary health equity impact assessment of climate change mitigation policies

We have two studies currently in progress that will provide insights into optimising policy and practice for PHE, and will contribute to developing a methodology for PHE impact assessment.

1. The first is a systematic rapid realist review of the international literature on the health equity impacts of climate change mitigation policies. The vast majority of studies focus on the impacts of climate change for health, with relatively few on the relationship of climate action (adaptation and mitigation approaches) and health outcomes, and even less that focus on equity (Berrang-Ford et al. 2021). We found no reviews that bring together the evidence at the intersection of climate change mitigation policies, health, and social equity, so we are conducting our own. At this stage in our review, we have identified around 140 academic articles that discuss health and social equity outcomes of public sector climate change mitigation policy and programs. We are in the process of synthesising this literature along a range of dimensions using a comprehensive framework. This will include information identified in studies about:

- study types and methodologies
- level: supra-national, national, sub-national, local
- target population(s)
- the policy domain

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- the specific public-sector climate change mitigation policy or program, and the resources required
- their impacts on:
    - health
    - emissions (generally)
    - social determinants of health
    - distributive and procedural justice at multiple scales, including between countries, within populations, and inter-generationally
- contextual factors that shape these impacts
- barriers and facilitators for mitigation policy that optimises health equity impacts
- and finally recommendations for policy and future research

By bringing together existing evidence about the implications of climate change mitigation policies for health equity along the dimensions outlined above, this research will provide a knowledge base to inform the design and optimisation of these policies along a range of health equity and justice-related targets, for a range of mechanisms in various policy domains, and at multiple levels. Results from this study will be presented at the Hothouse Annual Symposium at ANU on 13 September 2023, a key opportunity for in-depth discussion across research, non-governmental, and policy perspectives.

2. The second ongoing study within this program of work is an analysis of countries' Nationally Determined Contribution (NDC) reports to determine the extent to which they identify health equity-related implications of mitigation actions within their commitments, and how this varies between sub-groups of companies (for example based on country income level). This study will identify a comprehensive range of factors and targets that shape PHE, and determine the extent to which they are discussed in all countries' NDCs, providing critical insights to inform inter-governmental negotiations and mobilisation of political will for regulating climate-warming emissions as a public health intervention. To date, Australia has performed poorly in identifying health-related implications of climate action in NDCs, therefore there is an opportunity to change the approach to these reports to signal progressive positions and adopt a greater justice-focused lens in line with Australia's historical and current responsibility for emissions causing anthropogenic warming of the planet and climatic changes.

Reference:
Berrang-Ford, L. et al. 2021. Systematic mapping of global research on climate and health: a machine learning review. The Lancet Planetary Health, 5(8): e514-e525.

23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?

Formal intergovernmental mechanisms (such as a committee) are necessary to ensure intersectoral collaboration. A committee for health and climate change should have a rotating Chair, between the climate and health sectors, to foster joint ownership and responsibility. Identifying shared targets across sectors is another important enabler for successful partnership to address intersecting challenges and opportunities for holistic benefits.

Formal mechanisms for inclusive governance are also necessary for pro-active involvement of civil society stakeholders in policy deliberations. Evidence for successful strategies for collaboration and inclusiveness include joint leadership and stakeholder mapping; early engagement and collective problem-framing; clear expectations and

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mandate; collaborative, interactive research strategies; mechanisms for dialogue and information sharing; mutual learning; openness to a wide range of data sources; structured knowledge integration methods; ongoing vs one-off partnerships; and legislative and policy measures to formalise and mandate institutional arrangements, among others (Bandola-Gill et al. 2022; Arthur et al. 2023).

To ensure that collaborative approaches promote the public interest in maximising the synergies between climate and public health policy, partnerships must involve only public-interest-led organisations, excluding industry or other actors that may have structural or institutional conflicts of interest.

References:
Arthur M, Saha R, Kapilashrami A. 2023. Systematic review of community participation and stakeholder engagement in priority setting for health service coverage: assessing effectiveness and equity. Journal of Global Health; 13: 04034.
Bandola-Gill J, Arthur M, Leng RI. 2022. What is co-production? Conceptualising and understanding co-production of knowledge and policy across different theoretical perspectives. Evidence & Policy; 19(2): 275–298.

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Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
Enabler 2: Research Research to improve the evidence base and support priority selection should be informed by an equity lens. Among the plethora of studies on climate change and health – one review estimates that there were nearly 16,000 studies as of April 2020 (Berrang-Ford et al. 2021) – little attention is paid to equity. Given the extent of the existing evidence base, as demonstrated by Berrang-Ford et al. (2021) and WHO (2021), additional investment in research should aim to build on this by filling gaps and orienting attention and funding to neglected topics and groups, including 1) equity-oriented research, 2) evidence focused on marginalised and disadvantaged populations, and 3) upstream, macro-structural drivers of climate change and health and social equity challenges. Enabler 4: Collaboration Strategies for enabling collaboration in the public interest are outlined under question 23. *References:* *Berrang-Ford, L. et al. 2021. Systematic mapping of global research on climate and health: a machine learning review. The Lancet Planetary Health, 5(8): e514-e525.* *WHO. 2021. Climate change and health research: current trends, gaps and perspectives for the future. Geneva: World Health Organization. Available at: https://www.who.int/publications/m/item/climate-change-and-health-research-current-trends-gaps-and-perspectives-for-the-future.*
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider to support delivery?

Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

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NATIONAL HEALTH AND CLIMATE STRATEGY

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Respondent details

What is your name? [redacted]
What is your email address? Please address email communications to [redacted]
What is your organisation? **The Matilda Centre for Research in Mental Health and Substance Use, The University of Sydney** The Matilda Centre for Research in Mental Health and Substance Use is a multidisciplinary research centre committed to improving the health and wellbeing of people affected by co-occurring substance use and mental disorders. Established in 2018, the Matilda Centre aims to generate innovative and workable solutions to address substance use and mental disorders, which are currently the leading global causes of burden and disease in young people. We work closely with research collaborators to share skills, synergise data and harness new technologies to develop and trial innovative prevention and early-intervention programs for co-occurring substance use and mental disorders.
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☒ I have read and agreed to the Privacy Statement
Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
[redacted]
Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative

☒ Academic or Researcher (Group) ☐ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

Questions for feedback from the Consultation Paper

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?
The Matilda Centre for Research in Mental Health and Substance Use (The Matilda Centre henceforth) welcomes and strongly supports the National Health and Climate Strategy as an important step in protecting the health and wellbeing of Australians from the impacts of climate change. The Matilda Centre endorses the four objectives proposed in the Strategy. The objectives demonstrate a clear and comprehensive commitment to improve health and community resilience in the face of climate change.
2. How could these principles be improved to better inform the objectives of the Strategy?
The Matilda Centre supports the six principles proposed in the Strategy and agrees that these are appropriate overarching priorities for addressing this critical public health issue. While the first three principles – First Nations leadership, Tackling health inequities and Population health and prevention – will adequately serve to guide the Strategy's key objectives, the Matilda Centre has provided recommendations and considerations to improve the remaining principles. Given the Matilda Centre's expertise, these recommendations are to ensure mental health is appropriately considered and addressed within the strategies' objectives and principles. **Principle 4 – One Health:** This principle could be improved by recognising that One Health connections between people, animals and the environment may be stronger amongst certain groups. In many Indigenous communities, cultural and spiritual connections to the environment and Country are central to health and wellbeing. Climate change poses significant threats to these connections and can increase the risk of mental health impacts (Vecchio et al., 2022; World Health Organisation, 2022; Lowitja Institute, 2021). **Principle 5 – Evidence-informed policymaking:** While policymaking and actions must indeed be prioritised based on principles of cost-effectiveness, the Matilda Centre recommends the adoption of a *proportionate universalism* approach, whereby health interventions and policies are delivered with intensity and scale proportionately to population need and social disadvantage to address health inequities in the context of climate change (Marmot et al., 2010). **Principle 6 – Cross-governmental partnerships:** The Matilda Centre strongly endorses partnerships across all levels of government to ensure a holistic, consistent, integrated and nationally-coordinated response to climate change. However, emphasis should be placed on the importance of partnerships with local governments, community-controlled organisations and community members to support mental health resilience, particularly following climate-change-related environmental events. As disasters are expected to

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increase in frequency and severity due to climate change, communities will be differentially impacted depending on their level of exposure, preparedness, and access to recovery resources (Intergovernmental Panel on Climate Change, 2023). Partnering with communities to address and prevent health and wellbeing impacts of climate change, as well as strengthening local community capability and capacity, will reduce vulnerabilities and ensure health services and supports are designed and delivered to meet the needs of individuals and their local communities (Australian Government, 2023; World Health Organisation, 2022).

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Australian Government National Mental Health Commission. (2023). National Disaster Mental Health and Wellbeing Framework. https://www.mentalhealthcommission.gov.au/projects/national-disaster-response/disaster-framework

HEAL Network & CRE-STRIDE 2021, Climate Change and Aboriginal and Torres Strait Islander Health, Discussion Paper, Lowitja Institute, Melbourne, DOI: 10.48455/bthg-aj15

Intergovernmental Panel on Climate Change (IPCC). (2023). Synthesis Report of the Sixth Assessment Report.

Marmot M, Allen J, Goldblatt P, et al. Fair society, healthy lives: Strategic review of health inequalities in England post-2010. 2010. https://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review

Vecchio, E. A., Dickson, M., & Zhang, Y. (2022). Indigenous mental health and climate change: A systematic literature review. *The Journal of Climate Change and Health*, *6*, 100121. https://doi.org/10.1016/j.joclim.2022.100121

World Health Organization. (2022). Mental health and climate change: policy brief. https://www.who.int/publications/i/item/9789240045125

3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?

4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?

5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

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Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?
7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?

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Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?
9. Which specific action areas should be considered relating to the built environment and facilities (including energy and water), over and above any existing policies or initiatives in this area?
10. Which specific action areas should be considered relating to travel and transport, over and above any existing policies or initiatives in this area?
11. Which specific action areas should be considered relating to supply chain, over and above any existing policies or initiatives in this area?
12. Which specific action areas should be considered relating to medicines and gases, over and above any existing policies or initiatives in this area?
13. Which specific action areas should be considered relating to waste, over and above any existing policies or initiatives in this area?
14. Which specific action areas should be considered relating to prevention and optimising models of care, over and above any existing policies or initiatives in this area?
E-Health E-health or digital health preventative interventions should be prioritised and optimised as a viable model of care for mental health and substance use primary prevention and early-intervention within the climate change context. In addition to the potential for emission reductions, as highlighted in section 2.6.2, this model of e-healthcare can be widely disseminated at low cost providing maximum benefits for prevention and early-intervention. E-health has several benefits including increased accessibility for under-resourced areas, as well as populations with geographical or financial restraints, thus providing more equitable prevention and access to care, particularly under climate-change-related disaster conditions (Wies et al, 2021; Yellowlees, 2022). Several existing evidence-based mental health and substance use interventions exist for adolescents and young adults which can be optimised and scaled-up. Examples of existing evidence-based e-health programs developed by the Matilda Centre include: • OurFutures mental health and Substance use Universal prevention programs. Delivered to high-school students (Teesson et al, 2020). • The Inroads anxiety and alcohol program. Intervention for young adults, includes content around drinking to cope with existential anxiety such as climate change (Stapinski et al. 2021). **Vulnerable populations- people experiencing homelessness** Prevention programs should also be targeted to vulnerable groups for maximum impact. People experiencing homelessness tend to have more physical and mental health problems than the general population. This group are more likely to access emergency departments than they are to access primary care or preventative health care, leading to high health care costs (Mitchell et al. 2022). Programs that provide outreach primary health care and other supports to people experiencing homelessness can reduce the reliance of this group on the health system and reduce health service use and costs in subsequent years, thereby reducing emissions (Conroy et al. 2016).

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Conroy, E., Bower, M., Kadwell, L., Reeve, R., Flatau, P., & Miscenko, D. (2016). St Vincent's Hospital's Homeless Health Service: "Bridging the Gap" between the Homeless and Health Care. Retrieved from St Vincent's Hospital, Sydney: https://www.westernsydney.edu.au/__data/assets/pdf_file/0010/1346851/St_Vincents_Research_Bulletin_FINAL_FINAL.pdf

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Teesson, M., Newton, N. C., Slade, T., Chapman, C., Birrell, L., Mewton, L., Mather, M., Hides, L., McBride, N., Allsop, S., & Andrews, G. (2020). Combined prevention for substance use, depression, and anxiety in adolescence: a cluster-randomised controlled trial of a digital online intervention. *The Lancet Digital Health*, *2*(2), e74-e84. https://doi.org/https://doi.org/10.1016/S2589-7500(19)30213-4

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15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?

16. Where should the Strategy prioritise its emissions reduction efforts?

    a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?

    b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?

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Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?

Prioritising mental health and substance use impacts

Mental and psychosocial health (outcome 10 in the consultation paper) should be prioritised for adaption action across the Strategy. A growing body of research indicates significant mental health and wellbeing impacts associated with climate change and environmental disasters. Floods, bushfires and other extreme weather events associated with climate change have taken a toll on Australians' mental health. A national poll found that 80% of Australians have experienced an environmental disaster in the past three years, with more than half experiencing a mental health issue as a result (Climate Council, 2022). International evidence demonstrates that an increase in monthly temperatures from between 25-30 degrees to monthly averages above 30 degrees increases the probability of mental health problems by 0.5% points (Obradovich et al., 2018). For perspective, this association, extrapolated across the population of the USA, produces an almost 2 million additional cases of mental health difficulties (Obradovich et al., 2018). Furthermore, encompassed under the Strategy's definition of mental and psychosocial health should also be substance use as there are direct ways climate change will impact substance use behaviours (Vergunst et al, 2022).

Prioritising youth and housing vulnerabilities

Climate change impacts have magnified the already-inequitable distribution of mental ill-health in Australia, and this is likely to get worse (Friel et al., 2008). Compounding place and community-level vulnerability to climate change can amplify mental health inequality, particularly amongst the already-marginalised (Berry et al., 2010). For example, people living in poverty, with disability or severe/enduring mental or substance use disorder, lower income, education or experiencing social marginalisation (e.g., LGBTIQ+) are more likely to live in 'hazardous' areas, precarious and low-quality housing, increasing vulnerability to mental health impacts of such events (Bezgrebelna et al., 2021; Cornell et al., 2020; Berry et al., 2010). It is imperative these groups are supported and have access to inclusive mental health services and crisis services in the aftermath of climate disasters. Youth and people experiencing housing vulnerabilities are two groups which must be prioritised.

Youth

Extensive research conducted by the Matilda Centre highlights the importance of addressing globally high rates of mental ill-health and substance use amongst youth using evidence-based prevention and early intervention strategies. Among young Australians (16-24 years), approximately 40% experienced symptoms of a mental disorder in the previous 12 months (ABS, 2022). Climate change and related disasters pose a serious threat to young peoples' physical and mental health due to rapid neurological changes during this critical period of development and their limited agency to adapt to environmental threats (Sheffield & Landrigan, 2011). Indeed, climate change was identified as a top mental health concern according to the Matilda Centre Youth Advisory Board and the latest Mission Australia Youth Survey Report. As such, young people should be prioritised as a vulnerable group as part of the Strategy. The Matilda Centre strongly advocates for young peoples' meaningful participation and engagement in climate change planning and adaptation efforts to ensure their voices are heard in decision-making contexts and their unique mental health needs are met.

Housing

The Matilda Centre recommends that the Strategy's description of 'Health impacts related to housing security' (page 25) should be amended and extended to include 'housing conditions and quality'. Evidence shows that poor-quality housing degrades resident

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physical health during extreme weather events, leading to mental ill-health (Evans et al., 2003; Cornell et al., 2020). Many modern Australian housing developments lack insulation and passive design aspects required for climate change adaptation, exacerbating health risks and triggering ongoing health issues (Vardoulakis et al., 2015; Australian Senate, 2018).

Methods and processes to address mental health impacts, risks, and vulnerabilities

Research

While existing literature clearly demonstrates the detrimental effects that climate change is having on several mental health outcomes, significant research gaps still exist in part due to lack of research funding (Charlson et al., 2022). Greater investment in cross-disciplinary climate change and mental health research activities will further improve the evidence base to better understand mental health, wellbeing and substance use trends; identify risk factors and vulnerabilities; and support Australian communities in the face of climate change and future climate events. Indeed, tracking mental health indicators will be fundamental in aiding preparedness, mitigation and adaptation efforts. Additionally, tracking seasonal trends in climate-related mental distress (and health more broadly) is critical to ensure sufficiencies within the mental health workforce and resources during these periods, particularly in regions with higher vulnerability (i.e. bushfire and flooding-prone areas).

Clinical

Advanced planning is required to mitigate the risk that extreme weather events cause for substance users. During and after climate disasters, people who use substances face disruptions to opioid substitution therapy, clean injecting equipment, access to safe injection places or people, and other medication such as HIV medication (Pouget et al., 2015). These people are subject to the extreme health risks associated with withdrawals and risk bacterial and fungal infections as well as communicable disease due to non-hygienic injection practices (Blake & Lyons 2016; Pouget et al., 2015). Moreover, it is crucial to ensure access to life-saving, overdose prevention medication (Naloxone) is not disrupted due to extreme weather events and climate or other emergencies (Collins et al., 2020). Proactive development of emergency management plans that enable service continuity for people who use drugs are critical in minimising the impact of climate disasters on the health and wellbeing of Australians (Blake & Lyons 2016).

Approaches are needed that avoid pathologizing normal emotions and prioritise understanding of when clinical intervention is necessary. Such an approach must recognise that mental distress in response to climate change is an expectable response to a difficult and complex situation. Assuming all who have this reaction need clinical intervention or that these emotions are pathological can further stigmatise and exacerbate those affected (WHO, 2022). Clinical services should focus on supporting people's ability to cope with this distress in healthy ways, rather than suggesting these thoughts or emotions should be avoided, while providing appropriate supports to those who experience functional impairment and/or seek help.

Community engagement

Communities should be consulted and engaged in climate change preparedness and environmental disaster planning and recovery efforts to ensure their unique place-based mental health needs are met and that safe, appropriate and timely interventions and policies are delivered to support mental health and wellbeing. Furthermore, community-led collective action, planning and engagement can strengthen social capital, increase social connections and help to address the mental health and wellbeing impacts of climate change (Longman et al., 2023).

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19. **Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan?** If yes:

   a. What are the key considerations in developing a methodology?

   b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally?

   c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

The Matilda Centre supports the undertaking of a National Health Vulnerability and Adaption Assessment and subsequent development of a National health Adaption Plan.

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Key considerations in developing a methodology and existing work being undertaken in this space are listed below.

- At both a national and local level we emphasise the importance of working with vulnerable communities, including young people and those with lived experience of mental illness and/or substance use, to develop the Adaptation Plan. The Matilda Centre has effectively established a Youth Advisory Board who provide input into youth focused governance and research at the Centre (Prior et al. 2022)
- The Australian Government methodology must recognise the unique role of place (particularly neighbourhood and the built environment) in vulnerability and resilience to climate change. For example, most Australians live in cities, making them susceptible to distress associated with heat-stress urban environments, e.g., from vehicular transport, building heat waste or 'heat islands'. Resilient communities can be a source of individual resilience during climate events, providing social and material support which is protective against mental ill-health, and can be a source of shared learning and improve shared resilience to future events. With adequate resources and expert guidance, communities are uniquely placed to develop their own adaptation plans to match their local physical and social conditions. This algins with the Strategies Local and Jurisdictional planning approach outlined in section 3.1.2.

The University of Sydney Matilda Centre and Henry Halloran Trust are commencing the '*Climate change, place and mental health'* project, which examines the intersections between climate change, the built environment, community and mental health in the Australian context. Using nationally-representative data and multidisciplinary expertise, it aims to i) understand the causal pathways and intersections between built environment and mental health in the context of growing climate change in Australia and to ii) identify vulnerabilities and protective factors to such impacts at an individual, community and place-level. As such the National Health Adaption Plan should draw upon the findings of this work which will be made publicly available once complete.

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20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?

21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?

The Matilda Centre has identified the following items as high-priority adaption actions for the next 24 months:

- Expanding access to mental health services particularly in rural/remote locations and improving telehealth capacity for mental health and substance use.

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- Capacity building for health professionals to understand the mental health impacts of climate change and be able to provide psychological support.
- Culturally-sensitive mental health and substance use services for First Nations people, recognising both heightened vulnerability and inequalities associated with climate change and mental health (and health more broadly).
- Adapting our mental health systems to include a greater focus on prevention to complement treatment. Given mental health treatment services are currently severely overburdened and have long wait times, investment in and upscaling of existing preventive interventions to promote more adaptive ways of coping with climate stress and averting mental health problems are critically needed. There are several evidence-based prevention programs for mental health and substance use including OurFutures (https://ourfuturesinstitute.org.au/), Preventure (https://positivechoices.org.au/teachers/preventure), Inroads (https://inroads.org.au/). Upscaling these programs to achieve broader reach across regional, rural, and remote areas could help to prevent mental health and substance use problems before they begin, alleviating burden on mental health treatment services.

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Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?

The Matilda Centre supports the adoption of a Health in All Policies approach in addressing the health and wellbeing impacts of climate change. While it is clear that climate change will have immense impact on Australians' physical and mental health – with associated upticks in health service use and emissions – many of the interventions required to reduce this impact lie outside the remit of the health portfolio. Given the role of a person's built environment (e.g., housing, planning, transport and land use) in their exposure to climate change risk, policies and practices pertaining to these aspects should consider impacts to population health and undergo health impact assessments.

Furthermore, Health in All Policies will broadly assist in understanding how intersecting inequities (e.g., financial, housing, employment, pre-existing mental ill-health) interact and contribute to worse or better mental health outcomes. The Matilda Centre encourages the Strategy to account for this complex interplay and intersection of factors that places an individual at greater risk of poorer mental health outcomes.

Furthermore, a Health in All Policies approach aligns with the Australian Government's 'Measuring What Matters' Framework which aims to capture a wide range of factors that influence wellbeing, including the natural environment and changing climate. These factors are guided but the Framework's five key wellbeing themes, including *healthy, secure, sustainable, cohesive* and *prosperous*. Drawing on the strengths and existing plans of the Framework, as well as collaborating with the Measuring What Matters initiative, may help to realise the shared goal of improving population health and wellbeing.

23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?

To facilitate collaboration and partnership it is imperative to get buy-in from key stakeholders and leaders who are motivated to explore new ideas and are willing to learn from other disciplines. Appropriate structures must also be put in place which facilitate these synergies, such as clearly defined roles and specific funding targeted to multidisciplinary approaches to climate policy and public health policy. The Matilda Centre strongly believes cross-disciplinary research collaborations are essential for driving climate change and mental health research. Two examples of successful cross-disciplinary collaborations include:

- International governments have been successful in implementing cross-sectoral approaches to large challenges to public health. For example, 'A connected society: A strategy for tackling loneliness' (2018) aimed to embed loneliness as a cross-cutting consideration across the policy of multiple departments. This included pilot studies in departments outside of health (e.g., Department of Work and Pensions, Department of Housing, Communities and Local Government) Central government provides national leadership on the agenda and the success of the strategy is measured by the government's loneliness measure.
- The Matilda Centre is leading innovative research in this area, aiming to understand how cross-government approaches to wellbeing can be best implemented. The project synthesises new and existing evidence required to create a National Wellbeing approach to policy, drawing on international case studies of similar policy frameworks, such as the UK Loneliness Strategy.

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Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider to support delivery?

Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

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NATIONAL HEALTH AND CLIMATE STRATEGY

Detailed submission form

This form allows you to provide responses to the full set of questions in the Consultation Paper available here.

Alternatively, you may wish to complete the briefer online survey available here.

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Respondent details

What is your name?
[redacted]
What is your email address?
[redacted]
What is your organisation?
Australian Institute of Health and Welfare
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☒ I have read and agreed to the Privacy Statement
Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
[redacted]
Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative ☐ Academic or Researcher ☐ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

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Questions for feedback from the Consultation Paper

Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?
The Australian Institute of Health and Welfare is an independent statutory Australian Government agency producing authoritative and accessible information and statistics to inform and support better policy and service delivery decisions, leading to better health and wellbeing for all Australians. The AIHW's Australian Centre for Monitoring Population Health brings together the latest data and information on the health of Australians including respiratory conditions and injury and is well placed to provide data and statistics to support the strategy. The AIHW's Australian Burden of Disease Study is a methodology which can be used to prioritise impacts, risks and vulnerabilities relating to the impact of climate related disease and risk factors. Estimates produced from a burden of disease study are the best summary measures of a population's health. Burden of disease analysis measures the impact of fatal and non-fatal burden; that is, both deaths and living with poor health. Further, it maintains comparability of these metrics between diseases, population groups and over time. The contribution of various risk factors can also be described using the same metrics. Burden of disease studies provide valuable information to inform health policy formulation and health service planning. By comparing all diseases together, these studies can highlight which diseases and risk factors cause the most burden, which are increasing or decreasing, and which are causing the greatest health inequalities and gaps and this makes it a valuable data source to help establish priorities. As well, estimates of the burden attributable to specific risk factors can be used to target prevention or adaptation policies. These methods could be used to estimate the health burden in Australia from the negative health outcomes described in this consultation paper including how First Nations people are impacted and variation by population groups, geography and over time. In addition it would be possible to explore methods to estimate the burden due to risk factors relating to climate change.
19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes: a. What are the key considerations in developing a methodology? b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally? c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

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Nil response

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20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?
Nil response
21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?
Nil response

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Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?
Nil response
23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?
Nil response

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Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
Nil response
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider to support delivery?
Nil response

Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

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Respondent details

What is your name?
[redacted]
What is your email address?
[redacted]
What is your organisation?
Australian Health Promotion Association The Australian Health Promotion Association Ltd (AHPA ®) is the peak body for health promotion in Australia. Incorporated in 1990, AHPA is the only professional association specifically for people interested or involved in the practice, policy, research and study of health promotion. Our vision is for a healthy, equitable Australia, delivered through leadership, advocacy and workforce development for health promotion practice, research, evaluation and policy. Our member-driven national Association represents over 1000 members and subscribers with branches representing each state and territory. Members represent a broad range of sectors including health, education, welfare, environment, transport, law enforcement, town planning, housing, and politics. They are drawn from government departments and agencies, universities, non-government organisations, community-based organisations and groups, private companies, and students.
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☑ I have read and agreed to the Privacy Statement
Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
[redacted]
Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative ☐ Academic or Researcher ☑ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

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Questions for feedback from the Consultation Paper

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?
The Australian Health Promotion Association (AHPA) supports the following areas to better support the visions of the Strategy, however, there is scope for improvement which emphasises a health systems paradigm recognising the intricate connection between socio-ecological determinants for health and wellbeing. Below are AHPA endorsements for areas of support: ● As the determinants of health occur in those sectors outside of the health system, AHPA strongly endorses a Health in All Policies approach. ● Climate change will negatively impact the socio-ecological determinants of health, therefore actions to mitigate climate change, such as minimising health systems contribution to carbon emissions, is supported by AHPA. ● Health systems resilience contributes to healthy settings for health and is strongly supported by AHPA. AHPA's recommendations for areas of improvement: ● A strong Vision Statement which encapsulates the key features needed in this Strategy to deliver sustainable action and protect and promote health and wellbeing is required. We recommend: "A climate resilient community and net zero healthcare system". ● Objectives in the Strategy need to be more clearly defined to provide detailed and usable application by services and agencies in the health and environmental sectors. ● To better reflect a health systems paradigm, inclusive of health and environmental sectors, it is recommended that the order and emphasis of objectives be as follows: ○ Objective 1. Promoting and protecting health and wellbeing ○ Objective 2. A climate resilient community ○ Objective 3. A net zero health and aged care system ● To address climate emergency priorities, the Strategy needs to specify emissions reduction targets. AHPA supports the Nationally Determined Contribution which specifies a reduction in national greenhouse gas emissions of 75% below 2005 levels by 2030 and net zero emissions by 2035 for all sectors, inclusive of healthcare and exports. ● To achieve specificity in the Strategy's intent regarding emissions reduction, current Objective 1 needs to include specific and measurable elements. These are to be reconsidered as "enablers" and incorporated into the revised Objective 3: *A net zero health and aged care system*.
2. How could these principles be improved to better inform the objectives of the Strategy?
AHPA endorses principles of social justice and equity, and the health promotion tenets of enabling, mediating and advocating for health. Therefore, we support the six principles outlined especially those emphasising the determinants of health and prevention, and recognition for First Nations leadership. Areas for improvement: ● The "Principles" informing the strategy need to reflect the inextricable links more holistically between the health of the planet, and health of people. This is best reflected in a Planetary Health approach. This approach encompasses one of the key principles in the Ottawa Charter for Health Promotion emphasising the fundamental human right to health and a safe planet. This has recently been elaborated in the Geneva Charter for Wellbeing ● To address the longevity of the climate-crisis, the principles also need to reflect intra- and inter - generational justice. ● As health promotion action occurs across sectors, Principle six needs to include the role of healthcare workforce across primary, tertiary and community sectors.

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- Stakeholder involvement will be key to the Strategies success, therefore collaboration with consumers and other stakeholders needs to be enshrined in governance mechanisms that enable and facilitate partnerships with all relevant stakeholders.

3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?

As climate change will impact all other determinants of health, AHPA provides unreserved support for mitigation including emissions reductions from the health and aged care sectors.

Areas for improvement:

- A clearer definition of the "health system" is needed to understand the breadth of action required to reduce greenhouse gas emissions.
- As mentioned previously, the Strategy needs to support an updated Nationally Determined Contribution that reflects the current health-climate emergency. Health and environment sector stakeholders are proposing a reduction in national greenhouse gas emissions of 75% below 2005 levels by 2030 and net zero emissions by 2035 for all sectors, including healthcare, and including emissions from exports.

4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?

Guided by its principles of social justice and equity for all, AHPA supports the inclusion of climate change impacts on marginalised and vulnerable communities including First Nations peoples' health and wellbeing.

- Coming from a strengths-based approach, AHPA endorses engagement with First Nations cultural knowledges.
- AHPA strongly supports alignment between the Strategy's goals and targets with other policies which impact First Nations health and wellbeing.

Areas for improvement:

- It is recommended that the Strategy refer to Aboriginal and Torres Strait Islander controlled organisations for initial contact to ascertain First Nations voices to climate emergency, refer to National Aboriginal Community Controlled Health Organisation
- A key document collaborating with First Nations people and their response to climate and health can be found at Lowitja Institute Climate Change and Aboriginal and Torres Strait Islander Health Discussion Paper
- Extensive consultations with First Nations people regarding health has been undertaken in this report My Life My Lead

5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

In line with AHPA's commitment to community and strengths-based approaches to health promotion, we strongly endorse partnering with First Nations people in co-design of the governance structures for the Strategy.

Areas for improvement:
AHPA affirms the primacy of self-determination for First Nations people and suggests the following key publication, co-authored by Indigenous researchers, in demonstrating both essential content and modelling to guide effective partnering in governance structures for the Strategy see: Closing the gap between rhetoric and practice in strength-based approaches to Indigenous public health

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Proposed Objective 1: Measurement

6. **Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?**
• AHPA provides general support for evidence-based approaches to decarbonising of the healthcare system. • We support Commonwealth schemes outlined in the Consultation Paper and for Commonwealth leadership that ensures coordination and collaboration across Australia. Areas for improvement: • Clearer articulation of the "health system", for example to include aged care, Australian healthcare suppliers and manufacturers, will enable accountable emissions from this sector. • Objective 1 should be reconceived as an enabler to mitigation, informed by Health in All Policies and referenced to the lived experience of consumers, rather than as a standalone objective. **Existing and planned initiatives** AHPA is a nationwide advocacy and professional support association for professionals and services undertaking health promotion and preventative activities for the promotion of community and population health across Australia. Our work is focused on enabling, advocating and supporting health promotion in multiple sectors, and therefore we are not directly involved in service delivery, or any initiatives associated with measuring or reporting health system emissions and/or energy use in Australia. However, we are aware of multiple policy and planning initiatives at community, local government and regional scales which are actively pursuing these activities as co-benefits to the environment and people. As one such case, we refer you to the exemplary work of the Loddon Mallee region in Victoria and their Loddon Mallee Climate Change and Health Framework. In addition, we do manage the Health Promotion Journal of Australia which publishes climate health content and which provides a vehicle to report on progress.
7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?
AHPA supports the inclusion of scope 3 emissions. Areas for improvement: • AHPA's remit is health promotion provision and workforce professionalisation at multiple levels and settings nation-wide. It is important that the Strategy provide guidance on establishing the carbon footprint of different models of health service delivery, to inform decision-making including for activities undertaken by the health promotion, prevention and broader public health workforce.

Proposed Objective 2: Mitigation

8. **What do you think of these proposed focus areas for emissions reduction? Should anything else be included?**
AHPA supports the inclusion of prevention and models of care, supply chains, and medicines and gases for emissions reduction. Areas for improvement: • The aim of the Strategy is to ensure co-benefit of action on climate change and health is achieved. Therefore, Objective 2 needs to include how the Department is going to support emissions reductions that benefit health outcomes across all sectors. This should include

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supporting the implementation of decarbonisation strategies across sectors for the betterment of intergenerational health and wellbeing.
- Objective 2 needs to specify strategies to support reduction of emissions across all sectors and include energy as a standalone focus while including food as a focus area. This will assist health promotion practitioners and services to plan and provide mitigation activities in line with co-benefit principles to people and planet.
- Re-word 'waste' to 'sustainable resources' more aligned to a Planetary Health framework for sustainability.

9. Which specific action areas should be considered relating to the built environment and facilities (including energy and water), over and above any existing policies or initiatives in this area?

- Strong support of consideration of reducing emissions from both building design and construction, and building operation.
- Strong support for transitioning to renewable energy sources and electrification.

Areas for improvement:
The Strategy needs to consider how health promotion and prevention can be better supported and resourced to provide community and local action to support better health to reduce demand for large, resource-intensive health care facilities and ensure only absolutely necessary buildings are constructed without compromising patient outcomes.

10. Which specific action areas should be considered relating to travel and transport, over and above any existing policies or initiatives in this area?

- Strong support for building on existing work to improve fuel quality and to reduce noxious emissions from vehicles.

Areas for improvement:
The Strategy needs to outline how more active and public transport access and incentives for staff, patients and visitors of health services can be promoted in a co-benefit framework for promoting health of people and planet.

11. Which specific action areas should be considered relating to supply chain, over and above any existing policies or initiatives in this area?

General support for the inclusion of emissions reduction within supply chains, and leveraging joint purchasing power.

12. Which specific action areas should be considered relating to medicines and gases, over and above any existing policies or initiatives in this area?

General support for the inclusion of emissions reduction related to medicines and gases.

13. Which specific action areas should be considered relating to waste, over and above any existing policies or initiatives in this area?

General support for the inclusion of emissions reduction related to waste.

14. Which specific action areas should be considered relating to prevention and optimising models of care, over and above any existing policies or initiatives in this area?

Strong support for the inclusion of preventive health, particularly primordial and primary prevention, more specifically health promotion which has a dedicated workforce, competency set and supporting Association. As one of the three centre services of public health along with prevention and protection, Health Promotion should be a core function and feature of the Strategy to support stronger climate, health and economic outcomes by improving health and wellbeing to keep people out of hospitals and the acute primary healthcare system.

Approaches that consider the wider determinants of health are fundamental for promoting health and wellbeing, while also reducing health inequities.

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The Strategy should:

- explicitly articulate how primordial and primary prevention will promote health and wellbeing and support reductions in disease burden.
- explicitly support the commitment of the National Preventive Health Strategy to 5% of health spending for prevention.
- explicitly include actions for how it will support state and territory governments in preventive health measures that promote health and climate co-benefits, for example, active transport, healthy housing etc.
- explicitly include actions on how it will coordinate action across the existing and new national strategies.
- explicitly include how it will support key aspects of policy in other portfolios that have an impact on health and wellbeing outcomes (e.g. transport, infrastructure, housing, food/agriculture).
- explore opportunities for health system funding reform to support health promotion and primary prevention.
- explore and recognise the value of health promotion (primordial prevention) in reducing GHGs by reducing illness and demand for health care services while simultaneously improving wellbeing. This can be done by:
  - Increasing funding for primary prevention including the National Preventive Health Strategy, the National Strategy for Injury Prevention, the National Obesity Strategy and the Australian Centre for Disease Control
  - Increasing funding for health promotion alongside policy support for health promotion research and action to mitigate the health impacts of climate change.
- While actions 2.6.1 - 2.6.4 are all positive, they need to include defined targets.

15. **What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?**

This is outside AHPA's remit, however we support the responses of the Climate and Health Alliance, specifically:
Areas of support:
● General support for the inclusion of private providers within the health system - pending management of conflicts of interest where appropriate

Areas for improvement:
● The Strategy should set a goal to include climate change mitigation and adaptation requirements in healthcare accreditation standards.
● The Strategy should demonstrate leadership by developing a clear, ambitious decarbonisation plan that sets out responsibilities and opportunities for the private sector, provide certainty and help guide decisions and investment
● There is much more to do in increasing understanding among health executives and boards in relation to their fiduciary responsibility ('duty of care') and potential for personal liability if they fail to account for climate risks in strategic and operational plans. The Strategy should set a goal that requires all health services and other relevant services to conduct climate change risk assessments as a core risk management strategy.

16. Where should the Strategy prioritise its emissions reduction efforts?

a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?

b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

General support for immediate and coordinated action to reduce emissions where possible, however prioritisation of efforts should be informed by best practice and deliver value through

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including strategies and approaches that consider emissions reductions, financial costs and savings, efforts, health benefits and cost of inaction.
17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?
This is outside AHPA's remit, however we refer to the work of ATACH: https://www.who.int/initiatives/alliance-for-transformative-action-on-climate-and-health/resources

Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?
Strong support for inclusion of health systems resilience in the Strategy, the focus on communities experiencing vulnerability, cross-government cooperation, and the acknowledgement that impacts of climate change are already being experienced. ● While there is support for the inclusion of adaptation within the Strategy, the content requires stronger alignment with the objectives outlined previously. It is recommended that objectives are re-organised to ensure the purpose of the strategy is best reflected. ○ Objective 1. Promoting and protecting health and wellbeing — this Strategy will inform and guide the development of policy and initiatives that embed equitable health and climate considerations across all portfolios at all levels of government. ○ Objective 2. A climate resilient community — this Strategy will support the development of initiatives to build community, health and aged care system resilience and capacity to respond to the health impacts of climate change. ○ Objective 3. A net zero health and aged care system — this Strategy will guide the development of a national net zero plan for health and aged care, informed by a comprehensive assessment of the Australian health and aged care system's carbon footprint and reflect best scientific evidence. ● The Strategy must broaden the focus toward planning for building resilient communities, in addition to developing emergency event response plans. While there is strong support for the inclusion of harms for communities experiencing vulnerability in emergencies and times of crisis, the Strategy must also address health harms associated with incremental climate change (e.g. heat and sea level rise). The Strategy should consider measures to increase the capacities of communities to anticipate their climate risks and reduce impacts on health and wellbeing inequities in their communities. ● Adaptation will only be effective if the wider community understands the risks to health from climate change, and are empowered to take health protective actions. As such, the Strategy should include a public education campaign that highlights the risks to health and the health benefits of adaptation as critical to the success of any adaptation action. The Strategy should also consider public education campaigns that promote healthy, low emissions lifestyles. ● 'Policy responses to ameliorate impacts' should include responses across sectors and government departments (at all levels of government) including housing, education, infrastructure and transport. ● The Strategy should explicitly outline the direct and indirect mental health impacts of climate change, for example, climate anxiety, limited access to services during acute weather events, limited access to open, safe spaces. ● The Strategy should recognise the overall increase in burden of disease because of climate change and include goals and targets as part of resilience planning.

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19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes:

a. What are the key considerations in developing a methodology?

b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally?

c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

Strong support for the development of a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan.

● The development of a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan should be conducted as part of the National Climate and Risk Assessment processes and not as a duplication of efforts. Execution of this assessment should be a whole of government approach, and not limited to the Department. The Strategy should account for the lived experience of consumers, all people living in Australia, and intergenerational equity as part of vulnerability and adaptation planning; health equity assessment should be incorporated in any risk assessment.

● The methodology used needs to identify policy gaps and opportunities for improving population resilience, addressing climate-related health inequities, and to identify evidence-informed interventions across government portfolios.

20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?

Areas of support:
● General support for a nationally consistent and harmonised approach to vulnerability assessment and adaptation planning for the health system.

Areas for improvement:
● The assessment should require consideration of the complex and extensive range of vulnerabilities across different communities and regions, the diversity of ecosystems and natural environments and climates across Australia, the wide variety of health and wellbeing considerations, and how these are being impacted by climate change.

● It is recommended that guidance for the assessments take into account policies and tools that have already been developed (e.g. at the local, state and territory level), and action that has already occurred (e.g. at the health service or community organisation level) to avoid duplication of effort.

● Guidance is recommended for a broad range of health and aged care services and organisations including health promotion, prevention, primary care services, and aged care; needs to be adaptable to different service and place-based settings.

● Implementation support in the form of tools, knowledge and capacity building, and finance, is recommended as essential. This work takes considerable time and resources, and requires input from multiple internal and external stakeholders, including the health promotion sector and workforce.

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● The Strategy should seek to adopt existing tools. Guidance and support should be provided for assisting health services and other organisations with community health and wellbeing remits to assess and plan for climate risks to healthcare infrastructure, service provision (including surges in service demands and changing burdens of disease), the health workforce, and supply chains.

Relevant tools include:
○ Queensland Climate Risk Strategy and Adaptation guides
○ Human Health and Wellbeing Climate Change Adaptation Plan for Queensland
○ NSW Climate Risk Ready program
○ Victorian Health and Human Services Climate Adaptation plan
○ Resources from the World Health Organization
○ Sydney North Health Network Climate and Health Strategy

21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?

Areas of support:
● General support for prioritisation of high-priority health system adaptation actions.

Areas of improvement:
● The Strategy should support:
○ Well-designed adaptation measures that prioritise and support primary health co-benefits
○ Resourcing, education and capacity building among policymakers, community members, the health care (including the health promotion workforce), and within emergency and disaster preparedness services and agencies
○ Food and housing systems, including food security
○ Promoting and advocating for sustainable and health promoting transport systems
○ Responding to escalating inequity, increasing poverty, homelessness
○ Preparedness for health threats resulting from human influence on natural ecosystems
○ The full societal costs of climate inaction over short and long time-frames, promotion of intergenerational equity, and the implications of health-relevant policies across all sectors need to be fully and systematically considered to prevent the hidden transfer of costs to the health sector and the undermining of environmental sustainability.
○ Support and resources for rural and remote health services and community organisations to improve resilience

Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?

Strong support for the adoption of a Health in All Policies (HiAP) approach to the Strategy, and recognition of the broader determinants of health. The determinants of health and climate impacts are interconnected and multifactorial in nature, requiring an integrated response (Romanello et al, 2022). Climate mitigation strategies which span across energy, transport, planning, and food/agriculture policy all offer opportunities to increase health and wellbeing outcomes, minimise health risks, while also reducing greenhouse gas emissions and saving money (CAHA, 2020). Action to promote health and reduce the health risks from climate change requires working across all sectors and all levels of government.

Support for the following areas:
- Sustainable and healthy transport policy which promotes a modal shift to active travel and clean transport,

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- Food, Agriculture and Trade policy which promotes equitable access to affordable, sustainably sourced, and healthy food,
- Housing policy which promotes improving thermal comfort and qualities, clean household energy, and land use and housing density.

Other areas to consider include planning policy and standards which can influence neighbourhood liveability, walkability, dwelling density, street connectivity, etc (Backholer K, Baum F, Finlay S, et al. 2021). Evidence that could be used to inform this include the Healthy Liveable Communities Urban Liveability Checklist and the Heart Foundation's Healthy Active by Design principles.

The current structure of the Strategy needs revision to fully address the health risks posed by climate change. The Strategy requires a stronger overall focus on maximising the health co-benefits of a range of climate mitigation and adaptation actions, in addition to reducing the current risks to population health because of climate change.

23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?

Strong support for a collaborative approach to policy development, cross-sectoral engagement and collaboration, and alignment with international policy, including the Sustainable Development Goals. An integrated policy approach to address climate change and health initiatives requires strong governance, national leadership, and coordination across multiple levels of government.

The Strategy requires the establishment of a National Committee consisting of experts representing health, climate science and implementation science and Commonwealth, state and territory Ministers with portfolio responsibility for Health, Environment, Climate Change and Energy. Regular engagement should be considered with Ministers with responsibility for related portfolios, including Mental Health, Resources, Emergency Services, Planning, and Infrastructure with respect to policies, programs and initiatives in these portfolios that align with the Strategy.

The Ministerial Committee should have responsibility for overseeing the development of the Strategy, including setting the overall policy direction and providing final approval for the Strategy's policies, programs and initiatives. This Committee should seek to foster both horizontal and vertical collaboration in implementing climate change and health initiatives, including health promotion stakeholders. A 'Climate Change and Health' standing committee of the Australian Health Protection Principal Committee (AHPPC) should be established to provide advice to the Ministerial Committee. An appropriate national agency should lead and deliver the coordination and implementation of policies, programs and initiatives within the Strategy. Integration of the Strategy with other significant health strategies, such as the National Preventive Health Strategy and Australia's Long Term National Health Plan, should be considered. Furthermore, the Ministerial Committee should have monitoring and reporting responsibilities to the National Cabinet (or any subsequent body) on the progress and outcomes of the Strategy. These outcomes should be made publicly available in a detailed annual report.

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Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?

General support for the enablers as outlined in the Strategy.

Areas of improvement:

- Workforce, leadership and training - in addition to supporting the skills and capacity of clinical health and aged care workers, the Strategy needs to recognise the highly valuable public health workforce including the specialised role of the health promotion workforce in

climate change adaptation, mitigation and resilience (Patrick, Capetola, Nuttman & Townsend 2012). This is particularly as those in health promotion roles are often community facing, in research or in policy, providing a critical avenue to support the health and other workforces. Training on planetary health needs to be central in building the capacity of the health promotion sector within relevant courses and workplaces. The health promotion workforce requires skills in climate change and health communication, partnership engagement to support planetary health approaches; and skills in the planning and delivery of health co-benefit interventions. A planetary health framework adopted by the International Union for Health Promotion and Education (IUHPE) has highlighted the necessity for health promotion training to incorporate a focus on the ecological determinants of health. (Backholer K, Baum F, Finlay S, et al, 2021).

- There is also a lack of support for general workforce capacity building and training. There is a need for a national cross discipline continuing professional development program on climate change and health for the health and social sector. Training is either discipline specific (which doesn't encourage or support collaboration) or ad hoc (and therefore reaches too few people), or expensive (not everyone can afford for profit education courses). The Strategy should resource the health, specialist health promotion and prevention workforce to support climate change mitigation strategies a focus on health equity.
- The Australian Health Promotion Association is responsible for registration of health promotion practitioners in Australia, and as such is uniquely placed to support initiatives to enhance climate and planetary health capabilities through continuing professional development as well as assessment of competencies. Ecological determinants of health are a critical component of the health promotion knowledge base, as is community engagement and advocacy and program development, implementation and evaluation. Health Promotion Practitioners could play a vital role in supporting implementation, monitoring and evaluation efforts.
- Research – there is a high priority need for better data on climate related health and wellbeing outcomes (which also consider vulnerability and at-risk populations), and to increase understanding the health, social and economic benefits associated with climate action. Key research gaps for advancing health promotion action to address climate change include:
  - Understanding the economic value of health benefits associated with health-promoting strategies to address climate change mitigation and adaptation e.g., active transport
  - Monitoring and measuring the psychological and social impacts of the ongoing threat of climate change particularly among vulnerable population groups, e.g., mental health impacts of climate change in regional communities
  - Assessing the impacts of climate change on determinants of health, such as housing, employment, food security and the built and natural environment. (Patrick et al, 2019)
- Communication and engagement - encourage the identification of equitable engagement processes to collaborate proactively with vulnerable populations to enhance their adaptive capacity to the health impacts of climate change.
- Collaboration - there is limited support for mechanisms for partnerships and collaboration on climate change and health. The collaboration of the health sector to date has primarily been self-organised. To amplify and increase the impacts of existing collaborative efforts, government investment is required.
- Monitoring and reporting: Regular national assessment and forecasting of climate related health impacts are essential. Long-term monitoring of robust indicators would help governments and services understand climate change risk, identify specific vulnerabilities, highlight region-specific climate mitigation and adaptation challenges, and track how communities and organisations are responding. Implementation progress, impact, and cost benefit analyses of the delivery of climate and health solutions is also required.

Australia is very good at developing strategies. However, it is in detailed implementation, resourcing and evaluation and transparent and regular progress reporting that there is still room for improvement, particularly in reporting back to communities in a way that is clear and relevant

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to their needs. It is recommended the enablers be expanded to include governance, finance and implementing planning. All of these are crucial aspects in the successful implementation of any national strategy.
25. For each of these enablers: **a. What is currently working well?** **b. What actions should the Strategy consider to support delivery?**
As above.

Other/further info:
AHPA would like to provide support for and interest in being part of the consultation and development of forthcoming actions from this Strategy to addressing the health impacts of climate change. AHPA is willing to contribute its professional support, advocacy and knowledge relating to health promotion and prevention in future action. We would like to highlight the range of health promotion related research published in a special issue and virtual issue of the Health Promotion Journal of Australia which may be of interest.

The Australian Health Promotion Association is a founding member of the Climate and Health Alliance and is a member of the Global Climate and Health Alliance and Planetary Health Alliance.

Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

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Australian Government
Department of Health and Aged Care

NATIONAL HEALTH AND CLIMATE STRATEGY

Detailed submission form

This form allows you to provide responses to the full set of questions in the Consultation Paper available here.
Alternatively, you may wish to complete the briefer online survey available here.
Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Respondent details

What is your name?
Gill King
What is your email address?
convenor@livingstreets.org.au
What is your organisation?
Living Streets Canberra
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☒ I have read and agreed to the Privacy Statement
Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
☐ Yes ☒ No ☐ Prefer not to say
Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative ☐ Academic or Researcher ☒ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

Questions for feedback from the Consultation Paper

Introduction

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1. How could these objectives be improved to better support the vision of the Strategy?

1. **Measurement and reporting** should not be limited to greenhouse gas emissions from the health system' but should include and/or be adjusted for:
   - impacts on the health system (and its greenhouse gas emissions) as a result of inactivity and transport being undertaken by motor vehicles rather than by active transport; for example, people's poor health from pollution from motor vehicles; people not being active or using active transport because of dangerous roads/transport routes, air pollution (including tyre particulates, vehicle fumes and bushfire smoke), social norms, lack of shelter from increasingly extreme weather such as heatwaves
   - impacts on the health system as a consequence of:
     - people suffering the impacts of climate change (for example, from heat stress, bushfire smoke, floods)
     - people being injured using active transport (walking, rolling, cycling) on dangerous roads/routes
   - measuring environmental exposures and vulnerability indicators

   We recognise that these changes will introduce more complexities, but they are essential to planning and assessing the effectiveness of a range of interventions in the health and other sectors (including mitigation, adaptation and integration).

2. **Mitigation** should be extended beyond accelerating the 'reduction of greenhouse gas emissions from the health system' to include accelerating mode shifts to increased (safe) active travel. This includes safety: active travel and recreation environs should *be* – and *feel* – safe, accessible, convenient and comfortable for everyone to be physically active (including using active travel), regardless of age, ability, gender, race, culture or socioeconomic status.

3. **Adaptation** should be extended beyond strengthening 'the resilience of the health system and communities to anticipate and respond to the health impacts of climate change' to include adapting local environments to:
   - make them safer for people to be outside during extreme weather events
   - enable people to be physically active (particularly for work and active travel) in an increasingly warm climate with increasingly extreme weather. People need to be physically active to have good physical and mental health. A safe environment is conducive to physical activity. It is essential for life – so our environment needs to be adapted to provide shelter for people from increasingly warm and extreme weather so that they are not injured by and can still be active in such weather. Conversely, an unsafe environment is not conducive to physical activity and can result in death or injuries that can affect short and/or long-term health and thus the health system.

4. We support the key objective of '**Health in All Policies:** Maximise the synergies between good climate policy and public health policy by working across policy areas to lessen the impact of climate change on the social and cultural determinants of health and wellbeing.' This is critical and underpins the improvements we recommend for the other three objectives. As the draft strategy says, 'Indigenous knowledge has a critical role in informing how

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Australia can address the problem of climate change. Central to First Nations cultures is the holistic nature of health and wellbeing.'
2. How could these principles be improved to better inform the objectives of the Strategy?
We support the proposed principles. They could be improved by: ● extending **3. Population health and prevention** beyond 'prevention of disease and maintenance of good health' to 'improve health' (for example, by increasing physical activity through shifting short transport trips to active travel) ● ensuring that **6. Partnership-based working across all levels of government and beyond** includes partnerships beyond the health sector (for example, to active transport groups, residents associations, climate and environmental groups).
3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?
All greenhouse gas emissions. Scope 1, 2 and 3 emissions. Regarding Scope 2 and Scope 3 emissions, the unfolding and accelerating climate emergency means that now is the time for action and leadership – not passing the buck to or waiting for others to act or for arguing over who is responsible for which emissions. Just as in procurement, demand can influence supply (upstream emissions). The amount of supply ('waste') can also influence demand (downstream emissions).
4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?
5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

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Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?
7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?
See comments against Question 1.

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Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?
The focus areas for emissions reduction must include transport beyond the health sector, in particular physical activity – especially accelerating modal shifts to increased (safe) active travel. This includes safety: active travel and recreation environs should *be* – and *feel* – safe, accessible, convenient and comfortable for everyone to be physically active (including active travel), regardless of age, ability, gender, race, culture or socioeconomic status. The focus areas should explicitly both articulate the need and include plans for increasing the safety, accessibility, convenience, comfort and physical attractiveness of active travel. See response to question 1.
9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?
The built environment – both in and beyond the health sector – needs to be adapted so that active travel and recreation environs *are* – and *feel* – safe, accessible, convenient and comfortable for everyone to be outside and/or physically active (including using active travel), regardless of age, ability, gender, race, culture or socioeconomic status. Action areas should also include plans for increasing the safety, accessibility, convenience, comfort and physical attractiveness of active travel. See responses to questions 1 and 8.
10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?
Action areas relating to travel and transport include plans – both in and beyond the health sector – for increasing active travel, including through increasing both: ● the social desirability and norms for active travel and ● safety, accessibility, convenience, comfort and physical attractiveness of active travel. See responses to questions 1, 8 and 9.
11. Which specific action areas should be considered relating to the **supply chain**, over and above any existing policies or initiatives in this area?

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12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?
13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?
14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?
We support proposal '2.6.1. Encourage greater social prescribing and patient education for a preventive lifestyle change' – particularly by encouraging increased physical activity, especially accelerating modal shifts to increased (safe) active travel. See responses against questions 1, 8, 9 and 10.
15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?
Think beyond the health sector and 'private providers within the health system'. Involve and foster other sectors, community groups and the broader community in the social, environmental and other changes required to increase active travel. Substantially increasing active travel (and public transport) will require the transformation of behaviour and attitudes from car- and individual- oriented to community and care for others (particularly the most vulnerable). Community involvement, both directly and through community groups, will be vital for this. It need not – and must not – be completely left to government effort and expenditure. For example, local communities can help make our streets more people-friendly: safe, accessible, comfortable and convenient for everyone regardless of age, ability or mode of transport. If Governments allow and use our tacit and local knowledge, creativity, and people-power, then streets can be quickly adapted with local community ownership while building stronger neighbourhood connections. So many places worldwide are doing just that - with big improvements in safety, streetscape attractiveness and amenity. Living Streets Canberra and a raft of other community groups would welcome the opportunity to promote and be part of this work. See responses against questions 1, 8, 9, 10 and 14.

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16. Where should the Strategy prioritise its emissions reduction efforts?

    a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?

    b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

Transport and built environment. In particular, helping people – in the health sector and beyond - to take up active and public transport. See responses against questions 1, 8, 9, 10, 14 and 15.

17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?

Work with government transport agencies, community organisations, unions etc, to:

- **maintain Australia's restriction of 2.5m on the width of heavy vehicles like buses.** This will help stop roads and streets from being made wider (which would increase the heat island effect and therefore heat stress, increase particulate pollution (from tyres and brakes) and reduce space availability for active travel and trees.
- **put in place disincentives (or at least ensure there are no incentives) for people to choose for personal use motor vehicles that are (increasingly) large and less aerodynamic and so are unsafe for people outside motor vehicles** (and in small vehicles) as well as bad for the climate and the liveability of our cities.

Set in place implementation plans (with interim and final targets, baseline indicators, target dates and public accountability mechanisms) to increase active and transport use, in particular:

- **join the global movement and UN/WHO-led campaign and shift the default speed limit in Australia to 30 km/h, the evidence-based maximum default safe speed**
- **transform all transport systems (including active travel infrastructure and public transport) to comply with Commonwealth and State/Territory anti-discrimination legislation**
- **campaigns, education and incentives to help people to increase their active and public travel** (because shifting to private electric vehicles is insufficient for reaching our climate goals and does nothing to reduce heat island effects)
- **methods and processes to improve measurement of needs and effectiveness of interventions, including:**

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- **measuring subjective needs (eg where and how people feel unsafe or safe, conflicts and crashes not captured by current routine methods of collection)**
- **making use of modern and innovative technology can increase the frequency and ease of measuring needs and success while also reducing the burden on users and cost and effort to government**

Safe speeds and safe infrastructure (which is vital for safe speeds and personal safety of active travel users) are key parts of the Safe System Approach to road safety used in Australia – and key influencers of a large part of the demand for acute and chronic health services.

Drivers respond to the environment in which they are driving - and our streets are giving them visual and physical cues to drive fast. What we need are streets designed to cue drivers to drive at the appropriate speed (which the mountain of evidence says - and the now-UN-led global move to - is 30km/h on most streets, with higher speeds on selected streets with separated paths and priority crossings for people walking, rolling and cycling). This is a major reason why, according to the Australian Automobile Association, 'Australia's current approach to road safety is not working'.

Speed

Reducing the speed of impact is key to avoiding serious injury and death as a result of a crash.

Streets with speed limits above 30km/h but without footpaths on both sides and (prioritised) crossings are not considered safe under the Safe System Approach used in Australia - which means most streets in Australia are not safe.

The evidence is clear that potential impact speeds must be no greater than 30 km/h for healthy, robust adults (lower speeds for children and other adults). If a robust adult is hit by a vehicle at 30km/h, they have a 10% chance of death, at 40km/h it is 30%, and at 50km/h, it is 80%. These risks apply at lower speeds for children and less-than-robust adults.

Furthermore, evidence from NSW shows that most road deaths and serious injuries from crashes in built-up areas happen on streets with speed limits of 50-60 km/h.

The trend towards larger, higher, heavier motor vehicles increases the danger. They both increase the risk of seriously injuring or killing anyone they hit and reduce the ability to see people who are shorter or in wheelchairs or reclining cycles…or traffic islands/pedestrian refuges and curbs (as has been demonstrated in videos recorded by local residents).

Slower speeds are safer in part because at slower speeds, drivers notice more and so they are less likely to hit or nearly hit vulnerable road users

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This is why countries and cities around the world are legislating 30 km/h as the default speed limit and the United Nations' World Health Organisation is leading a campaign to make 30 km/h streets the norm for cities worldwide. The campaign was launched in March 2021, leading to the Decade of Action on Road Safety 2021-2030 a few months later. To support the implementation of the Decade of Action 2021–2030 for Road Safety, the World Health Organization and the United Nations Regional Commissions developed a Global Plan in cooperation with partners in the United Nations Road Safety Collaboration and other stakeholders. Amongst other things, it:

- calls on governments & partners to implement an integrated Safe System Approach (to which Australia has already committed)
- includes the campaign for 30 km/h streets as the norm, saying (p20) that:

> there is strong evidence that even the best road and vehicle design features are unable to adequately guarantee the safety of all road users when speeds are above the known safe level of 30 km/h. For this reason, in urban areas where there is a typical, predictable mix of road users (cars, cyclists, motorcyclists, and pedestrians), a maximum speed limit of 30 km/h (20 mph) should be established, unless strong evidence exists to support higher limits.

When motor vehicles travel above 30 km/h:

- the chance of an adult surviving being hit by a vehicle is dramatically reduced
- yet there is only a marginal increase in travel times for short urban journeys

Countries and cities around the world and the UN World Health Organisation have recognised that 30 km/h streets are a sweet spot for pedestrian safety and vehicle travel time and low road noise from all motor vehicles (even electric vehicles).

Infrastructure

Infrastructure (the physical design, construction and maintenance of streets and roads) is a vital component of giving people cues about the priority of users and whether or not to drive slowly and stop and give way appropriately.

Most of our infrastructure for transport is already built, so it needs to be adapted and/or retrofitted to make every street safe (and feel safe) for all users and particularly for the most vulnerable: people using active travel.

Best practice design rules will help make our streets safe (and feel safe) for all users, including those using active travel – but they must be implemented consistently on new and re-built streets and roads and adapted for quickly upgrading all existing streets and roads.

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We need a change of culture to shift from car-oriented and focused on personal responsibility and behaviour of the most vulnerable to one focused on protecting everyone and particularly the most vulnerable. This is well summed up in the World Resources Institute and World Bank's *Sustainable & Safe: A Vision and Guidance for Zero Road Deaths*:

CONCLUSION

The key to real change in road safety is shifting responsibility from people who use the road to people who design, set policy, execute operations, and otherwise contribute to the mobility system. An overemphasis on victim behavior and personal responsibility has long relieved pressure on governments to take responsibility and act to protect their citizens. This mindset needs to change, in terms of both public expectation and political and professional perceptions of responsibility.

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Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?
• People being outside during extreme weather events and bushfires • People's physical activity (particularly for work and active travel) in an increasingly warm climate with increasingly extreme weather. An unsafe environment is not conducive to physical activity and can result in death or injuries that can affect short and/or long-term health and thus the health system. See responses against question 1 in particular as well as questions 8, 9, 10, 14 and 15.
19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes: a. What are the key considerations in developing a methodology? b. How should their development draw on work already undertaken, for example, at the state and territory level or internationally? c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?
Yes. Look beyond the health system. Ensure: ● health vulnerability and adaptation extend beyond the health sector ● health in all policies – our health is affected by our environments and actions, and, as First Nations and other wisdom teach us, health and wellbeing are holistic in nature. See responses against questions 1, 8, 9, 10, 14, 15, 16 and 18.

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20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?
Regardless of the outcome of this question, ensure: ● health vulnerability and adaptation extends beyond the health sector ● health in all policies – our health is affected by our environments and actions, and, as First Nations and other wisdoms teaches us, health and wellbeing is holistic nature. See responses against questions 1, 8, 9, 10, 14, 15, 16, 18 and 19.
21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?
In consultation with local and State/Territory governments, architects, landscape architects and designers, community organisations, and others, develop implementation plans (with target dates and public accountability mechanisms) to urgently increase shelter in urban areas (including streets and paths shaded in summer, to reduce urban heat). See responses against questions 1, 8, 9, 10, 14, 15, 16, 18 and 19.

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Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?
Transport – particularly shift to active travel for short trips (including to public transport).
23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?
Look beyond the health sector and value and harness community For example, local residents and community groups have tacit knowledge (particularly through lived experience and observations over time) that cannot be obtained through isolated health, engineering, traffic etc studies. It is important to value and make use of this knowledge to understand both the extent and detail of the issues as well as what might be suitable remedies. Local tacit knowledge can inform experiments to create quick remedies and determine what interventions work to achieve safety for all users - to quickly and cheaply find remedies for creating safety for all users. Harnessing the tacit local knowledge and experimenting with quick, cheap, temporary remedies is an excellent way to create a safe environment for everyone to use the streets. These experiments and temporary remedies could include bollards, planters, paint as well as signs. Community groups such as Living Streets Canberra would welcome the opportunity to promote and be part of this work. This is what is happening in other places around the world. Some example of successful collaboration: The Street Plans Collaborative. 2016. *Tactical Urbanists' Guide to Getting It Done*, December 2016, http://tacticalurbanismguide.com/; The Street Plans Collaborative. n.d. *Tactical Urbanism 2: Short term action, Long term change,* https://issuu.com/streetplanscollaborative/docs/tactical_urbanism_vol_2_final Daily Mail Reporter. 2010. 'Stop speeding... the DIY way: Plant pots, welcome mats and drawings slow cars', *Daily Mail,* 4 November 2010,

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https://www.dailymail.co.uk/news/article-1326361/Stop-cars-speeding-DIY-way-using-plant-pots-drawings-road.html

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An intersection repair project in Los Angeles, CA. Credit: Los Angeles Eco-Village Blog



Portland's vibrant road-painting projects, which aim to bring the community together and improve road safety, have become a greatly valued part of the city's landscape. Image: Daniel Etra/Fllickr via *The Guardian*

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Image: Pop-Up MANGo temporary installations of possible improvements for traffic calming devices, chicanes, curb extensions, enhanced landscaping, etc | Hawkes, A. 'Pop-Up Planning: New Methods for Transforming the Public Process', *This Big City,* 5 November, 2013, http://thisbigcity.net/pop-up-planning-new-methods-for-transforming-the-public-process/

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Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
We support all the enablers suggested – and they should be extended beyond the health system: see our responses against previous questions.
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider to support delivery?

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Thank you for taking the time to complete this survey – your feedback is greatly appreciated!
Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Australia's National
Science Agency

CSIRO submission to Australia's National Health and Climate Strategy consultation

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CSIRO Submission 23/830

July 2023

Enquiries should be addressed to:

E governmentrelations@csiro.au

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Introduction

CSIRO welcomes the opportunity to provide input to the Department of Health and Aged Care's (DoHAC) consultation on developing Australia's first National Health and Climate Strategy.

CSIRO, Australia's national science agency, is one of the world's largest multidisciplinary science and technology organisations. Whilst CSIRO does not comment on matters of public policy, it continues to share critical information and provide access to its scientists and their research, particularly as it relates to the priorities of the Government and the formation of policy, for the health, wellbeing and prosperity of all Australians.

This submission provides input where CSIRO can add value based on our expertise, including:

- Considerations for engaging Aboriginal and Torres Strait Islander communities in co-design practices.
- Considerations when determining possible mitigation actions relating to the built environment and facilities, supply chain and waste.
- How to assess and mitigate changes to aetiology, susceptible species, geographic distribution and epidemiology of infectious diseases impacted by climate change.
- Possible actions that could be prioritised for adaptation through the Strategy.
- Our expertise in developing data standards and interoperability solutions for the national health system.

Additional resources which could inform the development of a National Health and Climate Strategy include the following CSIRO publications:

- CSIRO and the Bureau of Meteorology's 2022 State of the Climate report.[1]
- CSIRO's Australian National Outlook 2019 report[2] which brought CSIRO's research methodology in forecasting, combined with social, environmental and economic data and perspectives, to predict where Australia might be in decades to come.
- CSIRO's Enabling Adaptability Pathways initiative, focussing on developing, in partnership with stakeholders, numerous tools and processes to help people plan for the future. These tools have been specifically designed to support decision makers and researchers to diagnose adaptation problems and explore the social, environmental and economic costs and benefits of a range of adaptation initiatives.[3]
- CSIRO's Our Knowledge, Our Way Indigenous-led approaches to strengthening and sharing our knowledge for land and sea management.[4]

[1] CSIRO and the Bureau of Meteorology. (2022). 2022 State of the Climate Report. Retrieved from http://www.bom.gov.au/state-of-the-climate/

[2] CSIRO. (2019). Australia's National Outlook. Retrieved form https://www.csiro.au/en/work-with-us/services/consultancy-strategic-advice-services/csiro-futures/innovation-business-growth/australian-national-outlook

[3] CSIRO. Enabling Adaptability Pathways. Retrieved from https://research.csiro.au/eap/

[4] CSIRO. (2021). Our Knowledge Our Way. Retrieved from https://www.csiro.au/en/research/indigenous-science/Indigenous-knowledge/Our-Knowledge-Our-Way

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- CSIRO's Strengthening Australia's Pandemic Preparedness report.[5]
- CSIRO's Curbing Antimicrobial Resistance report.[6]

CSIRO would welcome the opportunity to discuss any areas and points raised in more depth with the Department of Health and Aged Care.

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[5] CSIRO. (2022). Strengthening Australia's Pandemic Preparedness Report. Retrieved from https://www.csiro.au/en/work-with-us/services/consultancy-strategic-advice-services/csiro-futures/health-and-biosecurity/strengthening-australias-pandemic-preparedness

[6] CSIRO. (2023). Curbing Antimicrobial Resistance. Retrieved from https://www.csiro.au/en/about/challenges-missions/Antimicrobial-resistance/Curbing-Antimicrobial-Resistance

CSIRO response to the guiding questions

Objectives

Question 1: How could these objectives be improved to better support the vision of the Strategy?

Consider adding the word 'mitigate' to the adaptation objective #3.

Principles

Question 2: How could these principles be improved to better inform the objectives of the Strategy?

CSIRO strongly supports a One Health approach be embedded as one of the principles. This will be most impactful if there is strong coordination and leverage between the three health sectors (human, animal, and environment).

In addition to known viruses, on average, two novel viruses are appearing in humans each year, and the proportion that give rise to larger outbreaks is growing. A One Health approach that leverages the relationship between human, animal, and environmental health is considered the only way the nation can address this clear and present risk to health outcomes.

Additional principles that could be considered include:

- **clear and transparent communications** to the general population with a strong rationale that describes how climate change can affect human health, and what we can be done.
- adopting a **systems-wide approach** where researchers, public health practitioners and economists focus on simulating and modelling the potential impacts of climate change on human health and health-related risks to inform and prioritise the development of policies and decisions.

Aboriginal and Torres Strait Islander people health and climate change

Question 4: What existing Aboriginal and Torres Strait Islander people policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect Aboriginal and Torres Strait Islander people country, culture and wellbeing?

CSIRO has conducted research projects in partnerships with Aboriginal and Torres Strait Islander communities, to address health issues related to ongoing impacts of climate change. CSIRO can provide further details on such projects to the Department of Health and Aged Care upon request.

CSIRO's approach to supporting and uplifting Aboriginal and Torres Strait expertise, knowledge and practices is through co-design and Indigenous lead initiatives, as determined and defined by Aboriginal and Torres Strait Islander communities. CSIRO is currently working on more than 50

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Indigenous science projects that aim to deliver outcomes for Aboriginal and Torres Strait Islander communities. Of those projects, areas of expertise include Indigenous health, Indigenous ecological knowledge, aquaculture, agriculture, environmental biodiversity, fisheries and environment.

Examples include:

Monitoring Residential Thermal Comfort and Smarter Safer Homes Feasibility Trial

This is a collaborative research project with Tangentyere Council Aboriginal Corporation (TCAC) in Alice Springs. It is a community-led project to explore the feasibility of deploying Safer Smarter Homes technology in Aboriginal and Torres Strait Islander communities in a remote setting. The research documents evidence regarding the thermal comfort, power insecurities and their impact on health and wellbeing for residents. This platform seeks to assist Elders to live independently on Country.

Darwin Living Lab

This project is seeking leadership on climate change through the lens of engagement with Larrakia Traditional Owners and the Larrakia rangers to incorporate Indigenous knowledge and understand how biodiversity can enhance wellbeing and urban greening.[7] A Larrakia-led biodiversity values project is focusing on setting up a monitoring program of flowering fruits for Larrakia Rangers to implement, and to develop a set of recommendations for approaches aimed at monitoring, maintaining and enhancing urban biodiversity while keeping Darwin cool.

Question 5: What types of governance forums should be utilised to facilitate co-design of the Strategy with Aboriginal and Torres Strait Islander people to ensure Aboriginal and Torres Strait Islander people voices, decision-making and leadership are embedded in the Strategy?

CSIRO's approach to co-design with Aboriginal and Torres Strait Islander people's focuses on ensuring that all partners involved have equitable collaboration and equal decision-making responsibilities throughout the project. Co-design approaches with Aboriginal and Torres Strait Islander communities need to consider place-based approaches to empower and drive local solutions. Co-design methods incorporate Indigenous voices and create opportunities for Aboriginal and Torres Strait Islander people to determine what is best practice when working with Indigenous knowledge in caring for Country. Co-design methods are not a process of consultation with community or knowledge extraction but do involve two-way learning that is ethical and defined by the Aboriginal and Torres Strait Islander community.

Governance forums that should be considered when engaging in co-design practices with Aboriginal and Torres Strait Islander communities should include local Aboriginal and/or Torres Strait Islander Councils, Aboriginal community-controlled organisations and, Native Title Prescribed Body Corporates.

CSIRO has established an Indigenous Advisory Group that provides oversight and governance on key CSIRO activities impacting Aboriginal and Torres Strait Islander people's and communities.

[7]CSIRO. (2020). Larrakia-led biodiversity values. Retrieved from https://research.csiro.au/darwinlivinglab/larrakia-led-biodiversity-values/

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CSIRO also ensures Aboriginal and Torres Strait Islander people are represented on project specific advisory groups to provide critical Aboriginal and Torres Strait Islander perspectives where appropriate. It is also worth noting that in May 2023, CSIRO appointed Indigenous scientist, Professor Alex Brown to the CSIRO Board for a term of five years. A proud member of the Yuin nation, Professor Brown is the first Indigenous scientist appointed to the CSIRO Board, bringing a wealth of experience understanding and overcoming health inequalities and bridging connections across science ecosystems. Professor Brown is an internationally recognised clinician and researcher with a background in Aboriginal and Torres Strait Islander health and is the Professor of Indigenous Genomics at the Telethon Kids Institute and the Australian National University.

Learnings may be gleaned from collaborative CSIRO research on Indigenous-led approaches to strengthening and sharing knowledge for land and sea management such as Our Knowledge, Our Way guidelines.[8]

The Our Knowledge, Our Way in caring for Country Best Practice Guidelines, gives a voice to Indigenous land and sea managers who have found good ways to strengthen their knowledge and build partnerships for knowledge sharing in caring for Country.

Proposed Objective 2: Mitigation

Question 9: Which specific action areas should be considered relating to the built environment and facilities (including energy and water), over and above any existing policies or initiatives in this area?

Improving urban design

As the complexity of urban systems increases, there is a growing role for science to inform and transform the process of urban development and renewal. CSIRO's Urban Living Labs offer a new way for researchers, industry, community, and government to co-innovate, moving our cities into a more liveable, sustainable and resilient future. There is a wealth of social, economic, and environmental information that could be used more effectively for decision making if brought together.

An example is the Darwin Living Lab, which is developing a digital twin focused on social, economic and environmental information for decision making for heat mitigation and adaptation. The project: A digital twin of Darwin to monitor and navigate change[9] includes interrogating data to better understand vulnerability to urban heat.

By integrating information into a digital twin visualisation tool, decision makers will be able to investigate the benefits, trade-offs and opportunities of urban planning scenarios, monitor past actions, and identify pathways to a more liveable and climate-resilient city.

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[8] CSIRO. (2021). Our Knowledge Our Way. Retrieved from https://www.csiro.au/en/research/indigenous-science/Indigenous-knowledge/Our-Knowledge-Our-Way

[9] CSIRO. (2021). Darwin Living Lab. Retrieved from https://research.csiro.au/darwinlivinglab/a-digital-twin-of-darwin-to-monitor-and-navigate-change/

Darwin Living Lab also co-developed Feeling Cooler in Darwin Heat Mitigation and Adaptation Strategy[10] as part of Darwin City Deal. This reflects a collaborative process between three levels of government and research partner to take action against heat-related health impacts.

Maintaining safe water

The COVID-19 pandemic reinforced that many cities are not designed to limit the spread of pathogen transmission. Increases in global temperatures and more severe weather events can negatively impact the availability of clean water, which in turn can impact on Antimicrobial Resistance (AMR) prevalence and transmission in cities and beyond. In taking a holistic view of AMR, it is important to consider how it moves through the environment and how cities and surroundings are planned to manage this.[11]

Question 11: Which specific action areas should be considered relating to supply chain, over and above any existing policies or initiatives in this area?

Supply chains and distributions are important to health under a changing climate. Since 2012, CSIRO's Transport Network Strategic Investment Tool (TraNSIT) has been used nationally and internationally to improve supply chain efficiency and resilience for over 180 commodities.[12] It helps identify options for transport and logistics investment, as well as analyse impacts from extreme weather and other types of disruptions, which may impact the logistics costs of inventory levels of critical supplies.

CSIRO is engaging with the Australian Department of Health and Aged Care in relation to a "Modelling Supply Chain Resilience" (SCR) project funded by the Department of Infrastructure, Transport, Regional Development, Communications, and the Arts. As part of the SCR project, the project team is extending TraNSIT to model intervention options to reduce transport costs and improve resilience of the supply chains for pharmaceutical commodities and hospital supplies such as linen, masks, and equipment.

Question 13: Which specific action areas should be considered relating to waste, over and above any existing policies or initiatives in this area?

The approaches proposed in the consultation paper to reduce waste and its environmental impact in this sector, align with CSIRO's work in the Circular Economy[13] and the work of CSIRO's Ending Plastic Waste Mission[14].

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[10] CSIRO. (2021). Darwin Heat Mitigation and Adaptation Strategy. Retrieved from https://research.csiro.au/darwinlivinglab/darwin-heat-mitigation-and-adaptation-strategy/

[11] CSIRO. (2023). Curbing Antimicrobial Resistance. Retrieved from https://www.csiro.au/en/about/challenges-missions/Antimicrobial-resistance/Curbing-Antimicrobial-Resistance

[12] CSIRO. (2023). Transport logistics-TraNSIT. Retrieved from https://www.csiro.au/en/research/technology-space/it/Transport-logistics-TRANSIT

[13] CSIRO. (2021). Circular Economy. Retrieved from https://research.csiro.au/circulareconomy/

[14] CSIRO. Ending Plastic Waste. Retrieved from https://www.csiro.au/en/about/challenges-missions/Ending-plastic-waste

CSIRO's programs of work, delivered through the Ending Plastic Waste Mission, align with actions outlined in the National Plastics Plan[15] and the ongoing development of a Global Plastics Treaty.[16] CSIRO is supporting Australia's role in negotiations towards a UNEA 5.2 Global Plastics Treaty by providing scientific input into decision making. CSIRO's Ending Plastic Waste mission also supports delivery of the National Plastics Plan through research and developing technologies, processes and materials that support the transition towards a circular economy for plastics.

Proposed Objective 3: Adaptation

Question 18: What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?

Different vulnerable groups may have different risks and health impacts and may need bespoke adaptation actions. Vulnerable groups to consider include older people, children, Aboriginal and Torres Strait Islander people, lower socioeconomic status communities, Culturally and Linguistically Diverse communities, people with disabilities, pregnant women and those with other co-morbidities.

Health and aged care facilities (such as destruction of infrastructure, disruption of supply chains)

- **Zoonoses** (such as H5N1 influenza) **and vector-borne diseases** (such as malaria, Japanese encephalitis, dengue). The five priority virus family groups identified in CSIRO's Strengthening Australia's Pandemic Preparedness Report Strengthening Australia's Pandemic Preparedness[17] could provide a starting focus. A rapidly changing climate has impacts on the aetiology, species susceptibility, geographic distribution, and epidemiology of infectious diseases[18,19]. This could dramatically impact the health sector as existing assumptions, protocols, systems regarding diagnosis and management plans could become outdated. Real time surveillance and accurate prediction models would therefore remain fixed on outdated assumptions, making it difficult to make informed decisions. Addressing current gaps in the biology of Australian vectors (or potential vectors) and vector-borne diseases could be prioritised. Specific research gaps on Australian arthropods include their current and future distributions, their ability to be infected with and transmit diseases of interest and dispersal capability (including survival in various atmospheric conditions). Additionally, an improved understanding of Australian wildlife reservoirs, their geographic

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[15] Department of Climate Chance, Energy, the Environment and Water. (2021). National Plastics Plan. Retrieved from https://www.dcceew.gov.au/environment/protection/waste/plastics-and-packaging/national-plastics-plan

[16] Department of Climate Chance, Energy, the Environment and Water. (2021). National Plastics Plan. Retrieved from https://www.dcceew.gov.au/environment/protection/waste/plastics-and-packaging/national-plastics-plan

[17] CSIRO. (2022). Strengthening Australia's Pandemic Preparedness Report. Retrieved from https://www.csiro.au/en/work-with-us/services/consultancy-strategic-advice-services/csiro-futures/health-and-biosecurity/strengthening-australias-pandemic-preparedness

[18]Global hotspots and correlates of emerging infectious disease https://www.nature.com/articles/s41467-017-00923-8

[19]Climate change increases cross-species viral transmission risk https://www.nature.com/articles/s41586-022-04788-w

distribution and susceptibility to vector-borne diseases and molecular surveillance systems should be prioritised.

- **Climate change accelerating the emergence and spread of AMR across sectors.** As outlined in CSIRO's Curbing AMR report: "*The implications of climate change on human and animal health are numerous and becoming increasingly severe as the climate events and their impacts continue to escalate. Changes in environmental temperature are closely linked with changes in bacterial physiology, including rates of growth and infection, and the spread of antibiotic resistance genes (ARGs) (Philipsborn et al., 2016), (Sun et al., 2019). Higher temperatures are a crucial predictor of pathogenic bacterial growth rates and contribute to their increased carriage in people and animals (Burnham, 2021). Alarmingly, rising ambient temperatures have been identified as a leading contributor to the establishment of resistance (McGough et al., 2020)*".[20]

Negative Health System Outcomes

- Health outcomes and health systems can be monitored through an **integrated climate-sensitive surveillance system** to collect, store and curate and then analyse data that is standardised, and interoperable across the health ecosystem. The use of Artificial Intelligence/Machine Learning could also support autonomous data analyses.

Process and Methodology

To prioritise impacts, risks and vulnerabilities for adaptation action, a comprehensive literature review of current adaption strategies and gaps could be undertaken to inform the development of a series of health adaption workshops. In establishing this approach, the health impacts list could be grouped together into subgroups such as:

1. Direct health impacts caused by the climate.
2. Health impacts caused by environmental ecosystem changes.
3. Impacts on health care delivery.

Running scenario analyses could also provide some structure for these workshops. The aim of these would be to:

- identify the key variables that most significantly impact the future operating environment (for example, climate metrics, decentralisation of care models, national disease profiles).
- establish extreme but plausible future scenarios by changing these variables.
- discuss which impacts, risks and vulnerabilities are more prevalent under each scenario.

Those that appear across multiple scenarios could be prioritised. The framework could also be used to test the Strategy to determine which 'future' we appear to be heading towards. CSIRO's Futures Team has a well-experienced team in developing potential future scenarios and would be pleased to discuss this further.

[20] CSIRO. (2023). Curbing Antimicrobial Resistance. Retrieved from https://www.csiro.au/en/about/challenges-missions/Antimicrobial-resistance/Curbing-Antimicrobial-Resistance

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Question 19: Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes: a) What are the key considerations in developing a methodology? b) How should their development draw on work already undertaken, for example at the state and territory level, or internationally? c) What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

a) Considerations in developing a methodology could include:

- Urgency (how soon are the impacts likely to be seen).
- Scale (how widely will the impacts be felt).
- Variation from the status quo (for example, identification of new diseases, % increases expected).
- Vulnerability of the Australians impacted.

The use of impact pathway methodology (which links inputs to impacts) may provide a suitable framework to assist with the development and assessment of the National Strategy. CSIRO routinely uses this framework for large complex initiatives.

Question 20: Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?

The Australian Government could consider promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system. CSIRO undertakes a range of research that could be useful to understand Australia's vulnerability profile and develop approaches to support its management.[21] Through our Enabling Adaptation Pathways initiative, CSIRO is developing, in partnership with stakeholders, numerous tools and processes to help people plan for the future. These tools are specifically designed to support decision makers and researchers to diagnose adaptation problems and explore the social, environmental and economic costs and benefits of a range of adaptation initiatives[22].

CSIRO is researching measures to support built, social and natural interventions that build community resilience to natural hazards, such as The Enabling Resilience Investment Approach – Enabling Resilience Investment[23].

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Question 21: What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?

The following adaptation actions are likely to be required in the next 12 to 24 months:

Addressing scientific knowledge gaps regarding infectious diseases

As discussed in Question 18, there is a need to address gaps in our scientific knowledge regarding infectious diseases and how they will circulate and present in Australia. Without scoping the priority areas of work and then closing this gap, Australia's One Health workforce may not have adequate knowledge on the aetiology, geographic distribution, and epidemiology of infectious diseases. Resilience to inevitable changes in geographic distribution of infectious diseases, as evidenced by the 2022 Japanese Encephalitis outbreak, relies on this work being prioritised. The developing Australian Centre for Disease Control (CDC) has stated objectives of establishing expert advisory groups, advanced surveillance systems and real-time surveillance and prediction models. For these objectives to be met, the Australian CDC and expert advisory groups will benefit from ongoing access to this updated knowledge.

Developing an integrated national data system alongside community data sets

Collecting, curating, and analysing data at the national, as well as community level will be critical. One example is the national disease surveillance system being proposed by the developing Australian CDC, which will support identification of emerging pathogens, including pathogens that are influenced by climate change. Data collected at the community level will assist those communities to deal with local environmental threats and will likely promote health equity in some vulnerable groups.[24]

Data standardisation and ensuring the interoperability of data collected from multiple sources will assist with providing a national overview. CSIRO has expertise in developing data standards and interoperability solutions for the national health system. CSIRO is working with all Australian Governments, the Digital Health Agency and the health technology industry to develop and adopt Fast Health Interoperability Resources) core standards – to support the sharing and exchange of health information and data. Developing these standards will improve the accessibility of real-time health information, a vital component for a connected healthcare system.

Growing capability and expertise in population-level dynamic microsimulation modelling could also be prioritised. The ability to be able to combine patient level data set for use in this modelling will be key, for example through the Multi-Agency Data Integration Project (MADIP)[25] and National Integrated Health Service Information Analysis (NIHSI)[26].

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Proposed Objective 4: Health in All Policies

Question 22: What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?

Health in All Policies will enable a national systems-based approach across multiple sectors and would align with the proposed One Health framework.

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24 July 2023

National Health, Sustainability and Climate Unit
Department of Health and Aged Care
Via email: health.climate.consultation@health.gov.au

Dear Unit Members,

National Health and Climate Strategy

Anglicare Australia appreciates the opportunity to provide feedback on the National Health and Climate Strategy (the Strategy).

Anglicare Australia Network members are committed to preventing, preparing for and adapting to climate change. Climate change is not an abstract, distant threat to the people we work with, but a daily reality. However Anglicare Australia member agencies are limited by a lack of financial resources, government leadership and contractual flexibility that would allow them to engage in resilience and capacity building to prepare for and respond to the impacts of climate change.

The health consequences of climate change are profound. For example, bushfires and heatwaves can lead to heat exhaustion, heat stroke, dehydration, burns, smoke inhalation, and worsen chronic conditions[i]. The stress of being trapped in a hot home or experiencing the loss of one's home altogether can result in sleeplessness, severe fatigue and exhaustion. Air pollution from fires is also linked to increased instances of respiratory and cardiovascular illness.[ii]

Extreme weather events, like heatwaves, can lead individuals to cancel or reduce appointments and social activities, intensifying feelings of isolation and loneliness. They can escalate irritability and frustration, leading to increased instances of family violence, risky alcohol consumption, and antisocial behaviour.[iii] It can also lead to increased rates of depression, post-traumatic stress disorder and anxiety. Research by the University Centre for Rural Health found that even six months after the Northern New South Wales floods, over one-fifth of respondents reported ongoing distress caused by the flood.[iv]

Climate change affects everybody, but we know that people on low incomes and marginalised communities have the least ability to cope, adapt, move away from or recover from the impacts of climate change. Climate change is impacting people's health, quality of life, livelihoods and ability to make ends meet financially. These stark realities underscore the importance of this proposed Strategy, which presents an opportunity to adapt to and mitigate the impacts of climate change while improving the health and wellbeing outcomes for all.

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Include equity and population health in objectives and principles

In general, Anglicare Australia supports the proposed objectives. We support the health in all policies framework and note the importance of coordination across the many tiers and parts of government that will need to be involved in its implementation.

While the consultation paper makes a clear commitment to health in all policies, the majority of the proposed actions relate to the health system and health services themselves, rather than to the health impacts of climate change and the social determinants of health for Australian people. The Strategy should instead reflect a population health approach. That is, one that maintains and improves the health of the entire population and reduces inequalities in health. This focus is missing from the consultation paper, which is primarily focused on the health system and health sector.

We recommend the inclusion of an additional principle of equity to ensure that our responses to climate change fosters resilient and equitable communities that prioritise support for the individuals most vulnerable to its impacts. This includes facilitating their ability to reduce energy use, adapt to climate change, and effectively manage the associated risks to their health and well-being. We also support ACOSS' recommendation for an additional principle related to health within and across generations, recognising the need for intra and intergenerational justice.

We recommend including an additional enabler related to adequate, long-term and sustainable funding to deliver on the actions identified in the plan. This should include resources dedicated to community sector mitigation and adaptation measures. Right now, investment in long-term capacity in the community sector is limited. For example, several Anglicare Australia Network members in partnership have successfully secured small, one-off grants to build online platforms for training and management of disaster response and recovery volunteers and resources. However there is no funding available to upgrade and provide ongoing maintenance for these platforms, meaning they risk becoming obsolete or inoperable at critical moments.

A climate adaptation fund would also allow organisations to apply for funding to retrofit buildings, respond to extreme weather events, and better prepare their clients for the impacts of climate change.

Modification: actions for inclusion

In relation to the built environment and facilities, we recommend inclusion of actions around improving energy efficiency of low-income housing, increased electrification and expanded access to renewable energy, including for government owned buildings and public housing.

It is easy to focus on large public hospitals, where the scale of facilities can generate the largest reductions in emissions. However this means not-for-profit community service and aged care organisations can be neglected. 72 percent of surveyed community service organisations felt that climate change would worsen the comfort and safety of their premises during extreme weather.[v]

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While data is lacking, we know many community service and aged care organisations would benefit from the installation of solar panels, and upgrading facilities to be more climate resilient and reduce emissions. Not-for-profit organisations can be reluctant to use their scant resources for internal purposes, including facility upgrades, when their budget for frontline service delivery is stretched. Many community organisations also do not own the buildings they operate from. Where they rent from state government or local council, adaptation may be easier than where buildings are owned by commercial landlords.

In relation to waste**,** while we support the proposal to reduce paper emissions by promoting electronic processes for records, data collection and communication, this type of digital transformation will have a cost for not-for-profit organisations. They should be funded and supported to participate in the transformation, and to upskill staff so they are not left behind.

In relation to prevention and optimising models of care, we welcome the emphasis on preventative health as way to both reduce emissions, but also improve people's health outcomes. We note that telehealth is a tool for improving access to healthcare but can never be a replacement for face-to-face service provision, and will not be appropriate for everyone. 28 percent of Australians are digitally excluded, lacking either the skills, money or equipment to regularly access the internet.[vi] People in low-income households, older people, public housing tenants and single people are more likely to be excluded. Without access to the internet, people are unlikely to receive the benefits of telehealth.

The consultation paper proposes how to review existing models of care to understand their potential to contribute to emissions reduction. This should be expanded to also consider how to maintain levels and quality of care during extreme weather events, like heatwaves. It is reasonable to expect that the health impacts of climate change will increase demand for community services. For example, a 2021 survey about extreme heat showed significant concern for workers providing in-home care on hot days.[vii] This was exacerbated when clients lived in homes with poor thermal comfort and no air-conditioning, putting staff members' health at risk. Workers are embedded in their local communities and can experience personal trauma about extreme weather events affecting their clients or be directly impacted themselves.

Adaptation: actions for inclusion

The ability for people to adapt to the health impacts of climate change is directly impacted by poverty. People living in poverty are less able to prepare for, respond to and recover from climate change by retrofitting their homes, secure adequate insurance coverage and undertake essential repairs to their homes after climate-related disasters. One of the urgent actions the government could take is to reduce poverty and vulnerability by providing everyone with an adequate safety net, including income support above the poverty line.

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It is also extremely difficult to build resilience to the impacts of climate change without a safe and secure home. People on low-incomes are more likely to live in low-quality housing with poor insulation, no access to renewable energy sources and without air condition or energy-efficient appliances. For people with no secure place to live at all, they are at high risk of exposure to climate related hazards including air pollution, storms, extreme heat and cold. Building more social housing is an immediate action the government can take to address the impacts of climate change on vulnerable Australians.

Anglicare Australia also supports the development of a National Health Vulnerability and Adaptation Assessment and Adaptation Plan, as proposed in the consultation paper. This work should be informed by key organisations working on climate and health, and by specific population groups including First Nations people, people with disability and people from culturally and linguistically diverse backgrounds.

The consultation paper includes workforce development, training and leadership as a policy response to support effective health system adaptation. We note that this should not be confined to the public sector but must include the community sector. The community sector would benefit from hands-on and tailored training about the impacts of climate change and how to improve business continuity.

Anglicare Australia looks forward to working with the Department of Health and Aged Care on refining the Strategy. If you would like to discuss anything raised in this submission, please do not hesitate to contact us on anglicare@anglicare.asn.au.

Yours sincerely



Kasy Chambers
Executive Director

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[i] Doctors for the Environment Australia (2017) Climate Change and Health in Australia.

[ii] Ibid.

[iii] Mallee Family Care (2019) Extreme heat driven by the climate emergency: impacts on the health and wellbeing of public tenants in Mildura, Victoria.

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[v] Victorian Council of Social Service (2021) Feeling the Heat

[vi] J Thomas et al. (2021) Australian Digital Inclusion Index

[vii] Victorian Council of Social Service (2021) Feeling the Heat

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National Health and Climate Strategy

Response to consultation

July 2023

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About Dietitians Australia

Dietitians Australia is the national association of the dietetic profession with over 8500 members, and branches in each state and territory. Dietitians Australia is the leading voice in nutrition and dietetics and advocates for the profession and for the people and communities it serve.

The Accredited Practising Dietitian (APD) program provides an assurance of safety and quality and is the foundation of self-regulation of the dietetic profession in Australia. Accredited Practising Dietitians are the qualified and credentialed food and nutrition experts and have an important role to play in sustainable food systems for population and planetary health.

This submission was prepared by Dietitians Australian staff in collaboration with members following the Conflict of Interest Management Policy. Contributors include Dietitians Australia members with wide ranging expertise in areas including planetary health, public health, chronic disease, food systems and academia.

Summary

Dietitians Australia acknowledges the Albanese Government, as the first to develop a National Health and Climate Strategy. While there are many important, cross-cutting and mutually beneficial elements of this Strategy, our recommendations focus on the impact of healthy and sustainable food systems as the cornerstone to protect the health and well-being of people and planet.

A healthy and sustainable diet must be nutritionally adequate, healthy and safe, have low environmental impact and be protective of natural resources and biodiversity be culturally acceptable be accessible, economically fair and affordable.

Dietitians Australia acknowledges that it is critical to prioritise Indigenous knowledge in consultation, policy-making and implementation processes to achieve these recommendations.

In facilitating the uptake of healthy and sustainable diets, Accredited Practising Dietitians are contributing to the transformation of our current food system that is urgently required to nourish present and future generations within planetary boundaries.

Discussion

1. How could these objectives be improved to better support the vision of the Strategy?

   Dietitians Australia supports the revised objectives proposed by the Climate and Health Alliance. In addition, Dietitians Australia advocates for the integration of protecting biodiversity in line with the Global Biodiversity Framework: Kuming-Montreal Global Biodiversity Framework: Targets 14 and 15.[1]

2. How could these principles be improved to better inform the objectives of the Strategy?

   Dietitians Australia supports the principles, particularly those that recognise First Nations leadership.

3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?

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Dietitians Australia supports the inclusion of all three types of emissions for a comprehensive approach to maximise impact, given the urgent need for action. Scope 3, however, has the largest contribution to the healthcare sector activities (71%).[2]

4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?

Dietitians Australia note the omission of First Nations' foodways. Dietitians Australia position statement on Healthy and Sustainable Diets[3] highlights the important connection between First Nations knowledge and planetary health.

5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

Dietitians Australia supports the co-design of governance structures. It is critical to prioritise Frist Nations leadership, knowledge in consultation, policymaking and implementation processes to achieve impact.

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?

Dietitians Australia is not involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia.

7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?

Dietitians Australia advocates for the inclusion of food-related emissions, including those related to food waste. Food service-related emissions must be measured, and targets set that balance nutritional adequacy and environmental impact. Work is required to develop appropriate menu audit tools with validity and reliability, and it is important to ensure the evidence underpinning these tools is specific to the Australian food system. Within the clinical, aged care and community setting, emissions related to packaging, manufacturing and waste for Oral Nutrition Support should also be considered.

The Eat Lancet Commission on Food and Health[4] and the pending Eat Lancet 2 inform inclusions related to food, environment, and health.

Up to 50% of waste in some healthcare facilities and hospital foodservices has been classified as food waste.[5-8] Measuring food waste through food waste audits and waste analytics is critical to achieving a reduction in carbon emissions as it will allow the healthcare sector to monitor their waste and confidently demonstrate progress over time.[9] A good example of this is the "Target, Measure, Act" campaign from the UK Waste and Resource Action Programme (WRAP)[10] which asks food and drink businesses to set a food waste target, consistently measure their waste, and act to reduce this food waste. Measuring food waste also facilitates changes to practice to reduce the amount of waste generated and/or sent to landfill. In addition, the Australian National Food Waste Roadmap and feasibility study which lists 47 interventions to prioritise reducing food waste predicts that measuring food waste is

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the intervention that has the second largest capacity to reduce food waste (2.69 million tonnes over 10 years).[11] This is paralleled by the USA's ReFed who recommend waste tracking (foodservice) as their top 12 solutions and has the potential to save 1.03M tonnes total/year from landfill.[12]

Aggregate food waste audits (which measure preparation waste, excess food, and plate waste) are important to quantify baseline waste, highlight problem areas or products within the foodservice, and monitor waste over time. A recent systematic review[13] consolidated 17 different food waste audit methods into a consensus pathway food waste audit tool that describes how to plan, conduct, and analyse an audit in healthcare. The tool recommends that foodservices complete regular food waste audits for a duration of 2-weeks (14 days), collecting food and food-related waste (for example, food packaging, plastic cutlery), before (preparation waste) and after (plate waste) mealtimes, including the waste from the plating line, and to measure waste using electronic scales. The tool has been referenced in the recent Victorian Nutrition and quality food standards for adults in Victorian public hospitals and residential aged care services and should be considered as part of reducing healthcare carbon emissions.[14]

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?

Dietitians Australia advocates that "waste" and "supply chain" must include food waste. There is no specific mention of food-related emissions - including those related to food waste- and these are significant.

9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?

Dietitians Australia supports the inclusion of food waste management within the built environment and facilities. This includes installing the appropriate infrastructure which requires both energy and water to manipulate food waste content.

10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?

Dietitians Australia supports the inclusion of food waste transport to ensure a comprehensive approach to carbon reduction plans.

11. Which specific action areas should be considered relating to **supply chain**, over and above any existing policies or initiatives in this area?

Dietitians Australia supports the inclusion of food waste within supply chains to ensure a comprehensive approach to carbon reduction plans.

12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?

Dietitians Australia supports the areas of improvement raised by the Climate and Health Alliance in their response.

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13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?

Dietitians Australia advocates for the inclusion of food waste.

A systematic review has found 85 examples of hospitals worldwide diverting their food waste from landfill which has resulted in associated environmental and cost savings as well as staff and community benefits.[15] The United States Environmental Protection Agency Food Recovery Hierarchy highlights that compost is the last strategy before landfill to be considered when diverting food waste from landfill.[16] When reducing food waste, in the first instance, if food waste surplus has been produced that is edible by humans, reuse and reservice should be considered to healthcare patients, visitors and staff before being considered for safe donation to food recovery organisations. The second approach is considering food for animal feed, and the separate laws which may govern the safe diversion of food waste to animal feed must be considered. Before compost, finally is industrial uses of food waste to provide energy such as anaerobic digestion. These strategies other than compost have been used successfully by hospitals internationally and should be considered further for use in the wider sector. It will be imperative to govern healthcare organisation and waste management strategy partnerships to ensure the food waste is being used as intended (for donation, feed, energy, and composting) and does not end up in landfill. This can be monitored through data collection and reporting by the healthcare organisation on how much they have diverted and by the waste management partner on the amount of waste collected and used. This will cover the Scope 3 emissions associated with these partnerships.

Dietitians Australia advocates to improve embedded emissions in institutional food service. Research is required on how this should be best achieved while ensuring nutritional adequacy. It may be that other environmental impact measures apart from greenhouse gas emissions are indicated in a comprehensive assessment tool. Research such as the school menu assessment by Batle-Bayer et al in Spanish schools[17] or menu assessment in Brazilian Universities by Hatjiathanassiadou[18] is instructive but requires adaptation to the local context.

14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?

Dietitians Australia advocates for the inclusion of preventive health, by optimising the food system to keep the population out of the health system. The burden of chronic diseases, including cardiovascular diseases, diabetes and mental health are associated with many dietary factors such as excess consumption of sodium, sugars and unhealthy fats, particularly trans-fatty acids (trans fats) and saturated fatty acids, and low consumption of whole grains, pulses, vegetables, and fruits. The Strategy should address how chronic diseases are exacerbated by climate change and how prevention will support reductions in disease.

Accredited Practising Dietitians have the skills and knowledge to provide advice on nutrition across the life-course and to support the health and well-being of all Australians. There needs to be better access to dietitians, including through publicly funded positions as well as government-funded consultations (for example, Medicare).

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15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?

Dietitians Australia supports the involvement of private providers, however, engagement with the commercial sector must be driven by the best interests of the health and well-being of people and a sustainable planet, a key principle which cannot be offset.

Examples may include:

- Incorporation of emissions assessment into contract tender requirements
- Working with Accredited Practicing Dietitians and external food service providers and suppliers to reduce the embedded emissions of menus
- Strengthening local food systems with local procurement
- Strengthening local commercial operators to divert food waste in landfill and reuse or recycle instead (for example, producing compost with commercial equipment and giving it to local government for Council parks and gardens, or agricultural or horticultural businesses).

16. Where should the Strategy prioritise its emissions reduction efforts?

a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?
b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

Dietitians Australia supports the following prioritisation:

1. Built environment and facilities (including energy and water) to reflect the national picture
2. Prevention and optimising models of care, including access to Accredited Practising Dietitians to prevent chronic disease and inform health institution food menus
3. Waste, noting this should include food waste (as well as food packaging waste)
4. Travel and transport
5. Supply chain, noting this should also include food
6. Medicines and gases

17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?

Dietitians Australia supports addressing food wastage as a quick win. Strategies to divert food waste from landfill[19-22] and begin to regularly measure food waste[23-24] are readily available to the healthcare industry in Australia and should be prioritised to have an impact on the 'waste' mitigation target.

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?

Dietitians Australia supports the following:

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- More local food sourcing in order to reduce the length of supply chains and support local food systems
- A greater focus on the disproportionate effect of the climate crisis on vulnerable populations including food insecurity and its associated health impacts
- Increased pathways of emergency procurement of essential food items including enteral feeding supplies when natural disasters may reduce transport pathways or stock availability

19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes:

a. What are the key considerations in developing a methodology?
b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally?
c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

Dietitians Australia supports the development of a National Health Vulnerability and Adaptation Assessment and a National Health Adaptation Plan.

20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?

Dietitians Australia supports a nationally consistent approach.

21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?

Dietitians Australia calls for the immediate prioritisation of food systems, including food security. Food systems are simply failing to deliver healthy diets for all. In addition to the negative impacts this has on the health of individuals and families, the economic costs to society due to the health and environmental impacts of current dietary patterns are large, and often hidden. If food systems are transformed, they can become a powerful driving force towards ending hunger, food insecurity and malnutrition in all its forms.

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?

Dietitians Australia supports a Health in All Policies approach given the interconnectedness of human and planetary health and recommend a whole-of-government stakeholder engagement framework to support for buy in and success.

23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?

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Dietitians Australia notes the successful example from the United States Pledge to Reduce Greenhouse Gas Emissions 50% by 2030 in the Health Care Sector.[25-26]

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?

Dietitians Australia notes the research which has been published on the enablers to food waste measurement.[27] These enablers would also most likely translate to food waste management strategies in the same setting (hospital foodservices) and could be learnt from broadly to approach other sustainability activities within the wider health services network.

A majority of these are captured in the five enablers and are included here for convenience:

- Money
- Equipment and resources
- Technology and data
- Labour
- Communication
- Planning, education, and training
- Stakeholder (specifically staff) buy in
- Policy or legislation
- Facility specific guidelines/standards
- Organisation support from executives
- Leadership
- Modifications to current practice

Waste should also consider the contributions of plastics to waste as per the recent report Climate Impacts of Plastic Consumption in Australia Summary Report.[28]

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Dietitians Australia

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Australian Government
Department of Health and Aged Care

NATIONAL HEALTH AND CLIMATE STRATEGY

Detailed submission form

This form allows you to provide responses to the full set of questions in the Consultation Paper available here.

Alternatively, you may wish to complete the briefer online survey available here.

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Respondent details

What is your name?
[redacted]
What is your email address?
[redacted]
What is your organisation?
Western Victoria Primary Health Network
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☒ I have read and agreed to the Privacy Statement
Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
[redacted]
Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative ☐ Academic or Researcher ☒ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

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Questions for feedback from the Consultation Paper

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?

Introduction:

Thank you for the sharing the draft Health and Climate strategy for consultation to the Primary Care sector and in particular allow Primary Health Networks to provide insight that in derived directly from our knowledge and experience delivery integrated and co-ordinated care to our communities.

We note that the links to government departments, initiatives and funding sources regarding lowering emissions schemes were focused on the acute hospital sector and the scope was limited when we consider the entire health and community sector. WVPHN acknowledges the acute sector emissions footprint is significantly higher than the primary health sector and was a good place to start to drive climate action adaption and mitigation.

Background: Western Victoria Primary Health Network (WVPHN)'s Green Primary Care project, underpinned by our new ESG strategy, is a Board commitment that commenced February this year. Our vision and commitment to throwing a clear lens on the effects of climate change and global warming is driven by our ongoing duty of care to the community and that of our member GPs (to do no harm). We acknowledge climate change is real, scientific evidence and current lived experiences outline the continuing consequences for human health (source Who and IPCC).

Our Vision:

Healthy communities with equitable, accessible, and thriving primary care services.
The WVPHN's Green Primary Care sustainable program aims to lead and educate our region on the co-benefits of caring for people and the planet in unison through reducing our carbon footprint and initiating GP and Community-led wellbeing goals.

Emerging Purpose: 2023-2025 Strategy
Provide leadership and build capacity in sustainability within and develop a green primary care support model.

The Green Primary Care (GPC) program over the coming months will present directional enablers and actions to provide leadership and build capacity in sustainability within the primary care landscape. The ambition is to develop a green primary care ESG platform of footprint analysis to track and measure our region's climate action performance.

Setting realistic and necessary emission and waste reduction targets will shine a bright light on environmental and social care in relation to more frequent climate change events:

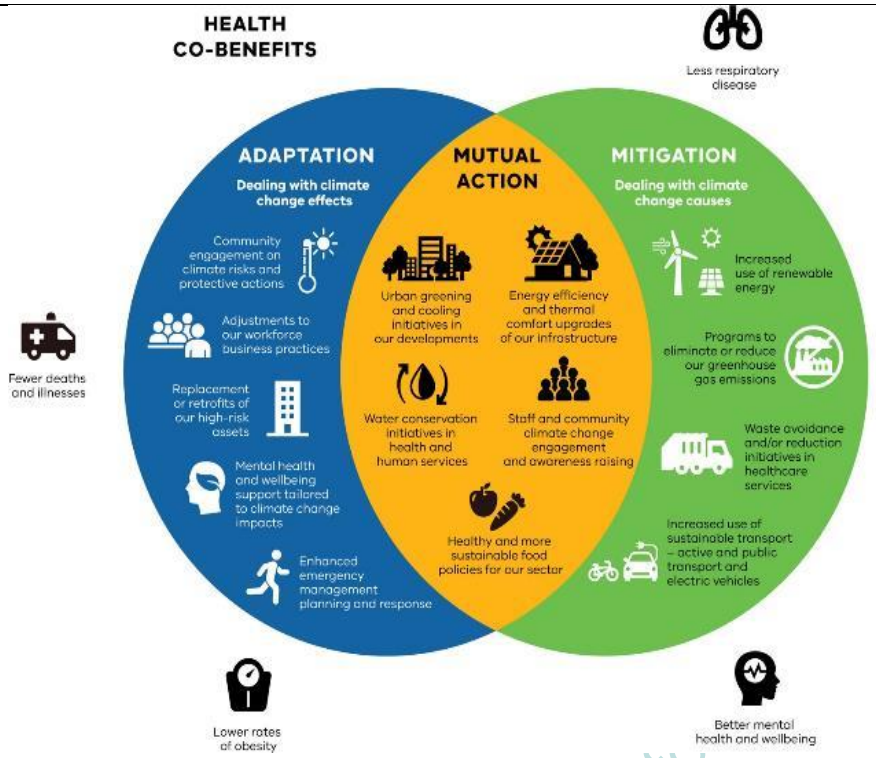
- Affecting human health outcomes negatively and the need for clearer conversation and education around the evidence-based science
- Care delivery reforms in relation to workforce and skills capacity and reallocation
- Commission and funding to the care needs in a person centre delivery model
- Recognising the current barriers to maximising resources, minimising wastage in time productivity and patient experience by delivering multidisciplinary care
- The need for a holistic health and aged care 'climate and health' strategy that is delivered with intent and is supported by high quality and accreditation standards that include the entire ecosystem (supply chains)
- The need for educational (GP and Community-led), proactive and preventive care relevant to the ongoing effects of global warming across all generations

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WVPHN started this GPC project without government funding understanding the necessity to commence our strategy now and with solid foundations built on informed and relevant data. There is a plethora of 'green' information sources, and case studies to be informed by, noting they all have a variety of baselines, targets, resources, and differing delivery care models making a side-by-side analysis difficult to adapt directly. WVPHN could not find a direct comparison that encompassed our ecosystem of stakeholders.
Importantly PHNs and their networks are dynamic integrators and co-ordinators of care to the community and this project needs to represent sector purpose in the event of climate change events (directly and indirectly). These material issues are those that matter most to our stakeholders and people living in Western Victoria, and the areas that will deliver the highest value to the health co-benefits: adaption, mutual action, and mitigation levers and enablers.

Focus Areas	**Patient health and equity**
	Climate change action (mitigation climate change events)
	Environmental care (reduction in GHG emissions)
	Responsible procurement across the network
	Reducing waste across the PHN netork (energy and water)
	GPC toolkit GPs (supporting sustainability targets and a more ciricular economy)
	Caring for communities (building capability & resilient)
	Lead and Share Best practice (all PHNs)
	Lobby the Health Department - Reform (remove barriers)

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A staged engagement and delivery ensure the program of works:

- Gathers credible and quality baseline data (from all information streams) to then track our progress against climate action mitigation indicators.
- Gain buy-in from all stakeholder groups (through education, targets, and policy)
- Lead the voice of the co-benefits of reducing PHNs footprint with authority (collaboration and consultation).
- Provide Governing bodies with evidence-based and informed data for reform (design a PHN digital platform to capture baseline emissions, climate action goals, measurements, and governance in one centralised database.
- Develop a continuous improvement model that uncovers the barriers to delivering better care that is both financially and environmentally sustainable. (Ongoing network co-design and collaboration)
- Transparent Governance and reporting (UN Global Compact and SDG performance)

High-level approach:

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The Green Primary Care (GPC) project has over the last 4 months developed a solid and achievable strategy and is commencing a clear road map that will present directional enablers and actions to provide leadership and build capacity in sustainability within the primary care landscape.

Our health integration and care delivery ecosystems encompass:

- Our member General Practices (GP) members
- Mental Health Partners
- First Nations People's Health
- Population Health
- Health Workforce
- Aged care
- Alcohol and other (AOD) treatment partners

To support improved care outcomes and inform our care integration and co-ordinations regionally include data collection of digital health information.

All require mentoring (education), support (resources) and funding to shift their paradigms to become more sustainable. WVPHN has funded a resource in the short term (not government-funded) to develop this strategy and provide informed insight to add value to targeted and improved mitigation and adaptive planning models as a priority given the reoccurrence of climate events in our region. Importantly the GPC project will reflect and represent our community and sector needs in the event of climate change events (directly and indirectly).

WVPHN requires an entire network to play their role in the mitigation of climate change risks to human health and well-being, that is integrated, in step with the realities of the escalating cost to the healthcare system, unpinned by new and relevant policy, legislative, standards and compliance that is clear.

It is also critical that primary care is included in emergency notification and response underpinned by more and improved collaborative response and funding from the

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government to continue to deliver quality care to the people in immediate need, and in a timely manner when faced with crisis.

Feedback on the Objective Strategy
The Government-outlined strategy and objectives are supported by WVPHN and are aligned with our planned ESG strategy delivery program.

The value of health gains from reducing carbon emissions would be approximately double the global cost of implementing carbon mitigation measures: source WHO

Agreed, Measurement 1. As outlined in the WVPH introduction, this measurement is crucially important:

Delivering this strategy in isolation from a bigger picture or umbrella view would be a lost opportunity for tangible impact regarding more adaptive, resilient and climate event mitigation planning and health care rising costs. Importantly building capability and initiating reforms in the areas of clinic delivery and community-led awareness and adaption educational programs are also fundamental to the success of Australia meeting our emission targets by 2050. It should be noted this target and time frame seem out of step with the evidence-based science and WVPHN will adopt more aggressive targets by 2030. We acknowledge IPCC and WHO sources in our endeavours.

The PHN ecosystem includes GP networks (and supply chains) so waste reduction and clinical alternatives must be provided and pledged in conjunction with the governing regulators that provide policy and standards for their members RACGP/AMA/Ahpra

Policy reforms both stick (standards/accreditations) and funding (carrot) will precipitate greater participation, health data sharing and (capacity) and providing funded climate/mitigation partners (focussed resources) aided to adopt climate action mitigation and collection of data without adding more administration or resource burden will accelerate intent and impact.

Measure 2 and 3 WVPHN strategy are highly related and for good reason. Health care faces clear negative determinants that increase with vulnerability factors, and the focus should be on identifying them (not wasting unnecessary resources and money with a broad brush) for mitigation and adaption planning, workforce analysis regarding access and equity, capacity and resilience building with collaboration and education. Deep analysis requires a combination of data sources and feeds, geographical, digital health data and predicted climate events is needed and is available. The key to this problem and the most crucial factor to the success of the program is **sharing data across sectors**.

Our vision is to design a fit for purpose PHN ESG sustainability data repository from all required data sources and streams to feed and inform the insights needed for direct and proactive mitigation planning and response. Measure 4 cannot be achieved if policy levers are not borderless or supported via a number of enablers (resources, skill, funding, digital funding).

What this statement means regarding emergency response; It is vital that the role of primary care be well defined and clearly incorporated into current emergency preparedness as one overall system where each party knows the roles and chain of command, so that during a natural disaster or emergency, agreed responses are ready to be enacted. PHNs, including aged care, as the regional primary health coordinators, must be part of the advance planning and preparation for future disasters and public health challenges.

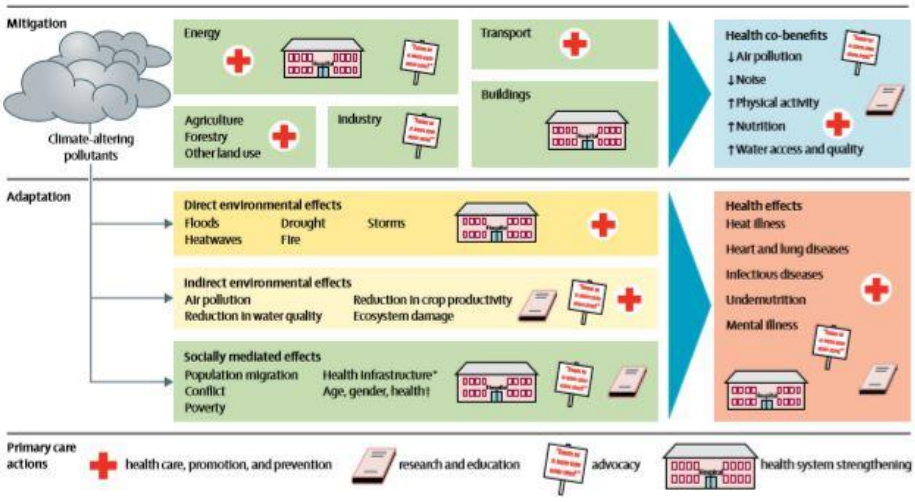
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Every government, every organisation, and person should be adopting measures now that all contribute to reducing the ongoing risks and health determents associated with our accelerated global warming, and destructive climate events, now and the generation to come. Adopting and mandating health and climate change intersections will reduce escalating healthcare costs, as any mitigation strategies and enablers introduced will produce a shift to more proactive and preventative healthcare delivery (people centred). Reduction targets indirectly via climate action programs improved innovation of care delivery, biodiversity/environments, air quality, water, land use, waste management, disease prevention, and community connection (not an exhaustive list). The information published by the World Health Organisation (WHO) is clear and concise, better environments and education in mental health management (which often run side by side with AOD disease), improve the health and well-being of humans.

Lancet research provides evidence of a significant link between climate change and young people's mental health. The health sector must re-orient mental health practices to research and include the health impacts of climate change on young people. There is a real need for education and building resilience/capacity management, relayed via community engagement and initiatives focussed on climate action in a more mainstream way, which would pave the way to increase positive messaging. The latest media release from the Australian Healthcare and Hospitals Association (AHHA)on our youth Protecting Australian youth mental health in a changing climate

Delivering a successful GPC program has the possibility of effecting meaningful intent and action through education and capability-building programs as PHNs play a key role in primary care and mental health response (in and out of an emergency). Our localised knowledge and ability to work with state and territory governments to facilitate Community-led and community-focused projects are more likely to be adopted and importantly can be tailored to the nuances of different communities' geographical locations, needs, cultures, and identities.

General practices, including nurse practitioners, are trusted advisors in our community and need to be incentivised and resourced to deliver combined climate and health strategy outcomes.

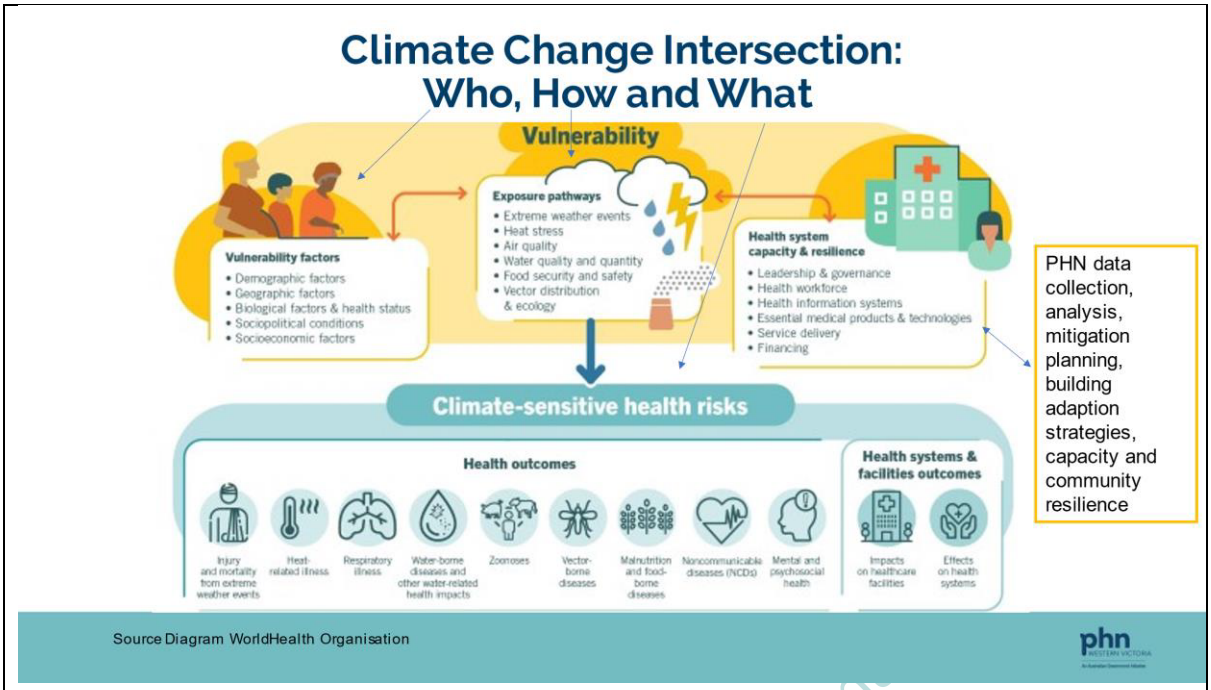


Source: Diagram RACGP

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Without an educator/support resource or time to dedicate to climate mitigation efforts broadly, progress and emissions reduction will be impeded with this cohort, which would include pharmacists who need to be integrated into this strategy.
2. How could these principles be improved to better inform the objectives of the Strategy?
PHNs Purpose: Use our regional insights and collaboration with stakeholders to ensure that all people in Western Victoria experience improved health and well-being, through equitable access to quality patient-centred, GP-led, integrated, and sustainable primary healthcare. If we intentionally focus on people-centred care the barriers to all vulnerable cohorts will become apparent when looking through an environmental, social and governance (ESG) lens. **Objective 1 Comments:** WVPHN recognises and respects First Nations people knowledge, cultures and traditional practices that contributes to sustainable and equitable development and proper management of the environment (land, sea, and waterways). Our comment regarding your objective is to embed 'self-determination' and the 'human-rights approach' to decision-making within this strategy. Please refer to UNDRIP - https://social.desa.un.org/issues/indigenous-peoples/united-nations-declaration-on-the-rights-of-indigenous-peoples Western Victoria has eight Aboriginal Community-Controlled Organisations (ACCO) within the Commonwealth Government assigned PHN boarders. These organisations deliver holistic, comprehensive, and culturally appropriate health care to the community which controls it. These eight have recently formed a regional collective called the Western District ACCO Collective (WDAC). Free, Prior and Informed Consent needs to be asked of First Nations people and organisations directly. WVPHN suggest consultation with the Lowitja Institute as a valuable resource of additional insights. It is an Aboriginal and Torres Strait Islander community-controlled organisation working for the health and wellbeing of Australia's Aboriginal and Torres Strait Islander peoples, through quality research, knowledge exchange, and by supporting a new generation of Aboriginal and Torres Strait Islander health. Noting there are 33-member organisations servicing 65,000 Aboriginal and Torres Strait Islander people. **Objectives 2 & 3 Comments:** Identifying these in combination:

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This graphic was published in the World Health Organisation (WHO) Climate. There is unambiguous evidence of the who, how and what climate change intersection on health outcomes. Climate change affects both social and environmental determinants of health meaning strategies need to affect change in all factors in combination.

The exposure pathways are known and can be predicted to a considerable extent incorporating existing government sources and data (BOM/CSIRO) and we have experienced them locally-death from fires and floods, Japanese encephalitis moving into Victoria, covid 19 and increased mental health episodes. Outlined are 10 negative health outcomes from heat-related illness, and respiratory and heart conditions, all add further strain to our healthcare services if not managed early.

We know the vulnerable are affected the most – the young, elderly, people living with chronic conditions and experiencing disabilities, First Nations people, marginalised, CALD and those living in remote areas without nearby care facilities. The WVPHN program's ambition is to identify the geographical areas these people reside and support better adaptive and capability planning to improve equity for those who need it the most, proactively, and reactively to climate change events.

Objective 4 Comments:

Climate mitigation targets, initiatives, and measurements of One Health to included, not known separately, under an alternative banner One health, One Climate. It was difficult to find any evidence of current performance or initiatives against KPIs on their website.

Objective Comments 5:

WVPHN wants policymaking to be informed by overseas case studies data but responds to local care delivery, patient needs, and local data, evidence, and research. Strategy levers and enablers would be preferable to bridging the leap of faith, and identifying where gaps are via audit and further consultation, then design/develop solutions (process, policy, regulations, and technology) to ensure data quality and integrity is complete. This simply avoids duplication or rework later, or spending cost and resources where it isn't needed.

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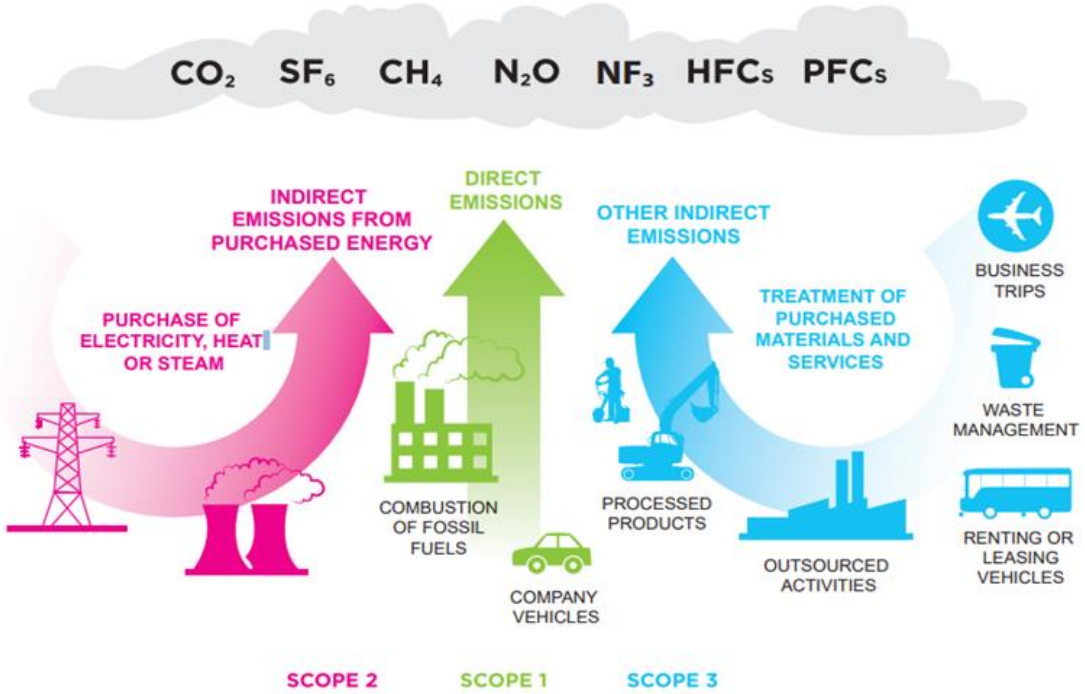
Delivering a complete project based on your indicators and focussed on person-centred needs with the climate change event lens is likely to identify the gaps in equity and service delivery. How we can maximise the workforce and build capacity requires innovation (move away from traditional models of care where required), education (build skills and capacity), reform of policy that is more fluid across the invisible borders that exist within the entire healthcare sector.

Object 6 Comments:
Agreed. Full and unadulterated collaboration needs to be developed and beat to the same Climate Change drum. Overarching regulations, policies and funding need to be tightly knitted and integrated into each one of these government and industry organisations and bodies, exactly as an ESG strategy is embedded in organisations.

Changing ISSB financial reporting standards will deliver some impetus for companies to be more transparent on emissions data.

Reality and historically, a two-pronged approach will be required to meet emissions targets and drive immediate change, the stick and carrot, depending on the drivers (pollical, commercial, NFP) of the organisation.

3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?



WVPHN agrees all emission scopes need to be included in the strategy.

4. What existing First Nations policies, initiatives, expertise, knowledge, and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture, and wellbeing?

As per comments to objective 1.

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Free, Prior and Informed Consent needs to be asked of First Nations people and organisations directly. WVPHN suggest consultation with the Lowitja Institute as a valuable resource of additional insights. It is an Aboriginal and Torres Strait Islander community-controlled organisation working for the health and wellbeing of Australia's Aboriginal and Torres Strait Islander peoples, through quality research, knowledge exchange, and by supporting a new generation of Aboriginal and Torres Strait Islander health.
Noting there are 33-member organisations servicing 65,000 Aboriginal and Torres Strait Islander people.

5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

As per comments to objective 1.

WVPHN recognises and respects First Nations people knowledge, cultures and traditional practices that contributes to sustainable and equitable development and proper management of the environment (land, sea, and waterways). Our comment regarding your objective is to embed 'self-determination' and the 'human-rights approach' to decision-making within this strategy. Please refer to UNDRIP - https://social.desa.un.org/issues/indigenous-peoples/united-nations-declaration-on-the-rights-of-indigenous-peoples
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Noting there are 33-member organisations servicing 65,000 Aboriginal and Torres Strait Islander people.

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Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?

Comment: The PHNs have not been included in the scope of any incentives or support initiatives I am aware of. WVPHN tried reaching out to participate, including to investigate where we could piggyback onto any volume procurement options through Health Purchasing Victoria, without response. PHNs would like to access equitable funding to support and accelerate climate change mitigation.

WVPHN intend to baseline and track scope 1,2, 3 emissions across our network which would include corporate office buildings, home offices (short term), GP members if they agree to participate (medium term - incentives required) and longer term our supply chain ecosystem.

Engagement and collaboration with the GP sector are a large part of our emission ecosystem and is crucial to us reducing GHG and climate footprints regionally. Emissions and waste clinical/medical would benefit from greater RACGP policy and providing levers to medicines and medical suppliers to be more transparent of their climate footprint. Providing more choice and education would be as a valuable incentive as funding if we could normalise the climate action conversations.

WVPHN is currently working on a toolkit to support GPs and staff who are committed to, capable of and or understand the correlations between health and climate. The initial tool kit will include:

- Energy efficient quick and inexpensive wins
- Water reduction
- Landscaping (community garden, indigenous planting, garden design – all provide mental health, connectedness for older people, means to educate benefits)
- Climate ready and resilience building design
- Waste reduction ideas (office oriented)
- Other ideas for them to include is incentives for staff to buy electric cars and bikes, provide a charging station
- Update climate risk in business continuity and emergency management plans, including procedures for staff, patients, visitors, and suppliers to access the site when access to roads is impacted by an extreme climate event.
- Stage 2 - a set on clinical practice items that could be replaced by greener alternatives, significant research is required and to be testing in this area*

Another inclusion for the toolkit currently underway is baselining a small number of general practices to deliver an estimated ROI regarding:

- Assessment of energy use challenges and opportunities
- Top 5 recommendations prioritised by quickest to slowest payback periods to upgrade the buildings to be more sustainable and efficient.
- Behavioural recommendations and any indicative savings
- Commercial Solar Feasibility Assessment

Completing this analysis will also provide Co2 off-setting information to add to WVPHN overall reduction KPI's and provide a holistic view of our region's footprint. Voluntary participation however will impede progress and accuracy of data. A government incentive

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payment would provide for profit business the motivation to provide energy usage data permission. Noting: Technology is available to automatically upload data from smart meters which is efficient and accurate (with permission). It would require no labour overhead for GP clinics.

Government rebates for solar for clinics would be welcomed and taken up with support.

*if University research grants could assist in doing the heavy lifting on research and collation of world best practice efforts for Australian pilots and would apply downward pressure on cheap unsustainable offerings currently in use via high regulations.

7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?

Comment: WVPHN's Green Primary care project will deliver several strategies to support reduction efforts such as education on the co-benefits of caring for the planet and people in unison, ROI and case study information, and advocate for funding and policy reforms.

Our sector, including aged care facilities are time poor and has direct core functions allowing little margin to take on climate change projects individually. If a cohesive fit for purpose platform could be delivered/funded by the Government to the sector that was able to direct feed energy data into a centralised database for reporting, baselines and measurements, progress could commence quickly. One PHN platform capturing identical data feeds will provide the credible and quality information on emission that then provide mitigation calculation for effort and impact. WVPHN intends to design an ESG platform with consideration of environmental, social and governance to assist climate change mitigation management.

WVPHN goals are 25% reduction by 2025, zero by 2030. If you read the scientific evidence of rate of global warming and the effects on human health, food security, displacement and migration, biodiversity, aiming for zero as late as 2050 will significantly increase healthcare costs and impact community wellbeing negatively based on current climate change predictions.

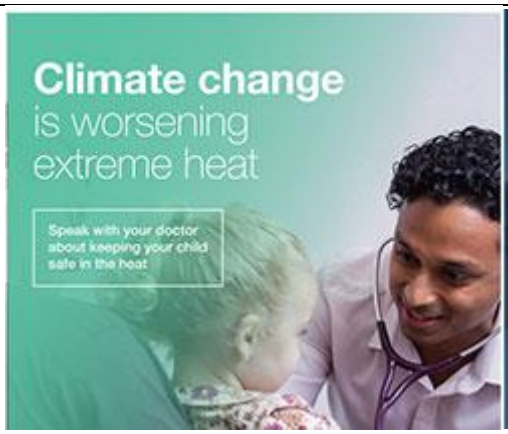
A Government funded resource dedicated to delivering regional projects would ensure consistency across the sector and acceleration of emission reduction targets.

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Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?
Comment: WVPHN climate mitigation efforts will be focusing on our entire network (PHN-led, GP-led, and Community-led). WVPHN forecasts many co-benefits in delivering a more holistic approach requiring tight integration with policy levers and emergency response, incentives, funded pilot programs, a funded platform of capturing and evaluating all best practice models and agreed reduction targets and time frames applicable to our sector. GP led educational programs and collaboration with LG, and regional hospital networks on joint community led health and wellbeing programs. Policy that supports improved standards, and the reporting of them across private and public health.
9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?
Comment: PHNs are lower uses of energy and water compared to large and aged care facilities but should be a priority now for funding for similar incentive schemes that meet the network's nuances (lesson learned applied). Provided to PHNs to allocate based on a co-designed, integrated, and holistic climate and health plan. PHNs and the GPs play can play a key role in health and wellbeing education and mental health management. GP-led and community-focused and localised climate action engagement is more likely to be trusted by the community. PDF Bushfire-Support-DL.pdf As guide we recommend: **Resilient Response Design** **Heat-related Events** • Provide for natural shade through landscape design. • Use light colour materials and heat-reflective coatings. • Select roof, wall, and floor materials for increased durability and water resistance. • Improve building insulation and design out a thermal bridging. • Include high-performance glazing (double). • Increase passive or natural ventilation where possible. • Include fixed external shading and internal blinds. • External materials designed to be touched have low conductivity such as wood or recycled plastic (such that they are not extremely hot after prolonged sun exposure) • Increase efficiency or capacity of HVAC systems, demand control ventilation per AS1668.2. • Include strategies to reduce operational energy by installing solar panels and batteries.

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Rain Reducing Areas and Landscape Considerations

- Include water-sensitive urban design, such as swales and biofiltration to manage stormwater run-off.
- Design landscaping to be water efficient, including the use of mulching, plant selection and water-efficient irrigation system, comprising subsoil drip systems and automatic timers with rainwater or soil moisture sensor over-ride.
- Provide rainwater tanks to collect water from rooftops, reverse osmosis (dialysis) and other areas where flows justify.
- External hoses to be controlled by high-pressure water efficient trigger nozzles and connected to rain, or reclaimed water tanks.
- Select drought and heat-tolerant indigenous plants and grasses for Practice planting – seek advice from local Aboriginal co-operatives.
- Select plants to provide shade where appropriate Increase water efficiency of fittings, fixtures, and services.
- Ensure reliable potable water supply and collect recycled water for additional resilience.

Bush Fire

- Avoid proximity to bushfire-prone areas Build to, or exceed, build to appropriate bushfire standards if necessary.
- Communicate high-risk days to vulnerable patients and ensure everyone knows the emergency plans.
- Provide or refer patients experiencing anxiety or mental health concerns.





Extreme Rainfall Events and Storm Surges

- Secure signage and fixtures to resist extreme storm events.
- Ensure built land surfaces are permeable.
- Select appropriate landscaping to mitigate.
- Include a tree maintenance plan to mitigate the risk of falling limbs.
- Design for future flood levels, and rainfall intensity.
- Ensure down pipe plumbing and stormwater are sufficient for flood-prone areas.
- Communicate high-risk days to vulnerable patients and ensure everyone knows the emergency plans.

Where the is potential for rising sea levels:

- Incorporate water-sensitive urban design and future flood levels, and rainfall intensity.
- Increasing damage and insurance premiums
- Avoid proximity to a floodplain, waterway, or coast. If unavoidable, design for future flood levels, rainfall intensity
- Select materials resilient to the local environment, consider contacting your local



Sources: RACGP, WHO, The Lancet, IPCC, ICC, UNFCCC, and Future Earth.

10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?

Comment:

- Incentives/ rebates for electric fleet cars and charging stations.
- Consider all healthcare transport vehicles when initiating incentive schemes.
- Minimum standards for transport vehicle's regarding emissions
- Through this strategy utilise PHNs reach to influence broader service partners such as flying doctors and private transport providers.

Telehealth and remote video health to be identified (through analysis of current data sources) as alternatives where possible for climate resilience education, skills uplift, health consults and multidiscipline care models. Current funding methods impedes service integration of care to the induvial, 'a one referral at a time' or funding directly for mental health and separately for A&D programs. Commissioning individual programs in this way duplicates effort, resources, cost, and patient experience. i.e., some patients experiencing drug and alcohol dependency often are experience a mental health episode and nutritional

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deficiencies increasing possible of other ongoing health issues. Particularly in remote areas where there are clinical shortages policy and delivery reform could provide better service and reduce the PHNs overall climate footprint.

11. Which specific action areas should be considered relating to **supply chain**, over and above any existing policies or initiatives in this area?

Comment: WVPHN considers the supply chain area of our climate change mitigation efforts to be the most challenging, some of our suppliers deal in thin markets. Many product distributors lack transparency in ESG policy and action e.g. pharmaceutical, GP consumable suppliers and NPF service providers. Government-prescribed benchmarks and pre-vetted supplier lists could assist in allowing us to evaluate their environmental footprint. Our policy needs to be strengthened by mandates or better regulations.

I have read the NHS climate action strategy and scorecards. I was impressed by how they decreased energy and waste by 18-20% with an 11% uplift in care delivery. Their education and policy mandates were key factors, they also had an entire team of people working on the delivery, including the mechanics of replacing old less efficient devices and appliances with more energy-efficient ones. They started their program many years ago. I would be interested to know how the UK Government will bring Private health in line with targets.

12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?

Comment: WVPHN has just started to collaborate and consult green GP practices. There is a considerable number of case studies and toolkits actively around the world published. This is not our area of expertise. However, RACGP could apply more policy levers for its members and research greener practices/alternatives, greater collaboration with government bodies and climate action targets would better support PHN efforts.

Behavioural changes are required in tandem with policy/ RACGP

Here are some resources provided by a doctor WVPHN are in collaboration with to pilot some of our initiatives to seek effective and relevant evidence driven data.

https://www.greenerpractice.co.uk/news-item/green-impact-for-healthcare-toolkit-gifh/
RACGP specific interest group directed to this:
https://academic.oup.com/fampra/article/40/3/473/7024812
Green Family Practice, cmad006, https://doi.org/10.1093/fampra/cmad006
Published: 02 February 2023
Conclusions - A range of aids exist to support greening of clinic operations; however, there is a significant gap in the literature for greening clinical care. Two toolkits were found to be comprehensive, one (Green Impact) requiring tracking and reporting of sustainability initiatives. This scoping review provides a starting point for motivated family doctors and community clinics to initiate change and support more sustainable healthcare.
Terry Kemple is a global leader in this space in the UK. See You Tube videos RCGP Green Impact for health toolkit.

13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?

Comment: WVPHN is considering all waste that affects environmental care. Gaps will be highlighted through audits.

14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?

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Comment: As well as continuing to fund and commission needed services to PHNs, allow through policy reform, funding to be more coordinated and flexible (bucket amounts to drive innovation of care delivery) that can be driven from the PHN level. PHNs deeply understand community and regional needs through community connection and population health data (evidence).

15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?

Comment: A national compact/regulation that binds all care delivery organisations and models together by climate standards or quality requirements that are legislated, and then internal policy will follow. Insurance companies must have consideration in this equation.

Mercy Health and others have embraced and understand the co-benefits of climate mitigation efforts. More commercial entities are using ESG strategies to grow revenue and attract talent.

16. Where should the Strategy prioritise its emissions reduction efforts?

    a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?

    b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

Comment: WVPHN will develop GHG reduction goals Scope 1, 2 and 3. Priorities from our perspective and network will be greener and reduced electricity sources. Including education programs internally for home offices.

Rebates specific to the entire health sector for EVs. Fund EV chargers at permanent office locations.

17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?

Comment:

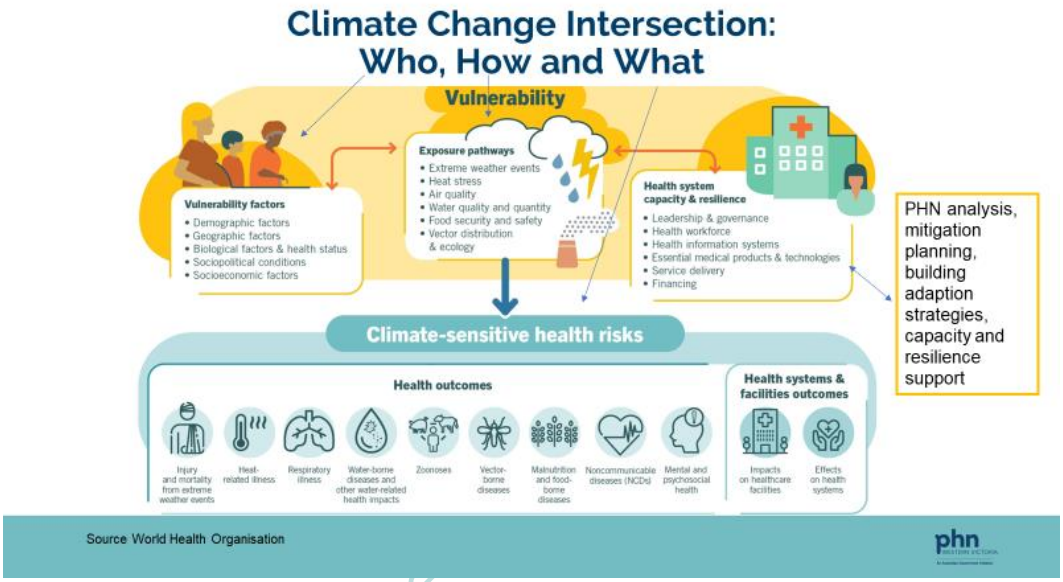
- Greener energy replacements that have ties directly to a more sustainable Australia.
- Policy and funding to GPs to add solar panels
- Labelling medicines and waste with environmental standards
- Funding for educational programs at local, community, GP, and supply chain level

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Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?

Comments: WVPH is choosing to apply an organisational-wide ESG strategy embedding an ICT platform design for our purpose. We may call on Deakin or another University to assist with the use of data analysis software to identify the vulnerable cohorts using all our data streams to add value to regional migration, adaption planning and resilience education. If our program could be adopted more nationally, combining Health and Climate data into a Tableau (visualisation) application at a national level would be extremely insightful for future decision-making regarding risk, spending and programs. Our program will focus on the below model.



19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes:
    a. What are the key considerations in developing a methodology?
    b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally?
    c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

Comment: WVPHN would support a national scheme data-driven from each PHN to ensure the local community and regional nuances (people, cultures, environment) are identified and addressed as part of an overall plan. With additional funding, we would welcome playing a part in this consultation.

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20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?
21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?
Comment: • Policy levers and enablers • A comprehensive approach that identifies all the touch points to effecting health care and the planet - together • Start to breakdown siloed spending and information streams via policy and funding reform • Incentives and policy levels for GPs to become more sustainable in every way of their business • Ways to leverage supply chain resistance via exacting standards and transparency of sustainability footprints • ISSB/ or other mandatory environment reporting measures for all health-related organisations, public or private.

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Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?
Comments: Q21- Q24 WVPHN would support the introduction of a new legislative council or body to oversee the Health and Climate strategy, its levers, enablers, and evolution of the implementation of reforms based on feeder information from local sources. This overseeing body would need an elevated level of collaboration with other climate change organisations and authority driven by meeting sustainability targets.
23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?
Comment: WVPHN GPC program aims to implement an ESG framework driven by evidence and based on sector need, done once in collaboration, and shared, ensuring quality and uniform data for analysis.

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Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
Comment: WVPHN supports the strategy you have outlined and looks forward to the adjusted version that will include all sector consultation feedback, this will provide the answer to these questions.
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider supporting delivery?
Comment: WVPHN GPC program aims to implement an ESG framework driven by evidence and based on sector need, done once in collaboration, and shared, ensuring quality and uniform data for analysis. WVPHN looks forward to reading the H&C strategy after the feedback has been reviewed and included. We will then adjust our ESG strategy according to 'what & who' we did not foresee, and what is of value to include based on peer and sector advice.

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Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Australian Government
Department of Health and Aged Care

NATIONAL HEALTH AND CLIMATE STRATEGY

Detailed submission form

This form allows you to provide responses to the full set of questions in the Consultation Paper available here.

Alternatively, you may wish to complete the briefer online survey available here.

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Respondent details

What is your name?
[redacted]
What is your email address?
[redacted]
What is your organisation?
Healthscope
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☒ I have read and agreed to the Privacy Statement
Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
[redacted]
Please select which applies to you: ☐ Individual citizen ☒ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative ☐ Academic or Researcher ☐ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

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Questions for feedback from the Consultation Paper

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?
The objectives are clear.
2. How could these principles be improved to better inform the objectives of the Strategy?
Healthscope suggests adding a principle around cost mitigation and efficiency of implementation would be beneficial, to ensure successful local initiatives are scaled across the whole health sector, and that consideration is given to the cost impost of duplication.
3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?
Private organisations should be encouraged and incentivised to address Scope 1 and 2 emissions, however, there is limited scope for influencing upstream and downstream emissions. We are particularly concerned with being held accountable for emissions of third parties where we have limited to no influence. For example, Healthscope sources medical devices from many MedTech companies. In the public sector, hospitals can (and do) limit the array of devices made available to the doctors they employ, however, in the private sector, we neither employ doctors nor dictate the care they can provide, including which medical technology to use. We are therefore compelled to stock a wide variety of medical technology for use by the surgeons who admit patients to our hospitals. In some cases, medical technologies are developed and exclusively available from small, single suppliers, and we cannot as a result change supplier to another because no one else carries or makes the technology needed. Whereas the public sector will be able to exert influence by moving their procurement elsewhere, Healthscope does not have such a lever to influence the supplier. We therefore strongly oppose being held accountable for any upstream emissions.
4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?
N/a
5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?
N/a

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Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?
No, internal initiatives only; Healthscope measures both emissions and energy use across its network. Currently reporting is aligned to our internal ESG strategy, used to inform ESG initiatives, and is not reported externally.
7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?
N/a

Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?
Healthscope wishes to make the following suggestions as to the focus areas in the report; - Consideration should be given to a staged approach. Addressing all the focus areas at once will be prohibitively costly and overwhelming; Government guidance, funding assistance and an implementation plan or support community should be considered. Furthermore, this increase in cost should be taken into account when the Minister considers the next premium increases over the medium term. - Some entities in the sector will be more advanced than others, and recognition for work already completed or underway should be considered as part of the strategy. - Government support to meet the focus area targets will be essential, especially where activity is ahead of progress. - Private businesses must remain commercially viable, and the added costs of implementation are both inflationary and may mean hospitals with slim margins (especially in the wake of the financial impact of COVID) may go out of business, especially if we are unable to pass on the costs to private health insurers. If private hospitals go out of business, public health and public hospitals will experience further pressure, and waiting lists will increase. A whole-of-industry (including Government) cooperative approach will be imperative in the success of the strategy.
9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?
- In developing the National Strategy, Government policy levers should focus on the carrot rather than the stick approach, and seek to incentivise and support positive/desirable behaviours rather than take a punitive approach to address negative/undesirable behaviours. - A distinction should be made between existing and planned infrastructure. New developments may have opportunities to design with sustainability in mind,

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whereas retrofitting existing buildings is prohibitively expensive. Government should provide financial incentives and assistance to meet retrofitting targets.
10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?
- In developing the National Strategy, Government policy levers should focus on the carrot rather than the stick approach, and seek to incentivise and support positive/desirable behaviours rather than take a punitive approach to address negative/undesirable behaviours.
11. Which specific action areas should be considered relating to **supply chain**, over and above any existing policies or initiatives in this area?
- In developing the National Strategy, Government policy levers should focus on the carrot rather than the stick approach, and seek to incentivise and support positive/desirable behaviours rather than take a punitive approach to address negative/undesirable behaviours. - Page 18 of the consultation paper reads: "Health and aged care organisations are well placed to leverage their considerable purchasing power to influence manufacturers to improve and report on the environmental performance and emissions footprint of the products they purchase." - While this may be true in the public hospital sector, where central (jurisdiction-level) purchasing would provide hospitals with significant sway/power over suppliers, accelerated by being able to narrow down the product range offered to the employed doctor, Healthscope strongly disputes this is the case in private hospitals. In private hospitals, the doctor makes their clinical determinations according to what is best for the patient in front of them. This generally means private hospitals have to supply and stock a much wider range of products. - Please refer to the above comments around our limited ability to influence third party behaviour.
12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?
- In developing the National Strategy, Government policy levers should focus on the carrot rather than the stick approach, and seek to incentivise and support positive/desirable behaviours rather than take a punitive approach to address negative/undesirable behaviours. - Healthscope also wishes to join the consultation paper's call that greenhouse gas emission reductions should "always be undertaken in a manner that does not undermine quality of care". We add that clinical care and safety must not be impacted by the proposals put forward in the National Strategy.
13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?
- In developing the National Strategy, Government policy levers should focus on the carrot rather than the stick approach, and seek to incentivise and support

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positive/desirable behaviours rather than take a punitive approach to address negative/undesirable behaviours.

- Healthscope believes the best and most immediate impact health services can have on emissions is through better waste management, and there are many organisations that are already seeking to implement ways to reduce waste. This, however, is an area where cooperation and the exchange of best practice ideas to be able to scale the strategic implementation would be highly beneficial. There would be significant efficiencies to be had in sharing processes and learnings, and there are also third party providers that can assist health services to reduce waste. This, however, also comes at a cost, and Government guidance and financial assistance through incentives should be considered.

14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?

- In developing the National Strategy, Government policy levers should focus on the carrot rather than the stick approach, and seek to incentivise and support positive/desirable behaviours rather than take a punitive approach to address negative/undesirable behaviours.

- Increasing the availability of home and community care in Australia presents significant opportunities, and the innovation of models of care in home or community settings could be beneficial to patients for whom this is *clinically approved* and *appropriate*.

- Healthscope wants to reiterate that the primacy of clinical independence must remain a central tenet in the healthcare system. While Healthscope agrees it is good to remove barriers to alternative models of care, stakeholders in the sector must be compelled to work together in what is best for the patient.

15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?

- The main issue to implementation in the private sector is cost and resource constraints. Private hospitals will need financial support and a collaborative approach to implement the national strategy, coupled with a sufficient timeframe to do so.

16. Where should the Strategy prioritise its emissions reduction efforts?

    a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?

    b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

a. Healthscope believes the only efficient way to addressing emissions is through a whole-of-system collaboration which will be able to scale successful projects and share lessons on best practice.

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b. The areas that could be considered as priority areas for action are the built environment and facilities (including energy), and waste. • Waste avoidance through working collaboratively with suppliers as well as reuse/recycle initiatives. • Energy reduction through more efficient use, greener sources of electricity and designing energy efficiency into new and future developments.
17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?
- With Government support, potential quick wins could include solar panel initiatives for on-premises generation of electricity in addition to light replacement with energy efficient LED.

Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?
n/a
19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes: a. What are the key considerations in developing a methodology? b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally? c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?
N/a
20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?
N/a
21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?
- Government consideration should be given to prioritising data improvement and measurement, as well as projections on future climate so that we are able to plan an informed response, particularly in relation to collection and monitoring of relevant health and wellbeing indicators.

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- Then the prioritisation of funding to support immediate and future adaptation plans

Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?
n/a
23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?
n/a

Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
• Healthscope agrees with the listed enablers, and especially wishes to reiterate the benefit of Enabler 4: Collaboration. We highly encourage governments engage with private entities as stakeholders to build ownership and partnerships across the healthcare sector.
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider to support delivery?
N/a

Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

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Australasian College
for Emergency Medicine

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25 July 2023

Department of Health and Aged Care
Level 15
595 Collins Street
Melbourne, 3000
Victoria, Australia

Via email: health.climate.consultation@health.gov.au

Dear Department of Health and Aged Care,

Re: National Health and Climate Strategy: Consultation Paper

The Australasian College for Emergency Medicine (ACEM, the College) welcomes the opportunity to provide feedback on the National Health and Climate Strategy Consultation Paper. We commend the Department of Health and Aged Care for taking a proactive stance on this crucial topic.

Climate Change poses the greatest risk to global population health as it affects the determinants of well-being such as clean air, secure shelter, safe drinking water and food availability. These impacts will worsen as temperatures rise. Therefore, immediate action is needed to mitigate irreversible change to the environment and the deleterious effects on population health. [1,2,3]

In alignment with our commitment to addressing climate change, ACEM, along with nine other colleges, has endorsed a report by the Royal Australasian College of Physicians (RACP). This report which paints the dire picture of the future of the Australian healthcare system under the impacts of climate change.[4] In response to this report, Dr Clare Skinner, the President of ACEM emphasized the urgent need to "act now to protect people from the worst health effects of climate change, today- and into the future".

The College recognises the importance of this strategy. We recognise that mitigation, adaptation, health policies, and greenhouse emissions, will differ in each healthcare facility based on the rurality of the facility, the number of staff employed and size of the facility and the governance structures within each healthcare setting.

1. Proposed Objectives

1.1. Proposed Objective 1: Greenhouse Emissions

[1] Policy on Heatwave and Heat Health. Australasian College for Emergency Medicine (ACEM); Available from: https://acem.org.au/getmedia/e5f064bc-0e29-493e-9385-206e2fa45315/Policy_on_Heatwave_and_Heat_Health#:~:text=Classic%20non%2Dexertional%20heat%20stroke,temperatures%20(i.e.%20heat%20waves)
[2] Medical Colleges: climate change is biggest threat to health system [Internet]. ACEM; 2021. Available from: https://acem.org.au/News/December-2021/Medical-Colleges-declare-climate-change-to-be-the
[3] S68 Position Statement on Climate Change. ACEM; Available from: https://acem.org.au/getmedia/ee8940b8-46fb-42c1-bd14-66ec9007c58b/S68-Position-Statement-on-Climate-Change

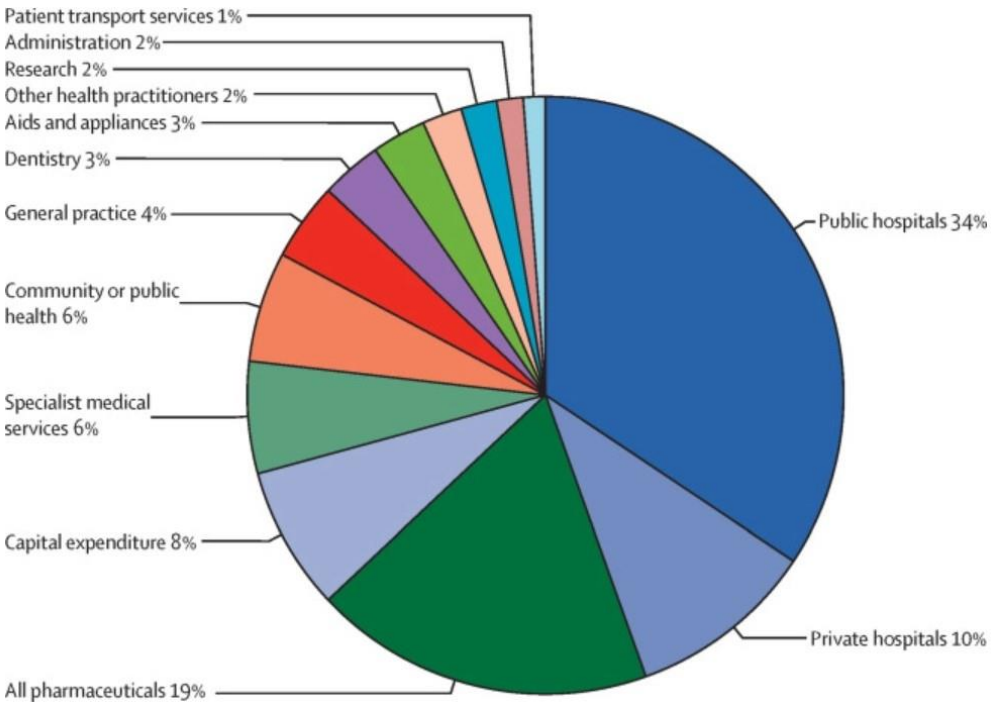


Figure 1. Total and relative CO2 emissions for 13 health-care expenditure categories [4]

Healthcare services contribute to greenhouse emissions including carbon dioxide, methane and nitrous oxide. Carbon dioxide are emitted through procurement of goods and services, energy use of running hospitals, transport of staff, visitors, patients and suppliers and generation of waste. It is estimated that up to 60% of health services' total carbon footprint is related to the carbon associated with goods and services it uses every day. By looking its supply chain, converting to renewable energy or running of hospitals, or better still building fully electrified hospitals, reducing waste and converting to Electric vehicles for its fleet of vehicles and transport services, healthcare organisations can significantly reduce their greenhouse emissions. We can also reduce use of nitrous oxide in operating theaters and phase out piped nitrous oxide in hospitals.

Other strategies that can be used is to reduce pathology ordering such as the Choosing Wisely campaign and reduce futile care. Switching from pressurised metered-dose inhalers to dry powder and soft mist inhalers can also lower CO2 emissions for patients with asthma.

Setting targets for Net Zero for healthcare organisations with measurable outcomes and ways to achieve them are the foundation of reducing our significant contribution to CO2 emissions. ACEM congratulates healthcare organisations that have set up targets and timeline to achieve Net Zero and hope that all healthcare organisations would also follow suit.

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[4] Malik A, Lenzen M, McAlister S, McGain F. The carbon footprint of Australian Health Care. The Lancet Planetary Health. 2018;2(1). doi:10.1016/s2542-5196(17)30180-8

Australia's health system is responsible for around 7% of the nation's carbon footprint. This is largely due to health being a significant energy user and Australia's grid is reliant on coal power. Furthermore, the largest portion of these emissions resulting from supply chain activities, including transporting which is . [5,6]

ACEM supports the consultation paper's acknowledgement of how reducing emissions in the Australian healthcare system requires comprehensive reviews of energy sources and consumption practices, as well as waste reduction efforts. By monitoring healthcare-related emissions and defining the scope of measurement, healthcare facilities can take proactive steps toward sustainability and contribute overall efforts in mitigating climate change. [3]

ACEM supports the proposed monitoring of healthcare-related emissions. However, the College also recognises the importance of clearly defining the scope of measurement in the consultation. It is crucial to determine whether these emissions will be assessed on a whole hospital level or on an individual department level. This distinction is important because different departments within a healthcare facility may have varying levels of energy consumption and emission profiles. By understanding the emissions at different levels, targeted strategies can be developed to address specific areas of concern and optimise energy usage. To add to this, a more detailed analysis will also allow the health system to leverage engagement with different medical specialties to drive change within their sphere of influence.

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[5] Climate Change and Australia's Healthcare Systems. Royal Australian College of General Practitioners; Available from: https://www.racp.edu.au/docs/default-source/advocacy-library/climate-change-and-australias-healthcare-systems-a-review-of-literature-policy-and-practice.pdf?sfvrsn=efe8c61a_4

[6] Climate Change and Health Australia. Doctors for the Environment Australia; Available from: https://dea.org.au/wp-content/uploads/2017/02/DEA_Climate_Change__Health_Fact_Sheet_final.pdf

1.2. Proposed Objective 2: Mitigation

High-Level Aim:	Reduce organizational emissions by 50 percent by 2030 and to net zero by 2050			
	HIGH-PRIORITY MEASURES		KEY STRATEGIES	
	Core Measures	Elective Measures	Reduce Waste	Reduce Emissions Intensity
Building Energy	• Total GHG emissions from energy use	• Energy use intensity of healthcare facilities • ENERGY STAR® score of healthcare facilities	• Conserve and optimize energy use	• Transition to zero-carbon fuel sources • Meet and exceed the current green building/retrofitting standards
Transportation	• Total GHG emissions from owned and leased vehicles	• Total GHG emissions of staff and patient travel	• Centralize oversight to actively manage transportation reduction	• Transition to sustainable transportation systems
Anesthetic Gas	• Total GHG emissions from inhaled anesthetics	• Mean fresh gas flow rates	• Minimize fresh gas flow rates • Decommission or avoid construction of central nitrous oxide piping	• Manage anesthetic choices
Pharmaceuticals & Chemicals	Overarching Scope 3 Measure:	• Metered-dose inhaler outpatient prescriptions as a percentage of all inhaler prescriptions	• Prevent disease exacerbation • Launch appropriate use campaigns	• Maximize lower carbon alternatives for inhalers alternatives
Medical Devices & Supplies	• Total GHG emissions from (or total spend on) goods and services	• Percent purchased goods and services supplied by companies performing carbon disclosures with a science-based target for emissions reduction	• Encourage resource stewardship	• Adopt and expand circular economy policies and practices related to reuse, reprocessing, repair, repurposing, and recycling • Adopt preferential purchasing with suppliers or service providers that perform carbon disclosures and have set a science-based target for decarbonization
Food		• Total GHG emissions from food procurement	• Adopt food waste prevention and diversion programs	• Design plant-forward menus and retail options

Figure 2. Summary of Key Measures and Strategies for Healthcare Decarbonization [7]

The College encourages the National Health and Climate Change paper's focus on electrification of healthcare facilities to be cleaner, specifically the use energy generated from fossil fuel-based sources such as coal, to cleaner and more sustainable options. Whilst, this would be a nationwide change, as the power grid is not exclusive to healthcare, it is an evident step forward in significantly reduce their carbon emissions and contribute to mitigating climate change.

ACEM would also like to emphasise the need to highlight within this paper that minimising waste, ensuring patient safety, and having strong infection control, are not mutually exclusive. Specifically, that environmental sustainability and patient care can go hand in hand. Therefore, implementing sustainable practices and embracing renewable energy sources, healthcare facilities can operate in a manner that reduces their environmental impact without compromising patient care or safety. This includes the reuse

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[7] Reducing Healthcare Carbon Emissions. Agency of Healthcare Research and Quality; 2022.

of infectious control material that can be disinfected and reducing unnecessary investigation and futile care by reducing unnecessary testing. [8,9,10]

Additionally, the College encourages the inclusion of a section on healthcare facilities sharing resources and ideas to promote change within the system. By collaborating and exchanging knowledge, these facilities can learn from each other's experiences and adopt innovative solutions to reduce their environmental footprint. This collective effort can lead to more widespread implementation of sustainable practices in the healthcare sector and contribute to a greener and more resilient healthcare system. [3]

1.3. Proposed Objective 3: Adaptation

Disasters are a threat to the public's health. They cause abrupt increase in illness, injury, or death, destruction of health care infrastructure, displacement of populations, psychological stressors and changes in the environment that could further exacerbate health. The latter could manifest in different ways, including making health care inaccessible, difficulty sourcing medications for chronic diseases, increasing risk of infectious diseases after floods or injuries caused by direct impact of disasters.

ACEM welcomes the opportunity to collaborate in disaster management strategies, with focus on prevention and building community resilience.

Any strategy in a National Health Adaptation Plan will need to include community consultation, and efforts to build community resilience. The key component is prevention as only focusing on disaster response has led to high cost, delayed recovery and increasing vulnerability for the next disaster, and the mental health impacts on communities affected by disasters, not to mention the escalating cost of rebuilding, and the future uncertainty of further disasters and loss of livelihood and property.

While mitigation is critical, adaptation is also essential to minimise the harms that climate change already poses to human health. Adaptation strategies, at the national and jurisdictional levels, are needed which recognise the impact of climate change on health and EDs and actions that should be undertaken to address these threats to the sustainability of the system and the emergency medicine workforce. For example, in Adelaide, heat warning systems have been shown to be an effective mechanism to reduce ED presentations and hospitalisations. [11,12]

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[8] Framework for a national strategy on climate, health and well-being for Australia. Climate and Health Alliance; 2021. Available from: https://assets.nationbuilder.com/caha/pages/2769/attachments/original/1655869490/caha-framework-2.0-FA.pdf?1655869490

[9] How Climate Change Affects Mental Health in Australia. Doctors for the Environment Australia; 2021. https://assets.nationbuilder.com/caha/pages/3011/attachments/original/1675991730/Report-How-Climate-Change-Affects-Mental-Health-in-Australia-v3-1.pdf?1675991730

[10] A Review of Sustainable Healthcare. Australian Commission on Safety and Quality in Healthcare; 2022. https://assets.nationbuilder.com/caha/pages/2966/attachments/original/1667446038/a_review_of_sustainable_healthcare_-_june_2022.pdf?1667446038

[11] Zhang Y, Beggs P, Bambrick H, Berry H, Linnenluecke M, Trueck S et al. The MJA–Lancet Countdown on health and climate change: Australian policy inaction threatens lives. Medical Journal of Australia. 2018;209(11):474-474. Available from: https://www.mja.com.au/journal/2018/209/11/mja-lancet-countdown-health-and-climate-change-australian-policy-inaction

[12] Rychetnik L, Sainsbury P, Stewart G. How Local Health Districts can prepare for the effects of climate change: an adaptation model applied to metropolitan Sydney. Australian Health Review. 2019;43(6):601.

All hospitals and emergency services require disaster management plans which establish early warning systems and account for surges in service demand, destruction of infrastructure and equipment, and interruptions to supply chain. [13]

As extreme weather events become more prominent, healthcare will have to bear the burden of the health impacts on the Australian populace. Environmental adaptation for hospitals, specifically with regard to the building design, is pivotal in ensuring that healthcare facilities can operate during extreme weather events. This includes having cross-ventilation and having enough windows. In addition to this, there needs to be an emphasis on workforce planning to account for loss of workforce during these events, when presentations are likely to surge.

To further address these concerns, ACEM believes there is a need to emphasis on building community resilience. This is through local jurisdictions to taking initiative in providing community education regarding the health implications of climate change. Such educational efforts should specifically concentrate on the impacts faced by vulnerable populations within these communities. This is to aid the community response during and after the climate-related events, to reduce health-related harms and aid the recovery process. By prioritising these measures, communities can enhance their preparedness for disasters and effectively respond during such events and facilitate a successful recovery in their aftermath.

1.4. Proposed Objective 4: Health in All Policies

ACEM commends the strategy of emphasising how the impacts of climate change are increased effects of extreme weather effects, as well as reduced air quality and increased mental health effects. However, there is need to emphasise how vulnerable communities, including regional residents, young people, and Indigenous and First Nations communities, are disproportionately affected by these changes. Therefore, policies centring around climate change, must consider these communities and the role climate change will pay in reduced health outcomes in these groups.

Furthermore, policies including those that centre around transport, housing standards, and town planning, must consider health upon creation when updating. For example, the deficits of heat resilient housing are a significant issue in Australia and Aotearoa New Zealand. New housing settlements have been reported to have reduced tree coverage, less spacing between housing and artificial grass, all factors that contribute to increased dwelling temperatures. The rental market is added concern, with no state in Australia mandating air conditioning and/or appropriate insulation. [14, 15] Policies protecting housing standards are pivotal in ensuring that the Australians have reduced health impacts of extreme heat events. Having policies that account for other natural disasters, such as floods, will therefore, reduce the overall health impacts experienced by Australians.

2. Recommendations

The College recommends the following additional edits to the strategy:

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[13] Hughes, L., Rickards, L., Steffen, W., Stock, P. and Rice, M. (2016) On the frontline: Climate change and rural communities. Available from: https://www.climatecouncil.org.au/uploads/564abfd96ebac5cbc6cf45de2f17e12d.pdf

[14] Consumer Affairs Victoria VG. Rental properties - minimum standards [Internet]. Consumer Affairs Victoria. 2023 [cited 11th July 2023]. Available from: https://www.consumer.vic.gov.au/housing/renting/repairs-alterations-safety-and-pets/minimum-standards/minimum-standards-for-rental-properties

[15] Heating and ventilating your rental home [Internet]. Tenancy Services. https://www.tenancy.govt.nz/maintenance-and-inspections/heating-and-ventilation/; [cited 7th July 2023]. Available from: https://www.tenancy.govt.nz/maintenance-and-inspections/heating-and-ventilation/

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1. Inclusion of a section on promoting information and program sharing in the healthcare system
2. Including community resilience in the Enablers.
3. Including building community resilience in the Objectives.
4. Centring the community in all strategies in Principles.
5. Highlighting targets for effective federal and state strategies. For example, including the Net Zero 2050 emission targets. [4]
6. Also needs the inclusion of measurable outcomes and a robust way to monitor these outcomes. There is a need to detail around who will be monitoring these outcome changes overtime.
7. Inclusion of the importance of clearly defining the scope within the Greenhouse Emissions objective of measurement in the consultation, specifically hospital versus department emissions.
8. Inclusion of a section in Mitigation objective on healthcare facilities sharing resources and ideas to promote change within the system.
9. Inclusion of early warning systems, disaster management plans, hospital design and building community resilience in the Adaptation objective.
10. Inclusion of health in policies affecting vulnerable communities, transport, housing, and town planning in the Health in All Policies objective.

Thank you again for the opportunity to provide feedback this National Health and Climate Change Strategy. If you require any further information about any of the above issues, please do not hesitate to contact [redacted] Acting General Manager, Policy, and Regional Engagement, [redacted]

Yours Sincerely,

[redacted]

[redacted]
Chair of Public Health and Disaster Committee

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Australian Government
Department of Health and Aged Care

NATIONAL HEALTH AND CLIMATE STRATEGY

Detailed submission form

This form allows you to provide responses to the full set of questions in the Consultation Paper available here.

Alternatively, you may wish to complete the briefer online survey available here.

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Respondent details

What is your name?
[redacted] Chief Executive HealthShare Victoria
What is your email address?
[redacted]
What is your organisation?
HealthShare Victoria (HSV)
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☒ I have read and agreed to the Privacy Statement
[redacted]
[redacted]

Please select which applies to you:

- ☐ Individual citizen
- ☒ Health Service Provider
- ☐ Industry and Life Sciences Organisation or Representative
- ☐ Academic or Researcher
- ☐ Primary and/or Allied Health Peak or Advocacy Organisation or Representative
- ☐ Aged Care Service Provider
- ☐ First Nations Health Service Provider
- ☐ First Nations Community Group
- ☐ First Nations Peak or Advocacy
- ☐ Medical College or Peak professional body

Questions for feedback from the Consultation Paper

For Noting

HealthShare Victoria (HSV) works with the Department of Health who have responsibility for policy with regard to this matter. HSV provides information and advice to the Department of Health in this regard.

HSV plays an active role in supporting the climate change mitigation efforts of the broader Victoria health services landscape.

As such, whilst not making recommendations as to the policy positions that should be taken in the National Strategy, HSV is in a position to draw attention to options that may be worthy of consideration (as part of a long list of options) and also challenges currently experienced in the Victorian public health service landscape that are of relevance to the setting of such policy positions.

Feedback provided herein is made in that context.

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?

RE: Measurement Objective

Measurement and annual public reporting of Scope 1 and Scope 2 emissions is already in place for all *public health services* in Victoria.

Measurement and annual reporting of Scope 3 emissions for *public health services* in Victoria is not in place.

- Scope 3 emissions are challenging to measure as they require a fundamentally different approach to that of Scope 1 and Scope 2 emissions measurement.
- Australian public health systems providers, private healthcare providers, and suppliers are at present not typically equipped to undertake this differentiated (Scope 3) measurement and reporting task let alone with a consistent and credible methodology that would allow analysis and progress tracking.
- The UK National Health Services (NHS) has consistently created a measure of 'Scope 3' for their public health systems for over 15 years which is a potential guide in this area when considering options.

A National Strategy could consider (amongst other options) supporting the development and maintenance of consistent, credible and centralised modelling of Scope 3 emissions, based on economic expenditures of Australian healthcare organisations.

2. How could these principles be improved to better inform the objectives of the Strategy?

HSV does not have sufficient involvement in this area to provide a meaningful response.

3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?

Consider that a focus for Strategy's emission reduction will likely get most gain from:

- Scope 1 direct emissions
- Scope 3 upstream emissions

Introduction
Scope 2 energy-related indirect emissions are already addressed by way of Commonwealth Government programs such as the National Energy Transformation Program, Rewiring the Nation, renewable energy targets, and similar state-level strategies that target the decarbonisation of electricity supply systems in Australia. Accordingly, a National Strategy's emission reduction efforts could be mainly focused on Scope 1 direct emissions and Scope 3 indirect emissions to cover issues more specific to healthcare service provision, hospital and aged care facilities, and upstream suppliers. **Scope 1 direct emissions** are currently primarily from fuels (natural gas, petrol and diesel), with the secondary sources being direct emissions from the usage of nitrous oxide and HFC gases in anaesthesia, analgesia, and metered dose inhalers. There are already active state-level programs targeting the reduction of anaesthetic gas emissions that could be built on. Mitigation of emissions due to metered-dose inhalers could fall within a National Strategy. **Scope 3 downstream emissions** from the waste management practices used in managing waste produced by health services are a comparatively small proportion of total footprint. There are already state-level programs regulating these activities (with support from relevant Environmental agencies). **Scope 3 Upstream emissions from supply chains** – whilst other value metrics e.g surety/certainty of supply and costs need consideration it is worth noting the following matters: • Potential gap in targeting reductions in Scope 3 Upstream emissions as existing strategies focus on emissions within individual organisations, or in statewide or national emissions inventories. • Measure and Manage: Scope 3 measurement (and reporting) standard would assist, with an Australian health-specific environmental-economic input-output (EEIO) analysis tool funded/developed for accessible ease of use by state and non-government healthcare organisations in Australia and updated regularly. • Consistent Australia wide approach: A nationally consistent approach to existing and *additional* mitigation actions from major suppliers of medical devices (equipment or consumables), and pharmaceuticals (significantly multinational in their supply chains). • Scope 3 Upstream emissions can be mitigated through sustainable production, but also sustainable consumption methods (e.g. optimising models of care)
4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?
HSV does not have sufficient involvement in this area to provide a meaningful response.
5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?
HSV does not have sufficient involvement in this area to provide a meaningful response.

Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?

HealthShare Victoria has an existing role in assisting with measurement and reporting from the utility and waste service data of public health services in Victoria for reporting under the Victorian Government *FRD 24 Environmental Reporting by Government Entities*.

This includes:

- Scope 1 direct emissions
- Scope 2 indirect emissions from energy purchases
- Scope 3 downstream emissions estimated for waste disposal

Direct emissions from fuels and electricity is routinely measured by hospitals, and there are plans for improving measurement and reporting from smaller sources of direct emissions such as anaesthetic gases.

7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?

As per comments elsewhere, the key area where there is not sufficient credible information to properly support evidence-informed decision making relates to Scope 3 emissions.

This includes lack of:

1. Accurate estimation of quantity of Scope 3
2. Ability to track change over time in Scope 3
3. Attribution to specific health service organisations and parts of the health system
4. Attribution to broad categories (e.g. pharmaceuticals, food services, medical devices, ICT equipment, paper products, pathology services, etc.)
5. Attribution to specific industries

Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?

Areas to consider could include: Aged Care and Hospital food services as a specific focus area, as it is a significant impact area when considering holistically including dietary choices and food production, as well as nutrition, menus, sourcing, meal preparation, food service models, packaging, kitchenware, food wastage which all form part of the client or patient experience.

9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?

HSV does not have sufficient involvement in this area to provide a meaningful response.

10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?

Whilst HSV does not have direct involvement in hospital fleet management we note the significant amount of vehicles involved in supplying services to health and in health supplying its services. Measurement of emissions, use of new technologies e.g., uptake of EVs in logistics deliveries (to/from and within health services) could be an additional action area for consideration (subject to costings, business cases and understanding full end to end use and benefits.

11. Which specific action areas should be considered relating to **supply chain**, over and above any existing policies or initiatives in this area?

HealthShare Victoria, and several other procurement organisations within public healthcare in Australia have existing sustainable procurement programs of varying maturity, generally aligned with ISO 20400 *Guidance on sustainable procurement* and operating under value for money frameworks.

The Australian and New Zealand Health Procurement Roundtable (ANZHPR) has recently commenced an ESG Working Group for the purposes of improving consistency in sustainable procurement criteria and agreeing on category-level sustainability standards that can be applied within goods & service procurements relevant to state public health services and potentially private health networks as well.

A strategic action area that could be considered at National level relates to increasing engagement with healthcare-specific supply industries in relation to their product and packaging stewardship (specifically in relation to circularity of materials and emissions reduction). Such engagement would though require careful balancing of other considerations such as impacts to product cost and surety of supply chain.

RE: Targets for supply chain footprint

There are currently no numerical targets for mitigation specific to the health sector, aside from some targets announced by individual organisations. These individual targets are typically voluntary or aspirational in nature (e.g. “net zero by 20xx”) and are currently from a minority of health services and suppliers to health services.

Proposed Objective 2: Mitigation
A National Strategy could consider the feasibility of setting health sector targets (i.e. targets including reduction in Health Sector emissions upstream in the supply chain to health providers). Feasibility of setting healthcare sector targets (binding or non-binding) for Scope 3 would need to consider the directly measurable financial feasibility but also consider some other potential consequences. We note that targets and incentives on supply could create unintended consequences with competition and surety of supply if they end up moving healthcare to single source supply when volume cannot be met or maintained (no matter what financial price would be paid).
12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?
The proposed actions are relevant but are noted as relating solely to anaesthetic gases and inhalers, i.e. a sub-set of medicines and gases. Consideration could be given in relation to reduction opportunities for pharmaceuticals more broadly. Such engagement would though require careful balancing of other considerations such as impacts to product cost and surety of supply chain.
13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?
Note comments elsewhere that there are already state-level programs regulating waste management activities (with support from relevant Environmental agencies). Beyond this, and similar to supply chain above, consideration could be given to pursuing improved industry-wide Product Stewardship programs (co-regulatory or regulatory) relevant to healthcare. Such engagement would though require careful balancing of other considerations such as impacts to product cost and surety of supply chain.
14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?
HSV does not have sufficient involvement in this area to provide a meaningful response.
15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?
HSV does not have sufficient involvement in this area to provide a meaningful response.
16. Where should the Strategy prioritise its emissions reduction efforts? a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas? b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?
a.

Proposed Objective 2: Mitigation
Prioritisation should be in the context of the full suite of specific considerations – potential for emissions reduction, investment case for implementation, impacts to surety of supply, and any others of relevancy. As with any change management ensuring clarity of purpose with visible measures of achievement will help engage and deliver success. Thus, the ability to influence and control are important – if matters become directives then it is important that Funding and Resourcing match that requirement else there will likely be low engagement. b. Of the six sources of emissions discussed, we consider that subject to the many matters under consideration; three highest priorities would most likely be: • Prevention and optimising models of care. • Built environment and facilities. • Travel and transport. 'Prevention and optimising models of care' area could unlock additional mitigation while keeping the healthcare purpose at its centre and involving clinician and patient representatives. It might also prove of value to growing the resilience of healthcare systems (climate adaptation), and for controlling costs. Given the long lifetime of facility assets the timing of introducing strategic actions relating to changing hospital & aged care facility design and construction materials and the flow on effects need careful consideration. 'Travel and Transport' are high profile and considered a major source of emissions related to healthcare. As with buildings assets there is a significant lifecycle for fleet assets, so total costs of ownership need to be understood and managed including related infrastructure e.g., EV charging infrastructure.
17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?
Note comments at Question 16 above.

Proposed Objective 3: Adaptation
18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?
HSV does not have sufficient involvement in this area to provide a meaningful response.
19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes: a. What are the key considerations in developing a methodology? b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally? c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?
HSV does not have sufficient involvement in this area to provide a meaningful response.
20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?
HSV does not have sufficient involvement in this area to provide a meaningful response.
21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?
HSV does not have sufficient involvement in this area to provide a meaningful response.

Proposed Objective 4: Health in All Policies
22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?
HSV does not have sufficient involvement in this area to provide a meaningful response.
23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?
HSV does not have sufficient involvement in this area to provide a meaningful response.

Enablers
24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
Funding is a key element but is not a stated enabler. Emissions reduction initiatives often require upfront capital investment or alternatively trigger switching costs. The availability of funding (capital, management, operational staff costs and time) to support these is critical to enabling the subsequent climate benefits being targeted.
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider to support delivery?
HSV does not have sufficient involvement in this area to provide a meaningful response.

Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

UTS UNIVERSITY OF TECHNOLOGY SYDNEY

[redacted]

School of Communication, FASS

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The Hon Ged Kearney MP
Assistant Minister for Health and Aged Care
[mail to: Health.Climate.Consultation@health.gov.au]

26 July 2023

Dear The Hon Ged Kearney MP

RE: National Health and Climate Strategy

I am a political economist and the Head of Discipline for Social and Political Sciences at the University of Technology Sydney (UTS). On behalf of the Climate, Society and Environment Research Centre (C-SERC) at UTS, I lead our research on the impact of climate change on work health and safety (WHS).

Given the online survey and submission form were structured around the consultation paper, and my comments are on the remit of strategy more broadly, I am making a submission in the form of this letter and proving several reports and papers that summarise our research findings and relevant policy recommendations. My comments speak to objectives 3 and 4 of the strategy:

> 3. **Adaptation:** Strengthen the resilience of the health system and communities to anticipate and respond to the health impacts of climate change.
>
> 4. **Health in All Policies:** Maximise the synergies between good climate policy and public health policy by working across policy areas to lessen the impact of climate change on the social and cultural determinants of health and wellbeing.

As a general observation on the framing of the consultation paper, I believe it would be a misstep to draw such a sharp line between the 'Australian health system (encompassing both health and aged care)' on the one hand, and on the other disability care and work health and safety. The strategy acknowledges both disability and work health and safety only in passing:

Disabled people:	The strategy acknowledges that disabled people are 'significantly more susceptible to negative health effects from climate-related disasters and extreme weather events' and 'consideration will need to be given to health and emergency responses for people with disability and … in disaster resilience and recovery situations'.

Work health and safety: The strategy notes that 'many Australians live and work in environments and circumstances that make it difficult to adapt to the health impacts of climate change and exacerbate its impacts.50 In a wide range of workplaces such as construction and outdoor maintenance, excess heat is becoming a more common occupational health and safety risk'.

The systems in place to provide support, care, monitoring and intervention to people with disabilities, and to workers who are injured or suffer illness because of their work, overlap significantly. To be effective, it is my view that a national strategy should fully integrate these areas of the health and care systems into a national framework, and take a whole of government approach.

I have attached to this letter several items produced by myself and researchers at UTS which cover the experiences of workers being impacted by climate change, and associated policy recommendations, as follows:

- The report we released with the Centre for Future Work at The Australia Institute, which is cited in the consultation report.
- A report on findings from research conducted with the United Workers Union, and an associated journal article from this project published in *Economic and Labour Relations Review*.
- Our submission made to the Victorian On-Demand Workforce Inquiry
- A journal article from *Safety Science* on the impact of employment contract types on workers management of the impacts of climate change.
- A journal article from *Critical Sociology* on workers in the NSW construction industry.

Thank you for your time.

Yours sincerely

[redacted]

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Heat Stress and Work in the Era of Climate Change:

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The Australia Institute
Research that matters.
Centre for FutureWork

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About the Centre for Future Work

The Centre for Future Work is a research centre, housed within the Australia Institute, that conducts and publishes progressive economic research on work, employment and labour markets.

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About the Authors

The Climate Justice Research Centre (CJRC), at the University of Technology Sydney, has been investigating the implications of high temperatures and heat stress for Australian workers, their representatives and other stakeholders. In November 2019, the CJRC partnered with the Centre for Future Work for a workshop on heat stress for workers. This collaboration continues with this publication. The report overviews the pressing concern of heat stress in the era of climate change. More information on the Centre's heat stress work is available on our website, toohottowork.org.

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Summary

This report outlines why working in extreme heat is a growing and urgent issue for workers. It explains the general impacts of heat stress; it discusses recent research on its physical and mental effects; and it makes suggestions for future areas of inquiry and action.

Climate change is altering weather patterns, resulting in unusual and extreme conditions. This includes more hot days and longer heatwaves, which can push the physical capacity of workers beyond what is safe. Some workers are particularly vulnerable to the effects of these conditions. Our research identified four key groups of workers as being at high risk of heat stress:

- workers who labour inside, in environments with poor climate control, or whose work requires them to be exposed to heat and humidity.
- outdoor workers, especially those who are weather-exposed.
- workers moving between different climates as part of their work (i.e., moving between extreme heat and cold).
- workers whose roles expose them to situational extreme heat, such as emergency workers and firefighters.

High heat also impacts many workers in less direct ways: for example, poor sleep during a hot night can make it harder to work safely the next day, and working in extreme heat can make the drive home from work more dangerous.

Questions of social justice are deeply embedded in climate change and rising temperatures. Workers whose jobs are less secure — for example, temporary workers, on-demand workers and migrant workers — are just some of the groups who are at greater risk.

As many workers experienced over this past summer, in relation to the unprecedented bushfires, appropriate policies and plans are not always in place to ensure that people are

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protected from dangerous conditions that could cause illness or injury to themselves or others.

This report has three main sections:

- Section One (Background) provides an overview of heat stress and the problems it presents for workers.

- Section Two (Heat Stress at Work—Case Studies) describes the findings from two detailed case studies of the impacts of high heat on workers. The first case study examines the experience of outdoor council workers and delivery riders in Sydney. The second case study reports on workers in the building and construction industry in New South Wales.

- Section Three (What Are Unions Doing?) details how trade unions in Australia are responding to the growing impacts of heat stress workers across different industries. This section helps map the complexities faced by workers and their unions in dealing with heat stress in the workplace.

PROJECT GENESIS

The Climate Justice Research Centre (CJRC) at University of Technology Sydney brings together researchers examining the socio-political drivers of climate justice, and to define a new research agenda on the centrality of justice concerns for climate action. The *Too Hot to Work Project* examines how workers are experiencing high heat and heat stress in an era of climate change. This report summarises the key findings of our research so far, which has focused on the experience and perspectives of outdoor workers and their trade unions. Over the coming months we will be expanding our project to focus on how climatic heat stress is impacting other groups of workers (including indoor workers), and on the efforts of workers to gain better working conditions.

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PROJECT FINDINGS

1. Heat stress poses serious health and safety risks for many workers across Australia. As hot days and heatwaves increase in frequency and become more intense, these risks increase. Outdoor workers, those working indoors without temperature controls and ventilation, workers moving between different climates, and emergency service workers are particularly at risk.

    - Australia must act on the causes of rising temperatures and changing weather patterns, and protect workers and the wider community from the effects of climate change.

2. Current labour protections, including health and safety laws, are inadequate. Many workers say that OHS policies might seem to offer protection, but that in practice this is not the case. Workers say that employers do not want work to stop even when heat stress risk is very high, and that employers prioritise productivity over their health and safety. Other workers do not have access to basic health and safety protections — such as safety equipment, breaks, or the ability to stop work — at all. The hazardous heatwaves, air quality, and bushfire smoke over the recent summer has emphasised that current OHS regulations are ill prepared for the impacts of climate change.

    - Australian Commonwealth and state governments must urgently review the management of the current and likely impacts of climate change for workers, and develop national and state-based regulatory frameworks that provide strong protection in relation to heat stress and bushfire smoke. Workers, and their representative organisations, must be centrally involved in this process.

    - Government and employers must be required to provide adequate resourcing for at-risk workers, such as high standard Personal Protective Equipment (PPE), adequate hydration while at work, regular breaks, acclimatisation policies, and sufficient personnel to ensure workers can take relieved for recovery time in situations where they cannot stop work (such as emergencies).

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- Greater resources must be provided to unions and employers to train health and safety representatives, and ensure workers and employers understand their rights and legal duties in relation to heat stress.

3. The conditions of a person's employment fundamentally shape their experience of heat stress. Workers who are employed casually, who work in labour hire arrangements, or who are gig workers, can have less capacity to take action on the effects of heat stress. While workers with some autonomy over their work schedules may be able to reschedule strenuous work in the event of extreme heat, others such as on-demand workers are externally 'paced', and are unable to adjust their work to maintain thermal comfort.

    - Any review of national and state-based framework to protect workers from heat stress must address its impact on vulnerable workers, including workers in casualised working arrangements with minimal protections.

    - Current laws should be strengthened to ensure workers do not lose income when unable to work due to heat stress.

    - Governments need to establish clear and accessible occupational health and safety pathways around heat stress, which empower workers to take mitigating action without fear of reprisal.

    - On-demand workers must be afforded greater protections to ensure health and safety and fair income maintenance in periods when they need to work more slowly or take breaks.

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SECTION ONE: Background

WHAT IS HEAT STRESS?

As the International Labor Organization (ILO) has recognised, the increase in global temperatures, driven by climate change, directly threatens the working conditions of millions of workers worldwide.[1] Heat from rising temperatures in workplaces has been identified as an urgent public health issue, and a major threat to safe and decent working conditions. The *Special Report on Global Warming of 1.5°C* published by the Intergovernmental Panel on Climate Change (IPCC) warns that with continued climate change, worker safety during the hottest months of the year will be increasingly compromised.[2] In 2016 the United Nations (UN) released a major report, *Climate Change and Labour: Impacts of Heat in the Workplace*, which highlighted the rapid increase in daylight working hours lost due to over-heating, and which stressed threats to livelihood and health.[3] Most recently, in July 2019, the ILO released a major report[4] on the impact of rising heat on decent work and productivity. The report showed that increased rates of heat stress under climate change pose a direct threat to working conditions.

'Heat stress' refers to heat received in excess of the level which a body can tolerate without some physiological impairment. In extreme heat, workers may become severely dehydrated, nauseous, dizzy, fatigued, stressed and ill. Workers labouring in high heat

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[1] See ILO (2019), *Working on a warmer planet: The impact of heat stress on labour productivity and decent work*, Geneva: ILO (https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf).

[2] IPCC Special Report 15 (IPCC SR15), Chapter 3.4.7.1: Hoegh-Guldberg, O., Jacob, D., Taylor, M., Bindi, M., Brown, S., Camilloni, I., Diedhiou, A., Djalante, R., Ebi, K.L., Engelbrecht, F., Guiot, J., Hijioka, Y., Mehrotra, S., Payne, A., Seneviratne, S.I., Thomas, A., Warren, R. and Zhou, G. (2018) 'Impacts of 1.5ºC global warming on natural and human systems', in IPCC, *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* (https://www.ipcc.ch/sr15/).

[3] UNDP (2016) *Climate change and labour: Impacts of heat in the workplace*, with UNI-Global, ILO, ITUC, ACT Alliance, IOM, and WHO, New York: UNDP.

[4] ILO (2019), *Working on a warmer planet: The impact of heat stress on labour productivity and decent work*, Geneva: ILO (https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf).

may also be more prone to lapses in concentration and may suffer from reduced decision-making abilities.

WHICH WORKERS ARE AT RISK?

Australian studies on workplace heat have established heat stress as a major issue across many classes of industries and occupations. Specific industry-based studies have examined the incidence and effects of heat exhaustion for particular groups of workers, including: shearers in inland SA and western NSW;[5] miners at Mount Isa in QLD,[6] northwestern Australia,[7] and Coppabella in QLD;[8] rural bushfire fighters;[9] outdoor council workers in Adelaide, SA[10] and tropical northern QLD;[11] power station maintenance workers in the NT;[12] and medical emergency response teams in Yarrawonga, NT.[13]

Outdoor workers are particularly vulnerable to high heat and humidity, as well as to other potentially harmful environmental conditions such as solar ultraviolet (UV) radiation, pollution, dust and smoke. These workers include construction workers, agricultural

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[5] Gun, R.T. and Budd, G.M. (1995) 'Effects of thermal, personal and behavioural factors on the physiological strain, thermal comfort and productivity of Australian shearers in hot weather', *Ergonomics*, vol 38, pp. 1368–84.

[6] Donoghue, A.M., Sinclair, M J. and Bates, G.P. (2000) 'Heat exhaustion in a deep underground metalliferous mine', *Occupational and Environmental Medicine*, vol 57, pp. 165–74.

[7] Peiffer, J.J. and Abbiss, C.R. (2013) 'Thermal stress in North Western Australian iron ore mining staff', *Annals of Occupational Hygiene,* vol 57, pp. 519–27.

[8] Hunt, A.P., Parker, A.W. and Stewart, I.B. (2014) 'Heat strain and hydration status of surface mine blast crew workers', *Occupational Environmental Medicine/American College of Occupational Environmental Medicine*, vol 56, pp. 409–14.

[9] Raines, J., Larsen, B., Nichols, D. and Aisbett, B. (2011) *Hydration of Australian rural bushfire fighters*, Fire Note, Melbourne: Bushfire Cooperative Research Centre and the Australasian Fire and Emergency Service Authorities Council, 80, pp. 1–4.

[10] Lao, J., Hansen, A., Nitschke, M., Hanson-Easey, S. and Pisaniello, D. (2016) 'Working smart: An exploration of council workers' experiences and perceptions of heat in Adelaide, South Australia', *Safety Science*, vol 82, pp. 228–35.

[11] Wade, H., Sinclair, J. and Brownsburger, C. (2013) 'Wearing long pants while working outdoors in the tropics does not yield higher body temperatures'*, Australian and New Zealand Journal of Public Health,* vol 37, pp. 70–5.

[12] Finn, J.P. (2010) 'Heat strain in power station maintenance workers', *Journal of Health Safety and Environment*, vol 26, pp. 379–88.

[13] Brearley, M.B., Heaney, M.F. and Norton, I.N. (2013) 'Physiological responses of medical team members to a simulated emergency in tropical field conditions', *Prehospital and Disaster Medicine*, vol 28, pp. 139–44.

workers, gardeners, emergency and essential service workers, traffic controllers, delivery workers, street vendors and professional sports players.

Indoor workers who do not have access to adequate cooling or ventilation, or who work with or near equipment and other things that radiate heat, are also at risk. People working in factories, workshops, warehouses, schools, aged care homes, laundries, kitchens and cafés often fall into this category. Climate change can exacerbate heat stress faced by indoor workers, by intensifying the general level of heat.

Emergency service workers are often vulnerable, because their busiest times can occur during heat stress emergencies. This category of workers includes firefighters, police officers, ambulance and rescue workers, State Emergency Service Workers and those who might need to urgently fix infrastructure (like water and electricity services) during high heat.

Many workers also **move between different climates**—such as emergency workers, logistics workers, transport workers, cleaners, and workers making deliveries or house calls. This movement presents its own risks, as acclimatisation to temperature conditions is critical. Casual or contract workers, Fly In Fly Out (FIFO) workers, migrant workers, workers with minimal or no on-the-job training, and workers returning from leave may also be expected to work in high-heat conditions before they can safely acclimatise to their new environment.

Other requirements of work can place further risks on all sorts of workers, such as the requirement to wear impermeable or semi-permeable personal protective equipment (PPE) at work, or the requirement to work according to an 'external pace' set by the speed of machines or other technology.

As the impacts of high heat and heat stress tend to accumulate, many workers are also at risk from the delayed effects of heat stress—for example, from a lack of sleep the night before, or a more difficult journey into work. More broadly, climate change processes, including increases in extreme heat, impact the broader processes of work life longevity, job security and even the ability to sustain life, consequently affecting all workers.

Climate change also increases the frequency and intensity of extreme weather events, such as dangerous storms and bushfires, thereby directly increasing workloads and risks for workers in particular sectors—most particularly, those working in emergency services.

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For example, during major heatwaves in Australia, public health services come under increasing demand, and ambulance call-outs increase.[14]

WHAT ARE THE RISKS FOR WORKERS?

In Australia, heat exposure has killed more people than all other natural hazards combined,[15] and workers in Australia are particularly vulnerable to the impacts of extreme heat. Australian studies focusing on heat stress, work and productivity have found a positive association between the rate of occupational injury claims and higher ambient temperatures.[16] Heat exposure can increase the risk of workplace accidents through physical fatigue, the misuse of equipment and reduced mental capacity.[17] Workers may become less alert, and they may have slower response speeds and poorer reasoning abilities—factors which increase risks for injury and fatalities.[18]

At above 35°C, the risk of heat stress for workers engaging in heavy manual labour is high,[19] as physical exertion makes metabolising heat more difficult. Nonetheless, it is common for workers to continue to work 'beyond' their heat tolerance. One qualitative study in SA found that 30% of people working outdoors had experienced heat-related injuries, and only 20% of the employees surveyed stated that their work would cease when the temperature exceeded 40°C.[20] Half of those surveyed had concerns about extreme heat and strongly favoured more training, regulation and workplace changes to

[14] See: Schaffer, A., Muscatello, D., Broome, R., Corbett, S. and Smith, W. (2012) 'Emergency department visits, ambulance calls, and mortality associated with an exceptional heat wave in Sydney, Australia, 2011: A time-series analysis', *Environmental Health,* vol 11, no 3; Nitschke, M., Tucker, G., Hansen, A., Williams, S., Zhang, Y. and Bi, P. (2011) 'Impact of two recent extreme heat episodes on morbidity and mortality in Adelaide, South Australia: A case-series analysis', *Environmental Health,* vol 10, p. 42.

[15] Oppermann, E., Brearley, M., Law, L., Smith, J., Clough, A. and Zander, K. (2017) *WIREs Clim Change*, vol 8, July/August 2017, doi: 10.1002/wcc.468.

[16] Xiang, J., Hansen, A., Pisaniello, D. & Bi, P. 2015, 'Extreme heat and occupational heat illnesses in South Australia, 2001–2010', *Occupational and environmental medicine*, vol 72, no 8, pp. 580-6.

[17] Rowlinson, S., YunyanJia, A., Li, B. and ChuanjingJu, C. (2014) 'Management of climatic heat stress risk in construction: A review of practices, methodologies, and future research', *Accident Analysis & Prevention*, vol 66, pp. 187–98.

[18] Chia, C.-F., Changa, T.-C. and Ting, H.-I. (2005) 'Accident patterns and prevention measures for fatal occupational falls in the construction industry', *Applied Ergonomics,* vol 36, pp. 391–400.

[19] Parsons, K. (2014) *Human thermal environments: The effects of hot, moderate, and cold environments on human health, comfort, and performance*, 3rd ed, Boca Raton: CRC Press, Taylor & Francis Group.

[20] Xiang, J., Hansen, A. and Pisaniello, D. (2016) 'Workers' perceptions of climate change related extreme heat exposure in South Australia: A cross-sectional survey', *BMC Public Health*, vol 11, no 16, p. 549.

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address the problem.[21] In another study, Occupational Health and Safety (OHS), union and government representatives belonging to different industries and occupational groups across Australia described feelings of 'powerlessness' to reduce the negative effects of heat stress, along with a sense of inevitability over the probability of heat exposure in such a hot country.[22]

As heat stress reduces humans' capacity for physical activity, it also poses serious threats to labour productivity. In addition, many of the 'costs' of reduced productivity are likely to be borne by workers. As workers slow down or limit their working hours to manage high-heat conditions—a form of 'natural protection'[23]—economic output, pay and family income are likely to be reduced.

Some workers who are expected to meet production targets will likely have to work longer days. Workers who are paid according to production output may have to work for longer, or they may just take home less money. Other workers are less able, or unable, to slow down. Workers who are 'externally paced' by the speed of machines or other technology, and workers who are paid according to production (i.e., piece workers, such as fruit pickers), are severely constrained in their ability to mitigate heat stress.

HIGH HEAT CAN INCREASE BUSHFIRES

Although this report does not focus on the increasing prevalence and intensity of bushfires, it is important to keep in mind that climate change is increasing both the length of the bushfire seasons in Australia and the intensity of the fires themselves. This has consequences for workers, including significant smoke and particle inhalation for those fighting the fires, for those who live in fire-affected areas, and for large groups of other workers—most particularly, again, emergency workers, outdoor workers and indoor workers without air filtration systems.

The 2019-2020 bushfire season involved a significant blanket of smoke over areas of NSW, Canberra and Victoria (VIC) for some weeks—with the worst day in December 2019 in

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[21] Xiang, Hansen and Pisaniello (2016), p. 549.
[22] Singh, S.; Hanna, E.G. and Kjellstrom, T. (2013) 'Working in Australia's heat: Health promotion concerns for health and productivity', *Health Promotion International*, vol 30, pp. 239–50.
[23] ILO (2019).

Sydney recording air pollution levels 11 times higher than the 'hazardous' threshold.[24] Workers across multiple industries were affected. Some groups of workers had to stop work due to serious threats to worker wellbeing—for example, workers at key port terminals in the city, on some road projects, and on some construction sites.

During the bushfire crisis, hospital resources were stretched dealing with respiratory-related conditions, and the long-term impacts of smoke on firefighters, emergency responders and residents are unknown. There are concerns that Rural Fire Service (RFS) volunteers have not been equipped with adequate safety equipment, with some having to resort to charitable fundraising to pay for appropriate masks,[25] and that the service has suffered from ongoing budget cuts.

WHAT ARE TRADE UNIONS SAYING?

The risks posed by climatic heat to workers in Australia have been publicly acknowledged by several trade unions and union peak bodies. For example, the Australian Council of Trade Unions (ACTU) has also called for new regulations and codes to be developed for heat-related illness and exhaustion, noting that the issue of heat stress 'is likely to continue to worsen due to Australia's climate, the impact of global warming and Australia's ageing workforce'.[26] The ACTU argues that the current guidance material on heat stress, which is generalist and non-binding, is inadequate, and that duty-holders and workers in multiple industries are struggling to cope. During a record-breaking heatwave in December 2019, the ACTU called for OHS regulations to be updated, in recognition of the increasing climate-related heat and pollution effects on working people.[27]

Unions NSW have also noted that due to the increased level and duration of heat and humidity under climate change, workers are being subjected to an increased risk of heat

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[24] See https://www.smh.com.au/national/nsw/nsw-bushfires-apocalyptic-health-effects-of-sydney-s-toxic-air-20191211-p53ixc.html.

[25] See https://www.abc.net.au/news/2019-12-11/nsw-bushfires-firefighters-raise-money-to-buy-face-masks/11790096&sa=D&ust=1576719306178000&usg=AFQjCNGhxEXUdz_AjypLS81PpnhWWDn1Cw.

[26] Australian Council of Trade Unions (2018) *Review of Model WHS Laws 2018*, ACTU Submission, Safe Work Australia, https://engage.swa.gov.au/32134/documents/78522, p. 27.

[27] See https://www.smh.com.au/business/workplace/new-work-safety-guidelines-needed-to-address-heat-and-smoke-actu-20191218-p53l6j.html.

exhaustion, fatigue and melanoma, and they have called for a new model code of practice covering heat risk management.[28]

WHAT ARE WORKERS SAYING?

While epidemiologists and other scientists have been gathering significant quantitative data on the phenomenon of heat stress, very little qualitative information has been captured about how workers themselves are experiencing the effects of rising heat stress in their everyday lives. Most particularly, we don't often hear from workers in their own words. By better understanding how rising heat is experienced, we can work to develop workplace policies that protect workers' health and safety and ensure decent working conditions. Collecting and analysing workers' own experiences of heat stress is one of the goals of this research project.

The experience of heat stress may also provide an important way of linking the consequences of climate change with the workplace. While trade unions have been running education and political campaigns on the broader problem of climate change, the issue of heat stress may allow such campaigns to be linked concretely to the experience of work and the workplace activities of unions.

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[28] Unions NSW (2018) *2018 Review of the Model WHS Laws*, 13 April 2018, Safe Work Australia, https://engage.swa.gov.au/32134/documents/78564, p. 5.

SECTION TWO: Heat Stress at Work—Case Studies

The mode of employment for workers in an industry, or a workplace, is likely to correlate with an employee's experience of heat stress and their ability to manage it. Workers who are able to alter their pace of work may be able to organise their working day to minimise heat stress; those who have to work to an externally defined work schedule that has no regard to heat stress management, and those whose work is 'paced' by technology and other factors, are likely to be more affected. The level of organisation and unionisation within a particular group of workers is another relevant factor in the experience and management of heat stress.

Two recent case studies of different groups of workers managing high heat at work demonstrate these issues.

CASE STUDY ONE: OUTDOOR WORKERS IN THE CITY OF SYDNEY

In 2019, funded through a City of Sydney Council Innovation Grant, we examined the experience of two groups of outdoor workers in the City over five hot days. These workers—municipal park maintenance workers and bicycle delivery workers (food and document delivery cyclists or 'riders')—have vastly different levels of workplace autonomy, organisation and job security, and this impacts their ability to manage heat stress.

Workers completed surveys about their experience of heat during the working day; in addition, location, heat and humidity data were also gathered. Interviews were conducted with each worker before and after the study period, so that they could tell us in more detail how they experienced and responded to heat stress.

These are some of our important findings.

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The impacts of heat stress are both physical and mental.

Heat stress is a critical issue for these outdoor workers. During the five-day study period, when temperatures were moderately high to high, about half of all respondents stated that they were hot at work, with three-quarters saying they were thirsty. In high heat, many workers reported feeling 'extra tired', finding it difficult to concentrate and having more trouble than usual completing tasks. All workers described the need to pace their work wherever possible, and to take rest breaks to enable time for relief.

Outdoor council workers described certain locations where it was particularly difficult to work in high heat: on ovals, next to main roads, and in places with no, or minimal, tree cover. Certain tasks were also particularly difficult—hedging in heavy PPE and with machinery close to the body, or driving trucks with poor air conditioning. A 'lack of any breeze', 'bushfire smoke haze' and high humidity all made working in high heat more hazardous and uncomfortable. These working conditions had significant mental and physical effects on workers.

Conditions are tough for all workers, and frightening for on-demand workers.

The outdoor council workers reported that in high-heat conditions it took them longer to complete tasks; that they were 'slower', less comfortable and irritable; and that they found it difficult to concentrate. One worker said: 'I realised that I was getting less friendly the hotter I became'. Workers also experienced sweating, 'the shakes' ('legs start to feel like jelly'), headaches, cramping, fatigue and severe dehydration for multiple hours.

Delivery riders also reported being 'slower and less efficient', 'hot and bothered' and dehydrated in high heat and humidity. In these conditions, access to clean water was an issue for many riders: public facilities were limited or broken, and it was too heavy to ride around with large amounts of water on their person. Many riders mentioned that their uniforms did not breathe or 'wick' well, compounding the effects of heat stress. On one hot day, a rider said: 'I was dehydrated and exhausted and it caused me to be a little emotionally on edge and just kind of "over it"'.

Like council workers, the riders had different strategies for avoiding heat, based on their knowledge of the city's infrastructure, including water, shade, breeze and rest spots. Some also had considerable knowledge of dedicated bicycle paths, congestion and traffic, and they sometimes used this knowledge strategically to avoid high-heat zones. Throughout

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their shifts, riders often sought refuge from the heat in air-conditioned lobbies, or they asked for water at restaurants while waiting to collect deliveries.

Workplace relations are key to managing heat stress.

There was a clear difference between the two groups in how they were able to manage high heat and humidity. Relative to delivery riders, council workers were more able to change their work schedules in response to the heat, arranging for more strenuous or difficult tasks to be done during the cooler parts of the day. As one council worker put it:

> The good thing about our work is that we're the ones out in the field, we're the ones determining what we actually need to do, so we can play with what we actually have to do at the time … so there's a bit of autonomy.

Delivery riders were more likely to take extra short breaks to cope with the heat, but they had far less ability to change their duties. Furthermore, for some food and parcel delivery riders undertaking monitored piecework, working less (or more slowly) during the hottest parts of the day meant losses to income, a risk of 'deprioritisation' when bidding for future shifts and other penalties. One delivery rider summarised the situation succinctly:

> The main way in which [employers] force work out of us is by paying us effectively below award or below minimum wage, which induces people to work stupidly hard, which means they can't regulate their taking of jobs during peak heat periods.

Another rider described how these economic pressures impacted their ability to rest, stay hydrated and stop work:

> You don't care, you're sweating, you don't take drinks when you should, you don't rest when you should, you just don't stop. You just do it. So it's a totally different mentality.

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CASE STUDY TWO: BUILDING AND CONSTRUCTION

Another group of highly exposed and at-risk workers are those who work in the Australian building and construction industry. Outdoor workers in this industry—including labourers, concretors, crane operators, riggers, bricklayers, formworkers and steelfixers—are particularly vulnerable. Most obviously, this is partly due to the weather-exposed and physically strenuous nature of much of their work. But there are other factors at play: the industrial environment, different working arrangements and job security, levels of union organisation, and how much control workers have over their working conditions. All of these factors have implications for the management of heat stress.

Our study of a group of workers in the NSW building and construction industry highlights how different workers are managing the issue, as well as indicating that OHS matters like heat stress may lead to increased worker mobilisation.

Industry overview

Heat stress is a significant issue for workers in the Australian building and construction industry. Projected temperature increases are expected to elevate the risks of heat stress and heat-related issues, and, concurrently, the industry is expected to grow rapidly. The construction industry is currently the third largest employer in Australia (with 9% of all employees).[29] In NSW, a total of 371,332 people were employed in the industry in 2019: 84.7% work full-time, and 15.2% work part-time.[30] It is the fourth largest industry sector as a proportion of Gross Domestic Product (GDP), at 8%.[31] Employment in the construction industry is projected to grow by 10% in the five-year period to May 2023.[32]

There is no legislated requirement in NSW for workers to stop work at a specific temperature or humidity level. Instead, the WHS Act outlines a broad duty on Persons Conducting a Business or Undertaking (PCBU) to eliminate health and safety risks in the

[29] Australian Bureau of Statistics (ABS) (2019) *Labour force statistics, Australia*, 'Table 04. Employed Persons by Industry Division of Main Job', time series spreadsheet, cat. No. 6291.0.55.003, https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6291.0.55.003Feb%202019.

[30] Australian Bureau of Statistics (ABS) (2019) *Labour force statistics, Australia*, 'Table 04. Employed Persons by Industry Division of Main Job'.

[31] Reserve Bank of Australia (RBA) (2019) 'Composition of the Australian economy: Snapshot', 5 June, https://www.rba.gov.au/snapshots/economy-composition-snapshot.

[32] Department of Jobs and Small Business (2018) *Employment outlook to May 2023*, http://lmip.gov.au/default.aspx?LMIP/GainInsights/EmploymentProjections.

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workplace 'so far as is reasonably practicable' (section 19). However, Construction, Forestry, Mining, Maritime and Energy Union (CFMMEU) enterprise bargaining agreements (EBAs) in NSW allow workers to stop work and prepare for 'safe completions of critical tasks currently underway' when the ambient temperature reaches 35°C, or 28°C with above 75% humidity.[33]

In an industry increasingly characterised by informal and casual labour arrangements, sham contracting and fragmented labour-hire structures,[34] the implementation and enforcement of heat stress management policies is a significant challenge.

What's happening on the ground?

During July 2018, 151 workers in the NSW building and construction industry were surveyed about heat at work. These workers were asked about their experience of heat stress in the workplace, their strategies for managing heat stress events in the workplace, and their views on workplace heat stress as a bargaining and/or campaign issue.

Workplace heat stress is a significant issue for this group of workers, in terms of safety, physical health and mental health. Most respondents said that on high-heat days, workplace heat stress affects them 'quite a bit', or 'very much'; and only one person said that they were never affected by it.

Common physiological effects of heat stress were fatigue or exhaustion, increased body temperature, reduced concentration and stress. Other effects included headaches, excessive perspiration, sunburn, vomiting, loss of consciousness, anxiety and frustration. Respondents said that heat stress played 'a significant [role] in (their) judgement making abilities', made them 'tire much faster', and increased the 'probability of accidents due to fatigue'.

Heat stress impacted not just work time and conditions, but also broader health and recovery beyond the workplace. Many workers described heat stress as having 'both short and long term' consequences, and noted that there were consequences for 'all (workers) on site not just the person suffering'. However, these workers faced multiple obstacles to

[33] See CFMEU Construction & General (2016), What are the rules regarding heat?, Sydney (https://nsw.cfmeu.org.au/faq/what-are-rules-regarding-heat).

[34] See CFMMEU, Construction & General Division (2018), Submission to the 2018 review of the model WHS laws, May 2018, Safe Work Australia, p. 2.

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managing heat stress effectively. Many felt that that their employers were not taking the issue seriously enough, and/or were acting against their interests on heat issues. Only 6.34% of respondents believed that their employers took heat stress 'very seriously', whereas 35.92% of respondents felt that their employers did not take heat stress seriously 'at all'.

Workers also noted that the current processes in place for managing heat stress were deficient or inconsistently enforced, particularly in the context of increasingly fragmented working arrangements. On some sites there were no union representatives, such as a Health and Safety delegate, and on other sites, many workers were unsure if there was one or not. One worker said: 'It seems every site has different rules!' Many workers noted that policies were overly determined by their employer's priorities.

Finally, many workers felt that the pressure to maintain a particular level of production in intense and unsafe conditions was significant and increasing. Partly because of this, the majority of workers (86%) want heat stress matters to be part of bargaining and union campaigns.

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SECTION THREE: What Are Unions Doing?

Heat stress is not a new issue for workers and their unions, but it is increasingly difficult to manage in an era of climate change. In order to better understand how unions are responding to heat stress as an OHS, industrial and organising issue, and how unions view climate change in relation to heat stress, we interviewed union officials and staff in key industries. We wanted to understand what sorts of actions are being taken by unions, and to illuminate what barriers and possibilities there are in relation to organising projects that draw together heat stress and climate change.

We conducted interviews with 12 trade union officials and staff, representing different groups of workers across the country. We interviewed people based in NT, SA, QLD, NSW and VIC. The interviewed officials represent delivery riders; firefighters; farmworkers; warehouse workers; builders; electricians; council workers; emergency service workers; logistics workers; hospitality workers; and early childhood educators. In addition, interviews were conducted with one official of the ACTU, and an organiser based at the Victorian Trades Hall Council (VTHC).

Through the interviews, we gathered data on:

- how these unions respond to heat stress;
- what sorts of actions these unions currently take on heat stress;
- how these unions view and approach the issue of climate change in relation to heat stress.

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WHAT FACTORS DO UNIONS IDENTIFY?

For the unions we spoke to, a complex picture emerged as to how heat stress is experienced and managed in the workplace. Our research was able to identify three levels at which there were problems in managing heat stress at work:

1. issues for labour at the workplace;

2. employer-focused problems (private and state sector);

3. problems with regulatory and legal frameworks.

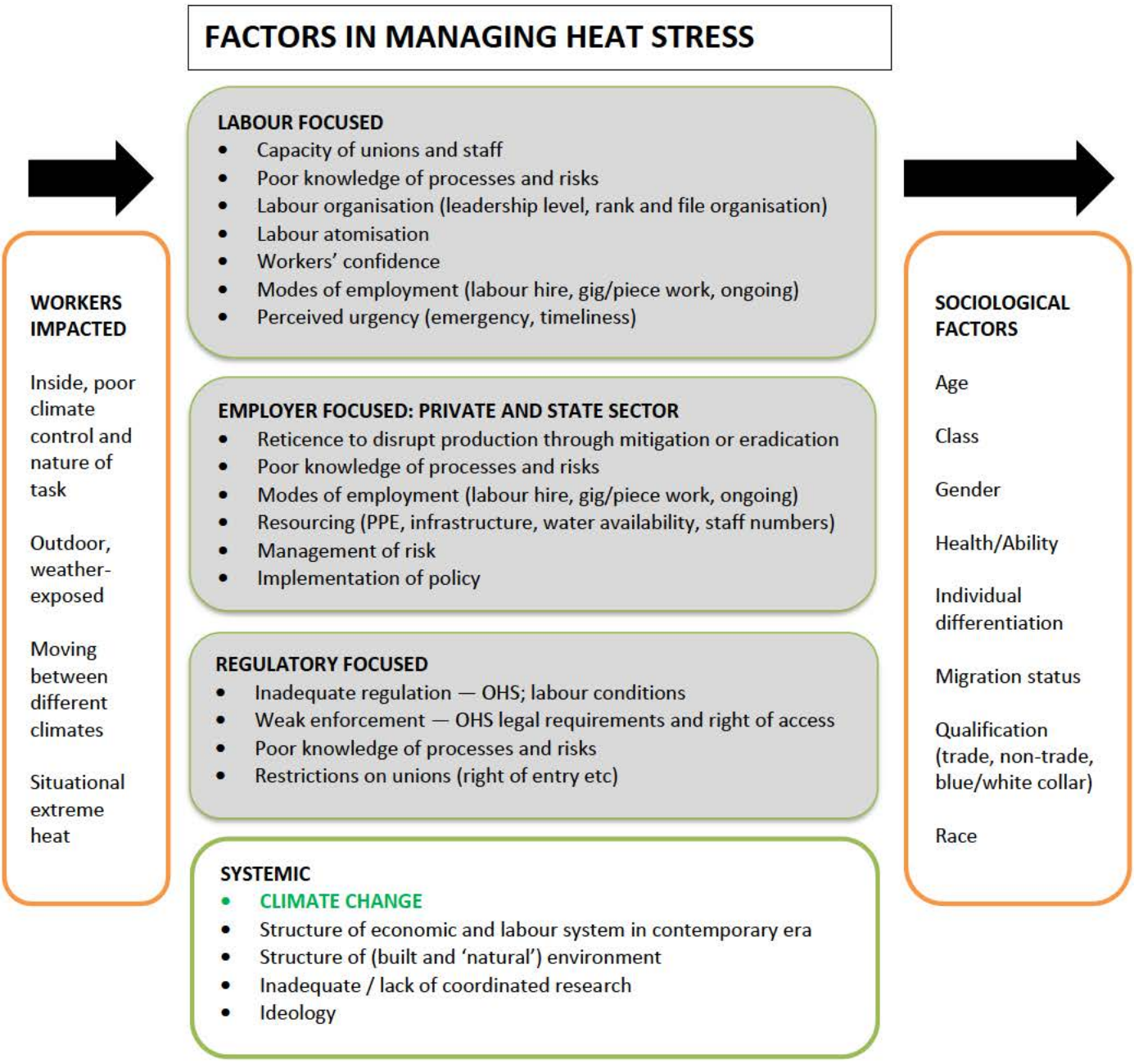
More generally, unions identified a range of systemic and sociological factors that impact the collective and individual experience of heat stress—including the ability to eradicate it, or manage its impact and associated risks, as is required by OHS frameworks.

Interviewees identified climate change—in terms of global warming, the frequency and intensity of high-heat events, and the emergence of new weather phenomena—as a key systemic factor shaping the management of heat stress for workers and unions in the present and immediate future. Figure 1 (Unions and Heat Stress Analytic) was developed out of the interview data as a tool to scrutinise and contextualise the activities of unions on this question.

We also asked unions if and/or how they, or their members, draw together the issues of heat stress and climate change. The analytic tool summarised in Figure 1 also allows unions, other researchers and ourselves to identify potential pressure points in the management of heat stress where the context of, and risks associated with, climate change might be more prominently articulated and acted on.

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Figure 1. Unions and Heat Stress Analytic



TRADE UNION ACTION ON HEAT STRESS

Australian trade unions are responding to heat stress in a number of different ways (see Table 1). These can be broadly categorised as:

- event-responsive actions (for example, prior to, during or after a heatwave or heat stress incident, and initiated at various locations within unions and worksites);
- education and training (at multiple levels in the process of employment and work);
- organising- or industrial-focused actions (including utilising OHS frameworks);
- policy- and regulatory-focused action (usually externally focused and seeking greater protection for workers and increased powers for regulatory bodies).

Most unions interviewed for this project took approaches that involved strategies across multiple categories, with great variation in focus and capacity to take on such work. Some unions indicated that they thought there was scope for more cross-union or national work on heat stress, including in relation to climate change. Table 1 (Union Action on Heat Stress) summarises the ways in which the unions participating in the interviews take action on heat stress at the present time.

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Table 1 Union Action on Heat Stress			
Event-responsive actions	**Education and training**	**Organising/industrial-focused**	**Policy/regulatory-focused**
Proactive immediately prior to expected extreme weather event Reactive to incident Worker-initiated Delegate-initiated Official- or staff-initiated	Of members (meetings, website, publications, etc.) Of delegates Of employers Of government and public sector Union-run training courses for OHS Representatives	Enterprise agreement clauses Strategic organising in industry or sector Monitoring of known problem workplaces or issues Electing / installing OHS Reps Instituting well trained OHS committee	Submissions to inquiries and reviews Legislation Engaging state agencies (safe work, coronials, etc.) Lobbying/political engagement

TRADE UNIONS AND CLIMATE CHANGE

The unions interviewed for this project argued that climate change was of central importance to their members, and that it is having a significant impact on various industries. The unions identified a connection between heat stress and climate change, and observed that rising temperatures and increasingly frequent extreme weather events requiring active intervention and management of OHS risks and climate change have become a more generalised phenomenon.

That said, and as one trade union official articulated, climate change as an OHS issue also requires action on the causes of climate change to eliminate the risk—not just mitigation action adapting to impacts at the level of individual workers and worksites.

While most unions are taking some action on climate change, even if only at the policy level, few reported that they had actively campaigned on the issue within their membership or taken broader public action.

Several unions reported that members often discuss their work in the context of climate change—such as in relation to the way in which the built environment is being constructed—but that there was largely no coordinated approach or response to climate change within their organisation. A current official of a state-based firefighters union noted that workers can and do make the connection between climate change and changes in fighting fires, whether it be discussing the prevalence of grass fires, the nature of extreme fire events or the construction of buildings. A second official at a different union noted that many of their members explicitly drew connections between, for example, the effects of climate change on the agricultural and dairy industries in Australia and their job security and working conditions.

The participants were asked whether they thought the issue of heat stress could be used as a vehicle to organise around climate change, particularly as the issue of climate heat would be rooted in the everyday experience of workers. There was a mixed response to this question. Several unions thought that this was a useful approach to take, and that it would present the impacts of climate change in a concrete way for members. Others felt that while organising around heat as an OHS issue was effective, explicitly linking heat stress to climate change might be more fraught than it first appears.

One official, representing firefighters, thought that it was difficult to say whether making climate change more central in discussions of heat stress would be useful, as many of the risks for firefighters come back to resourcing (people) and money. This official gave the example of the rescue work that modern firefighters undertake, stating that responders cannot refuse to rescue an injured person from inside a car at an accident scene, regardless of how hot it is on the bitumen road. Rather, the question is whether there is sufficient resourcing to ensure that workers can switch in and out of that work and allow themselves time to recover. For example, if two teams of workers are made available, a team can work for a limited period in extreme heat conditions and then be replaced by a second team while the first team rests—working in tandem until the job is complete.

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Conclusion

Many researchers, workers and union representatives are concerned about insufficient protection for workers during high- and extreme-heat events. They are also worried that things are getting worse, as heatwaves increase in frequency and severity, and as they are coupled with other climate-related conditions such as bushfire smoke and air pollution.

Currently, many workers say that OHS processes might protect them in theory, but that in practice this does not happen. This summer has shown how catastrophic these conditions can become for workers, and how unprotected many workers currently are. Some employers are concerned with maintaining productivity and reducing costs, and this opens up a conflict between their interests and those of workers who want to stay safe. Many workers say that employers do not want work to stop even when heat stress is very high, and that employers prioritise productivity over workers' health.

Workers' representative organisations say current laws are inadequate, and that federal and state governments need to act urgently to address this failure. Workers also want employers and governments to do more about the risk of heat stress, and they want clear and accessible OHS pathways to eradicate or mitigate the risk of heat stress when it occurs. Action is needed to ensure the safety of all workers, and also to ensure that vulnerable workers receive the support and protection they need.

Workers and their representative organisations must be centrally involved in addressing how heat stress is safely managed nationally, in the states and territories, and in workplaces. To protect workers and the wider community, not only must we act to mitigate the impacts of heat stress, but we must also act on the causes of rising temperatures and changing weather patterns. We must act on climate heating itself.

FURTHER INFORMATION

Further analysis from our ongoing research on work in the era of climate change will be released through the toohottowork.org website, alongside other materials from the case studies discussed in this report. We are currently working on a new project to develop further insight into the experience of workers of high heat, with a focus on indoor workers and their particular needs. If you would like to contact us about our research, please email: elizabeth.humphrys@uts.edu.au.

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PUBLICATIONS AND FURTHER RESOURCES

Articles and publications arising from this research project are listed below.

Newman, F. and Humphrys, E. (2020) 'Construction workers in a climate precarious world', *Critical Sociology*, Vol 56, Issue 4-5, pp 557-572. https://doi.org/10.1177/0896920519880951.

Biloria, N.M., Goodman, J., Humphrys, E., Newman, F., Pakdel, P., da Rimini, F. and Thomas, L. (2019) 'Heat in the streets: Mapping the lived experience of heat stress of climate-exposed workers towards developing a thriving and resilient city', UTS Climate Justice Centre, Final Report to the City of Sydney. https://opus.lib.uts.edu.au/handle/10453/138619

Goodman, J., Humphrys, E., Newman, F., da Rimini, F., Thomas, L., Biloria, N.M. and Pakdel, P. (2019) 'Heat stress and on-demand work: The experience of food delivery and courier cyclists', UTS Climate Justice Centre, Submission to the Inquiry into the Victorian On-Demand Workforce, https://opus.lib.uts.edu.au/handle/10453/134736.

Da Rimini, F., Goodman, J., Humphrys, E. and Thomas, L. (2018) 'Towards a 'worker/citizen science' model: A qualitative investigation of workplace heat stress and climate change', Conference paper given at the *Australian Citizen Science Conference*, University of South Australia, Adelaide 7–9 February.

Ghosh, D., Goodman, J. and Humphrys, E. (2017) 'Addressing heat disease: Trade unions and climate heat in the workplace', Conference paper given at the *29th Annual Scientific Conference of the International Society of Environmental Epidemiology*, University of Sydney, 24–28 September.

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CJRC RESEARCHERS

This report was drafted by the following CJRC members:

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***

The following UTS academics were collaborators on the City of Sydney research project:

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Nimish Biloria is an Associate Professor at the UTS School of Architecture. Nimish is an expert in the areas of Smart Environments and Spatial Robotics, with extensive research

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and design experience across Europe and Asia. He holds a PhD in Real-time Interactive Environments from the Delft University of Technology, and a Masters in Architecture in Emergent Technologies and Design from the Architectural Association, London, UK. Nimish is currently working on the AusIndustry Smart Cities and Suburbs Program auspiced by Cumberland Council, Connected and Autonomous Vehicles; the Smart Shuttle trial project commissioned by HMI Technologies and TfNSW; Empathic care environments for dementia care, commissioned by Leigh Place Aged Care, Sydney, and; the Climate KIC Fairwater Project, funded by ARENA and Climate KiC.

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Leena Thomas is an internationally recognised sustainable architecture academic at the UTS School of Architecture. Her research focuses on transforming development and design practices in response to global concerns for climate change, zero carbon development, thermal comfort, health and wellbeing in living and work environments. As Project Lead and/or Chief Investigator, Leena is instrumental in delivering a number of impactful multi-institutional government- and industry-funded research projects. These include the Fairwater Living Laboratory, Building Occupants Survey System Australia, India Model for Adaptive Thermal Comfort (IMAC) and Healthy Higher Density.

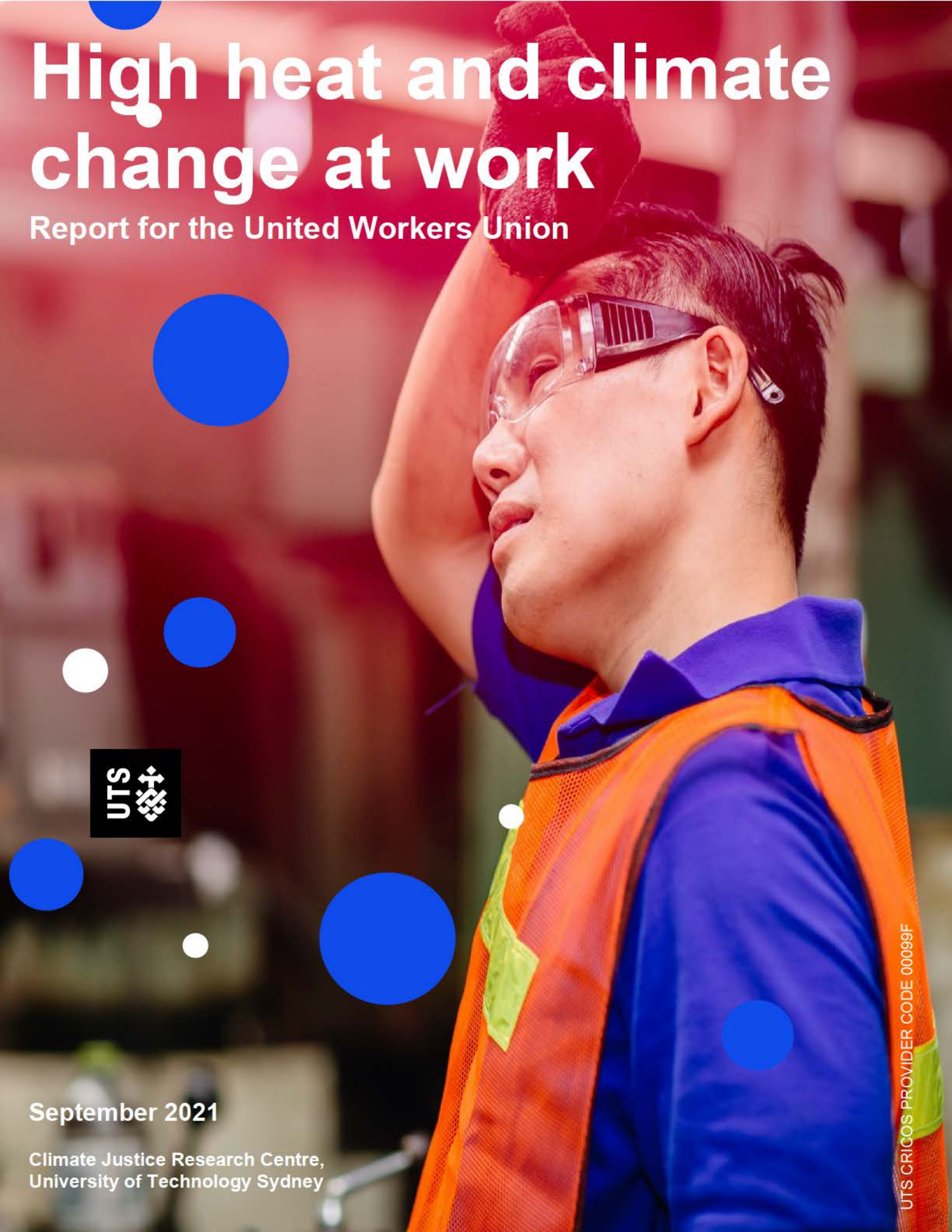
Pejman Pakdel

Pejman is a professional front end developer, with a graduate degree in Information Technology. He has several years of experience across different aspects of Web programming, and extensive experience working in design, and developing websites with JavaScript, React and Node.js. Since 2018, he has been working as a research assistant and developer at UTS.

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High heat and climate change at work

Report for the United Workers Union



September 2021

Climate Justice Research Centre,
University of Technology Sydney

UTS CRICOS PROVIDER CODE 00099F

About this report

This report outlines findings from the 2020-2021 research project into heat stress and climate change, involving members of the United Workers Union (UWU). The project involved a national survey and interviews with UWU members, officials and staff. The project was jointly funded by the UWU and the University of Technology Sydney (UTS), and independently conducted by researchers at the UTS Climate Justice Research Centre.

About the authors

Dr Elizabeth Humphrys is a political economist at UTS. She leads the Climate Justice Research Centre's project examining climate change impacts for labour, and is an associate at The Australia Institute's Centre for Future Work. Elizabeth's research investigates how workers navigate crisis and change, including economic crisis, climate change, and workplace disasters.

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More information about the UTS Climate Justice Research Centre's work on climate change impacts for workers is available on our website, toohottowork.org.

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Executive summary

This report outlines findings of a research project into how UWU members across Australia experience and contend with high heat conditions at work, and their views on climate change and its impact on workers. Members also told us about the experience of the 2019-2020 bushfires in their workplace, and the impact of COVID-19 for managing high heat.

The UWU members who participated in this project work as teacher's aides, machine operators, warehouse workers, home carers, cleaners, firefighters, market researchers, veterinary nurses, horticulturalists, chefs, early childhood educators, paramedics, security and custodial workers, and more.

These members experience high heat in several ways. Most work indoors, but many without adequate cooling controls, in unventilated spaces, or near heat-generating equipment and machinery. Some work outside, where they are exposed directly to the elements. Other members work across many different indoor environments, such as clients' homes, with no control over the climate of these workplaces.

Exposure to heat in the workplace is not just a matter of daily temperature forecasts. Humidity levels, cooling controls, ventilation, sun protection, and the level of physical exertion required in a job are all relevant factors contributing to an individual's experience of heat. The ability of workers to rearrange or delay work tasks, take extra breaks, pace themselves, and stop work also determines how they experience and can manage high heat conditions.

Working environment and conditions

'Mainly there's not much ventilation. This is the biggest problem at work ... there's nothing exhausting the hot air out …'.

- Most members surveyed work indoors only or outdoors less than 30% of the time. Only 15% of workers spend 70% or more of their time outdoors.
- Members generally feel heat most when outside, but for many there are certain indoor locations that involve challenging levels of heat.
- A third of members are regularly lifting loads of 10kg or more, adding another factor to managing high heat. Some members lift heavy loads over 40kg.
- Many members report existing cooling controls in their workplaces do not work properly, are broken, are ineffective in high temperatures, or are available only for customers and not staff.

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Impacts of heat on UWU members

'… it's quite terrible. … you drink way more water, so you're forced off the line, which puts pressure on you to work harder, which makes you sweat more and then tires you out. Essentially, it's just an all-round lose situation because you're hot, overheated, stressed and incredibly sweaty'.

- On hot days 58.1% of members say heat affects them 'quite a bit' or 'very much'. Less than 10% of members are only affected 'slightly' or 'not at all'.
- In the twelve-month period prior to the survey, 20.2% of members were unable to work at some point due to high heat. This included through having work cancelled, a work stoppage, or members' taking sick leave.
- Productivity demands impacting heat management, such as the inability to slow down or take breaks, are a common problem across industries.
- When exposed to heat at work members say they have experienced: fatigue (77.6%); headache (59.9%); poor concentration (50.1%); and nausea and dizziness (36.8%). These are all common symptoms of heat stress.
- Several workers described how they sometimes 'stopped sweating' or lost their appetites, common symptoms of heat-related illness.
- Workers described experiencing or witnessing a range of serious incidents at work, including passing out, seizures, stress, hospitalisation, and fatalities.

Responding to heat stress at work

'Like they've got a lot of stuff in writing saying if it's an extreme day, we'll rotate people, and everyone will get an extra five-minute break each hour. But that's rubbish. It just doesn't happen. You know, they say you can do it, but we just haven't got the manpower to be able to do that …'.

- Members routinely take actions to protect their health and safety in high heat conditions. This includes through drinking more water and making use of personal protective equipment (PPE) such as hats, sunscreen, and ice vests.
- Although some employers provide cold water, ice blocks and PPE, many do not. Workers interviewed say they often have to bring their own supplies to work.
- Workers whose jobs are externally 'paced', for example by an inflexible roster or by the speed of machines, find it difficult or impossible to slow down or take additional breaks to hydrate and recover in high heat.
- For a number of workers the inability to take more frequent breaks in high heat conditions is related to inadequate staffing.

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- Over half of members had never been issued with warnings, advice or information on high heat and heat stress.

- Almost half of members surveyed were unaware if there was a policy or procedure for managing heat stress and high heat in their workplaces.

- In workplaces that have heat policies, some members say it is impossible to get management to act in accordance with them.

- Only 2.4% of members had taken workplace action regarding heat stress issues. Of this group a third were successful and two thirds were unsuccessful.

COVID-19: Complications for heat stress

'... wearing [a] plastic apron, face mask, eye protection and gloves makes me sweat profusely, causing dehydration, fatigue and headaches. It is impossible to work without a higher risk of causing an injury and [I] cannot perform at an efficient level of competence'.

- Over a third of members (37.5%) report they had to make changes at work due to COVID-19 regulations, and that these changes affected their management of the heat.

- The most common problem was increased heat stress associated with PPE, including the use of gowns, aprons, gloves, goggles, face masks, shields, and balaclavas.

- Other problems from PPE changes due to COVID-19 included exhaustion, excessive sweating, skin rashes, and difficulty breathing. New forms of PPE also made it difficult to handle equipment and perform tasks safely for some, such as sweating under gloves when operating machinery.

- High heat was also compounded by other COVID-19 changes, with:

    - altered, staggered or extended shift times requiring work to be completed in the hotter parts of the day.
    - reduced access to indoor and air-conditioned spaces due to social distancing.
    - higher workloads and the failure of management to bring on additional staff to cope.
    - performing new tasks in the hottest parts of the day, such as extra cleaning or managing contactless pick up and drop off of children.

Bushfires: Lack of preparation, lack of action

'A lot of people had to wear masks. It was hot and there was one person who had to be taken off in the ambulance cos they couldn't really breathe. It was really bad ...'.

- Members advised there were insufficient procedures in place to deal with the smoke and ash emergency during the 2019-2020 bushfires, and insufficient OHS action taken by employers once the crisis was unfolding.

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Climate change: Growing impacts at work

'I think so. I think we're incredibly lucky because of that La Niña thing this year. I think we've got some horrendous summers to cope with in the future. Yeah, I'm concerned about it for sure.'

- 56.2% of surveyed members thought climate change was impacting people's working conditions, 33.8% thought it was not, and 10% were unsure.
- In all states and territories 50% or more of members felt climate change was impacting people's working conditions.
- Younger members (under 30) were more likely to say that climate change was impacting people's working conditions, with almost 80% saying this was the case. There was no difference based on gender.
- Members in chemical manufacturing, professional and technical services, educational services, and agriculture were amongst those most likely to say climate change is impacting working conditions.
- Members in food services and repair and maintenance were amongst those least likely to say climate change was impacting working conditions.

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Recommendations

In line with expert international medical advice, including in the August 2021 special research series on heat and health published by *The Lancet*, 'all countries, local communities, and institutions need to adopt effective heat health action plans tailored to local conditions' based on the scientific evidence that 'the health dimensions of heat can no longer be overlooked'[1].

1. The Commonwealth and state and territory governments must urgently review the management of current and likely future impacts of climate change for workers. This must include addressing increasing heat and providing regulatory frameworks for strong protection in relation to heat stress and bushfire smoke. Workers, and their representative organisations, must be centrally involved in this process.

2. The Commonwealth and state and territory governments should convene sector-by-sector meetings – that include workers and their representative organisations – to work through the climate impacts particular to each sector and formulate sector specific regulatory frameworks.

Current OHS and industrial frameworks are inadequate to the task of dealing with the impacts of climate change and high heat. Current frameworks are also inadequately enforced.

3. The Commonwealth government must abolish restrictions on bargaining content within the industrial relations system, such that it is clear workers have the unambiguous right to bargain around climate change and its impacts in the workplace.

4. Employers are already required to provide adequate resourcing for at-risk workers, such as high standard personal protective equipment (PPE), adequate hydration while at work, regular breaks, acclimatisation protocols, and sufficient personnel to ensure workers can be relieved for recovery time in situations where they cannot stop work (such as emergencies). This is not occurring. Greater government oversight and enforcement are needed to ensure compliance.

5. Greater resources must be provided to unions and employers to train staff, including health and safety representatives, to ensure workers and employers understand their rights and legal duties in relation to heat stress.

6. Governments need to establish clear and accessible occupational health and safety pathways around heat stress and other impacts from climate change, which empower workers to take mitigating action without fear of reprisal.

[1] The Lancet (2021) 'Health in a World of Extreme Heat', *The Lancet*, 398:10301, p 641.

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The conditions of a person's employment, their health, and their relative vulnerability, fundamentally shape their experience of heat stress.

7. Any review of national and state-based framework to protect workers from heat stress must address its impact on vulnerable workers, including workers with minimal rights and agency in the workplace.

8. Workers in casual, labour hire, on-demand and temporary migrant working arrangements must be afforded greater protections to ensure health and safety and fair income maintenance in periods when they need to work more slowly or take breaks.

There is a pressing need for further research on the OHS impacts of workplace heat and other forms of extreme weather, as well as current union activity in relation to the climate crisis.

9. A national, diverse industry study should be conducted, mapping current and likely future problems encountered by workers in attempting to manage the impacts of extreme weather changes being driven by climate change.

10. Further research is needed on workers' experiences of heat at work, their perceptions of climate change, and how the extreme weather impacts of climate change on workers might inform organising strategies.

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Introduction

The 2021 report from the Intergovernmental Panel on Climate Change (IPCC) stresses that climate change is 'already affecting every inhabited region across the globe [and] contributing to many observed changes in weather and climate extremes'[2]. It states that each 'of the last four decades has been successively warmer than any decade that preceded it since 1850'[3]. We are currently experiencing higher temperatures on average, more hot days, higher humidity, longer heatwaves, concurrent heatwaves and droughts, more frequent and intense bushfires, and compound flooding in some locations[4]. The impacts of these changes can push the physical capacity of workers beyond what is safe.

Heat from rising temperatures has been identified as a major threat to safe and decent working conditions, with workers increasingly compromised during the hottest months of the year[5]. Almost half of the global population are now exposed to high heat episodes, including more than one billion workers[6]. Where high heat is not managed appropriately the consequences include serious illness, adverse pregnancy outcomes, negative mental health impacts, and death. At the global level, a third of all heat-related deaths worldwide between 1991 and 2018 can be attributed to human-induced climate change[7].

Extreme weather changes also impact productivity and employment and will do so on an increasing basis. The International Labor Organisation (ILO) reported that without action to arrest the problem, 'uncontrolled climate impacts will cause damage to infrastructure, disrupt business activity, and destroy jobs and livelihoods on an unprecedented scale'[89]. Based on 'a

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[2] IPCC (2021) 'Summary for Policymakers', in *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press: Cambridge, p 12. https://www.ipcc.ch/report/ar6/wg1/#SPM

[3] IPCC 2021, p 5.

[4] IPCC 2021, p 11.

[5] IPCC (2018) 'Impacts of 1.5ºC Global Warming on Natural and Human Systems', in IPCC, *Global Warming of 1.5°C*. https://www.ipcc.ch/sr15/

[6] Ebi, Kristie L et al. (2021) 'Hot Weather and Heat Extremes: Health Risks', *The Lancet*, 398: 10301, pp 698 - 708. https://doi.org/10.1016/S0140-6736(21)01208-3

[7] Vicedo-Cabrera, A M et al. (2021) 'The Burden of Heat-related Mortality Attributable to Recent Human-induced Climate Change', *Nature Climate Change*, 11, pp 492–500. https://www.nature.com/articles/s41558-021-01058-x

[8] ILO (2020) 'The Role of the ILO in Addressing Climate Change and a Just Transition for All', Report from the Policy Development Section, Employment and Social Protection Segment, to the Governing Body, 338th Session, 12–26 March 2020, Geneva, GB.338/POL/1. https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_736774.pdf. Viewed 16 August 2021.

[9] See also: ILO (2019) *Working on a Warmer Planet: The Impact of Heat Stress on Labour Productivity and Decent Work*, Geneva. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_711919.pdf.

global temperature rise of 1.5°C by the end of the twenty-first century, and also on labour force trends', the ILO projects that in 2030 '2.2 per cent of total working hours worldwide will be lost to high temperatures — a productivity loss equivalent to 80 million full-time jobs'[10].

Occupational health problems will increase unless action is taken to abate climate change, as there is greater risk for workers associated with higher degrees of global warming. However, health experts argue excess deaths and many health risks arising from heat stress are preventable with appropriate heat action plans[11]. Of course, mitigating the unfolding impacts of climate change in the workplace is not enough. Reducing emissions to halt the progression of climate change is critical, and many unions in Australia and abroad are calling for a well-planned industry transition, one which would support their members' rights to decent work. Of course, mitigating the unfolding impacts of climate change is not enough. Unions have a role in campaigning to act on the causes of climate change in the interests of their members and humanity at large.

It is important to recognise that workplace heat is not simply or only a matter of the weather. High heat and its attendant risks are also related to a number of other factors, including: the nature of the industry and job; the working environment and conditions; the presence or absence of heat management policies in the workplace; and a worker's ability to take measures to mitigate the impacts of high heat (worker agency). The ability to manage heat and its associated risks is also highly individualised, and related to a person's level of physical fitness, whether they have medical conditions, how acclimated to the prevailing heat they are, and whether they have had training and can recognise signs of heat stress.

Many members who were interviewed and surveyed as part of this project work in environments lacking ventilation and adequate cooling controls. They are also required to work at rates of production which are incompatible with some of the most fundamental heat management strategies, such as taking rest breaks and slowing down. Hotter, longer, and more frequent heat waves threaten to exacerbate this already precarious situation.

Recent tragic deaths of workers have underscored the seriousness of heat-related work. In August 2021 the Coroners Court of Queensland published findings from their investigation into the 2017 death of Oliver Caramin, a Belgian national who worked as a fruit picker.[12] Mr Caramin died of multiple organ failure, due to or as a consequence of heat stroke, after working at a 'moderate' rate of work in 40°C heat (32°C in the shade), with 'inadequate' protection from the sun. The Office of Industrial Relations (OIR) found that there was pressure 'placed on the workers to continue picking and packing pumpkins notwithstanding a number of workers raising

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[10] ILO 2019, p 13.
[11] Ebi et al 2021.
[12] https://www.courts.qld.gov.au/__data/assets/pdf_file/0008/691775/nif-caramin-o-20210820.pdf

concerns about the environmental conditions on the day'[13]. No shade was made available to Mr Caramin or his co-workers, adequate training was not provided, and there was no risk assessment or safe work procedure. The OIR found that 'the employer's failure to adequately assess the environmental conditions … was a significant contributing factor to Mr Caramin's death'[14].

Unfortunately these conditions — a lack of shade, inadequate training, the absence of proper heat management policies or procedures, and productivity pressures — are familiar to many workers, including those who have contributed to this report.

What is heat stress?

'Heat stress' refers to heat received in excess of the level which a body can tolerate without some physiological impairment. As the ILO describes:

> Above a certain threshold of heat stress, the body's internal regulation mechanisms are no longer capable of maintaining body temperature at a level required for normal functioning. As a result, there is an increased risk of discomfort, of limitations in physical functions and capabilities, and ultimately also of injuries and heat-related illnesses[15].

In extreme heat, workers may become severely dehydrated, nauseous, dizzy, fatigued, irritable and stressed. Workers labouring in high heat may also be more prone to lapses in concentration, and may suffer from reduced decision-making abilities, leading to accidents. They may also develop potentially fatal heat illnesses, such as heatstroke.

Heat impacts workers at even moderate temperatures, and there is reduced labour productivity above 24–26°C, but once temperatures rise to '33–34°C, a worker operating at moderate work intensity loses 50 percent of his or her work capacity'[16].

While all workers are affected, certain groups of workers are particularly at risk. These are:

- Outdoor workers, especially those who are weather exposed and involve physical exertion. This includes workers in agriculture, construction, emergency repair work, transport, and tourism.
- Workers who labour inside in poor climate-controlled environments, or where the nature of their work is heat exposed. This includes manufacturing workers, workers in schools

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[13] Section 15.ii. https://www.courts.qld.gov.au/__data/assets/pdf_file/0008/691775/nif-caramin-o-20210820.pdf
[14] Section 15.iv. https://www.courts.qld.gov.au/__data/assets/pdf_file/0008/691775/nif-caramin-o-20210820.pdf
[15] ILO 2019, p 17.
[16] ILO 2019, p 13.

without air conditioning such as cleaners and teacher's aides, and workers in industries like home care (who move between various mostly enclosed environments, from client's homes to the outdoors and into very hot cars).

- Workers who move between different climates as part of their work, such as moving between extreme heat and cold, such as in food preparation and warehouses.
- Workers whose roles expose them to situational extreme heat, such as emergency personnel and firefighters.

A recent investigation of workplace accidents in California, examining injury claims in the largest compensation system in the United States, found that hotter temperatures caused increased workplace injuries significantly. This was the case in 'both outdoor and indoor settings (e.g. manufacturing, warehousing), and for injury types ostensibly unrelated to temperature (e.g. falling from heights), with the 'risks [being] substantially larger for men versus women; for younger versus older workers; and for workers at the lower end of the income distribution'[17]. In a similar Australian study across Melbourne, Perth and Brisbane, researchers found that the 'relationship between injury and ambient temperature appears to be variable depending on location and climate' but that in general 'work-related injuries and illnesses appear to be more common at higher temperatures than lower temperatures'[18].

Workers who are less secure, temporary workers, piece workers, on-demand workers, and migrant workers, are just some of the groups who are at greater risk. The level of organisation of workers in an industry, or a workplace, also appears correlated to an employee's experience of heat stress. Older workers, those experiencing menopause, and those who have health conditions, can also struggle in hotter weather. High heat also impacts work in less direct ways, such as through poor sleep during a heat wave which can make it harder to work safely the next day. Similarly, poor sleep or working in extreme heat can impact cognitive function and make the drive to and from work more dangerous.

There is limited — although, thankfully, growing — qualitative research on how people experience heat stress in Australian workplaces.[19] This study of UWU members is an important step in developing a detailed picture of the impacts and problems of heat stress for workers,

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[17] Park, R Jisung, Nora Pankratz, A Patrick Behrer (2021) *Temperature, Workplace Safety, and Labor Market Inequality*, IZA Institute of Labor Economics, Discussion Paper No 14560. http://ftp.iza.org/dp14560.pdf.

[18] Varghese, Blesson M et al. (2019) Geographical Variation in Risk of Work-related Injuries and Illnesses Associated with Ambient Temperatures: A Multi-city Case-crossover Study in Australia, 2005–2016, *Science of the Total Environment*, 687, pp 898-906.

[19] For instance, see: Williams, Susan et al. (2020) 'Workers' Health and Safety in the Heat: Current Practice in Australian Workplaces', *Policy and Practice in Health and Safety*, 18:2, 67-79. See also: Carter, Sarah et al. (2020) 'The Impact of Perceived Heat Stress Symptoms on Work-related Tasks and Social Factors: A Cross-sectional Survey of Australia's Monsoonal North', *Applied Ergonomics*, *82*, 1-8.

especially those working indoors. There is a need to build on this project in several ways, and we discuss how this might be done at the end of the report.

Methodology

This report presents findings from a research project on the experience of heat stress by UWU members, including how they and management have responded to extreme temperatures at work. The survey also asked members' views on the impact of climate change for the performance of work. Members were also asked about workplace changes due to COVID-19, and whether this impacted their experience of heat.

The project involved interviews with UWU members and a national survey. We completed scoping interviews with officials and staff prior to the project commencing and were given access to anonymised data from a UWU survey of home care workers about heat and uniforms. The research team also observed the union's Extreme Weather at Work OHS training.

Semi-structured telephone interviews were conducted with 16 UWU members between September 2020 and March 2021. These members worked in manufacturing (NSW and Victoria), utilities (South Australia), home care (Western Australia and NSW) and early child education and care (ECEC) (Northern Territory). The interviewees were aged between 23 and 63, with an average age of 49. These members were 10 men, 5 women and one non-binary member. Interviewees were recruited via union staff, who provided contact details of members who indicated they wished to be interviewed by the research team. The interviews were used to explore a range of issues in detail, with most conducted prior to the release of the survey. Interviews were transcribed and coded in NVIVO (qualitative text coding software) to identify themes. Recruiting interviewees was very difficult and time consuming as UWU members and union staff have been under enormous pressure during the pandemic, and the efforts of all concerned are greatly appreciated.

A national survey of members in the Allied division of the UWU was undertaken. The survey was distributed to those who subscribe to the main UWU email list and are assigned to the Allied division. The survey was open for 16 days in February 2021. An initial email seeking responses went to 17,547 members, and a reminder email was sent to 17497 members five days before the survey closed.[20] The open rate of the emails was 29.7% and 30.3% respectively. The geographic location of members is detailed in Table 1, which shows a response rate of 4.5%. It was not possible to estimate a response rate from members who

[20] The difference in the number of recipients is related to members who unsubscribed from the list or stopped being a member.

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opened the emails. However, the response rate from those who did open and read the email would be significantly higher than 4.5%.

In our analysis we have included members who completed some or all of the first nine demographic and job role questions and moved on to the 26 questions about heat stress, COVID-19 and climate change. This resulted in 798 respondents being included in analysis, from the 944 members who opened and commenced the survey by answering at least one question. Questions were not compulsory, giving members the ability to opt out of any question they did not want to respond to, or was not relevant to them, and still complete the survey. As such, the number of responses varies between questions and is indicated throughout the report.

TABLE 1: Survey response rate by location

	Number emailed	Percentage of total emailed	Number completed	Percentage of completions	Response rate
Queensland	6236	35.5%	454	56.9%	7.3%
South Australia	2259	12.9%	102	12.8%	4.5%
Northern Territory	1971	11.2%	80	10%	4.1%
Victoria	3454	19.7%	73	9.1%	2.1%
New South Wales	1579	9%	35	4.4%	2.2%
Western Australia	1043	5.9%	29	3.6%	2.8%
Tasmania	665	3.8%	19	2.4%	2.9%
Australian Capital Territory	15	0.1%	3	0.4%	20%
Unknown	325	1.9%	3	0.4%	0.9%
Total	17,547		798		4.5%

Members in Queensland (7.3%) and the Australian Capital Territory (ACT) (20%) completed the survey at higher rates, although the total number of members in the latter is very small. Members in Victoria, New South Wales (NSW), Western Australia and Tasmania completed the survey at lower rates. Apart from the ACT and Western Australia, the likelihood of a member completing the survey may be linked to locations that are on average hotter and/or have higher humidity.

Most respondents to the survey were women, about two thirds to one third compared to men, and there were a small number of non-binary respondents (see Table 2). The age of respondents spanned from 17 to 77 years old, but almost 60% of respondents were aged between 41 and 60 years old. The largest group of respondents was in the 51-60 years age bracket (34.7%) (see Table 3).

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We note that although respondents were happy to provide their gender, employment contract, and how long they had worked in the industry — with very few respondents skipping those questions — members were less willing to provide their age, with 193 members (almost a quarter of respondents) avoiding that question.

TABLE 2: Respondents by gender

	Number	Percentage
Woman (including trans)	539	67.8%
Man (including trans)	250	31.4%
Non-binary	6	0.8%
I use a different term (please specify)	0	0%
Total	795	

TABLE 3: Respondents by age

	Number	Percentage
20 and under	8	1.3%
21-30	43	7.1%
31-40	88	14.5%
41-50	145	24%
51-60	210	34.7%
61-70	109	18%
71-80	2	0.3%
Total	605	

Table 4, overleaf, sets out the contract type of those surveyed. 73.9% of respondents worked in ongoing / permanent roles (full time and part time), 16% were fixed term, 9.6% were casual, and only 0.1% (one respondent) was employed through a labour hire company. Most members (79.4%) had been in their industry for over five years, and most (69.6%) had been in the same job for more than five years (see Table 5 and 6, respectively).

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Close to half of the members surveyed worked shifts or days of between 7-9 hours (48.9%), just over a third worked between 4-6 hours (34.7%), and 12.4% worked ten hours or more per shift or day (see Table 7). This means, overall, this survey more heavily reflects the experiences and views of members in more secure jobs and who are working shifts or workdays of around 8 hours.

Members were asked to nominate the industry they work in, from a list of Australian Bureau of Statistics (ABS) industry classifications. Although members with quite diverse occupations completed the survey, the overrepresentation of certain groups should be kept in mind in understanding the findings in this report.

Table 4: Respondents by contract type

	Number	Percentage
Casual	76	9.6%
Fixed term full time	78	9.6%
Fixed term part time	48	6%
Fixed term (unspecified)	3	0.4%
Full time ongoing (permanent)	412	51.9%
Part time ongoing (permanent)	175	22%
Labour hire	1	0.1%
Other	1	0.1%
Total	794	

Table 5: Respondents by time in industry

	Number	Percentage
Less than six months	7	0.9%
6 months - 1 year	14	1.8%
1 year - 3 years	62	7.9%
3 years - 5 years	79	10.1%

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5+ years	624	79.4%
Total	786	

The largest group of respondents were those working in the educational services industry (see Table 8). This was a result of members in educational services being numerically greater in the Allied division to other industries, but also because they responded to the survey at a high rate compared to all other industry groups (see Table 1). Of these respondents: about two thirds worked as teacher's aides, Auslan interpreters and in similar support roles; almost a third worked as cleaners and janitors in schools; and a handful worked in non-teaching organisational roles such as a facilities officer and an OHS support officer. More than a quarter of all members who participated in the survey were from middle-aged women (aged 45-60) working in educational services in Queensland (n=235), and three quarters of those were in permanent jobs.

Table 6: Respondents by time in current role

	Number	**Percentage**
Less than six months	16	2%
6 months - 1 year	23	2.9%
1 year - 3 years	99	12.6%
3 years - 5 years	101	12.9%
5+ years	546	69.6%
Total	785	

TABLE 7: Usual length of shift or working day

	Number	**Percentage**
Less than 1 hour	1	0.1
2-3 hours	14	1.8
4-6 hours	276	34.7
7-9 hours	389	48.9
10+ hours	99	12.4
Highly variable	13	1.6
Other	4	0.5

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Total	796	

Table 8: Respondents by industry

	Number	Percentage
Educational services	348	48.1%
Health care services, except hospitals	65	9%
Miscellaneous and not specified manufacturing	28	3.9%
Food services and drinking places	27	3.7%
Transportation and warehousing	24	3.3%
Utilities	18	2.5%
Construction	17	2.3%
Other information services	17	2.3%
Machinery manufacturing	16	2.2%
Administrative and support services	15	2.1%
Professional and technical services	14	1.9%
Chemical manufacturing	11	1.5%
Food manufacturing	11	1.5%
Hospitals	11	1.5%
Other (industries with under ten respondents)	102	14.1%
Total	724	

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Working environment and conditions

Several factors contribute to how hot a working environment is, including the availability of cooling controls such as fans and air-conditioning, the level of ventilation, and exposure to the sun.

Most members surveyed either only worked indoors, or only worked outdoors for less than 30% of the time (see Table 9). 15% of workers spent 70% or more of their time outdoors. 38.7% of members said their workplace was well or very well ventilated, and almost half said their workplace had reasonable ('average') ventilation (see Table 10). 17.3% of those surveyed said their workplaces were poorly or very poorly ventilated. Dealing with high heat can also be complicated by humidity, and how physically exerting a job is. Some members had to lift heavy loads as part of their job (see Table 11), which can increase the risk of heat stress, and a third of members surveyed are regularly lifting loads of 10kg or more.

TABLE 9: Time spent outdoors at work

	Number	**Percentage**
I only work indoors	117	14.7
1-10%	163	20.6
11-20%	136	17.1
21-30%	92	11.6
31-40%	53	6.7
41-50%	53	6.7
51-60%	32	4.0
61-70%	28	3.5
71-80%	25	3.1
81-90%	39	4.9
91-99%	33	4.2
I only work outdoors	23	2.9
Total	794	

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TABLE 10: Ventilation of indoor areas of workplace

	Number	Percentage
Very poorly ventilated	47	6.1
Poorly ventilated	86	11.2
Average	337	43.9
Well ventilated	218	28.4
Very well ventilated	79	10.3
Total	767	

TABLE 11: Does your job involve heavy lifting?

	Number	Percentage
No	341	42.8
Yes - up to 10kg	185	23.2
Yes - up to 20kg	156	19.6
Yes - up to 40kg	52	6.5
Yes - more than 40kg	63	7.9
Total	797	

Unsurprisingly, most members feel the heat most when they are outside, exposed to the weather directly. However, for others they feel hottest at work in specific areas of the workplace, including indoor locations. For example: *unventilated/un-airconditioned work shed* (air reporting officer, Northern Territory); *in the sheds cutting up material* (teacher's aide, Queensland)*; inside the plant* (plant operator, Western Australia)*; in residents' bedrooms with heaters on* (personal carer, Queensland); *in the mill room - small, with little cooling, and directly in front of sunlight* (development chemist, Victoria).

Many members noted that they most feel the heat near heat-generating equipment and machines. These members included machine operators, forklift drivers, cleaners, chefs, brewery technicians, welders, and medical workers, working next to ovens, deep fryers, washing machines, gas dryers, electronics (computer printers/scanners), air-conditioning equipment, packing machines, and other machinery in factories and warehouses.

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Often it was a combination of factors — proximity to hot equipment/machines, inadequate climate controls or cooling mechanisms, and/or a lack of ventilation — which contributed to high ambient heat in workplaces.

In interviews, some members working in factories mentioned that some machines do not fare well in the high heat, either. One member working as a technician in a factory in Victoria noted:

> ...when the summer comes, [the] machines don't work that good anyway because they have a lot of heat related problems as well. … fans make it worse as well, because they take all the heat up from the machine and blow it to the site. So that's a little bit of [a] problem as well. Mainly there's not much ventilation. This is the biggest problem at work ... there's nothing exhausting the hot air out of it.

Others noted that the hottest part of their workplace was under or near skylights, or too far away from ventilation and cooling controls. One NSW member in manufacturing commented that '[t]owards the middle of the factory there's no open-air space, no doors, nothing'.

TABLE 12: Members with access to cooling controls in their workplace (select all relevant)

	Number	**Percentage (of total respondents)**
Fixed air conditioning	602	75.4
Fixed fans	364	45.6
Portable fans	91	11.4
None listed	79	9.9
Portable air conditioning / evaporative coolers	36	4.5
Other measure	35	4.38
Cooling controls inaccessible, broken or unreliable	25	3.13
Additional comment	8	1

Most members surveyed had access to cooling controls in their workplace, including fixed air-conditioning (75.4%), fixed fans (45.6%), portable fans (11.4%), and portable air conditioning / evaporative coolers (4.5%) (see Table 12, above). However this was quite variable across industries. For example, 93.7% of members in educational services had access to fixed air conditioning in their workplace, compared to only 31.3% of members in machinery manufacturing. That said, even for those in educational services there are times when they are heat exposed, such as playground duties, which can also occur at the hottest time of the day. Notably, 44.4% of surveyed members in the utilities sector had access to none of the cooling

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controls mentioned, significantly higher than the average and a reflection of spending substantial time outdoors. Other members noted that existing cooling controls (air-conditioning, fans) did not work properly, were broken, were ineffective in high temperatures (37°C+), or were available only for customers and not staff.

It was common for cooling controls to only be available to members for some of their working day or week, either because these controls were only available in areas of a worksite, or because the 'workplace' encompassed many different environments. For example, one aged care support worker in Queensland said:

> As my job takes me into people's houses the level of cooling controls is extremely variable. I would say portable fans are the most common and air-conditioners the least. Some clients do have air-conditioning but will not use it.

This worker was not alone in noting that some clients were unwilling to use air-conditioning, usually because of the cost of running it. As the Victorian Council of Social Services note in their recent report 'Feeling the Heat', low-income households 'are more vulnerable to energy costs and spend up to five times more of their disposable income on electricity' and some households 'will limit their use of air-conditioning to avoid high energy bills, while others cannot afford an air-conditioner at all'[21] (VCOSS 2021, p 9). The problem of lack of air-conditioning, fans, and overall ventilation was raised by many home care workers in the UWU's own survey of them earlier this year, inquiring into issues around uniforms and heat.

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[21] Victorian Council of Social Services (2021) *Feeling the Heat Report,* May 2021, p 9. https://vcoss.org.au/wp-content/uploads/2021/06/Feeling-the-Heat.pdf

Impacts of heat on UWU members

Despite the wide range of jobs and locations members were based in, and high levels of access to cooling in some industries, most workers were somewhat or greatly impacted by heat on hot days (90.7%). On hot days, 58% of the 775 members who responded said heat affected them 'quite a bit' or 'very much'. This was also the case for most of the members who were interviewed.

Less than 10% of workers surveyed reported that they were never or rarely affected by the heat on hot days. Of this group, 28% only worked indoors, and 44% worked outdoors less than 20% of the time. Positively, 63% of this group said they worked in an environment which was 'well ventilated' or 'very well ventilated'.

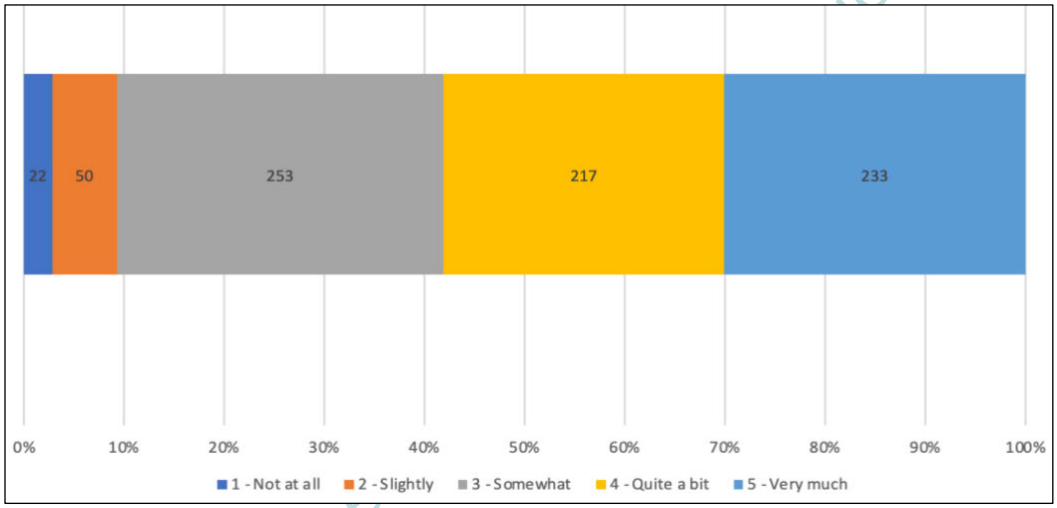


FIGURE 1: Effect of heat on workers on hot days

In the twelve-month period prior to the survey, 20.2% of the 772 members who responded were unable to work at some point due to high heat. This included either through having work cancelled, a work stoppage, or sick leave.

When exposed to heat at work, many members regularly experience fatigue, headache, nausea, thirst, excessive sweating and dehydration, all common symptoms of heat stress. Some workers also described how they sometimes 'stopped sweating' or lost their appetites, common symptoms of heat-related illness (see Table 13).[22]

They also report having slower reaction times, feeling irritable or angry and finding it harder to concentrate. These cognitive impacts are consistent with research which finds that high heat

[22] https://www.health.nsw.gov.au/environment/factsheets/pages/heat-related-illness.aspx

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conditions are linked with reduced mental capacity of workers[23]. In interviews and surveys, members described how high heat environments at work provoked feelings of irritability, increased stress levels, and — as one person put it — led to 'mental health deterioration over time'.

In interviews, members variously described working in the high heat as feeling 'out of it' and 'like a zombie', like having 'a really severe hangover', being a machine operating on 'remote control', and being 'zonked the hell out'.

TABLE 13: Symptoms from exposure to high heat at work

	Number	Percentage (of total respondents)
Nausea and/or dizziness	294	36.8
Headache	475	59.5
Sickness	134	16.8
Poor concentration	400	50.1
Slower reaction time	305	38.2
Irritability and/or anger	341	42.7
Tiredness and/or fatigue	619	77.6
Other (dehydration or thirst)	6	0.8
Other (effects from sun)	3	0.4
Other (cognitive impacts)	5	0.6
Other (sweating)	13	1.6
Other (other)	13	1.6

In interviews, some home care workers noted that they have an ageing workforce, including many menopausal women who are increasingly susceptible to the heat. One worker said:

> I know that some women ... really can't cope in the heat because of menopausal symptoms [...] Older, older people. You don't, you don't sweat when you get older. So you know, that actually means that you're more, you know, you don't sweat as much. [...]

[23] S Rowlinson, A Y Jia, B Li B and C C Ju (2014) Management of climatic heat stress risk in construction: A review of practices, methodologies, and future research. *Accident Analysis and Prevention*, vol 66, pp 187-198.

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> And a lot of people or as they get older, their kidneys don't function as well. [...] I've actually got kidney problems, too ... I have read that if you've got kidney issues, you're more vulnerable to heat stress as well.
>
> ...with the hot flashes, you nearly pass out with that, with our hot uniform on top that doesn't breathe.

In the UWU's own survey of 487 home care workers about uniforms and heat, workers detailed significant issues to do with the suitability of uniforms and managing high heat. These issues related to the materials used, their design, and breathability. Many members drew links to issues of workloads, timing of the work over the day, lack of breaks, and the short travel times allowed between clients which limited recovery. When asked to rate the appropriateness of their uniform on a hot day, 64.4% rated it 1 (the worst rating), 18.7% rated it 2, 11.3 % rated it 3 (neutral), 3.7% rated it 4 and 1.9% rated it 5 (the best rating). On hot days about a third of workers said they wore their own clothes, a third of workers said they did not, and a third said they were not permitted to do this. Only around 50% of members were aware they had the right to cease work on paid time if there is a serious and imminent risk to their safety.

Productivity demands impacting heat management were a problem across many industries. In the workplace, high heat conditions often produce a vicious cycle: as workers are forced to mitigate the adverse impacts of the heat, it becomes increasingly difficult for them to 'keep up', particularly if no one is acting on the workload pressures they face. One manufacturing worker in NSW summarised this predicament:

> Essentially, it's quite terrible. You use way more water, you drink way more water, so you're forced off the line, which puts pressure on you to work harder, which makes you sweat more and then tires you out. Essentially, it's just an all-round lose situation because you're hot, overheated, stressed and incredibly sweaty.

Due to the cumulative effects of heat, many workers suffer particularly towards the end of their shift, travelling to and from work, at home after they get home from work, or in the latter half of a high-intensity work week. Some of workers described in interviews how the heat 'catches up' with them:

> I have come in from some on-calls where I've done over 102 hours in a week, dry retching and throwing up, just from all the heat exhaustion and just doing 16 hour shifts 7 days a week … you even feel it after those hot days have gone, for a couple of days, like if you've had a seven-day week stint (Utility worker, South Australia).
>
> ... there will be days where you work all day in the hot weather, and you actually get home, have a shower, and you feel alright, and then about you know, eight o'clock, nine o'clock at night you just get a thumping headache. You know and that's just ... what you've done has finally caught up with you (Utility worker, South Australia).

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> If you go home after a long day, you just kind of want to stare at the ground for ten, fifteen minutes, until you, I don't know, become alive again (Manufacturing worker, New South Wales).

Caring for others

Many UWU members are employed in jobs where they are directly responsible for the care, health, and safety of others and are concerned about how high heat affects them. One homecare worker described her concerns in this way:

> ... we do actually worry about our clients in the heat. I know I said that before, but we do because you're more likely to have somebody end up in hospital because of heat stress. With older you know, vulnerable people, older people that we're trying to look after ourselves, but we try to look after people and so it is actually emotionally stressful as well.

Teachers noted that high heat can lead to increased behavioural incidents, vomiting, stress and anger among students. Homecare and healthcare workers witnessed patients suffering heat stress and exhaustion. An administration officer working in a non-air-conditioned environment was concerned that visitors were uncomfortable and overheated while having to wait at reception.

Serious incidents

Nearly 20% of survey respondents were aware of serious incidents relating to the heat, involving either them or their coworkers. These incidents involved:

- Being forced to work in extreme temperatures (40-48°C heat) without relief.
- Workers and those in their care (including students) suffering seizures.
- Behavioural incidents in schools.
- Workers suffering from heat exhaustion, stroke, stress, and illness.
- Workers and students vomiting.
- Workers collapsing and passing out.
- Workers going home sick, stopping work, and going home.
- Hospitalisations of workers and patients.
- Fatalities of coworkers and patients.

Survey respondents and interviewees also described serious workplace incidents. One worker recalled a particularly difficult week, working outdoors on roads around 48°C temperatures. The bitumen was sticking to his boots, and he said it ‘took days to recover’.

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Responding to heat stress

Preventing and responding to heat stress in the workplace is a challenge for many members. Members' ability to effectively manage the impact of heat stress is related to: their access to basic cooling measures, such as water, ice and PPE; their relative control over their working environment, including their ability to move to access cooling controls, 'pace' themselves and slow down, and rearrange or reschedule tasks; and the existence of heat management policies or procedures at work.

All interviewees took individual measures to cool themselves down to protect their health and safety in high heat conditions. These included drinking more water and making use of PPE such as hats, sunscreen, and ice vests. Although some employers provided cold water, ice blocks and PPE, many did not, and the workers interviewed often brought their own supplies to work.

TABLE 14: Employer provided items to help manage heat (select all relevant)

	Number	Percentage (of total respondents)
Water	316	39.6%
Drinking fountains	267	33.5%
Sunscreen	243	30.5%
Ice blocks / ice creams	125	15.7%
Special drinks (like those with electrolytes)	111	13.9%
Portable fans or evaporation units	81	10.2%
Clothing	51	6.4%
Cooling vests	28	3.5%
Other (air conditioning or fans)	7	0.9%
Other (neck ties)	3	0.4%
Other (shade or shelter)	3	0.4%
Other (multiple)	1	0.1%
Other (other)	13	1.6%
None selected	249	31.2%

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The most common items supplied by employers on hot days were water and sunscreen (see Table 14, above). Smaller numbers of members had ice blocks, special drinks, fans, and PPE provided to them. However, as discussed in the section on the impacts of COVID-19 later in this report, the use of new forms of PPE has also exacerbated the impacts of heat for many members.

Heat management in different working environments

On hot days, some workers can move to relatively cooler areas of their workplace, such as a lunchroom, a lower level of a factory, a shaded or sheltered area, or an air-conditioned space — although this has been more limited during the pandemic. For others, making these simple adjustments is not possible, because climate controls are unavailable or inaccessible in their workplace. One homecare worker in NSW, who drives between different clients' houses to support them to take showers and complete domestic tasks, noted:

> Some clients' places — well, they won't put on the air conditioner. So, it can be very hot. Especially when we give showers, we've got steam in the showers [and clients] won't allow us to open up windows — nearly pass out from the steam [when] that's happening, which also robs the oxygen in the room with so much steam … .

In interviews, manufacturing workers talked about how unlikely it was that companies were going to install effective climate controls in factories, as the costs would be too high. One manufacturing worker in Victoria said:

> We all say how hot it is, and we're all in the same situation, it's not as if sort of, 'oh yeah, what can we do about it?' Unless (laughs) they're gonna air condition the factory, and there's no way they're gonna do that, we've really got to just put up with it ... There may be some water if they know one of those stinking hot days are coming. But that just doesn't do much really.

Other common measures for managing in the heat — taking breaks, slowing down or pacing, and rearranging or rescheduling work tasks — were again only available to some workers. One manufacturing worker, working on a production line in a factory in Victoria, said: 'I try to pace myself in a way where (the bosses) can understand that I'm working within my limits, and that I'm not overheating myself'. This worker felt able to pace himself a little, but noted his employer had never 'explicitly' told him or his coworkers to slow down. He said: 'they're just more trying to say 'don't overwork yourself', but at the same time 'don't slack off''.

Workers whose jobs are externally 'paced' — for example by a tight roster in the case of many homecare workers, or by the speed of machines, in the case of manufacturing workers — found it more difficult or even impossible to slow down or take additional breaks. Some said they were unable to leave 'their machines', or to take short breaks without stopping production and creating more work for themselves. As one manufacturing worker in Victoria said:

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> It comes down to the speed of machines. And the sort of … planning. There's no — everything is urgent. Everything has to be done now. 'Come on. We need it done now. We need it done. It's got to be done today.'

Often the inability to take necessary breaks was related to how 'lean' a workforce was, and whether there were enough staff available to relieve people on breaks. In other words, it was not simply or necessarily because of the nature of the work, but because employers in these workplaces had made a choice to reduce the number of workers rostered on at one time. One manufacturing worker in Victoria said that it 'used to be much more easy [to take breaks], but they've cut labour back now. So [it's] far more difficult'. Another manufacturing worker based in NSW said '[people often say] they're fatigued, and that's because [management] did chop the numbers and they're running around'. A third manufacturing worker, in Victoria, agreed:

> They've cut the numbers down on the floor of labour. So people are doing a lot more. So you know, they're all feeling fatigued. That's for sure. Because you know, you have people taking days off. So yeah, it definitely, you know, would be impacting them a lot more, because they're operators and they would be running around pretty much all day, every day … it's just the way, you know, management thinks … save money, cut people. You know, it just doesn't work. Especially with an ageing workforce. Especially.

Policies, procedures, and responses by managers

Almost half of members surveyed were unaware whether there was a policy or procedure for managing heat stress and high heat in their workplace (see Table 15). For members who were aware of a policy and/or procedure in their workplace for managing heat, the most common provisions in those documents were: the ability to take additional rest breaks at a particular temperature, the provision of chilled water, and changes to the structure of work to avoid the hottest part of the day (see Table 16, overleaf). Only a quarter of members were aware of a provision to stop work at a particular temperature in their workplace.

TABLE 15: Policies and/or procedures for managing high heat in place

	Number	**Percentage (of total respondents)**
Yes, there is a policy and/or procedure	197	26.2
No, there is no policy and/or procedure	197	26.2
I'm not sure	357	47.6
Total	751	

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TABLE 16: Awareness of contents of heat policy/procedure (members where a policy/procedure is in place only, select all relevant)

	Number	Percentage (of total respondents)
Additional rest breaks at a particular temperature	83	42.1
Provision of chilled water	77	39.1
Changes to the structure of work to avoid the hottest part of the day	77	39.1
Training in detection, prevention, and treatment of heat stress to all staff including management	58	29.4
Stop work at a particular temperature	48	24.4
Provision of electrolyte drinks	46	23.4
Provision of ice blocks / icy poles	43	21.8
Training in detection, prevention, and treatment of hyperthermia to all staff including management	32	16.2
Provision of access to air-conditioned transport to and from work during heatwaves	29	14.7
Reduction in productivity required	28	14.2
Provision of on-site shower facilities	25	12.7
Cease operation of parts of plant/processing lines that are most exposed to heat when necessary	13	6.6
Regular breaks in air-conditioned area	2	1.0
None selected	31	15.4

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We asked members whether their employer had ever issued them with a warning, advice or information about high heat or heat stress. Over half of the respondents said they had never been issued with such information (53.1%), around a third said they had received this sort of advice (35.8%), and 11.1% were unsure.

In interviews, some manufacturing and utilities workers noted that they had toolbox meetings on very hot days, where managers issued informal verbal warnings about the high heat and encouraged workers to ‘take it easy’. One utilities worker in South Australia reported:

> Yeah, we do get some toolbox meetings. So, conversations. My district leader's really good for that now. So, we get some conversations around heat stress, what we should be doing, shade, sunscreen, all that sort of stuff. And we generally, sort of before summer especially, we'll have some toolbox meetings or conversations around that.

However, what made a difference for many of these workers was whether the informal warnings were accompanied by procedures or policies for hot weather — such as an allowance to take additional breaks — and whether those policies were easily enforceable. One manufacturing worker in Victoria said that although a new heat policy had been signed into their enterprise agreement the year before, it is unclear how it could be practically enforced as there is no clear system for taking additional breaks, there is no temperature gauge in the workplace, and nobody knows where to physically locate the heat policy.

Another manufacturing worker in Victoria outlined similar problems with enforcing verbal guidelines and advice:

> … they just say 'look, just take it easy. Try and relax. It's going to be a hot day'. Well, we know that and, it's like, they can say as much as you want, but it doesn't change the fact that it's going to be a hot day. They don't say, 'oh we can put an extra bloke on' or say we can have an extra break or. Like they've got a lot of stuff in writing saying if it's an extreme day, we'll rotate people, and everyone will get an extra five-minute break each hour. But that's rubbish. It just doesn't happen. You know, they say you can do it, but we just haven't got the manpower to be able to do that …

One utility worker in South Australia had worked in his workplace for nearly 12 years and had 'tried to get a heat policy in every year', as well as for there to be more workers to a crew. 'It always gets fobbed away by management', this worker said.

Taking action

Only a very small proportion of members (2.4% of respondents) had taken industrial or workplace action regarding a heat stress issue. Of this group, 58.8% reported that their action was unsuccessful, and 35.3% reported that their action was successful. For one respondent, their action or dispute was ongoing at the time of the survey. Examples included those outlines in Table 17, overleaf.

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Table 17: Examples of workplace action on heat stress

Member	Action taken	Outcome	Explanation (quotes)
Full-time OHS officer, female, NSW	*Requested that management (who work in air conditioned offices) jump on the line for half an hour a day on very hot/humid days to show solidarity / teamwork in horrible conditions (and to put this in the workplace temperature policy/procedure)*	Unsuccessful	*Answer was a solid "NO".*
Full-time youth engagement officer, female, Northern Territory	*I only spoke with my direct line manager about my concerns regarding the ongoing struggle with fighting the heat … I have also raised many times the fact that our workplaces have no cooling systems and that we are constantly working above 40 degrees heat.*	Unsuccessful	*He took no action. Nothing has been done.*
Full-time forklift operator, male, NSW	*Requesting air-conditioning units in new forklifts*	Unsuccessful	*It's a cost factor that the company will not accept over our well being.*
Full-time construction / maintenance worker, male, South Australia	*Personally refused to work on [a] particular day until safety measures were put in place. Threatened company with escalation to Safework South Australia.*	Successful	
Fixed term full-time wastewater treatment plant operator, male, South Australia	Not described	Unsuccessful	*Manager's response was "what's the difference between a 38 degree day & a 45 degree day". Didn't listen to us workers & made us work 9 hours in the heat, 2 days in a row.*
Fixed term full-time special needs teacher's aide, female, Queensland	Not described	Unsuccessful	*... they said it was legal and if I didn't like it I could leave.*
Casual market research interviewer (face-to-face), female, Victoria	Not described	Successful	*heat procedures were put into workplace policies.*

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COVID-19: Complications for heat stress

The COVID-19 outbreak in Australia resulted in rapid changes to daily life. Workers in many industries quickly adapted to new conditions, including changes to workloads, shift times, uniforms, and access to work sites. These changes were not without their challenges however, including impacts on heat stress and other workplace safety issues.

Over a third of those surveyed (37.5%) reported they had to make changes at work during the pandemic which affected their experience of the heat, while 62.5% said there had been no impact on their experience of the heat.

The negative impacts ranged from milder issues such as heat discomfort from wearing masks, through to significant problems stemming from intensified workloads or wearing full PPE in non-air conditioned spaces. Some changes led to new heat stress issues that had not existed previously. Social distancing and changes to work tasks also led to increased time outside, or needing to perform extra work (like cleaning) in the hottest part of the day. An open-ended question asking members if COVID-19 had impacted work duties was coded for the primary experience that each member raised (see Table 18).

Table 18: Key impact of COVID-19 on work duties

	Number	Percentage (of total respondents)
PPE	201	68%
Time outside	17	5.7%
Extra duties	16	5.4%
Extra hours	11	3.7%
Hotter work location	11	3.7%
Increased intensity	3	1%
Restricted indoor access	3	1%
Work from home	2	0.7%
Cognitive impact	2	0.7%
Other	30	10.1%
Total	296	

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The most common problems with increased heat stress were associated with PPE, including the use of gowns, aprons, gloves, goggles, and face masks, shields, and balaclavas. Members using PPE experienced higher than usual levels of heat, fatigue, sweating, skin rashes, and difficulty breathing. Members described wearing PPE during high heat for an entire shift as 'debilitating' and 'stifling', noting that wearing PPE 'adds to the effects of the heat'. This experience was at times compounded by altered or extended shift times and higher workloads, especially for essential workers like cleaners and healthcare personnel. As one blood collection member in Queensland noted:

> PPE is so hot it makes you feel just horrible and there is no relief from it for the whole shift. Bottled water is given to workers, but breaks are hard to get because staffing is low, and demand is overwhelmingly high.

Members also reported that changes to shift times resulted in outdoor work being completed during the middle of the day rather than in the morning or evening, and an increased amount of higher intensity work (such as the cleaning of outdoor equipment and drinking fountains in educational settings). Some members advised they were not provided with additional time to complete higher workloads, or the ability to take extra breaks to account for the heat effects of working in PPE.

Reduced access to air-conditioned spaces was also raised. This included people directed to work from home who did not have air conditioning or could not afford the expense of running it all day. Restrictions on the number of people allowed in break rooms, due to social distancing regulations, forced members to take their breaks outside or seek other spaces to rest in. A pathology courier in QLD noted that the 'extra time required to adhere to covid protocols [was] not factored into daily routines'. Another health worker who worked in a mobile vehicle stated 'we are now wearing long sleeved gowns, masks, and shields. The air cons in the vans are at least 40 years old, and really don't do the job'. A NT based paramedic made the point that cooling and ventilation can be a problem in the industry, and that PPE can compound problems of heat stress such as:

> Wearing of PPE in patient's poorly ventilated or non-air-conditioned houses. Decontamination of vehicles whilst wearing full PPE including gown, goggles, [and] gloves on top of heavy wearing uniform. Wearing this PPE for long periods of time.

While some members reported increased access to water and other items to assist them, others said there was no access to water, that it was difficult to consume it or take a break, and that access to cooling showers had been stopped.

Cleaners in a range of education, health and other settings described significantly increased workloads and that some tasks had to be done outside in the hottest parts of the day, such as cleaning play equipment. One school cleaner noted that heavy work, like vacuuming, now had to be completed without air conditioning running. Cleaners in meat works found the use of

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heavy PPE, including full coverage and balaclavas in what is a high-risk transmission situation, particularly difficult to cope with. One WA based cleaner noted that:

> ... wearing [a] plastic apron, face mask, eye protection and gloves makes me sweat profusely, causing dehydration, fatigue and headaches. It is impossible to work without a higher risk of causing an injury and [I] cannot perform at an efficient level of competence. Goggles make it hard to see due to fogging up.

This worker was not alone in pointing to other OHS problems created by using PPE, such as sweating under gloves making it difficult to handle equipment and perform tasks. Another worker, who wears glasses, noted masks caused fogging and this could be dangerous while driving machines. Another noted that PPE masks limit peripheral vision, the 'lower scope of vision making moving up and down steps hazardous'. A veterinary nurse pointed out various complications such as:

> Having to consult with the public outdoors instead of indoors, having to bring animals in without owners means more walking, heavy lifting, more time pressures so having to run instead of walk. Ongoing understaffing issues exacerbate all of the above.

Several workers indicated PPE had increased heat stress and caused cognitive problems. A laundry worker in WA reported that:

> Wearing a mask at work, and with the heat and plastic shields put in place to protect us from the 1.5 metre rule, I've experienced fatigue, brain fogginess, and become extremely flustered with the heat, due to little circulation in some areas.

One worker noted that while COVID-19 protocols were initially followed in their workplace, they were not maintained after the first wave was controlled, including during further periods of community transmission. This NSW based manufacturing worker stated:

> Early 2020 shifts were staggered with an introduction of an afternoon shift. However, with recent peaks in cases staggered shifts have not been reintroduced. [The company] has not been following COVID guidelines — specifically no maximum occupancy on rooms, appropriate hygiene procedures not followed with communal soap still being used in bathrooms, materials to clean equipment between use not being [supplied] or time allowed to do [this work], social distancing not being followed correctly, and much more.

Finally, in one upsetting outcome, one health worker reported that 'a patient died from heat stress while having to wait … in their car, due to COVID restrictions'.

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Bushfires: Lack of preparation, lack of action

It is now well established that climate change is driving new and more intense bushfire patterns. A study of the 2019-2020 'Black Summer' bushfire season in Australia, by scientists at the World Weather Attribution Consortium, found that a conservative estimate of the increased risk of an extreme fire season was 30%[24].

During the 2019-2020 bushfire season, severe bushfires affected every state and territory in the country and some members contended with both high heat and smoke. While several unions and workplaces stopped work, this was difficult to do in other locations.

One member, a quality assurance officer and process worker working at a manufacturing site in western Sydney, stated they just 'worked through it'. They were instructed to wear a mask to prevent them breathing in 'sticky smoke', and he described the experience as 'kinda dystopic'. Another member, who works at a factory in southwest Sydney, found breathing difficult as they 'had smoke coming right through the factory'. In southeast Melbourne, manufacturing members brought their own masks to work to try to manage the smoke which had 'covered' their workplace. One commented that their employer provided members with 'a thing to tie over' their noses and mouths which they could dampen with water. However, as there is 'really no insulation [in the] huge shed' where most people worked, 'a lot of people were really struggling'. This member recalled:

> I think we were allowed to open some doors that we were not normally allowed to open. But that really didn't help because the smoke was outside, so it was probably better off keeping them shut.

One member working in care in Wollongong ran her air conditioner to escape the heat but could not escape the smoke in her car. The smoke and the 'stifling heat' compounded. One homecare worker experienced asthma for the first time in 25 years due to the amount of smoke in the air and had to get a prescription for a puffer. Another member called an ambulance to the factory for a colleague who had a severe asthma attack due to the smoke.

Overall, information provided by members indicated insufficient forward planning for the smoke and ash emergency in the 2019-2020 summer, and insufficient evidence based OHS action taken once the crisis began to unfold.

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[24] van Oldenborgh, G J et al (2021) 'Attribution of the Australian bushfire risk to anthropogenic climate change', Natural Hazards and Earth System Sciences, vol 21, pp 941–960. https://doi.org/10.5194/nhess-21-941-2021

Climate change: Growing impacts at work

The CJRC has been investigating climate change related heat impacts on workers in a range of industries over the last few years. While there is growing epidemiological and occupational health research into how climate change related heat stress is impacting workers, less research has been conducted into how workers experiencing these changes articulate and make sense of them.

Do members think climate change is impacting working conditions?

UWU survey participants were asked whether they thought climate change was impacting people's working conditions, and if so how (open-ended question). Approximately 40% of respondents skipped the question or provided a response that was not related. Of those providing a clear response (n=459) 56.2% said climate change was impacting people's working conditions, 33.8% thought it was not, and 10% were unsure (see Table 19).

Table 19: Do you think climate change is impacting people's working conditions?

	Number	**Percentage**
Yes	258	56.2%
No	155	33.8%
Unsure	46	10%
Total	459	

Younger members (under 30) were more likely to say that climate change was impacting people's working conditions, with almost 80% saying this was the case (see Figure 2 and 3, overleaf). This is consistent with social attitudes surveys measuring overall concern about the impacts of climate change, as concern is greatest amongst younger people. For the groups in the 31-70 age brackets, those who felt climate change was impacting people's working conditions were largely in the range of 50-60%.

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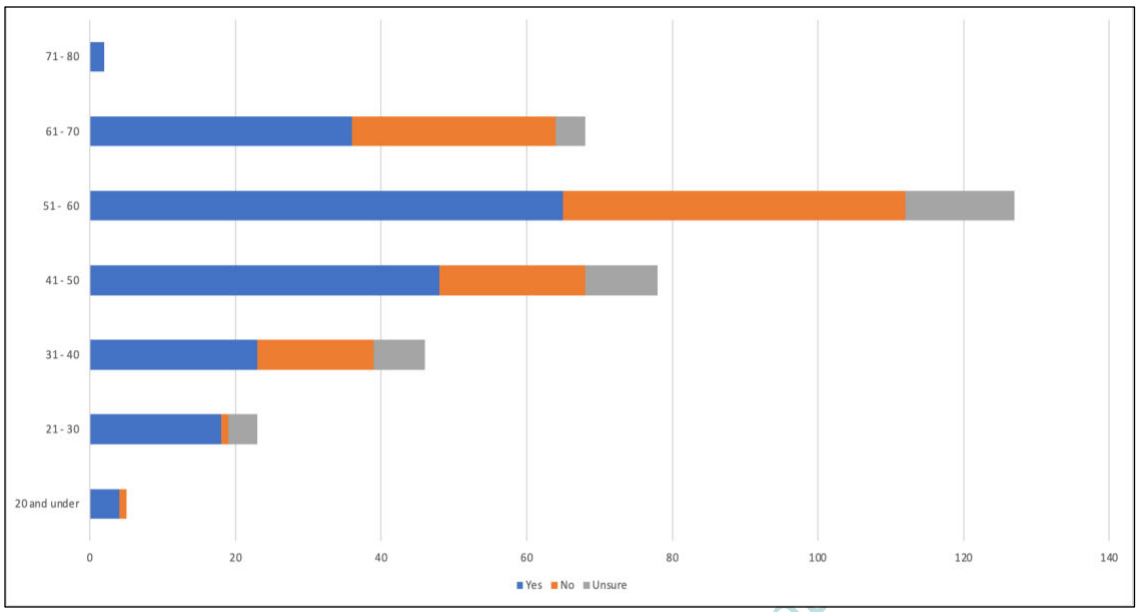


Figure 2: Do you think climate change is impacting people's working conditions? (by age)

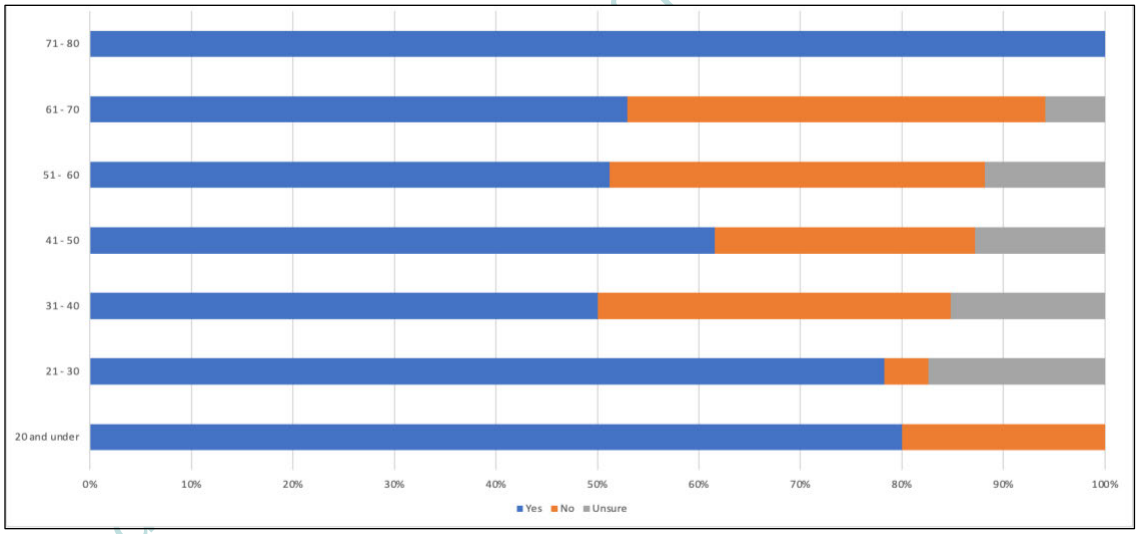


Figure 3: Do you think climate change is impacting people's working conditions? (by proportion of age bracket)

There was no significant difference between the views of women and men on this question (and too few non-binary respondents (n=2) to draw any comparisons). This result is dissimilar to social attitudes surveys measuring overall concern about the impacts of climate change, which tend to show a more widespread or deeper concern amongst women.

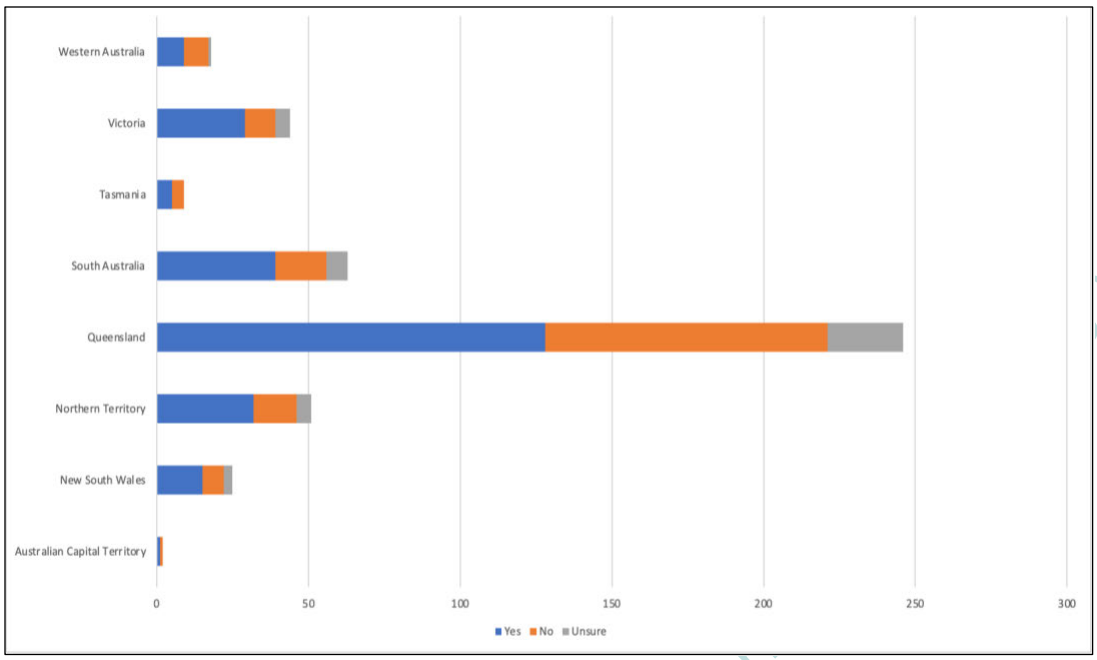


FIGURE 4: Do you think climate change is impacting people's working conditions? (by location)

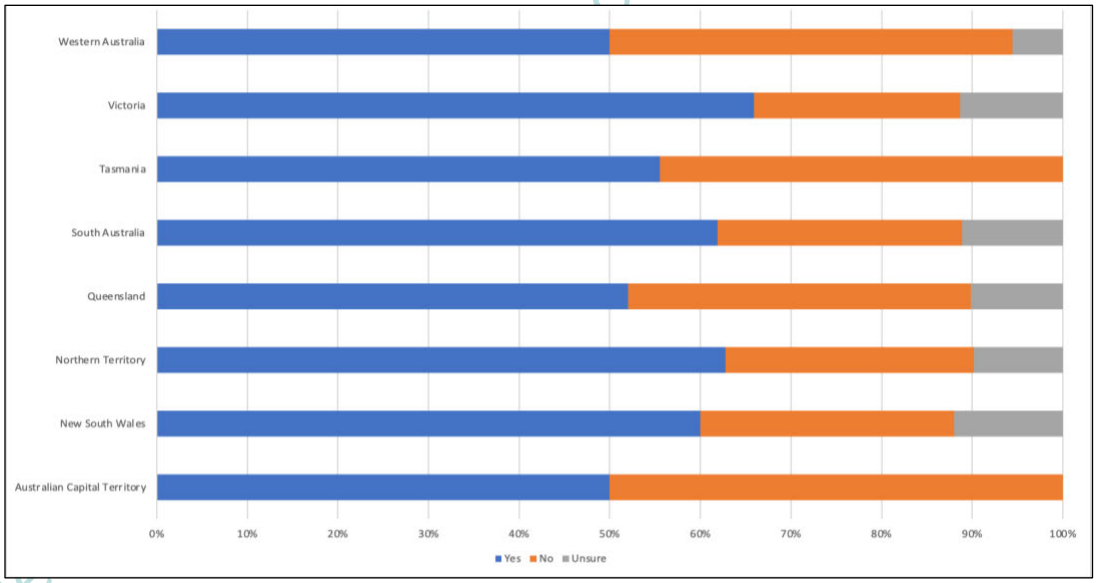


FIGURE 5: Do you think climate change is impacting people's working conditions? (by proportion of location)

In all states and territories 50% or more of the respondents felt climate change was impacting people's working conditions (see Figure 4 and 5 above), although there were differences of up to 15% across the states and territories. Members in Queensland and Western Australia were less likely to say they thought climate change was impacting working conditions. Sentiment was

strongest in Victoria, the Northern Territory and South Australia, where over 60% of members thought climate change was impacting people's working conditions.

Regarding industry, there was notable variation in the views between members (see Figure 6 and Figure 7).

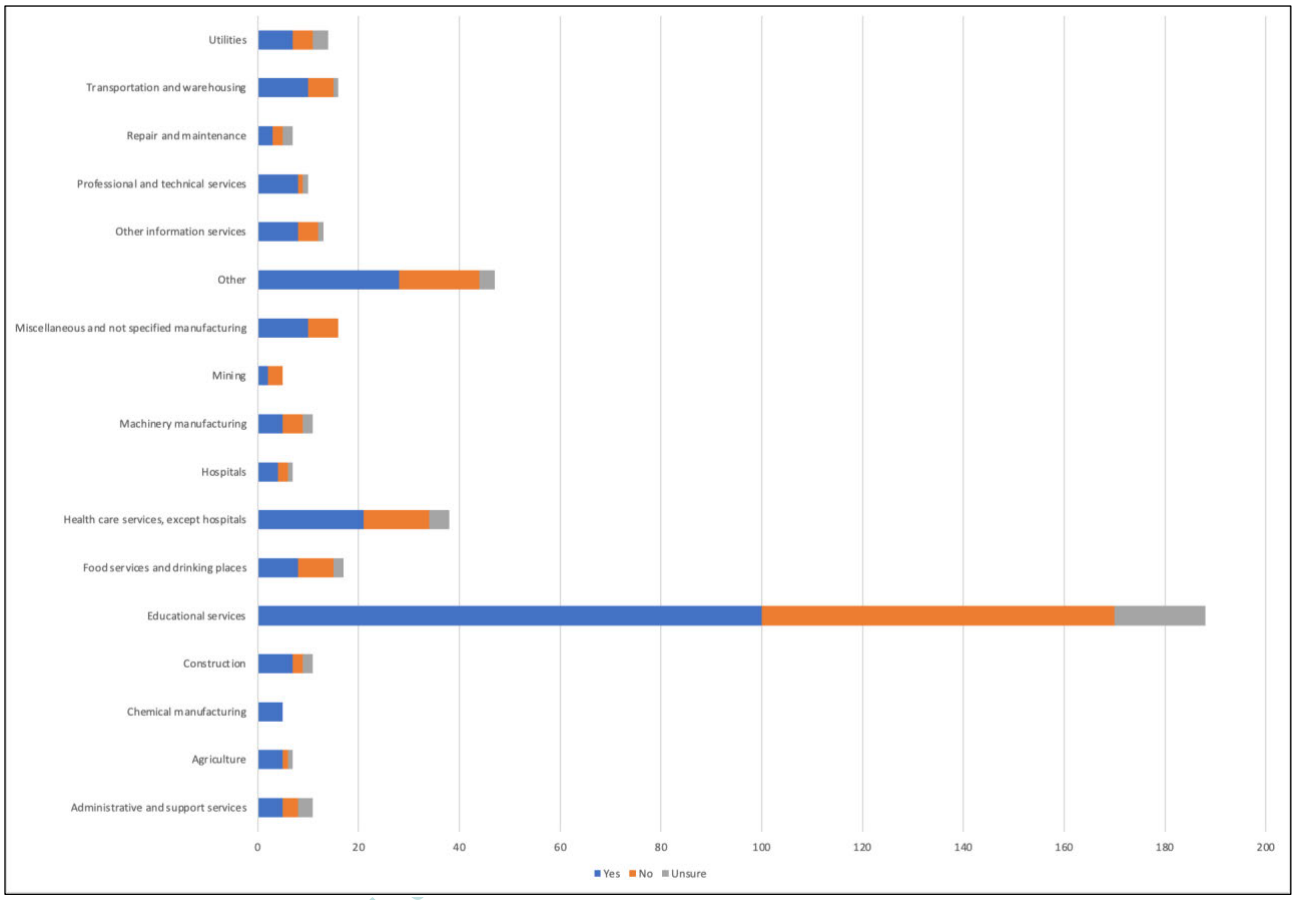


FIGURE 6: Do you think climate change is impacting people's working conditions? (by industry)

Members in chemical manufacturing, professional and technical services, educational services, and agriculture were amongst those more likely than not to say climate change is impacting working conditions. Members in food services and repair and maintenance were amongst those less likely than to say climate change was impacting working conditions. However, given the small sample size for many of the industries this information is indicative only[25].

[25] The industries placed in the 'other' category in Figure 6 and Figure 7 are those with less than five responses (members having to have answered both the industry question and the climate change question to be included). Those industries are: accommodation; armed services; arts, entertainment and recreation; beverage and tobacco products; electrical equipment, appliance manufacturing; finance; food manufacturing; forestry, logging, fishing, hunting and trapping; membership associations and

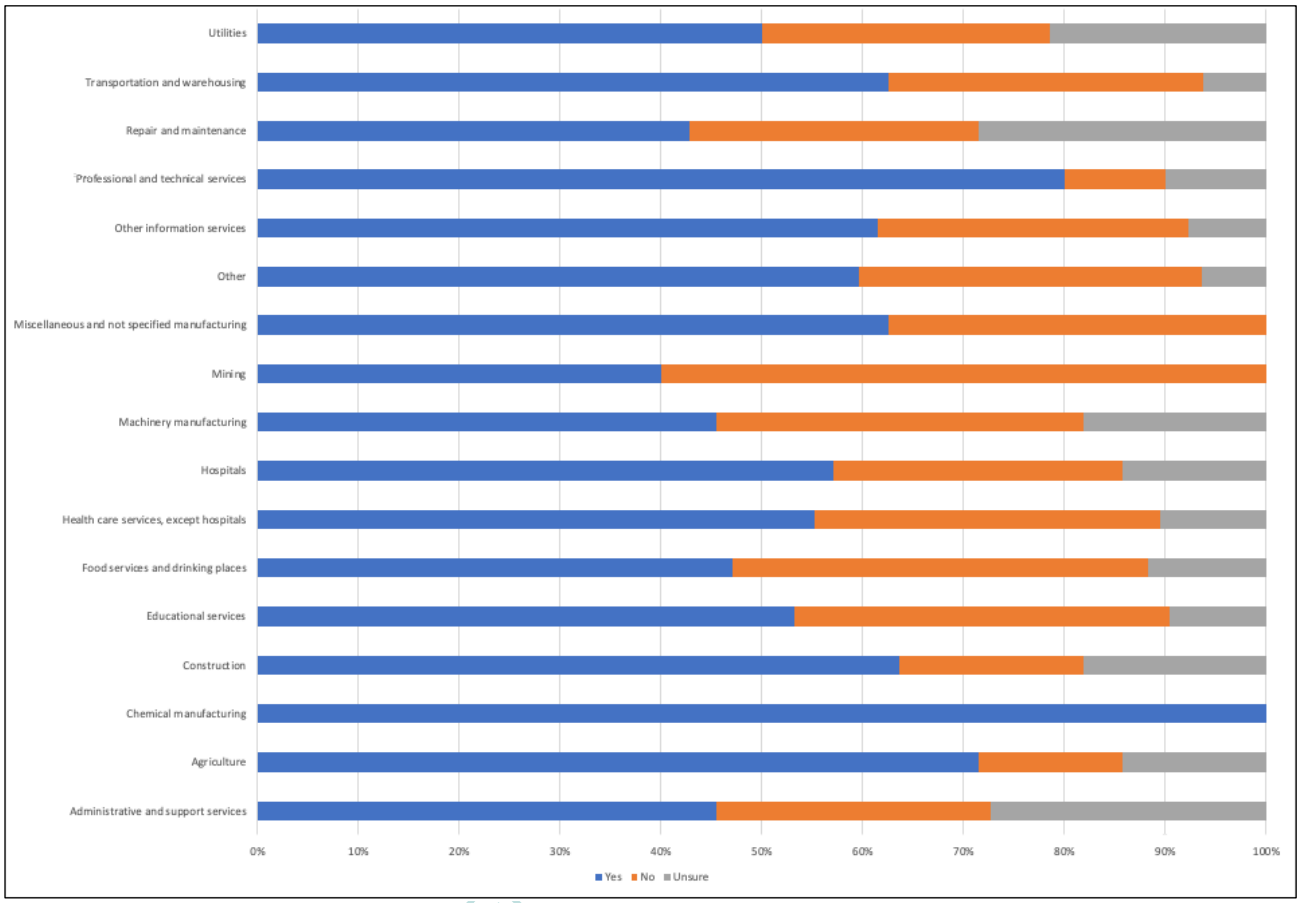


FIGURE 7: Do you think climate change is impacting people's working conditions? (by proportion of industry)

Climate change and work: What did members tell us?

Some members felt that climate change was not impacting working conditions, and most of these members did not elaborate further. Other members explained that they did not believe climate change is occurring or that, even if it is getting hotter, it is not being induced by human activity ('things go in cycles'). Several members simply stated that Australia, or their state or territory, had always been hot. Two members pointed the finger at employers as the primary cause of heat stress, stating they 'seem to be going backwards in the way they treat the

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organisations; personal and laundry services; petroleum and coal products; plastics and rubber products; primary metals and fabricated metal products; public administration; retail trade; social assistance; telecommunications; textile, apparel, and leather manufacturing; waste management; and, wholesale trade.

common working man' or that management was being 'tight' in supplying the right PPE and suitable equipment.

Some members felt unsure what to believe about climate change. This group of members said that they had not done enough research to know, that they had not thought about it previously, or that they 'really [didn't] know enough to have a valid opinion'. Others agreed it was getting hotter for them at work, but they were unsure whether this was related to climate change or because they were getting older.

Members who thought climate change is impacting working conditions gave more detailed responses in this question, compared to both those who said it is not impacting or those who were unsure.

Many members said climate change was altering weather patterns and causing or contributing to hotter weather, more humid conditions, heat waves, and a variety of weather events including natural disasters. They described the hotter weather as 'harsher', 'more extreme', 'aggressive' and 'biting'. Members described a range of consequences for working conditions, including: greater difficulty working outside or doing physical labour; decreased productivity; insufficient procedures to adapt to changes; it being hotter indoors; buildings that once could be cooled by open windows now needing air conditioning; and air conditioning no longer coping with heat waves or increased humidity. In short, as one member put it, 'workplaces are not keeping up with changes to the environment'.

'Weather patterns are changing, and global warming is affecting how and what we do', stated a ranger from WA Parks and Wildlife. A member working in SA as a maintenance worker told us that:

> The days are longer and are a lot hotter than they were previously and also with the random rainfall in the summer months in Australia makes you question what is really happening with the climate.

A few respondents drew a link between climate change and bushfires, as well as floods and drought. A significant number of respondents talked about 'extreme weather', including drawing links with climate change. A teacher's aide in an agricultural region of Queensland stated that climate change was not only leading to hotter and drier weather, but there was the 'flow on of drought'. Some members also drew links between climate change and increased pollution, impacts on the ozone layer, deforestation, and bushfires. A manufacturing worker from Victoria put it like this:

> Like … we have discussions at work about climate change. You got guys saying, you know, 'we've had bushfires as long as I've been here', but definitely not to the extent that we've been having the last, you know, decade or so. They've definitely become a lot more frequent. So, yes, definitely. Definitely gotten worse, for sure. And you see the temperatures in the sea levels, you know, the sea constantly rising where people say, 'nah climate, just a load of crap'. It's just delusional.

Many members working in schools, as teaching aides and assistant roles, said they were worried about the impacts of climate heat in their workplaces now and into the future. They reported that in high heat it is hard for staff to keep students focused on their work, that pupils are increasingly irritable, that behavioural incidents increase, and that this adds to the stress

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staff are under. Many members working in schools mentioned broken or non-existent air conditioning in classrooms. As one Queensland educator said:

> I think [climate change] is [impacting on working conditions]. Living on a remote island, where we only have 2 seasons, wet and dry. In the dry season, it gets really hot, and it is not good especially for children and teachers working in classrooms with air conditioning not working. Everyone gets moody and restless because of the heat, and it affects learning and listening.

Similarly, on the issue of how climate-related changes at work were causing increased stress, an aged care support worker in Queensland said:

> Yes [I do think climate change is impacting working conditions]. Rising heat makes it harder to work. In aged care it creates more stress on both the worker and the client. The 2019/2020 bushfires affected some of the areas and clients I work with. For me this created uncertainty and fear. When I asked my supervisor what would happen if I got stuck somewhere due to a fire, she was unable to answer beyond saying that we should take any clients we were visiting with us.

A homecare worker from Western Australia made a very similar point in an interview, and described a meeting where she raised questions about planning for the care of their clients should there be an emergency. She argued that one lesson from the COVID-19 pandemic is that the future impacts from climate change require immediate action and planning, to protect workers and clients:

> ... team leader [asked] 'has anybody else got any questions?' … I said, 'well, what happens if, for some reason, we can't get out to visit our clients, you know they're stuck at home, and we can't get out?' … then we had the pandemic. So, it actually came true and there was no plan, because they all laughed and said 'no, that would never happen'. But climate change is something that I think they should be planning for. … how are we going to look after people in their homes if we can't even leave our own homes because it's too hot?

Teacher's aides based in Queensland reported that changed weather patterns and increasingly hot summers had resulted in: a school running out of tank water; conditions where it is far too hot to let students play outside; and more frequent cyclones and intense weather events where they are required to work through heavy rain and wind events. Several members felt that staff should be allowed to have indoor playground duty to protect themselves from the heat, as well to ensure adequate sun and melanoma protection for both staff and students. One member explained how climate change is creating a cocktail of problems in their workplace:

> [In Far North Queensland] floods, fires, and high heat directly affect the working environment for both students and staff. On more than one occasion, a student has fainted or I have been too sick to continue working, or I have called in sick because of heat sickness from the previous day.

Older members were also able to reflect on the impact of climate change over their lives and careers:

> There have been examples of extreme heat here in the tropics in recent years, that I do not recall in my lifetime before, [in] 55 years. I have lived most of my life in Queensland,

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> so I am aware of our climate. Extreme heat is extremely dangerous to outdoor workers. This unfortunately seems to be overlooked by climate change deniers or perhaps they exist only in air conditioning. I recall my husband who was a cabinetmaker in this climate in recent years having to change clothes 3 times in a day as each set became soaked with sweat. He worked in a tin warehouse with floor fans he had to buy for himself.

A firefighter in the NT also drew attention to the cost impacts of higher temperatures on the industry:

> It is accepted that climate change is going to impact firefighting into the future and that there will be a cost associated with these changes. We may need to increase our manning to allow for reduced exposure to heat at incidents. i.e. we often do multiple durations in breathing apparatus. We may need more firefighters so that we only do one duration instead.

This is consistent with what workers and officials in emergency services have told us in previous research. There is a growing question of resourcing as state budgets for firefighters and fire stations are cut back or do not increase with population growth.

Several respondents said they were 'lucky' or relieved that the most recent 2020/2021 summer had been slightly cooler, but they knew hotter summers would return. One woman working in manufacturing in NSW told us:

> I think we've got some horrendous summers to cope with in the future … I'm concerned about it for sure. It seems to be [connected to climate change]. I'm 100% convinced. I can remember, I think it was only three years ago or something, and we had something like 46 degrees, like five days in a row. I've never experienced that in my life. I'm 51. So, I think it is getting worse.

Of course, many members were able to draw on their experience over several decades, and across different industries, in telling us about the impacts of climate change on working conditions. One utility member in his forties, working in South Australia, described his experiences like this:

> I've worked in shearing sheds with no air conditioning, and stuff like that. Now I remember working 44-degree days back then, and 44-degree days now, and I've had this conversation with the [UWU] organiser, if you're working on a bitumen road, and you're standing right next to that road, the heat there is something 56 or 60 degrees … I can tell you now when you're down in that hole, in a bitumen road, especially in the city around concrete areas, even out in the country, there's real heat. And they just get hotter and hotter every summer. And I know this will sound funny, cos my dad doesn't believe in climate change, he's one of those old school farmers who is like 'nup, no, it's not happening', but 100%. The sun seems to have a real harsher heat to it, even on 30-degree days, it really does seem a lot hotter, so there's no doubt in my mind that climate change is happening.

Some members were critical of employers' failure to improve working conditions as it was not profitable. A member working in health care said that the impacts of climate change might be

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mitigated by changing shift times to cooler parts of the day, but that 'no one wants to pay the penalty rates'. Another member, working in warehousing in South Australia, said:

> Companies will put solar on roofs to power robots then put in air conditioning to keep the robots cool. So there is an effort to help climate change which is positive, but not to improve working conditions. Stock and money matter, not people.

One young process worker in manufacturing in NSW was particularly despairing about the future considering climate change, and stated in an interview:

> I've only been on this earth for like 23 years and … you see all the pollution coming out of these factories and I don't think that could be very good for a glowing green planet. … I would say that, yeah, climate change is sort of ruining this earth and we're left to die I suppose.

Throughout the survey and in interviews, members noted other factors at play impacting heat stress, including: higher workloads; staff shortages resulting in increased pace of work and longer hours; the impact of COVID-19 and PPE; and, the fact they were getting older, or had declining physical fitness. While many respondents indicated heat stress is a critical health and safety issue for them or in their workplace, not all drew the link to climate change.

There also appears to be a small number of members who do not view the issue of climate change as 'union business'. While it did not come up in the survey or interviews, on the UWU Facebook page when the first Climate Action Group Meeting was announced (in May 2020) some members commented that the initiative was not an appropriate use of union resources or not something the union should be focusing on. For these members, initiatives like the Extreme Weather at Work training have the potential to demonstrate why unions need to be involved in organising and campaigning on the issue of climate change.

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UWU climate initiatives

The UWU has taken a public and proactive approach to climate action, including by investigating the impacts of climate change for members and involving members in action on this issue. In addition to national policy initiatives seeking greater government action on climate change and general member education, the union has several key workplace initiatives.

Extreme Weather at Work training

In winter 2020 the union began running a new OHS training workshop, Extreme Weather at Work. The workshop involves members in discussions about the current and potential impacts of climate change for workers, current regulatory frameworks to manage the OHS problems, workers' rights, and employer responsibilities. The training aims to provide the following outcomes for members:

- Understand and feel confident articulating that employers are responsible for controlling all known workplace risks to workers health and safety, including any stemming from extreme weather and climate change.
- Feel confident they can cease work, on paid time, whenever there is a serious and imminent risk to health and safety.
- Be able to identify and recognise the impacts of extreme weather and climate change on workers and workplaces.
- Begin to identify actions they can take in their industry and workplaces around extreme weather and climate change.

Climate Action Group

In May 2020 the union held its first Climate Action Group meeting. Any member can join this group, and initial meetings, involving hundreds of members, set initial priorities for the union's climate work as follows:

- Establishing Occupation Health & Safety training around extreme weather at work.
- Working with other unions and non-profit organisations to build cross-movement solidarity and collaborate around climate justice and just transitions.
- Hold regular meetings and create online spaces through which UWU members can communicate and work together to build or work toward climate justice.

This group was reinvigorated in the aftermath of the 2019-2020 bushfires, which for many members brought home the realities of climate change driven weather changes.

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Social movement, civil society, and academic engagement

The union has taken a variety of other actions including backing initiatives for a just transition, forming alliances with student climate strikers, and supporting new climate leaders in the union. The union has also partnered with the Hunter Jobs Alliance, the University of Sydney's 'A Real Deal' initiative, and our UTS Too Hot to Work initiative.

Climate Disaster Relief Fund

In the aftermath of the Black Summer fires the union also established a sizable Climate Disaster Relief Fund, which provides financial and legal support to members directly impacted by the fires and those who will be impacted by future climate disasters, as well as members who volunteered with an emergency service organisation during the bushfire crisis.

Cooperative Power

Alongside other unions and community organisations, the UWU has established Cooperative Power. The non-profit cooperative provides environmentally friendly electricity at affordable rates, using any surplus to fund projects related to its environmental and social initiatives.

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Further research

This project has sought to better understand the experience UWU members have of high heat in the workplace, and whether members see this as connected to climate change. Members also spoke to us about other climate change driven extreme weather impacts, most particularly the impact of the 2019-2020 bushfires. Many members registered their concern that their working conditions could worsen if employers were not forced to introduce better health and safety protections, and if climate change is not abated.

Beyond this study there is a pressing need for a national study into the impacts of climate change — current and emerging — across the Australian workforce. Such a study should provide greater clarity on workers' attitudes to climate change, its connection with their working conditions, and their views on what should be done to address it. Such research could inform wider union activity on this pressing OHS issue, as well as union leadership on dealing with the climate crisis more broadly.

In this and our previous projects, workers have told us that climate change is already a live discussion at work. This is particularly the case during events like the bushfires or on high heat days. Future research could explore how workers are experiencing climate-related impacts in the workplace, and how stakeholders including unions could successfully organise in relation to both health and safety dimensions of heat and the causes of climate change itself. In this vein, the United Workers Union (UWU) might consider an evaluation project to assess the results from the Extreme Weather at Work training, and whether it can be enhanced based on the information provided by members during this project.

Encouragingly there is indicative evidence from this and our other projects that some members want to take greater action on the impacts of climate change in their workplaces.

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'Zonked the hell out': Climate change and heat stress at work

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Abstract
Climate change is most directly felt by people who cannot escape its impacts, including workers whose source of livelihood may put them directly at risk from high heat. Research on these impacts for Australian workers, especially the sociopolitical determinants of effective workplace heat management, remains limited. This article presents findings from a national research project that investigated these issues in collaboration with the Australia-based United Workers Union. It reports on the experiences of members exposed to high heat, explores how they address heat stress and how they relate this to climate change. The article expands understanding of the impacts of workplace heat, especially for indoor workers and those in lower paid jobs, through a focus on how workers articulate their experiences and understand and exercise their agency at work.

JEL codes: Q54, J28

Keywords
Climate change, heat stress, unions, workplace health and safety

Introduction

Human-induced climate change is driving higher average temperatures, more hot days, longer heatwaves and more frequent and intense bushfires (Intergovernmental Panel on Climate Change (IPCC), 2021: 11). It is also responsible for increasing fatalities and accounted for one-third of all heat-related deaths worldwide between 1991 and 2018 (Vicedo-Cabrera et al., 2021: 492–500). Almost half of the global population is now

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exposed to high heat episodes, including more than 1 billion workers (Ebi et al., 2021: 698–708).

Although a growing area of research internationally, studies of high heat impacts on labour focused on Australian workers, and in particular indoor workers, are limited (see however Carter et al., 2020; Hansen et al., 2018; Newman and Humphrys, 2020; Oppermann et al., 2018; Singh et al., 2015; Williams et al., 2020; Xiang et al., 2016). Research examining the 'social, economic, environmental and technical aspects' of the impacts of climate change on labour also needs to be prioritised (Lundgren et al., 2013). There is a pressing need to develop a detailed picture of the impacts and complexities of heat-related occupational hazards in Australia, including an appreciation of how these have differential impacts across the workforce and are related to issues of inequality.

To this end, we conducted interviews and a national survey involving members of the United Workers Union (UWU), who work in a diverse range of indoor and outdoor jobs across approximately 45 industries. The project explored these workers' experiences of high heat at work, what actions they had taken to manage it and their views on whether climate change was impacting working conditions more generally. In this article, we report on the project findings and highlight the sociopolitical complexities in planning for current and future impacts of global warming. We also consider the policy implications from our findings, and potential future research.

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High heat at work

Higher global temperatures induced by climate change have been identified as a major threat to safe and decent working conditions, with workers increasingly compromised during the hottest months of the year. This is 'particularly significant for the Australian workforce because of the prolonged warm-to-hot summers, and the increasing frequency of heatwaves' (Williams et al., 2020: 68). Projections place most of Australia's land mass in the moderate to high risk category for occupational heat stress, and some parts of the north-west of the country at extreme risk (Hyatt et al., 2010). Recent studies have underscored that heat stress is impacting a significant and diverse group of the working population. Interestingly, a survey of Australian labour force participants found that outdoor workers, and those in physically demanding jobs, were no more likely to be 'often' or 'sometimes' stressed than those working in 'non-vulnerable' roles (Zander et al., 2018).

'Heat stress' refers to heat received in excess of the level that a person can tolerate, where 'the body's internal regulation mechanisms are no longer capable of maintaining body temperature at a level required for normal functioning' (International Labour Organization (ILO), 2019: 17). Several factors can moderate the risks of heat stress faced by an individual worker. These include humidity; exertion and the nature of work being carried out; the working environment; ability to self-pace, slow or stop work; and access to training, heat management procedures and other protective measures.

Health and safety consequences of workplace heat are also differentiated among workers. Older workers and those with certain health conditions can struggle in hotter weather. Problems can be greater for those on less secure employment contracts, temporary workers, piece workers, on-demand workers and migrant workers, who may have greater difficulty in taking measures to address problems (Underhill and Rimmer, 2015).

While climate heat disrupts all work and presents new challenges to health and safety generally, it does this while exacerbating precariousness and extending individual risk (Newman and Humphrys, 2020).

While heat waves and extreme temperatures are particularly challenging, heat also impacts workers at moderate temperatures – especially those doing physical labour or experiencing heat associated with higher levels of humidity (ILO, 2019). A 2019 study of work-related injury and illness in Adelaide found that 'moderate temperature ranges had the greatest burden [in terms of claims] yet the greatest risk was observed at extreme temperatures' (Varghese et al., 2019a). Symptoms may include rashes, dehydration, nausea, fatigue, irritability, stress, reduced concentration and slower reaction times; and more serious consequences may include miscarriage, heatstroke, heart failure, organ failure and death (Ebi et al., 2021). High heat conditions also have cognitive impacts, reducing mental capacity (Rowlinson et al., 2014). They increase the likelihood of more accidents and injuries at work (Varghese et al., 2019b). A study of South Australian workers' compensation claims found that there was a significantly increased risk of heat illness above 35.5°C, and that during heatwave periods the risk of occupational heat illness was about four to seven times higher than that of non-heatwave periods (Xiang et al., 2015; see also Park et al., 2021).

Heatwaves have a strong cumulative effect and can impact working conditions indirectly, putting pressure on an individual's health outside of work hours. High heat can impact sleep quality, the effects of which compound over several days, making it harder to work safely. Similarly, working in extreme heat can make driving to and from work more dangerous (Basagaña et al., 2015). In the hottest and most humid parts of the country, some workers are unlikely to fully recover from workplace heat exposure on a daily basis, as 'the impact of the work shift extends into their personal lives, affecting them physically and mentally' (Carter et al., 2020: 7).

A recent study compared how workers manage their exposure to high heat in workplaces to the suggestions made by health and safety representatives and other relevant professionals, such as occupational hygienists (Williams et al., 2020). The study identified common priority issues across these groups for better managing high heat. These included supporting workers to take basic protective measures, personal protective equipment (PPE) policies, work planning for hot weather, and management education and support (Williams et al., 2020: 75–77). Yet, a review of policies and guidelines in Australia found that high-level frameworks across state, territory and Commonwealth jurisdictions do not cover the hazards of hot weather explicitly – rather, management of the problem is covered more generally by duty of care and workplace health and safety (WHS) provisions (McInnes et al., 2017: 338). The authors identified significant problems in available educational materials – including the range and accessibility for workers whose first language is not English, as well as the consistency of information across jurisdictions (McInnes et al., 2017: 338). Furthermore, there is 'no requirement to provide a written hot weather plan or to ensure it is understood or available to workers [and only] two regulators recommend employers have a heat illness emergency response plan', and only one state policy 'advises employers to monitor weather forecasts' (McInnes et al., 2017: 338). More research is needed to identify how hot weather is being managed in workplaces, as well as the difficulties in implementing adequate risk management strategies (McInnes et al., 2017: 338).

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Methodology

The United Workers Union is one of the largest blue-collar unions in Australia, with approximately 150,000 members across 45 industries. Many UWU members work in heat-exposed environments, in both indoor and outdoor settings.

Previous workplace heat stress studies, including our own, have shown the value of gathering both general information about the prevalence of heat stress among working populations, as well as gathering industry, job and site-specific data through smaller case studies. While many exposed workers will share common heat stress symptoms, the factors contributing to their exposure can differ considerably. As such, a mixed methodology was chosen to develop a fuller picture of how this union's members are experiencing and managing high heat.

Our study involved interviews with workers in selected industries to gain an understanding of the specific issues on the ground and to help inform a national survey of UWU's Allied division. Industries covered by the Allied division include cleaning, agriculture, utilities, construction, food and hospitality, security and prisons, manufacturing, and transport and warehousing. The interviews and survey explored the workplace environment, the impacts of high heat, how workers and employers respond to high heat and participants' views on the relationship of climate change to work. In addition, the research team observed the union's 'Extreme Weather at Work' occupational health and safety (OHS) training and was given access to anonymised data from a UWU-initiated survey of homecare workers about uniforms.

Semi-structured telephone interviews were conducted with 16 key informants between September 2020 and March 2021. These individuals were UWU members working in different industries and locations: manufacturing (New South Wales and Victoria), water utilities (South Australia), homecare (Western Australia and New South Wales) and early child education and care (ECEC) (Northern Territory). This group was deliberately diverse; different states and industries were chosen as 'mini-case studies', drawing out common and differentiated issues and strategies among the union's membership. Interviewees were aged between 23 and 63, with an average age of 49. Participants were 10 men, 5 women and 1 non-binary person. Interviewees were recruited via UWU staff, who provided contact details to the research team if a member advised they would like to participate. Interviewees were given an information sheet, an opportunity to ask questions and signed a consent form. Interviews were transcribed and coded in NVivo qualitative text coding software to identify themes.

A national survey of members ($n = 798$) was undertaken over 16 days in February 2021. Using the Survey Monkey platform, it was distributed to workers who subscribe to the main UWU membership email list and are assigned to the Allied division. The response rate was 4.5%. There were 35 questions, including six open-ended questions, and the survey took approximately 12–15 minutes to complete. Data was analysed in Google Sheets and R. Analysis included only those respondents who completed some or all of the demographic and job role questions, and at least one of the questions about high heat impacts. Participants could skip any question they did not want to answer, or was not relevant to them, and as such the total number of responses varies between questions.

While a wide range of members were encouraged to contribute, a self-selection bias may exist for union members who are particularly interested in or affected by workplace

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high heat. As the survey and instructions were written in English only and sent via email (to be completed over the internet), some members will have been excluded. This project focused on heat stress issues for union members of UWU, and as such non-union members and union members from other unions were not involved. Differences between these groups, in terms of heat stress experience and management strategies, were not explored in this project. Furthermore, UWU has been relatively active on the issue of climate change, including as a WHS issue, which may have led its members to draw stronger links between climate change and high workplace heat as compared to members of other unions or workers more generally. Efforts were made to improve survey accessibility, and a plain language definition of 'heat stress' was provided (simplifying Kjellstrom et al, 2016: 98). The draft survey was reviewed and tested by several (non-academics) known factors to the authors, who gave feedback about readability, plain language, timing, survey logic and the clarity of instructions.

About two-thirds of the respondents to the survey were women (67.8%), one-third were men (31.4%) and a small number were non-binary (0.8%). The age of respondents spanned from 17 to 77 years old, but almost 60% of respondents were aged between 41 and 60 years old. In terms of types of employment contracts, 73.9% of workers were in ongoing/permanent roles, 16% were fixed term, 9.6% were casual and only one respondent (0.1%) was employed through a labour hire company. Most workers (79.4%) had been in their industry for over 5 years, and most (69.6%) had been in the same job role for more than 5 years. Close to half of the participants surveyed worked shifts or days of between 7 and 9 hours (48.9%), just over one-third worked between 4 and 6 hours (34.7%) and 12.4% worked 10 hours or more per shift or day.

The survey is one of the largest of its kind undertaken in Australia, although it deals with a relatively small sample of workers. This makes it difficult to reliably compare differences across industries and job roles. Moreover, although respondents were employed in a diverse range of occupations, close to half (48%) worked in educational services – primarily as teacher's aides, Auslan interpreters and school cleaners. This industry is strongly represented in the Allied division of UWU, and members working in that industry responded at a higher rate compared to other industry groups. Overall, more than a quarter of all workers who participated in the survey were middle-aged women (aged 45–60 years old) working in educational services in Queensland ($n=235$), and three quarters of those were in permanent jobs.

Experience of high heat at work

Despite the wide range of jobs and locations respondents were based in, and the high levels of access to cooling in some industries, most workers (90.7%) were affected by heat on hot days. A majority said heat affected them 'very much' or 'quite a bit' on hot days (58%), with less than 10% of workers reporting they were never or rarely affected (Figure 1).

Several factors can contribute to how hot an individual worker feels, including sun exposure, the level of ventilation, the availability of cooling controls such as fans and air-conditioning, and physical exertion. Most workers surveyed either only worked indoors (28%) or worked outdoors for less than one-third of the time (44%). In total,

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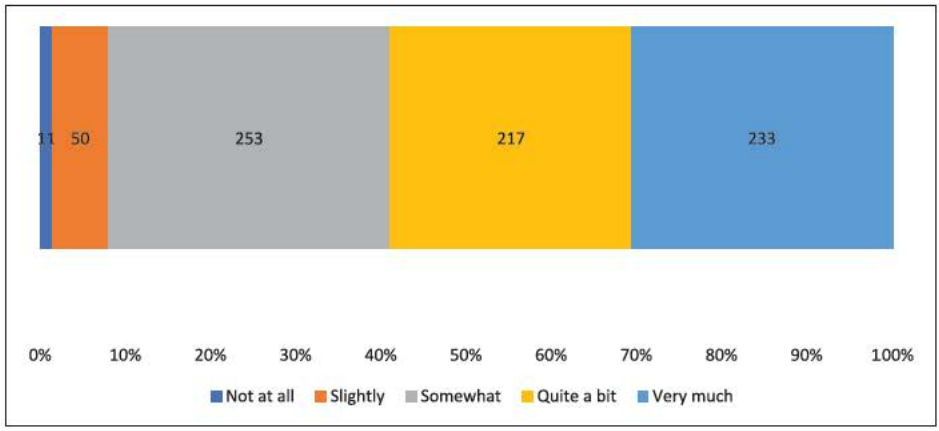


Figure 1. Effect of heat experienced by workers on hot days.
Source: Survey by authors, 2021 ($n = 798$).

15% of workers spent 70% or more of their time outdoors. Just over one-third of workers said their workplace was well or very well ventilated, and almost half said their workplace had reasonable ('average') ventilation. About 17.3% of those surveyed said their workplaces were poorly or very poorly ventilated. Some workers had to lift heavy loads as part of their job, which can increase the risk of heat stress, and one-third of workers surveyed advised that they regularly lift loads of 10 kg or more.

Unsurprisingly, most workers felt the heat most when they were outside, exposed to the weather directly. However, for others, they felt hottest at work in specific areas of the workplace, for example: in an 'unventilated/un-air-conditioned work shed' (air reporting officer, Northern Territory); 'in the sheds cutting up material' (teacher's aide, Queensland); 'inside the plant' (plant operator, Western Australia) and 'in the mill room – small, with little cooling, and directly in front of sunlight' (development chemist, Victoria). Others noted that the hottest part of their workplace was under or near skylights.

Many workers based indoors noted that they felt hottest near heat-generating equipment and machines, including computers. Often it was a combination of factors – proximity to hot equipment/machines, inadequate climate controls or cooling mechanisms and/or a lack of ventilation – which contributed to high ambient heat in their workplace. Most indoor workers surveyed had access to cooling controls, including fixed air-conditioning (75.4%), fixed fans (45.6%), portable fans (11.4%) and portable air conditioning/evaporative coolers (4.5%). However, some noted that existing cooling controls did not work properly, were broken, were ineffective in high temperatures or were available only for customers. One interviewee, working as a technician in a factory in Victoria, noted 'fans make it worse. . .because they take all the heat up from the machine and blow it to the site. . . there's nothing exhausting the hot air out'.

Cooling controls were often only available for some of the working day or week, either because controls were only available in part of the worksite or because the 'workplace' encompassed many different environments. For example, one aged care support worker in Queensland said:

> . . .my job takes me into people's houses [and] the level of cooling controls is extremely variable. I would say portable fans are the most common [and] some clients do have air-conditioning but will not use it.

This worker was not alone in noting that some clients in aged and homecare chose not to use air-conditioning, usually because of the cost of running it.

In the 12-month period prior to the survey, 20.2% of workers were unable to work at some point due to high heat. This included having work cancelled, work stoppages and taking sick leave. When exposed to heat at work, many workers regularly experience fatigue (77.6%), headaches (59.5%) and nausea or dizziness (36.8%), all common symptoms of heat stress. Some workers also described how they sometimes 'stopped sweating' or lost their appetites. Workers also reported slower reaction times, feeling irritable or angry and finding it harder to concentrate. Working in high heat also had dissociative impacts for some workers, who described feeling 'out of it', 'like a zombie', on 'remote control' or being 'zonked the hell out'. One worker compared it to having 'a really severe hangover', and another said high heat problems led to 'mental health deterioration over time'. Many respondents noted ageing can make workers more susceptible to heat stress. Several workers also raised menopause: 'some women. . .really can't cope in the heat because of menopausal symptoms' (homecare worker, Western Australia); 'I am menopausal, so I have hot flushes too. The heat at the front counter affects me a lot' (administration worker, Queensland) and '. . .with the hot flashes, you nearly pass out with that, with our hot uniform on top that doesn't breathe' (homecare worker, New South Wales).

In a separate survey ($n=487$) conducted by the union about uniforms and heat, workers detailed significant issues related to the materials used, uniform design and breathability. When asked to rate the appropriateness of their uniform on a hot day: 64.4% rated it 'terrible', 18.7% rated it 'poor' and only 16.9% rated it either 'neutral, good or great'. Many workers drew links between their experience of high heat and overall workloads, the timing of their work over the day, the lack of opportunity to take breaks and the short travel times allowed between clients limiting their recovery. Around 50% of these homecare workers were unaware that they had the right to cease work on paid time if there was a serious and imminent risk to their safety. Of course, for workers caring for the vulnerable, ceasing work can be a very difficult choice with serious consequences for clients, meaning it is at times impractical, despite the risks of continuing to work.

Many UWU members are employed in jobs where they are directly responsible for the care and safety of others, and project participants shared their concerns about how high heat affects their patients, students and clients. In the survey, some teachers noted that high heat can lead to increased behavioural incidents, anger, stress and vomiting among students. Homecare and healthcare workers witnessed patients suffering heat stress and exhaustion. As one homecare worker based in Western Australia put it, we 'worry about our clients in the heat. . . . it is actually emotionally stressful as well'.

Impacts on productivity were a problem across many industries. In the workplace, high heat conditions often produce a vicious cycle; as workers are forced to mitigate the adverse impacts of the heat, it becomes increasingly difficult for them to 'keep up', particularly if there is no commensurate reduction in their workload pressures. One worker summarised this predicament:

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> Essentially, it's quite terrible. You. . .drink way more water, so you're forced off the line, which puts pressure on you to work harder, which makes you sweat more and then tires you out. Essentially, it's just an all-round lose situation because you're hot, overheated, stressed and incredibly sweaty (manufacturing worker, New South Wales).

Due to the cumulative effects of heat, many workers suffer towards the end of their shifts, travelling to and from work, at home after they get home from work or in the latter half of a hot or high-intensity week. Some workers described in interviews how the heat 'catches up' with them:

> I have come in from some on-calls where I've done over 102 hours in a week, dry retching and throwing up, just from all the heat exhaustion and just doing 16-hour shifts, 7 days a week . . . you even feel it after those hot days have gone (utility worker, South Australia).

> If you go home after a long day, you just kind of want to stare at the ground for ten, fifteen minutes, until you, I don't know, become alive again (manufacturing worker, New South Wales).

> . . . there will be days where you work all day in the hot weather, and you actually get home, have a shower, and you feel alright, and then about you know, eight o'clock, nine o'clock at night you just get a thumping headache. You know . . . what you've done has finally caught up with you (utility worker, South Australia).

Workers also described serious workplace incidents. One worker recalled a particularly difficult week, working outdoors on roads around 48°C temperature. The bitumen was sticking to his boots, and he said it 'took days to recover'. Nearly 20% of survey respondents said they were aware of serious incidents relating to heat, involving either them or their co-workers. These included workers and those in their care suffering seizures, heat exhaustion, stroke, extreme stress and other forms of illness. A few workers reported fatalities of co-workers and patients.

Response to high heat at work

Preventing and responding to high heat was a challenge for many workers. Their ability to effectively manage the impact of heat was related to:

- their access to basic cooling measures (e.g. water, ice and PPE)
- their relative control over their working environment (e.g. their ability to access cooling controls, 'pace' themselves, slow down and/or rearrange or reschedule tasks)
- the existence of heat management policies or procedures at work
- the level of confidence workers felt about raising issues.

Some workers said they can move to relatively cooler areas of their workplace, such as a lunchroom, lower level of a factory or an air-conditioned space (e.g. their cars if they had time to lower the internal temperature). For others, making these simple adjustments is

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not possible because climate controls are unavailable or inaccessible. All interviewees took individual measures to cool themselves in high heat conditions, such as drinking more water, taking breaks and making use of PPE (e.g. hats, sunscreen and ice vests). Although some employers provided water, special drinks (e.g. electrolytes) and PPE to workers, most did not. One interviewee commented: 'there may be some water if they know one of those stinking hot days are coming. But that just doesn't do much really' (manufacturing worker in Victoria).

Other common measures for managing in the heat – taking breaks, slowing down or pacing and rearranging or rescheduling work tasks – were again only available to some workers. One worker on a production line in a factory in Victoria, said: 'I try to pace myself in a way where (the bosses) can understand that I'm working within my limits, and that I'm not overheating myself'. This worker felt able to pace himself somewhat but noted his employer had never 'explicitly' told him or his co-workers to slow down. He said: 'they're just more trying to say "don't overwork yourself", but at the same time "don't slack off"'. Workers whose jobs are externally 'paced' – for example by a tight roster in the case of many homecare workers, or by the speed of machines in the case of manufacturing workers – found it more difficult or impossible to slow down or take additional breaks. Some said they were unable to leave 'their machines', or to take short breaks without stopping production and creating more work for themselves:

> It comes down to the speed of machines. And the sort of . . . planning. There's no—everything is urgent. Everything has to be done now. 'Come on. We need it done now. We need it done. It's got to be done today' (manufacturing worker in Victoria).

A notable but small proportion of workers (2.4%) had taken formal industrial or workplace action regarding a high heat issue. Of this group, 58.8% reported the action was unsuccessful, 35.3% reported that it was successful and one dispute was ongoing at the time of the survey. The low percentage of workers who took this form of action was, in some ways, a surprising finding – both because of the severity of the heat stress and illness experiences described by participants in the study and because in recent years, UWU members have been more likely to take industrial action on WHS matters than on many other unions. Conversely, the limitations on industrial action in Australia – largely restricting it to periods of enterprise bargaining every 3–4 years and with severe penalties for unauthorised campaigning – can discourage workers from taking action outside these periods, even in cases where there are serious WHS risks and they are legally allowed to do so. One example of this is the relatively low level of action taken over the bushfire smoke emergency in 2019–2020 outside of the strong industries of maritime services and construction, despite severe impacts from the smoke across many industries (e.g. those that were part of this survey).

Cost considerations of employers were often a factor in heat management. Many workers said they often had to pay for and bring their own PPE supplies and water. Some workers talked about how unlikely it was that companies would install effective climate controls, like air conditioning, as the costs would be too high. The inability to take heat recovery breaks was often related to how 'lean' a workforce was, and whether there were enough staff available to relieve people: it 'used to be much [easier to take breaks], but

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they've cut labour back now' (manufacturing worker, Victoria), and '[people often say] they're fatigued, and that's because [management] did chop the numbers and they're running around' (manufacturing worker, NSW). Another manufacturing worker in Victoria, agreed:

> They've cut the numbers down on the floor of labour. So people are doing a lot more. So you know, they're all feeling fatigued. . . . it's just the way, you know, management thinks . . . save money, cut people. You know, it just doesn't work.

Almost half of the workers surveyed were unaware whether there was a policy or procedure for managing high heat in their workplace. Over half of the respondents said they had never been issued with a warning, advice or information about high heat or heat stress (53.1%), around one-third said they had received this sort of advice (35.8%), and 11.1% were unsure. Only a quarter of workers were aware of a provision to stop work at a particular temperature in their workplace.

One manufacturing worker in Victoria said that although a new heat policy had been signed into their enterprise agreement the year before, it was unclear how it could be practically enforced as there was no clear system for taking additional breaks, no temperature gauge in the workplace and nobody knew where to physically locate the heat policy. Another manufacturing worker in Victoria outlined similar problems:

> . . . they just say 'look, just take it easy. Try and relax. It's going to be a hot day'. . . . Like they've got a lot of stuff in writing saying if it's extreme day, we'll rotate people, and everyone will get an extra five-minute break each hour. But that's rubbish. It just doesn't happen. You know, they say you can do it, but we just haven't got the manpower to be able to do that . . .

One utility worker in South Australia, employed in his workplace for nearly 12 years, 'tried to get a heat policy in every year' as well as for there to be more workers to a crew. He reported that these efforts 'always [got] fobbed away by management'.

A few manufacturing and utilities workplaces had better practices, holding meetings on very hot days. Managers issued verbal warnings to 'take it easy'; 'we get some conversations around heat stress, what we should be doing, shade, sunscreen . . . before summer especially, we'll have some toolbox meetings or conversations around that' (utilities worker, South Australia). However, what made a difference for many of these workers was whether the informal warnings were accompanied by procedures or policies for hot weather – such as an allowance to take additional breaks – and whether those policies were easily enforceable by workers.

Some workers also reported that the use of new forms of PPE to manage COVID-19 had exacerbated the impact of heat, causing an increase in rashes, dehydration, stress, headaches and fatigue. They also outlined other pandemic-related changes that had negatively impacted the management of high heat, such as changes to rosters, limited or no access to lunch rooms and other air-conditioned spaces because of social distancing, increased workloads, tasks need to be done more often and in the hottest parts of the days (such as cleaning outdoor play equipment), cessation of the use of air conditioning in some schools, decreased time for breaks, difficulty in consuming water while in full PPE and busy, and removal of access to cooling showers.

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Climate change: Growing impacts at work

A key focus of the research was to examine whether workers believe climate change is having an impact on people's working conditions, and if so how. This question was asked at the end of the survey. Of those providing a clear response to this question ($n=459$), 56.2% of workers said climate change was having an impact on their working conditions, 33.8% said it was not and 10% were unsure. Younger workers (under 30) were more likely to say there was an impact, with almost 80% saying this was the case; for the 31–70 age bracket, this fell to 50%–60%. There was no significant difference between the views of women and men on this question, and there were too few non-binary respondents ($n=2$) from which to draw comparisons.

There was variation across states and territories. Workers in Queensland and Western Australia were less likely to cite climate change as compared with Victoria, the Northern Territory and South Australia. There was variation across industries as well. Workers in chemical manufacturing, professional and technical services, educational services and agriculture were more likely to say climate change is having an impact on working conditions, and workers in food services and repair and maintenance were less likely to draw this conclusion. However, given the small sample size for some industries, this needs to be explored in more detail in future research.

Approximately, one-third of respondents felt climate change was not having an impact on working conditions. These workers explained that they did not believe climate change was occurring or that, even if it is getting hotter, it is not being induced by human activity ('it's always been hot'; 'things go in cycles'). Two respondents pointed the finger at employers as the primary cause of workplace heat, stating they 'seem to be going backwards in the way they treat the common working man' or stated that the problem existed because management was being 'tight' in supplying the right PPE and suitable equipment.

About one-tenth of workers responding were undecided. Respondents in this group often stated that they had not thought about it previously, they needed to do more research, or that they 'really [didn't] know enough to have a valid opinion'. Others agreed it was getting hotter for them at work, but they were unsure whether this was related to climate change or because they were getting older.

Workers who felt climate change is having an impact on working conditions often stated it was altering weather patterns and causing or contributing to hotter weather and more humid conditions, and/or resulting in heat waves and a variety of weather events such as natural disasters. 'Weather patterns are changing, and global warming is affecting how and what we do', said a ranger from Western Australia Parks and Wildlife. Workers described the hotter weather as 'harsher', 'more extreme', 'aggressive' and 'biting'. A number talked about more frequent 'extreme weather' being caused by climate change. More generally, there was a sentiment that 'workplaces are not keeping up with changes to the environment' (education assistant, Queensland). A teacher's aide based in Queensland reported that changed weather patterns and increasingly hot summers had resulted in a school running out of tank water, conditions where it is far too hot to let students play outside, and more frequent cyclones and intense weather events where staff are required to work through heavy rain and wind events.

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Climate change is a live discussion in some workplaces. A manufacturing worker from Victoria stated:

> We have discussions at work about climate change. You got guys saying, you know, 'we've had bushfires as long as I've been here', but definitely not to the extent that we've been having the last, you know, decade or so. They've definitely become a lot more frequent. . .. Definitely gotten worse, for sure. And you see the temperatures in the sea levels, you know, the sea constantly rising where people say, 'nah climate, just a load of crap'. It's just delusional.

This worker was not the only respondent who drew a link between climate change and bushfires, in particular the 2019–2020 'black summer' events. This fire period killed 33 people directly and a further 455 people indirectly due to the smoke and ash pollution, which enveloped four-fifths of Australia's population (Wahlquist, 2020). Several respondents said they were 'lucky' or relieved that the most recent 2020/2021 summer had been slightly cooler, but they knew hotter summers would return. One young manufacturing process worker in NSW was particularly despairing about the future considering climate change and stated in an interview: 'I've only been on this earth for like 23 years and. . .I would say that, yeah, climate change is sort of ruining this earth and we're left to die'.

Others focused on the more recent COVID crisis, drawing lessons about potential climate change impacts on workers. A homecare worker from Western Australia argued climate change requires immediate action and planning to protect workers and clients:

> [The] team leader [asked] 'has anybody else got any questions?' . . . I said, 'well, what happens if, for some reason, we can't get out to visit our clients, you know they're stuck at home, and we can't get out?' . . . then we had the pandemic. So, it actually came true and there was no plan, because they all laughed and said 'no, that would never happen'. But climate change is something that I think they should be planning for. . . . how are we going to look after people in their homes if we can't even leave our own homes because it's too hot?

A firefighter in the Northern Territory drew attention to the cost impacts of higher temperatures on the industry, calling for planning and increases to 'manning to allow for reduced exposure to heat at incidents'. Emergency services personnel have told us that their PPE is often state of the art, but there is a concern over state funding for appropriate labour resourcing so workers can rest adequately to cool down while others take over. Similarly, another member working in healthcare said that the impacts of climate change might be mitigated by changing shift times to cooler parts of the day, but that 'no one wants to pay the penalty rates'.

Discussion and conclusion

Health, safety, well-being and productivity impacts have broad social and economic consequences. High heat conditions not only test an individual's physical capacity to do certain types of work, but may challenge their willingness to do it with broad implications for the labour market. Zander et al. (2018)'s survey of over a 1000 Australian labour force participants found 10% intended to leave their job because of workplace

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heat stress. As these authors note, this may exacerbate already-existing issues of low workforce participation and high turnover rates in particular industries and regions of the country. Thus, workplace-based studies are not only crucial in understanding the contours of the problem but also in determining possible strategies for adaptation and remedy. This study contributes to a growing body of literature, which attests that high heat is having immediate, acute impacts upon a significant and diverse section of Australia's working population. While the biophysical effects of higher temperatures on worker performance is well-established (Day et al., 2019), studies such as this help to develop a richer picture of how heat stress is impacting the performance of work and the well-being of workers, as well as how it is produced in and through different industrial contexts.

Heat stress is not simply a matter of the ambient temperature in a given working environment, or individual physiology, but is related to multiple other factors, as recognised by workers themselves in our research. The importance of workplace governance arrangements is confirmed by McInnes and colleagues (2017: 334):

> The capacity of individual workers and the workplace to adapt to hot weather will be influenced by workplace heat stress management policies, awareness and knowledge of workers and employers of the dangers of heat, opportunities to acclimatise, access to information and training, and workplace facilities, amenities and practices.

While it is undoubtedly true that all these factors do, and will continue to, have an impact on the management of high heat in Australian workplaces, we must also be attentive to the social and political-economic factors involved. The production of heat, adaptation to growing heat and the development of regulatory processes for managing the risks and impacts of climate change are contested and embedded in social relations of power.

Large-scale, multi-country research projects have demonstrated how the relative historical and current strength of the labour movement within nation states determines the adequacy of WHS frameworks (Elling, 1989). This is pertinent in Australia where, although there are relatively strong labour laws in place, the size and strength of the trade union movement has declined since the 1980s (Humphrys, 2019). The agency of workers and their level of organisation shapes their experience of high heat. Workers with greater agency and power can often insist on mitigations such as better PPE, more scheduled breaks or an increase in staffing levels, so others can slow down or rest. Some unions have secured temperature cutoffs through enterprise bargaining, usually because of their relative industrial strength.

A study by Singh and colleagues (2015: 248), with key informants in WHS roles, unions, industry and government, found that participants believed responsibility for coping with heat sat with individuals rather than employers. They also concluded that 'prioritizing profits over worker health presents a powerful barrier to action' (Singh et al., 2015: 248). This presents a significant challenge for ensuring action and compliance on the part of employers. Many workers involved in this project explained that they are required to work at rates of production that are incompatible with some of the most fundamental heat management strategies, such as slowing down, rehydrating and taking breaks. If union organisation and activity is not revived, especially in workplaces

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characterised by insecure work, then workplace heat will continue to exacerbate an already precarious situation.

In line with expert international medical advice, 'all countries, local communities, and institutions need to adopt effective heat health action plans tailored to local conditions', and this includes across industries and workplaces (The Lancet, 2021: 641). Leading health experts argue that excess deaths and many health risks arising from heat stress are preventable with appropriate heat action plans (Ebi et al., 2021). As this research has demonstrated, many workplaces lack comprehensive plans, and many plans that are in place are insufficient in scope or not enforced. Employers are required to provide adequate resourcing for at-risk workers, such as high-standard PPE, adequate hydration while at work, regular breaks, acclimatisation protocols and sufficient personnel to ensure workers can be relieved for recovery time. Yet this study suggests these requirements are often not being met. It is also clear that the Commonwealth and state and territory governments need to urgently review more broadly the management of current and likely future impacts of high heat and climate change for workers. This will necessitate sector-by-sector planning – involving labour, industry and government – to work through particular climate impacts across the diversity of the Australian workforce, across the continent's varied geography, and with regard to contingent and vulnerable workers.

There is also a pressing need for further research on the OHS impacts of workplace heat and other workplace impacts of climate change. A large-scale, national, diverse industry study would be timely. There would be significant benefit in such a study being cross-disciplinary, given the interplay of health, social, political-economic, education and communication issues. Such a study could also build on the findings in this project in relation to workers' perceptions of climate change impacts at work.

As climate change continues to drive longer, hotter and more frequent heat waves, some trade unions are turning their attention to the issue of heat stress. This is an important step in bridging the perceived 'gap' between working conditions and the impacts of a warming world. While regulatory and enforcement changes are urgently needed, it is also important to acknowledge that these changes will only alleviate part of the burden that high heat is placing on millions of workers. Workplace and societal adaptation to climate change is not a politically neutral question, but one embedded in employment relations that are already exploitative. Understanding the sociopolitical determinants of effective responses to workplace heat is crucial.

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Freya Newman is a research assistant at the University of Technology Sydney. She won the UTS University Medal for her honours project on heat stress in the construction industry in 2018. She has worked in a range of research roles in universities and non-government organisations.

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Heat Stress and On-Demand Work:

The Experience of Food Delivery and Courier Cyclists

UTS Climate Justice Centre
July 2019

Submission to the Inquiry into the Victorian On-Demand Workforce

Background

A research team based at the Climate Justice Research Centre at the University of Technology, Sydney (UTS) are completing a research project examining the issue of heat stress for different groups of outdoor workers. The research has gathered quantitative and qualitative data from outdoor bicycle delivery riders working for food delivery and courier companies.

The project — *Heat in the Streets: Mapping the Lived Experience of Heat Stress of Climate-exposed Workers Towards Developing a Thriving and Resilient City* — is funded the City of Sydney council's innovation grants program. The UTS project team is a cross disciplinary collaboration between:

Climate Justice Centre, Faculty of Arts and Social Sciences

- Professor James Goodman, Director, Climate Justice Centre
- Dr Elizabeth Humphrys
- Freya Newman
- Dr Francesca da Rimini

Faculty of Design Architecture and Building

- Associate Professor Leena Thomas
- Associate Professor Nimish Biloria
- Pejman Pakdel

Preliminary findings from this study may be indicative of issues faced by workers in the on-demand economy who are heat exposed, in particular bicycle delivery riders, and therefore relevant to the Inquiry into the Victorian On-Demand Workforce.

Preliminary project findings

While there is limited qualitative research on how people experience heat stress in Australian workplaces, initial research has indicated that the level of labour organisation (worker confidence and unionisation) and the type of employment dominant (permanent, casual, contract, gig, etc) in a workplace or industry, are key factors in the ability of outdoor workers to mitigate the impact of heat stress in their day-to-day work. In other words, the level of organisation of workers in an industry, or a workplace, is likely correlated to an employee's experience of heat stress.

In an era of climate change and global warming, heat stress is a growing occupational health and safety concern. Outdoor workers, and those who work indoors without effective ability to control their temperature, are vulnerable to occupational health and safety risks posed by high heat and humidity. Strenuous, physical work attracts particular risks, as increased exertion makes metabolising heat more difficult.

Our project examined the experience of outdoor council workers and outdoor bicycle couriers, so we could assess how workers of different employment status — employees in permanent ongoing work (Council) as compared to on-demand subcontractors (delivery riders) — experience heat stress. The project team collected both quantitative data (temperature, humidity and geographical movement)

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and qualitative information (time worked and physical responses to heat) from these workers over a two week period in March 2019. In terms of the delivery riders, the project team recruited both food delivery workers and bicycle couriers delivering documents and packages in the Sydney area.

Initial data from the project demonstrates the well-established nexus between outside temperature/humidity and work effort in producing heat stress. Initial analysis suggests the importance of workplace autonomy in determining the pace and type of work, and thus in shaping the experience of heat stress. The capacity to minimise exertion during the hotter times of the day, and allocate work requiring more effort to the cooler days/times can be critical. Heat stress is thus linked to employment arrangements - and in part a product of the category of employment.

Compared to outdoor council workers and the document courier riders — some of whom who were in continuing employment and organised into teams with greater autonomy to organise the working week — food delivery riders undertaking monitored piecework appeared to find it more difficult to cope with high heat conditions. Our analysis of their experience indicates they had a reduced ability to take the following actions, which many workers undertake to deal with high heat at work:

- Reschedule/rearrange different work tasks during the working day.
- Refuse work (many fearing that by taking leave, or refusing shifts in unsafe weather for example, they would be deprioritised during the bidding process for future shifts).
- Vary the intensity or pace of their work.
- Expertly or safely navigate the city, due to reduced knowledge of dedicated bike paths, congestion, traffic, and overall fitness levels and cycling experience.
- Alter their cycling routes (something workers in more secure employment did often, to avoid particularly unsafe or unshaded areas of the city).
- Hydrate and rest regularly (due to the pressure to maintain a particular intensity of work, as well as the reduced ability to take rest breaks in between deliveries).

What did workers tell us?

Riders identified a range of issues in our interviews (intake and exit interviews) and surveys on hot days. They spoke about the pressure to keep working in extreme weather conditions because of the financial cost of not continuing, and that ‘on hot days, one or two hours [of work] is too much’. One worker said that in the heat of December they ‘did a lot of night riding and [they] came across so many riders [across a wide geographic area who] were absolutely exhausted. But they had to keep going, they need the money’. Another worker spoke about the tracking of workers by delivery companies, and how surveillance requires them to take extra risks in hot weather:

> I remember [one rider], he was going up the hill and I was going down, and he is sweating his head off, and then he gave up, he literally collapsed, I turn around and said what’s wrong, he said I can’t do it, I can’t do this anymore but i’ve gotta finish this gig. And i said well, just have a rest. Five minutes.

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> ‘Yeah but they’re tracking me’. Doesn’t matter. Five minutes is time to have a rest and then when you feel like it just take it slow. Lowest gear you can find, just finish your shift. … They do fire the worst performing ones, so but they think of an excuse. Some other reason.

Control over workers, and a lack of freedom on the part of riders, was a common theme. One rider told us that:

> We are working as an employee of Deliveroo but we’re not, we’re ‘independent contractors’. So we can do whatever we like, we can take whatever shift we want, that’s what independent stands for. But no, they [Deliveroo] really control.

Riders also identified issues where, given the lack of transparency in allocating gigs, they felt companies may be allocating work in ways that maximise profits and that riders might not be aware of this. One rider stated that:

> you can choose to move to the new system [distance based] or remain on the old system [job based]... You only know when you finish your gig and they tell you how much [you got for each gig]. What i think they do is they look at the riders who are mostly efficient and they get them to do the jobs with the longer distance and pay them accordingly.

In relation to workers’ compensation for work related health impacts, one rider told us that ‘I never claim [insurance through Deliveroo], because when I claim the Workcover, there’s like a flag under my name’. Another worker commented that ‘Last time I claimed [compensation] with [the food delivery company]... I didn't go through with it. They told me something like ‘its too complex’ so I just let it go’.

Mandatory uniforms required by some of these companies can also be an occupational health and safety issue, and unsuitable for temperature extremes:

> Yes, I pay for it, I have to wear their uniform. They’re good enough to lend [it] to you when you first get on board. Until you pay it off... We have to wear a shirt, a jersey… It doesn’t wick. It doesn’t move the moisture away... Before it was cotton, this is a brand new one [polyester]. I had to [use it] because the old one is starting to fall apart.

How does this affect the way we design our cities?

For outdoor workers, the heat stress from the immediate thermal environment can be exacerbated by the urban heat island effect. Elevated temperatures are caused by the inability of the surfaces in the built environment to quickly reject the heat it gains from sun, as well as the waste heat generated by our use of equipment, air-conditioning and vehicles.

Our study showed that, most riders developed a tacit knowledge of the city and immediate locale in relation to the availability of water, shade, breeze and quiet spots, but many suggested these could be improved. Where workers had a degree of autonomy over scheduling and choice of routes, it was clear they were taking advantage of the available infrastructure the city to mitigate the impact of heat.

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Reported strategies included choosing to work in the CBD where streets were shaded by the tall buildings in the middle of the day, or finding refuge in air-conditioned lobbies, cycling along tree-lined streets, or relegating strenuous or inclined routes to cooler parts of the day. Other key factors in choice of routes related to knowledge of dedicated bicycle paths, congestion and traffic at different times of the day.

Our findings suggest that gig workers and other transient workers would clearly benefit from provision and access to critical urban infrastructure such as 'heat-refuges' that offer shade from the sun and access to water and improved air flow. More importantly, they could be some of the first to suffer, if more attention is not paid to mitigate the urban heat island effects more broadly across the city. These would include strategies such as increased shading and tree cover, improved 'cool' materials, increasing green roofs and green walls and water features, as well as the promotion of energy efficient built and transport infrastructure and improvement of air quality.

Other research on heat stress and work

We will be finalising the project detailed above in September this year, but are continuing to work on the issue of heat stress and workers in the era of climate change. Across the team we have completed another project surveying construction workers and heat stress (Freya Newman), and are in the midst of a third project interviewing union officials and staff members on these same issues (Elizabeth Humphrys, Freya Newman and James Goodman). Given findings from these projects support aspects of what we report above, we note them here for your information.

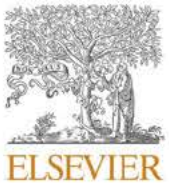
NSW construction workers: In 2018 Freya Newman conducted a research project surveying NSW construction workers on their experience of heat stress at work. Workers were asked about their experience of heat stress, if/how they organise industrially around heat stress, and attitudes to climate change. Data from this project supports our findings in the *Heat in the Streets* project, in that: workplace organisation and workers' confidence impacts their ability to take action on heat stress; and, precarious workers are likely to be further disadvantaged in being able to take mitigating action in extreme weather. The results of this research have fed into both later projects, and Newman's project won the UTS University Medal.

Interviews with unions: Elizabeth Humphrys, Freya Newman and James Goodman have been conducting a project interviewing union officials and employees about: member's experience of heat stress; how they organise around heat stress; and campaigns on climate change. By the end of the project we will have interviewed officials and staff representing the ACTU, firefighters, the NUW, the ASU, the ETU, United Voice, the TWU and CFMMEU. Preliminary findings have found that labour organisation (at a particular site or in a particular industry) significantly impacts the ability of workers to take action at the time of extreme heat stress, and that employment status (permanent, casual, on-demand, etc) is linked to this as well.

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Working in heat: Contrasting heat management approaches among outdoor employees and contractors

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ABSTRACT

Exposure to high heat and humidity in the workplace is a critical health and safety issue. In Australia, where heat waves are occurring with more frequency and intensity the risks posed by occupational heat exposure have been acknowledged by employer groups, trade unions, and statutory government agencies. In this study we investigate the employment context in which heat stress is experienced, and whether the mode of employment affects the capacity to manage it. We examine the experience of workplace heat exposure for two groups of affected outdoor workers: contracted pieceworkers in bicycle delivery and permanently employed municipal workers in parks and road maintenance. Data was collected in Sydney during the summer of 2019 via surveys and in-person interviews with the two sets of workers. Research findings reflect the well-established nexus between outside temperature, humidity and work effort in producing heat stress. The comparative findings reveal that more secure forms of employment enable social organisation and workflow to manage heat stress and that, conversely, more contingent forms of employment such as contractual piece work can exacerbate exposure. The research demonstrates that the mode of employment has a direct bearing on the capacity to address workplace heat stress: growth in contract or 'gig' work may exacerbate impacts; this issue is likely to become more important with advancing climate change.

1. Introduction

Workplace heat due to increased climate heating is fast becoming a major health and safety concern. The issue, though, has only recently begun to be extensively researched (Kjellstrom et al., 2009). A 2013 literature review on heat stress, work and climate change called for research to be prioritised, including 'social, economic, environmental and technical aspects' (Lundgren et al., 2013). A further survey of the health impacts of workplace heat in 2014 found only 55 articles addressing the issue (Xiang et al., 2014). Since then, there has been a growing wave of international concern, with several reports and policy interventions. In 2013 the World Health Organisation had issued an 'Atlas of health and climate', citing heat stress as an 'emerging' challenge (WHO, 2013). The IPCC's Fourth Assessment Report in 2014 identified 'heat strain and heat stroke' under climate change as a major workplace issue. Noting that more than half of all non-household labour occurs outdoors, it highlighted agricultural and construction work, especially in tropical developing countries as 'among the most exposed' (IPCC, 2014: 731). In 2015 the International Labour Organisation called for 'assessments of increased or new OHS [Occupational Health and Safety] risks resulting from climate change' (ILO, 2015: 26). In 2016 the UN released a major report on the issue, 'Climate Change and Labour: Impacts of Heat in the Workplace' (UNDP, 2016). The Report highlighted the increased loss of daylight working hours due to heat stress, stressing threats to livelihood and health. It concluded more research was 'urgently required' (UNDP, 2016, p.26). In July 2019, the International Labour Organisation released a major report titled 'Working on a Warming Planet' (ILO, 2019). The Report defined rising heat stress as a threat to 'decent work' and called for governments to reduce greenhouse gas emissions more rapidly in order to address this. The 2022 Report of the Inter-governmental Panel on Climate Change (IPCC) on 'Impacts, Adaptation and Vulnerability' defined heat stress as a 'hard limit' to adaptability for vulnerable groups and predicted that by 2070 'over 30% of global poor population will be living outside the human thermal comfort, beyond adaptive capacity' (IPCC, 2022, p. 1225). There was 'high confidence' that '[P]otential hours of work lost due to heat have increased significantly over the past two decades' and that '[S]ome regions are already experiencing heat stress conditions at or approaching

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the upper limits of labour productivity' (IPCC, 2022, p. 1045).

Extreme heat events have killed more Australians than all other natural hazards combined (Coates et al., 2014). Australia-based studies focused on heat stress, work and productivity, have found major threats for many classes of occupation (Zander et al., 2015). Climate heat is now recognised as posing 'immediate and pressing risks' for Australia (Stanley et al., 2017). In a study workers' compensation claims in the state of South Australia, researchers identified that the risk of heat illness is 4–7 times higher during a heatwave than in non-heatwave periods (Xiang et al., 2015: 586). Similarly, a recent study by Park et al. (2021) compared data from the California Worker's Compensation System with historic weather data and found hotter temperatures increase workplace accidents, for both indoor and outdoor workplace settings, and involve many injury types not directly related to heat (Park et al., 2021). In 2011 Hanna et al addressed physiological impacts and policy responses and pointed to the need for more qualitative work (Hanna et al., 2011). Qualitative research on the issue in Australia is beginning to emerge. Xiang et al.'s 2016 qualitative study in South Australia found that about a third of all workers engaged in outdoor work had experienced heat-related injuries and related forms of 'heat illness' (Xiang et al., 2016). With no minimum national standard to address heat illness, the research found only a fifth of employees stated that work would cease when the temperature exceeded 40 degreesC. Half of those surveyed had concerns about extreme heat and strongly favoured training, regulation and workplace changes to address the problem (Xiang et al., 2016). A study by Lao et al (2016) of council workers in Adelaide, South Australia, explored workers' experiences and perceptions of managing workplace heat, and found that workers' ability to self-pace was both important for their management of heat at work and influenced by their relations with their employer. Varghese et al (2020)'s survey of 222 Health and Safety Representatives (HSRs), across a number of Australian workplaces, also addressed self-pacing as a determinant of effective heat management, as well as other protective behaviours such as rescheduling tasks to cooler parts of the day. Varghese et al. identified piece-rate workers and 'new workers' as two groups that are particularly vulnerable to heat-related injuries (Varghese et al., 2020).

Workplace relations are clearly an important factor in heat stress, both in terms of the impact of rising heat on workers and their ability to safely reduce and manage heat stress. Working conditions (encompassing the tasks required, physical work rate, time of day, clothing and Personal Protective Equipment, PPE) and working environments (such as temperature, humidity level, supervision, availability of water and confined space) all contribute to the management of heat (Varghese et al., 2018, p. 389). While high heat conditions increase safety risks for all outdoor workers, this risk is differentiated among workers, including in terms of their work status (Newman & Humphrys, 2019: p. 1). Those engaged in outdoor work are particularly vulnerable to the heat and safety risks associated with inclement weather, including high heat. Those engaged in physically strenuous work are also at a higher risk of heat stress (Singh et al., 2015). Insecure and underpaid outdoor workers are likely to be much more vulnerable to heat stress than counterparts who have better (more formal) employment conditions (Newman & Humphrys, 2019; ILO, 2019). A substantial body of public health, industrial relations and occupational health and safety research has probed this connection between working arrangements and health and safety outcomes (see Quinlan 2012; 2015). There is now emerging research examining this relationship between employment contexts and growing workplace heat under climate change. As Goods (2017, p. 676) argues, climate change 'shapes the types of jobs and industries that will exist, and not exist, in the future, the labour process, the wages and conditions of workers, and the strategies of organisations and management'. Our investigation into the experience of workplace heat stress addresses this by contrasting the experiences of two groups of outdoor workers who work primarily in the same geographic area: those in continuing employment, with that of an hourly-paid worker and piecework contractors in 'on demand' delivery work.

The rapid proliferation of 'on-demand' delivery jobs in Australia — and specifically since the introduction of food delivery services in 2015 — has generated debate around safety standards in this emergent section of the 'gig economy'. Work in the food delivery sector is characterised by irregular patterns of work driven by consumer demand, piecerate payment, and the arrangement of work via third party platforms (Stewart and Stanford, 2017). Workers are engaged as independent contractors and not employees, although these classifications have been recently challenged in Australian case law (see Diego Franco v Deliveroo Australia Pty Ltd 2021; FWC, 2818). Workers therefore do not receive basic entitlements that come with a standard employer-employee relationship, and receive less workplace training, development and education than they would as an employee (Select Committee on Job Security, 2021). In these respects, they take on most of the economic and health risks associated with work (Goods et al., 2019). Efforts to address this have seen limited conversion of contractors into employees by companies, and then only on hour-by-hour 'casual' contracts. This is more common for document delivery workers, as against food delivery. Overall sector studies exploring safety outcomes are limited, especially in the Australian context and in relation to heat stress.

Critics, including trade unions representing workers in the food delivery industry, argue that the sector is poorly regulated, with systemic underpayment, insecure patterns of work, and sub-standard work conditions and entitlements (Transport Workers Union, 2020). Results from a survey of 209 food delivery workers, conducted by the Transport Workers Union (TWU), suggests that this cohort is facing alarming rates of injury at work, and that that workplace safety is a key concern: 33.65% were hurt or injured at work, and 70.1% of workers said they 'worry about being seriously hurt or killed while at work' (Transport Workers Union, 2020, p. 8). Those who responded to the TWU survey were contracted to one of more of four companies: two thirds with 'UberEats', half with 'Deliveroo', and about a third each with 'MenuLog' and 'DoorDash'. For ninety per cent this was their main source of income, and they worked on average 34 h a week. Two thirds were aged under 35 and ninety-five per cent were men. Nearly eighty per cent were 'visa holders' (that is, not a permanent resident or citizen), underpinning concerns the sector was dependent on marginalised workers, posing further health and safety challenges (Goods et al., 2019).

Working conditions and safety standards in the delivery industry have been the subject of national media investigations (Om et al., 2021), and have been the focus for several government inquiries. In 2018 the Victorian Government established an inquiry into the 'on-demand' workforce which reported in 2020, finding several safety failings in the food delivery sector (James, 2020). In November 2020, following a spate of cyclist deaths, the New South Wales government established a joint government taskforce to investigate food delivery cyclist safety (SafeWork NSW & Transport NSW, 2021). As part of the taskforce, a roundtable was convened with industry representatives, trade unions and City of Sydney Council (CoS Council) which considered evidence about safety risks and prevention strategies in the food delivery industry (NSW Government, 2020). At the federal level an inquiry established in 2020 into the on-demand sector raised serious concerns about safety for delivery cyclists, and its 2021 Interim Report suggested the need for urgent regulation to protect workers in the sector. As reported at the Federal Inquiry, SafeWork Australia only began gathering data for the delivery sector in 2019, when there were three deaths. In 2020 there were five deaths in a two-month period. The Inquiry heard evidence of companies encouraging risk-taking and creating 'incentives to be unsafe', with its draft recommendations focused on establishing a duty of care for platform operators and guidelines to halt practices that 'incentivise unsafe behaviour' (Select Committee on Job Security 2021, p. 123).

2. The study

This article reports on a research project that investigated the lived

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experience of heat stress for outdoor workers in Sydney, Australia, during the summer of 2019. The project asked whether there is a difference between the type and intensity of heat stress experienced by 'continuing' staff employed on an on-going basis, and workers who are short-term or casual employees or 'piecework' contractors. In this it aims to extend the literature on understanding the factors shaping vulnerability to heat stress (see Goods et al, 2019). It focuses on two contrasting sets of workers – casually-engaged bicycle delivery workers and permanently-employed council workers in parks and road maintenance employed by the CoS Council. The CoS Council is the Local Government Authority for the central Sydney area. It covers 33 different suburbs (wholly or partly) and approximately 246,353 residents (ABS 2019). As at 30 June 2019, it employed 1,926 non-casual employees (City of Sydney 2019a, p. 22). Data regarding cyclists is collected by the CoS in its biannual cycling count, which suggested that there were approximately 640 cyclists in the CoS area on a daily basis in March 2019 (City of Sydney 2019b). There is no data on the number of delivery cyclists operating in the city, though the CoS Council's Cycling Strategy and Action Plan 2018–2030 notes that the emergence of app-based food delivery by bicycle presents particular 'challenges and opportunities' for the council — including in terms of safety and community concerns (City of Sydney 2018, p. 24).

Our project sought to document the experience of heat stress for these two sets of workers and to investigate their capacity to minimise or mitigate its impacts. The project deployed surveys on hot days for workers to report on their immediate experience in situ, using their mobile phones, supplemented by follow-up interviews. In doing so, it sought to advance a labour-focused understanding of the impacts of climate change, linking labour conditions with heat stress. Workers who can alter the pace of work may be able to organise their working day to minimise heat stress, while those who have to work to an externally-defined work schedule — that has no regard to heat stress — are likely to be most affected. Courier cyclists operate in the expanding precarious labour sector and have minimal power to adjust individual and collective working conditions in response to heat. In comparison, the CoS Council outdoor workers involved in this study are more formally protected as employees, with greater entitlements, but nevertheless must also weather the extremes of rising temperatures. The study considered how experiences of high heat and humidity (often resulting in 'heat stress') were differentiated across two groups of workers, with different working environments, working arrangements, and levels of autonomy at work. Heat stress data was collected from the Bureau of Meteorology and research participants were asked to carry a heat stress sensor during the working day, providing the study with contextual heat stress data for the reported experiences. The overall research design and method was approved by the research ethics committee of the University of Technology Sydney (HREC ETH17-1817).

3. Method

The study was a mixed-methods qualitative exploration of the experience of heat stress and ran from January 2019 to March 2019 during the months of high summer in Sydney. The mixed methods approach allows for verification and elaboration across findings, with qualitative thematic analysis supported by quantitative results (Axinn and Pearce 2009). Rather than creating a strictly representative account, the study sought to offer illustrative data and insights into experiences. Eighteen research participants were recruited, comprising seven council workers and eleven courier cyclists. As volunteers they offered extensive insights into the issues at stake. Each research participant was given an information and consent form to read before agreeing to participate in the project and completed brief surveys over a period of five relatively hot days.

Background heat stress during these five days was estimated using the widely recognised Wet-Bulb Globe Temperature (WBGT) in Degrees Centigrade. Temperature and humidity data as measured by the Bureau of Meteorology (BOM) at 15:00, generally the hottest time of the day, on each of the five days, was used to calculate the relevant background WBGT in Degrees Centigrade. WBGT was also calculated from the heat stress sensors carried by the research participants, again at 15:00 for each of the five days. The small and relatively cost-effective Senonics 'Minnow 1.0′ sensor was used (see photograph). The sensor recorded heat stress data over the entire period of the study, which could then be downloaded for analysis.

3.1. Seninics Minnow 1.0 Humidity/Temp Logger



Source: https://senonics.com/minnow.html.

Each participant was interviewed in-person before and after the five-day period. These 'intake' and 'exit' interviews were conducted to test and verify data collection, and to provide an opportunity for feedback from the participants. All the council workers were employed directly by the CoS Council in permanent roles. Before recruitment began, researchers met with City of Sydney staff, including members of the CoS Council City Sustainability Team and a workplace health and safety specialist, to discuss the project aims and scope. A call for volunteer participants was distributed to relevant council staff; from this, six employees of the Parks Maintenance Unit and one employee of the Roads Maintenance Unit agreed to participate in the study with the approval of unit managers. Some employees may have been discouraged from volunteering as the request came from management; nonetheless, for a qualitative study this recruitment process and level of participation was considered sufficient. CoS Council workers were between the ages of 29 and 53 and were all male. These workers had been employed by the CoS for between 6 months and 10 years, and one was a team leader.

The eleven delivery cyclists were employed or contracted by various courier companies, including food and document delivery companies. Nine were male, and two were female (slightly exceeding the 9:1 male–female ratio in the TWU study, discussed above). All worked in the CoS Council area, although occasional trips may have taken the outside the area into neighbouring areas. An early scoping interview was held with an experienced food and document delivery cyclist known to the project team, who identified possibilities and challenges in recruiting delivery cyclists. Participants were then recruited in person in the Sydney Central Business District (CBD) near the General Post Office at Martin Place, a known congregation point for delivery cyclists. Participants were also recruited via a Facebook group for Sydney bike couriers, and through the TWU, the trade union representing delivery cyclists. Among the eleven cyclists, five were food delivery workers employed on piecework contacts, four were in document delivery also on piecework contracts, and one document delivery cyclist was employed on an hourly basis.

In February and March, project participants were interviewed on two separate occasions about their experiences and perceptions of health, safety and heat at work. All interviews were semi-structured and were conducted in person at or nearby the participants' place of work. All interview data was audio-recorded on mobile phones and transcribed by the research team. The transcriptions were anonymised, with participants' names and any other information which could identify them (or

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other individuals) not transcribed. Interviews with CoS Council employees in the Parks Maintenance division were conducted on-site, with the permission of supervisory staff at the council. Due to workplace constraints, council worker interviews were conducted as group discussions, not on an individual basis. Interviews with the single employee in the Roads Division were conducted separately. Interviews with delivery cyclists were conducted individually, in-person, at a time and location that was convenient for the cyclists, often before or after a work shift.

Between the 'intake' and 'exit' interviews each participant was asked to complete a brief survey over a five-day period of warm weather in March 2019. On the same hot day all participants were asked to complete the survey only if they were currently working or had worked that day. Each participant received a mobile push notification, prompting them to complete a survey form at the end of that day, hosted securely online through Survey Monkey. Each participant was asked to input a unique ID provided by researchers. The survey included closed- and open-ended questions, relating to the workers' experience of heat on that day (see Appendix A). The 'exit' interviews, held soon after the last survey, provided especially rich material as they allowed reflection on wider 'background' factors affecting the experience of heat stress. The mix of in situ surveying with both introductory and reflective interviews, at 'intake' and 'exit', allowed for a highly engaged research process that could also produce cross-referenced accounts to aid with verification. Qualitative data was investigated using 'applied thematic analysis', a sociological approach for comparing qualitative interview material (see Guest, MacQueen and Namey 2012). This entailed a process of applying the research questions to the data and seeking common themes that could be used to code transcripts. Thematic analysis was informed by survey results and was tested for validity across the two sets of interviews. Responses from both sets of workers were then extracted and aligned across four broad themes: individual experiences and actions, shared capacity and autonomy, workplace knowledge and wider forms of social organisation. These themes were then used to generate four broad work-related aspects impinging on heat stress, as outlined in the concluding analysis.

3.2. Findings

The research results centre on the survey (quantitative responses and qualitative comments), and the 'intake' and 'exit' interviews. Surveys were administered for all participants; Council workers were interviewed as a group and, due to the nature of their work, courier cyclists were interviewed individually. Ethnographic data gathering in sociology commonly deploys mixed approaches in this way to reflect local circumstances (Trainor 2012). Transcripts from group and individual interviews were analysed separately, using qualitative thematic analysis to draw out common aspects (see for instance Morse 2012). No interviewee was identified by role, to maintain anonymity. In terms of background heat stress, the BOM dataset heat stress measured at the Sydney Observatory in the City of Sydney, was at 27–28 WBGT Degrees Centigrade on the days of the study. Heat stress in workplaces, as recorded on the sensors, was higher in being more likely to be directly exposed to the sun (see Table 1; sensor data is expressed as a range from lowest to highest reported WBGT in Degrees Centigrade).

After the initial 'intake' interview, each participant was asked to complete the online survey about their experience of heat at work that day. The delivery cyclists responded to the survey thirty-nine times over the five designated days; the council workers responded eighteen times. This gave us a total of fifty-seven survey responses.

3.3. Survey insights

The quantitative survey results reveal some important distinctions between the two sets of workers, their experience of heat stress, and the measures they took to address it. The 18 participants were sent the survey on each of the five days; there were 57 responses to the survey, yielding a 63% response rate. The following tables shows results as a percentage of all responses from the two sets of workers. The survey first asked respondents to 'rate on the scale below that best represents how you felt the last time you were at work'. Table 2 suggests that council workers felt more exposed to heat than the couriers, with three-fifths of council workers reported being hot compared to two-fifths for couriers.

Following-up on this, participants were asked to 'rate your dissatisfaction with the overall heat conditions' at work on the designated day. The responses in Table 3 show a much higher level of general dissatisfaction with the heat among the council workers, which should not be surprising as they were much more likely to report feeling hot on these days. Interestingly, only a quarter of responses from courier cyclists report dissatisfaction, less than those experiencing the heat. Both these findings may reflect the differing character of the work, with cyclists relatively more active and over time likely to gain greater physical capacity.

Participants were then asked to report on any heat-related symptoms they had experienced. As outlined in Table 4, the symptoms include thirst, cognitive issues, and fatigue. Thirst is reported by council workers much more often than for couriers, which may reflect the nature of the work. Many workers reported 'stickiness' and 'slippery' hands, which underline the possible immediate impacts of high heat and underscore the close relationship between heat-related fatigue and injury incidence (Park et al., 2021). Of course, all workers are already exposed to potential life-threatening accidents on cooler days — couriers working in the vicinity of life-threatening traffic, council workers while operating heavy machinery. Cyclists are less likely to report some symptoms, thirst for instance, yet are equally or more likely to feel tired and to feel feint or sick.

The survey asked what measures the participants had taken to cope with heat stress on the designated hot days. These responses (Table 5) are especially revealing considering reported symptoms (Table 4). Couriers and council workers experience approximately the same level of symptoms associated with heat stress, in terms of tiredness and difficulty in concentration, yet they respond in very different ways. Both sets of workers are likely to take extra breaks and rehydrate more often,

Table 1
Heat Stress as reflected in the Wet-Bulb Globe Temperature (WBGT): Bureau of Meteorology, Cyclists and Council Workers, Degrees Centigrade.

Date/Time	*WBGT, BOM, Sydney*	*WBGT Sensor Cyclists (n = 11)*	*WNGT Sensor Council workers (n = 7)*
Day 1, 4 March, 15:00	28	27–36	26–33
Day 2, 5 March, 15:00	28	26–32	27–37
Day 3, 6 March, 15:00	27	26–34	27–36
Day 4, 11 March, 15:00	27	27–39	26–33
Day 5, 12 March, 15:00	28	28–31	26–33

Source: Bureau of Meteorology, *Daily Weather Observations*, BOM, Sydney, NSW. Archived in the National Library of Australia (NLA) Trove https://webarchive.nla.gov.au Accessed 18 May 2021.

Table 2
Feeling the Heat on Hot Days: Percentage of Total Reponses from Delivery Cyclists and Council workers.

Rate how you feel	*Cyclists (n = 35)*	*Council workers (n = 22)*
Hot	40%	61%
Warm	20%	33%
Slightly warm	24%	0%
Neutral	16%	6%

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Table 3
Feeling Dissatisfied with Heat at Work on Hot Days: Percentage of Total Reponses from Delivery Cyclists and Council workers.

Level of dissatisfaction	*Cyclists (n = 35)*	*Council workers (n = 22)*
Dissatisfied	24%	67%
Satisfied	38%	11%
Neither	38%	22%

Table 4
Symptoms of Heat Stress at Work on Hot Days: Percentage of Total Reponses from Delivery Cyclists and Council workers.

Symptoms	*Cyclists (n = 35)*	*Council workers (n = 22)*
Thirsty	44%	100%
Extra tired	18%	18%
Finding it hard to concentrate	16%	18%
Feeling 'sticky'	15%	29%
Hands more slippery	23%	18%
Feeling feint or dizzy	5%	0%
Feeling sick	3%	0%
None of the above	15%	0%

Table 5
Measures Taken to Cope with Heat Stress at Work on Hot Days: Percentage of Total Responses from Delivery Cyclists and Council workers.

Coping measures	*Cyclists (n = 35)*	*Council workers (n = 22)*
Taking extra breaks	20%	25%
Changed the way you work	8%	50%
Changed where you work	0%	38%
Rehydrate more often	42%	100%
Eat/drink something special	20%	12%
Undertake lighter duties	2%	25%
Wearing more protective clothing	3%	5%
Stopped working	0%	0%
None of the above	10%	0%

but only council workers change how and where they work.

These stark differences in coping measures for managing the heat were reflected in the survey and interviews with participants, discussed below. Cyclists were inclined to take measures to reduce accumulated heat such as rehydrating or taking extra breaks that did not substantially interfere with their work schedule. Council workers, by contrast, were much more likely to alter their work schedule to minimise heat stress — for example by taking-on lighter duties or rescheduling strenuous tasks to cooler parts of the day and changing where they worked.

The survey also asked respondents if there was anything else that they wanted to briefly share about their experience on the day the survey was completed (the full list of responses appears at Appendix C). Delivery cyclists were particularly affected by the humidity. One commented: 'Humid weather wearing me down as time goes by'; another stated 'I was hot and bothered and tired. Too humid for my liking'. There was concern about the impact on earnings: 'Changes to intensity and mode of work cause me to incur costs and lose earnings'; several stated they were 'Slower and less efficient'. Others described efforts to avoid the heat: 'Worked a different area so much easier heatwise today'; another stated: 'Basically in the CBD all day though so plenty of shade and air con'. Council workers reported some severe impacts: 'discomfort, irritability, sweating at the low end of the scale, at its worst the shakes, legs start to feel like jelly and headaches'. One stated 'There is no way to cool down'; as another reported: 'Temperature was around 35 degrees, felt like around 40 degrees, very hot and uncomfortable'. There was reported exhaustion and difficulty in concentrating: 'Longer to complete tasks, irritable and uncomfortable'; the effects could cumulative: 'Second day of heat so was a bit slower today found it harder to concentrate and get tasks completed'. There were other impacts: 'Quickly realised that I was getting less friendly the hotter I became'. These comments give some initial insight into the personal experiences of heat stress: the following sections focus on the interview material, to further develop the comparison.

3.4. Interview accounts

3.4.1. Council workers

Council workers identified several factors contributing to how much heat they were likely to accumulate on hot days, including their exposure to direct sunlight, the wind, their proximity to heat-generating machinery, and how hot the surfaces they were working on were. One worker observed the additional heat from the petrol machines they frequently worked with, which 'build heat as (they) run': 'Where you work is much hotter in proximity to the air around you… [So] the heat is right on you'. As another put it: 'blowers, whippers, any of those machines, they build heat and you've got an exhaust right there that emits heat'. A third worker, who was new to rolling cricket pitches, reported that they had acquired 'pretty bad reflective sunburn just off the grass (of the cricket green)'. Many interviewees were aware that accumulating an uncomfortable amount of heat was multifactorial. For example, one worker in grounds maintenance said:

We've got a 600 square metre pitch, so that's a fair dinkum five to seven degrees hotter than everywhere else. When you're out on a roller, yeah it's open air and you do have the heat of the machine and it's not too bad, but if there's no wind, and you got the heat coming off the surface, it's just ridiculously hot.

For all council workers the heat could be hard to manage across the standard nine-hour day, 6am to 3 pm, and it was common for these workers to describe the cumulative effects of heat. Heat exhaustion can build up during a heat wave: 'If you get a series of days where it's hot, it's cumulative, the effect. You feel the next day, and by the fourth day…'. One worker described the day-to-day impact of a period of hot weather:

It's often if you haven't had a good night's sleep. You get home, you have broken sleep, and you come back in and it's hot again, and the residual from the day before adds on, and it adds on, and it adds on. So even if it's a bit cooler, it feels worse.

Added to this, on the colder days the workload could intensify to make-up lost ground: 'obviously if better weather comes you're out there giving more effort'. Generally the safety impact is indirect, and council workers stated that there are more minor accidents on hotter days, and these are reported to the state regulatory authority and logged.

As was also evident from survey results, on hot days some council workers found it harder to concentrate, and many felt more tired than usual. This was also raised in interviews. One worker noted that the 'slow speed and the rocking motion' of the ride-on lawnmower 'tends to want to rock you off to sleep', and so noted that they had to 'keep moving' throughout the day during rest breaks. Hot work during the day can make workers short-tempered, and this can surface in dealings with residents and park users:

I have a lot of members of the public that I speak to in the streets, so…I find I may come across as hot and agitated. I think that's my hardest part. Even though you know you're overheating, you've still got to try to remain somewhat professional.

The impact of heat stress is not limited to the workplace, and several workers described the indirect health and safety impacts of working in high heat conditions. Many drive home long distances after work and noted that concentration and alertness waned after a hot and physically strenuous day. One said: 'I really struggle to concentrate, driving home. Occasionally I get the beep behind me cos I've missed the light cos I've fallen asleep'.

The CoS Council did not have a declared policy on halting work in extreme heat: there was a 'debate… some people say 38, others say 40, as when to stop work'. There was no formal training on heat stress that the interviewees could remember, though there was prominent signage at their worksite outlining policies on how to manage the heat. Advice

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for managing hot weather is also given informally at the team level, and teams bring required water, sunscreen and protection.

Workers complained about the uniforms, as they were made of a polyester mix which would not breathe in the heat; several of the long-standing workers still used old uniforms made of cotton. One described how at a previous private sector employer the clothing was worse: 'you may as well wrap yourself in Glad Wrap' (Glad Wrap is an Australian brand of plastic cling wrap used to keep food fresh). Rain on hot days could be especially uncomfortable, as rainwear on top of the uniforms could exacerbate the heat, prevent sweating and cooling, and wet equipment could become dangerous. Several workers stated that they would benefit from having more air-conditioned and sun protected machinery.

Council workers were aware that acclimatising to high heat conditions was important: 'we've all experienced it many thousands of times in our careers, so you can come up with a solution'. Newcomers often had difficulty: 'we have had the younger fellas, by midday, they're stuffed'. As another put it: 'if they haven't worked outside before, then yeah it's a lot harder… they don't last as long before they need to have a rest'.

Yet, moving between a hot outdoor environment and a cold indoor environment (for example, to take a scheduled break indoors) was sometimes more uncomfortable. One worker explained that:

Most of us are [working] … at least 6 h straight. So our bodies kind of acclimatise to that… you don't wanna come (inside), break for 45 min, cool right off, and then have to bring yourself back up to that temperature to operate again. So you kind of keep yourself in it (hot weather) cos it's much less stressful on your body.

The workplace allowed for various ways of managing the workload to minimise heat exposure. Although the workload was generally set two weeks in advance by area-based supervisors, each 'crew' or team had some flexibility in terms of when these tasks could be done during the period. Team leaders on each crew were able to organise and change duties on each day, including to account for weather conditions. As one worker explained, at higher temperatures you 'do all the harder stuff, get it out of the way in the morning, then do the easier things whether it's maintenance in the shade or lighter work in the arvo'. Week-by-week planning is made possible by the work being place-based, and having a range of tasks to undertake:

We're pretty lucky in that what we do is broad enough that we can change… there are multiple tasks, so if you do get a 38 or a 40 degree day, you're like I'm not gonna be out in the direct sunlight, I'll go work somewhere shady, or do some (less physical) task.

One team leader elaborated:

…if I have to take rubbish to a tip, I'll make sure I hold that back until after lunch…so I've got my crew out of the really hottest part of the day. That's the kind of practice.

Council workers' familiarity with worksites was also important and helped them to understand what sort of infrastructure was available to them to help manage in the heat: 'By having set areas we know whether it's going to be hot, where we've got water, where we've got utilities like toilet.' Each team had its own area, and heat management procedures were specific to each team. Each team also had its own approaches: 'different teams have different ways of reacting to the same situation'. Autonomy was important:

…the good thing about our work is that we're the ones out in the field, we're the ones determining what we actually need to do, so we can play with what we actually have to do at the time, so there's a bit of autonomy, you know.

Several workers mentioned that they were glad to be working in a permanent role as an employee in the local government sector and contrasted their current working conditions with previous conditions as a contractor, where they experienced longer hours and had fewer opportunities to rest. One said:

We're lucky here with our hours. Twenty years ago when I was working private we would start on machines at 4.30 in the morning, and we would do 14 or 16 h… you'd drink and eat while you were driving [the machines].

Another had worked in the private turfing industry, without any 'real water to cool you down' and with an expectation that 'you don't finish (work for the day) until the job's finished'. Another had been working on private jobs more recently:

I'm from a subcontractor background, this is still my rookie year at council, and I've been offered things that I never would have been offered in my previous roles. Coming to work and getting a cooler just to fill up with water, it belongs to you, you can ask for sunscreen, you can ask for certain things, wide-brimmed hats, special hats, where I wasn't exposed to that in my previous roles. So I find they're still quite a long way ahead in the industry.

3.4.2. Delivery cyclists

Cyclists all recognised the dangers and impacts of heat stress. The experience of humid heat — the kind of heat that is 'so humid you can't sweat properly' (courier 10) — was especially exhausting for many interviewees. Cyclists also acknowledged the importance of acclimatisation for managing high heat conditions, something that can be difficult for a transient workforce with many migrant workers. One cyclist, who had recently arrived from the US, stated that:

When it was really hot and my body was not really acclimated to it either, and I was not used to the city either… I was going all over the place, huge distances, and lots of like hills, so I was definitely over-exerting myself, and there were definitely times where I felt like faint and exhausted (courier 5).

All delivery cyclists take individual measures to address the problem of high heat. One experienced cyclist described the measures he takes:

Yeah lots of water, pacing yourself, also like knowing as a bike courier, knowing the streets that are shaded at certain times of the day and knowing when you're just gonna be riding straight into the sun (courier 9).

Another recounted:

Most of the time I just have to drink a lot of water and I get these little electrolyte packs, because at times I do find myself becoming overheated and dehydrated (courier 5).

Couriers often spoke of taking a rest in air-conditioned offices or in lobbies: 'when I do delivery, I try to stay 5–10 min in the lobby where they have the air con so I can cool off' (courier 2). Others favour outdoor shaded areas with a breeze, away from the traffic. Many noted their reliance on public infrastructure (shaded areas, availability of fresh water) for managing in the heat, and several cyclists complained about the lack of access to free water in the city. Another gave a detailed account of which water fountains worked and which were broken, expressing outrage that even 'opposite the Paddo Town Hall, in the reservoir park, it is the fucking first reservoir in Sydney, there is no water available in that park' (courier 6). Others noted that they often used private facilities to cool down — for instance, one cyclist said he was a member of a gym chain and would use it to take a rest in the city. Several food delivery cyclists were provided with branded synthetic clothing as company contractors, but stated their own cycle gear was more comfortable; some of these cyclists had arrangements with restaurants to use their fridges, for cooling bottles of water.

There was limited advice given by employers to delivery cyclists about how to manage in the heat. Some food delivery cyclists felt that the companies that they were contracted to were reluctant to issue advice or offer training to them as it might suggest an employment relationship. As one food courier stated, 'they don't want to open up a can of worms for more conditions… more of the employee/employer kind of relationship' (courier 6). By contrast, one hourly-paid employee who was previously a piece worker, described a range of supports he received from his new company in terms of training and advice on heat at work.

Many delivery cyclists spoke about the twin pressures of managing in the heat and completing enough 'gigs' to earn an income. One food

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delivery worker stated he would take fewer shifts on a hot day, although this obviously had an impact on his income: 'Normal days, if I work three or four hours, I'm okay. But on hot day, one or two is too much' (courier 11). Many food delivery cyclists also referred to the system of shift allocation, which was automated using invisible algorithms. These cyclists were wary of the potential consequences of cancelling shifts or riding at a slower pace in hot (or other) weather conditions, for fear of this reflecting on their performance or their ability to get future shifts.

One food delivery worker recounted how: 'In the summer heat I… came across so many… bicycle riders, they were absolutely exhausted. But they had to keep going, they need the money' (courier 6). This worker also recounted a situation where he encouraged a fellow cyclist to slow down. The other cyclist was 'sweating his head off' and then 'gave up… literally collapsed' in the heat. The interviewee encouraged him to take a break or slow down, and he replied 'I've gotta finish this gig… they're tracking me'.

Related to the contrast between safety management for permanent and contracted workers, some cyclists mentioned that although the company they work through provided insurance cover, they were reluctant to claim it as they felt it may be used against them. One worker felt he was less likely to get shifts, and that there would be a 'flag under (his) name' if he made an insurance claim, and so said 'I never claim' (courier 3).

When asked what would help address the problem, one delivery worker stated:

A living wage would be central, the main way in which they force work out of us is by paying us effectively below award or below minimum wage, which induces people to work stupidly hard, which means they can't regulate their taking of jobs during peak heat periods, or in fact eat lunches or have relief from work during the day (courier 10).

This worker was frustrated with the failure to address safety issues in the sector, stating the policy was so passive that it 'amounted to "you can force your workers to work up to 40 to 45 degrees"', because you'd have to take a case to the court to force them out'. They continued, stating that the State's workplace health and safety agency, WorkCover, just compounded the problem as it was 'fucking useless about prosecuting'. Another courier recalled being discouraged from claiming when previously doing piece work: 'a lot of the time if you got hurt you just didn't say anything about it' (courier 7).

The contrast between the pressures of piecework and the more flexible work schedule for hourly-paid workers is highlighted by one courier who had worked in both. Now, as an hourly-paid worker, he was able to adjust the pace of work on hot days:

…yeah you slow down, you have more breaks, bit more shade, bit more water. I'm not as busy as I used to be, I used to have to work per job, so that's where heat stress would've been a lot more stressful. Now I get an hourly wage. When I used to work for a job I used to put my body through things you probably shouldn't (courier 7).

The change had come with a court case that determined that couriers contracted to a particular company were employees. He said he missed the competition to be 'top rider' under the old system and get the best shifts, but recognised their status now was much improved with holiday pay, sick leave, and regularised insurance arrangements.

Some cyclists in document delivery elect to remain on piecework because they are able to make more money, and also enjoy the intensity of the work; the on-call couriers have less work to do, but are paid less overall. As one piecework courier put it: 'The more work that I do the more money… I'd rather be hot and make more money' (courier 8). Another had been working as a courier for thirty years, delivering flowers on a piecework contract across the city. He preferred piecework: 'Yeah I'm always chasing work. I need to have some motivation to work. More [delivery] jobs, more money, it's perfect' (courier 1). Others pace themselves, concerned about health effects: 'I worry way more about my health than I care about money … I just want to earn a living wage… it's like I don't want to pass out for five bucks, you know, it's not necessary (courier 5).

Compared to food delivery cyclists, the document delivery workers seemed more familiar with cycle routes in the city, including those which were quickest, shadiest and/or safest. The knowledge required for any delivery is extensive, in terms of knowledge of the city and of the safer or less arduous routes to take. When deliveries can be planned a few hours ahead of time, it becomes possible to avoid the heat and the traffic and to plan low-impact routes — this becomes harder when the deliveries are 'on demand'. One courier cyclist, who had been working in the sector for nine years in several cities around the world, spoke of gaining a knowledge of a city and how it 'flows' through the day, to gauge how to work in it. Part of this was to learn the places to rest and recover:

The coolest places to chill, the best, cheapest food areas that are also air conditioned as well so if you're taking a break you can take a break in there… a spot with breeze, and shade, that's mainly what I'm looking for. And away from traffic, because traffic is generating heat (courier 9).

There is also evidence of social organisation among both food and document delivery cyclists, which can have an important effect in terms of mobilising assistance and support. One food delivery worker talked of the support network:

We get to know which ones are new. Even though we've never met them. Because we know how they react… we tend to hang out together after, on the break, and share stuff… I remember when I was there, nobody helped me, so I would want someone to come and help me (courier, 11615).

Some food delivery cyclists had created their own communication channels, separate from the platforms created by the delivery companies. In these channels they shared tips for working, discussed their legal rights, and socialised. The TWU also plays an important role bringing cyclists together, mainly in pursuing claims for unpaid wages and for health and safety breaches. One interviewee, for instance, had benefited from a claim made by the TWU for large amount of back-pay from a company.

More broadly, courier riding has its own sub-culture, centred on a sense of pride in independence and skill involved in the lifestyle. Aside from the sheer physical effort required, there is considerable knowledge to be gained and shared. A number of the courier workers interviewed strongly identified as part of a globally-networked courier sub-culture. Several had moved from country to country working as couriers, with some participating in international courier-riding competitions. This points to the physical capacity gained by the more experienced cyclists, which may explain some differences in their experience of heat stress as compared with the council workers.

4. Analysis

The data demonstrates the well-established nexus between outside temperature/humidity and work effort in producing heat stress. The physical assertion associated with cycle courier and delivery work shapes the conditions for the incidence of heat stress experienced by these workers. Their workflow contrasts with that of council workers, who may work with heavy machinery requiring less exertion but may be more exposed to heat over longer periods of time. Work effort combined with exposure then determines the experience of high heat stress. Yet, both work effort and exposure vary according to measures taken to minimise or manage them.

The survey revealed that Council workers were more likely to feel the heat and to be dissatisfied in it. Both sets of workers reported symptoms of heat stress but there were substantial differences in capacity to reschedule work, with Council workers proactively changing where and how they worked, and scheduling lighter duties, to avoid heat stress. Qualitative responses in the survey underlined these differences, with cyclists expressing concern to maintain their pace of work on hot day (and hence maintain their earnings). Other comments illustrated the personal toll of working through the heat and correlate closely with the comments made in interviews. The survey illustrated the extent which

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heat stress is as much the outcome of a social process as the product of heat or humidity per se. As a limitation, statistical analysis was not applied to the survey data. Instead, survey data was used to provide an initial simplified descriptive account of the experience, which was then analysed in light of themes that emerged from interview analysis. As noted, four aspects were identified from the interviews: individual measures, workplace autonomy, specialised knowledge and social organisation. There are other aspects revealed in the survey data that are not addressed in this analysis, such as thirst, hydration and location.

4.1. Individual measures

All participants were highly aware of the impacts of heat stress and the extent to which they could individually take action to minimise it. All were aware of the importance of hydration and sun protection and suitable clothing. Council workers generally preferred breathable cotton as against the cyclists who often preferred synthetic cycling material, which may reflect differences in wind flow and evaporation rates (Domenico and Collins 2022). Courier cyclists took their own measures during the day to avoid the heat or recover from it. Fatigue at the end of long hot days was also noted, particularly in relation to driver safety on the journey home to outer suburbs. There is extensive evidence of acclimatisation, and concern for newcomers unaccustomed to the heat. Some courier cyclists celebrated the physical capacity involved in their work in contrast with Council workers who had to work with hot machinery and wear heavy safety clothing. The capacity for individual action to address heat stress was shaped by the nature of the work, and also by the way it is organised. Parks maintenance, roadworks and cycle delivery work are male-dominated sectors of work yet there we found little evidence of performative bravado. Across both sets of workers there is a sharp difference between longer-established workers, who had decades of experience on the job, and younger workers new to the sector. There is benefit from acclimatisation but also from longer-term engagement with the work process especially in terms of specialised knowledge and social capacity, which impinge on capacity to address heat stress.

4.2. Workplace autonomy

Heat stress is linked to employment arrangements: the ability to mitigate the health and safety risks associated with high heat is related to the ability to make decisions about the duration, pace and type of work being carried out. The data points to the importance of workplace autonomy in shaping the experience of heat stress. More workplace autonomy may assist workers to self-pace, and to rearrange or reschedule some tasks to cooler parts of the day. There appears to be a spectrum in place. Workers undertaking piecework, such as food delivery workers, are relatively limited in their ability to slow down, rest or stop working if they are overheating, without losing income or otherwise being penalised. Workers with a daily allocation of work were in a better position, as they could make scheduling decisions to maximise their safety and wellbeing. The hourly-paid worker was more able to vary the intensity of their work and take additional rest breaks without any loss of income. Furthermore, formal or informal teams of workers with allocated tasks could organise the working week to minimise heat stress. Workers in continuously high-exertion and exposed work, for example in asphalting on public footpaths and roads, stressed the need to pace their work and enable time for relief. Others working in parks maintenance stressed the benefits of managing the work schedule in terms of anticipating hot days and, wherever possible, avoiding strenuous or exposed activity on those days. No-one fares well, though, when there is a heat wave that lasts more than a few days, as exerting tasks become more exhausting after successive days of high temperatures (and sleepless nights). In this situation postponing work may be counterproductive: the capacity to anticipate heatwaves and plan accordingly may be critical.

4.3. Specialised knowledge

The capacity to manage workplace heat also depends on specialised knowledge gained by spending time on the job in particular locations. The two sectors investigated for this study involve place-based outdoor work, with very particular local characteristics that could be used to protect workers from heat stress. Experienced workers were themselves the best placed to plan to avoid heat stress in these localities, as they had the direct experience of localities and what types of work could be undertaken safely at different times of the day. Council workers in parks and roads workers noted that localised knowledge of how different areas of the city were likely to be affected by heat over the day, coupled with their own initiative to access weather forecasts could help shape the scheduling of tasks over the day and week. This was easier in some areas where workers covered a rotation of different activities over a 10-to-15-day cycle with a degree of in-built flexibility, as opposed to situations where a singular task had to be completed to a fixed deadline. Council workers' specialised knowledge included the layout of parks and pathways, as to when work could be safely undertaken with minimal disruption to residents or park users, as well as when sections of parkland were less exposed at different times of the day. Delivery cyclists' specialised knowledge included understanding the delivery area in relation to the availability of water, shade, breeze and quiet locations. Many cyclists used this knowledge to mitigate the effects of heat where possible. Reported strategies included choosing to work in the CBD where streets were shaded by the tall buildings in the middle of the day, or finding refuge in air-conditioned lobbies, cycling along tree-lined streets, or relegating strenuous or inclined routes to cooler parts of the day. Knowledge of dedicated bicycle paths, congestion and traffic at different times of the day was also important.

4.4. Social (self-)organisation

More generally, forms of social organisation in the workplace can play an important role in helping to mitigate the possible effects of heat stress. Social organisation may arise from the regularity and sociality of the workplace, as workers have a familiarity both within the group and with the locality. There is evidence of strong team-based mutual support among the parks and road workers: this in large part reflects the specialised knowledge that comes with their work and appears to have formed organically (rather than intentionally) from the work allocation process. There is little formal training for Council workers in managing heat stress yet there is considerable social support within work teams to ensure workers do not exceed their limits in the heat. Among the council worker group, there was evident support for team-based work and for self-organisation around workplans, between colleagues and from management. Delivery cyclists were also able to create forms of social organisation and provide networks of support, for instance through their own dedicated social media groups, but these were much weaker. Delivery workers are heavily segmented into sub-sectors by work task and employment relationship. Cyclists strongly identify with their peers, especially within these segments, for instance with experienced food delivery workers offering support for newcomers. But these networks are relatively weak, and have little immediate impact on the day-to-day workflow. They can, though, change work relations over the longer run especially with efforts to designate workers as employees rather than contractors, as led by the trade union.

5. Conclusion

The existing literature on workplace heat stress has recently highlighted the importance of 'self-pacing' in managing exposure (Lao et al, 2016; Varghese et al, 2020). This study extends this research, suggesting that self-pacing cannot be abstracted from workplace relations. In this respect, we argue that the means for mitigating heat stress, including 'self-pacing', are more likely to be available for workers who have on-

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going status as continuing employees. Workers on piecework or who are casually employed have weaker workplace safeguards and are less able to schedule work effort, affecting their ability to reduce exposure. The study draws a contrast between the experience of council workers employed on an on-going basis mainly in parks maintenance, and bicycle delivery workers contracted on a piecework per-delivery or 'gig' basis. Survey data highlights a contrasting capacity to 'self-pace', and follow-up interviews reveal a wide range of self-pacing practices among council workers, contrasting with the workload pressure experienced by bicycle couriers. The research finds that workplace social organisation, specialised workplace knowledge and worker autonomy enable workers to manage workflow to minimise heat stress. Interviews reveal how the contrasting experiences reflect the category of employment as much as the type of work that is being performed.

There are clear limitations to this research, not least in terms of the number research participants, although a larger data set may not necessarily yield deeper insights. The predominance of men in the sample reflects the composition of the workforce but limits insights into gender relations. There are also limitations inherent in the comparative frame, which centres on contrast cases. The two sets of outdoor workers are engaged in quite different forms of work and hence variation is to be expected, though there are surprising commonalities and this can the deepen the insights. The qualitative mixed-method approach has its own limitations as it seeks illustrative evidence rather than strictly representative data. In this respect it has value as a more exploratory form of research that can open up questions to be explored in a larger dataset; it also has value in trialing new approaches, for instance with use of 'push' notifications for a daily mobile phone survey. Future research could extend the scope of this project, with a larger data set perhaps, across similar cases. It would be useful to support 'micro' level workplace studies with more 'macro' datatsets, perhaps with national-level surveying, which would allow the use of more quantitative models to supplement the qualitative approach. There could also be an interest in generating comparative perspectives, across national contexts as this could further validate and elaborate-on the themes that have been outlined here. It could for instance be especially worthwhile to compare experiences in low- and high-income countries, again, to allow themes to be developed that have common application, that are not simply locked into a specific national regulatory frame. Overall, we would suggest these are important avenues to explore, not least given the wide and growing relevance of workplace heat stress.

The implication of these findings is that there is a direct negative correlation between workplace safety in relation to heat stress and employment contingency: contingency undermines workplace safety. Employers that seek to avoid obligations to their employees, minimizing wage rates through contingent or piecework contracts for instance, are likely to exacerbate workplace heat stress. The qualitative data discussed here illustrates how this nexus is experienced by workers in contrasting employment contexts. It especially offers insights into the requirement for self-pacing, stressed by several Lao et al (2016) and Varghese et al (2020), demonstrating how this relies on workplace autonomy. Echoing IPCC predictions (2022), we suggest this issue is likely to become more pressing with the growing incidence of high heat conditions under climate change. Our findings also affirm workplace-centred research (Quinlan, 2015; Goods, 2019) suggesting there is likely to be growing pressure for forms of employment that enable workplace social organization and worker autonomy. Initiatives from organisations such as the ILO are evidence that this agenda is advancing. Increasing heat is one important way in which climate change is shaping the labour process, and the wages and working conditions of millions of people. As safe and effective heat management in the workplace becomes increasingly crucial, there may be increased pressure for a commensurate shift in the ways people are employed. In this respect, workplace heat stress is becoming an 'organising' imperative for work-related social organisation including for trade unions.

6. Note

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CRediT authorship contribution statement

James Goodman: Writing – original draft. **Elizabeth Humphrys:** Writing – original draft. **Freya Newman:** Writing – original draft.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

Appendix A:. Survey Text

1. Are you answering this at work or not at work? At work or waiting for jobs / Not at work
2. Is heat currently impacting your work? [open]
3. Was it hot the last time you were at work, and if so, how did this affect you? [open]
4. Please rate on the scale below that best represents how you feel at this moment: Hot / Warm / Slightly warm / Neutral / Slightly cool / Cool / Cold
5. Please rate on the scale below that best represents how you felt the last time you were at work: Hot / Warm / Slightly warm / Neutral / Slightly cool / Cool / Cold
6. Please rate your satisfaction level with the overall heat conditions you are experiencing at this moment: Dissatisfied to Satisfied (seven options)
7. Please rate your satisfaction level with the overall heat conditions you are experiencing the last time you were at work: Dissatisfied to Satisfied (seven options)
8. Please check any box. Are you: thirsty, extra tired, finding it hard to concentrate, sticky, feint or dizzy, feeling sick, hands more slippery, having trouble completing tasks, feeling overheated, wearing extra protective clothing because of the weather, anything else: ____

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9. Please check any box. Have you done anything in particular to cope? take extra breaks, change the way you worked, changed the location where you worked, rehydrate more often, eat or drink something special undertake lighter duties; stop working, anything else: ___
10. Is there anything about work today and heat stress that you want to tell us? [open]

Appendix B:. Interview Questions

Demographic information

1. Name [open]
2. Age [open]
3. Gender [open]
4. Who do you work for? [tick box: CoS Council / Deliveroo / Uber Eats / Menulog / Other]
5. How long have you been working for that organisation? [tick box — under 3 months / 3–6 months / 6 months-year / 1–2 years / 2–5 years / 5–10 years / 10–20 years / more than 20 years]

Initial 'intake' questions

6. What has been your experience in addressing, avoiding or overcoming heat stress?
7. Are you aware whether your employer has any policies about heat stress?
8. Do you have suggestions on what could be done better in your workplace on heat stress? Are you aware of any government policies about heat stress?

Follow-up 'exit' questions

9. What was you experience with the heat senor and the daily mobile phone surveys?
10. Is there anything about the five days when you were surveyed that you would like to add?
11. Can you give us some background on how you personally avoid or manage heat stress?
12. What is the key problem for you in terms of minimising heat stress?
13. Do you work with co-workers or with managers to minimise heat stress, and if so, how?

Appendix C. Responses to Open-ended survey questions

Cycle Couriers

'I suppose what makes me more uncomfortable is the layers I have to wear etc. it's harder to concentrate if I'm uncomfortable'
'Humid weather wearing me down as time goes by'
'It's been a really warm and humid day to work on a push bike'
'Changes to intensity and mode of work cause me to incur costs and lose earnings as I am in a sham contract.'
'It was a very hot day, using sun cream every 3h'
'I am fine with low 30's I get more heat stress with high 30's low 40's'
'Worked a different area so much easier heatwise today'
'I don't enjoy today's combination of heat and humidity.'
'Felt extremely overheated'
'Tiring, drank lots of water'
'Less efficient at work'
'Was humid but not too hot. Basically in the CBD all day though so plenty of shade and air con'
'I was hot and bothered and tired. Too humid for my liking'
'I was dehydrated and exhausted and it caused me to be a little emotionally on edge and just kind of "over it"'
'I was dehydrated and needed to drink a lot of water.' 'Slower and less efficient'

Council Workers

‘Longer to complete tasks, irritable and uncomfortable’
‘Losing fluids faster than able to replenish, didn't stop from discomfort so mentally felt stronger’
‘Sweating, feeling hot, wanting to get out of direct sun when appropriate’
‘Second day of heat so was a bit slower today found it harder to concentrate and get tasks completed’
‘Besides the discomfort, irritability, sweating at the low end of the scale, at its worst the shakes, legs start to feel like jelly and headaches’
‘Quickly realised that I was getting less friendly the hotter I became’
‘I feel as my work was slowed down as some cramping became apparent by late afternoon’
‘Affects me once I stop moving for a long period (over 30min) as fatigue sets in, and it's hard to feel hydrated for a few hrs after that’
‘Very hot and humid’
‘Hedging large hedges most of the day creates a hot personal environment due to how close the machinery is to your body and the extra safety gear’
‘Lack of any breeze and bushfire smoke haze made it uncomfortable to work today’
‘Very humid day felt from early morning’
‘There is no way to cool down’
‘Temperature was around 35 degrees, felt like around 40 degrees, very hot and uncomfortable, makes any labour task harder to physically do and reduces the speed at which you work’

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Construction Workers in a Climate Precarious World

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Abstract

This paper examines climatic heat stress as a question of workplace health and safety in relation to at-risk and precarious labour. First, we argue that precarity is usefully understood as a phenomenon that is both generalised (all work is precarious given the function of labour under capitalism) and differentiated (experienced differently across geography, labour process and employment status). We frame climate change and labour relations as internally related and argue that climate change needs to be incorporated into the notion of precarity. Second, we explore the experience of construction workers in New South Wales, Australia, and consider the industry as a potential site of organising over both labour conditions and global warming. We conclude that climate change exacerbates precariousness, disrupting all work and intensifying and extending individual risk in various ways. Further, these experiences present a potential site to simultaneously act on both global warming and labour conditions.

Keywords

precarity, labour, climate change, heat stress, WHS, OHS, industrial relations

Introduction

> [W]hen summer comes we're all in for it. You try and prepare yourself best you can but regardless, any summer in Australia is hectic . . . When the mercury gets over 30, what does it matter, (you're) starting to feel the pinch. [Respondent 38]

The climate crisis, which has been apparent from the mid to late 20th century, is the result of human activity and threatens the longer-term capacity of the planet to sustain life (Moore, 2015). More immediately, there are a range of health and labour security issues evident. Shifts in climate are altering weather patterns and have increased the prevalence and intensity of various seasonal phenomena, including hot days and extreme temperatures. As a result of related heat stress events,

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accumulation and the labour process are being disrupted, and the financial security and well-being of millions of workers impacted.

Workers who labour outdoors in high heat conditions, or indoors without effective temperature controls such as air-conditioning, are particularly vulnerable to workplace health and safety (WHS) risks posed by high heat and humidity. Those engaged in strenuous, physical work confront particular risks, as this form of exertion makes metabolising heat more difficult. Increasing climate heat also poses a serious threat to labour productivity, as it reduces humans' capacity for physical activity and work in many heavily populated locations (International Labour Organisation (ILO), 2019). The working arrangements of an employee – their relative security or precarity and the level of labour organisation in their workplace – shape how they manage heat stress.

Climatic heat stress is a WHS issue in relation to at-risk labour, as is widely acknowledged in the construction industry. However, we are also interested in whether the experience of heat stress presents possibilities for labour organising on the issue of climate change. In order to examine this question, data was obtained through a survey of construction workers in the state of New South Wales (NSW), Australia, and an interview with a senior construction union official.

In considering the nexus between labour organisation and climatic heat stress, we argue it is useful to frame analysis through the notions of precarity and internal relations. This is because climatic heat stress events both exacerbate already existing precariousness and present opportunities to act on that status and in relation to the climate crisis. Further, in understanding climate change as internal to capitalist production and labour exploitation, we can better understand how labour experiences contingency in the present period.

In what follows, we begin by considering the notion of precarity and argue it is a phenomenon that is *both* generalised (all work is precarious given the function of labour under capitalism) and differentiated (experienced differently across geography, class and employment status). We then detail the experience of construction workers in NSW, who were surveyed about the impact of heat stress, their experience of workplace struggle over this issue and their perspectives on climate change in relation to high heat working conditions. We contextualise this survey through an interview with a senior union official in that jurisdiction, on the organisation's experience of managing heat stress in the industry. Based on this study we suggest heat stress is likely a useful avenue for more focussed organising on both precarity and global warming. Heat stress has the potential to concretise the issue of climate change for workers, and struggle over heat stress has the potential to also be a struggle over conditions of precarity.

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Conceptualising the Terrain

Centrally, precarity is used to describe changing employment conditions and social supports and the unravelling of a social contract made possible by the stability of accumulation in the period after the Second World War and up until the end of the long boom in the early 1970s. The era of globalisation and the processes of neoliberalisation have undermined the social contract of the Fordist era, transforming workplace relations. Companies and governments have pursued more flexible employment arrangements and have shifted risk onto individual workers, including in Australia (Rafferty and Yu, 2010). Large organisations have pursued outsourcing, which has in turn 'created complex chains of suppliers, distributors and contractors', leading to casualisation and a larger number of precarious workers, 'forever chasing diminishing employment opportunities' (Lamm et al., 2017: 39). The notion of precarity is also used by social movements acting on these issues, as both an analytical framework and a mobilising strategy (Alberti et al., 2018: 447).

At the centre of debates about 'precarity' is the work of Guy Standing and his notion of the precariat. For Standing, the precariat is, in a signal to both Marx and Weber, a new

'class-in-the-making' (Standing, 2011: 7) and a category of workers with 'truncated status' (Standing, 2011: 8). He argues the precariat has been formed by decades of neoliberal reform and a more general undermining of trust relationships through the shifts in state-personal relations. However, precarity is often understood more broadly, as having 'significant work-related (e.g. job insecurity, economic insecurity, inequality) and non-work related (e.g. individual, family, community) consequences' (Kalleberg, 2009: 17). In summarising Standing, Shukaitis (2013: 645) notes this is a case of both the 'contractual matter of job conditions' and the 'intensification of labour through technological means and communication', which has altered 'the very nature of the social fabric such that it is increasingly difficult to feel secure in any position'. Importantly, it appears that workers' '*sense of insecurity* ha[s] risen more substantially than empirically measurable job instability (such as we might be able to discern through categorising work in various ways)' (Alberti et al., 2018: 451).

We find aspects of Kalleberg and Standing's analysis useful for highlighting that precariousness is not simply a condition confined to the workplace (Kalleberg) and is a status and experience that can be a potential site for conflict and struggle (Standing). However, it is crucial to understand that all work in the capitalist mode of production is precarious in a sense and that precarity is not strictly confined to a new form of labour arrangements or class (i.e. the precariat). We take Alberti et al.'s (2018: 449) view that 'there is no one group for whom precarity is a unique hallmark; precarity is instead [better] theorised as inherent to all labour–capital relationships, to varying degrees'. Rather than focussing on whether the concept is 'solid' enough to act as an analytical category, we ask how experiences of precarity shape working life and the potential for action (Shukaitis, 2013: 655). In this regard, the experience of precariousness has historically been central to the struggles of Standing's salariat and 'old' working class, in gaining improved work and social security conditions – struggles for: the 8-hour day; for sick leave and holiday pay; the right to access retirement pensions and payments; and for better WHS standards. We are interested in how the experience of work (including its precariousness) relates to how workers may be, or may potentially be, organised. Of course, it is crucial to understand precarity as a differentiated factor in the experience of work by labour, as we will demonstrate in our discussion of construction workers and climatic heat stress below, but the nature of class power within capitalism means precarity is also an intrinsic component of work more generally.

While use of the concept of precarity in the social sciences has become 'ubiquitous' (Herod and Lambert, 2016: 4), it has also attracted critique. Some have highlighted concerns about conceptual clarity and argue that the notion is becoming diffuse and 'stretched', losing its usefulness as an analytical tool (Alberti et al., 2018: 448; Jørgensen, 2016: 960). This is, in part, argued on the basis that the term has become so broad that it encompasses too many forms and experiences of work. According to this line of argument, it does not assist us in understanding the specificity of experience or how work is changing or has changed, and the term has become an empty signifier (Jørgensen, 2016: 960). Yet there is a benefit of utilising a broader definition of precarity and to understanding precarity as inclusive of the impact of climate change on labour. This is because 'precarity is not one thing, but rather a versatile concept' that aids analysis of how labour is organised today and can be 'deployed differently in varying situations and contexts' (Shukaitis, 2013: 655). It is also in being aware of this versatility and diffusion that the 'tension between precarity as a sociological and as a strategic and political concept' is made plain (Shukaitis, 2013: 655–656). The scale of the climate calamity facing the planet, and how this creates volatility and transformation in work, suggests that discussions of worker precarity should be attentive to climate change. Climate change processes including climatic heat stress impact production to cause and exacerbate insecurity and, as such, climate change should be understood as (1) a factor making, or likely to

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make, all labour more precarious; (2); a process of intensification of existing experiences of precariousness; and (3) a process internal to the labour process.

Climate change constantly shapes the experience of work. All labour is made insecure by climate change given it threatens human and ecological life; impacts the capacity of capitalism to maintain stable accumulation; and often negatively impacts the capacity to labour. In other words, climate change processes – including climatic heat rises – impact the broader processes of social reproduction, work life longevity and job security, and have consequences for all workers. As Goods (2017: 676) argues, climate change is an industrial issue 'because it shapes the types of jobs and industries that will exist, and not exist, in the future, the labour process, the wages and conditions of workers, and the strategies of organisations and management'. In relation to our study, precarity as a conceptual frame also highlights the differentiated experience of climatic heat by workers in two ways: first, it disrupts the labour process and increases the risk for labour exposed to heat stress; and second, it highlights how workers who are already more precarious (e.g. casual or contract workers, or those who are non-unionised) are less able to take mitigating action against the adverse effects of heat stress.

Räthzel and Uzzell (2018: 1–2) point out that trade unions have mainly viewed nature in two ways: as 'a space for recreation and leisure that needed to be preserved as well as enjoyed'; and 'in the context of health and safety concerns for their members'. As a result, 'nature as a source of use value, and human labour power as a part of nature' has been neglected, and nature has been constructed as labour's other (Räthzel and Uzzell, 2018: 2). Additionally, in regard to climate change, it is not simply a question of global warming acting on the performance of waged labour – as much of the literature on heat stress characterises the issue – as this posits climate change as something ontologically external to production. Instead, we need to understand that climate change is internal to the labour process – internal to capitalist social relations. As Jason W Moore (2015: 30–31) argues, to follow through on Marx's philosophy of internal relations is to grasp historical change as co-produced by humans and the rest of nature – but not as two interacting boxes, or even overlapping circles in the well-worn style of a Venn Diagram.

In this way, 'the connection between people's productive relations with nature, or labour process, and their productive relations between themselves, or social relations of production, is internal and necessary, not external and contingent' (Sayer, 1987: 25). Understanding the experience of climatic heat stress in this way allows us to understand social relations as being where 'connections are maintained and contained as aspects of a self-forming whole' (Bieler and Morton, 2018: 9). In considering climate change and labour conditions, heat stress has the potentiality to make explicit and concrete what is often abstract or understood as externally related. Further, in asking how workers might act to articulate and address their experiences of climate change, rather than exploring how workers might be *integrated* into existing political campaigns over it, the question then becomes how the embeddedness of climate change struggles *within* labour struggles – in particular the experience of heat stress by labour – might usefully be understood and used as a site of mobilisation.

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Construction Workers as Climate Actors

Recent literature has emphasised heat stress as an immediate and pressing WHS issue (Dell et al., 2014; Xiang et al., 2015), as well as a threat to economic productivity (Kjellstrom et al., 2016; Zander et al., 2015). At above 35°C, the risk of heat stress for workers engaging in heavy manual labour is high (Parsons, 2014). Under temperatures equal to or exceeding 37°C, workers are likely to face acute physiological effects which threaten their health and safety (Bennett and McMichael, 2010). Heat exposure increases the risk of workplace accidents related to physical fatigue, the

misuse of equipment and reduced mental capacity (Rowlinson et al., 2014). It can have a negative effect on worker behaviour (Park et al., 2009) and lead to irritation and anger (Gubernot et al., 2014).

While the risk of heat stress for workers engaging in heavy manual labour is acute above 35°C (Parsons, 2014), there is no legislated requirement in NSW for workers to stop work at a specific temperature or humidity level. Section 19 of the *Work Health and Safety Act 2011* outlines a broad duty on Persons Conducting a Business or Undertaking (PCBUs) to eliminate health and safety risks in the workplace 'so far as is reasonably practicable'. Where eliminating risks is not reasonably practicable, PCBUs are required to minimise health and safety risks by the same standard ('reasonably practicable'). What is 'reasonably practicable' is defined in Section 18 of the Act, and partially determined by the cost associated with eliminating or minimising the risk.

The specific risks posed by climatic heat stress to workers in Australia were acknowledged by both Unions NSW and the Australian Council of Trade Unions in their recent submissions to the 2018 review of the Model WHS laws. Unions NSW have called for a new model Code of Practice covering heat risk management, noting that 'climate change has brought with it increasing levels and duration of heat and humidity' subjecting workers in non-air-conditioned environments to increased risk of 'heat exhaustion, fatigue [and] melanoma' (Unions NSW, 2018: 5). The Australian Council of Trade Unions (2018: 27) argues that the current guidance material on heat-related illness, which is nonbinding, represents an 'inadequate regulatory response' to the issue, 'which is likely to continue to worsen due to Australia's climate, the impact of global warming and Australia's aging workforce'. They note that '(d)uty-holders and workers in numerous sectors are struggling to manage [the] issue' (Australian Council of Trade Unions, 2018: 27).

Projected temperature increases are expected to elevate the risks of heat stress and heat-related issues for workers in the building and construction industry. Concurrently, the construction industry is expected to grow rapidly. The construction industry is currently the third largest employer in Australia at 9% of all employees and is male dominated (87.6%) (Australian Bureau of Statistics (ABS), 2019a). It is the fourth largest industry sector as a proportion of gross domestic product, at 8% (Reserve Bank of Australia (RBA), 2019). The construction industry is projected to grow by 10% in the five-year period to May 2023 (Department of Jobs and Small Business, 2018: 3). In NSW, a total of 371,332 people are employed in the industry: 84.7% work full time and 15.2% work part time (Australian Bureau of Statistics (ABS), 2019b).

Climatic heat is a specific challenge for both health and safety and productivity in the building and construction industry. Most obviously, workers in this industry are particularly vulnerable to climatic heat stress due to the weather exposed and physically strenuous nature of most of the work (Acharya et al., 2018; Rowlinson et al., 2014). Furthermore, the informal and casualised labour arrangements, sham contracting and fragmented labour-hire structures which increasingly characterise the industry, all have negative implications for WHS (CFMMEU Construction & General Division, 2018: 2). The construction industry is the third most dangerous industry to work in, behind agriculture (including forestry) and transport (Safework Australia, 2019). Leaders from the union representing construction workers in NSW – the Construction, Forestry, Maritime, Mining and Energy Union (CFMMEU) Construction & General, NSW Divisional Branch (CFMMEU C&G NSW) – have advised that high heat days involve spikes in members contacting the union for advice, and that they are contacted on extreme heat days more than any others. CFMMEU enterprise bargaining agreements (EBAs), including principal contractor and sub-contractor enterprise agreements, require that workers are to stop work, and prepare for 'safe completions of critical tasks currently underway', when the ambient temperature reaches 35°C or above 75% humidity (CFMMEU Construction & General NSW, 2016). The temperature is measured at the closest

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Bureau of Meteorology station to each worksite. The construction union is active on the issue of heat stress in a variety of ways: advocating for changes to legislation and regulation; submissions to inquiries and coronial inquests; sitting on consultative bodies safe work authorities; training delegates and union members on heat stress management; and organising and advocacy on work sites on high heat days.

Discussions about how to put climate issues 'on the agenda' for unions and workers, and how to maximise the climate consensus, are on-going. For example, Hampton (2015) sees that workers 'have a special, privileged stake' in tackling the processes which give rise to ecological degradation (p. 39) and anticipates that class struggles will increasingly play out over issues related to climate change (see also Brunnengräber, 2007). These struggles might include: industrial action over climate policies which shift the costs of climate mitigation onto labour; localised, community action against climate policies; or more political battles over, for example, fiscal policy and taxation schemes which adversely affect workers (Hampton, 2015: 39–40). As such, Australian unions are an important force in the debate about climate action.

Snell and Fairbrother (2011: 87–91) outline the approaches taken by key unions in Australia and highlight that action has primarily focussed on two key axes: what position should a union take on climate change policy; and, how the issue of job security can be addressed for workers in carbon producing industries. Goods (2017: 674–676) groups the approaches of workers and their unions in addressing climate change into *embedded institutional* approaches, such as integrating environmental clauses into EBAs, and *voluntary multilateral* approaches, such as workers and unions having a more direct role in emissions reduction initiatives in the workplace. In their recent analysis of 2427 environment-related EBAs certified between January 2011 and June 2016, Markey and McIvor (2019: 96–97) found that while several of these environmental clauses extend managerial prerogative on general environmental matters, by imposing employer-led initiatives on employees, there is also 'significant scope for extending opportunities for environmental worker agency in general consultative clauses', and that WHS committees may be a useful 'foot in the door' strategy for unions hoping to intervene on environmental issues through collective bargaining.

Without dismissing such approaches to understanding climate action and workers, and the important goals pursued by these authors, analysis can tend to pose climate as an external political issue for workers to take up and take action on. Climate is often being understood as 'outside' the immediate interests of workers and those that represent them. Less attention has been paid to the ways in which climate issues (in this case, rising heat) are internal to the industrial process. We suggest climate change can be recast as being in the immediate and everyday interests of heat-exposed workers, and necessarily part of the 'core business' of trade unions. Climate justice is not only a concern which extends 'beyond wages and working conditions' (Stevis et al., 2018: 442), but it is internal to those concerns. We argue that linking climatic heat with WHS, particularly through notions of precarity, is an opportunity to make these underlying internal relations more apparent. This is not simply a case of suggesting unions integrate heat issues into bargaining to a greater level, but of leveraging the fact that struggles over climatic heat and the labour process are inherently also struggles over climate change.

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Data Collection

The survey data analysed in this paper was originally obtained by one of the co-authors as part of an honours research study (Newman, 2018). Between 5 July and 12 July 2018, 151 members of CFMMEU C&G NSW were anonymously surveyed on the issue of climatic heat stress through an online and self-administered questionnaire (see Appendix). The survey investigated

how these workers were experiencing heat stress at work; how they managed high heat days; whether they had taken action on heat stress issues in the workplace; and their views on high heat and climate change. It used Kjellstrom et al.'s (2016: 98) definition of heat stress and its associated symptoms: 'Heat stress refers to heat received in excess of that which the body can tolerate, without physiological impairment.' The survey questions were drafted after initial scoping conversations with academics and trade unionists working in this area. There are over 17,000 members in this branch of the CFMMEU, comprising both a permanent and casual workforce. Members are predominantly male, and a large proportion of these members are from non-English-speaking backgrounds. These members work in a variety of different trades in construction, including labourers, carpenters, concreters, crane operators, dogman, riggers, bricklayers, formworkers and steel fixers.

The online survey was distributed through the union's established email communication pathway and open to 11,657 members of the branch. A total of 151 responses (or 1.3%) were received. During the data collection process respondents were assigned a unique identification number (from 1 to 151) based on the date and time at which they completed the survey. The choice to survey union members only was taken for two reasons: first, a central aim of the research was to consider how workers are currently organised, and how they potentially could be organised, in relation to climatic heat stress; and second, a pragmatic consideration was the ease of survey distribution and timing of the honours project – the union was able to facilitate surveying construction workers quickly through their established communication networks. In addition to the survey, a formal interview was conducted with Rita Mallia, president of the CFMMEU C&G NSW Branch, on 23 January 2019. This interview covered heat stress in the construction industry, how the union organises on this issue, government WHS regulation, and climate change. Survey data was reviewed and analysed using Microsoft Excel and an open-ended coding method. For the closed-ended questions, where options had been provided for respondents to add additional categories, these were also grouped by common themes where appropriate. For the open-ended questions, where respondents were encouraged to write longer answers, these were coded – often with multiple themes.

In interpreting the survey results we have been mindful of two factors. First, it is likely that the responses gathered would be different if non-union members were also surveyed, or if the workers surveyed were from a wider geographic area, as this would likely have increased variation in responses on some questions. Second, there was a low response rate to the survey and, as such, the survey data may not be representative of the sample generally (i.e. all CFMMEU C&G NSW members). The low response rate was impacted by various project constraints and requirements, and we note: Internet surveys have a lower response rate (over surveys administered face-to-face or by telephone); only a single email was sent (with no reminders); the survey was open for responses for a short time (one week); not all members open union communications and would not have been aware of the survey[1]; and the survey was written and distributed in English only. While there 'is no simple answer to what is an appropriate rate, and no rate is automatically indicative of greater or lesser accuracy and utility' (Morton et al., 2012: 1), in interpreting results from this specific survey we are cautious in drawing hard conclusions. We consider that a larger response rate may not have increased the completeness of information on some questions (such as what physical symptoms related to heat stress workers had experienced, or whether employers took the risks associated with heat stress seriously) as the sample likely contained sufficient variation within the 151 responses. However, on other questions, including where there was a very small number of responses in certain demographic categories such as employment status (see Table 1), the low response rate must be treated with caution.

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Table 1. Respondents as a percentage of employment status.

Nature of employment	% of respondents
Full-time permanent (employed on an on-going basis)	82.78%
Casual (employed week to week)	12.58%
Contract (employed for a period of weeks or months)	3.31%
Part-time permanent (employed on an on-going basis)	1.32%

Discussion

Working Construction in a Climate Precarious World

Increasing climatic heat stress events make the performance of all construction work more uncertain. During an interview on the subject of heat stress, workplace precarity and labour organising, CFMMEU C&G NSW Branch President Rita Mallia (2019) suggested that all her members were at risk of heat stress. This included workers in the non-trades 'like scaffolding, labouring, traffic control, crane operating' and in glass and tiling factories, as well as outdoor, on-site workers in construction and building. Mallia noted that even in well-organised worksites, on high heat days the phones just run hot. . . because people don't have either the confidence to stop work themselves, delegates are uncertain whether they [or the] Health and Safety Reps have the authority to bring to the attention of the principal contractor that work should stop.

Even though CFMMEU NSW EBAs contain 35°C stop work clauses, implementing these conditions effectively is still fraught for union delegates and members. For example, Mallia notes that contention over how to measure the temperature is common even on highly organised worksites. This assessment accords with the survey results, which suggest that heat exposure is producing WHS-related consequences across all categories of work (permanent full time, labour hire, etc.), and regardless of whether these workers had a union representative in their workplace or whether there were policies in place for managing heat stress events when they occur.

Workplace heat stress is a significant issue for the survey respondents in terms of physical health, mental health and safety. Most respondents said that on high heat days, workplace heat stress affects them quite a bit (41.96%), or very much (32.87%). Almost 20% of respondents said it affects them somewhat. Only 4.89% of respondents said heat stress affects them a little bit, and 0.7% of respondents – one person – said heat stress does not affect them at all. The most common physiological effects of heat stress identified by survey participants were fatigue or exhaustion (88.03%), increased body temperature (76.76%), reduced concentration (71.13%) and stress (59.86%). Some respondents (7.74%) described other effects of heat stress, including headaches, excessive perspiration, sunburn, vomiting, self-injury, loss of consciousness, anxiety and frustration. Respondents said that heat stress 'plays a significant [role] in judgement making abilities' (Respondent 51), made them 'tire much faster' (Respondent 109) and increased the probability of 'accidents due to fatigue' (Respondent 32). Heat stress impacts not just work time and conditions, but also broader health and recovery once away from the workplace. Many surveyed workers also noted that the adverse effects of heat stress potentially affected their friends and families. Respondents characterised heat stress as a 'very serious' and 'major' issue in terms of health and safety, with 'both short and long term' (Respondent 29) consequences for 'all (workers) on site not just the person suffering' (Respondent 148). Respondent 116 noted that 'it can lead to a lot of problems at home, work and travelling during and after the event'.

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The profusion of more insecure forms of employment does not only impact heat stress affected workers in casual or contract working arrangements but reduces the ability of all workers to act in regard to heat stress. To take one example, Respondent 42, a full-time permanent worker, noted that sub-contract work arrangements in NSW undermined the effectiveness of their own actions on heat stress: 'Too many subcontract workers in NSW for any success with any action, always someone who stays working'. In support of these findings, other studies have noted how precarious working arrangements undermine construction workers' health and safety. Lao et al. (2016: 230) found that despite being covered by a temperature policy allowing work to stop at 38°C, skeleton staff used by one Adelaide council were 'required to keep working to ensure the safety and security of the workplace'. As Quinlan et al. (2016: 30) argue, 'precariousness is better understood as something that can to some degree affect all categories of workers, encapsulating the loss of control over working-life'. Furthermore, all categories of workers contend with generalised obstacles to managing the effects of heat stress. These include managerial prerogative over the labour process; an industrial relations environment hostile to unions and union action; and inefficient or deficient WHS regulations. All workers contend with the fact that their employers have fundamentally conflicting interests over WHS issues, including heat stress, and there is no natural alignment of employer/worker interests in relation to workplace safety (see Creighton and Gunningham, 1985: 149).

Differentiated Experiences of Heat Stress

While climate heat increases the risk for *all* labour exposed to heat stress, this risk is differentiated among workers. As we have argued, the working arrangements of an employee – their relative security or precarity and the level of labour organisation in their workplace – shape how they experience and are able to manage or reduce heat stress. For workers on relatively less organised worksites, the ability to mitigate the adverse effects of heat stress – for example, by stopping work, taking frequent breaks, hydrating, ensuring that they have adequate personal protective equipment (PPE), rearranging or rescheduling work tasks at different times of the day, delaying work, taking strike action, being advocated for on behalf of a Health and Safety Representative (HSR) – is diminished.

There is a substantial body of literature linking precarious employment arrangements to negative WHS outcomes. Quinlan et al. (2001: 345, 351) identify key risk factors which contribute to reduced WHS outcomes in precarious employment arrangements, including: greater pressure experienced by precarious workers to retain jobs or contracts; the conduciveness of piecework to forms of work intensification; workplace disorganisation leading to increasingly complex or ambiguous rules, more complicated lines of management control and the reduced ability of workers to organise and protect themselves; and an increased risk of regulatory failure, due in part because conventional WHS regimes may be designed for permanent employees in large enterprises and agencies. While there is evidence that joint workplace arrangements improve WHS outcomes, this general correlation is underpinned by a number of factors including support from trade unions, consultation between HSRs and workers, well-trained and informed representatives, commitment from management and regulatory inspectorates to enforce legislative provisions for worker representation (Walters, 2004).

While, according to Mallia, heat stress is an acute issue for all members to some degree, she recognises a difference between workers on sites which are highly organised and those which are not:

> . . .once you get away from the highly organised workplaces, probably across the board whether it's a factory or a warehouse or a building site where people are left to their own devices unfortunately a lot of employers just will treat people like rubbish and expect them to work in extraordinary temperatures and it will take a fatality or some very serious incident before something is done.

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Many surveyed workers communicated that work processes and policies for managing heat stress were fragmented across different worksites. Of those surveyed, 21.28% said that there was no union representative on their worksite, such as a Health and Safety delegate, and 14.18% did not know. Respondent 6 commented that it 'seems every site has different rules!' This is, potentially, a particular concern for labour-hire workers. Given the lower union density amongst contractors, and a lack of permanency, the ability of these workers to exercise power in the workplace to address the negative consequences of heat stress is considerably reduced. One labour-hire worker noted that they worked 'at different sites all around the city. [S]ome sites have a union rep and good safety procedures, others (don't) have anything at all'.

Negative workplace impacts related to heat stress and resulting from productivity pressures, which some longer-term workers argued has worsened over time, was a key theme emerging from the respondents. These findings are suggestive of a generalised problem, given it was raised consistently although the survey did not ask workers specifically about the issue of productivity. Moreover, these pressures were differentiated across worksites and for different groups of workers. For example, Respondent 7, who noted that they had taken action in regard to heat stress in the past, suggested that their workmates had instead kept working in high heat conditions 'prob in fear of losing their jobs'.

Reflecting dissatisfaction with the degree of managerial prerogative over WHS issues, many respondents felt that the current measures in place to deal with heat stress events were ad hoc, individual and overly determined by an employer's priorities. Some surveyed workers felt that a 'self-management' approach to heat stress issues was ineffective and that what the industry refers to as PCBUs, such as employers, were taking advantage of the fact that heat stress affects different workers at different rates and in different ways. Respondent 44 observed that 'PCBUs tend to capitalise' on the fact that there is 'no definitive definition of what constitutes excessive heat exposure' and that 'people have different tolerances' to exposure. As this respondent highlighted, this also results in heat stress being made the responsibility of an individual worker – impacting precariousness through risk shifting – rather than it being dealt with as a WHS matter that is managed collectively and is the responsibility of employers.

Mallia is conscious of the varied ability to take action on heat stress across the membership and notes heat stress is one of the union's 'key issues' given its significant risk in terms of health and potential fatalities. She argued that the union division has moved from having a 'somewhat ambiguous position' to a more rigorous one, in particular since the construction of Barangaroo began in 2012. Barangaroo is a significant redevelopment of a 22-hectare site on the western edge of the central business district of Sydney, on the harbour foreshore, which was commenced in 2012 and is scheduled to be completed in 2024. On that site workers were exposed to high heat through a combination of direct sunlight and heavy PPE, and the union took active steps to develop what Mallia describes as 'a much more stringent and clearer process' for managing high heat.

Precarity intersects with climatic heat stress in three ways. First, decreasing labour security and workplace organisation impacts collective action and undermines the ability for all workers to establish more generalised procedures around heat stress, which is compounded on sites that are less well organised. Second, WHS risk is linked to exposure on a particular day, and casual and contract workers are less able to mitigate immediate consequences during an extreme heat event because they occupy a relatively weaker position industrially on worksites. Third, the effects of high heat are not experienced in the same way for all workers, as individuals acclimatise to heat in different ways; thus those unable to acclimatise are made more precarious through an inability to physiologically adapt.

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Possibilities and Challenges for Organising

Many surveyed workers characterised their attempts to protect their health and safety in high heat conditions as fundamentally incompatible with their employers and managers, who were necessarily focussed on maintaining a particular intensity of labour in order to meet deadlines and complete jobs. There was a strong perception among surveyed workers that their supervisors, managers, bosses and employers were not taking the issue seriously and, in some cases, were undermining or obstructing their capacity to manage instances of heat stress. Only 6.34% of respondents believed that their employers took heat stress 'very seriously', whereas 35.92% of respondents felt that their employers did not take heat stress seriously 'at all'. A sense of contempt for employers, managers and bosses concerning heat stress issues was also evident in many responses. Workers believed that bosses 'would have you work in any weather' (Respondent 120), and stated directly that if '[y]ou think the bosses give a crap, they don't, they just want production, money money money' (Respondent 38). Surveyed workers often contrasted their difficult experiences with heat stress 'on the ground' with the comfortable experiences of their managers, bosses and employers, who 'sit in air-conditioned offices and don't want production to stop' (Respondent 2). Similarly, Respondent 43 said that '[o]ur bosses never come out of their air-conditioned offices on stinking hot days but make us work in horrible places with crazy high (temperatures)'. Respondent 67 said '(m)any employers disregard the issue even when they have a policy on it'.

The majority of surveyed workers indicated that they believed heat stress could be used to effect labour process change. An overwhelming number (86.14%) believed that heat stress issues should be included in bargaining, as well as in union campaigns – although we acknowledge the union does both already. The most common explanations given for increasing activity on heat stress were that heat stress is a serious health and safety issue; that employers were not taking the issue seriously enough, and/or acting against their interests on heat issues; that there was a need for clearer and stronger policies; that the current processes in place for managing heat stress were deficient or inconsistently enforced, particularly in the context of increasingly fragmented working arrangements; and that the pressure to maintain a particular level of production in intense and unsafe conditions was significant and increasing. These factors translated to a clear appetite among surveyed workers to effect labour process change through bargaining, union campaigns and other forms of struggle and action.

We were also interested in whether heat stress might be an opportunity to engage members on the question of climate change, given the link between higher temperatures and the increased frequency of hot days. Reflecting on members' views, Mallia suggests that the union has 'had a very sophisticated conversation with our members around' climate change and how it affects the construction division. She notes that the issue comes up internally through discussions and resolutions and that 'people are obviously concerned'. Union members are also cognisant of climate and energy issues in terms of building efficiency and how these issues shape the design aspects of construction. Mallia stated that because members 'have always been exposed to extreme weather', they experience the effects of increasing temperatures in very direct ways – and some are likely to draw connections between climate change and the ways in which they work. As temperatures continue to increase, 'and things still have to be built', this will be an on-going challenge for the union, their members and other workers in the industry.

Views among surveyed workers about whether there was a direct relationship between climate change and heat stress at work were mixed. This relationship seemed 'obvious' to some workers, and many referred to their experiences of changes in the climate at work, over time and in different locations. However, while many expressed keen interest in using workplace power to deal with environmental constraints to their ability to work, some who were enthusiastic about organising

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around heat issues were unsure, ambivalent or sceptical about climate change generally. Several respondents understood heat stress as a critical health and safety issue, but not one that was linked to climate change. Generally speaking, it appears that for this group of workers, framing heat stress issues in terms of climate change may have less credence than framing these issues in terms of health and safety. No hard conclusions can be drawn from such limited data, but given this is an important issue for trade unions and other social movement groupings – hoping to organise workers around climate issues and increase climate consensus – it is worthy of further research. As Hampton (2018: 484) has argued of the UK experience as well, 'research is needed on workers' perceptions of climate change, how they frame it and what they are prepared to do about it'. That said, setting aside the question of how to frame action on the issue of heat stress, the desire of surveyed workers to take greater action was clear.

Conclusion

Based on this study, it is likely that workers' direct experience of heat stress is informed and constituted by a sense and actuality of precariousness and that this is a result of: a worker's employment status (permanent, casual, contract, etc.) and level of job security; the ability of workers to take industrial action to address workplace concerns (which has been undermined in the neoliberal era); and, perhaps more abstractly, the experience of climate change in the workplace through increasing climatic heat stress events. To this end, we consider that climatic heat stress may represent an opportunity for workers to gain an insight into this contradiction of the productive process – between exploiting labour and the conditions necessary for accumulation, as well as climate change itself. Climate change is a component of precariousness in the labour process and is subject to both intensification and resistance. As a result, climatic heat stress may have considerable, albeit latent, organising potential. This is not a simple question of how precarious forms of work might undermine (or offer potentials for) labour action on climatic heat stress in the present period. Rather, there is a deeper contradiction at play. Climate change is anthropogenic, as many argue, but it is more specifically a consequence of the capitalist mode of production. As such, it is destabilising for both the performance of labour on particular worksites and the process of accumulation and social reproduction more generally. This disruption threatens profitability, but also offers potential for mobilisation inside the productive process.

Capital's purview over the conditions of production ensures that climate heat is an object of struggle over both immediate labour conditions and the climate crisis more generally. How those struggles take place is contingent, and not predetermined. In acknowledging the internal relationship between climate change and the labour process, we can depart from the established parameters of approaches to these struggles. For example, the question 'how can we make climate change core union business?' might become 'how are climate issues already embedded in the labour process and our working lives?' While the idea that climate change is internal to the labour process may be a notion that is usually abstract, in the case of climatic heat stress it has the potential to be made solid. And while heat stress events are undoubtedly a physical limitation and an obstacle for many workers, we also consider that they represent an opportunity to gain an insight into an underlying contradiction of capitalism – the contradiction between exploiting labour and the conditions of production and social reproduction of life on this planet.

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Note

1. The CFMMEU is unable to collect data on email opens (i.e. how many of those who received the email opened it, in order to be aware of the survey).

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Appendix

Survey Questions

1. What is the nature of your employment? (multiple choice)
   - Contract (employed for a specific period of weeks or months)
   - Casual (employed week to week)
   - Part-time permanent/on-going
   - Full-time permanent/on-going
2. Have you ever experienced any of the following effects from heat stress at work? Please tick all that apply (check list).
   - Nausea
   - Dizziness
   - Fatigue or exhaustion
   - Increased heart rate
   - Increased body temperature
   - Reduced concentration
   - Stress
   - Other (please specify) (open ended)
3. On hot days, how much would you say heat stress affects you? (On a scale of 1–5) (sliding scale)
4. Have you ever raised issues relating to heat stress with any of the following? Please tick all that apply (check list).
   - Union delegate
   - Boss/supervisor
   - WHS representative
   - CFMMEU
   - Workcover
   - Other (please specify) (open ended)
5. Do you know at what temperature you are meant to stop working completely? (multiple choice)
   - 32°C
   - 33°C
   - 34°C

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- 35°C
- 36°C
- 37°C
- 38°C
- 39°C
- 40°C
- 41°C
- 42°C
- 43°C
- I don't know

6. How seriously would you say your employer takes the issue of heat stress, in terms of workers' health and safety? (On a scale of 1–5) (sliding scale)
7. Is there a union representative, such as a Health and Safety delegate, in your workplace? (multiple choice)
   - Yes
   - No
   - I don't know
8. What types of procedures exist in your workplace for managing heat stress events, when they occur? (check list)
   - Reporting procedure (e.g. through First Aider or site Safety Coordinator)
   - Cessation of work at particular time or humidity level
   - Increased frequency of rest breaks
   - I don't know
   - Other (please specify) (open ended)
9. Have you ever taken action at work over heat stress issues? (multiple choice)
10. Was the action successful? Why or why not? (open ended)
    - Yes [directed to question 10]
    - No [directed to question 11]
11. Do you think that heat stress issues should be a part of bargaining and/or union campaigns? Why or why not? (open ended)
12. Do you think high heat days and heat stress events are increasing due to climate change? Tell us what you think. (open ended)

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Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Respondent details

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What is your organisation?
Medtronic Australasia
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Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
[redacted]
Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☒ Industry and Life Sciences Organisation or Representative ☐ Academic or Researcher ☐ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

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Questions for feedback from the Consultation Paper

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?
We support the intent of the Strategy. As a key supplier to the health system globally and in Australia we have been considering for some time the steps we can take to contribute to emissions reduction and global emissions reduction targets. We have implemented a number of local and global initiatives and continue to do so.
2. How could these principles be improved to better inform the objectives of the Strategy?
NA
3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?
Medtronic is committed to achieving net zero cardon emissions by FY2045 across operations and value chain (scopes 1,2, and 3) in alignment with the Paris Agreement. We have implemented a FY45 Decarbonization Roadmap, that provides clear targets through the Science-Based Targets Initiative (SBTi). To help reduce emissions in our industry, we are taking a leadership role in collaborative climate action with the National Health Service (NHS) in England and the U.S. National Academy of Medicine (NAM). Medtronic CEO [redacted] signed a joint letter with other global healthcare CEOs as members of the International Leadership Group for a Net Zero NHS to support England's largest health system with its net zero goals. Medtronic is also participating in the NAM Action Collaborative to Decarbonize the U.S. Health Sector, which brings together multi-sectoral leaders to co-develop and implement a shared action agenda to reduce environmental impacts and strengthen sustainability and climate resilience. We understand that health is directly tied to the environment. By reducing our carbon footprint and being advocates for change in our industry, we are investing in the health of our company, our people, and our planet. We have also implemented a number of key initiatives in Australia including around recycling and waste reduction.
4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?
We consider that First Nations organisations and communities are best placed to input to this question.
5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?
As above.

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Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia? (page 11)
Yes – we have a number of planned initiatives at various stages of implementation locally and globally.
7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?
NA

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Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? (Built environment and facilties, travel and transport, supply chain, medicines and gases , waste and models of care) Should anything else be included? (page 15)
We consider that these sound like reasonable focus areas to commence the strategy, but we encourage you to maintain flexibility to amend your focus areas as you progress to reflect emerging priorities, progress, innovations and developments.
9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?
NA
10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?
Patient outcomes and preferences need to be considered as does clinician expertise. Also need to ensure you consider where medical technology and digital health, such as telehealth and remote monitoring, can support the delivery of care and where this can align with the Strategy more effectively by reducing the need for patients and carers to travel to healthcare facilities and thus offset associated emissions.
11. Which specific action areas should be considered relating to **supply chain**, over and above any existing policies or initiatives in this area?
We recommend that the Commonwealth, working with state and territory authorities as applicable, establish nationally consistent sustainability principles that could be applied to tender requirements to ensure greater consistency and with a transparent methodology for calculating agreed metrics. It is important that realistic timeframes are provided for any new sustainability requirements to be introduced and that there is clear understanding of requirements including for life-cycle analyses. Whilst Medtronic has an active sustainability program and ambitious targets, we understand the complexity of changing requirements and the long lead time that is required to ensure that change does not limit patient access to lifesaving technology.
12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?
Patient safety, outcomes and preference should continue to value, as should clinical decision making, the best treatment options for patients. There are ways to incentivise innovation in this space by ensuring HTA frameworks consider questions of environmental sustainability without compromising clinical and cost effectiveness and in a manner that enables alignment with data availability.
13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?
Plastics and other packaging materials are important to the safe delivery of medical devices. But plastic pollution is a growing global issue. As a member of the Healthcare

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Plastics Recycling Council, we are working on economically viable solutions. For example, in FY21, we shrank the sterile packaging volume for our spinal cord stimulation needles, reducing GHG emissions related to this product. By FY25, Medtronic has pledged to reduce packaging waste by 25% for targeted high-volume products and have a number of examples we can share with you.

However, waste management and reduction will require cross-sector collaboration and cannot be the sole responsibility of suppliers. Medical waste is typically disposed of by healthcare facilities, as there is a biohazard risk associated with taking back potentially contaminated items. There will be significant barriers in reducing single use healthcare products as there remain challenges around handling of potentially contaminated items and access to sterilisation. Furthermore, efforts to increase rates of refurbishment or reprocessing of medical devices may impact product quality.

Again, we reiterate that ongoing consultation and co-development with private sector organisations will be important as you finalise and start to implement the Strategy.

As a global leader in the manufacture and supply of medical technology into the healthcare system, we have established transparent targets and reporting obligations. We would be happy to share these details with you and let you know where we are reducing our emissions footprint and how – both around the globe and in Australia.

14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?

Primarily we consider that improvement of patient outcomes needs to be the goal of any optimised models of care.

There are some ways to incentivise the pace with which sustainability innovations are adopted into models of care, and these can be considered through modifications to existing evaluation frameworks to include consideration of societal impact (including environmental aspects) of medical technology introduced into the health system.

15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?

Our experience is that private hospitals are already taking steps to implement emission reductions activity including through the private tender requirements. Medtronic has a large private provider is also taking these steps locally and globally.

It is important that there is standardisation of the requirements expected of private providers in reducing their carbon emissions. An example of this can be seen in the *NAM Action Collaborative to Decarbonize the U.S. Health Sector*, where the health sector collaborated to establish the guidelines to decarbonisation. This approach facilitates education on best practices while maintaining progress on decarbonsation.

It is important to ensure that the Strategy and principles are achievable and that there is a constructive process of consultation to ensure you are aware of voluntary private sector activity, and the opportunities and challenges with the implementation of additional requirements. Medtronic would be happy to engage with you about this – in terms of what we are doing, and what we are seeing across the private market.

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16. Where should the Strategy prioritise its emissions reduction efforts?

    a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?

    b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

It is important to consider initiatives that are already underway, and ensuring that the approach does not impose unachievable burdens or increase compliance burden at the expense of patient-prioritisation and focus.

17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?

It is important to consider that quick wins may not necessarily be possible for many areas in the healthcare system, as existing processes maintain a balance of patient safety. A long lead time may be required for many changes to ensure that patient safety is not compromised. One quick win that you may wish to consider is asking companies, like Medtronic, to provide you with case studies being implemented voluntarily to show private sector commitment to support the implementation of the strategy.

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Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?
NA
19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes: a. What are the key considerations in developing a methodology? b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally? c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?
NA

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20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?
Refer suggestion above. It is important to ensure nationally consistent principles and transparency in evaluation metrics.
21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?
Consultation on existing activity especially with private sector.

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Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?
Health in all Policies can potentially assist in improving cross-agencies coordination and the different levels of government working synergistically on health and health-related priorities. Health in all Policies would probably in the short term be best to focus on ensuring that we remove existing perverse incentives already operating in our healthcare system, for instance those that lead to increased hospitalisation. We would be happy to provide additional examples of Medtronic therapies and products associated with secondary, tertiary and quaternary prevention.
23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?
Value-Based Healthcare (VBHC) and the success of VBHC models in other countries may provide some useful examples of how coordinated policy levers can overcome perverse incentives in healthcare to optimize patient outcomes. This could present a useful tool to support assessment of and delivery of stronger outcomes across climate and public health policy objectives.

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Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
NA
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider to support delivery?
It is important when considering enablers and collaboration that you include the medical technology sector as a part of the health sector than can potentially make a valuable contribution.

Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

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SARRAH

Services for Australian Rural and Remote Allied Health

27 July 2023

National Health, Sustainability and Climate Unit
Environmental Health and Climate Change Branch
Office of Health Protection
Australian Government, Department of Health and Aged Care

E: Health.Climate.Consultation@health.gov.au

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Services for Australian Rural and Remote Allied Health (SARRAH) submission: National Climate and Health Strategy

Thank you for the opportunity to provide a submission on the Draft National Climate and Health Strategy.

Services for Australian Rural and Remote Allied Health (SARRAH) is the peak body representing rural and remote allied health professionals (AHPs) working in the public, private and community sectors, across primary and other health settings, disability, aged care, and other service systems. SARRAH was established in 1995 as a network of rurally based allied health professionals and continues to advocate on behalf of rural and remote communities to improve access to allied health services and support equitable and sustainable health and well-being. SARRAH maintains that every Australian should have access to health services wherever they live and that allied health services are fundamental to the well-being of all Australians.

SARRAH is also a member of the Climate and Health Alliance and strongly supports the leadership and advocacy CAHA has taken in this critical area of national, public policy.

SARRAH commends the Australian Government for following through on the commitment to prioritise development of a National Climate and Health Strategy. Action must be urgent, ongoing, iterative and responsive and encompass development, implementation, review and resourcing of coordinated efforts to mitigate the extent and impacts of climate change. Protecting human health and wellbeing now and into the future must remain a national priority.

We also thank the Department for facilitating opportunities for stakeholder engagement in the development phase of the draft Strategy and hope to have further opportunities to engage in the process. In our experience, the quality and substance of material presented and the approach to discussions by officials and participants was constructive frank, informed and open.

Our overarching comments on the draft Strategy follow.

a) SARRAH supports CAHAs position on the Strategy and stress their position that ***the importance of this Strategy can not be understated.***

b) As many stakeholders have stressed, Australia's National Climate and Health Strategy needs to adopt a **scope and scale commensurate with the challenges we face** (nationally and globally) to address an unsurpassed threat to human health. The consequences of inaction or ineffective action are profound and as great or greater than any matter requiring government and community responses, including those related to global pandemics and major military conflicts.

- The Strategy needs to be bold, purposeful and sustained to contribute to addressing the impacts of climate change.
- For this reason, SARRAH strongly supports the *Health in All Policies* approach described in the draft Strategy (page 32).
- Further, we consider the matter should be a standing agenda on First Ministers' meetings and other national ministerial meetings reporting to National Cabinet.

c) **The Strategy needs to be agreed, resourced, and implemented as a matter of urgency.** This is underscored by the extent and rapidity of global environmental shifts (e.g. escalating record-breaking global temperature increases – at faster rates and with more widespread and catastrophic effects than the most sophisticated models have predicted)[1]. The extreme weather and related events being felt across the northern hemisphere at present must raise extreme concerns about the potential severity and impact of events we will face in Australia in the lead up to the 2023-24 summer period and beyond.

- The prevailing shift in climatic conditions is more rapid than has been factored into international agreements and commitments to date which means governments need to act with more urgency and be prepared to escalate our planning and responses far more rapidly and extensively. Standard policy development and implementation timeframes are too slow, in the face of dramatic increases that must be ameliorated to slow global impacts. The focus and effort should more closely reflect the urgency that accompanied initial responses to the COVID pandemic.
- Globally, more political leaders are openly crediting climatic and related events/disasters to and (human influenced) climate change. The reality of having to address more frequent, severe, dislocating and costly events and trends, appears to be strengthening resolve to act and accept the science and modelling. The costs and implications of mitigation activity, while costly, must be weighed against the inordinate costs and impacts attributable to inaction.
- While public opinion on climate change continues to vary, the clear and growing majority view in Australia is toward greater action to address climate change[2], which should embolden policy makers.
- SARRAH encourages Australian Governments to take action on climate change commensurate with the risk it poses.

[1] The scientific evidence is overwhelming and it is appropriate that this inform leaders' decision- making and preparedness to act, regardless of whether the veracity of objective information is questioned by elements of the community: e.g. the International Panel on Climate Change (IPCC); the CSIRO; NASA; etc

[2] For example – as reported by the ABC – here.

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d) **SARRAH strongly supports the proposed Health in All Policies approach.** The draft Strategy outlines the rationale for taking a coherent and integrated approach to national policy as it relates to health, well-being and climate change:

> *The Australian Government also recognises climate change has impacts on the wider determinants of health and some populations (such as the elderly and people with disabilities and pre-existing health conditions) are more vulnerable to these impacts. For First Nations communities, climate change will exacerbate pre-existing high levels of ill-health; compound existing challenges in accessing safe water and appropriate housing, infrastructure and health services; and affect cultural and spiritual connections to Country. Many decisions influencing the social, economic, cultural, environmental, and commercial determinants of health are made outside the health system. Many of these decisions not only negatively impact on health and wellbeing, including equity, but also drive climate change, highlighting the importance of developing a holistic response to the health impacts of climate change*. (From pages 3 and 4 of the draft Strategy.)

By recognising the impacts of climate change on health, the Australian Government acknowledges a responsibility to adopt policy, regulatory and funding approaches to better address the complexities and interactions involved. This would represent a major step in policy setting, which SARRAH believes, would set the necessary foundation for better quality, more equitable and sustainable policy and service provision (in health and other areas), and prove more cost effective and efficient in the medium and longer term. Further, as CAHA argues in their submission on the draft Strategy:

> *All dimensions of climate change are interlinked with human health. Health should be understood in the holistic sense, as "... a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Therefore action to reduce the health risks from climate change requires working across all sectors and all levels of government.* (CAHA Submission, page 4)

e) SARRAHs considers the National Climate and Health **Strategy also provides an opportunity to contribute to improved equity of access and outcomes across the population.** The objectives of the Strategy are fully compatible with delivering more sustainable and effective health and social services to populations identified as being at most at risk: including people living in rural and remote Australia. The long-standing situation has been, in short:

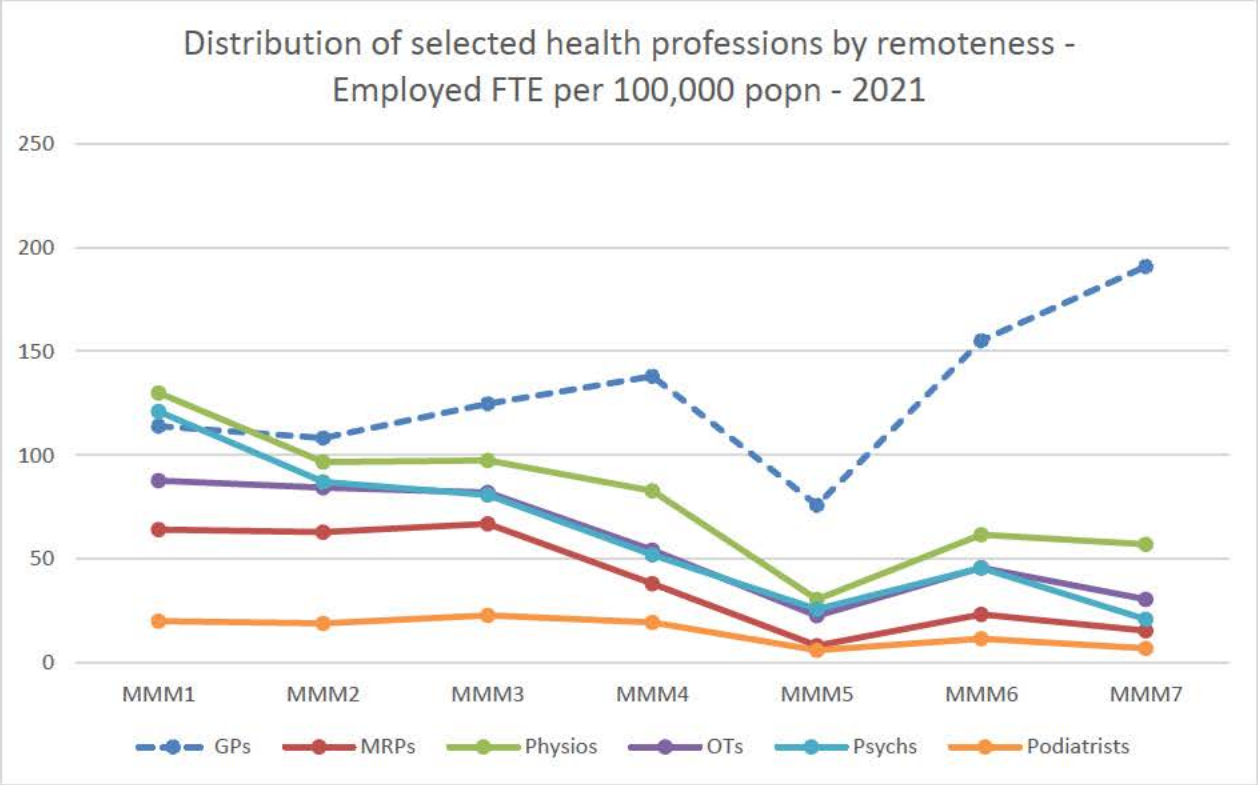
- Australians living in rural and remote Australia experience substantially worse health and wellbeing outcomes at the population level than do other Australians.
- These differentials are generally magnified in rural and remote areas where people face other risks of inequality (such as Aboriginal and Torres Strait Islander Peoples, people with disability etc – as identified in the draft Strategy).
- The level of disadvantage is substantial, multi-faceted, extensively documented and long-standing[3], illustrating the limited effectiveness of previous and existing policy and program approaches to address those inequities.
- The impacts of climate change and the risks they pose for people appear to be most extreme in environments we might typically consider harsh (e.g. remote inland

[3] For example: as demonstrated by data and reports produced by the Australian institute of Health and Welfare (AIHW); https://www.flyingdoctor.org.au/nswact/news/RFDS-Best-for-the-Bush-report/; The Australian Atlas of HealthCare Variation series, produced by the Australian Commission on Safety and Quality in HealthCare; the 2022 report of the Senate Standing Committee on Community Affairs report of their inquiry into the Provision of general practitioner and related primary health services to outer metropolitan, rural, and regional Australians and the very many submissions to that inquiry, including SARRAHs; the Evidence base for more investment in rural and remote health (2023, commissioned by the National Rural Health Alliance); etc.

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communities) and/or at the forefront of rapid change (e.g. northern coastal and island communities) – communities that already experience higher need for but lesser access to services.

- There is a close correlation between health workforce mal-distribution, access to services and population health outcomes. The maldistribution is stark when presented on a comparable per head of population distribution graph (below). However, the access and service challenges (and frequently the associated operating resource demands) are magnified greatly by factors inherently determined by location. It is a vastly more challenging situation to deliver health and related care to similarly sized populations that occupy the space of a few inner-city suburbs compared with an area larger than Victoria, with substantial variation in terrain, climate and limited infrastructure. Typically, even this situation is complicated by higher rates of disease (often co-morbidities) and lower levels of personal income.



Notes – For other allied health (not included), generally a similar pattern exists to those identified; also noting Australia does not collect or hold workforce data on many allied health professions, including speech pathologists, exercise physiologists, dietitians, social workers and more. While GPs appear to be relatively well distributed, this can be somewhat misleading given too few medical professionals are practicing as or becoming GPs (an overall shortage), the distribution of other medical specialists is far more metro-centric. The relative absence of allied health and medical specialists exacerbates demand pressures (while also constraining treatment options) on GPs. As a result, the nursing workforce (which is more evenly distributed than other professions) is critical to maintaining health services and access in rural and remote health areas but are under increasing pressure. Aboriginal and Torres Strait Islander health practitioners and health workers provide vital services and are comparatively well represented in rural and remote areas but are too few in number to meet service need. Across the board, challenges of servicing large and diverse geographic areas mean the ratio of health workforce to population should be higher.

- Many of the current programs used to provide health services to rural and remote residents and communities exist because of and designed around the absence of local health service and workforce availability. These can be very resource (and carbon) intensive; for example, high use of Fly-In Fly-Out workforce (even for basic health care or

avoidable conditions/events); emergency retrievals – e.g. RFDS (including avoidable events); hospitalisations due to lack of access to timely preventive and primary care; patient assistance transport schemes (again, where timely local care could have prevented the need for travel etc) and so on.

- Given Australia's geography, environment, size and population distribution we will always need mechanisms to enable people from lower population centres to access more specialised services that are can only feasibly be delivered in larger population centres. While that is accepted, too little is being done to assess the relative health outcome and cost benefits of increasing local service and workforce provision.
- Emergency and stop-gap services are too often the default policy response, arguably perpetuated by insufficient efforts to establish and maintain tailored local primary and preventive health care capacity.
- In this regard, a key action for a National Climate and Health Strategy may be to reduce the need for high resource use interventions (such as emergency air retrieval and/or avoidable hospitalisations) by ensuring timely access to local, preventive and primary care and related services. As the Draft Strategy states (page 22):

  > *Health care costs, and associated emissions, are increasing because of an ageing population and in particular, changes in the way care is being delivered. One clear pathway for reducing emissions is by keeping people healthy and out of the health system through prevention.*

- **Development and implementation of better rural and remote service and workforce capacity** (enabled by complementary digital health initiatives etc) **represents a significant and tangible national action to progress not only the National Climate and Health Strategy**, but many other imperatives - including the Strengthening Medicare and preventative health agenda , supporting further progress of a sustainable and effective NDIS, the Aged Care reform process, the national Closing the Gap commitment, the Jobs and Skills agenda, productivity improvements and more.

The potential for all of these agendas (and more) to be advanced together while making a tangible contribution to constraining the climate impact of the health and related service systems demonstrates how and why an approach such as *Health in all Policies* can be pursued while aligning with the particular objectives of any of these contributing agendas. High level political leadership, coordination and will is the essential keystone.

Our more specific comments on elements of the draft Strategy follow.

Re: *Q 1. How could these objectives be improved to better support the vision of the Strategy?* (Page 5)

- SARRAH fully supports the statement that *"The outcome of the Strategy must be to prevent illness, injury and death associated with climate change; minimise the healthcare systems' contribution to Australian emissions; and, ensure health systems resilience."*
- The Objectives listed on page 5 are vitally important. They focus on the extent to which the health system itself contributes to the issue. However, the overarching issue is that human health and the systems that have been developed to support and maintain human health will be overwhelmed or redundant unless we are able to contain global warming and its impacts in the face of presently uncontrolled and rapid warming. Consequently, it would be appropriate for the

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National Climate and Health Strategy to place the objectives currently expressed on page 5 within an overarching objective about the critical importance of limiting the extent and impact of global warming so that as much of Australia (and the planet) remain viable for human habitation as possible.

Re: *Q2. How could these principles be improved to better inform the objectives of the Strategy?* (Page 6)

- As mentioned above, SARRAH welcomes the draft Strategy and the objectives. These could be further strengthened as indicated in the response above and possibly by citing links explicitly connected to other national strategies and priorities (e.g., Closing the Gap), especially those where National Cabinet has indicated an intention to provide continuing oversight and commitment.
- As a critical enabler, SARRAH would argue that addressing chronic health workforce shortages and service access issues experienced by people living in rural and remote Australia should also be recognised as an important action to be promoted and monitored as part of the Strategy.
- The CAHA Submission also identifies the issue: *The prevention of disease and injury is the most certain way of reducing the health sectors environmental footprint. By preventing disease and injury, particularly chronic conditions, fewer people need to access health services and the carbon load is reduced. It is recommended that prevention of disease is embedded within mitigation approaches and that the Commonwealth budget reflects the commitment of 5% of health budget spending towards preventive health.* (CAHA submission, page 8)

Re: *Q8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?* (Pages 15-16)

- Each of the identified focus areas should be considered in reducing emissions. In addition to these - and as a cross-cutting consideration – each focus area should include and be informed by a rural and remote lens. The reality of this will often vary greatly from what exists, is available or viable in major population centres. Explicit consideration of rural and remote circumstances, including tailored investments to enable the balance of emissions controls and service reach and impact, is needed. In addition, to be effective, investments must be secure and applied on scale, rather than be limited to short term trials and pilots.

Re: *Q10. Which specific action areas should be considered relating to travel and transport, over and above any existing policies or initiatives in this area?* (Page 18)

- Please refer to our overarching comments on the Strategy as well as our response to the previous question.

Re: *Q14. Which specific action areas should be considered relating to prevention and optimising models of care, over and above any existing policies or initiatives in this area? (*page 22)

- Please refer to our overarching comments on the Strategy, especially in relation to established levels of health service access, workforce and the differential access and outcomes that characterise Australia's health system.

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Re: *Q21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?* (Also referencing questions 19 and 20 – Page 29).

- Citing CAHAs submission (page 10) *Principle 2, 'tackling health inequalities', should include inter- and intragenerational health inequality in climate impacts. For example, young people are more impacted by the climate crisis and therefore need specific focus in policy development and implementation. Principle 2, 'tackling health inequalities', should be strengths based, going beyond 'supporting action' to 'taking action'*
- There is no more urgent need than to enable local health service and workforce capacity, which rural and remote Australians need now and have done for many years.

Re: *Q14. Which specific action areas should be considered relating to prevention and optimising models of care, over and above any existing policies or initiatives in this area?*

- SARRAH strongly supports the response provided in the CAHA submission (pages 18-19). CAHAs response identifies:
  - the breadth of action needed;
  - the numerous areas of policy activity that could be productively leveraged in contributing meaningfully to the National Climate and Health Strategy; and
  - the urgent need for concerted and coordinated effort across these areas.
- An area of immediate priority should be to develop and implement a comprehensive national rural and remote health workforce strategy. The strategy should be prioritised through National Cabinet and recognise the cross-service sector implications (public, private, community-controlled, health, disability, aged care etc) and address:
  - The absence of a national Allied Health workforce strategy of any kind – despite decades long the projected further demand growth, maldistribution and chronic shortages (in rural and remote areas especially) of this workforce; and
  - Inadequate coherence, integration, accessibility and pathway facilitation of education and training for this workforce – and integration with clinical service systems/supports.

Under **Enablers** (page 35), the draft Strategy highlights the importance of working with and supporting the **entire health and aged care workforce** to contribute to the goals of the Strategy.

- SARRAH strongly supports this position goal and suggests that to achieve the required breadth and commitment to engagement, concerted effort is needed that respects, engages with and facilitates contributions from all elements of that workforce.
- The current wording of *E1.1. (Encourage medical colleges and other education and training institutions to ensure the impacts of climate change on health form part of the training curriculum for all health care professionals)* risks perpetuating an imbalance in health and related system engagement and empowerment by distinguishing between the medical profession (i.e. medical colleges) and "other".
- "Other" in this case refers to more than 90 per cent of health professionals, carers, administrators and others working across this diverse sector.
- Many of these people have substantial independent control/influence on systems' clinical and other resource usage. In many cases, profession-specific education and training

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bodies will have little influence or expertise in the day-to-day decisions and actions that will contribute to achievement of the Strategy.

- It is not clear why medical colleges would be singled out (at the risk of narrowing the audience) when the Strategy would be better aimed at encouraging and enabling major system-wide change and more efficient resource use.

SARRAH would be happy to contribute further to development of the Draft National Climate and Health Strategy. If you would like to discuss issues raised in SARRAHs response or require further information, please contact [redacted]

Yours Sincerely

[redacted]

Australian Government
Department of Health and Aged Care

NATIONAL HEALTH AND CLIMATE STRATEGY

Detailed submission form

Submitted to: Health.Climate.Consultation@health.gov.au.

Respondent details

What is your name?
[redacted]
What is your email address?
[redacted]
What is your organisation?
The Australasian College of Dermatologists
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☒ I have read and agreed to the Privacy Statement
Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
[redacted]
Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative ☐ Academic or Researcher ☐ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☐ First Nations Peak or Advocacy ☒ Medical College or Peak professional body

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Questions for feedback from the Consultation Paper

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?
The Australasian College of Dermatologists (ACD) welcomes the opportunity to provide input into the Department of Health and Aged Care's, *National Health and Climate Strategy* ('the Strategy'). ACD is the sole medical college accredited by the Australian Medical Council for the training and continuing professional development of medical practitioners in the specialty of dermatology. We are the national peak membership organisation, representing over 600 dermatologist Fellows and 100 trainees. Our recommendations are as follows: 1. The introduction would benefit from more detail on the overarching relationship between health and a safe climate and the targets for greenhouse gas emissions. 2. The Strategy needs a clear and explicit Vision statement that focuses on human and environmental health, Aboriginal and Torres Strait Islander justice, health equity and mitigation of climate change. 3. In terms of the objectives, we support the focus on mitigation, adaptation and a Health in All Policies approach. 4. Measurement is crucial but our view is that it is not an objective in and of itself and should be reframed as an enabler as this will require specific resourcing for implementation. Indeed, measurement is already addressed in the 'Monitoring and evaluation' enabler included.
2. How could these principles be improved to better inform the objectives of the Strategy?
ACD's recommendations are that: 1. Consideration be given to developing a visual representation of the principles and how they first with each other and with the Strategy's objectives and enablers. 2. There would be benefit in strengthening the 'First Nations leadership' principle by articulating why Aboriginal and Torres Strait Islander knowledge is important. 3. Principle 2, Tackling health inequities would be strengthened by articulating that this requires a system level action and be reframed using strength-based (rather than deficits-based) language that reflects both the structural causes of inequity and the opportunity to leverage the lived experience and knowledge of impacted communities to guide strategies. 4. The 'One Health' principle provides an opportunity to better articulate the connection between climate change and the health of people, animals and the environment. 5. Principle 6, Partnership-based working should clearly articulate the integral role of the Australian Government in engaging sectors outside of health, given this will be integral to addressing the determinants of health.
3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?
Australia's carbon footprint attributed to health care is 7%[1] meaning there is a significant opportunity for the health sector to demonstrate leadership mitigation, while at the same

[1] Malik, A et al, 2018. The carbon footprint of Australian healthcare, *The Lancet Planetary Health,* https://doi.org/10.1016/S2542-5196(17)30180-8

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time positively influencing supply chains, and broader action and advocacy to transition to zero emission renewable energy.

Therefore, ACD's recommendations are that:

- Scope 1 and 2 emissions and Scope 3 emissions including medical equipment and supplies used by both hospitals and other health services/settings, be included in the Strategy; and
- That other emissions such as visitor and patient travel also be included to maximise emission reduction efforts.

4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?

First Nations policies, initiatives, expertise, knowledge and practices should guide all aspects of the strategy and we recommend that the expertise and knowledge of organisations, such as the Lowitja Institute, Australian Indigenous Doctors' Association (AIDA) and the National Aboriginal Community Controlled Health Organisation (NACCHO) be drawn upon.

5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

Governance process and co-design approaches must be determined in partnership with First Nations people communities and stakeholders and be culturally safe, strength-based, First Nations led and prioritise self-determination.

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Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?
7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?
ACD recognises the importance of systematically measuring and tracking progress in reducing health system emissions. To ensure health services and healthcare professionals understand their impact on health system emissions and can track the result of emission reduction efforts, it is important that the Strategy considers: • Improving access to tools and resources for healthcare organisations/facilities/professionals to encourage them to better record and regularly monitor progress in supporting health system emission reductions. This can be done by drawing on international experience and resources and applying these to the Australian context. • Increasing investment in research and data collection on the carbon footprint of the supply chain to support continual improvement and to demonstrate whether the health sector is achieving the rates committed to in Australia's National Determined Contribution (NDC). This additional data and information will encourage action on climate change in and beyond the health system and prepare healthcare professionals and other health staff to adapt to future challenges.

Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?
N/A
9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?

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The health system can play an important leadership role in advocating for a healthier built environment, such as transitioning to renewable energy sources to improve health outcomes and achieve zero carbon emissions.

An economy-wide transition to renewables is needed for effective and widescale health sector emissions reduction underpinned by a Health in All Policies approach. In addition, air pollution and water contamination arising from fossil fuel combustion and extraction contribute significantly to other environmental and health-related impacts. Removing gas for energy in new health facilities would be one step towards addressing this. Maximising use of energy-efficient equipment for heating, cooling, and hot water will further contribute.

Healthcare facilities also have an ability to educate the community which should be maximised, for example by communicating that “This is a gas free hospital”, “This is an electric ambulance”, “This facility uses 100% renewable energy”.

10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?

As noted, travel and transportation contribute significantly to emissions in the health sector. Scope 3 emissions to be addressed by the Strategy should include employee commuting and supply chain transportation, as well as patient and visitor travel.

Infrastructure for active modes of travel (walking, cycling) as well as robust public transport options (including to health facilities) are needed to enable and encourage active transport offering benefits both in terms of emissions reduction and health.

Improving accessibility to technology and digital health to reduce emissions associated with patient travel is also an important contributor to reduction of both patient and staff travel.

11. Which specific action areas should be considered relating to **supply chain**, over and above any existing policies or initiatives in this area?

As noted, with nearly 70% of the health system’s global emissions footprint derived from the supply chain, it is critical the Strategy prioritises both Actions 2.3.1 and 2.3.2.

A focus is needed on driving local, national and international collaboration to achieve the economies of scale needed to drive changes in global supply chains, such as pharmaceuticals, medical devices and equipment and supplies.

12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?

ACD welcomes the focus on reducing the use of harmful medicines and gases, including anaesthetic gases.

The carbon footprint of medicines, other consumables such as sutures and their packaging is required to enable better choices by health services, health professionals and consumers between products which are clinical equivalent. At a policy level, there is the opportunity for the Pharmaceutical Benefits Scheme to consider the climate impacts of medication in their decision-making process on which medications are allocated funding. Communication of carbon footprint to the general public does need to be carefully

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considered however to not deter consumers from using the medicines and devices they need to use to maintain their health due to guilt over their climate impact, particularly when there are not more sustainable alternatives.

13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?

ACD strongly supports the recognition given in the Consultation Paper to reuse and recycling being key to reducing emissions-related waste. However, looking at strategies to reduce use in the first place is preferable and critical. This should include changes at an organisational policy level and education of medical and nursing staff regarding waste reduction, such as only using gloves when necessary and reducing waste during procedures. Collaborative and educational initiatives that address low-value care can also play an important role depending on the issues at hand.

ACD would encourage through the Strategy, investment in education of the health workforce as discussed later to ensure they are equipped with the critical skills and competencies to reduce environmental and climate change-related impacts and shape a future sustainable healthcare sector.

14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?

ACD supports the Strategy's focus on prevention and optimising models of care to reduce emissions and would recommend that action 2.6.2 is prioritised.

ACD commends the Strategy's aim to review the impact of telehealth in optimising models of care. In dermatology, it has been demonstrated that telehealth can be an effective method in:[2]

- providing dermatological care to address chronic shortages of dermatology services in rural and remote areas which are likely to be affected by the health impacts of climate changes; and
- reducing the carbon footprint associated with patient and clinician travel.

The Strategy should also consider the impact of telehealth in addressing health inequities for population groups, such as Aboriginal and Torres Strait Islanders who experience higher rates of scabies, tinea and streptococcal potentially due to climatic conditions and barriers in accessing care and treatment. [redacted] It is innovations like this that should be supported by the Strategy to ensure high-value, high-quality care is reaching priority populations to improve health outcomes.

15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts?

ACD supports involving private providers in the Strategy's emission reduction efforts, and suggests:

[2] Anderson et al., The impact of climate change on skin health. MJA 2023.

- Establishing communities of practice that engage with health professionals across the health system, including private providers to encourage climate health adaptation.
- Recruiting multidisciplinary teams and ensuring that these include representatives with experience of working in private healthcare, and of both larger and smaller private providers.
- Developing and rolling out guidelines and training that is readily accessible to both public and private providers to support locally-led risk and vulnerability assessments, adaptation and resilience planning.
- Reaching private providers via professional organisations and by looking at opportunities to incorporate this into continuing professional education.
- Using the above communication channels to highlight how emissions reductions can provide cost savings.

16. Where should the Strategy prioritise its emissions reduction efforts?

    a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?

    b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

ACD consider *2.1 Built environment and facilities*, and *2.4 Medicines and gases* to be the highest priorities for action.

17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?

ACD considers ‘quick wins’ to be those actions that can be quickly implemented to set the health system up for deep, meaningful emissions reductions across the sector, alongside actions that directly reduce emissions. Important ‘quick wins’ include using only renewable sources of energy, reducing supply chain emissions and reducing waste in the health system. Appropriate supports and incentives will need to be put in place.

As outlined in Question 14, expansion of telehealth services to increase capacity and reach to create a healthier environment and more accessible service delivery methods should be prioritised as another ‘quick win’ for the Strategy.

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Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?
ACD supports the Strategy's recognition that a climate resilient health system will need to be capable of adapting to the changing climate to ensure Australians are protected from climate-related health impacts and can continue to access safe, effective and quality care and treatment. A rigorous and comprehensive assessment of the health impacts, risks and vulnerabilities is needed to prioritise adaptation action, and this needs to be reflected in the Strategy. It is critical that the prioritisation for adaptation action considers the physical (i.e., bushfires and floods) and transition risks (i.e., increase in renewable energy sources), and the impact these risks have on communities, including Aboriginal and Torres Strait Islander peoples, and the environment in which people live and interact. It is critical that skin disease is recognised in health impact assessments. **Injury and mortality from climate-related disasters and extreme weather events** The Strategy and its implementation must consider injury and mortality from climate-related disasters and extreme weather events, such as bushfires and floods. From a dermatology perspective, both floods and bushfires lead to injuries, such as burns and traumatic wounds, which are a source of initial cutaneous morbidity and mortality.[3] Floods can lead to the development of immersive foot syndrome, contact dermatitis, and miliaria, and increased rates of bacterial, mycobacterial, fungal and parasitic infections.[4] **Non-communicable diseases** The Strategy and its implementation must also consider non-communicable diseases, particularly higher exposures to extreme heat and cold, ultraviolet (UV) radiation and air pollution, which have significant impacts on skin health and disease. Bushfires increase air pollution, with the air pollution linked to flares in both psoriasis and atopic dermatitis, and itch in both paediatric and adult populations.[5] It is critical that the impact on skin disease is recognised in that health impact assessment, including the potential severe systemic and psychological sequelae of undertreated disease as this is often overlooked, particularly in priority populations. **Ensuring comprehensive data for accurate assessment** The Strategy must be underpinned by improved and comprehensive data collection on disease burden and health service demand to fully understand the impacts of climate change, climate-related disasters and extreme weather events. Only with comprehensive and robust data can meaningful prioritisation decisions occur. To use dermatology as an example, despite being a predominantly chronic condition specialty, dermatological data is often missing from key disease burden datasets meaning the needs of people with chronic and debilitating skin conditions, and therefore the impact of climate events, are at present routinely underrepresented in policy decisions and workforce planning. This has already led to substantial underinvestment in the specialist dermatology workforce resulting in a significant workforce shortage nationally with only just over

[3] Anderson et al., The impact of climate change on skin health. MJA 2023.
[4] Anderson et al., The impact of climate change on skin health. MJA 2023.
[5] Anderson et al., The impact of climate change on skin health. MJA 2023.

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dermatologists nationwide. Given the impact of climate on skin health, there is a very real risk that this service gap may accelerate further. To ensure the service gap does not continue to widen, quality data and increasing public investment in dermatology services and in the registrar and consultant supervisory positions needed to grow the dermatology workforce to meet current and future challenges will be critical.

19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes:
    a. What are the key considerations in developing a methodology?
    b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally?
    c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

ACD supports the development of a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan ('the Plan'). However, we suggest that these could be captured in a single plan, renaming it to *National Health Vulnerability Assessment and Adaptation Plan (National Adaptation Plan)*.

National coordination can facilitate collaboration and reduce duplication but needs to recognise that the approach cannot be one size fits all – communities need information and resourcing to develop and implement measures that work best for them.

An online system to consolidate the evidence-base for climate health action and the development and rollout of guidelines and training to support locally-led climate risk and vulnerability assessments, adaptation and resilience planning is recommended.

National coordination and support should track assessments and adaptation planning across states and territories to ensure a comprehensive approach; support information and data sharing; connect experts and communities across states and territories; establish funding structures to resource vulnerability and adaptation assessment and planning in partnership with states and territories; and establish a dedicated research fund to identify resilience strategies for the Australian health system.

20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?

Yes, ACD supports a nationally consistent approach to vulnerability assessment and adaptation planning as outlined above.

A nationally consistent approach to bushfires and floods would provide baseline standards and benchmarks for state, territory and local governments and organisations, and would be useful for evaluation and reporting purposes. Additionally, ACD would support the development of a national toolkit of resources and guidance that health professionals and consumers can access.

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21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?
Health system adaptations can only be prioritised once risks, impacts and vulnerabilities have been assessed. In the short-term, there should be a focus on planning for urgent action and the establishment of a nationally coordinated surge health and medical workforce for deployment in response to extreme weather events.

Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?
ACD strongly supports the inclusion of Health in All Policies as an objective. This approach is critical given the predicted widescale environmental, economic and social consequences of climate change and the related health impacts. A key area to be addressed includes an urgent transition to renewables to mitigate climate change and protect health.
23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?
ACD strongly believes that collaboration with national, state and local governments, specialist medical colleges and communities is key to effective development and implementation of the Strategy. Involving the whole health sector, not just hospitals will be critical. Collaboration outside the health sector and internationally will also be important.

Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
ACD supports the inclusion of the five enablers listed to better inform the Strategy's objectives. We recommend that enablers on governance, funding, human resourcing and technology also be included. A clear governance and accountability structure that all Australian governments commit to will be essential for successful implementation. Funding will be crucial for implementation and funding mechanisms, rewards and incentives should be considered to ensure comprehensive and timely implementation across Australia. ACD supports the inclusion of *Enabler 1, Workforce, leadership and training.* It is important that all healthcare professionals understand the effects of climate change on health and disease in their field and use this knowledge as a tool to encourage positive

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climate action in and beyond the healthcare sector, and to prepare to adapt to new challenges that arise.

However, this enabler needs to be properly resourced both financially and in terms of human resourcing so as not to place an additional toll on a health workforce already under pressure, particularly in regional and rural areas. Organisations who are driving this work within their profession also need to be appropriately resourced. This includes support for specialist medical colleges, and other education and training institutions to regularly review and update training curricula and educational resources on climate health impacts and healthcare sustainability.

We strongly support the recognition in the Consultation Paper of the need to engage with communities who will be and have been most affected by climate change and climate related events. Those with lived experience, including health professionals on the ground, have a significant amount to contribute to understanding what the needs of communities are and what is and is not effective on the ground.

25. For each of these enablers:
    a. What is currently working well?
    b. What actions should the Strategy consider to support delivery?

Incentives, such as grants will be critical to supporting and encouraging transitions to renewables, emission reduction and putting in place more environmentally sustainable hospitals and healthcare facilities.

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24 July 2023

Australian Government
Department of Health and Aged Care
Health.Climate.Consultation@health.gov.au.

Re: **National Health and Climate Strategy – Consultation**

Dear National Health, Sustainability and Climate Unit

COTA Australia congratulates the Australian Government on its endeavour to develop a much needed and long overdue health and climate change strategy. We support government's acknowledgement of First Nations' spiritual connection to land, experience and know-how as critical to facilitating a safer and healthier future for all. From our perspective, equity must be a priority, both as an outcome and as a driver of change.

In responding to the Strategy, COTA Australia worked with and is now pleased to support the Consumer Health Forum's (CHF) consultation submission. As the peak advocacy organisation for people aged 50 years and older, we endorse the views provided in response to the selected consultation questions and concur with the points for consideration. Further, we throw our full support behind the CHF's opening claim that to make genuine inroads into sustainably tackling health and climate change, inequity needs to be understood as a driver of climate change and therefore all social determinants of health, across all sectors need to part of the equation. As noted in the CHF submission, increasing equity would also foster resilience against the worst impacts of climate-involved natural disasters, increase the scope of measures designed to combat climate change, and improve public health. We agree with a Health in All Policies stance incorporating One Health. We believe considering the health of animals and the environment is imperative to safeguarding our own health and wellbeing.

The involvement of consumers as a core stakeholder in the health system is absent throughout the current Consultation Paper. We robustly agree with CHF that if the proposed strategy is to be effective and enduring, then engagement with diverse and representative consumer groups is fundamental.

From our engagements with older people living in Australia we know that climate change and its impacts on the health and wellbeing of communities is a concern for them. Older people are afraid of the effects of inaction or delayed action on the day-to-day lives of their children, grandchildren and future generations. Their concerns also encompass the impact climate changes are having, and are likely to continue to have, on their health and wellbeing over the coming decades. Older people also voice their fears about how people who are financially and/or socially disadvantaged are disproportionately experiencing the multiple health, wellbeing and financial fallouts from ineffectively abated climate change. Older people want all levels of government to work collaboratively with local communities to find effective and sustainable ways to affect positive change.

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In relation to the proposed strategy objectives, we are keen to draw attention to the inclusion of a sixth objective. We concur with CHF and recommend the inclusion of Community Engagement as an objective. This is imperative. From our perspective older people, make up the largest group of stakeholders in the system and, as stated above, climate change is a priority concern for them.

As is amply evidenced in research findings, a key element of effective preventive care is the reduction of societal inequity. This means that the Strategy needs to include an important immediate, and longer term, goal to increase appropriate services and support for people experiencing health disadvantage across all relevant sectors. For this to occur there needs to be a planned, whole of systems collaborative approach - engaging with diverse stakeholders – with the explicit aim of mitigating the adverse impacts of the social determinants of health. Therefore, rather than striving for 'quick wins', we endorse CHF's call for a system-wide paradigm shift that does not compromise greater-impact systemic change through prioritising a small number of high-visibility changes that are soon lost in the enormity of the change required.

Yours sincerely,



Patricia Sparrow
Chief Executive Officer
COTA Australia

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Submitted by email: Health.Climate.Consultation@health.gov.au
28 July 2023

Australian Academy of Science

Australian Academy of Science submission to the Department of Health consultation on a *National Health and Climate Strategy*

The Academy supports the objectives of the Department's proposed National Health and Climate Strategy (the Strategy) and the guiding principles.

Climate action in the health sector is imperative.

However, the Strategy, as presented in the Consultation Paper, is overly focussed on actions within the health sector. While such actions are important, greater ambition is required.

Five major actions should be implemented in the Department's Strategy:

- **Human health and climate change must be considered in whole-of-government, whole-of-society issues and considered in all policy development.**
- **The Strategy must be highly collaborative**, across all portfolios, all sectors, and all levels of government; it should involve international partners, Australian First Nations, and local communities.
- **The health sector must intensify efforts to reduce greenhouse gas emissions**, embracing appropriate responsibility for emissions coming from all sources (including Scope 3).
- **The health sector must develop adaptation and resilience-building measures**, investing in the sustainability and resilience of the health and medical workforce and enhancing the ability of communities to adapt to the health impacts of climate change.
- **Health and climate research must be prioritised by government and integrated into climate policy processes.**

By taking these actions, the Strategy can contribute to a comprehensive global response to climate change, managing our own future and that of the planet.

Health – and climate – in all policies

The Strategy should reach beyond the health sector.

The health impacts of climate change are systemic, complex, and inseparable from climate change impacts on agriculture, cities, industry, infrastructure and the environment. Each of the Strategy's objectives can only be met with a cross-sector, interdisciplinary approach, engagement at all levels of government and the community, and a holistic approach to system change.

Addressing the drivers of climate change requires integration of health policies with finance, energy, planning, employment, and beyond. "Health in all policies" should be met with the similar approach of "climate in all policies" – across all portfolios.

The Academy strongly supports the 'One Health' principle expressed in the consultation paper. Research using a One Health perspective will improve our understanding of major health threats such as emerging zoonotic infections, disease spillover, and the spread of antimicrobial resistance across ecosystems.

Collaboration across and beyond government

Australia must build partnerships of all types at multiple levels – scientific, technological, commercial, local, national and international – to make every possible attempt to manage effectively the impact of climate change here and overseas.

Health and climate change are both cross-sector, interdisciplinary issues. The Department's strategy should necessarily be integrated with national climate strategies in other portfolios.

Collaborative policies should be developed at all levels of government. Solutions in this space should include local councils and local community leaders, including leaders of culturally and linguistically diverse communities and Indigenous elders.

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Indigenous engagement

As acknowledged in the discussion paper, special effort should be made to include Australian First Nations people in health and climate policy development. This should include engagement with The National Aboriginal Community Controlled Health Organisation (NACCHO).

Appropriate two-way engagement is essential in fostering meaningful relationships by actively ensuring Indigenous communities are involved in decision-making processes.

Policies affecting Indigenous communities should be Indigenous-led, recognising their inherent rights and knowledge systems and fostering a more equitable, respectful and empowering approach to policy development and implementation.[1]

Illustrative examples of Indigenous engagement include:

- The 2018 National Indigenous Dialogue on Climate Change, which highlighted the interest of Indigenous Australians in climate change and engagement.
- The 2021 First Peoples Gathering on Climate Change, supported by the NHMRC and the National Environmental Science Program (NESP) Climate Systems Hub. This group has been funded to continue providing Indigenous leadership on the health impacts of climate change.

Community engagement

Community-led mitigation and adaptation programs should be identified and supported. Future Earth Australia's National Strategy for Just Adaptation highlights that climate change adaptation must include diverse groups, Indigenous leadership and support communities to drive transformation.

Special effort should be made to identify and engage with vulnerable populations in health and climate policies. This includes communities where English is not the first language, culturally and linguistically diverse communities, people in low socio-economic groups, people with limited digital literacy, people in sex and gender diverse groups, people with disabilities, elderly people, and young people. These groups intersect, which can amplify peoples' vulnerability; intersectional thinking will be important.

Previous studies[2] have suggested that culturally and linguistically diverse communities face barriers to accessing health services, such as language and communication barriers, health literacy, difficulties in navigating the health system, and poor cultural competency of service providers. Health and climate research and evidence-based policies should consider exploring these challenges and engage with CALD communities to have inclusive approaches to mitigation and adaptation.

International engagement

International collaboration is necessary, particularly in the Pacific region. Australia can share – and gain – knowledge, processes, research, technology and policies that can contribute to global mitigation or adaptation.

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[1] Such engagement should be conducted in compliance with the UN Declaration on the Rights of Indigenous Peoples and the AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Research.

[2] Javanparast S, Naqvi S, Mwanri L. Health service access and utilisation amongst culturally and linguistically diverse populations in regional South Australia: a qualitative study. Rural and Remote Health 2020; 20: 5694. https://doi.org/10.22605/RRH5694

Mitigation

Mitigation actions in the health sector are critically important.

Medical institutions should play a large and instructive role by accounting for and reducing their own emissions, including Scope 1, 2 and 3 emissions.[3] For example, emissions in hospitals can be reduced by changing energy use patterns, but hospitals should also consider life-cycle emissions for medical tools and equipment, and for practices such as incineration of medical waste.

Mitigation actions in other sectors can provide co-benefits for human health. For example, reducing air pollution will improve general respiratory health. These co-benefits can be leveraged by the health sector to push stronger emissions reductions in other sectors. This approach should be part of the Department's Strategy.

Adaptation

Adaptation to climate change will demand a strong, sustainable health workforce. Occupational climate-driven risks for health sector workers should be identified and addressed to ensure workforce resilience.

Adaptation to climate change will require identifying and engaging with vulnerable populations, and working with them to ensure their needs are met. Existing community-led strategies can be identified and supported through this engagement. Communities which lack adequate, culturally responsible health services will suffer.

The Strategy should consider adopting the World Health Organization's Vulnerability and Adaptation Assessment methodology for assessing the vulnerability of populations and identifying adaptation strategies.[4] By adopting this comprehensive, internationally recognised approach, Australia can align its assessments with global standards. This will facilitate knowledge exchange, sharing of best practices, and collaborative efforts in addressing climate change impacts at a global scale. Additionally, adopting this methodology ensures consistency and compatibility with international efforts, enhancing Australia's ability to contribute to global initiatives aimed at building resilience and safeguarding health in the face of climate change.

Research

Climate change research must be an important priority for Australia to address the pressing health concerns arising from the changing climate, such as preparing for altered spread of diseases and responding to the impacts of climate anxiety on mental health.

By prioritising climate change research, Australia can better understand the impacts of climate change on human health and develop effective mitigation and adaptation strategies. This approach can assist in safeguarding the well-being of communities, particularly those most vulnerable and ensure a healthier and more resilient future for all Australians. Such research should be multidisciplinary, and must address both causes and impacts of climate change.

National harmonisation of the health sector data environment will improve the quality and reliability of health policies and identify gaps in research effort that need to be addressed. A nationally consistent health data system, linking national data assets and designed using FAIR (findable, accessible, interoperable and reusable)[5] and CARE (collective benefit, authority to control, responsibility and ethics) principles,[6] would improve the Department's capacity to monitor and evaluate its Strategy.

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[3] "Scope 1, 2 and 3 emissions" are terms for emissions responsibility as defined by the GHG Protocol, a private sector initiative. See: *The Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard* and *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*.

[4] World health organization (2021), Climate change and health vulnerability and adaptation assessment.

[5] GO FAIR, FAIR Principles. [Accessed 17 July 2023].

[6] Global Indigenous Data Alliance, CARE Principles for Indigenous Data Governance. [Accessed 17 July 2023].

The Strategy should provide strong, ongoing, targeted support for research into the impacts of climate change, including mitigation and adaptation. Such research should be included as a priority for government health and medical research funds.

The Department's Strategy should also include mechanisms for accelerating the translation of climate change research to policy outcomes. This goes beyond traditional research translation: there should be high levels of engagement and collaboration between researchers and policymakers to ensure knowledge transfer between different yet mutually relevant knowledge domains.

Aligned with the Strategy, the Australian government should identify crucial research gaps with a climate science research strategy, across all sectors.

To discuss or clarify any aspect of this submission, please contact [redacted]

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Australian Government
Department of Health and Aged Care

NATIONAL HEALTH AND CLIMATE STRATEGY

Detailed submission form

This form allows you to provide responses to the full set of questions in the Consultation Paper available here.

Alternatively, you may wish to complete the briefer online survey available here.

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

Respondent details

What is your name?
AMSANT Submitted by [redacted]
What is your email address?
[redacted]
What is your organisation?
Aboriginal Medical Services Alliance of the Northern Territory (AMSANT)
Have you read and agreed to the Privacy Statement? (NB we will not be able to use your submission unless you tick this box)
☒ I have read and agreed to the Privacy Statement
Do you identify as Aboriginal and/or Torres Strait Islander? (Yes/No/Prefer not to say)
[redacted]
Please select which applies to you: ☐ Individual citizen ☐ Health Service Provider ☐ Industry and Life Sciences Organisation or Representative ☐ Academic or Researcher ☐ Primary and/or Allied Health Peak or Advocacy Organisation or Representative ☐ Aged Care Service Provider ☐ First Nations Health Service Provider ☐ First Nations Community Group ☒ First Nations Peak or Advocacy ☐ Medical College or Peak professional body

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Questions for feedback from the Consultation Paper

Introduction

1. How could these objectives be improved to better support the vision of the Strategy?
Objectives: measurement, mitigation, adaptation, health in all policies These objectives are reasonable. Health in all policies worked very well during the COVID-19 pandemic but outside of emergencies, it can be difficult to engage across other Government Departments with a common perception being that the health sector is trying to get other sectors to solve health problems (Greer et al, 2022). Improving health and wellbeing is clearly a central aim of governments but the siloed nature of government often works against health in all policies. For instance, the ongoing Commonwealth support of fossil fuel industries (including through direct subsidies) is worsening the climate emergency and not consistent with a health in all policies approach. Both Commonwealth and State Governments need to take a health in all policies approach seriously and to be transparent if a government policy is likely to worsen health outcomes. Source: Greer S et al, 2022: From a Health in all policies to a health for all policies. Vol. 7. Issue 8. .Lancet Public Health
2. How could these principles be improved to better inform the objectives of the Strategy?
Proposed principles: 1. First Nations leadership 2. Tackling health inequities 3. Population health and prevention 4. One Health 5. Evidence informed policy making 6. Partnership based working across all levels of government and beyond The following additions to the current proposed principles should be made: - "Tackling health inequities and social determinants". This is discussed further below with feedback against the relevant principle. - Addition of new principle "Health sector advice and advocacy" **Principle 1 - First Nations Leadership** AMSANT agrees that First Nations Leadership is a key principle for decision making on climate and health policy at all levels. This principle should specify the inclusion of Aboriginal and Torres Strait Islander people in governance, design and implementation of the Strategy. As outlined in the Consultation paper, Aboriginal and Torres Strait Islander people will be disproportionately affected by climate change. Currently the wording implies that Indigenous knowledge will be prioritised, but there is not a clear intent about ensuring partnership and leadership by Aboriginal and Torres Strait Islander people. **Principle 2 - Tackling health inequities and social determinants** On current projections, climate change will make it more difficult to achieve Close the Gap targets across multiple areas including health. This is particularly true in the Northern Territory where the climate is already extreme, with evidence of warming occurring at a faster rate in Central Australia than the rest of Australia, and with Top End coastal areas and low-lying islands at risk of inundation in the near future. This is compounded by extremely high rates of chronic disease. The principle of tackling health inequities should specify that populations that are more vulnerable to climate change impacts should be

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prioritised for action and that representatives from these communities should be at the forefront of developing the response. However, if society does not become more equitable across a range of social determinants, tackling these issues only from a health perspective will have limited impact. Key issues such as growing income inequality, homelessness, high cost of housing and poverty need to be addressed, so that the whole of society becomes more resilient and that there is a marked reduction in the number of people vulnerable to impact of climate change because of poverty or other social circumstances. Homelessness was tackled urgently in 2020 with the threat of COVID-19 looming - a similar urgent response is required now given growing risks of heatwaves, bush fires and other extreme weather events. Broad societal change is required to improve equity, alongside targeted action to protect vulnerable groups.

Principle 6 - Partnership based working across all levels of government and beyond
Partnerships will clearly need to be made between State and Commonwealth Governments, but also with the non-government, research and community-controlled sectors as well as with advocacy groups and civil society. This will require an open and collaborative approach by government.

Additional principle - Health sector advice and advocacy
Informed health professionals, and the health sector as a whole, understands that climate change will have a devastating effect on populations health and well being. Health professionals including those employed in governments needs to be able to speak freely about the consequences of climate change on the health and wellbeing of the population. Although the impact on vulnerable groups should be highlighted, there needs to be a clear message that everyone's health and wellbeing is going to be impacted. It is reasonable to expect that some sacrifices will need to be made to avert catastrophic climate change, but this will require widespread community understanding and acceptance. Therefore, a principle should be added that the health sector should be supported to provide frank advice to the public about the health impact of climate change and how this will worsen if emissions are not reduced urgently. This includes health leaders in government organisations who should be able to provide independent advice to the public.

3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?

Although recommendations on specific gases are generally out of scope for AMSANT, we would like to highlight a positive example of working in partnership with First Nations communities to tackle greenhouse gas emissions. Methane is a greenhouse gas that is several times more potent in atmospheric warming than carbon dioxide and a very significant source of anthropogenic methane emissions is agriculture. Recent research conducted by the CSIRO in collaboration with James Cook University and Meat and Livestock Australia found that small amounts of algae (a type of alga called Asparagopsis) added to cattle feed as a supplement reduced the methane in cow burps by up to 99%. The algae are native to the Narungga Nation's traditional waters in the Yorke Peninsula, and CH4 Global (an initiative working to cut methane emissions) has recently partnered with the Narungga Nation Aboriginal Corporation to establish the first commercial scale supply of the seaweed in the world. A productive partnership between Traditional Owners and climate change scientists and experts should bring wealth and jobs to remote communities in the Yorke Peninsula, and thus improve health whilst making a major contribution to reducing greenhouse gases.

Sources:
National Indigenous Times, Seaweed-infused cow burps the key to methane emissions reduction, https://nit.com.au/08-01-2021/1629/seaweed-infused-cow-burps-the-key-to-methane-emissions-reduction

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4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?
The following are very relevant to the Strategy: • Uluru Statement from the Heart • UN Declaration on the Rights of Indigenous Peoples • UN Permanent Forum on Indigenous Issues • National Agreement on Closing the Gap and the Reform Priorities • National Aboriginal and Torres Strait Islander Health Plan A critical reform is the National Agreement on Close the Gap and the Reform Priorities. This requires government to change the way that they work with Aboriginal people to a real partnership where Aboriginal leaders are at the table when decisions are being made. This clearly requires more attention, as demonstrated by the Recent Productivity Commission review of implementation of the Reform Priorities. It is pleasing to see that the discussion paper has recognized the depth of Aboriginal knowledge and commitment to caring for country, the environment and the climate over many generations. This strategy must be developed and implemented in line with the National Agreement on Closing the Gap and Reform priorities if it is to recognize and honour this commitment and knowledge. There are many other local initiatives that could be drawn upon. A key example in the NT is the ranger programs now rolling out across many communities to protect country and culture. Ranger programs draw on cultural and community knowledge as well as Western scientific expertise. Ranger programs can contribute to both mitigation of climate change (through burning to protect against uncontrolled bushfires and protecting habitat) and adaption (through environmental restoration and protection of vulnerable fauna and flora that are being impacted by climate change). Ranger programs also have major health and wellbeing benefits (Shultz R, et al 2017. Jones R et al, 2022). A review of ranger programs found that they were cost saving because of both environmental, social and health benefits (Van Bueren M et al, 2015). Ranger programs could be expanded as not all communities have ranger programs. Ranger programs should also be supported to include and target higher risk cohorts in communities such as young people who have disengaged from school or those at risk of ongoing involvement in the justice system. Aboriginal people have provided stewardship and care for country for many thousands of years. Giving more control to Aboriginal people over land will benefit the environment and climate as well as Aboriginal health and well being. Aboriginal people should be able to block developments such as fracking from occurring on their traditional lands. Aboriginal groups gave permission for fracking to occur on Aboriginal lands at an early stage when much less was known about the impacts of fracking. Now that this permission has been granted, fracking production has been approved, despite the clear opposition by Aboriginal people and the broader community. Given the escalating concerns and the climate emergency, this needs to be reviewed urgently. Sources: Jones R, Thurber K , Wright A, Chapman I, Donohoe P, Davis V, Lovett R (2022) Associations between Participation in a Ranger Program and Health and Wellbeing Outcomes among Aboriginal and Torres Strait Islander People in Central Australia: A Proof of Concept Study . International Journal of Environmental Research and Public Health. Jul 12;15(7):1478. doi: 10.3390/ijerph15071478.

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Schultz R, Carney S (2017) .Caring for country and the health of Aboriginal and Torres Strait Islander Australians. Med J Aust 2017; 207 (1): 8-10. || doi: 10.5694/mja16.00687

Van Bueren M, Worland T, Svanberg A , Lassen J (2015) Working for Our Country A review of the economic and social benefits of Indigenous land and sea management. Pew Charitable Trust.

5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

The Strategy should be co-designed with existing Aboriginal and Torres Strait Islander community-controlled organisations, including the community-controlled health sector. NACCHO as the national peak body needs to be engaged as do all the affiliates. In the NT, this includes involvement of AMSANT and its member health services.

The NT Aboriginal Health Forum brings all key partners and funders in NT Aboriginal health together in a planning partnership that provides strategic advice and makes decisions about key policy issues to improve Aboriginal health and wellbeing in the NT. This partnership includes both community-controlled and government organisations.

As connection to country and land is part of an Indigenous view of health, broader organisations must also be involved. Aboriginal Peak Organisations Northern Territory (APONT) in the NT is an alliance of major Aboriginal organisations across the NT including all four land Councils, AMSANT, NAAJA and the Indigenous Business Network. Land Councils have a key role in supporting Aboriginal people to care for country and provide critical leadership in the work of improving Aboriginal resilience to climate change, with ranger and other ecological programs being very successful.

Proposed Objective 1: Measurement

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?

No, we are not. AMSANT would require specific funding to work with our members on emissions and energy use.

7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?

There need to be equitable targets for emissions that take into account local context and needs. The NT healthcare system, including Aboriginal Community Controlled Health Services (ACCHSs), has substantially different features from those in major urban centres. Remoteness, long transport distances for patients and staff, often older infrastructure, higher temperatures (and more frequent need for cooling), mean that mitigation solutions like promoting active transport or establishing reusable equipment systems are not as feasible as in urban settings. Most remote areas of the NT do not even have access to waste recycling infrastructure. These differences need to be considered when assessing the ways in which NT health services can reduce carbon emissions. Heat stress in much of the Northern Territory can result in a high use of power for climate control such as air conditioning and cooling of water. Targets must take this differential

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need into account and not apply unfair targets to NT residents and services. Climate change measures must make it easier for Aboriginal health services to operate in harsh isolated conditions – e.g. through renewable energy solutions.

Proposed Objective 2: Mitigation

8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?

Proposed focus areas:

- Built environment and facilities.
- Travel and transport
- Supply chain
- Medicines and gases
- Waste
- Prevention and optimising models of care

Addition of social determinants:
For Aboriginal people in the NT, emission reduction strategies should have a strong focus upstream on improving social determinants of health, which are a major driver of preventable disease and presentations to primary care and hospitals. Providing climate resilient and adequate housing will reduce complications of heat stress (especially in a population with high rates of chronic disease, which lowers tolerance to heat stress). It will also reduce overcrowding and related burden of disease like Group A Streptococcal infection (and its major complications including rheumatic heart disease), chronic ear infections and hearing loss, tuberculosis, and crusted scabies. Similar issues are likely present for other remote and northern regions of Australia. We recommend adding social determinants of health as a focus area as this will have a major impact on mitigating the health and wellbeing impacts of climate change, as well as reducing healthcare usage and associated emissions.

9. Which specific action areas should be considered relating to the **built environment and facilities (including energy and water)**, over and above any existing policies or initiatives in this area?

Improving the building quality of primary healthcare facilities and converting power use to solar energy would reduce emissions (mitigation). Ensuring adequate insulation and ventilation for health facilities will reduce air conditioning use and costs. Transition to solar energy sources with batteries would also reduce disruptions to facilities due to climate related weather events (adaptation).

Provision of dialysis in particular has a significant energy and water use which must be accounted for, particularly for the NT which has very high rates of end stage kidney failure. People are now more frequently receiving supported dialysis or undertaking self-care dialysis in very remote communities that are impacted by significant heat stress and constrained power and water infrastructure. Improving social determinants (particularly reducing poverty) and increasing the capacity of primary health care to screen for and manage kidney disease are both effective strategies to reduce the burden of kidney disease on the health system prior to requiring dialysis, as well as increasing the rates of patients able to access kidney transplantation. Where dialysis is required, there must be adequate local energy and water supplies for people to receive this life-sustaining treatment in their local community.

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10. Which specific action areas should be considered relating to **travel and transport**, over and above any existing policies or initiatives in this area?
Burning fossil fuels for transport and electricity generation is the main cause of increased greenhouse gas emissions in travel and transport, while increasing public transport can be a form of mitigation. Telehealth can reduce the need for patients to travel. Telehealth is very useful but can be resource intensive in the NT where patients seeing specialists via telehealth are usually supported by a primary health care clinician who sits in on the consultation and supports the patient. Primary health care thus should be funded to support specialist telehealth. This additional primary health care support could be funded through the cost savings telehealth provides to the tertiary care sector and patient travel expenses. While recognising the benefits, telehealth cannot be used universally to replace face-to-face care for patients in remote areas. Communication can be difficult with cultural and linguistic barriers for remote Aboriginal people. People may require a specialist physical examination and/or investigations or treatments that are only available in towns. Therefore, telehealth should only be used when it is clearly equivalent to a face to face consultation and the patient is satisfied with a telehealth consultation.
11. Which specific action areas should be considered relating to **supply chain**, over and above any existing policies or initiatives in this area?
More efficient cold-chain equipment (Clever Logger Cold Chain monitoring) has already reduced vaccine wastage in the NT. This system should be supported.
12. Which specific action areas should be considered relating to **medicines and gases**, over and above any existing policies or initiatives in this area?
Out of scope for AMSANT.
13. Which specific action areas should be considered relating to **waste**, over and above any existing policies or initiatives in this area?
Out of scope for AMSANT.
14. Which specific action areas should be considered relating to **prevention and optimising models of care**, over and above any existing policies or initiatives in this area?
For primary healthcare (including ACCHSs) in the NT, emissions reduction strategies are likely to be best addressed within this focus area. A better resourced and effective primary healthcare system will lead to fewer preventable hospitalisations, with the NT having the highest rate of preventable hospitalisations in Australia. There is a current workforce crisis in primary care in the NT, exacerbated by COVID-19. Markers of preventive health (such as immunisation rates) have declined. Building the workforce and capacity building for the primary healthcare system is an important strategy for reducing carbon emissions by reducing the need for secondary and tertiary care, and clearly is of great benefit to communities. Unsustainable rates of turnover and high vacancies must be addressed through targeted workforce measures to attract and retain workforce as well as grow and develop a local Aboriginal workforce. Reducing unnecessary care is important and requires skilled and well-educated workforce, but again the changes required to reduce unnecessary care will be difficult to achieve until workforce turnover is reduced.

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Climate change and the already significant warming that has occurred is already making work harder for clinicians and other staff in Northern Australia. Workforce strategies and models will need to address climate change factors – for example by providing well insulated housing, reducing outdoor exposure in very hot weather, taking additional precaution with travel in extreme heat, and addressing staff fatigue. Services will need to be supported to ensure infrastructure is fit for purpose, well maintained and resilient to heat waves.

Prevention should also refer to investment in social determinants of health (see response to question 8), which will reduce disease burden and healthcare need. Investment in prevention can also prevent costly and emission intensive treatments being required at a later stage of illness (see response to question 9 using dialysis as an example).

15. What can be done to involve private providers within the health system in the Strategy's emissions reduction efforts

The ACCHS sector needs to be involved as a key partner including through governance mechanisms such as the Northern Territory Aboriginal Health Forum.

16. Where should the Strategy prioritise its emissions reduction efforts?

    a. How should the Strategy strike a balance between prioritising emissions reduction areas over which the health system has the most direct control and prioritising the areas where emissions are highest, even if it is harder to reduce emissions in these areas?

    b. Which of the six sources of emissions discussed above (on pages 13 to 18 of the Consultation Paper) are the highest priorities for action?

Out of scope for AMSANT.

17. What 'quick wins' in relation to emissions reduction should be prioritised for delivery in the twelve months following publication of the Strategy?

Improving the social determinants of health for Aboriginal people in the NT is likely to have the greatest impact on reducing emissions in the NT, particularly in remote communities. ‘Quick wins’ should include installation of solar power, for primary healthcare and for remote households, to reduce power insecurity and emissions as well as indirect emissions related to health presentations (e.g. because of the impacts of energy insecurity on health). Currently remote Aboriginal people in the NT buy expensive power through power cards and have high rates of energy disconnection. Jabiru (a small remote town in the NT) has achieved at least 50% renewable power supply through a solar system and batteries supplemented by a diesel generator. This model could be expanded and made more ambitious – noting that diesel generators are polluting and therefore use should be limited as a supplemental or backup power source.

Proposed Objective 3: Adaptation

18. What health impacts, risks and vulnerabilities should be prioritised for adaptation action through the Strategy? What process or methodology should be adopted to prioritise impacts, risks and vulnerabilities for adaptation action?

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Aboriginal people in the NT should be considered a priority for adaptation action, given they will be disproportionately affected by climate action. Chronic diseases like heart disease and kidney disease, which make people more vulnerable to heat stress, occur in Aboriginal people at some of the highest rates in the world (Hare M et al, 2022; Hare et al, 2020). High temperatures in the NT (and in the Top End, high humidity) already place people at risk of heat stress. Extreme weather events and rising coastal waters will result in displacement of communities. Given that connection to country is so fundamental to Aboriginal health and wellbeing, this will cause profound grief and distress.

As discussed throughout this response, many vulnerabilities for Aboriginal people in the NT relate to social determinants of health. Inadequate housing, low income and inadequate welfare payments, food/water/power insecurity, less ownership of electronic devices (e.g. mobile phones), and less access to healthcare put Aboriginal people in the NT at higher risk of negative outcomes from climate related disasters. These are the factors that should be prioritised for adaptation action through the Strategy:

- Provision of adequate (number and quality of houses) and climate-resilient housing (with an appropriate and reliable power source) is a key recommendation. Inadequate housing and neglected maintenance of existing housing results in overcrowding, homelessness and poor living conditions in those who are housed – resulting in high rates of avoidable illness.
- Climate-resilient shelters or refuges should be developed in communities and towns for use by homeless or transient people, who will not have other shelter from extreme weather events.
- Power is supplied to houses by Power Cards, which are expensive and result in the cutting of power when Power Cards are not topped up. This system should be reformed. Power should be discounted for Aboriginal people in remote communities who are on low incomes – the current system is extremely inequitable and is likely to be causing premature deaths due to heat.

Although primary healthcare is a small contributor to emissions overall, breakdown of primary healthcare services results in more hospitalisations and greater stress on the tertiary healthcare system, which is more carbon intensive by nature. Therefore, adaptation action for primary healthcare services can contribute to mitigating carbon emissions.

Vulnerabilities for the NT primary healthcare system include remoteness and power insecurity. There can be significant delays to health service if a remote area's health facility has a power failure and needs to wait for maintenance services to arrive. This could lead to avoidable deaths. More frequent and severe extreme weather events are anticipated with climate change, and poorly maintained infrastructure makes power failure more likely. Updating the building and communications infrastructure to be climate resilient and installing solar power to remote primary health services should be prioritised.

Heatwaves will become more frequent and more severe. Aboriginal community-controlled health services should be supported to work with other key stakeholders (e.g. local councils) and communities to develop local heat wave plans. There needs to be Commonwealth support for resourcing of these plans.

Heat stress will also have a direct impact upon health workforce. Research on NT health professionals (Pendrey et al, 2022) has shown that climate change is a factor in the decision making of many to leave the NT. As heat increases, those with the financial capacity to move will be able to move to more temperate areas, while those remaining will face increased difficulty in operating local services. The majority of Aboriginal residents

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clearly largely want to stay on country and yet they are facing climates that are beyond human capacity for heat tolerance within a relatively short time. This is profoundly unfair.

Sources:
Hare M, Barzi F, Boyle J , Guthridge S, Dyck E, Singh G, Falkahammar H , Webster V, Shaw J, Maple Brown L (2020). Diabetes during pregnancy and birthweight trends among Aboriginal and non-Aboriginal people in the Northern Territory of Australia over 30 years. The Lancet Regional Health - Western Pacific. . eCollection 2020 Aug.

Hare M , Zhao Y, Guthridge S, Burgess P, Barr E, Ellis E, Butler D, Rosser A , Falhammer H, Maple Brown L (2022). Prevalence and incidence of diabetes among Aboriginal people in remote communities of the Northern Territory, Australia: a retrospective, longitudinal data-linkage study. BMJ Open. 2022 May 15;12(5):

Pendrey C, Quilty S, Lucas R (2022). Surveying the changing climate of Northern Territory medical workforce retention. Aust J Rural Health. Jun;30(3):402-409. doi: 10.1111/ajr.12858. Epub 2022 Mar 1. PMID: 35229933.

19. Should the Australian government develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan? If yes:
    a. What are the key considerations in developing a methodology?
    b. How should their development draw on work already undertaken, for example at the state and territory level, or internationally?
    c. What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

a) What are the key considerations in developing a methodology?
A health vulnerability assessment and adaptation plan should have a national focus on Aboriginal and Torres Strait Islander people. The assessment could use common approaches for regions vulnerable to similar climate change impacts (e.g. arid and semi-arid communities across Northern Australia).

b) This is largely out of scope for AMSANT. However, Western scientific and technical expertise must work with local Indigenous knowledge- any national scheme must not be at the expense of local Aboriginal leadership and knowledge. This will be difficult to achieve particularly as the climate change emergency escalates. Given that Australia will be experiencing more frequent climate related disasters, there is a risk that the response will be driven by a 'command and control' emergency approach which pays lip service to local community needs. This occurred, to some extent, during the COVID 19 pandemic but was mitigated by strong Aboriginal leadership at the national, jurisdictional regional and local level. A national approach must ensure that Aboriginal leadership at all levels are a central part of the decision making process.

c) What are the key areas where a national approach will support local/jurisdictional vulnerability assessment and adaptation planning?

A national approach should include emergency support for jurisdictions during and after extreme weather events, particularly for remote communities. Access to this support should be simple and clear, and the response should be prompt (within 24 hours should be a minimum standard for response with shorter turnarounds often being required). The NT's community-controlled sector experience during the COVID-19 pandemic was that the

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pathway to obtain Federal disaster assistance was unclear, slow and dependant on the NT government saying that they could no longer cope. During the initial Omicron outbreaks in 2022, some remote communities were isolated by floods, had no internet connection, limited or no phone connection, and no functioning airstrip - all whilst dealing with very low staffing levels and their first COVID-19 outbreak. Only very limited assistance was able to be provided by the NT government. Evacuation of high-risk people was often delayed for days with no Federal resources being made available.

In this instance, communities were hit by a flood event and a pandemic at the same time. Multiple compounding severe events will become more common. There needs to be clear transparent pathways for assistance. The NT government should not have to declare that they are unable to provide any assistance whatsoever before the Federal government provides some input – particularly for very isolated and remote communities. Both levels of government need to work together. Very remote communities should not feel unsupported by governments because of complex and sometimes dysfunctional relationships between the Commonwealth and jurisdictions.

20. Would there be value in the Australian government promoting a nationally consistent approach to vulnerability assessment and adaptation planning for the health system specifically, for instance by issuing guidance and associated implementation support tools for states, territories and local health systems? If yes, what topics should be covered to promote a nationally consistent approach? What examples of existing guidance (either from states/territories or internationally) should be drawn from?

This could be useful but local knowledge and community preferences must be central to any response. Cultural and community knowledge must also be incorporated into adaption planning.

As discussed above, a nationally consistent approach may overlook the major differences in the primary healthcare system between urban centres and outer regional/remote settings like in the NT. Issues such as regularity of infrastructure maintenance, the magnitude of the impact of social determinants of health, and frequently hotter weather are not as prominent in urban settings as they are in regional and remote settings – these differences will translate to different metrics of vulnerability and adaptation. An approach to assessment and planning that is tailored to each region's key climate issues is required.

21. What immediate high-priority health system adaptation actions are required in the next 12 to 24 months?

a. Immediate operational and capacity building support for the NT primary healthcare system.
b. Assessment and planning for transition to renewable energy at all primary healthcare services and ACCHSs in the NT, including remote services.
c. Adaptation measures in the NT should otherwise focus on improving the social determinants of health for the community. Immediate actions include addressing inadequate housing (housing infrastructure, power and water supply) and building climate resilient housing.
d. There must be sustained attention to building the capacity and resilience of Aboriginal primary health care (and community-controlled health services in particular) with a focus on reducing unsustainable rates of workforce turnover and high vacancy rates and building a strong local Aboriginal workforce. This will increase the effectiveness of the whole system.

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e. Community education about the dangers of heat and humidity. Aboriginal communities clearly are expert at dealing with extreme climates in the NT. However, there is now a chronic disease epidemic and many people may not be aware of the risks of heat to those with chronic disease and to the growing risk as the climate heats up and becomes more unpredictable. Also, peoples living conditions have changed markedly since colonisation. This education must be Aboriginal led. Community controlled health services and Land Councils should work together to develop and deliver this education.

Proposed Objective 4: Health in All Policies

22. What are the key areas in which a Health in All Policies approach might assist in addressing the health and wellbeing impacts of climate change and reducing emissions?

A Health in All Policies approach must oppose ongoing fossil fuel mining, such as fracking in the Beetalo Basin. Fracking will produce vast amounts of carbon emissions and is not compatible with climate change mitigation or adaptation. It is also not compatible with the commitment to partnership and shared decision making with Aboriginal people (in line with the National Agreement to Closing the Gap Reform Priorities). Fracking will also endanger the water sources of the adjacent Aboriginal communities – water insecurity will worsen their ability to adapt to climate change.

A Health in all Policies approach must also oppose other unsustainable and damaging exploitation of land which is strongly opposed by local Aboriginal people. Examples include the Singleton Station horticultural development and the unsustainably high rate of land clearing in the NT.

A Food Security strategy must use a Health in All Policies approach by promoting food systems that meet people's health needs and expansion of local Aboriginal food knowledge and production. Stores in remote communities should be considered as essential services and provided with funding to ensure that they can provide healthy food at reasonable prices (currently food is on average 56% more expensive in very remote communities than in Darwin) and are resilient to weather events and power outages. Stores need to have adequate storage and supplies to support communities that are cut off from outside supplies by weather events. This will require government funding.

Housing policy in the NT needs to put Aboriginal health and well being front and centre. Aboriginal organisations such as Aboriginal Housing NT and the Land Councils need to have much greater input into housing policy and communities also need a much greater role in decision making at the local level. Houses must be climate resilient and well insulated. Housing that is poorly designed for the climate exposes residents to additional heat stress and poor health outcomes (Quilty et al, 2022). However, with the extreme heat in the NT and the very high rates of chronic disease, this will be insufficient to protect vulnerable people from extreme heat alone. Air conditioning in housing needs to be standard in all built homes to ensure that people are protected. Power must be made affordable to Aboriginal communities including by transition to renewable energy.

Source:

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Quilty S, Frank Jupurrurla N, Bailie RS, Gruen RL (2022). Climate, housing, energy and Indigenous health: a call to action. Med J Aust. Jul 4;217(1):9-12. doi: 10.5694/mja2.51610. Epub 2022 Jun 16. PMID: 35708259; PMCID: PMC9545280.
23. What are the most effective ways to facilitate collaboration and partnerships between stakeholders to maximise the synergies between climate policy and public health policy? What are some successful examples of collaboration in this area?
As described previously, the ranger program has major environmental and climate benefits as well as impressive public health and social outcomes. Land Councils should be supported to expand ranger and other environmental programs.

Enablers

24. How could these enablers be improved to better inform the objectives of the Strategy? Should any enablers be added or removed?
Consistent with First Nations Leadership being a principle of the Strategy, the workforce enabler should include specific reference to the need to increase Aboriginal and Torres Strait Islander participation and leadership within the health sector broadly, as well as specifically within the area of climate change and health.
25. For each of these enablers: a. What is currently working well? b. What actions should the Strategy consider to support delivery?
Workforce: The primary health workforce needs to be trained and supported to deal with climate change and extreme weather events. This includes training on disaster planning and recovery. This training should be aimed not just at health professionals but all staff including administration and support staff who often play critical roles in disasters. Some useful training was undertaken during COVID-19 but this needs to be maintained. **Research:** Research needs to be informed by the priorities of Aboriginal communities and other groups that will be disproportionately impacted. Too often, research grants (in all areas) are released with 4-6 week turnarounds giving little time to develop collaborations with Aboriginal organisations. If the strategy is to be truly informed by Aboriginal cultural knowledge, then research needs to demonstrate true partnership and collaboration with Aboriginal communities. This takes time to develop. **Communication**: Land Councils and the community-controlled health sector should be resourced to provide information to Aboriginal communities about climate change, the impact of climate change on health and what they can do to protect their health and wellbeing. The Central Land Council has already undertaken excellent work in this area.

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Thank you for taking the time to complete this survey – your feedback is greatly appreciated!

Please submit this form in Word format to Health.Climate.Consultation@health.gov.au.

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CMA Submission to the Department of Health and Aged Care National Health and Climate Strategy - July 2023

To: Health.Climate.Consultation@health.gov.au

Complementary Medicines Australia (CMA) express strong support for the establishment of the National Health and Climate Strategy, which seeks to safeguard the health and wellbeing of Australians from the detrimental effects of climate change. This initiative holds the potential to transform our nation's response to climate change while focusing on emissions mitigation, public and preventive health, and enhancing community resilience, all of which are vital aspects of a "Health in all Policies" approach.

CMA is pleased to provide comment on the Australian Government Department of Health and Aged Care, National Health and Climate Strategy Consultation Paper, dated 27 June 2023.

Q1. How could these objectives be improved to better support the vision of the Strategy?

Emissions Mitigation for a Sustainable Future:
A cornerstone of the National Health and Climate Strategy must be a robust focus on emissions mitigation. By transitioning to a low-carbon and sustainable economy, we can significantly reduce the health risks associated with climate change. Embracing renewable energy sources, promoting energy efficiency, and supporting sustainable practices are pivotal steps towards mitigating greenhouse gas emissions and creating a healthier environment for all Australians.

The objectives for a Sustainable Future would be further strengthened by policy approaches to sustainable packaging and toward addressing the challenges associated with therapeutic product packaging, while upholding public health and regulatory standards.

Therapeutic goods packaging demands stringent requirements to ensure the safety and integrity of the products they contain. By proactively exploring pathways to embrace more sustainable packaging options, the industry showcases its willingness to adapt and evolve in response to the global climate crisis. Furthermore, the government's consideration of mandatory design standards for packaging and product stewardship obligations is a signal for the right policy platform to be established for therapeutic product packaging.

The policy development should acknowledge the intricate challenges associated with therapeutic product packaging and the imperative to find innovative solutions that align with

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global standards. Given that the Quality Use of Medicines requires products to be used over an extended timeframe, it is crucial to consider the potential consequences of reduced shelf lives, which may lead to increased product waste, higher packaging volumes, or incorrect usage.

Drawing insights from the European Union Directive on Packaging and Packaging Waste (revised on 20.11.22), it is evident that the EU recognises the need to ensure the efficient functioning of the internal market for packaged therapeutic goods while mitigating the adverse impacts of packaging and packaging waste on the environment and human health. As a result, derogations have been granted until 31 December 2034 for the immediate packaging of medicinal products, contact-sensitive plastic packaging of medical devices, and in vitro diagnostic medical devices (Salini and Burkhardt, n.d.).

Comprehending the critical functional and public health role of therapeutic goods packaging, an aligned approach to that of the EU is strongly recommended. Such an approach would allow for the implementation of changes that align with national packaging goals and product stewardship initiatives, allowing the industry to address environmental concerns without compromising public health or product integrity.

The development of a policy that considers the intricacies of therapeutic packaging and aligns with global standards is a progressive step towards sustainable practices in Australia. With the support of the government's potential policy measures, we can move closer to achieving a sustainable future, where both public health and environmental preservation are prioritised hand in hand.

Preventative Complementary Medicines and Climate-Induced Health Challenges:
In the context of climate change, the role of preventative complementary medicines is of paramount importance to safeguard public health. The National Health and Climate Strategy should prioritise investing in public health initiatives that promote awareness of climate-related health risks and educate communities on preventive measures, with a specific focus on incorporating complementary medicines.

By dedicating resources to research on climate-health impacts, the strategy can explore the potential of preventative complementary medicines in mitigating climate-induced health challenges. Complementary medicines, when used in conjunction with conventional healthcare approaches, can contribute to enhancing resilience and minimising vulnerability to climate-related health threats.

Moreover, emphasising preventative health measures aligns with the strategy's goal of reducing the burden on the healthcare system and saving costs in the long run. By promoting

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the integration of complementary medicines in preventive care, the strategy can contribute to a more holistic approach to public health, wherein individuals are empowered to take proactive steps towards safeguarding their well-being amidst the changing climate.

Addressing public health in the context of climate change is of paramount importance. The National Health and Climate Strategy should embrace the potential of preventative complementary medicines as a crucial aspect of addressing climate-induced health challenges. By incorporating research, and education with preventative complementary medicine approaches, the strategy can foster resilience, enhance well-being, and reduce the impacts of climate change on public health, thereby building a stronger and healthier nation.

Actions Beyond the Health System: Building Resilience in Communities:
A successful National Health and Climate Strategy should acknowledge that health outcomes are heavily influenced by social determinants, and climate change exacerbates existing disparities. To foster community resilience, it is vital to take actions beyond the health system. We must empower communities with the resources and knowledge necessary to adapt to climate change and cope with its impacts effectively.

This entails supporting climate-resilient infrastructure, implementing green spaces, and investing in disaster preparedness and response strategies. By encouraging sustainable urban planning, protecting and expanding natural ecosystems, and promoting community engagement, we can create healthier, more equitable environments for all Australians.

Health in all Policies Approach:
The "Health in all Policies" approach forms the bedrock of the National Health and Climate Strategy, ensuring that health considerations are integrated into all relevant policies. By fostering collaboration across government departments, local authorities, and diverse stakeholders, it can develop cohesive and effective strategies that holistically address climate change's health implications.

Q2. How could these principles be improved to better inform the objectives of the Strategy?

The principles of the above objectives could be further improved by consideration of the following.

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Population health and prevention:
Supporting population health and prevention in the context of climate change requires a comprehensive and multi-faceted approach that integrates public and preventative health principles at all levels of society and within the health system.

Emphasising preventative health through the integration of complementary medicines is essential for addressing climate change within the health system and society as a whole. This approach recognises the significance of disease prevention and wellness promotion across all life stages, complemented by robust secondary and tertiary prevention measures, which collectively contribute to effective mitigation and adaptation strategies.

Incorporating complementary medicine approaches into the principles enhances the focus on preventative health. By embracing these practices, individuals and communities are empowered to take proactive steps in safeguarding their well-being and resilience in the face of environmental challenges.

The recognition of the interconnectedness between climate change, biodiversity loss, and access to natural medicines poses significant challenges for the Australian complementary medicines industry, which relies on nature's diversity and ecosystems. Currently, natural medicines serve as the primary healthcare for a staggering 80% of the global population (www.who.int, n.d.).

However, the changing climate and the consequent impact on natural systems are jeopardising the quality and availability of essential medicinal resources. Human-induced modifications to air, water, and land have accelerated these adverse changes. As a result, the natural systems and capital that underpin our agricultural systems, as well as the ingredients vital for our present and future products, are at serious risk.

In light of these challenges, it is essential for the industry and member states to heed the World Health Organization's call to strengthen knowledge generation, collaboration, and sustainable use of traditional and complementary medicine resources. We must also be mindful of biodiversity preservation and adhere to international treaties concerning endangered species.

The responsibility lies with us, to take a responsible, measured, and effective approach to safeguarding natural systems. Consumers expect us to lead in preserving the resilience of our supply chains.

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As a result, we must all contribute to mitigating the adverse effects of climate change and its impact on biodiversity. It is crucial to embed proactive measures into our business models to adapt to these changes effectively. By doing so, we can ensure the continued availability and sustainability of natural medicines while also fostering a resilient and environmentally responsible industry.

Well-being Across the Lifespan:
The pursuit of population health and prevention encompasses all stages of life, from prenatal care to healthy aging. A focus on promoting well-being at each life stage allows for early interventions, healthier life trajectories, and better management of chronic conditions. It also fosters resilience in the face of climate-related health challenges that may disproportionately impact certain age groups.

The principles of the objectives could be further improved by consideration of the following.

Partnership-based working across all levels of government and beyond:
Responding to climate change's health impacts requires collaboration across sectors.
A holistic approach involves engaging not only the healthcare system but also various stakeholders, including government agencies, industry and environmental organisations, community groups, and policymakers. This multi-sectoral cooperation allows for a more comprehensive understanding of the interconnected factors affecting health and climate change.

Empowering communities with knowledge and resources is crucial for effective population health and prevention. Climate change awareness and education can help individuals make informed decisions about their health, adopt sustainable practices, and participate in local initiatives that protect both human and environmental well-being.

Addressing population health and prevention in the context of climate change requires a commitment to equity and social justice. Vulnerable populations, including low-income communities, marginalised groups, and those with limited access to healthcare, are often disproportionately affected by climate-related health challenges. A focus on equitable access to resources and healthcare services is essential to ensure no one is left behind.

Through ongoing research and collaborative efforts, evidence-based approaches can be established to incorporate complementary medicines into climate change response and preventative health initiatives. By doing so, we strengthen the foundation for a healthier and more resilient future, wherein individuals and communities are equipped with the tools to adapt to environmental challenges and thrive in the face of changing conditions.

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By embracing these principles, the health system and society can forge a robust and inclusive response to climate change, fostering population health and prevention efforts that effectively mitigate risks and adapt to the evolving challenges posed by our changing climate.

Q3. Which of the various types of greenhouse gas emissions discussed above should be in scope of the Strategy's emission reduction efforts?

In the context of emission reduction efforts in the health system to combat climate change, all greenhouse gas emissions should be in the scope of the Strategy's focus.

To effectively address climate change, it is essential for emission reduction efforts to target all significant greenhouse gas emissions across various sectors and supply chains. This includes measures to reduce emissions from energy production, transportation, agriculture, waste management, and manufacturing processes.

To align with the Australian Government's emission reduction targets, the Strategy's efforts should encompass all scope 1, 2, and 3 emissions. These targets aim to reduce national emissions by 43% below 2005 levels by 2030 and achieve net zero national emissions by 2050. It is crucial for the Strategy to address emissions across all scopes and implement measures that contribute to meeting these national goals, reflecting the country's commitment to the Paris Agreement.

Q4. What existing First Nations policies, initiatives, expertise, knowledge and practices should the Strategy align with or draw upon to address climate change and protect First Nations country, culture and wellbeing?

To effectively address climate change and protect First Nations country, culture, and wellbeing, the National Health and Climate Strategy should align with and draw upon existing policies, initiatives, expertise, knowledge, and practices within Indigenous communities.
Some key areas to consider include:

1. Recognition of Indigenous Knowledge: The Strategy should recognise and value the deep knowledge and practices of First Nations communities related to environmental stewardship, land management, and sustainable living. Drawing upon Indigenous knowledge can lead to more contextually appropriate and culturally sensitive climate change responses.

2. Connection to Country: Indigenous communities have a strong and sacred connection to their traditional lands. The Strategy should acknowledge and respect the significance of this

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connection and involve First Nations people in decision-making processes related to climate adaptation and mitigation strategies.

3. Cultural Land and Water Management: Traditional land and water management practices have sustained First Nations communities for thousands of years. The Strategy should incorporate and support Indigenous land and water management practices, to mitigate the impacts of climate change and foster ecosystem resilience.

4. Indigenous Health and Wellbeing: Health and wellbeing are integral to Indigenous culture. The Strategy should address climate change impacts on First Nations' physical, mental, emotional and spiritual health, considering the interconnectedness of these aspects in Indigenous communities.

5. Community-Led Initiatives: The Strategy should prioritise community-led initiatives and decision-making processes, ensuring that First Nations communities have the autonomy to address climate change in ways that align with their cultural values and priorities.

6. Cultural Heritage Protection: Climate change can threaten Indigenous cultural heritage sites and practices. The Strategy should include measures to protect and preserve these vital aspects of Indigenous culture.

7. Climate Change Adaptation and Resilience: Indigenous communities have historically demonstrated resilience and adaptation to environmental changes. The Strategy should draw upon this expertise to build adaptive capacities for climate change impacts.

8. Partnerships and Collaboration: Collaboration with Indigenous organisations, Elders, and Traditional Owners is critical. The Strategy should foster partnerships that empower Indigenous communities and ensure that their voices are heard in all aspects of climate policy development and implementation.

9. Indigenous Health and Climate Research: The Strategy should support and promote research initiatives that explore the specific impacts of climate change on Indigenous health and wellbeing, as well as traditional knowledge systems and practices.

10. Education and Capacity Building: The Strategy should invest in education and capacity-building initiatives to empower First Nations communities to participate actively in climate change responses, sustainable practices, and disaster preparedness.

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By aligning with existing policies, initiatives, expertise, knowledge, and practices, the National Health and Climate Strategy can foster a more inclusive, culturally appropriate, and effective approach to addressing climate change while preserving and protecting the unique heritage and wellbeing of First Nations communities.

Q5. What types of governance forums should be utilised to facilitate co-design of the Strategy with First Nations people to ensure First Nations voices, decision-making and leadership are embedded in the Strategy?

To ensure First Nations voices, decision-making, and leadership are embedded in the National Health and Climate Strategy, the Australian Government should utilise specific governance forums that facilitate co-design and meaningful engagement with Indigenous communities.

By utilising a co-design approach, the National Health and Climate Strategy can be enriched by the meaningful engagement of First Nations people, ensuring that their voices, values, and leadership play a central role in shaping policies and initiatives related to climate change and health in their communities.

6. Beyond the schemes already noted above, is your organisation involved in any existing or planned initiatives to measure and report on health system emissions and/or energy use in Australia?

Complementary Medicines Australia acknowledges the significant threats that climate change and biodiversity loss pose to global access to natural medicines, which are vital for healthcare worldwide. We fully appreciate the importance of nature's quality and biodiversity to our industry. The changing climate, largely driven by human activities, is directly impacting the natural systems that provide essential ingredients for complementary medicines.

As an industry that takes its responsibility seriously, we are committed to safeguarding and sustaining these vital ecosystems. In line with our proactive approach to environmental stewardship, CMA advocates that by 2025, our members will voluntary
assess their greenhouse gas emissions and establish clear reduction targets.
These actions are essential steps toward mitigating our industry's environmental impact and enhancing the resilience of our supply chains.

CMA is proud to state its active participation in the groundbreaking NSW government's first sector-specific Net Zero Emissions Leadership Accelerator Program, in collaboration with Accelerate Zero and NSW Sustainability Advantage. In May 2023, we commenced this exciting initiative, extending a warm welcome to our valued members from across the value chain.

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CMA is dedicated to embarking on a transformative industry capacity-building pathway, geared towards accelerating the journey towards a Net Zero Emissions future. Through this unique partnership, we are committed to leading the charge in sustainable practices within our industry and contributing to a greener and more resilient future for all. It is strongly recommended that similar programs be offered by Governments across other States and Territories.

Q7. What additional data and information is required to support targeted emissions reduction efforts within health and aged care?

The comprehensive collection and analysis of data and information within the Strategy will pave the way for effective planning, implementation, and monitoring of targeted emissions reduction efforts. By leveraging this valuable insight, healthcare and aged care facilities can make informed decisions, track their progress, and continuously enhance their environmental performance.

An essential aspect of the strategy is to include a robust plan for enhancing the health system's capacity and capability to drive significant progress in addressing climate change. Viewing funding and resourcing for health and climate change action as an investment, rather than a cost, will underscore the long-term benefits of improved public health, sustainability, and resilience for our communities and the planet.

Q8. What do you think of these proposed focus areas for emissions reduction? Should anything else be included?

Questions 8-25 are commented in the context of the above answers.

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