



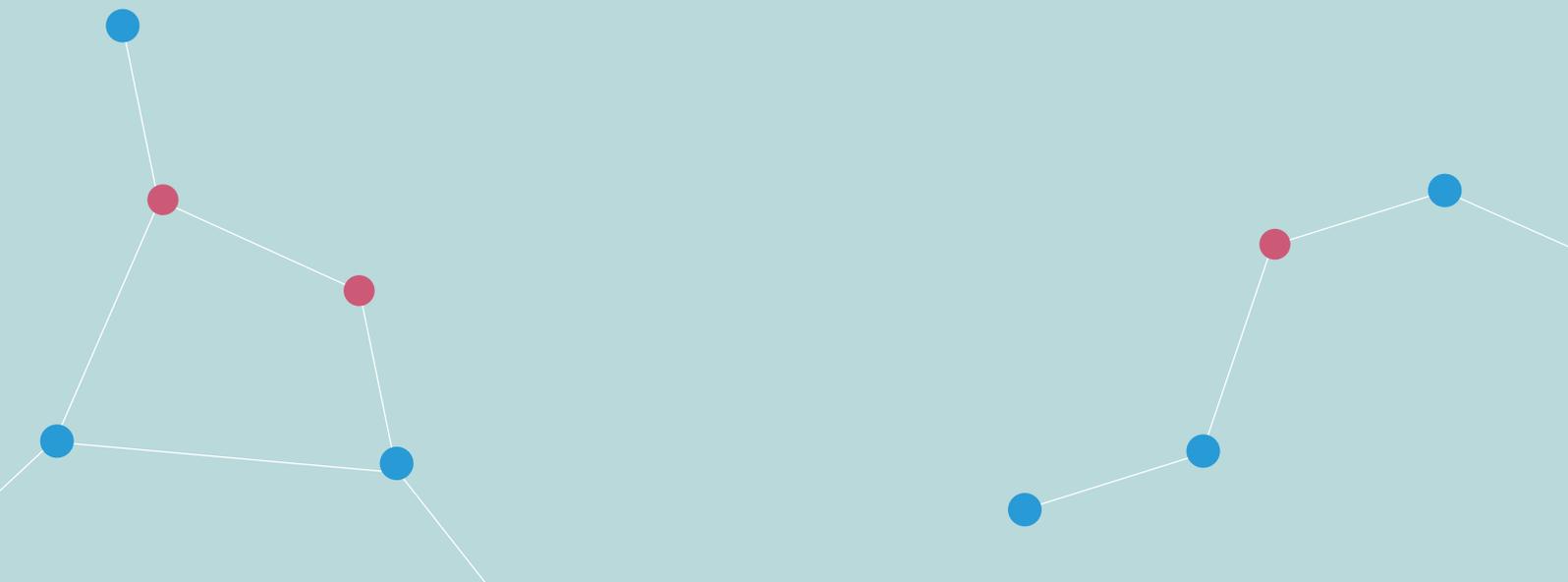
RACP
Specialists. Together
EDUCATE. ADVOCATE. INNOVATE.



The Lancet Countdown on Health and Climate Change

Australia Policy Brief

31st October, 2017



Introduction

This national policy brief has been developed by The Royal Australasian College of Physicians and the Lancet Countdown on Health and Climate Change. It complements the 2017 Lancet Countdown paper and draws out national data and policy implications for select indicators for Australia. It is recommended that:

1. Infrastructure and climate change adaptation strategies targeting the spread of vector-borne disease and extremes of weather must be devised and adequately funded, and with strong integration between all levels of government.
2. A National Climate and Health Strategy must be developed and implemented by the Australian Government to ensure a comprehensive and coordinated approach for tackling health and climate change challenges in Australia. This framework should be implemented with urgency.
3. The Australian Government must meet its emissions reduction targets under the Paris Agreement, and consider and implement any additional actions needed to address the threat to human health.
4. Divestment from fossil fuels should be encouraged from Australian organisations and the health sector.

Acknowledgements

The concept of this brief was developed by the Lancet Countdown on Health and Climate Change. The brief was written by Katherine O'Shea. Review of the brief and edits were provided by Lynne Madden (RACP), Peter Sainsbury (RACP), David Harley (RACP), Ashwin Swaminathan (RACP), John Van Der Kallen (RACP), Nick Watts (Lancet Countdown) and Nicola Wheeler (Lancet Countdown).

About the Lancet Countdown

The Lancet Countdown: Tracking Progress on Health and Climate Change is a global, interdisciplinary research collaboration between 24 academic institutions and inter-governmental organisations. It monitors progress on the relationships between health and climate, and their implications for national governments, reporting annually. It was launched following the 2015 Lancet Commission on Health and Climate Change, which concluded that, left unmitigated, climate change will undermine 50 years of public health gains, whilst responding to it could represent "the greatest global health opportunity of the 21st century".

The 2017 report presents data on the indicators selected following a consultation process in 2016. These span 5 domains, from impacts and adaptation to mitigation, and the economics and politics of climate action.

About The Royal Australasian College of Physicians

The Royal Australasian College of Physicians (RACP) is the professional medical College of over 15,000 physicians and 7,500 trainee physicians, often referred to as specialists, in Australia and New Zealand. The RACP advocates for healthcare policies that promote the interests of the profession, patients and communities.

About the Australian Medical Students' Association

The Australian Medical Students' Association (AMSA) is the peak representative body for Australian medical students. The key mandate of AMSA is to connect, inform and represent every one of Australia's 17,000 medical students.

Strategic Partners

THE LANCET



Recommendations

Recommendation 1

Infrastructure and climate change adaptation strategies targeting the spread of vector-borne disease and extremes of weather must be devised and adequately funded, and with strong integration between all levels of government.

Recommendation 2

A National Climate and Health Strategy must be developed and implemented by the Australian Government to ensure a comprehensive and coordinated approach for tackling health and climate change challenges in Australia. This framework should be implemented with urgency.

Recommendation 3

The Australian Government must meet its emissions reduction targets under the Paris Agreement, and consider and implement any additional actions needed to address the threat to human health.

Recommendation 4

Divestment from fossil fuels should be encouraged from Australian organisations and the health sector.

Health and Climate Change

The health impacts of climate change are experienced through both direct and indirect pathways. These may take the form of an increase in the frequency or severity of extreme weather events such as heatwaves, floods, droughts, and storms. These directly impact human health resulting in, for example, heat-related mortality, injury, and loss of livelihoods. Indirectly, climate change interacts with other environmental systems, for example, altering the distribution of vector-, water-, or food-borne infectious diseases. Increasingly, the effects of climate change interact with already vulnerable social systems, for example by threatening the availability of adequate nutrition or safe drinking water.

These challenges interact with many of the social and environmental determinants of health, thus climate change presents an unprecedented threat to human health which, left unmitigated, could work to reverse the last half-century of gains made in public health.¹

Conversely, the response to climate change presents the potential for enormous health co-benefits. For example, efforts to phase out coal-fired power not only reduces greenhouse gas emissions, but also reduces local air pollution, thus improving the cardiopulmonary health of surrounding populations.

It is vital to understand and monitor a) the impacts that climate change is having on human health and b) the health consequences of the global response to climate change. This is the role of the Lancet Countdown: Tracking Progress on Health and Climate Change, an international, interdisciplinary research collaboration, comprised of 24 academic institutions and United Nations agencies.

Climate Change Impacts, Exposures and Vulnerability

Changes to weather patterns, increased global average temperature, as well as increased frequency and severity of extreme weather events, present immediate and potentially devastating threats to human health. The indicators nested under this theme monitor changes in short- and long-term local, national and global climate data, and the implications for human health.

Health effects of temperature change & health effects of heatwaves

Australia is experiencing increasingly hotter weather, with an increase in exposure to higher temperatures and heatwaves. Between 2000 and 2016, average temperatures among exposed populations increased by 0.6°C, compared with the average for the period 1986-2008. Exposure to heatwaves has also increased significantly, with an average of 117,260 additional vulnerable people (aged over 65) exposed to heatwaves between 2000 and 2016 (compared with 1986-2008). A particularly high number of exposure events were experienced in 2011, with 1,485,674 additional people aged over 65 years exposed.

This is also reflected in the Climate Council Hot and Dry: Australia's Weird Winter² report released in September 2017, which notes that 2017 was the warmest and driest Australian winter on record, with average maximum temperatures nearly 2°C above previous averages. The winter of 2017 broke over 260 heat and low rainfall records, setting Australia up for an earlier bushfire season in the southeast, and placing roughly one third of the country (including Sydney, Melbourne, Brisbane, Adelaide and Canberra) at increased bushfire risk. The Report also notes the inability of the ageing Australian energy infrastructure to cope with increased demand during heatwaves, and the consequential threat to health.

Climate-sensitive infectious diseases

Indicator 1.6 of the Lancet Countdown encompasses the current and potential spread of the mosquito-borne virus that causes dengue. Modeling of dengue virus transmission indicates that Australia is at an increased risk of dengue, echoing reports of the potential for expansion of mosquito territories³ in the absence of adequate surveillance and mitigation strategies.⁴

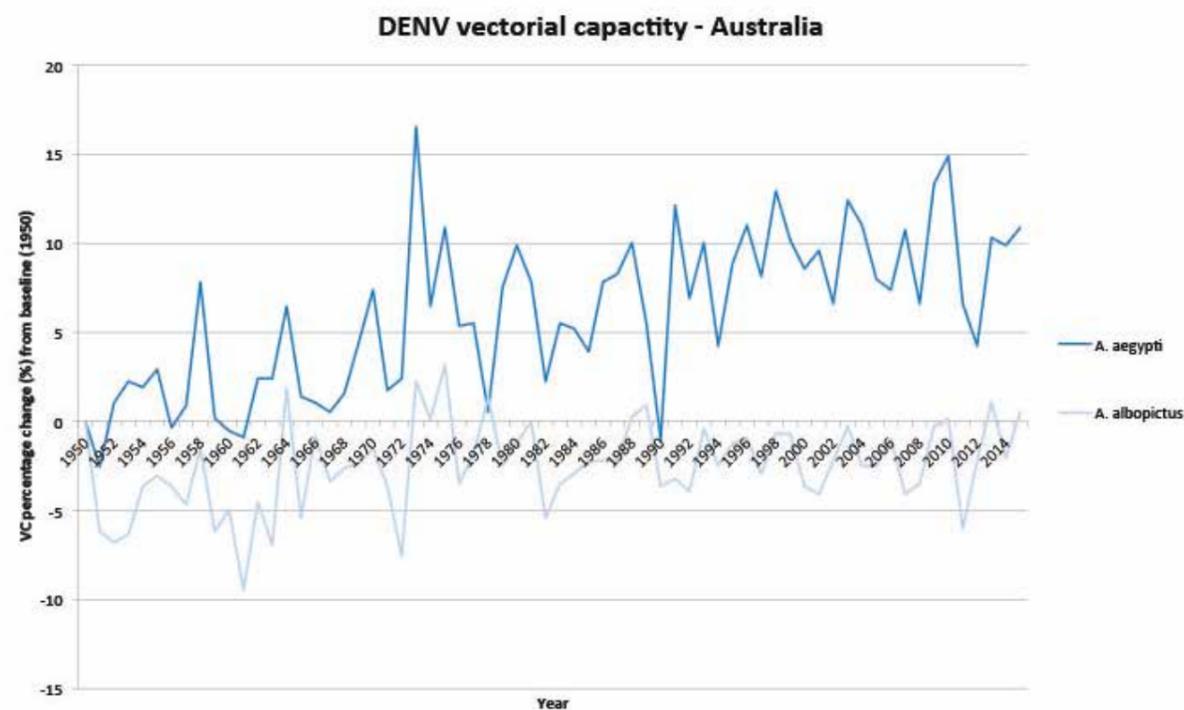


Figure 1. The percentage change of the vectorial capacity of two dengue virus (DENV) mosquito vectors (*Aedes aegypti* and *Aedes albopictus*) in Australia, using 1950 as a baseline of change.

Vectorial capacity (VC) expresses the daily rate at which new hosts are infected by a particular vector organism from a currently infectious case or reservoir. As the survival of the vector is a key component of the factors used to derive VC, climactic impacts on vector population distribution and habitable territory range are inherently linked to estimates of the risk of human exposure and infection. While dengue transmission is a complex dynamic of environmental, social and biological systems, and does not exhibit a linear relationship with temperature;⁵ predicted dengue spread is a pertinent indicator by which to gauge the impact of climate change on human health, as the distribution of dengue vectors (*Aedes aegypti* and *Aedes albopictus* mosquitoes) is limited by climatic conditions, and disease prevention and continued vaccine development represent a real public health challenge.⁶

Country level data used to measure indicator 1.6, grouped yearly, plots the percentage change in the potential spread of the dengue virus from the year 1950 to present. The extracted data for Australia is graphed in Figure 1 for both species of mosquito, showing a clear trend towards increased vectorial capacity. *Aedes aegypti* is also the vector of zika and chikungunya viruses; both of these viruses are potential threats to Australia and should be included in national risk assessments and adaptation strategies.^{7,8,9}

Adaptation Planning and Resilience for Health

City-level climate change risk assessments

Five major Australian cities (Adelaide,¹⁰ Canberra,¹¹ Melbourne,¹² Perth¹³ and Sydney¹⁴) were identified as having specific local climate change risk assessments and strategic plans in place. These adaptation frameworks take the health impact of climate change on their respective populations into account, and include mitigation strategies such as increased public transport and urban forests with flow on benefits for human health.

As the majority of Australia's major cities are located along the coastline, urban infrastructure is particularly vulnerable to rising sea levels, storm and tidal surges and coastal erosion. Australian Government reports,^{15,16} identify the necessity for climate change mitigation from this perspective, as this presents a real economic threat to Australia's coastal cities. In Western Australia, a sea level rise of 1.1 m puts 9000km of road and 114km of railways (valued at AU\$11.8 billion), at risk of inundation.¹⁷

An illustrative case study on page 5 of this brief outlines the Framework for a Nation Strategy on Climate, Health and Well-being for Australia published in July 2017 by an alliance of 34 health organisations.

Mitigation Actions and Health Co-Benefits

Exposure to air pollution in Australian cities

Indicator 3.5.1 from the Lancet Countdown tracks the concentration of and exposure to particulate matter in ambient air in cities. Particulate matter is highly damaging to human health, as it is small enough to enter human lung tissue and cause respiratory, cardiovascular, and other systemic illness; PM2.5 refers to particles equal to or less than 2.5 micrometers (μm) in diameter, and it is monitored in hourly, 24 hour, and annual averages.

Australian data included for indicator 3.5.1 in this round of Lancet Countdown reporting is from 2014. This is before Australian State Environment Ministers agreed to lower the standard for annual average PM2.5 particle levels from $8\mu\text{g}/\text{m}^3$ to $7\mu\text{g}/\text{m}^3$ in 2025.¹⁸ Global data places Australian cities as having some of the best annual air quality in terms of PM2.5, with all Australian cities included classed as posing low-moderate health risks, and only two Australian cities of the 37 measured reaching PM2.5 $10\mu\text{g}/\text{m}^3$ /year. The National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM)¹⁹ is a national framework for monitoring and reporting on ambient air pollutants which includes PM10 and PM2.5, and is responsible for upholding national standards to improve and safeguard the respiratory health of the population.

Whilst measures of annual PM2.5 indicate that air quality is comparatively good in Australian cities, these aggregate data do not capture the poor air quality resulting from bushfires and coal mining.²⁰ For instance, air pollution from bushfires can result in burning eyes, throat irritation and bronchitis, and aggravate existing illnesses such as chronic bronchitis, emphysema and asthma. Hospital admissions for respiratory illnesses increase markedly during and after bushfires, further burdening Australian health systems, and bush fires are also associated with significant psychological morbidity.²¹

The coal industry is a main contributor to ongoing air pollution in Australia; PM10 pollution from all sources increased by 69% between 2014 and 2015, and by 194% when viewed over the previous five years (2010-2015).²² Air pollution is estimated to kill 3000 Australians and cost AU\$11-24 billion in health care costs annually.²³

Sustainable travel infrastructure and uptake

Modes of travel influence human health, both negatively through air pollution from cars and positively via active means of transport (i.e. walking and cycling). Figure 2 shows the proportion of journeys made by various means of transport (car, public transport, walking, cycling, and other forms) in a selection of major cities worldwide. In Melbourne 77% of journeys are made by car, with just 7% using public transport and 13% and 2% walking and cycling, respectively. There are significant health benefits of active modes of travel. The National Cycling Strategy 2011-2016 aimed to double cycling participation across Australia,²⁴ yet the proportion of cycling journeys has decreased from 2.3% to 2% between 1981 and 2014 (from the Lancet Countdown's indicator 3.7). More needs to be done to ensure uptake in active travel and reduce dependency on cars – adequate infrastructure is essential.



Figure 2. Proportion of journeys made by car, public transport, other, walking and cycling for a sample of cities around the world.

Economics and Finance

Funds divested from fossil fuels

Divestment from fossil fuels to renewable resources and clean energy technology is a vital element of climate change mitigation, and an important element in economic safeguarding. In Australia, health organisations are beginning to divest from fossil fuels, in recognition of the known short- and long-term health effects of burning fossil fuels.²⁵ Divestments from Australian health organisations totals US\$28.6 billion – these divestments are from organisations such as HCF (a health insurance firm), the Royal Australasian College of Physicians, Doctors for the Environment Australia (DEA), HESTA Super Fund and the private philanthropic foundations. This figure is higher than the sum of money divested from health organisations in the US, the UK, France and Canada combined.

Case Study

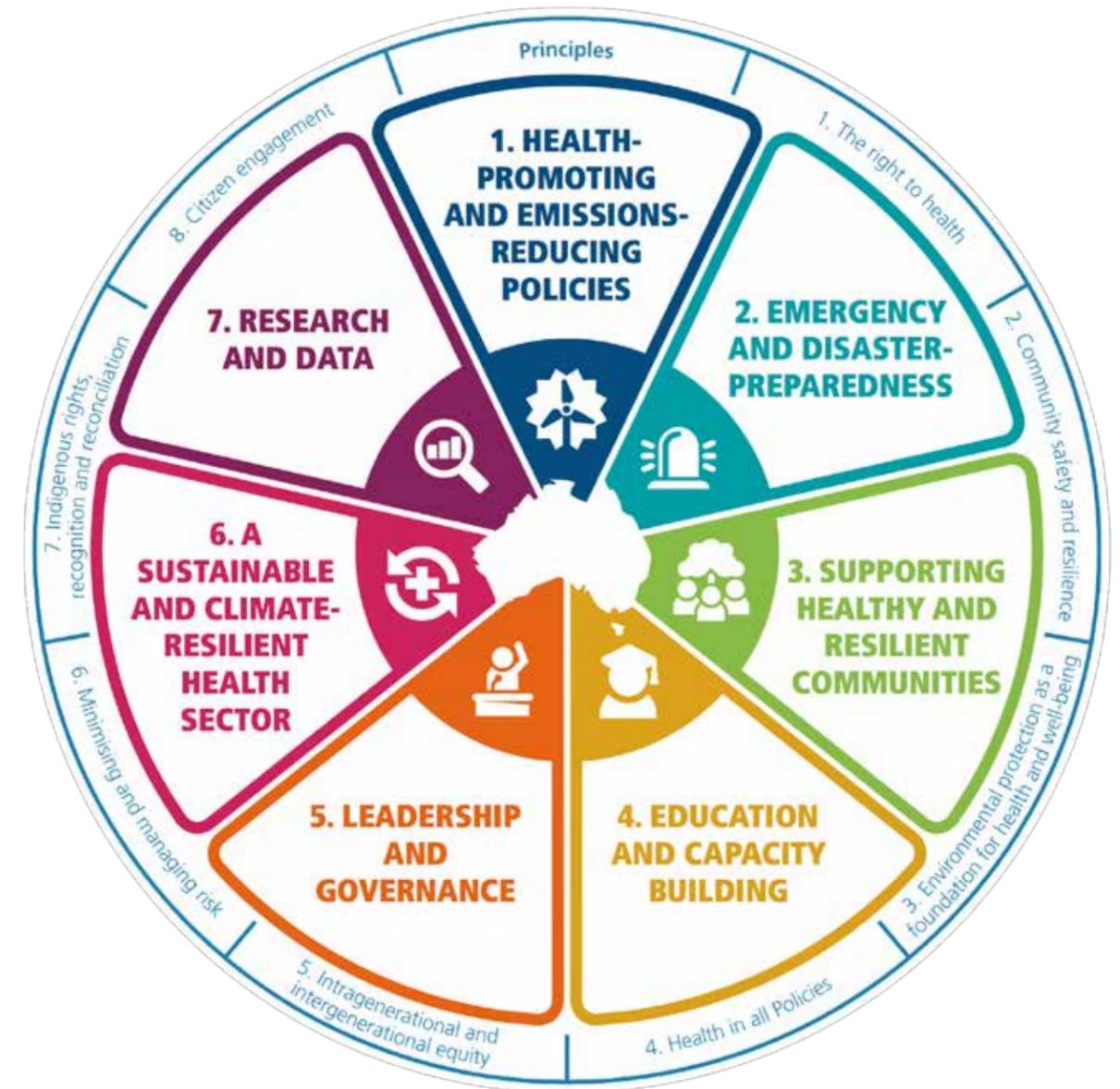
Framework for a National Strategy on Climate, Health and Well-being for Australia

In June 2017, 34 health organisations published the Framework for a National Strategy on Climate, Health and Well-being for Australia.²⁶ The Framework exists as a national public policy framework to reduce the social and economic burden conferred by climate related health impacts, filling the void identified in 2016 by the Climate and Health Alliance (CAHA)'s Discussion Paper: Towards a National Strategy on Climate, Health and Well-being for Australia, to reduce the social and economic burden conferred by climate related health impacts.

The Framework is a key example of positive collaborative action from health sector organisations, and proposes strategies to assist the Australian Government in fulfilling the targets and obligations to which it is committed to under the United Nations Framework Convention on Climate Change (UNFCCC), Paris Agreement, International Covenant on Economic, Social and Cultural Rights (ICESCR), and Sustainable Development Goals (SDGs). It provides a focused policy framework against which Australia can measure and demonstrate progress on the Lancet Countdown indicators and is an incentive to improve data on such indicators.

The Framework encompasses seven areas of policy action, underscored by eight fundamental principles. It advocates for climate change action from health and economic perspectives, and recommends the adoption of climate change mitigation and adaptation strategies, which represent immediate and long-term benefits to human health and the local economy.

The Framework identifies that climate change is not solely an environmental issue, but also that climate change represents a health and human rights problem with complex challenges. Conversely, tackling climate change offers opportunities for economic and societal improvements. Health and wellbeing are directly influenced by determinants outside the health sector, and therefore policy directives in the Framework encompass additional interrelated portfolios of energy, transport, infrastructure, climate and environment. Crucially, this document goes beyond aspirational policy directives, and provides tangible strategies with measurable outcomes. It also identifies key structural and organisational opportunities for Australia to mitigate climate change.



Recommendations

The following recommendations are in response to Australia's tracking against the Lancet Countdown Indicators, and expand on the existing trio of RACP Climate Change policy papers.^{27,28,29}

Recommendation 1

Infrastructure and adaptation strategies to address vector-borne disease and weather-related health events be devised and adequately funded, and with strong integration between all levels of government. These strategies must incorporate projections of climate change health impacts to ensure long-term robust adaptation and also implement early-warning systems for effects of climate on health, thus maximising preparedness for climate change.

Recommendation 2

A National Climate and Health Strategy must be developed and implemented by the Australian Government to ensure a comprehensive and coordinated approach for tackling health and climate change challenges in Australia. This Strategy should be implemented with urgency, and include collaboration on mitigation action between the Government and health sector.

Recommendation 3

The Australian Government must meet its emissions reduction targets under the Paris Agreement, and consider and implement any additional actions needed to address the threat to human health. The impacts of climate change and air pollution are already being felt in Australia and are projected to worsen.

Recommendation 4

Divestment from fossil fuels should be encouraged from Australian organisations and the health sector. Australian health organisations should be encouraged to further divest from fossil fuels to represent a greater proportion of sectoral divestment nationally.

Additional Information

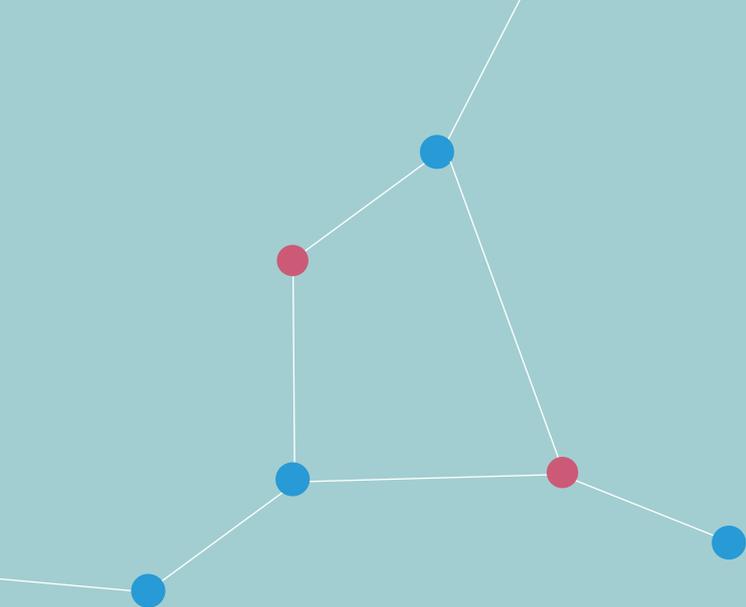
- www.lancetcountdown.org
- www.racp.edu.au

WHO UNFCCC Climate and Health Country Profiles

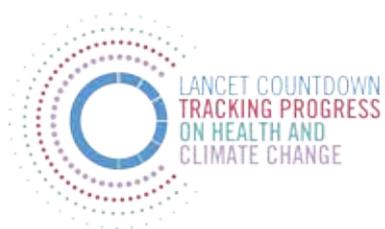
The WHO UNFCCC Climate and Health Country Profiles form the foundation of WHO's national level provision of information, and monitoring of progress in climate change and health. The climate and health country profiles, first published in 2015, are developed in collaboration with ministries of health and health determining sectors with the aim of empowering Ministers of Health to engage, advocate and act to protect health from climate change. The most recent and relevant scientific evidence from the health, environment and meteorological communities is presented to highlight country-specific climate hazards and the potential health impacts facing populations. National action on health adaptation and mitigation is reported in the profiles and opportunities to promote actions that improve health while reducing carbon emissions are presented. For more information on the WHO UNFCCC Climate and Health Country Profiles please visit the website and watch the introductory video.

References

1. Watts N, Adger W, Ayeb-Karlsson S, Bai Y, Byass P, Campbell-Lendrum D. The Lancet Countdown: tracking progress on health and climate change. *Lancet*. 2017;389:1151–64.
2. The Climate Council. *Hot and Dry: Australia's Weird Winter*. The Climate Council of Australia Ltd; 2017.
3. McMichael A, Woodruff R, Whetton P, et al. *Human health and climate change in Oceania: a risk assessment*. Canberra: Australian Government Department of Health and Ageing; 2002.
4. Russell RC, Currie BJ, Lindsay MD, Mackenzie JS, Ritchie SA, Whelan PI. Dengue and climate change in Australia: predictions for the future should incorporate knowledge from the past. *Med J Aust* 2009;190(5):265-8.
5. Swaminathan A, Viennet E, McMichael A, Harley D. Climate change and the geographical distribution of infectious diseases. In: Petersen E, Chen L, Schlegelhauf-Lawlor P. *Infectious Diseases: A Geographical Guide*. 2nd ed. John Wiley & Sons Ltd. 2017. P:470-80.
6. Sabchareon A, Wallace D, Sirivichayakul C, Limkittikul K, Chanthavanich P, Suvannadabba S, et al. Protective efficacy of the recombinant, live-attenuated, CYD tetravalent dengue vaccine in Thai schoolchildren: a randomised, controlled phase 2b trial. *The Lancet*. 2012;380(9853):1559-67.
7. Rahman, KM, Harley D, Plummer D. Zika virus infection and Commonwealth Games 2018 on the Gold Coast, Australia. *Infection, Disease & Health*. 2017;22(1):48-50.
8. Viennet E, Mincham G, Frentiu FD, Jansen CC, Montgomery BL, Harley D, Flower RL, Williams CR, Faddy HM. Epidemic Potential for Local Transmission of Zika Virus in 2015 and 2016 in Queensland, Australia. *PLOS Currents Outbreaks*. 2016;1 . doi: 10.1371/currents.outbreaks.73d82b08998c6d-729c41ef6cdcc80176
9. Viennet E, Knope K, Faddy H, Williams CR, Harley D. Assessing the threat of chikungunya virus emergence in Australia. *Communicable Diseases Intelligence*. 2013;37(2)
10. South Australian Department of Environment, Water and Natural Resources. *Prospering in a changing climate - a climate change adaptation framework for South Australia*. Adelaide: Government of South Australia; 2012.
11. Environment and Planning Directorate. *ACT Climate Change Adaptation Strategy - Living with a warming climate*. Canberra: ACT Government; 2016.
12. City of Melbourne. *City of Melbourne Climate Change Adaptation Strategy*. Melbourne: Maunsell Australia Pty Ltd; 2008.
13. Department of Environment and Conservation. *Adapting to our changing climate*. Perth: Government of Western Australia; 2012.
14. The City of Sydney. *Adapting for Climate Change - A long term strategy for the City of Sydney*. Sydney: The City of Sydney; 2017.
15. *Climate change impacts in Western Australia* [Internet]. Department of the Environment and Energy. 2017 [cited 8 October 2017]. Available from: <http://www.environment.gov.au/climate-change/climate-science-data/climate-science/impacts/wa>
16. Department of Climate Change. *Climate Change Risks to Australia's Coast*. Canberra: Department of Climate Change; 2009.
17. Department of Climate Change and Energy Efficiency. *Climate Change Risks to Coastal Buildings and Infrastructure*. Canberra: Department of Climate Change and Energy Efficiency; 2011.
18. Meeting of Environment Ministers. *The National Clean Air Agreement* [Internet]. 2017. Available from: <https://www.environment.gov.au/system/files/pages/4f59b654-53aa-43df-b9d1-b21f9caa500c/files/mem-meeting4-statement.pdf>
19. *Review of national ambient air quality standards* [Internet]. Epa.vic.gov.au. 2016 [cited 8 October 2017]. Available from: <http://www.epa.vic.gov.au/your-environment/air/review-of-national-ambient-air-quality-standards>
20. State of NSW. *Clean air for NSW*. Sydney: NSW Environment Protection Authority and Office of Environment and Heritage; 2016.
21. *Bushfire smoke - Fact sheets* [Internet]. Health.nsw.gov.au. 2013 [cited 8 October 2017]. Available from: <http://www.health.nsw.gov.au/environment/factsheets/Pages/bushfire-smoke.aspx>
22. Doctors for the Environment Australia. *Doctors alarmed at new air pollution data call for immediate action* [Internet]. 2017. Available from: <https://www.dea.org.au/doctors-alarmed-at-new-air-pollution-data-call-for-immediate-action-healthy-planet-healthy-people-dea/>
23. Keywood MD, Emmerson KM, Hibberd MF (2016). *Ambient air quality: Health impacts of air pollution*. In: *Australia state of the environment 2016*, Australian Government Department of the Environment and Energy, Canberra
24. Austroads, 2010, *The Australian National Cycling Strategy 2011-2016*
25. Doctors for the Environment Australia. *Investing in Health: The Australian health professions and fossil fuel divestment*. 2015.
26. Climate and Health Alliance. *Framework for A National Strategy on Climate, Health and Well-being For Australia*. Climate and Health Alliance; 2017.
27. The Royal Australasian College of Physicians. *The Health Benefits of Mitigating Climate Change Position Statement*. Sydney; 2016.
28. The Royal Australasian College of Physicians. *Environmentally Sustainable Healthcare Position Statement*. Sydney; 2016.
29. The Royal Australasian College of Physicians. *Climate Change and Health Position Statement*. Sydney; 2016.



Created by



RACP
Specialists. Together
EDUCATE ADVOCATE INNOVATE

