



**Lung
Foundation
Australia**

National Health and Climate Strategy

**Lung Foundation
Australia
2023**

Level 2, 11 Finchley Street, Milton QLD 4064

PO Box 1949, Milton QLD 4064

ABN: 36 051 131 901

1800 654 301

Lungfoundation.com.au

enquiries@lungfoundation.com.au

Table of Contents

Executive Summary	2
About Lung Foundation	4
Lung disease and climate change.....	4
Main recommendations.....	5
Lung Foundation Australia's view on the evidence and importance of national leadership ...	8
The impacts of climate change.....	8
Climate change and lung health.....	8
National Response to climate change	9
Urgency for a well-developed strategy	10
Consultation paper questions.....	11
Objective 1	11
Objective 2	13
Objective 3	15
Objective 4	19
Summary	22

Executive Summary

Lung Foundation Australia welcome and support the first National Health and Climate Strategy which provides an important opportunity to protect and support Australians in the face of climate change. We are already witnessing significant impacts to human health because of climate change, and we will continue to see increased impacts on human health into the future. We must do more to protect Australians, build resilience and prevent health harms as the environment in which we live, work and play, impacts our health and wellbeing. We highlight the importance of this strategy to protect the 1 in 3 Australians living with and lung disease and further to prevent avoidable lung disease in the future. We strongly support the development of Australia's first National Health and Climate Strategy and the work being done by the Government to reduce emissions, strengthen legislation and importantly, recognise the importance of public health. Tackling and adapting to climate change requires significant co-ordination, collaboration, and action from all government sectors and importantly these actions must be guided by the principle of ensuring the protection of human health and safeguarding the environment now and into the future. The Department's leadership in this space will be crucial for implementation and collaboration, as the Strategy will only be effective for public health based on strong co-ordination between sectors and all levels of government.

The development of the first National Health and Climate Strategy is a significant achievement for Australia and highlights the Government's commitment to the health of Australians and the environment. We further acknowledge the Departments plan to deliver a National Climate Risk Assessment, which will consider a range of climate linked health impacts at a national level and a National Adaption Plan which addresses the climate risks identified by risk assessment including those in the health sector. We are pleased to witness the early draft of this Strategy and hope this Strategy will inform and guide much needed change in Australia and promote health and wellbeing of all. We understand the National Health and Climate Strategy is the first step, yet we note the importance of a strong foundational strategy to guide all levels of government and ensure the key objectives of protecting public health remain at the forefront of future policy reform.

In our view, the National Health and Climate Strategy is the framework to acknowledge and address the links between the environment and human health. The relationship between environment and health has long existed, however in the face of climate change the impacts are becoming more prominent, increasing the need for further government action to protect public health. The National Health and Climate Strategy must identify the clear intersections between climate change and health including the health impacts. The Strategy must effectively guide all levels of government to address environmental health risks and challenges to create safe environments that support the health of all noting ongoing inequities and vulnerabilities. We note the complexity of environment and health and thus, this foundational strategy should pave the way for sub-strategies/action plans focusing on key health impact and target areas to address these links (Refer to Figure 1). The National Health and Climate Strategy should become the overarching objective for protecting public health in the face of climate change, however given the complexities and extent of health

outcomes they are unable to be effectively addressed in one strategy. We recommend the Department create sub-strategies on main health issues/sectors to allow for an in-depth analysis and catered action plans to effectively address each area that is pertinent to health.

National Health and Climate Strategy and Sub-Strategies

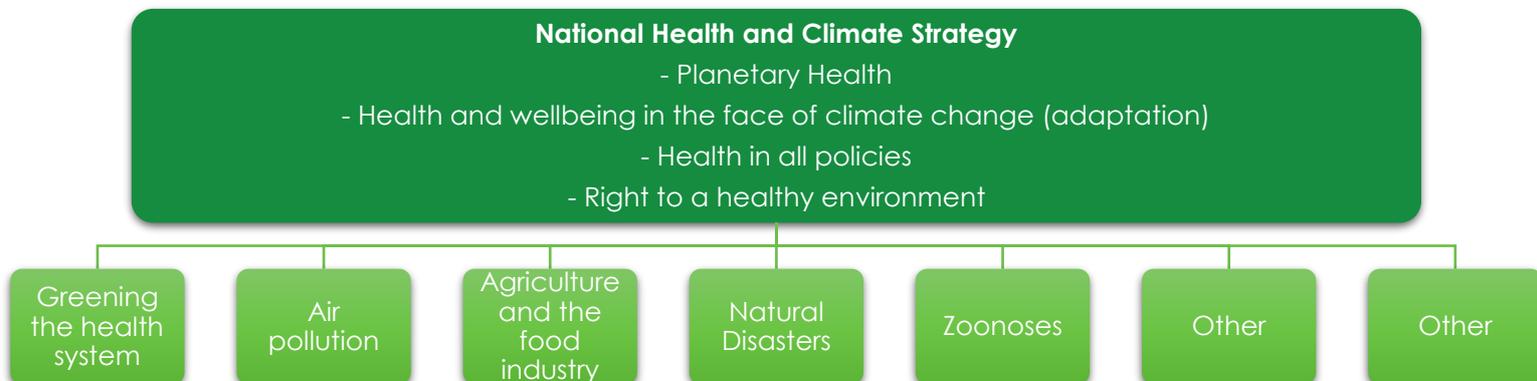


Figure 1: National Health and Climate Strategy and potential sub-strategies

The Strategy needs to provide the central framework to address climate and health risks and protect the health of all Australians. Climate change is progressing, and we must take strong action to prepare and adapt to protect health now and into the future. We thank the Department for their work in developing a National Health and Climate Strategy and the importance of this work for our future. We urge the Department to release a draft Strategy and undertake a second round of consultation to ensure the Strategy is effective in meeting the needs of the Australian community and protects the health and wellbeing of all in the face of climate change.

Lung Foundation Australia are keen to work together and support the Department in the next steps for addressing climate and health and further provide the Department an understanding of the lived experiences of those living with a lung disease. We look forward to continuing discussions on climate and health and thank you for the opportunity to provide feedback on the consultation paper. To organise a meeting please contact Paige Preston, Senior Manager of Policy, Advocacy and Prevention, at paigep@lungfoundation.com.au or 0423 734 885.

Mark Brooke
CEO
Lung Foundation Australia

About Lung Foundation

Lung Foundation Australia (LFA) is the only national charity and leading peak-body dedicated to supporting anyone with a lung disease including lung cancer. For over 31 years we have been the trusted national point-of-call for patients, their families, carers, health professionals and the general community on lung health. There are over 30 different types of lung disease currently impacting 1 in 3 Australians. Our mission is to improve lung health and reduce the impact of lung disease for all Australians. We will continue working to ensure lung health is a priority for all, from promoting lung health and early diagnosis, advocating for policy change and research investment, raising awareness about the symptoms and prevalence of lung disease and championing equitable access to treatment and care. As a patient representative charity, we have partnered with patients, health professionals, researchers, medical organisations and the Australian community to drive reform in the delivery of health services in Australia to benefit more than 7 million Australians impacted by lung disease and lung cancer.

Lung disease and climate change

Climate change is causing an increase in average temperatures resulting in more hot weather and shifting rainfall patterns. Climate change is decreasing the air quality in Australia and impacting the lung health of Australians, which is of particular concern for those living with a pre-existing lung disease. Climate change particularly increases the level of pollutants in the air and such increases in air pollution poses a threat to lung function, causing respiratory symptoms and may lead to lung cancer. Vulnerable populations, such as the 1 in 3 Australians living with a lung disease, experience worse health impacts in the face of climate change and are prone to worsening of respiratory symptoms and exacerbations of lung conditions when exposed to air pollution. Noting the harmful impacts to lung health the Strategy should pave the way to protect the 1 in 3 Australians living with a lung disease and prevent avoidable lung conditions resulting from climate change. We highlight the importance of this Strategy in protecting the 1 in 3 Australians living with lung disease and further to prevent avoidable lung disease in the future.

Main recommendations

The current consultation paper highlights the importance of recognising health in all policies and adaptation to strengthen the resilience of the health system and communities, and we strongly support these objectives. We however note that the Strategy is brief and does not allow for a complete understanding of what these important objectives mean and the research supporting these notions. There is extensive evidence on the relationship between the environment and human health which is not incorporated into the Strategy. It is important the Strategy effectively discusses these links to provide context for current and future challenges. Lung Foundation Australia recommends the following to ensure the Strategy protects the health and wellbeing of Australians from the impacts of climate change.

The 2021 WHO Health and Climate Change Global Survey found 52% of countries surveyed (49 out of 95) have a national climate change and health strategy in place.¹ However, despite progress on assessment and planning, implementation of national strategies remained a challenge due to insufficient funding.² Additionally, whilst most governments identified both health and climate change as main priorities, they often do so separately rather than via integrated and mutually reinforcing goals.³ To achieve meaningful progress on implementation there must be clear mandates and proportionate resources dedicated to the intersections between climate and health.⁴

1. Health and wellbeing of Australians as the primary focus of the strategy

The National Health and Climate Strategy is long overdue and fills a significant gap in policy regarding environmental health. This Strategy should provide the overarching framework of how Australia will acknowledge and respond to the environment noting the impacts on health. The current outline and structure of the strategy removes focus from the big picture aspects of environmental health, and these become overshadowed by emission reduction efforts in the health system. The Strategy has a significant focus on the healthcare sector and reducing carbon emissions, and whilst this is important, more attention is needed on the broader concepts of environmental health to mitigate the health impacts from climate change effectively. At the very least, to ensure the focus remains on health and wellbeing we recommend the objectives to be re-ordered with adaptation and health in all policies at the beginning of the strategy.

2. Effective engagement and collaboration with communities

The strategy must incorporate priorities for engagement and collaboration with communities who are vulnerable to the impacts of climate change. Lived experiences of consumers provides an understanding of the needs of communities and should inform actions for implementation and the ongoing work under the National Health and Climate Strategy. We particularly highlight the needs of the 1 in 3 Australians living with a lung disease and the impacts they are experiencing due to the changing climate. Australia has experienced extreme natural disasters in recent years, causing major flooding and bushfire events. Pollution from bushfires and the build-up of mould in damp environments has resulted in poor air quality both indoors and outdoors which can lead to significant health impacts for all Australians. However, those living with a lung disease are particularly vulnerable and

exposure can lead to worsening of symptoms and the need for increased healthcare. The impact of climate change for lung health will be discussed further below.

The Strategy must support such communities in adapting to the impacts of climate change and tailor actions to recognise their needs. With natural disasters already increasing we cannot ignore the communities who face increased health risks and poorer health outcomes which will ultimately lead to the need for increased healthcare, exacerbating healthy system pressures and costs. The impacts of climate change are disproportionately felt by the most vulnerable and disadvantaged including children, ethnic minorities, poor communities, migrants, and those with underlying health conditions.⁵ The Strategy must acknowledge the needs of such groups and ensure health inequities are reduced. Any actions to mitigate the health impacts of climate change needs to account for the intersection between socioeconomic disadvantage, First Nations, rural and remote communities, and health – particularly respiratory health for those already living with a lung condition or more likely to develop one due to climate change or other determinants.

We encourage the Department to establish and facilitate an expert working group to ensure the Strategy is informed by evidence-based research to lead Australia in developing healthy communities. There is already extensive research on environmental health and climate change, and we should draw on knowledge, experience and best practice measures to guide future actions.

3. Capturing health in a holistic sense and the broader definition of health

The Strategy acknowledges the notion of one health and the alignment with achieving health in all policies, objective 4. Expanding on one health, the concept of planetary health places more emphasis on the interconnections of environment and health. The World Health Organization explains planetary health as incorporating the interdependencies of human and natural systems, while also recognizing that preserving the integrity of natural systems is an essential precondition for human health, survival, and prosperity.⁶ Planetary health is simply described as the health of human civilisation and the state of the natural system on which it depends, and thus, this concept provides greater emphasis on climate and health and should be referred to in the Strategy.⁷

4. Identify a clear purpose of the strategy

The purpose and vision of the Strategy is unclear and presents objectives that are both solely the responsibility of the Australian Department of Health as well as all levels of government. We recognise the overarching purpose outlined on page 2 of “protecting the health and wellbeing of Australians from the impacts of climate change.” Despite this being identified as the purpose, we note that the Strategy does not go far enough to effectively do so, and we can and should be doing much more to support and protect the health of Australians.

Emissions reductions and environmental protection are important factors underpinning climate change however, these must be considered separately to the protection of public health for environmental risks. We must not only reduce our environmental impact but further create and promote health within all areas of government to recognise health and wellbeing as holistic.

Additionally, the Strategy does not recognise links to the Australian Centre for Disease Control nor the Measuring What Matters Framework, and importantly the intersections on how each could support the implementation of the National Health and Climate Change Strategy and objectives. The Measuring What Matters Framework and wellbeing economy assists in addressing climate change as it defines the markers of progress as the things that serve the wellbeing of people and the planet.⁸

5. Goals and targets outlined with timeframes

We note that while objectives are discussed the Strategy does not outline actions or goals for each objective. Such goals are important to ensure the Government have clear responsibilities and are held accountable to achieving the objectives and aligning with the Strategy. It is currently unclear how the objectives can be effectively implemented to achieve the desired outcomes and the timeframes in which this will occur. A strategy without clear targets, timelines and actionable items will serve no purpose. For effective implementation we need co-ordinated cross department collaboration by the Government due to the complex nature of the environment and health and the intersections with key policies at all levels. Without timeframes, action will continue to be delayed. It is important to understand how these objectives will be achieved and allow for progress to be tracked and monitored to ensure we are protecting the health and wellbeing of Australians.

6. Facilitate co-ordination for effective implementation

The Strategy must recognise the need for co-ordination for implementation and will ultimately require cross-jurisdictional and cross-portfolio activities. The Strategy must reflect the broader actions needed by all levels of government rather than solely focusing on what the Department of Health will do as part of the Strategy. The Department needs further actions around how it will influence and drive investment to implement the initiatives that involve other sectors to reduce health threats. The strategy should make the role of states and territories clear and provide the overarching guidance on safeguarding public health in the face of climate change.

7. Recognise the right to a healthy environment as a principle

In 2022, The Australian Capital Territory began the process of achieving the right to a healthy environment to be incorporated into the Humans Rights Act. We urge the Department to consider the inclusion of Principles regarding the right to health and the right to a healthy environment. The presence of these core principles acknowledges the links between the environment and our health and wellbeing, and importantly makes environmental health a priority for government.

In July 2022, The United Nations declared healthy environment as a fundamental right and whilst this is not legally binding for the 193 United Nations member states, it aims to encourage countries to uphold the right to healthy environment in legislation.⁹ On the other hand, Australia is a signatory to the Paris Agreement, which is a legally binding international treaty on climate change.¹⁰ Article 7 of the Paris Agreement outlines the commitment to enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change and acknowledges this may including assessment of climate change

impacts and vulnerability to formulate national priorities for action.¹¹ These notions should underpin the purpose of the Strategy and emphasise the importance of the relationship between the environment and public health.

Lung Foundation Australia's view on the evidence and importance of national leadership

The impacts of climate change

Climate change is increasing the intensity and frequency of natural disasters, causing extreme rainfall, heatwaves and droughts which can modify the transmission of food and water borne disease as well as zoonotic infectious disease, having a large impact on human health.¹² Human health and development rely on a healthy environment and currently about one quarter of all death and disease burden worldwide is a result of known, avoidable environmental risks.¹³ One of the largest risks to health is air pollution with more than 90% of the world's population breathing polluted air. In Australia it is estimated that 2600 people die from air pollution each year, demonstrating the urgent need to do more to achieve clean air in Australia.¹⁴ The estimated financial cost of premature deaths due to air pollution ranges from roughly \$11 billion to \$24 billion per year, placing a significant financial burden on the government.¹⁵

The United Nations 2030 Agenda for Sustainable Development is a plan of action to create a sustainable and resilient world with 17 Sustainable Development Goals and 169 targets aimed at balancing the three dimensions of sustainable development: the economic, social, and environmental.¹⁶ We note Australia's commitment to the 2030 Agenda including the Sustainable Development Goals, which align with the Australian Government priorities and long-standing efforts across a range of sectors.¹⁷ The United Nations Sustainable Development Goal 13 calls for urgent action to combat climate change and its impacts by strengthening resilience and adaptive capacity to climate-related hazards and integrating climate change measures into national policies, strategies, and planning.¹⁸ Additionally, Sustainable Development Goal 3.9 sets the target by 2030 to substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination.¹⁹

Climate change and lung health

Over the past 60 years, the effects from global climate change have impacted Australia. There has been a shift in the local climate with an increase in average temperature, more frequent hot weathers and shifting rainfall patterns.²⁰ Climate change is associated with respiratory symptoms and decreased lung function which is caused when exposed to air pollutants such as particulate matter.²¹ Climate change particularly increases the level of particulate matter in the atmosphere and such increases in air pollution and exposure can pose a threat to lung function.²² Furthermore, warmer temperatures associated with climate change increases exposure towards respiratory allergens and pollutants with poor quality leading to respiratory allergies and asthma.²³ Vulnerable populations, such as the 1 in 3 Australians living with a lung disease, experience worse health impacts in the face of climate change, compared to the general community. Those living with a lung disease are prone to

worsening of respiratory symptoms and exacerbations of lung conditions when exposed to air pollution. Research has also shown an increase in hospital admissions for children with asthma during cool seasons due to high concentrations of pollutants such as PM2.5, NO2, PM10 and pollen.²⁴ Climate change is worsening the air quality in Australia and impacting the lung health of Australians, which is of particular concern for those living with a pre-existing lung disease, and also increases the likelihood of more Australians developing a lung disease.

National Response to climate change

Climate change is causing widespread impacts on our environment at an accelerated rate, and these damaging effects will undoubtedly impact the health of all. The concern and need for action to slow down climate change led to the formation of an international legally binding treaty, the Paris Agreement, on the 4th of November 2016.²⁵ The agreement, signed on by 194 parties, is a commitment made to reduce emissions and work in collaboration to adapt to the impacts of climate change.²⁶ Australia is a party to the Paris Agreement and works to achieve the two primary goals of; holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit temperature increase to 1.5°C.²⁷ Australia has legislated new targets in the Climate Change Act 2022, aiming to reduce greenhouse gas emissions by 43% below 2005 levels by 2030 and keep Australia on track to reach net zero emissions by 2050.²⁸ The new target set in 2022, increases reduction targets by 15% below previous goals, demonstrating an increased response and effort by the Australian Government.²⁹ However, research has shown that Australia is not on target to meet the current pledge and further, the current targets set are insufficient in with keeping global warming to 1.5°C (Refer to Figure 2).³⁰

Greenhouse gas emissions in Australia

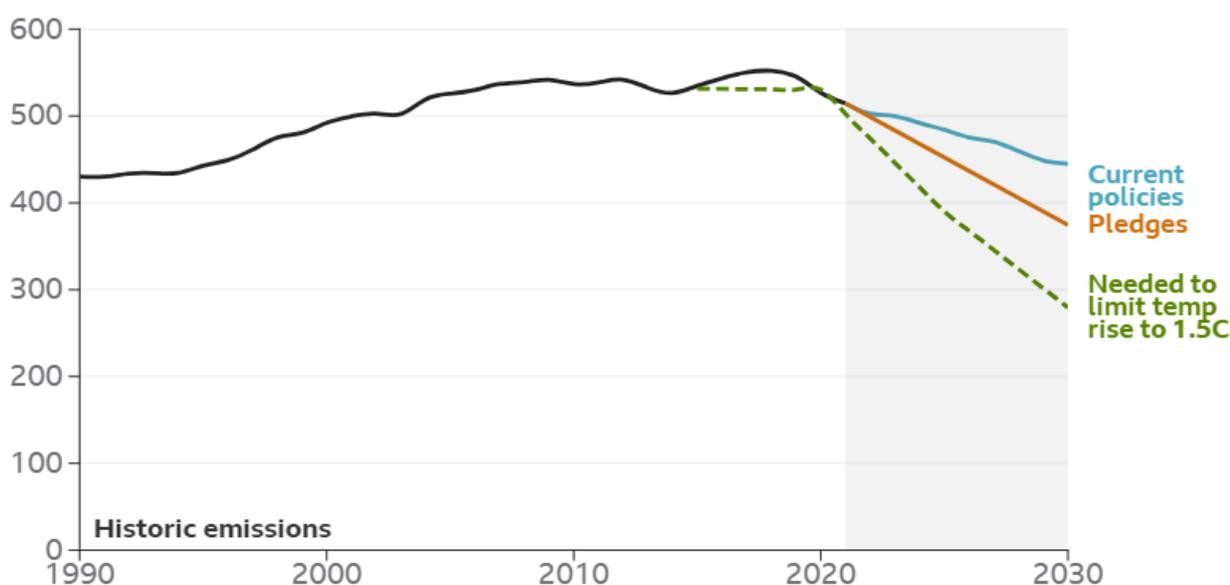


Figure 2: Greenhouse gas emissions in Australia and future modelling of current policies, pledges and what is needed to reduce warming to 1.5°C

Importantly, the Strategy notes that we have known avoidable environmental risks and climate change is increasingly affecting people's health and wellbeing.³¹ Further, we note one of the strategic objectives which remains of importance in Australia is cross-sectoral action to act on determinants of health in all policies and in all sectors.³² This means that policies across sectors will systematically consider health perspectives and evidence, and ultimately health co-benefits of environmental protection will result. This is seen in current work being undertaken by the federal government on cleaner fuel and electric vehicles which not only improves air quality but the health of Australians.³³ The Australian Government continues to work to address climate change and reduce emissions by upgrading the electricity grid to support more renewable power, reducing costs of electric vehicles, regulating and reporting on greenhouse gases and reducing baselines under the Safeguard Mechanism (policy for reducing emissions at Australia's largest industrial facilities) predictably and gradually over time.³⁴ The National Preventive Health Strategy 2021-2030, identifies climate change as a significant issue and aims to ensure that by 2030 evidence-based approaches are developed and implemented to identify, address, and mitigate the impacts of climate change on the health system.³⁵

Urgency for a well-developed strategy

The Intergovernmental Panel on Climate Change (IPCC) found that to avoid catastrophic health impacts and prevent millions of climate change related deaths, we must limit the temperature rise to 1.5°C.³⁶ Ongoing emissions have already caused the global temperature to increase and action across the globe is insufficient in preventing further rises.³⁷ In 2023, the World Meteorological Organisation released a new report finding it is likely that the global surface temperature will exceed 1.5°C above preindustrial levels for at least one year between 2023 and 2027.³⁸ This new research continues to demonstrate the ongoing need to address climate change and importantly that we are already living and witnessing health impacts from the changing climate. In 2020, the World Health Organisation developed the World Health Organisation (WHO) global strategy on health, environment, and climate change to provide a way forward on how the world and its community need to respond to environmental health risks and challenges until 2030.³⁹

Climate change continues to pose new challenges and health risks, and delayed action in effectively reducing emissions means we will be seeing more and more impacts from the changing climate. We cannot stop climate change however, Australia's current goals and targets for emission reduction are ineffective in slowing climate change and protecting the environment. The relationship between our health and the environment is greatly understood in research and we are able to avoid many poor health outcomes by adapting and recognising the environmental health links and taking strong action.

Consultation paper questions

Objective 1

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

The objectives of the Strategy primarily focus on reducing emissions from the healthcare sector and supporting the healthcare sector in implementing mitigation and measurement systems to improve the environment. We note that while it is important to address the causes of climate change and take strong action to protect the environment, the healthcare system is not the primary source of pollution and is rather a small part of the bigger picture in addressing climate change. We recommend implementing stronger principles to protect public health noting the complexities and linkages between the environment and health. The Strategy must extend beyond the health system and focus further on public health.

We refer to recent research which concludes there are three grand challenges for health and climate action, and we need to implement goal driven approaches to:

1. Promote actions that both reduce carbon emissions and improve health
2. Build better, more resilient and environmentally sustainable health systems
3. Implement public health measures to protect from the range of climate risks to health.⁴⁰

Given the scale and complexity of each of the challenges these need to be dealt with separately to ensure equal weight is given to each distinct area and clear actions can be set. Addressing all three areas will accelerate the health response to climate change and importantly, the scale and health sector response needs to be appropriate to the size of the health threat.⁴¹

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

We support the principles to better inform the objectives and particularly note the importance of tackling health inequalities. Vulnerable populations, such as the 1 in 3 Australians living with a lung disease, experience worse health impacts in the face of climate change, compared to the general community. Those living with a lung disease are prone to worsening of respiratory symptoms and exacerbations of lung conditions when exposed to air pollution. Research has also shown an increase in hospital admissions for asthma in children during cool seasons due to high concentrations of pollutants such as PM2.5, NO2, PM10 and pollen.⁴² Climate change is decreasing the air quality in Australia and impacting the lung health of Australians, which is of particular concern for those living with a pre-existing lung disease. Ensuring a principles-based approach that puts the broader community at the centre of the Strategy is vital.

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

Australia is falling behind in effectively reducing emissions and taking strong action to protect the health of the environment. Noting this we must urgently implement strong measures to effectively reduce emissions and make the biggest impact to public health. The Strategy should implement all 3 scopes of emissions, including other indirect emissions such as

emissions generated from the incineration of its waste offsite. The actions taken must consider the whole picture of emissions and ensure the health system is responsible for their environmental emissions. Additionally addressing upstream sources such as emissions generated in the manufacture of medical equipment used by the hospital or by hospital staff commuting to work promotes awareness of the emissions and promotes meaningful behaviour change by the health system and workers.

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?

Lung Foundation Australia emphasise our strong support for First Nation leadership and the inclusion of such knowledge and experience to be central to decision making on climate and health at all policy levels. Australia is a signatory to the United Nations Declaration on the Rights of Indigenous Peoples and as such has a commitment to including First Nations views and needs in all aspects of policy development.⁴³ These should be determined through self-determination and reciprocity with First Nations Elders, leaders and communities.

The voice of First Nations should be central to the Strategy. The government needs to undertake meaningful engagement with First Nations communities, drawing upon their knowledges and cultural practices which hold solutions to the impacts of climate change on health and wellbeing. The Strategy should further outline how governance mechanisms and processes for community leading will be integrated, in accordance with best practice and with cultural safety principles. The Strategy must clearly outline how engagement with First Nations leaders, Elders and communities will be carried out, how leadership will be fostered and importantly how the health and wellbeing of First Nations peoples will be advanced through the Strategy.

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?

Genuine engagement and co-design principles are needed to ensure First Nations voices, decision-making and leadership are embedded in the Strategy. The Department must listen and learn from First Nations peoples to understand their priorities to tackle health impacts of climate change.⁴⁴ There must be a clear continual process to embed First Nations cultural knowledge and practice into goals and actions. We highlight the need for collaboration with First Nations peoples at local, state and territory and national levels and drawing expertise from the National Aboriginal Community Controlled Health Organisation and its associated Aboriginal Community Controlled Health Organisations across Australia, the Coalition of the Peaks, Closing the Gap and other existing coalitions and partners.

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 comment.

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

We refer to feedback provided in this submission and reiterate that the focus of this Strategy must be broadened to protect the health and wellbeing of all Australians and increase adaptation in the face of climate change.

Objective 2

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

We refer to feedback provided in this submission and reiterate that the focus of this Strategy must be broadened to protect the health and wellbeing of all Australians and increase resilience in the face of climate change.

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?

We acknowledge the need to ensure newly built healthcare facilities and those needing renovations meet building requirements which not only address current needs but anticipate and prepare for the future. Importantly, the Government must invest in the necessary upgrades of current healthcare facilities to ensure the built environment and facilities support emission reduction. However, we again reiterate that the focus of this Strategy must be broadened to protect the health and wellbeing of all Australians and increase adaptation in the face of climate change.

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

We refer to feedback provided in this submission and reiterate that the focus of this Strategy must be broadened to protect the health and wellbeing of all Australians and increase adaptation in the face of climate change.

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

We refer to feedback provided in this submission and reiterate that the focus of this strategy must be broadened to protect the health and wellbeing of all Australians and increase adaptation in the face of climate change.

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

Lung Foundation Australia support transitioning consumers from pMDIs to environmentally sustainable inhalers. However, we note that such medical decisions should be done so in consultation with patients. Additionally, educating consumers on the impacts of pMDIs should be a key action area as patients can then advocate for their needs and are also equipped with the knowledge to request an alternative device that is environmentally friendly. Both primary care and consumers play an integral role in medicine use, and both

need to be considered. We further urge The Department to consider the sustainability and waste of other medicines outside of pMDIs.

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

We support the approaches proposed to the Department to reduce waste and encourage re-use where possible. We further highlight the need for clear waste guidelines for used medical products. This should include education for the community regarding how to correctly dispose of such products and where they can be disposed of. This is particularly important for products such as nicotine vaping products (NVP) that contain hazardous waste (nicotine), plastic and batteries. With NVPs accessible via medical prescription and pharmacies, it is integral that these products can be disposed of correctly to avoid environmental harms.

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?

Lung Foundation Australia support greater social prescribing and shifting models of care from acute to primary and self-care. Further we strongly support public health initiatives targeted at clinicians and patients including reducing unnecessary medical tests, treatments and procedures.

Health professionals play a key role in communicating greener options to patients and further promoting healthy lifestyles to prevent illness and the need for medical treatment. However, consumers who are equipped with the knowledge about greener healthcare choices are able to advocate for their wants and can encourage conversations with their healthcare providers.

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

No comment.

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?

The actions and goals to reduce emissions in Australia needs to be strengthened to prevent avoidable health risks and protect the environment. The Strategy should include prioritising areas where emissions are highest as this will make the greatest impact to emission reductions. It is important that the scope of the Strategy adequately acknowledges and address the ongoing pollution and makes every effort to green the healthcare system. We must urgently implement strong measures to effectively reduce emissions.

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

All sources of emissions should be prioritised, and we can no longer delay action. Further, the Strategy needs to consider broader sources of emissions and we re-iterate the focus of the Strategy must expand beyond the health system.

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

The health system should be implementing actions to all areas outlined above. Additionally, the government can and should be undertaking further policy review in other sectors to reduce emissions and this should be prioritised in the 12 months following the publication of the Strategy. This should include ongoing work to address vehicle emissions (e.g., on and off-road diesel), adoption of the World Health Organisation air quality guidelines, increasing transition to electric vehicles and developing a National Air quality Strategy, amongst others.

Objective 3

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?

Public health and the environment are strongly interconnected, and we note the importance of addressing all risks outlined in the Strategy. Australia must undertake a thorough risk assessment to understand the existing and potential health risks resulting from the changing environment and additionally identify effective actions to reduce exposure/risk.

We note the importance of further ensuring vulnerable populations are considered when developing actions and understanding community needs. Those most vulnerable will experience worse health outcomes in the face of climate change. For example, the 1 in 3 Australians living with a lung condition experience worsening of symptoms in the face of air pollution and even small changes in air quality can result in deterioration of their condition.

Vulnerable populations such as the 1 in 3 Australians living with a lung disease are greatly impacted by climate change and should be identified as an important population group when considering adaptation. We need improved support and communication for those living with a lung disease particularly during hazard reduction burning and bushfire emergencies which cause poor air quality. Such events impact the health and wellbeing of those with a pre-existing lung condition, causing worsening of symptoms which may require urgent medical attention. However, we highlight the importance of recognising differences and challenges amongst communities and hope the Department supports all levels of government in undertaking research and identifying key actions that cater to the needs of states and local communities.

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

Yes, the Australian government must develop a National Health Vulnerability and Adaptation Assessment and National Health Adaptation Plan. We need further investigation and research on the links between the environment and public health, particularly in the Australian environment and acknowledgment of our current legislative framework. However, we note that there is strong international evidence on negative health harms and the environment and thus there is no need to delay action. The development of the assessment and plan should not prevent action from occurring in the near future. We can utilise international frameworks and policy actions to guide Australia and create a resilient population that can adapt and are protected from avoidable health harms. The 2021 WHO Health and Climate Change Global Survey found that almost half of all countries surveyed (48 out of 95) have conducted a climate change and health vulnerability and adaptation assessment and this is the first essential step to understanding the scale and nature of health vulnerabilities to climate variability and change.⁴⁵

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

In 2021, The World Health Organisation, Pan American Health Organisation and Health Canada developed updated guidance on vulnerability and adaptation assessments.⁴⁶ The guidance builds upon previous work and aims to provide basic and flexible direction for conducting nation and subnational assessments of current and future vulnerability to the health risks of climate change and of policies and programs that could increase resilience. We note the importance of referring to such tools which has been applied to more than 50 countries and settings since launching in 2013. In undertaking such assessments and plans it is important to identify vulnerable populations and ensure that appropriate consideration is given to those who are most impacted by climate change.

We need strengthened action as part of disaster management and increased focus on disaster risk reduction and climate action. We need effective mechanisms in place to reduce risk to natural disaster events and yet investment in mitigation and preparedness remains low as recovery and rebuilding is extremely costly.⁴⁷ We still see significant gaps in public health support in the face of climate change particularly for vulnerable communities. As mentioned, those living with a lung disease experience worsening of symptoms when exposed to poor air quality and we need improved systems and communication such as systems to alert those living with a lung disease of hazard reduction burning and bushfire emergencies on poor air quality days.

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

Work within health and climate has already been undertaken across the nation and is an important starting point to grow our understanding and actions into the future. The *Climate Health WA Inquiry: Final Report* published in November 2022, is a key example of critically investigating and analysing the impacts of climate change and health.⁴⁸ The report provides clear recommendations based upon findings and importantly WA are in the process of developing a climate adaptation Strategy in 2023 to identify and manage climate impacts and enhance climate resilience.⁴⁹ We further acknowledge the Western Australian Climate

Policy which combines a suite of climate change actions currently being implemented and new commitments to support a resilience and a low carbon future.⁵⁰ Additionally, Queensland has developed the Queensland Climate Adaption Strategy 2017-2030 which aims to prepare Queenslanders for the current and future climate changes by understanding the impacts, managing the risks and harnessing opportunities.⁵¹ We note that Australian states and territories are progressing their own adaption plans and it is important that these do not become siloed. The federal government must lead this key area of work and guide states and territories to achieve effective change across the nation.

Additionally states and territories have already developed action plans for reducing emissions in the health sector. We note WA's work in greening healthcare and has recently joined the Global Green and Healthy Hospitals network. The Department of Health WA established a Sustainable Development Unit, modelled on a successful example in the UK's National Health Service (NHS) to coordinate a systemwide response on climate action and sustainability across the WA health system.⁵²

Further other plans include:

- WA Department of Health Climate Action Plan 2022-2024⁵³
- Queensland Health Climate Risk Strategy 2021-2026⁵⁴
- Queensland Health Climate Change Adaptation Planning Guidance Guidelines⁵⁵

Significant work has been undertaken internationally on climate change and health, including ongoing research on the health impacts and assessments for vulnerability and adaptation. To ensure such assessments and plans in Australia are well-developed we urge the Department to draw upon international learnings and use these foundations to guide work within the Australian context.

The Climate Change and Health Strategy developed in Toronto, United States, identifies specific actions for main areas of concern including air quality, water, vector-borne disease and the built environment.⁵⁶ This Strategy is a good example of taking a more specific approach to the health impacts and the actions needed however, a more complex understanding and analysis of each would be needed.

Canada's response to climate change and health

Canada have acknowledged the rapid rate of climate change and subsequently the urgent need to prepare for climate change impacts on health. In 2022, Health Canada, the federal department responsible for helping the people of Canada to maintain and improve their health, released the "[Health of Canadians in a Changing Climate: Advancing our Knowledge for Action](#)" which is the first comprehensive study of current and projected risks from climate change since 2008.⁵⁷ The report provides information to help people understand how Canada's climate is changing and the effects on health and health systems including for at risk communities. Importantly the document notes that mitigation measures for climate changes such as addressing greenhouse gases via investment in renewable energy and electric vehicles, can have indirect effects of reducing exposure to health damaging air pollutants.⁵⁸

"For example, GHG mitigation and adaptation efforts that significantly reduce fossil fuel use (e.g., changes to the design of transportation infrastructure in communities to improve thermal comfort; use of low-emission vehicles; promotion of active and public transportation) also improve air quality by reducing fine particulate matter, including black carbon and tropospheric ozone; these efforts can have multiple co-benefits, including reductions in cardiovascular and respiratory diseases"

- Health of Canadians in a Changing Climate: Advancing our Knowledge for Action.⁵⁹

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

It is important to implement a national approach that promotes and supports local vulnerability assessment and adaptation planning. Australia is vast and the risks are different between communities. A national plan should acknowledge this and guide communities in effectively addressing and responding to the needs of their community. We cannot expect local planning to occur without strong guidance and leadership from the top.

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, we need strong leadership from the Government to guide implementation for states, territories, and local health systems. There would be value in promoting a nationally consistent approach to vulnerability assessment and adaptation planning however it is also important that the approaches consider vulnerabilities and differences in communities and geographical regions and how climate change will impact their health and wellbeing. We need a strong framework that encourages states and territories to recognise and implement actions that will be most impactful for their communities.

We highlight the need for vulnerability assessment and adaptation planning to extend beyond the health system and ensure communities receive tailored support that acknowledges their needs in the face of climate change. We cannot focus solely on the health system to adapt to climate change, and we need to build community resilience by increasing awareness, education, and support systems. Protecting public health from avoidable health outcomes results in improved wellbeing and reduces costs on the health system.

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

We need increased investment in education, awareness and support in climate and health education for those living with a lung disease who are vulnerable and the wider community. To effectively prepare for the future ahead which will undoubtedly see extreme natural disasters and ongoing health impacts from climate change we need to build community resilience. Communities need guidance and clear actions they can take to protect themselves in the face of such impacts.

Over the next 12 to 24 months, we need a complete assessment of the health risks from climate change in the Australian context and importantly, effective measures that span across sectors to respond to the growing health risks and prevent avoidable health harms. Air pollution is a key example, whereby policy changes in the transport industry can reduce air pollution and subsequently protect Australians from being exposed to poor air quality. We can and should continue to take health-based approaches in policy reform outside of the health department and this should be prioritised to ensure we use every opportunity to improve health now and into the near future.

Australia has suffered through extreme natural disaster events such as the recent flooding and bushfire events, which have devastated communities and caused ongoing impacts. We are experiencing an increase in severe natural disasters due to climate change and now is the time to build community resilience to protect public health. Exposure to bushfire smoke and mould following flooding, can cause severe short- and long-term health impacts, particularly for those living with a lung disease. There is significant evidence that low level exposure to air pollutants can cause harm to human health and the current air quality standards in Australia are behind the international standards. With climate change causing increasing health risks we need The Government to strengthen policies and take strong action such as aligning with international best practice and implementing the World Health Organisation Air Quality Guidelines 2021. Research demonstrates air pollution is causing ongoing harm to human health and the Australian Government needs to commit to cleaner air for all Australians, particularly as we face increasing risks from climate change.

Objective 4

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?

Implementing a health in all policies will be integral to safeguarding the environment and effectively protecting public health. There are complex intersections between public health and other government sector policies, and many provide opportunities to strengthen our response to public health and achieve co-benefits for communities. We need a clear understanding of how health in all policies will be achieved in future policies changes. The American Centers for Disease Control (CDC) have developed a climate and health guide for cross-sector collaboration, created to support health department staff in conducting cross-sector outreach for climate adaptation planning.⁶⁰ We note the need for a similar document which outlines key areas in which climate and health can be addressed and opportunities for the future. This provides an opportunity to take a health and climate approach during policy reform and importantly identify the areas which are not effectively prioritising health. The CDC sector guide identifies climate and health intersections for urban planning and land use, transport planning, green design, and agriculture to name a few.⁶¹ However, we not only need to understand the intersections but further have a clear plan on how we can achieve a health focus now and into the future.

Public health considerations should be given in all areas of policy development however, the key intersections of policy and public health have long been ignored leaving many vulnerable populations at risk of health conditions. For example, overlaps between public health and town planning are often ignored and thus, childcare centres are often built on or

near major roads, exposing young children to high levels of air pollution, such as harmful PM, during their time in care.

We highlight we have already seen this with the vehicle/transport industry in recent consultations to strengthen legislation regarding emissions from vehicles and improving fuel quality. The recent consultation regarding the implementation of standards for non-road diesel engines recommended legislative requirements based on the improvements to public health. This is a primary example of policy reform that not only aims to reduce pollution for environmental reasons but further considers the benefits to human health both now and into the future. Australia is considerably behind international best practice regarding vehicle emissions, and we can and should be doing more in alternative sectors to promote the health and wellbeing of Australians.

We need greater emphasis on public health within policy reform and prioritisation of public health when considering new legislation. Health in all policies needs to consider the important implications to public health and should further incorporate support/incentives to drive public behavioural change such as financial incentives provided to those moving away from using woodfire heaters as a means of improving indoor air pollution.

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?

Those living with a lung disease are particularly vulnerable to the impacts of climate change and are an important example of key populations that must be included in collaboration and partnerships to adequately address climate policy and public health policy. Community organisations are key stakeholders and importantly can best represent communities who are vulnerable. National committees with key stakeholders, experts in the field and political representation can guide the development of effective strategies and allow community voice to be heard. We need diverse representation and importantly ensure those who are most vulnerable are given a platform to express their needs. Furthermore, implementing community engagement models such as citizen science, promotes collaboration and community participation in research. This is not only beneficial for researchers but the wider community, increasing scientific knowledge and raising awareness of key issues.

As mentioned in the consultation paper, preventive health actions are primary in a health in all policies approach and such work is in alignment with Australia's National Preventive Health Strategy. Climate change is identified in the National Preventive Health Strategy 2021-2030 as a primary concern for health, highlighting the need to adopt evidence-based approaches to identify, address, and mitigate the impacts of climate change on the health system.⁶² In line with the National Preventive Health Strategy aims, we need an increased investment in preventive health, and this should rise to 5% of the total health expenditure across Commonwealth, state and territory governments by 2030. Work to address the risk of climate change for health is underpinned by preventive health notions and thus, we need all levels of government to provide adequate investments to create healthy environments and place health and wellbeing at the forefront of government sectors.

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

Enabler 1: Workforce, leadership and training

Lung Foundation Australia notes the importance of education and training for health professionals as a core part of addressing the impacts of climate change and health.

Lung Foundation Australia in partnership with The Thoracic Society of Australia and New Zealand and Asthma Australia, developed the lung learning hub to provide a tailored source of quality-assured and evidence-based respiratory health education and training for primary healthcare professionals to optimise patient outcomes.

We encourage the Strategy to utilise such platforms as the Lung Learning Hub to guide education and ensure health professionals can upskill in climate and health.

Enabler 2: Research

Research plays an integral role in understanding health and climate and we urge the Government to develop dedicated MRFF Research Missions to encourage research and support further research in this important public health area. We are unable to prevent the effects of climate change and instead we must create a resilient community. Given this area of public health is rather new and under recognised it is important to foster strong research to guide our future in this space. Funding applications should further be evaluated and given sustainability scores to ensure research considers its environmental impact and encourages environmental sustainability.

Enabler 3: Communication and engagement

We strongly support enabler 3, and further note that actions should include engagement and communication with key community groups and co-designing education and awareness information. Further we need ongoing support mechanisms for these key groups, particularly during emergencies.

Enabler 5: Monitoring and evaluation

Further to monitoring and evaluating we additionally need an action to review the Strategy to build upon new research, knowledge, and experiences both nationally and internationally. As this is Australia's first National Strategy it should provide the overarching principles and guidance that will remain relevant for years to come. On the other hand, action plans created from the Strategy should only last for short time periods to ensure new targets are set and deliverables are strengthened in line with the latest evidence.

25. For each of these enablers:

a) What is currently working well?

As above.

b) What actions should the Strategy consider to support delivery?

As above.

Summary

Lung Foundation Australia support the work of The Department in developing the first National Health and Climate Strategy. We acknowledge the importance of the Strategy for Australians in the face of climate change and the leadership from the federal government will be paramount to effectively building a resilient community. Lung Foundation Australia reiterate the need to consider vulnerable populations, such as the 1 in 3 Australians living with a lung disease, as key stakeholders in future work around climate and health due to their unique experience in the face of climate change.

Lung Foundation Australia strongly recommend The Department to strengthen the Strategy on climate and health, with increased emphasis on links to public health outcomes rather than reducing emissions in the healthcare sector. Whilst emission reductions play an important role in mitigating climate change, emission reduction in the health sector must be addressed separately to the public health impacts resulting from climate change. Without strong action, Australia will continue to experience poor health outcomes because of increasing consequences of climate change, and we know from recent experiences with extreme natural disasters that we are unprepared for climate change and the health risks it is causing and will continue to cause. We urge the Department to release a draft Strategy and undertake a second round of consultation to ensure the Strategy is effective in meeting the needs of the Australian community and protects the health and wellbeing of all in the face of climate change. Lung Foundation Australia commend the work of the Department and look forward to the continuing efforts in addressing climate and health risks.

-
- ¹ Campbell-Lendrum, D., Neville, T., Schweizer, C. et al. Climate change and health: three grand challenges. *Nat Med* 29, 1631–1638 (2023). <https://doi.org/10.1038/s41591-023-02438-w>
- ² Campbell-Lendrum, D., Neville, T., Schweizer, C. et al. Climate change and health: three grand challenges. *Nat Med* 29, 1631–1638 (2023). <https://doi.org/10.1038/s41591-023-02438-w>
- ³ Campbell-Lendrum, D., Neville, T., Schweizer, C. et al. Climate change and health: three grand challenges. *Nat Med* 29, 1631–1638 (2023). <https://doi.org/10.1038/s41591-023-02438-w>
- ⁴ Campbell-Lendrum, D., Neville, T., Schweizer, C. et al. Climate change and health: three grand challenges. *Nat Med* 29, 1631–1638 (2023). <https://doi.org/10.1038/s41591-023-02438-w>
- ⁵ World Health Organisation 2023, Climate Change https://www.who.int/health-topics/climate-change#tab=tab_2
- ⁶ World Health Organisation 2017, Health and environment on a changing planet, <https://apps.who.int/iris/rest/bitstreams/1147920/retrieve>
- ⁷ Horton R, Beaglehole R, Bonita R, Raeburn J, McKee M, Wall S. From public to planetary health: a manifesto. *Lancet* 2014; 383: 847
- ⁸ VicHealth 2022, How to create a wellbeing economy, <https://www.vichealth.vic.gov.au/news-publications/research-publications/how-create-wellbeing-economy>
- ⁹ United Nations Environment Programme 2022, In historic move, UN declares healthy environment a human right, <https://www.unep.org/news-and-stories/story/historic-move-un-declares-healthy-environment-human-right>
- ¹⁰ United Nations Climate Change 2023, Key aspects of the Paris Agreement, <https://unfccc.int/most-requested/key-aspects-of-the-paris-agreement>
- ¹¹ United Nations Climate Change 2023, Key aspects of the Paris Agreement, <https://unfccc.int/most-requested/key-aspects-of-the-paris-agreement>
- ¹² World Health Organisation, 2020, WHO global strategy on health, environment and climate change: the transformation needed to improve lives and well-being sustainably through healthy environments. Geneva, <https://www.who.int/publications/i/item/9789240000377>
- ¹³ World Health Organisation, 2020, WHO global strategy on health, environment and climate change: the transformation needed to improve lives and wellbeing sustainably through healthy environments, <https://www.who.int/publications/i/item/9789240000377>
- ¹⁴ Loo, D. K. (2021, July 19). Air pollution. Australian Medical Association (NSW). <https://www.amansw.com.au/air-pollution/>
- ¹⁵ Dean, A., Green, D., Sainsbury, P., Kaldor, J., & Gilchrist, G. (2017). Grand Challenges Climate Change, Air Pollution and Health in Australia Climate Change Blueprints Electric Vehicles Submission 94 -Attachment 1 Title: Climate Change, Air Pollution and Health in Australia.
- ¹⁶ United Nations 2023, Transforming our world: the 2030 Agenda for Sustainable Development, <https://sdgs.un.org/2030agenda>
- ¹⁷ United Nations 2018, Australia, Key messages- Australia, <https://sustainabledevelopment.un.org/memberstates/australia#:~:text=Australia%20is%20committed%20to%20the,of%20people%20across%20the%20world.>
- ¹⁸ United Nations 2023, Transforming our world: the 2030 Agenda for Sustainable Development, <https://sdgs.un.org/2030agenda>
- ¹⁹ Sustainable Development Solutions Network 2012, Indicators and a monitoring framework, <https://indicators.report/targets/3-9/>
- ²⁰ CSIRO. (2020, December 24). Climate change in Australia. CSIRO; CSIRO. <https://www.csiro.au/en/research/environmental-impacts/climate-change/climate-change-information>
- ²¹ D'Amato, G., Chong-Neto, H. J., Monge Ortega, O. P., Vitale, C., Ansoategui, I., Rosario, N., Haahtela, T., Galan, C., Pawankar, R., Murrieta-Aguttes, M., Cecchi, L., Bergmann, C., Ridolo, E., Ramon, G., Gonzalez Diaz, S., D'Amato, M., & Annesi-Maesano, I. (2020). The effects of climate change on respiratory allergy and asthma induced by pollen and mold allergens. *Allergy*, 75(9), 2219–2228. Wiley Online Library. <https://doi.org/10.1111/all.14476>
- ²² American Public Health Association. (n.d.). Climate Changes Health: Respiratory Health. www.apha.org. Retrieved March 27, 2023, from <https://www.apha.org/topics-and-issues/climate-change/air-quality#:~:text=Poor%20air%20quality%20leads%20to>
- ²³ D'Amato, G., Chong-Neto, H. J., Monge Ortega, O. P., Vitale, C., Ansoategui, I., Rosario, N., Haahtela, T., Galan, C., Pawankar, R., Murrieta-Aguttes, M., Cecchi, L., Bergmann, C., Ridolo, E., Ramon, G., Gonzalez Diaz, S., D'Amato, M., & Annesi-Maesano, I. (2020). The effects of climate change on respiratory allergy and asthma induced by pollen and mold allergens. *Allergy*, 75(9), 2219–2228. Wiley Online Library. <https://doi.org/10.1111/all.14476>

-
- ²⁴ Chen, K., Glonek, G., Hansen, A., Williams, S., Tuke, J., Salter, A., & Bi, P. (2016). The effects of air pollution on asthma hospital admissions in Adelaide, South Australia, 2003-2013: time-series and case-crossover analyses. *Clinical & Experimental Allergy*, 46(11), 1416–1430. <https://doi.org/10.1111/cea.12795>
- ²⁵ United Nations Climate Change 2023, Key aspects of the Paris Agreement, <https://unfccc.int/most-requested/key-aspects-of-the-paris-agreement>
- ²⁶ United Nations Climate Change 2023, Key aspects of the Paris Agreement, <https://unfccc.int/most-requested/key-aspects-of-the-paris-agreement>
- ²⁷ Department of Climate Change, Energy, the Environment and Water, 2023, International climate action, <https://www.dcceew.gov.au/climate-change/international-commitments>
- ²⁸ Department of Climate Change, Energy, the Environment and Water, 2023, International climate action, <https://www.dcceew.gov.au/climate-change/international-commitments>
- ²⁹ Climate Analytics 2016, Australia's 2030 emissions: states lead the way, <https://climateanalytics.org/publications/2021/australias-2030-emissions/>
- ³⁰ Climate Action Tracker 2023, Australia, <https://climateactiontracker.org/countries/australia/>
- ³¹ World Health Organisation, 2020, WHO global strategy on health, environment and climate change: the transformation needed to improve lives and well-being sustainably through healthy environments. Geneva, <https://www.who.int/publications/i/item/9789240000377>
- ³² World Health Organisation, 2020, WHO global strategy on health, environment and climate change: the transformation needed to improve lives and well-being sustainably through healthy environments. Geneva, <https://www.who.int/publications/i/item/9789240000377>
- ³³ World Health Organisation, 2020, WHO global strategy on health, environment and climate change: the transformation needed to improve lives and well-being sustainably through healthy environments. Geneva, <https://www.who.int/publications/i/item/9789240000377>
- ³⁴ Department of Climate Change, Energy, the Environment and Water 2023, Australia's climate change strategies, <https://www.dcceew.gov.au/climate-change/strategies>
- ³⁵ Department of Health 2021, National Preventive Health Strategy 2021–2030, <https://www.health.gov.au/sites/default/files/documents/2021/12/national-preventive-health-strategy-2021-2030.pdf>
- ³⁶ World Health Organisation 2021, Climate change and health, <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>
- ³⁷ World Health Organisation 2021, Climate change and health, <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>
- ³⁸ World Meteorological Organisation 2023, WHO Global Annual to Decadal Climate Update, https://library.wmo.int/doc_num.php?explnum_id=11611
- ³⁹ World Health Organisation, 2020, WHO global strategy on health, environment and climate change: the transformation needed to improve lives and well-being sustainably through healthy environments. Geneva, <https://www.who.int/publications/i/item/9789240000377>
- ⁴⁰ Campbell-Lendrum, D., Neville, T., Schweizer, C. et al. Climate change and health: three grand challenges. *Nat Med* 29, 1631–1638 (2023). <https://doi.org/10.1038/s41591-023-02438-w>
- ⁴¹ Campbell-Lendrum, D., Neville, T., Schweizer, C. et al. Climate change and health: three grand challenges. *Nat Med* 29, 1631–1638 (2023). <https://doi.org/10.1038/s41591-023-02438-w>
- ⁴² Chen, K., Glonek, G., Hansen, A., Williams, S., Tuke, J., Salter, A., & Bi, P. (2016). The effects of air pollution on asthma hospital admissions in Adelaide, South Australia, 2003-2013: time-series and case-crossover analyses. *Clinical & Experimental Allergy*, 46(11), 1416–1430. <https://doi.org/10.1111/cea.12795>
- ⁴³ Australian Human Rights Commission 2023, UN declaration on the rights of Indigenous Peoples <https://humanrights.gov.au/our-work/un-declaration-rights-indigenous-peoples-1>
- ⁴⁴ Hunt, J. (2013). Engaging with Indigenous Australia - exploring the conditions for effective relationships with Aboriginal and Torres Strait Islander communities. Australian Institute of Health and Welfare. <https://www.aihw.gov.au/getmedia/7d54eac8-4c95-4de1-91bb-0d6b1cf348e2/ctgc-ip05.pdf.aspx?inline=true>
- ⁴⁵ Campbell-Lendrum, D., Neville, T., Schweizer, C. et al. Climate change and health: three grand challenges. *Nat Med* 29, 1631–1638 (2023). <https://doi.org/10.1038/s41591-023-02438-w>
- ⁴⁶ World Health Organization 2021, Climate change and health vulnerability and adaptation assessment, <https://www.who.int/publications/i/item/9789240036383>
- ⁴⁷ United Nations Office for Disaster Risk Reduction 2020, Disaster risk reduction in Australia status report 2020, <https://www.undrr.org/media/48522/download?startDownload=true>
- ⁴⁸ Weeramanthri TS, Joyce S, Bowman F, Bangor-Jones R, Law C. Climate Health WA Inquiry: Final Report. Perth (WA): Department of Health, Government of Western Australia; 2020
- ⁴⁹ Government of Western Australia 2023, Preparation of a climate adaptation strategy, <https://www.wa.gov.au/service/environment/environment-information-services/preparation-of-climate-adaptation-strategy>

-
- ⁵⁰ Department of Water and Environmental Regulation Western Australia 2020, Western Australian Climate Policy, https://www.wa.gov.au/system/files/2020-12/Western_Australian_Climate_Policy.pdf
- ⁵¹ Department of Environment and Heritage Protection QLD 2017, Queensland climate adaption strategy 2017-2030, https://www.qld.gov.au/__data/assets/pdf_file/0017/67301/qld-climate-adaptation-strategy.pdf
- ⁵² Global Green and Healthy Hospitals 2023, GGHH welcomes the Western Australian department of health, <https://greenhospitals.org/green-hospitals-network-welcomes-the-western-australian-department-of-health>
- ⁵³ Department of Health WA 2022, Department of health climate action plan 2022-2024, <https://consultation.health.wa.gov.au/corporate-services/department-of-health-climate-action-plan/results/departmentofhealthclimateactionplanseptember2022version1.1.pdf>
- ⁵⁴ Queensland Health 2021, Queensland health climate risk strategy 2021-2026, https://www.health.qld.gov.au/__data/assets/pdf_file/0025/1125961/climate-risk-strategy-2021-2026.pdf
- ⁵⁵ Queensland Health 2019, Climate change adaption planning guidance guidelines, https://www.health.qld.gov.au/__data/assets/pdf_file/0026/1125962/climate-change-guideline.pdf
- ⁵⁶ Toronto Public Health 2015, A climate of concern: climate change and health strategy for Toronto, <https://www.toronto.ca/legdocs/mmis/2015/hl/bgrd/backgroundfile-81509.pdf>
- ⁵⁷ Berry, P., & Schnitter, R. (Eds.). (2022). Health of Canadians in a Changing Climate: Advancing our Knowledge for Action. Ottawa, ON: Government of Canada.
- ⁵⁸ Berry, P., & Schnitter, R. (Eds.). (2022). Health of Canadians in a Changing Climate: Advancing our Knowledge for Action. Ottawa, ON: Government of Canada.
- ⁵⁹ Berry, P., & Schnitter, R. (Eds.). (2022). Health of Canadians in a Changing Climate: Advancing our Knowledge for Action. Ottawa, ON: Government of Canada.
- ⁶⁰ Centers for Disease Control and Prevention 2019, Climate and health: a guide for cross-sector collaboration, https://www.cdc.gov/climateandhealth/docs/CrossSectorClimateandHealth_508.pdf
- ⁶¹ Centers for Disease Control and Prevention 2019, Climate and health: a guide for cross-sector collaboration, https://www.cdc.gov/climateandhealth/docs/CrossSectorClimateandHealth_508.pdf
- ⁶² Department of Health 2021, National Preventive Health Strategy 2021–2030, <https://www.health.gov.au/sites/default/files/documents/2021/12/national-preventive-health-strategy-2021-2030.pdf>