Environmental Sustainability in Health Care

2019

The AMA believes that achieving environmental sustainability in health care is essential to improving the way Australia's health system functions. Enhancing environmental sustainability, through reducing carbon emissions, curtailing waste, and managing resources efficiently, will deliver better outcomes for patients, and provide broader social and economic benefits. The AMA therefore calls on the Australian Government to take action to facilitate environmental sustainability in health care. It also encourages medical practitioners to lead efforts towards more environmentally sustainable behaviour in healthcare facilities. Improving environmental sustainability in health care will reduce the environmental impact of the sector, ensure that the health system is better equipped to support the health of Australians into the future, and reduce the associated health impacts of poor environmental outcomes such as climate change. Achieving this in Australia will require increased coordination at a national level, clear and accountable targets for reducing the sector's environmental footprint, and a commitment to behavioural change within health and medical professions.

The World Health Organisation defines an environmentally sustainable health system as one that "improves, maintains or restores health, while minimizing negative impacts on the environment and leveraging opportunities to restore and improve it, to the benefit of the health and well-being of current and future generations".[1] Within the healthcare sector, environmental sustainability occurs when resources are used as efficiently as possible, without compromising the quality of care for patients.

Reducing the environmental impact of health care is important not least because human health is inextricably linked to the health of the environment. The AMA's Position Statement *Climate Change and Human Health – 2015* acknowledges this, emphasising that efforts to mitigate and manage climate change will have positive impacts for the health and wellbeing of Australians.

Currently, the healthcare sector contributes significantly to Australia's carbon footprint, estimated to comprise approximately 7 per cent of total Australian emissions.[2] Although hospitals make up the largest share of carbon emissions, the footprint of the sector is multi-faceted, including pharmaceutical production, the design of medical infrastructure, procurement, and within private medical practice.

AMA Position

The AMA believes that:

- Improving environmental sustainability within the Australian healthcare sector will bring benefits for human health and additional efficiencies for the sector;
- Environmental sustainability in health care is not limited to decreasing energy use and waste, but extends to better procurement decisions, improved infrastructure and planning, public and preventive health care, and innovative care pathways;
- Efforts to improve environmental sustainability in Australian healthcare facilities, while commendable, have thus far been piecemeal and inconsistent across jurisdictions;
- Coordination at a national level is needed to ensure environmental sustainability can be achieved in the Australian healthcare sector; and
- The United Kingdom's Sustainable Development Unit, which has reduced healthcare emissions by 18.5 per cent and water use by 21 per cent in 10 years, provides a successful example of the benefits of national coordination, commitment to targets, regular monitoring, and the provision of guidance to health providers on environmental sustainability.[3]

The AMA calls on the Australian Government to:

- Establish a National Sustainable Development Unit (SDU) similar to that developed within England's National Health Service, to coordinate efforts and maximise the impact of environmental sustainability initiatives;

- Enable the Australian SDU to drive increased environmental sustainability in healthcare facilities, including by setting targets, measuring progress against these targets, providing advice and best-practice examples, and incentivising cultural and behavioural change; and
- Build on environmental sustainability efforts implemented in healthcare systems at a state level, working with jurisdictions to integrate these efforts into a national SDU.
- Liaise with all state and territory health departments to coordinate efforts to improve healthcare environmental sustainability.

The AMA calls on health and medical professionals to:

- Lead on environmental sustainability by drawing it into focus at all levels, including by requiring consideration of an environmental sustainability impact statement in decision-making processes;
- Educate themselves and their colleagues about the importance of environmental sustainability, and how practices and processes in their workplaces might become more sustainable;
- Understand the synergy between improving healthcare environmental sustainability and improved healthcare effectiveness, efficiency, and financial sustainability; and
- Actively participate in environmentally sustainable practices in their workplaces and encourage behavioural change.

Explanatory Notes

1. What Is Sustainability?

In essence, 'sustainability' refers to the ability of something to continue over time.[4] Environmental sustainability is only one element of this, being defined as "the quality of causing little or no damage to the environment and therefore able to continue for a long time".[4] In business and accounting, sustainability efforts often comprise a 'triple bottom line' of economic, social and environmental sustainability. This is also the case in health care, where these three considerations, as well as factors such as disaster preparedness, workforce capacity and research capabilities, are all important elements in a health system's ability to continue effectively over time.

A number of challenges currently exist to the overall sustainability of Australia's health system. These include the unprecedented demand created by an ageing population[5] and an increasing burden of chronic disease[6]; and the heightened probability of large-scale health emergencies caused by environmental conditions[7].

Noting that these challenges are complex in their own right and require significant effort and planning to address, this Position Statement will focus exclusively on environmental sustainability. However, it should be noted that improvements in environmental sustainability are likely to reap benefits in other areas, and vice versa, largely because sustainability efforts are focussed on improving efficiency. For example, minimising waste and instituting recycling programs are likely to have economic benefits as well as environmental ones. Similarly, public health campaigns designed to reduce the financial burden of chronic disease are also likely to reduce the energy used in complex care facilities by reducing demand for services.

2. Why Environmental Sustainability?

Like most sectors in the Australian economy, health care negatively affects the environment by emitting carbon into the atmosphere, producing waste and consuming natural resources.
Carbon emissions are particularly harmful to the environment, and to human health, because of their causative link to climate change. The AMA's 2015 Position Statement *Climate Change and Human Health* notes the demonstrable evidence that the earth's climate is warming, and that this is principally caused by anthropogenic greenhouse gas emissions.[8] As well as having devastating consequences environmentally, the health impacts of climate change include heat-related injuries and deaths,

mortality from increasingly severe natural disasters, rising numbers of vector-borne diseases, food insecurity, and mental health problems.

Healthcare facilities also contribute to ambient air pollution, which has negative health effects. The Australian Institute of Health and Welfare estimates that air pollution causes 0.6 per cent of disease burden in Australia each year, similar to that of sun exposure, and 1.3 per cent of fatal burden.[9] It is linked to chronic diseases including coronary heart disease, stroke, lung cancer, chronic obstructive pulmonary disease and lower respiratory tract infections.

Efforts to reduce emissions and work towards environmental sustainability are therefore a responsibility of the Australian healthcare sector. By lowering its impact on the environment, the healthcare sector can improve health outcomes for Australians, thereby reducing pressure on the health system as a whole.

3. The Environmental Impact of Australia's Healthcare Sector

A comprehensive study of the carbon emissions of Australia's healthcare sector was published in 2017. The study by Malik et al measured total healthcare-related carbon emissions between April 2014 and March 2015, dividing the results into the 15 healthcare segments set out by the Australian Institute of Health and Welfare.[2]

The study finds that from 2014-15, the Australian healthcare sector emitted 35,772 kilotonnes of carbon emissions, constituting 7 per cent of all Australian emissions. Public hospitals represented 34 per cent of emissions, private hospitals 10 per cent, pharmaceuticals 19 per cent and capital expenditure 8 per cent. Smaller contributors included specialist medical services (6 per cent), community and public health (6 per cent) and general practice (4 per cent). The study's authors predict that emissions from healthcare will continue to rise as health expenditure rises, unless lower-carbon energy sources (like solar and wind power) are utilised.

As a percentage of all emissions, Australian health care emissions lie between the UK's (4 per cent of total emissions) and the USA's (10 per cent of total emissions). The UK and Australia both spend about 9 per cent of gross domestic product (GDP) on health care, whereas the US health budget is around 17 per cent of GDP.[2]

Carbon emissions, although important, do not represent the total environmental impact of health care in Australia. Problematically, national statistics on other factors such as waste production and water usage are difficult to find, but would be vital for an Australian SDU in setting targets and measuring progress against them. State-level information such as that made available by the Victorian[10] and NSW[11] Governments is useful. A key function of an Australian SDU should therefore be regular and consistent monitoring of national healthcare carbon emissions along with other indicators of environmental impact.

4. Existing Efforts to Improve Environmental Sustainability in Health Care

England's National Health Service's Sustainable Development Unit (SDU) is a prominent example of best-practice in environmental sustainability in health care. The SDU, established in 2008, focuses on achieving environmental, social and financial sustainability within England's healthcare system.[12] Since its inception, it has instituted a range of initiatives including: regular measurement of health care's carbon footprint; provision of guidance to health professionals on energy use, procurement, and waste; identification and dissemination of best practice approaches; and requirements that health services report on sustainability targets.[13] By 2017, England's National Health Service had reduced carbon emissions by 18.5 per cent and water usage by 21 per cent, despite significant (11 per cent) increases in healthcare activity.[3]

In Australia, several jurisdictions have policies or plans on environmental sustainability in health care. Victorian Health's *Environmental Sustainability Strategy* sets targets on improving the environmental

performance of the health system.[10] It details actions that will be taken to achieve targets, including developing a sustainable procurement policy, requiring reporting on sustainability targets, and providing training materials. NSW Health's 'Resource Efficiency Strategy' also sets targets and reporting indicators in the areas of energy, water, waste and climate change adaptation.[11] ACT Health's Sustainability Strategy outlines a sustainability roadmap, revolving around six key areas of resource management, infrastructure, digital health, people, procurement and climate change adaptation.[14] Bringing these approaches together and coordinating similar targets in other jurisdictions would be a crucial role of an Australian SDU.

On a non-government level, the international organisation 'Global Green and Healthy Hospitals' (GGHH) works towards environmental sustainability in healthcare by sharing information and guidance on best-practice approaches. GGHH sets out a 10-goal framework, which encompasses: environmental leadership; safer chemicals; reduced waste, energy efficiency, reduced water consumption, improved transportation; sustainable and healthy food; appropriate prescription of pharmaceuticals; sustainable design and use of buildings; and purchasing of sustainable products.[15] In Australia and New Zealand, the network is managed by the Climate and Health Alliance and has 54 members as of January 2019. GGHH provides an encouraging example of how Australian healthcare facilities and organisations can work towards environmental sustainability in the absence of a national strategic direction. Medical organisation Doctors for the Environment Australia also provides education and resources to medical professionals in relation to environmentally sustainable healthcare.

5. An Australian Sustainable Development Unit

The AMA calls for the establishment of an SDU in Australia, to be informed by the successful UK model. The AMA acknowledges that other stakeholders have also called for similar initiatives, including Doctors for the Environment Australia[16], the Australian Healthcare and Hospitals Association[17], the Royal Australian College of Physicians[18], and academics[2].

Despite existing efforts in Australia to improve the environmental sustainability of health care, a national approach is lacking, meaning that the full benefits of sustainability initiatives are not being captured. Having a national approach to healthcare sustainability, including a clear mandate from government, is vital to corralling the healthcare community and focussing efforts on reducing the sector's environmental footprint.

Practically, an Australian SDU is needed to set national targets for reducing the environmental impact of the healthcare sector; regularly measure progress against these targets; and provide advice and assistance to the healthcare sector in instituting environmental sustainability measures. Additionally, because institutional and cultural barriers are a large part of the challenge of achieving environmental sustainability in healthcare, an Australian SDU is needed to provide a strong impetus for change.

6. Areas for Improvement

6.1. Waste

The production of physical waste is one of the most discussed environmental by-products of health care, particularly in terms of waste produced in hospitals. Hospital waste commonly results from the need for rigorous infection control, and includes single-use clinical equipment, disposable linen, excessive packaging for medical items and materials contaminated by patient fluids or contact.[19] More generally, it also includes food waste from patient meals, paper, cardboard and plastic, and general waste similar to that found in households. As an example, in 2017-18, public health facilities in Victoria produced 36,097 tonnes of waste, equivalent to 3.58kg per patient treated.[10]

Waste management represents a significant cost to the healthcare sector, as well as contributing to indirect carbon emissions. Clinical waste that is deemed to be infectious needs to be properly managed, generally involving either incineration, autoclaving or chemical disinfection, followed by

placement in landfill.[20] In Australia, processing clinical waste can cost 10 times more than processing regular waste.[19] Additionally, incineration, while very effective at removing infection risk, can result in harmful emissions including dioxins, furans and mercury.[1,21] Waste placed in landfill continues to emit greenhouse gases as it breaks down, which can take many years in the case of the kinds of hardy plastics used in medical settings.

Correctly classifying waste is one key way to reduce negative environmental impacts. Concerningly, a study conducted in the United States found that 92 per cent of waste from an operating theatre was misclassified as biohazardous, and could have been disposed of in the general waste or recycling streams instead.[22] Recycling programs are a common aspect of efforts to increase sustainability in healthcare facilities, and are included in government plans in NSW, Victoria and the ACT, as well as guidance from the World Health Organisation's European arm[1·] Along with instituting recycling and waste management processes, making these processes easy to adopt and accessible for health practitioners is vital to their effectiveness. Moving away from single-use items and towards reusable equipment has also been suggested as a waste-cutting measure, with some evidence suggesting this could also be more cost effective despite the extra labour required for sterilising.[19]

It should be noted that despite critiques of single-use items, it is possible that some items may have a lower environmental impact than reusable items, depending on materials used and sterilisation processes. An SDU could provide valuable advice in this regard, including information on the environmental sustainability of different options.

6.2. Energy Use

The use of energy within health facilities is a major contributor to the direct emissions of the healthcare sector in Australia. Although hospitals are the most energy-intensive facilities, smaller clinics can have significant emissions, especially those that include residential elements, like mental health and drug and alcohol rehabilitation centres.[2]

Energy, in the form of gas and electricity, is used in healthcare facilities for lighting, heating and cooling, heating water, ventilation, powering medical and technological equipment, and running cooking and cleaning appliances. In Malik et al's 2014-15 study, gas used to heat hot water was found to contribute 10 per cent of direct energy use for the Australian healthcare sector.[2]

Energy use in Australian healthcare facilities is increasing overall, primarily due to increases in the demand for services and the construction of new facilities. In NSW, energy use in the public health sector increased by 3.5 per cent between 2011/12 and 2013/14.[11] Victoria has also seen a dramatic increase in energy use since 2005/06, along with increases in floor area and bed days.[23]

The strong presence of coal in Australia's electricity makeup compounds this increase in energy use, and may explain some of the disparity between healthcare emissions in the UK and Australia. In Australia, 63 per cent of electricity is generated by coal, while in the UK this is only 23 per cent; and the UK's use of wind energy is three times that of Australia's.[2] For this reason the AMA advocates for an active transition from fossil fuels to renewable energy sources, as outlined in the Position Statement *Climate Change and Human Health – 2015*.

Within the healthcare sector, there are clear opportunities to optimise energy use and to utilise renewable energy. In Victoria, 45 of the state's public health related facilities generate solar power[24], with 0.5 per cent of Victoria's public hospital electricity use coming from on-site renewable energy[10]. Port Macquarie Base Hospital in NSW, The Friendly Society Private Hospital in Bundaberg, Queensland and Canberra Hospital in the ACT each have solar power systems larger than 500 kilowatts.[25] Using renewable energy for healthcare is beneficial in a range of situations – emissions from lighting and heating go down, as well as emissions from sterilising and washing reusable equipment. Simple interventions, like installing energy-efficient lighting and marginally reducing thermostat temperatures in winter, can have significant environmental benefits.[2] Even without

changing the source of power, energy efficiency programs have the ability to reduce energy use by more than 40 per cent.[2]

6.3. Models of care

Achieving environmental sustainability within Australia's healthcare sector must include a focus on fundamental processes as well as activities with more obvious environmental benefit. Considering the way care is delivered is one area in which environmental gains can be made.

Inefficiencies such as duplications in care provided, unnecessary interventions, and unnecessary use of diagnostic tests and prescriptions all increase the environmental footprint of health care without adding value for the health of the patient.[18,26,27] The AMA sets out its position on this issue in *The Doctor's Role in Stewardship of Health Care Resources – 2016*, which emphasises doctors' responsibility to minimise resource waste while protecting the health of individual patients. Ensuring integration and coordination between different healthcare areas and providers, increasing diagnostic accuracy, and implementing effective communication procedures can help to avoid these situations.[18,26,27]

Technological innovations such as e-health, live data sharing and teleconferencing can also increase efficiency in healthcare systems, thereby alleviating environmental impacts.[14]

6.4. Preventive Health Care

Prioritising preventive health care is a foundational element of reducing health care's environmental footprint. By encouraging and facilitating healthy behaviour and choices, preventive health campaigns and supporting policies can minimise the incidence and severity of chronic and infectious diseases. Keeping populations healthy may alleviate pressure on the acute care system, by reducing the need for complex procedures, more intensive processes and longer hospital stays. The AMA outlines the central role of doctors, especially General Practitioners, in providing preventive health care to patients in the 2010 Position Statement *Doctors and Preventative Care*.[28]

Australian preventive health campaigns have had significant effects on rates of ill-health and on pressure on the health system. Taxation on alcohol, tobacco and unhealthy foods, gastric banding surgery, and sun safety campaigns have all been found to avoid upwards of 100,000 disability-adjusted life years each and to be cost-effective.[29]

However, Australian investment in preventive health care is low compared to other developed economies. Estimates of Australian spending vary, but range from 1.34 per cent[30] to 1.9 per cent[31] of total annual health spending, while Canada, the United Kingdom and New Zealand each spend 5-6 per cent of their health budgets on prevention[31]. Increased funding for preventive health, including primary care, is therefore needed to improve environmental sustainability outcomes in health care.

6.5. Procurement

Procurement of external goods and services presents a crucial opportunity to reduce the environmental footprint of Australia's healthcare sector. Products used in healthcare facilities are almost exclusively procured from external sources – including medical equipment, pharmaceuticals, consumables such as bandages and protective equipment, and household items like beds, desks and computers. In 2014-15, externally procured goods and services (including electricity) comprised almost 90 per cent of Australian healthcare-related carbon emissions.[2] This included pharmaceuticals, which comprised 19 per cent of all healthcare carbon emissions, and aids and appliances, which accounted for 3 per cent.

Efforts to implement sustainable procurement strategies are recommended by the World Health Organisation, including influencing suppliers to consider environmental impacts; assessing the environmental impact of goods and services procured; reducing purchasing where possible; and procuring environmentally friendly products.[1] Additional considerations may include preferencing

products made of recycled materials, suppliers that use lower-energy production practices, and environmentally sustainable packaging and transport.[32]

A 2017 study examining barriers to sustainable procurement in Australian health care found that the major challenges were the absence of legislation on the issue and a lack of support from senior management in healthcare facilities.[32] Issues such as the availability of sustainable suppliers were minimal when compared to these higher-level barriers.

6.6. Infrastructure and Planning

Another area in which environmental sustainability can be improved is in the design and construction of healthcare infrastructure. In 2014-15, direct emissions from capital investment in buildings comprised 8 per cent of healthcare carbon emissions in Australia.[2] This includes the building of new facilities as well as upgrades and extensions to existing ones. While this does contribute to carbon emissions, the design of new facilities also provides an opportunity to ensure that facilities are sustainable and have as low an environmental impact as possible.

Internationally, efforts to make healthcare infrastructure more environmentally sustainable have focussed on a range of measures, including: attention to the surrounding natural environment and efforts to preserve local habitats; maximising the use of natural light and ventilation in order to minimise electricity use; use of reflective materials to lessen the need for electric cooling; and procuring sustainable or recycled building materials.[33]

As well as the design of buildings themselves, considerations about planning and how health facilities connect with local communities are important in minimising their environmental impact. This includes incorporating safe bicycle and pedestrian access, green spaces for exercise and health promotion activities, and coordinating public transport options.[1]

In Australia, healthcare sustainability plans in Victoria, the ACT and NSW each include a focus on infrastructure design, including the need to enable retrofitting to more sustainable technologies in the future. In Victoria, the state's Building Authority provides guidelines for healthcare infrastructure sustainability – including a requirement that a sustainability consultant be employed on large projects.[10]

7. Useful Resources for Health Professionals

The following resources provide practical advice for doctors and health facilities on reducing their environmental footprint:

Global Green and Healthy Hospitals: https://www.greenhospitals.net/

Green Health Challenges: https://www.greenhospitals.net/about-green-health-challenges/

Hospitals without Harm: https://noharm-global.org/

Doctors for the Environment practical guide for doctors: https://www.dea.org.au/wp-content/uploads/2018/05/DEA-Sustainable-Hospitals---Practical-Assistance---05-18.pdf

UK Sustainable Development Unit 'How To' Guides: https://www.sduhealth.org.uk/resources/practical-guides-and-briefings/how-to-guides.aspx

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See also:

AMA Position Statement on Climate Change and Human Health – 2015