Sustainable general practice

CPD

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Background
Climate change is a health emergency, and general practitioners have an important role in both mitigation and adaptation to the effects of climate change. Climate change is already impacting health in a myriad of ways, including death and illness from increasingly frequent extreme weather events, disruptions to food systems and changes in vector-borne diseases. General practice can demonstrate leadership by embracing sustainability as part of a primary care ethos aligning it with quality care.

Objectives
The aim of this article is to outline the steps required to achieve and promote sustainability from practice operations through to clinical care and advocacy.

Discussion
Achieving sustainability requires not just a consideration of energy use or waste, but also a fundamental re-evaluation of the purpose and practice of medicine. A planetary health perspective requires us to recognise our connectedness to and dependence on the health of nature. It demands a change to models of healthcare that are sustainable, prioritise prevention and are inclusive of the social and environmental dimensions to health.

IN ITS 2019 POSITION STATEMENT, The Royal Australian College of General Practitioners (RACGP) recognises climate change as a key public health issue and articulates the important role that general practitioners (GPs) play in mitigation and adaptation strategies.[1]

To limit global warming to 1.5°C, the Climate Council has called for Australia to reach net zero emissions by 2035, with a 75% reduction by 2030.[2] This requires an enormous transformational change through every sector of the community, including health.

General practice can demonstrate leadership by being an agent of change, understanding that sustainability is part of primary care's ethos as it aligns with quality care, continuity of care and preventative care. From the waiting room and consulting space through to the broader community, GPs have an important role in environmental health advocacy that supports our physical and mental health.

Achieving sustainability requires not just a consideration of energy use or waste, but also a fundamental re-evaluation of the purpose and practice of medicine, including a greater focus on prevention.

A planetary health perspective requires us to recognise our connectedness to and dependence on the health of nature. It demands a change to models of healthcare that are sustainable, prioritise prevention and are inclusive of the social and environmental dimensions to health.

Non-clinical emissions

The healthcare sector in Australia is estimated to contribute 7% of Australia's total carbon emissions. General practice accounts for 4% of the health sector's total, excluding emissions from pharmaceuticals (Figure 1).[3] However, these figures are derived from economic models and assumed carbon costs within healthcare expenditure. There are few data of onsite emissions from either Australian hospitals or general practice.

Although the non-clinical carbon footprint of practices is relatively small, as role models we should embed advocacy within all aspects of practice operations.

Sustainability is not just a series of tick boxes, but rather involves strong leadership, education and cultural change within the workplace, bringing colleagues and staff on the journey. Appointing a 'climate champion' or 'green team' and having regular reviews of interim targets supports the process of change.

In a world moving to net zero, carbon becomes an obligatory metric and carbon literacy an imperative. To integrate

sustainability into practice operations, it is necessary to perform an audit of the practice's carbon emissions to set a benchmark and a basis for future monitoring. There are numerous online carbon calculators that can provide guidance.

UK data have shown that energy use and staff travel are the main modifiable areas in general practice (Figure 2).[4] Emissions from both staff and patient travel in Australia may vary considerably depending on practice location.

Avoiding energy use and improving efficiency saves both carbon and money. The key areas to focus on are heating/cooling, appliances and lighting. Installing rooftop solar, if possible, is cost-effective, with the payback period in Australia as short as 3 years.[5] Purchasing renewable energy[5] is an easy and quick action that immediately reduces emissions and sends a clear signal to the energy market.

Energy expenditure from staff and patient travel can be reduced by promoting active or public transport with health co-benefits from exercise and reduced air pollution. The appropriate use of telehealth for patients and allowing practitioners and staff to work from home provides another avenue for action.

Sustainability should be part of a practice's business plan. Potential costs and benefits to each action need to be considered. With limits to how much one can reduce a practice's footprint, purchasing carbon offsets is an option to help move to net zero emissions. Many companies offer offsets with a range of validation and verification standards. Offsets are not equivalent to genuine emission reductions, but they do put a price on carbon, placing it clearly on the balance sheet. As a practice progressively decarbonises, this should also be reflected in a reduced need for offsets.

Resources to support reductions in non-clinical emissions are provided in Box 1.

Clinical emissions

Beyond practice operations, estimates of the carbon footprint in general practice in the UK suggest that approximately 50% are associated with pharmaceutical prescribing,[6] whereas recent Australian data suggest that pathology testing and diagnostic imaging contribute to 9% of healthcare's carbon footprint.[7] The bulk of general practice emissions lie within prescribing and clinical practice.

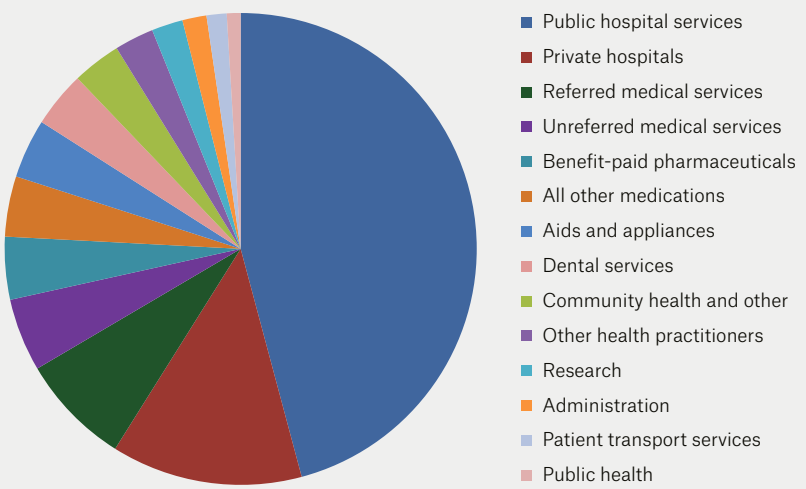

Figure 1. Total and relative CO_2 equivalent emissions for 13 healthcare expenditure categories in the Australian healthcare system.

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Reducing waste

Health resources need to be valued. Every investigation ordered and every medication prescribed has a financial cost and a carbon footprint. With up to 40% of healthcare either of low value or detrimental,[8] there is considerable waste in clinical practice. In the context of sustainability, avoiding costs, resource consumption and waste represents best practice.

As an example, recent analysis of the carbon footprint of five common hospital pathology tests (full blood examination; urea and electrolyte levels; coagulation profile; C-reactive protein concentration; and arterial blood gases) revealed that the carbon dioxide equivalent (CO_2e) emissions ranged between 0.5 and 116 g CO_2e, the same as driving a car between 3 m and 0.8 km.[9] Millions of these tests are performed each year. Routinely ordering pathology tests unsupported by evidence is wasteful.

Similarly, reducing unnecessary radiological investigations[10] and unnecessary non-GP specialist referrals or specialist interventions, such as surgery, can reduce waste and carbon footprint.

Non-evidence-based pharmaceutical use is a contributor to the carbon footprint of healthcare. Reviewing and 'deprescribing' medications may thus reduce impact. Although we have yet to determine the carbon footprint of most medications to enable us to select low-carbon options, metered dose inhalers are a known 'carbon hotspot'. The propellants in these inhalers are potent greenhouse gases. Each puff of a reliever causes about as much warming as driving a conventional car for a mile. Many patients can be effectively switched to dry powder inhalers without adverse clinical outcomes.[11,12] Resources to

Box 1. Resources to support reductions in non-clinical emissions

- The RACGP has a new factsheet with practical tips and advice on environmental sustainability in general practice[22]
- The RCGP have an e-learning resource, RCGP NetZero: Decarbonising general practice, your guide to a Net-zero action plan for non-clinical emissions[23]

support reductions in clinical waste are provided in Box 2.

Low-carbon interventions

Choosing health interventions with low environmental impacts, such as lifestyle and psychosocial interventions before pharmacotherapy, where appropriate, supports both holistic and sustainable healthcare practice.

Poor diet is a major driver of the non-communicable disease epidemic. Food production accounts for approximately 30% of anthropogenic greenhouse emissions,[13] 70% of fresh water use and is the main cause of biodiversity loss. Switching to plant-based diets can halve greenhouse emissions, increase the mean Healthy Eating Index (a dietary index aligned with the recommendations of the Dietary Guidelines for Americans) by 8.7% and reduce diet costs by 10.5%.[14]

The Australasian Society of Lifestyle Medicine invites practitioners to consider innovation in clinical practice, such as shared medical appointments,[15] to address some of the diseases associated with lifestyle and health inequity (eg smoking cessation, sleep and stress management, dietary and exercise interventions).

Social prescribing potentially offers another low-carbon intervention.[16] One example is Parkrun, which are community-based, timed, 5-km events run by volunteers across Australia. The RACGP has recently partnered with Parkrun Australia, so general practices can be registered as Parkrun practices. A scoping review[17] of Parkrun literature highlights that those participating in the events show improvements in fitness, total physical activity and mood (stress, anxiety, and depression).[18] Resources to support low-carbon interventions are provided in Box 3.

Clinical knowledge

The imperative to act on climate change and transition to sustainability must be founded on clinical knowledge and science. There are numerous pathways by which climate change affects human health, including direct effects (eg heatwaves, droughts, and extreme weather) and indirect effects (eg on air quality and water and food supply and quality). In addition, air pollution from fossil fuel combustion is a major cause of mortality and morbidity globally.

An initiative to begin GP registrar webinars has started in Victoria (Cassar et al, personal communication, 2021). The RACGP offers webinars and e-learning modules on environmental health with allocated continuing professional development points. Various primary health networks are working to integrate climate change into GP education updates.

Advocacy

With 80% of Australians visiting their GP at least once a year, primary care has an important role in advocacy. Doctors, as one of the most trusted professions, can be influential by being role models for change.

The practice ethos of sustainability can extend to the waiting room and throughout the practice, where it is reflected in all activities, from waiting room posters to the availability of bike racks to support active transport.

Choosing banks and investment schemes that include environmental impact criteria in their investment profiles is another avenue for advocacy. Resources to support advocacy are provided in Box 4.

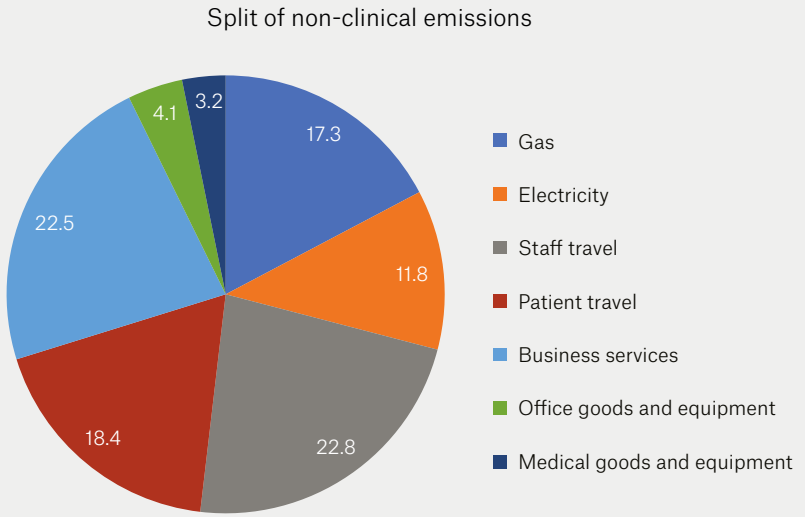

Figure 2. Carbon footprint of general practices across the Humber and North Yorkshire Integrated Care System region.

Reproduced from Sawyer and Thrower,[4] with the permission of Matthew Sawyer.

Primary care within a sustainable healthcare system

General practice should be the cornerstone of a sustainable healthcare sector. Tertiary care is expensive and carbon intensive. The cost-effectiveness of primary care is well documented.[19]

Box 2. Resources to support reductions in clinical waste

- The RACGP Handbook of Non-Drug Intervention (HANDI) is a good reminder of options to pharmaceutical prescribing[24]
- Primary Health Tasmania has an excellent resource on deprescribing[25]
- Resources such as Choosing Wisely Australia are helpful in offering a framework to reflect on quality clinical practice: https://www.choosingwisely.org.au/
- The Royal Australasian College of Physicians' Evolve initiative provides recommendations regarding low-value care[26]

The 2019 Western Australian Sustainable Health Review highlighted that without intervention, health spending was projected to approach 38% of the State budget by 2026–27.[19] The current system is unsustainable across a range of metrics. With non-communicable chronic diseases (ie those shaped predominantly by lifestyles and broader social determinants) now responsible for the greatest burden of disease in Australia and elsewhere and accounting for up to 70% of all deaths globally,[20] it is time to consider different models of care that are low carbon, low cost and more holistic.

The UK offers an example of community-based models of care within their integrated care systems. These partnerships bring together providers and commissioners of NHS services across a geographical area with local authorities and other local partners to collectively plan health and care services to meet the needs of their population.[21] Although there are differences between the UK and Australian health systems, the idea of health services conceptualised within geographical communities linked to local councils and public health teams with a focus on prevention, health and wellbeing could be explored further in Australia, with primary health networks potentially playing a role. Primary care needs to be integrated into these new models, acknowledging the importance of the GP–patient relationship.

GPs operate within a biopsychosocial framework. Planetary health extends that to include the natural world, holistic care in its broadest terms. Urgent, society-wide changes must be made to avoid a climate crisis and to advance changes towards a fairer and healthier world. GPs should be at the forefront of the call for climate action and help build a planetary health system that acknowledges our interconnectedness and the principle of sustainability.

Box 3. Resources to support low-carbon interventions

- The Australian Society of Lifestyle Medicine provides accredited training in the discipline of Lifestyle Medicine: https://www.lifestylemedicine.org.au/
- You can register your practice be to be a Parkrun practice: https://www.racgp.org.au/parkrunpractice/registration

Box 4. Resources to support advocacy

- The RACGP has several poster resources highlighting the health impacts of climate change and advocating for environmental sustainability[22]
- The Climate and Health Alliance has an excellent document about communicating the health impacts of climate change[27]
- Advocacy group Market Forces offer a bank comparison chart so you can find out which banks have a history of funding the fossil fuel industry (https://www.marketforces.org.au/info/compare-bank-table/) and a similar chart for superannuation funds (https://www.marketforces.org.au/superfunds/)

Key points

- As a practice owner, embed sustainability into your practice business model.
- Reduce emissions by encouraging active and public transport, as well as renewable energy.
- Food choices and healthy eating have benefits for both patients and the planet.
- Reduce low-value care, which includes unnecessary pharmaceuticals and investigations.
- Magnify your impact by sharing with patients; make your commitments visible.

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References

1. The Royal Australian College of General Practitioners (RACGP). Climate change and human health. Position statement. East Melbourne, Vic: RACGP, 2019. Available at www.racgp.org.au/FSDEDEV/media/documents/RACGP/Position%20statements/Climate-change-and-human-health.pdf [Accessed 29 July 2022].
2. Steffen W, Hughes L, Bradshaw S, Arndt D, Rice M. Aim high, go fast: Why emissions need to plummet this decade. Sydney: Climate Council of Australia, 2021. Available at www.climatecouncil.org.au/wp-content/uploads/2021/04/aim-high-go-fast-why-emissions-must-plummet-climate-council-report-210421.pdf [Accessed 29 July 2022].
3. Malik A, Lenzen M, McAlister S, McGain F. The carbon footprint of Australian health care. Lancet Planet Health 2018;2(1):e27–35. doi: 10.1016/S2542-5196(17)30180-8.
4. Sawyer M, Thrower H. Carbon footprint of GP practices across the Humber and North Yorkshire ICS. Northallerton: SEE Sustainability, 2022. Available at https://img1.wsimg.com/blobby/go/15947d70-9404-4d54-921d-79cf246e9dc0/HNY%20GP%20Practice%20Carbon%20Footprint%20Report%20-%20Fina.pdf [Accessed 12 March 2023].
5. Department of Climate Change, Energy, the Environment and Water. Solar PV and batteries. Canberra: Commonwealth Department of Health, 2023. Available at www.energy.gov.au/households/solar-pv-and-batteries [Accessed 15 March 2023].
6. Tennison I, Roschnik S, Ashby B, et al. Health care's response to climate change: A carbon footprint assessment of the NHS in England. Lancet Planet Health 2021;5(2):e84–92. doi: 10.1016/S2542-5196(20)30271-0.
7. McAlister S, McGain F, Petersen M, et al. The carbon footprint of hospital diagnostic imaging in Australia. Lancet Reg Health West Pac 2022;24:100459. doi: 10.1016/j.lanwpc.2022.100459.
8. Braithwaite J, Glasziou P, Westbrook J. The three numbers you need to know about healthcare: The 60–30–10 challenge. BMC Med 2020;18(1):102. doi: 10.1186/s12916-020-01563-4.
9. McAlister S, Barratt AL, Bell KJ, McGain F. The carbon footprint of pathology testing. Med J Aust 2020;212(8):377–82. doi: 10.5694/mja2.50583.
10. Schoen J, McGinty GB, Quirk C. Radiology in our changing climate: A call to action. J Am Coll Radiol 2021;18(7):1041–43. doi: 10.1016/j.jacr.2021.02.009.
11. Wilkinson A, Woodcock A. The environmental impact of inhalers for asthma: A green challenge and a golden opportunity. Br J Clin Pharmacol 2022;88(7):3016–22. doi: 10.1111/bcp.15135.
12. Montgomery BD, Blakey JD. Respiratory inhalers and the environment. Aust J Gen Pract 2022;51(12):929–34. doi: 10.31128/AJGP-08-22-6536.
13. Lucas T, Horton R. The 21st-century great food transformation. Lancet 2019;393(10170):386–87. doi: 10.1016/S0140-6736(18)33179-9.
14. Willits-Smith A, Aranda R, Heller MC, Rose D. Addressing the carbon footprint, healthfulness, and costs of self-selected diets in the USA: A population-based cross-sectional study. Lancet Planet Health 2020;4(3):e98–106. doi: 10.1016/S2542-5196(20)30055-3.
15. Egger G, Binns A, Cole MA, et al. Shared medical appointments – an adjunct for chronic disease management in Australia? Aust Fam Physician 2014;43(3):151–54.
16. The Royal Australian College of General Practitioners (RACGP); Consumer Health Forum of Australia. Social prescribing roundtable

November 2019: Report. East Melbourne, Vic: RACGP, 2019. Available at www.racgp.org.au/FSDEDEV/media/documents/RACGP/Advocacy/Social-prescribing-report-and-recommendation.pdf [Accessed 29 July 2022].

17. Grunseit AC, Richards J, Reece L, Bauman A, Merom D. Evidence on the reach and impact of the social physical activity phenomenon parkrun: A scoping review. Prev Med Rep 2020;20:101231. doi: 10.1016/j.pmedr.2020.101231.
18. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. Milbank Q 2005;83(3):457–502. doi: 10.1111/j.1468-0009.2005.00409.x.
19. Government of Western Australia. Sustainable health review: Final report to the Western Australian Government. Perth: Department of Health, Western Australia, 2019. Available at https://ww2.health.wa.gov.au/~/media/Files/Corporate/general-documents/Sustainable-Health-Review/Final-report/sustainable-health-review-final-report.pdf [Accessed 8 March 2023].
20. Wijnen A, Bishop K, Joshy G, Zhang Y, Banks E, Paige E. Observed and predicted premature mortality in Australia due to non-communicable diseases: A population-based study examining progress towards the WHO 25X25 goal. BMC Med 2022;20(1):57. doi: 10.1186/s12916-022-02253-z.
21. Charles A. Integrated care system explained: Making sense of systems, places and neighbourhoods. London: The King's Fund, 2021. Available at www.kingsfund.org.uk/publications/integrated-care-systems-explained?fbclid=IwAR3kYYdFuNTVKoVPlc4Z-cdVNPOFv5d0eu4abL4JktdX0eVTKZYZDguXPxY#what-are-icss [Accessed 29 July 2022].
22. The Royal Australian College of General Practitioners. Greening up: Environmental sustainability in general practice. East Melbourne, Vic: RACGP, 2022. Available at www.racgp.org.au/FSDEDEV/media/documents/Running%20a%20practice/Security/Reducing-the-environmental-impact.pdf [Accessed 28 March 2023].
23. The Royal College of General Practitioners. NetZero: Decarbonising general practice. Your guide to a Net Zero action plan for non-clinical emissions. London: RCGP, 2023. Available at https://elearning.rcgp.org.uk/pluginfile.php/185918/mod_resource/content/3/8514%20-%20RCGP%20-%20Net%20Zero%20-%20Decarbonising%20Guide%20AW2.pdf [Accessed 28 March 2023].
24. The Royal Australian College of General Practitioners. HANDI: Handbook of non-drug interventions. East Melbourne, Vic: RACGP, 2022. Available at www.racgp.org.au/clinical-resources/clinical-guidelines/handi [Accessed 28 March 2023].
25. Primary Health Tasmania. Medication management: Deprescribing. Hobart, Tas: PHN Tasmania, 2022. Available at www.primaryhealthtas.com.au/resources/deprescribing-resources/ [Accessed 28 March 2023].
26. The Royal Australasian College of Physicians. Evolve top 5 recommendations. Sydney, NSW: RACP, [unknown date]. Available at https://evolve.edu.au/recommendations [Accessed 28 March 2023].
27. Climate and Health Alliance. Real, urgent and now: Communicating the health impacts of climate change. Melbourne, Vic: Climate and Health Alliance, 2021. Available at https://d3n8a8pro7vhmx.cloudfront.net/caha/pages/1957/attachments/original/1620887738/caha-run-communication-guide-FA.pdf?1620887738 [Accessed 28 March 2023].

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