

Should environmental sustainability be a priority for the gastroenterology community?

Desmond Leddin 

Correspondence to

Professor Desmond Leddin,
Medicine, Dalhousie University,
Halifax, Nova Scotia, Canada;
desleddin@icloud.com

Received 16 October 2023
Accepted 11 December 2023
Published Online First
23 February 2024

ABSTRACT

Sustainable practice means living within our means and not compromising the health of the planet for future generations. We are not meeting this goal at present as evidenced by the breaking of several indicators of planetary health and ever-increasing global mean temperatures. The arguments in favour of environmental sustainability include our ethical obligations as healthcare providers not to harm patients. We know that the emissions from healthcare are damaging health, so it follows that we have an obligation to minimise them. There is also the issue of intergenerational justice, that is not living beyond our means and leaving the problems for the next generation to deal with. We have professional obligations of leadership and advocacy on this issue, and it makes good economic and management sense to reduce environmental damage. Finally, there is the question of self-interest. If we do not change the trajectory of global warming, we face an existential threat in the not-too-distant future. We currently lack data on how to most effectively reduce the environmental impact of digestive health practice and we even lack a clear vision of what sustainable care might look like. However, that is being remedied and in the meantime it should not stop us beginning to take action, which is urgently needed as the climate crisis continues to gather momentum.

The purpose of this paper is to outline the reasons why gastroenterologists should practise sustainable care and why it should be a priority.

Definitions of sustainability usually involve three dimensions—environmental, economic and social. The focus here is on the environmental aspect but there is some overlap with the other two pillars. Environmental sustainability can be defined: ‘as meeting the resource and services needs of current and future generations without compromising the

KEY MESSAGES

- ⇒ Current practice is not sustainable.
- ⇒ We have ethical, professional, management, economic and self-interest reasons to change our behaviour.
- ⇒ It is not yet clear what sustainable practice might look like but that is not a justification for inaction.
- ⇒ We need to act now in order to establish our credibility as advocates for change.
- ⇒ Action is urgently needed given the rate with which environmental change is occurring.

health of the ecosystems that provide them, and more specifically, as a condition of balance, resilience and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity’.¹ In a practical sense, environmental sustainability requires that we reach net-zero targets as a matter of urgency.

One way of assessing whether current global behaviour is sustainable is through the lens of planetary boundaries.² The concept, as developed by the Stockholm Resilience Centre, is that there are nine planetary boundaries which humanity needs to respect. These are climate change, novel entities, stratospheric ozone depletion, atmospheric aerosol loading, ocean acidification, biogeochemical flows, freshwater change, land system change and biosphere integrity. If we exceed the safe operating limits for these boundaries, then we compromise present and future needs—the very definition of unsustainable practice. The evidence is that we have already crossed several of the boundaries and are threatening to cross others.³ Additional evidence of our unsustainability includes the increase in



© Author(s) (or their employer(s)) 2024. No commercial re-use. See rights and permissions. Published by BMJ.

To cite: Leddin D. *Frontline Gastroenterology* 2024;**15**:e2–e5.



Figure 1 Reasons to engage in sustainable practice. AI image generated from Adobe Firefly.

global mean surface temperature, which is now over 1°C above preindustrial levels and rising.⁴

It is much more difficult to make an argument for continuing in this non-sustainable way than to argue in favour of change. It might be argued that change will be too difficult or too disruptive, but that argument does not hold. If we do not willingly change our behaviour, then uncontrolled change will most certainly be forced on us.

The arguments in favour of sustainable practice are primarily ethical, professional, economic and management, and pragmatic self-interest and are summarised in [figure 1](#).

ETHICAL

Intergenerational justice

Implicit in the definition of sustainability is the concept that we live within our means and that we do not compromise the environment for the support of future generations. The present generation of consumers has an ethical obligation to treat future generations fairly and reasonably. This argument is most often made in the case of passing on accumulated national debt. This analogy does not completely hold, however. Financial debts can be repaid, lost ecosystems cannot be easily rebuilt. It is not fair or just to spend beyond our environmental means now, with permanent damage to earth's life support systems, and saddle future generations with the consequences.⁵

Ethical obligations of healthcare providers

Healthcare providers have an ethical duty of beneficence. However, we know that the emissions associated with healthcare are causing harm to patients both by warming the environment and by generating pollution.

While it will never be possible to eliminate healthcare-related emissions, we have an ethical duty to minimise them to reduce harm to the public's health.⁶

Our ethical obligation extends globally. Emissions associated with healthcare do not confine themselves to one country, or one patient population, but act around the world. Many of the countries and populations, which will be most affected by global warming and pollution are not the countries that have contributed proportionately to the problem.⁷ They will, however, be disproportionately affected and are often unable, for financial and other reasons, to repair infrastructure and health systems damaged by climate change. Wealthy countries, which are responsible for most of the emissions, have an ethical duty to reduce them as much as possible to minimise the effect on countries with fewer resources.

PROFESSIONAL

Leadership

The political response to the challenge of climate change has not yet been effective. Carbon emissions continue to rise and there is now little chance of containing global warming to less than 1.5°C by the end of the century. Partly in response to that reality the climate crisis is increasingly framed as a public health crisis, which requires a response from healthcare providers. Gastroenterologists have a professional obligation to provide leadership on this issue on a local, national and international level.⁸

Advocacy

Gastroenterologists are in an excellent position to advocate on behalf of those who do not have a voice. We have a professional obligation to inform policymakers on the negative implications of a changing environment on health. To be effective advocates for change, we must practise what we preach. We cannot be effective advocates for reduction of carbon emissions while continuing to practise in unsustainable ways. We can change our behaviour regarding flying and conferences, for example, likely without much negative effect.⁹

ECONOMICS AND MANAGEMENT

Economic

The environmental cost of practice has traditionally not been considered, but it is now clear that this aspect needs to be factored into decision-making. Healthcare practice which results in environmental damage will have economic costs through loss of gross domestic product,¹⁰ productivity, infrastructure damage, increasing clinical demands and supply chain disruption. The greater the rise in mean surface temperature the greater will be the economic cost. The greater the economic cost the less funds are available for healthcare. Moving to sustainable practice makes economic sense.

Management

Gastroenterologists are frequently involved in the management of health systems. Even in high-income countries, gastroenterologists operate within some resource constraints, budgets are not infinite and management decisions must be made. Applying sustainability principles, such as reducing unnecessary testing and prescribing, and reusing equipment, when possible, is good management practice. Recycling, or at least appropriately segregating waste,¹¹ makes good financial sense. It reduces the cost of disposal and reduces environmental impact. In many areas of practice, it may be possible to simultaneously decrease cost and decrease environmental impact. However, the most important management change may be to add another R to the traditional five of reduce, reuse, recycle rebuild and restore and that is rethink. Rethink how we are providing care by adding an environmental lens.

SELF-INTEREST

If we do not adequately respond to the challenge of rising global emissions and consequent atmospheric warming, then the future will be one characterised by increasing climate instability. The relatively peaceful conditions of the Holocene, that is, the last 12 000 years which has allowed humanity to prosper, will be replaced by a much more challenging environment. Leaving aside our societal obligations, on a personal basis, this will result in a very different future for our children and grandchildren. At present rates of emissions, a child born today faces the real prospect of an existential crisis for humanity by 2100. It is in the interest of all of us, on both a personal and societal level, to respond to the challenge and practice sustainably.

WHAT WOULD SUSTAINABLE PRACTICE LOOK LIKE?

Making the argument in favour of sustainability is easy, the transition from current practice to a truly sustainable system will be much more challenging. Many health systems, primarily those in countries which are not major contributors to global emissions, are already practising at levels which might be considered sustainable¹² but that level of care is unlikely to be acceptable or desirable in high-income countries.

Sustainability is often used synonymously with responsible practice, but they are not the same. Responsible practice, by recycling, for example, may not meet the more rigorous goal of net-zero. Moving towards true sustainability, at least for gastroenterologists practising in high-income and medium-income countries, will mean working very differently. The National Health Service has set a goal of net-zero by 2040 for the emissions it controls.¹³ Reaching that goal will likely require both a transition away from fossil fuels and carbon capture.

The carbon footprint of digestive care is being measured but at present it is not known precisely how practice would need to change to meet net-zero targets. That is not a reason for inaction. Even in the absence of precise data there are many steps which can be taken. A first step might involve changing perspective and beginning to look at practice using not only our traditional decision points in the care algorithm but also factoring in environmental impact and outcomes. For example, a decision on whether to bring a patient to clinic might involve consideration of all the usual factors but also the distance the patient needs to travel and mode of transportation. We might then decide to hold a follow-up visit with a patient by telemedicine instead of bringing them to the clinic.

Endoscopic practice is a particular concern as it is a high-volume activity and generates a considerable amount of waste.¹⁴ We can put environment on the agenda for endoscopic management meetings. As more information becomes available on the emissions associated with disposable products it will be possible to factor in environmental impact in procurement decisions.

Progress has been made and momentum for change continues to build. The British Society of Gastroenterology (BSG) has published a comprehensive sustainability plan,¹⁵ many national gastroenterology societies have formed climate action committees. Guides on how to move to sustainable endoscopic practice have been developed by both the BSG¹⁶ and the European Society for Gastrointestinal Endoscopy.¹⁷ The carbon cost of in-person meetings has been measured by the Canadian Association with subsequent changes to the location of their annual meeting.⁹ A comprehensive web-based course on climate and digestive health was delivered by the World Gastroenterology Organisation in 2023 and the proceedings, which could serve as the basis of a curriculum, have been published.¹⁸

SHOULD MOVING TO SUSTAINABLE PRACTICE BE A PRIORITY?

The arguments in favour of moving to sustainable gastroenterology practice are, hopefully, convincing. But why should it be necessary to make this a priority when there are other pressing concerns? It should become a priority because the challenge of global warming is urgent and there is no time to lose. Emissions continue to rise and for every increase in global mean temperature the negative consequences will be more significant. We need to act urgently to reduce greenhouse gas emissions, since once these gases are released into the atmosphere they cannot be effectively removed and will continue to warm the planet for hundreds, and in some cases thousands, of years.

One of the challenges of global warming is that it is a long-term insidious threat. It does not come to the front of the priority list as compared with the competing demands of workload and other more immediate

pressures. Other reasons why we do not react to this threat include financial, systemic and psychological barriers.¹⁹ We need to acknowledge these blocks and find ways to address them.

Moving from present practice where we are living beyond our environmental means to a more sustainable practice is possible, the reasons to make the change are convincing, and the need is urgent.

Contributors Manuscript prepared and written solely by author.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

ORCID iD

Desmond Leddin <http://orcid.org/0009-0000-5315-0430>

REFERENCES

- Morelli J. Environmental sustainability: a definition for environmental professionals. *JES* 2011;1:1–10.
- Stockholm Resilience Centre. Earth out of bounds. n.d. Available: <https://www.stockholmresilience.org>
- Persson L, Carney Almroth BM, Collins CD, *et al.* Outside the safe operating space of the planetary boundary for novel entities. *Environ Sci Technol* 2022;56:1510–21.
- IPCC. IPCC Ar6 synthesis report. summary for policymakers. A report of the intergovernmental panel on climate change. Contribution of working groups I, II and III to the sixth assessment report of the intergovernmental panel on climate change. 2023. Available: https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf
- UNICEF. Climate change and Intergenerational justice. 2012. Available: <https://www.unicef-irc.org/article/920-climate-change-and-intergenerational-justice.html>
- Gillon R. Medical ethics: four principles plus attention to scope. *BMJ* 1994;309:184–8.
- Our World in Data. Emissions per capita. n.d. Available: <https://ourworldindata.org/co2/country/united-states?country=~USA#per-capita-how-much-co2-does-the-average-person-emit>
- Royal College of Physicians and Surgeons of Canada. CanMEDs: better standards, better physicians, better care. n.d. Available: <https://www.royalcollege.ca/content/rcpsc/ca/en/canmeds/canmeds-framework.html>
- Leddin D, Galts C, McRobert E, *et al.* The carbon cost of travel to a medical conference: modelling the annual meeting of the Canadian Association of Gastroenterology. *J Can Assoc Gastroenterol* 2022;5:52–8.
- International Monetary Fund. Climate change, climate and the economy. n.d. Available: <https://www.imf.org/en/Topics/climate-change/climate-and-the-economy>
- Vaccari M, Tudor T, Perteghella A. Costs associated with the management of waste from Healthcare facilities: an analysis at national and site level. *Waste Manag Res* 2018;36:39–47.
- Pichler P-P, Jaccard IS, Weisz U, *et al.* International comparison of health care carbon footprints. *Environ Res Lett* 2019;14:064004.
- NHS England. Delivering a net zero NHS. n.d. Available: <https://www.england.nhs.uk/greenernhs/a-net-zero-nhs/>
- Namburam S, von Renteln D, Damianos J, *et al.* Estimating the environmental impact of disposable endoscopic equipment and endoscopes. *Gut* 2022;71:1326–31.
- Veitch AM. Greener gastroenterology and hepatology: the British Society of Gastroenterology strategy for climate change and sustainability. *Frontline Gastroenterol* 2022;13:e3–6.
- Sebastian S, Dhar A, Baddeley R, *et al.* Green Endoscopy: British society of Gastroenterology (BSG), joint accreditation group (JAG) and centre for sustainable health (CSH) joint consensus on practical measures for environmental Sustainability in Endoscopy. *Gut* 2023;72:12–26.
- Rodríguez de Santiago E, Dinis-Ribeiro M, Pohl H, *et al.* Reducing the environmental footprint of gastrointestinal endoscopy: European Society of Gastrointestinal Endoscopy (ESGE) and European Society of Gastroenterology and Endoscopy Nurses and Associates (ESGENA) position statement. *Endoscopy* 2022;54:797–826.
- Omary MB, Leddin D, Metz G, *et al.* World Gastroenterology Organisation - gut commentary series on digestive health and climate change. *Gut* 2023;72:2193–6.
- Leddin D, Omary MB, Metz G, *et al.* Climate change: a survey of global gastroenterology society leadership. *Gut* 2022. 10.1136/gutjnl-2022-327832 [Epub ahead of print 10 Jun 2022].