

Carbon footprinting in health systems: one small step towards planetary health



Climate change is without doubt one of the major threats facing public health. While we are already experiencing extreme weather events worldwide, the longer term impacts on health will include increased heat-related mortality, increased food-borne disease, and increased risk of vector-borne and water-borne disease.¹ Coupled with increasing—and mobile—populations and antimicrobial resistance, the pressures on health systems will be substantial. Is it surprising then that the Paris Agreement formally linked human and planetary health so clearly and sought to harness leadership from the health sector to achieve robust change? It is in this light that efforts to assess the carbon footprinting of different elements of health care are needed. Bottom-up studies on this have included efforts to assess the carbon footprints of renal care,² intensive care,³ dentistry⁴ and, now in *The Lancet Planetary Health*, operating theatres.⁵ Andrea MacNeill and colleagues report the carbon footprint of surgical suites in three academic quaternary-care hospitals in Canada, the UK, and the USA to be between 3 218 907 kg and 5 187 936 kg of CO₂e over a 1 year period. Substantial contributions come from the use of anaesthetic gases and energy consumption.

Ground truthing of the environmental impact of processes is needed, so that appropriate cost-effective action can be taken to reduce emissions in the short term and protect human health in the longer term.

Globally health-care systems are stretched with managers and clinicians under pressure to deal with increasing demand from service users, with limited budgets. The potential exists for those responsible to focus on addressing immediate needs as climate change might seem a distant threat. However, studies have shown the potential for triple bottom line solutions in health-care settings: with carbon mitigation options being able to offer improved economic performance in terms of efficiency gains; social gains through improved patient choice; and environmental dividends in terms of reduced carbon emissions.⁴ As an added benefit, climate change mitigation can also lead to improved health through improved air quality.

There exists a need for a better understanding of climate change and mitigation in the health sector. Carbon footprinting studies are just a first step. Options need to be evaluated in terms of their cost-effectiveness and many could be win-win in terms of energy savings.

Better decision making around carbon is needed at all levels; from decisions about the location of health services by high level managers to even everyday decisions on the choices of what to put on the menu in the hospital canteen. Understanding the carbon footprint of health care involves everyone in that system; from the patients to the managers, from the porters to the surgeons. Patient care is obviously paramount, but carbon management can no longer be ignored. Shared learning across institutions and across international borders is needed; the lessons drawn from critically comparing management practices, building designs, and care pathways in terms of carbon intensity might lead to a more critical approach overall.

The co-benefits of mitigation and adaptation might be particularly important in the health and health-care setting. Active travel could promote good physical health, reduce air pollution, and lead to carbon reductions. However, care is also needed as there can be unintended consequences. For example, reducing the temperature of hot water in systems could reduce carbon, but might increase the risks elsewhere (eg, risk of Legionnaires' disease).⁶ Consideration needs to be given to the reasons behind for certain standards—some might be arbitrary—others are not.

Lessons from work in Scotland suggests that there is openness from those working in the health sector to reduce carbon. However, better decision support tools might be needed to assist in identifying triple bottom line solutions. Modelling of the carbon intensity of different care pathways and considering alternatives requires substantial effort in terms of time. Assessing potential outcomes requires a multidisciplinary approach, cutting across environmental science, systems modelling, and economics. Carbon footprinting alone will not lead to better decisions, this only enables an understanding of the scale of the mountain to climb



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to reduce emissions. However, it does provide insights into where efforts could be targeted first.

For improved planetary health to be realised it is important that sectors that are impacted by environmental change, such as health, take a proactive role in understanding their own environmental impact. Describing the carbon footprint of different elements of health care represents a small step in this direction. It is a necessary step, but we should be under no illusions. It is no longer sufficient to simply quantify the problems we face; health-care systems need to be much more effective stewards of the resources placed at their disposal.

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