Planetary health care: a framework for sustainable health systems

In 2018, the Intergovernmental Panel on Climate Change announced that to restrict global temperature rise to 1·5°C, greenhouse gas emissions must decrease 45% by 2030 compared with 2010, and reach net zero by 2050.[1] In 2020, the UK National Health Service (NHS) committed to achieving net zero greenhouse gas emissions by 2040.[2] This precedent-setting decision by one of the world's largest health systems firmly positions the health sector at the vanguard of environmental sustainability and affirms the indivisibility of planetary health and health-care delivery. Other health systems must follow suit, committing to ambitious emissions targets and sharing best practices. The race to zero is on.

The quest for net zero health-care emissions involves re-imagining a society where health and wellbeing are prioritised, and incentives are aligned to promote fiscal and environmental stewardship. Much as reducing global energy emissions requires both supply-side (renewable energy sources) and demand-side (consumer behaviour) management, mitigating the health-care footprint requires interventions both to the health-care system and to the factors driving demand. Here, we present a framework for constructing environmentally sustainable health systems.

The first principle is to reduce demand for health services. The combination of population growth and ageing, increasing global burden of disease, and increasingly complex diagnostic and treatment methods have resulted in an inexorably growing demand for health services. This increase in demand has offset reductions in the carbon intensity of care and slowed progress towards mitigating the health-care footprint. From 1990 to 2019, NHS England saw a 62% reduction in carbon dioxide emissions per finished admission episode (a measure of the number of inpatient admissions discharged each year), but because the NHS delivers considerably more health services now than it did 30 years ago, this translates to only a 26% absolute reduction in emissions.[3] Thus, efforts to decarbonise the health system must be coupled with strategies to reduce the incidence and severity of disease, thereby decreasing the amount and intensity of care required. Health promotion begins with public policies that strengthen the social determinants of health, including access to education and jobs with a livable wage, food security, affordable housing, and a clean and safe environment. Countries that have the best health outcomes also tend to have robust social safety nets and the highest rates of economic and health equity. The public health principle of Health in All Policies aims for systematic, intersectoral policy making that incorporates minimising environmental impacts on population health. For example, modelling data from the International Renewable Energy Agency suggest that the cost of an accelerated clean energy transition would be recovered eight-fold by the health sector.[4]

Disease prevention strategies entail increased funding for public health and ensuring access to primary care services, including counselling, immunisation, contraception, robust screening programmes, and chronic disease management. As of 2016, less than 6% of health-care expenditures in countries belonging to the Organisation for Economic Co-operation and Development was directed towards prevention and only 14% towards primary care services.[5]

The second principle is to match the supply of health services to demand, ensuring appropriate care and avoiding unnecessary investigations and treatment. At a systems level, matching health-care supply to demand includes avoidance of both excess and inadequate capacity. Excess capacity leads to inefficient use of resources like medical imaging devices spending the majority of their lifecycle in stand-by mode. In circumstances of under-resourced care, delays in treatment result in more advanced stages of disease. Appropriateness of care is a dimension of health-care quality and value, because over-investigation and over-treatment entail risks of patient harm, unnecessary health-care expenditure (up to US$100 billion annually in the USA alone),[6] and pollution. A sustainable health-care system should match the type and intensity of care provided to the problem. This includes adequately funding primary, community, and long-term care. Insufficient primary care services for so-called ambulatory care sensitive conditions (eg, diabetes, hypertension, chronic obstructive pulmonary disease) result in avoidable

hospital-based treatment, and comprise 12% of emergency department visits in the USA, 15% in England, and 25% in Canada.[5] Appropriate end-of-life care should involve discussions around prioritisation of comfort and quality of life, and avoidance of futile treatments.

Ensuring appropriate care requires aligning incentives among key stakeholders. This concept fundamentally relates to health system structure and funding. Private health systems have little incentive to promote healthier populations and reduce the burden of disease because health-care activities generate revenue. By contrast, the pressures of fixed budgets in publicly funded systems provide incentive for resource stewardship. Similarly, physician remuneration schemes should avoid conflicts of interest between patient, provider, and system, with fee-for-service systems replaced by alternative payment plans that incentivise best practices.

Transforming the culture of health care towards resource stewardship requires patient-centred care that prioritises health and wellbeing over diagnosis (the desire to know) and cure (the absence of disease). Educational reforms are needed to empower providers to take planetary health action, including embracing the professional duties of resource stewardship and environmentally preferable practice.[7] The codification of rational resource use into evidence-based clinical practice guidelines confers the added benefits of standardising best practices and augmenting medico-legal protection.

The third principle of health-care sustainability is to reduce emissions from the supply of health services, optimising the efficiency and environmental performance of care delivery. Most published work on health-care sustainability and institutional action towards this goal has focused on decarbonising operations within health systems.[7] Optimising building environmental performance, decarbonising hospital energy supplies, and electrifying transport fleets are integral to net zero strategies. Decarbonisation of the UK's electrical grid has been the largest contributor to the NHS' reduced greenhouse gas emissions to date.[3] However, in the past 2 years, greenhouse gas inventories have highlighted the sizable contribution of the health-care supply chain to the sectoral footprint (62–82%).[8,9] Up to 90% of product emissions are generated during manufacturing, for which improved recycling programmes will never compensate. Nothing short of a systemic change to a circular economy, in which, for example, medical devices are designed for reuse and kept in circulation as long as possible, will achieve net zero emissions.[10]

Value-based health-care reform provides a platform for minimising the footprint of care delivery through integration of environmental and financial costs and clinical performance. This involves reconfiguring care around integrated disease treatment rather than the historical model of individual providers with ad hoc referral patterns. Integrated practice includes multiprofessional teams with coordinated primary, specialist, and allied health services, replacing the need for multiple provider visits, and the implementation of clinical pathways to streamline care and minimise inefficiencies. A robust virtual care system, already strengthened by the COVID-19 pandemic, can reduce travel requirements, is more convenient and cost-effective for many patients, and can improve health-care access for people in rural and remote areas. However, health equity necessitates adequate access to telehealth technology and internet services. These initiatives can improve the patient experience and accelerate definitive treatment, with the expectation of improved outcomes and reduced costs and emissions.

In summary, the race to net zero health-care emissions is not simply a climate change mitigation strategy, but rather the capstone of a societal transition towards health and wellbeing for all. The 2020 Report of the UK Health Expert Advisory Group recommended that all climate action be taken with the goal of achieving a fair distribution of health, or "sustainable health equity".[11] Existing emissions targets are insufficient to avert catastrophic climate change and will diminish the quality of life of the next generation, while exacerbating inequalities. The health sector must chart a radically new course requiring transformational change to ensure sustainable intergenerational health equity. The mobilisation of health systems in response to the COVID-19 pandemic has shown that such transformation is possible when accompanied by just political action informed by science. The time has come to usher in a new era of planetary health care, whereby health promotion and disease treatment occur within planetary boundaries and contribute to a healthier world for all.

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