

The sustainable physician

Frances Mortimer

A low-carbon health service will:

- be better at preventing illness
- give greater responsibility to patients in managing their health
- be leaner in service design and delivery
- use the lowest carbon technologies.

The public funding of medical care inevitably diverts resources from health-sustaining investment in education, social welfare and housing. In return, health services are asked to demonstrate a measure of cost effectiveness. The provision of medical care, however, incurs not just financial costs, but also significant environmental ones, in the form of greenhouse gas emissions, pollution of air and water, changes to land use, and so on. This could be viewed as spending ecological capital, which is equally essential to population health.

Just how important the environment is to health (or perhaps how vulnerable it is to human-induced change) is only lately being broadcast in the medical world. Climate change is the clearest example. On World Health Day 2008, the director general of the World Health Organization, Margaret Chan, forecast an increase in deaths worldwide from malnutrition, diarrhoea and infectious disease attributable to climate change.¹ More recently, the UCL–Lancet Commission has pointed to even greater probable impacts from population displacement and armed conflict over productive land, describing climate change as ‘the biggest threat to global health in the 21st century’.²

The medical profession can therefore be seen as having a particular responsibility to lead the fight against climate change. Moreover, in the context of global agreements and national legislation on carbon reduction, the health sector will in any case be forced to reduce its emissions. In the UK, from April 2010, NHS trusts will already be subject to the government’s Carbon Reduction Commitment (CRC), requiring them to pay up front for each year’s energy-related carbon emissions.³ The NHS’s own carbon reduction strategy, based on the national targets set by the Climate Change Act 2008, commits the health service to more than 80% reduction in emissions over the next three decades.⁴

In the near future, environmental cost effectiveness will become as important as financial cost effectiveness in medical care.

Frances Mortimer, medical director, The Campaign for Greener Health

What are the environmental costs of healthcare?

A study of the carbon emissions of NHS England found that, in 2004, it was responsible for the emission of 18 million tonnes of CO₂ – 3% of the UK total.⁵ The greatest part of this was not from heating and lighting, but from NHS purchasing of goods and services, which use energy in their manufacture and delivery. One of the most unexpected findings in the study was the 4.06 million tonnes of CO₂ attributed to the procurement of pharmaceuticals.

The implication is that sustainability is not just about efficiency of NHS buildings: through use of equipment and consumables, clinical care itself is responsible for the greatest environmental impacts. Even the number of patient journeys and the demand for building capacity are not immutable but are the product of clinical decisions. If the NHS carbon reduction targets are to be achieved, new low-carbon models of care are needed.

How can clinical medicine respond?

Once the contribution of clinical activity to environmental impact is recognised it becomes clear that wasted or low-value activity is a double sin – triple, if you count the risks to patient safety. Correspondingly, the use of ‘lean principles’ to eliminate duplications and poorly targeted investigations brings rewards not just to finances, patient experience and safety, but also to the environment. Provided, of course, that the savings are not reinvested in carbon-intensive care.

Yet, the scale of transformation required demands that clinical leaders think imaginatively and go beyond small efficiency measures, to decouple patient outcome from resource use, and create a service which is health promoting as well as skilled in responding to immediate clinical need.

Four principles of sustainable clinical practice

The Campaign for Greener Healthcare has identified four principles which underpin sustainable clinical practice. These are:

- 1 *Disease prevention and health promotion.* All clinicians should be involved in prevention. Through broader advocacy and in individual patient care, specialties should aim to tackle underlying causes of disease – the social, economic and environmental determinants of health. Where possible, interventions should capture environmental co-benefits of healthy lifestyles, such as the improvements in air quality and carbon emissions from a shift to active travel.

- 2 *Patient education and empowerment.* To reduce disease progression and pre-empt complications, many patients could be empowered to take on a greater role in the management of their own health and healthcare. Informed patients are also well placed to improve the coordination between clinical teams and reduce misunderstandings or duplication.
- 3 *Lean service delivery.* Improving clinical decision-making in the selection and targeting of interventions will reduce lower value activities and their associated environmental impacts. Specialties can support this by describing the relevant patient pathways and providing clear, evidence-based guidance. Even where clinical input is of high value, a greater use of online records, email and telephone can reduce travel emissions by moving information in place of patients, staff and laboratory samples. Further efficiencies can follow from better integration of specialist services, such as diabetes, cardiovascular and renal care, which have a common patient base.
- 4 *Preferential use of treatment options and medical technologies with lower environmental impact.* Inclusion of sustainability measures in the evaluation of medical technologies will allow service planners, clinicians and patients to choose clinically effective treatments with the best environmental profile and will encourage their further development.

Sustainable specialties

In February 2009, senior clinicians and policy makers from kidney care attended a green nephrology summit. A number of existing initiatives were discussed, including dialysis water recycling, heat exchangers, reduction of packaging and virtual clinics, but it was clear that there was no shared learning or systematic approach to sustainability within the specialty. The solution was a green nephrology fellowship, funded by NHS Kidney Care and managed in partnership with the Renal Association, the British Renal Society and the Campaign for Greener Healthcare. Now in post, the green nephrology fellow

(a renal trainee) is tasked with exploring the environmental impact of kidney care, building a network of green champions and developing a toolkit for increasing the sustainability of renal units.⁶ Several other specialties are now preparing their own Green Summits.

In a low-carbon future, the provision of high-quality care to patients depends absolutely on the transition to low-carbon models of care. Achieving this goal will require innovation, leadership, and a systems approach – health services designed around the needs not of institutions but of patient groups. The green nephrology project provides a model for specialties to take a lead.

References

- 1 Chan M. *The impact of climate change on human health.* Geneva: WHO, 2008. www.who.int/mediacentre/news/statements/2008/s05/en/index.html
- 2 UCL – Lancet Commission. Managing the health effects of climate change. *Lancet* 2009;373:1693–733.
- 3 Department of Energy and Climate Change. *Consultation on the draft order to implement the Carbon Reduction Commitment.* London: DECC, 2009. www.decc.gov.uk/en/content/cms/consultations/crc/crc.aspx
- 4 Sustainable Development Commission and Stockholm Environment Institute. *NHS England carbon emissions: carbon footprinting report.* 2008. www.sd-commission.org.uk/publications/downloads/NHS_Carbon_Emissions_modelling1.pdf
- 5 NHS Sustainable Development Unit. *Saving carbon, improving health: NHS carbon reduction strategy for England.* London: Sustainable Development Unit, 2009. www.sdu.nhs.uk/page.php?page_id=94
- 6 Connor A, Tomson C, Mortimer F. Renal medicine can take the lead in greener healthcare. *Br J Ren Med* 2009;14:19–22.

**Address for correspondence: Dr F Mortimer,
The Campaign for Greener Healthcare,
Knowledge into Action, Summertown Pavilion,
Oxford OX2 7LG.
Email: frances.mortimer@kintoa.org**