



Towards “Net Zero” (Zero Carbon) Healthcare

Rahul Mukherjee

Heartlands Hospital (part of University Hospitals Birmingham NHS Foundation Trust) and Institute of Clinical Sciences, University of Birmingham
E-mail: rahul.mukherjee@uhb.nhs.uk

Keywords: National Health Service, Net zero emission, Social value model, Sustainable development goal

The National Health Service (NHS), as the largest employer in Britain, is responsible for around 4% of the nation’s carbon emissions, if this country is to succeed in its overarching climate goals the NHS has to be a major part of the solution. Tedros Adhanom Ghebreyesus, Director General of the World Health Organization (WHO), said: “Cutting carbon emissions is essential to protect health, everywhere in the world. I welcome the leadership of the largest single health system in the world, the National Health Service in England, in committing to be carbon neutral in its own operations by 2040, and to drive emissions reductions in its suppliers and partners. Health is leading the way to a greener, safer planet.” In response to this call, NHS England convened the NHS Net Zero Expert Panel in January 2020 following the launch of the Climate Assembly UK, to take and analyze evidence on how the health service can contribute to nationwide carbon reduction efforts. In October 2020, the NHS became the world’s first health service to commit to reaching carbon net zero, in response to the profound and growing threat to health posed by climate change.

Led by the Executive Director of The Lancet Countdown on Health and Climate Change, the NHS Net Zero Expert Panel comprised public health and climate experts as well as patient and staff representatives. Their report, endorsed by the NHS board in October 2020, sets out how the health service has already cut its own carbon footprint by 62% compared to the international standard 1990 baseline, and by 26% when indirect factors are included [<https://www.england.nhs.uk/greenernhs/publication/delivering-a-net-zero-national-health-service/> accessed 10 April 2022]. This report provides a detailed account of the NHS’ modelling and analytics underpinning the latest NHS carbon footprint, trajectories to net zero and the interventions required to achieve that ambition. It lays out the direction, scale and pace of change. It describes an iterative and adaptive approach, which will periodically review progress and aims to increase the level of ambition over time.

Based on the findings of the report the NHS has formally adopted two targets, set as the earliest possible credible dates for the NHS to achieve net zero emissions:

- 1) for the NHS Carbon Footprint (emissions under NHS direct control), net zero by 2040, with an ambition for an interim 80% reduction by 2028-2032, and;
- 2) for the NHS Carbon Footprint Plus, (which includes our wider supply chain), net zero by 2045, with an ambition for an interim 80% reduction by 2036-2039.

A wide engagement is currently being undertaken to support the delivery, with several interventions addressing procurement of supplies and addressing Air Pollution caused by healthcare, which we shall deal with in this section. There are several other strands of intervention which we shall address in future, which include:

- 1) Reducing the inhaled therapy and anaesthetic-generated emissions;
- 2) New ways of delivering care at or closer to home, meaning fewer patient journeys to hospitals
- 3) Reducing waste of consumable products/single use plastics and switching to low-carbon alternatives where possible;
- 4) Making sure new hospitals and buildings are built to be net-zero emissions, and;
- 6) Building energy conservation into staff training and education programmes.

Addressing Procurement

In order to achieve “Net Zero” Healthcare, the NHS is adopting the Social Value Model for the effective stewardship of the environment, built around the United Nations Sustainable Development Goals (UN SDG). The Social Value Model supports UN SDG Goal 1: No poverty, Goal 2: Zero Hunger, Goal 3: Good health and wellbeing, Goal 6: Cleanwater and sanitation, Goal 7: Affordable and clean energy, Goal 9: Industry, innovation and infrastructure, Goal 10: Reduced inequalities, Goal 11: Sustainable cities and communities, Goal 12: Responsible consumption and production, Goal 13: Climate action, Goal 14: Life below water, Goal 15: Life on land

In order to implement the social value model, the NHS has mandated that social value should be explicitly evaluated in all central government procurement, where the requirements are related and proportionate to the subject-matter of the contract, rather than just ‘considered’ as currently required under the Public Services (Social Value) Act2012. Therefore, all procurement will make it necessary for the suppliers to explicitly undertake activities that:

- Deliver additional environmental benefits in the performance of the contract including working towards net zero greenhouse gas emissions.
- Influence staff, suppliers, customers and communities through the delivery of the contract to support environmental protection and improvement.

Addressing Air Pollution caused by healthcare

Climate change poses a huge threat to lung health; with dangerous levels of pollution and extremes in hot and cold weather which can be deadly for people with lung conditions

causing symptoms to flare up and putting lives at risk. Improving lung health and cleaning up the air we breathe has never been more critical, so it's been a real privilege to be part of the expert panel advising on this report and ensuring that the patient voice is at the very heart of this process. We look forward to working closely with the NHS to help action their plan, including safely switching to lower carbon inhalers, maximizing the gains of virtual care and reviewing and scaling back transport links to and from hospitals. We want to ensure these targets are met without compromising the care of those with lung conditions and look forward to collaborating with the NHS further to face these challenges together. Reducing air pollution is a key area in which the NHS adoption of the Social Value Model can have a significant and direct positive impact on health outcomes. Tackling respiratory disease is a health priority as well as an inequalities issue. According to researchers at the Centre for Cities, long term exposure to air pollution is killing one in 19 people in the UK, and 62% of roads monitored in UK cities are exceeding the World Health Organization's annual fine particulate matter guideline. The NHS itself is responsible for approximately 3.5% (9.5 billion miles) of all road travel in England, including patients, visitors, staff and suppliers. By asking suppliers how they will address air pollution as part of contract delivery, the NHS can significantly reduce the direct impact it has on ill-health and related diseases. When it comes to resource poor settings like South Asia or Africa, the pollution situation is incomparably worse and we shall address this in a separate article.

A simple case example of addressing air pollution is here: Nationally, the NHS fleet and business travel account for around 4% of the NHS Carbon footprint, but as a community health trust Sussex Community NHS Foundation Trust's (SCFT) was closer to 5.5%. Travel is a necessary part of its work in delivering care out in the community, seeing patients in their homes. A geographically diverse region means locations are harder to reach than others without a vehicle. Travel can have a significant impact on health and environment so the trust is working hard to travel less when possible, and as efficiently as possible when it is unavoidable. The Trust chose to promote and support more active travel among staff, alongside expanding its electric and hybrid fleet. The Trust invested initially in a single e-bike as a pool bike available to all staff to trial for work travel. Electric and hybrid pool cars were available for staff who wanted to walk or cycle for their commute to work but did not find this practical for patient visits. The Trust also created a Travel Bureau to coordinate bookings for the pool bikes, and to help staff plan routes for their visits. Route planning was also helpful for staff driving to visits, as it planned a route for the least number of miles possible, helping to reduce fuel use and emissions. The Trust now have three e-bikes dedicated to specific clinical teams for their sole use as well as a pool e-bike, and have covered around 8,000 miles in total, saving around 2 tonnes of CO₂. Using e-bikes has allowed staff in urban areas to avoid traffic jams and time spent looking for parking. Patients, especially children and their parents have fed back that they love to see their nurse arriving on a bicycle. Polly Conway, a Health Visitor in the Healthy Child Programme, is a huge advocate of her team's e-bike which she uses on her home visits to new parents. She said, "They think it's great, the bike. They're concerned to make sure the environment's good for the baby they've just bought into the world. So, they're pleased to see us out on the

bikes.”Active travel brings with it wellbeing and health benefits for staff, patients and the community and is a good, low carbon option for staff to get to patient visits where practical.

Over the last 10 years, the NHS has become a world leader in the response to climate change, taking action to cut carbon emissions while building capacity and resilience into the way that healthcare is provided. At the national level, the NHS will monitor and report on its emissions reductions in-line with the timeline, methods and approach laid out by the UK Committee on Climate Change. The Delivering a Net Zero NHS report demonstrated that the NHS has both met and exceeded the 2020 targets outlined in the Climate Change Act. This could be an example to health services worldwide but without Universal Healthcare and public ownership, this will be really difficult to achieve.