

Introduction to the Radiotherapy Board's Environmental Sustainability Group

Robert Chuter and Arafat Mirza on behalf of the Radiotherapy Board Environmental Sustainability Working Group

Billions of people worldwide will be impacted by climate change if left unmitigated [1]. This is directly through climate related health impacts such as heatwaves, droughts, wildfires, floods, storms and infectious diseases, and indirectly due to food and water shortage, rising sea levels and economic losses - all of which will significantly increase the strain on the healthcare sector.

The NHS is responsible for about 5% of the UK annual carbon emissions [2] but the provision of healthcare itself increases carbon emissions, adding to the problem. With the duty to 'do no harm', healthcare institutions should lead the way towards decarbonisation. In recognition of this, the NHS is the first health system in the world to embed 'net zero' into legislation and is committed to achieving the target by 2040 [3].

Achieving these targets relies on action across all healthcare professional groups to initiate bespoke actions within their areas. Radiotherapy, for example, involves multiple patient journeys, high staff footfall and utilises high energy, high-cost machines - all of which contribute to carbon emissions.

Recent studies have shown that patient travel is the largest contributor to the radiotherapy carbon footprint [4,5]. This means that appropriate implementation of evidence-based hypofractionated radiotherapy schedules and efficient use of patient transport should enable significant carbon savings. Other strategies include minimising linac idle-time energy consumption and managing leakage of SF₆ which is a greenhouse gas with high Global Warming Potential. In addition, actions that are not unique to radiotherapy departments but will need radiotherapy support, include reducing paper use [6], reducing waste, swapping disposable with reusable equipment, reducing staff travel by utilising remote working capabilities alongside active/public travel and advocating for sustainable building designs and procurement.

The Radiotherapy Board's Environmental Sustainability (RTBES) Working Group which encompasses members from the Institute of Physics and Engineering in Medicine, The Royal College of Radiologists (RCR) and the Society and College of Radiographers (SCoR), is tasked with supporting radiotherapy centres in reducing their carbon footprint. Whilst a survey undertaken by our Group has shown that many centres are already undertaking actions to mitigate their carbon footprint [7], there is still much more that needs to be done. To aid this, the Group is helping to organise a 'Sustainability Day' at the RCR on 25th September [8] to raise awareness and start motivating people to do something at work on this issue. In addition to this, we are working with the radiotherapy professional bodies to embed climate literacy within training curricula, threading it throughout to ensure its not forgotten. Finally, the RTBES is working on an environmental sustainability in radiotherapy framework which is being piloted in some centres to help them adopt the most effective carbon-reducing strategies, with the aim to roll this out to all centres that want to join in 2025.

Our success against the COVID pandemic has shown that wide-scale system change is possible at a rapid rate in healthcare when there is a will and a need. Climate change works on much longer timeframes but will ultimately be a much bigger emergency needing much larger scale changes so we need to act now!

If you want to join a contact list for the RTBES group please email Rob on:
robert.chuter@nhs.net

1. The 2024 Europe report of the Lancet Countdown on health and climate change: unprecedented warming demands unprecedented action. Lancet Public Health. 2024 May 10:S2468-2667(24)00055-0. doi: 10.1016/S2468-2667(24)00055-0. Epub ahead of print. PMID: 38749451
2. <https://www.england.nhs.uk/greenernhs/wp-content/uploads/sites/51/2022/07/B1728-delivering-a-net-zero-nhs-july-2022.pdf>
3. <https://www.england.nhs.uk/greenernhs/a-net-zero-nhs/>
4. Chuter R, Stanford-Edwards C, Cummings J, Taylor C, Lowe G, Holden E, Razak R, Glassborow E, Herbert S, Reggian G, Mee T, Lichter K, Aznar M. Towards estimating the carbon footprint of external beam radiotherapy. Phys Med. 2023 Aug;112:102652.
5. Ali D, Piffoux. Methodological guide for assessing the carbon footprint of external beam radiotherapy: A single-center study with quantified mitigation strategies. Clin. Transl. Radiat. Oncol. 2024; 46: 100768
6. - <https://www.rcr.ac.uk/about-us/partnership-working-in-clinical-oncology/radiotherapy-board/radiotherapy-board-publications/>
7. <https://www.rcr.ac.uk/about-us/partnership-working-in-clinical-oncology/radiotherapy-board/environmental-sustainability-projects-in-radiotherapy-across-the-uk/>
6. <https://www.rcr.ac.uk/cpd-and-events/events-webinars/events/rcr-sustainability-day/>