

This table is supplemental to a Commonwealth Fund blog post, Emily Hough, “Lowering Carbon Emissions Through Redesigned Health Care,” *To the Point* (blog), Commonwealth Fund, Aug. 9, 2023, <https://www.commonwealthfund.org/blog/2023/lowering-carbon-emissions-through-redesigned-health-care>.

Table. Examples of Shifting to Lower-Emissions Treatments

Clinical area	Examples
Inhalers	<p>Different types and brands of inhalers have different carbon footprints. Dry powder inhalers (DPIs) emit significantly less than metered-dose inhalers, which emit almost as much as a 75-mile car journey per unit.</p> <p>Sweden led the way in encouraging use of DPIs. A 2011 study found that approximately 90% of inhaled corticosteroid devices used in the country are DPIs. The NHS is supporting patients age 12 and older to consider using lower-carbon inhalers.</p> <p>GSK is investing in a new research and development program to reduce greenhouse gases from rescue metered-dose inhalers (i.e., used during an asthma attack), responsible for 45% of GSK carbon emissions.</p>
Anesthetic gases	<p>Desflurane is an anesthetic gas used in surgery that has a global warming potential 2,500 times that of carbon dioxide and emits 25 times more greenhouse gases than its alternative, sevoflurane. The NHS in Scotland and England are removing desflurane, which will reduce emissions equivalent to powering nearly 13,000 homes per year.</p> <p>Hospitals across Canada, Australia, and the U.S. are also removing desflurane, saving both carbon emissions and money.</p>
Emergency medicine	<p>The American College of Emergency Physicians has a policy to “advocate for initiatives to reduce the carbon footprint of emergency departments and their affiliated institutions through energy conservation and health care waste reduction and/or recycling.”</p> <p>In the U.K., the Royal College of Emergency Medicine’s GreenED initiative has established a framework to help improve the environmental sustainability of emergency departments.</p>
Surgery	<p>Operating rooms are major contributors to a hospital’s carbon footprint, accounting for up to 25% of hospital admissions.</p> <p>A study in the <i>Journal of the American College of Surgeons</i> found that educating staff on proper consolidation and disposal of medical waste could save nearly \$700,000 a year and reduce regulated medical waste by up to 30%.</p> <p>In May 2022, a team at Solihull Hospital performed the world’s first net-zero carbon operation. The team used reusable gowns, drapes, and scrub caps; avoided anesthetic gases; minimized electricity use; recycled where possible; and did not drive to the hospital. Carbon emissions were reduced by almost 80 percent, with the remaining emissions offset by planting trees in the hospital grounds.</p> <p>To support improvements in surgical care, the U.K. Royal College of Surgeons published a guide to sustainability in the operating theater in terms of solid waste reduction, green purchasing, water conservation, care pathways, and cultural change and surgical leadership.</p>
Renal care	<p>Renal care, particularly hemodialysis treatment, results in substantial environmental impact through greenhouse gas emissions, volume of resources, and waste.</p> <p>Opportunities to reduce the environmental impacts of hemodialysis include recycling reject water generated during the process, reusing heat generated through the process, and switching to use renewable power. Providing treatments at home also could reduce emissions from staff and patient travel.</p> <p>The Canadian Society of Nephrology suggests a framework of redesigning kidney care to offer lower carbon kidney disease management.</p>
Gastroenterology	<p>Endoscopies are resource-intensive because of the high volume of single-use consumables, decontamination processes, waste produced, and patient travel required.</p> <p>Emissions can be reduced by increasing operational efficiency, improving waste management, and improving patient triaging. Research is also exploring whether alternatives, such as colon capsule endoscopy, could offer improved outcomes for patients and reduced emissions. Work to develop more sustainable endoscopies and lower emissions is being supported by the British Society of Gastroenterology and the European Society of Gastrointestinal Endoscopy.</p>