

The 'Greener Operations' James Lind Alliance Priority Setting Partnership: 18 months on

In June 2022, the Association of Anaesthetists hosted the final workshop of the 'Greener Operations' James Lind Alliance (JLA) Priority Setting Partnership (PSP) at its Portland Place headquarters. This event was the culmination of a two-year project to define the 'top ten' research priorities in sustainable peri-operative healthcare. This work followed a structured approach and involved patients, carers, members of the public, and clinicians from numerous peri-operative professions and specialties. It was supported by 27 partner organisations representing various professional and patient groups. In this article, we look back at the project, and consider its impacts in the 18 months since its completion.

What are James Lind Alliance Priority Setting Partnerships?

The JLA is a not-for-profit organisation funded by the National Institute for Health and Care Research (NIHR) to define priorities for healthcare research. The JLA method seeks to represent the views of the 'end users' of research - patients, carers, and clinicians, rather than industry, research funders or academics, who have traditionally determined the focus of research.

The JLA process begins with a broad survey, inviting the submission of potential research questions. It is important that this reaches as many 'end users' as possible, so most PSPs involve partner organisations - such as the Association of Anaesthetists - to help reach out to their memberships.

The second stage of the process is to combine similar questions and exclude questions that are out of scope. The combined 'indicative' questions are checked against existing research, and any which have already been answered are excluded.

The third stage is another survey, in which respondents are presented with the indicative questions, and invited to specify which they feel are most important. This is used to determine a shortlist of questions for the final workshop.

The final workshop is attended by a balanced group of patients, members of the public and clinicians, who work together via a method called the 'nominal group technique,' to put the questions in order and agree the 'top ten.' The top ten questions identified by Greener Operations are summarised in table 1 [1].

Table 1: The 'Greener Operations' top ten research priorities in sustainable peri-operative healthcare [1].

Rank	Question
1	How can more sustainable reusable equipment safely be used during and around the time of an operation?
2	How can healthcare organisations more sustainably procure (obtain) medicines, equipment and items used during and around the time of an operation?
3	How can healthcare professionals who deliver care during and around the time of an operation be encouraged to adopt sustainable actions in practice?
4	Can more efficient use of operating theatres and associated practices reduce the environmental impact of operations?
5	How can the amount of waste generated during and around the time of an operation be minimised?
6	How do we measure and compare the short-term and long-term environmental impacts of surgical and non-surgical treatments for the same condition?
7	What is the environmental impact of different anaesthetic techniques (e.g., different types of general, regional and local anaesthesia) used for the same operation?
8	How should the environmental impact of an operation be weighed against its clinical outcomes and financial costs?
9	How can environmental sustainability be incorporated into the organisational management of operating theatres?
10	What are the most sustainable forms of effective infection prevention and control used around the time of an operation (e.g., PPE, drapes, clean air ventilation)?



Greener Operations

Box 1: An example of how Greener Operations was used in developing a research project.

The Greener Operations PSP by the James Lind Alliance has been instrumental in developing further research. For our newly funded NIHR programme grant [5], we developed research packages by wide stakeholder involvement, including the results of the PSP.

The top 10 research priorities in sustainable perioperative healthcare were used as part of our initial scoping review and Delphi process that resulted in the development of three workstreams: (1) testing reusable versus disposables drapes and gowns, (2) introducing behavioural and organisational change to anaesthetic practices across multiple institutions, and (3) improving waste management from operating theatres. Seven of the top ten priorities are addressed within our workstreams, and the PSP was cited as part of the funding application.

In common with James Lind Alliance PSPs, our research programme has stakeholder engagement as its core. Our community engagement goals include finding out how to effectively communicate environmentally sustainable healthcare principles to the public, and how to connect partners around hospitals for better environmental practices (e.g., energy use).

How has 'Greener Operations' been publicised?

The Greener Operations section of the James Lind Alliance website (available via <https://www.jla.nihr.ac.uk/priority-setting-partnerships/>) contains information about the PSP, including details about its methods, participants, and the information submitted in the surveys. To disseminate the work to various stakeholder groups, we produced an academic paper [1], a short video [2], and a plain English summary [3], as well as communicating the outcomes to our partner organisations for them to share with their members. We invited representatives of the NIHR and the Greener NHS to attend the final workshop, and members of the Greener Operations steering group have maintained dialogue with these organisations since that time.

In addition, representatives of the Greener Operations steering group have been invited to present the work at numerous conferences and events, and we contributed to the recent *Green Surgery* report of Brighton and Sussex Medical School, the Centre for Sustainable Healthcare, and the UK Health Alliance on Climate Change [4]. We were honoured to receive the Barema and Association of Anaesthetists Environment and Sustainability Award for Anaesthesia in 2022.

Have any research projects been influenced by 'Greener Operations'?

There is no centralised system for tracking the research that makes use of the findings of James Lind Alliance PSPs. Nevertheless, we are aware of several projects that have made use of Greener Operations to help develop research questions, including the NIHR programme grant supported 'Carbon Reduced Operating Theatres: Implementing and Evaluating GreenSurg Programme' [5]. In box 1, the chief investigator reflects on how Greener Operations impacted the design and development of the work.

What does the future hold for research in sustainable peri-operative healthcare?

Anaesthesia and surgery are resource intensive specialties with high environmental impacts, which makes them priority areas for research to make healthcare more sustainable. This is recognised by national and international organisations, and an increasing amount of funding is being made available for research that investigates the intersections between environmental sustainability and healthcare. For example, in September 2023, the NIHR partnered with UK Research and Innovation to launch a £30 million funding programme to support the UK in its transition to net zero. Several resources are available to support the development of research in this area, as summarised in Table 2.

Table 2: Support for researchers seeking to develop projects in sustainable peri-operative healthcare. Adapted from Shelton and Lentzos [6], with permission. NIHR: National Institute for Health and Care Research; NHS: National Health Service; MRC: Medical Research Council; TMRP: Trials Methodology Research Partnership.

Identifying gaps and priorities	Supporting research design	Collaborating with expertise
James Lind Alliance: Greener Operations Outlines the top ten priority research questions in sustainable peri-operative practice.	NIHR Research Support Service Provides advice on funding applications, study development and delivery and embedding sustainability in research.	MRC-NIHR TMRP Greener Trials Working Group Aims to facilitate networking and collaborative research in environmentally sustainable clinical trials.
Green Surgery Report Detailed framework to reducing the environmental impact of surgical care and highlights research gaps in peri-operative practice.	Research Design & Conduct Service Wales Supports the development of high-quality funding proposals for research to be submitted to a range of research funders	European Centre for Environment & Human Health A transdisciplinary research and education centre informing the future health of the planet and people
Health Environment Research Agenda for Europe Sets out the priorities in research on the environment, climate & health in Europe.	NHS Knowledge & Library Services Provides expert knowledge and training to support researchers. A sustainability network collates resources in sustainable healthcare.	MRC Centre for Environment & Health Brings together leading groups from UK institutions conducting research on diverse fields of environment and health.

Research is a key element of our global efforts to tackle the ongoing environmental crisis, and it is vital that it serves the needs practitioners and the public. Peri-operative healthcare has substantial environmental impacts, and we hope that Greener Operations will help colleagues to find safe and effective ways to mitigate these. We look forward to seeing the results of research projects that have made use of the priorities in their development and design, and we hope to see more sustainability-related PSPs focussed on other areas of practice in the future.

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