

Editorial

Sustainability in Surgery; a Series

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Our National Health Service is something to be proud of. We should cultivate it to ensure it survives the decades and changing needs of our country. Climate change is a very real and devastating threat to our natural world, and we have already reached the point where damage done by the climate crisis is having irreversible effects. Now that we are all aware of the environmental cost of our individual and collective action, we do not have the luxury to choose not to be interested in sustainability. We need to implement change now more than ever in all of our respective areas of work to safeguard the future of our planet.

Globally, healthcare accounts for 4.4% of the net CO₂ emissions², and with roughly 30% of the global disease burden being surgical³ it is crucial that we encourage sustainable surgical practices. Our NHS creates nearly 5% of the country's carbon footprint, and that was before the COVID-19 pandemic and the associated single-use PPE waste. Each individual operation contributes to carbon emissions, with one study suggesting that over one year a single operating theatre had a carbon footprint equivalent to 2,000 UK homes⁴.

Tackling the entirety of the environmental impact associated with surgery can appear an insurmountable task, with many social and logistical barriers to change getting in the way. Empowering surgeons with the knowledge of how surgical practices can impact upon the planet may be the first step to questioning and changing practice. With the effect that one operating theatre can have on the environment, surgeons are in a position to make a real difference and to push for more climate-resilient healthcare.

In the operating theatre we can challenge excess water use, and discuss our procurement of surgical equipment, coming up with low-carbon alternatives to the huge volumes of single use, disposable equipment used throughout surgery. Not only this but we should take an interest in the detrimental impact of exhaled anaesthetic gases used in theatres. Exhaled gases contribute 5% of the carbon footprint of the NHS, but there are other options. We could invest in technology to capture and purify halogenated agents before they can be released or consider low-flow anaesthesia or total IV anaesthesia to help to reduce or avoid excess greenhouse gas emissions. It is important to appraise anaesthetic options from an environmental perspective so this too can be accounted for when planning options for different surgical procedures with our anaesthetist colleagues.

Thinking about the environmental impact of different surgical procedures and techniques and in some cases assessing whether to operate at all is another perspective on the sustainability of surgery. For example, how we can optimise our theatre usage and cut down on waste – avoiding unnecessary procedures, cutting down on idle theatre time, and minimising single-use waste. Would preventing and optimising surgical conditions be more sustainable or does this come with an environmental cost too?

Finally, in healthcare and education, our opinion can reach a vast number of people. We can make such a huge ripple effect via the people we interact with, the way we act and how we choose to include sustainability in our day-to-day practice and teaching. If we teach principles of sustainability throughout training, this will create a



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new generation of doctors who insist on and contribute to positive change within their organisation and clinical practice going forward.

This series will discuss the issues above and some of the positive work that has already gone into ensuring a greener future for surgery.

Conflicts of interest

None.

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