

In Anaesthesia and Critical Care, Environmental Protection Is Crucial

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The current state of environmental sustainability research in anaesthesia and critical care, including why it's important, what's known, and what's

next. The chemistry of anaesthetic gases in the atmosphere, recent work clarifying their relative global warming potentials, and advances in waste anaesthetic gas treatment are all discussed

Keywords: *Anaesthesia; Anaesthetic gases; Climate change; Environment; Intensive care; Life cycle assessment; Sustainability*

INTRODUCTION

Climate change continues to have negative health consequences. Despite the fact that health systems adapt to the disease burden, healthcare pollutes the air, soil, and waterways. We looked at the current state of environmental sustainability research in anaesthesia and critical care, including why it's important, what's known, and what's next. The chemistry of anaesthetic gases in the atmosphere, recent work clarifying their relative global warming potentials, and advances in waste anaesthetic gas treatment are all discussed. The definitive tool for comparing and contrasting ecological footprints of goods, procedures, and structures is implemented as life cycle assessment (LCA; i.e. 'cradle to grave' analysis). The number of LCAs inside medicine has gone from uncommon to a proven body of knowledge in the past decade can inform doctors of the relative ecological merits. The carbon footprint of reusable vs. single-use anaesthetic instruments (e.g. drug trays, laryngoscope blades, and handles) and the carbon footprint of treating an ICU patient with septic shock are two examples of LCAs with realistic outcomes. Beyond standard clinical treatment, the importance of energy supply (renewable vs. fossil fuels) and energy quality in healthcare's environmental footprint is highlighted. This study concludes with a discussion of the vital positions of research translation, education, and advocacy in advancing the perioperative and critical care environmental sustainability agenda.

The climate crisis is the most serious and long-lasting threat to global health that has ever been identified. Since the Industrial Revolution, the temperature of the earth has been rapidly rising due to anthropogenic greenhouse gas (GHG) emissions. Climate change is having an extremely negative impact on people's health. The Special Report of the Intergovernmental Panel on Climate Change (IPCC) concluded that we have less than ten years to drastically reduce our GHG emissions in order to keep global warming to 1.5 degrees Celsius and avoid climate-related public health disasters. Global efforts to slow the extreme acute respiratory syndrome coronavirus 2 (SARS-CoV2) transmissions to allow for a more manageable response are similar to this call for flattening the GHG curve. Physicians are driven by the Hippocratic Oath to "first do no harm," but healthcare pollutes and affects public health. Global healthcare would be the fifth largest carbon emitter on the planet if it were a nation. Sustainability is a guiding principle that "meets the needs of the present generation without jeopardising future generations' ability to meet their own needs," and it can be used to reconcile this disparity. Patient care must be balanced against fiscal, environmental, and social costs in order to be sustainable. The vast majority of UK healthcare workers believe that

practising more sustainability and protecting the environment is significant. Healthcare is polluting in and of itself. Anaesthesia and critical care contribute significantly to this form of healthcare waste. While one should protect the patient and the world, we recognise that there can be agreement and disagreement between individual patient health and public health commitments, especially in the field of infection prevention.

CONCLUSION

A review of evidence relating to anesthesia and critical care has made significant strides over the last decade in strengthening the scientific base of environmentally sound healthcare. Patients, our healthcare system, and the environment are all protected by such factors, which do not supplant patient-centered or fiscally responsible treatment.

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