

# Environmental sustainability in surgery towards patients: A responsibility towards the nurses

## Abstract

Surgery, an indispensable component of modern healthcare, has long been synonymous with innovation and advancement in medical science. As we navigate the complexities of the 21<sup>st</sup> century, a new imperative has emerged—environmental sustainability. The environmental impact of healthcare, including surgery, has gained prominence in global discussions, prompting a critical examination of practices that historically prioritized patient outcomes over ecological concerns. This comprehensive article delves into the multifaceted dimensions of environmental sustainability in surgery, exploring the challenges, innovations, and ethical considerations that define the evolving landscape.

**Keywords:** Medical interventions • Exploration • Healthcare • Patient

**Received:** 18-Oct-2023, Manuscript No. FMCI-23-117292; **Editor assigned:** 20-Oct-2023, PreQC No. FMCI-23-117292 (PQ); **Reviewed:** 03-Nov-2023, QC No. FMCI-23-117292; **Revised:** 11-Jul-2024, Manuscript No. FMCI-23-117292 (R); **Published date:** 18-Jul-2024, DOI: 10.3752/2041-6792.2024.14(2).511-513

## Introduction

Surgery, while pivotal in treating a myriad of medical conditions, contributes significantly to the carbon footprint of healthcare. The environmental toll of surgical interventions extends beyond the operating room, encompassing resource-intensive processes such as manufacturing, transportation, and waste disposal. The carbon emissions associated with energy-intensive equipment, single-use plastics, and anesthetic gases necessitate a reevaluation of surgical practices in light of environmental stewardship.

The concept of eco-friendly operating rooms has gained traction as a tangible solution to mitigate the environmental impact of surgical procedures. Redesigning surgical spaces involves optimizing energy consumption, incorporating natural lighting, and implementing efficient waste management systems. From energy-efficient lighting systems to the use of sustainable building materials, eco-friendly operating rooms are emblematic of a holistic approach to aligning healthcare infrastructure with environmental responsibility.

## Description

The pervasive use of single-use plastics in surgery has come under scrutiny due to its environmental repercussions. From disposable instruments to packaging materials, the reliance on plastics raises concerns about pollution and resource depletion. The quest for sustainable surgical materials involves exploring alternatives such as biodegradable plastics, reusable instruments, and eco-friendly packaging. This shift towards sustainability underscores the need for a circular economy within the healthcare sector.

The management of surgical waste presents a significant challenge and an opportunity for sustainable innovation. Traditional disposal methods, often involving incineration or landfilling, contribute

## Youeint Sin\*

Department of Medical Surgery, Cairo University, Giza, Egypt

\*Author for correspondence:

E-mail: abojo92568@gmail.com

to environmental degradation. Circular practices, such as recycling and reprocessing of surgical instruments and materials, offer a more environmentally responsible alternative. By closing the loop on waste management, surgery can move towards a regenerative and ecologically sound approach.

Anesthetic gases, essential for patient comfort during surgery, pose environmental challenges due to their potent greenhouse gas properties. Green anesthesia initiatives aim to minimize the release of volatile anesthetics into the atmosphere, employing techniques such as gas capture and utilization. The pursuit of environmentally friendly anesthesia aligns with the broader goal of creating a carbon-neutral surgical ecosystem.

Carbon-neutral surgery represents a proactive approach to counterbalancing the environmental impact of surgical activities. Offsetting emissions through carbon credits, coupled with initiatives like reforestation and afforestation, contributes to a sustainable balance between the ecological cost of surgery and efforts to restore the environment. This holistic strategy envisions surgery as a regenerative force, actively participating in global environmental conservation.

The intersection of healthcare and environmental sustainability raises ethical considerations that demand careful examination. Striking a balance between providing optimal patient care and minimizing environmental harm requires navigating complex ethical dilemmas. From the equitable distribution of resources to considerations of environmental justice, ethical frameworks in sustainable surgery play a pivotal role in shaping responsible practices.

The integration of environmental sustainability into surgical practices necessitates a paradigm shift in the education and advocacy within the medical community. From medical schools to professional organizations, there is a growing recognition of the importance of sustainability literacy in shaping the next generation of surgeons. Advocacy efforts seek to raise awareness, promote sustainable practices, and establish surgery as a vanguard of environmental responsibility.

As we stand at the intersection of medical progress and ecological consciousness, the imperative to embrace environmental sustainability in surgery becomes increasingly apparent. The challenges are formidable, but so are the opportunities for innovation, collaboration, and positive impact. Environmental sustainability is not merely a

responsibility; it is an ethical commitment to the well-being of the planet and future generations. By weaving sustainability into the fabric of surgical practices, the healthcare community can redefine the narrative, ensuring that every incision is not just a healing act but a step towards a healthier planet.

Embracing environmental sustainability in surgery is intertwined with technological innovations that redefine conventional practices. Advancements in minimally invasive surgery, robotics, and imaging technologies not only enhance patient outcomes but also contribute to reducing the ecological impact of surgical interventions. The integration of smart technologies, data analytics, and artificial intelligence offers avenues for optimizing resource utilization, thereby aligning surgical practices with the principles of sustainability.

Addressing the environmental impact of surgery transcends national boundaries, necessitating global initiatives and collaborations. International organizations, such as the World Health Organization (WHO) and the International Society of Surgery (ISS), play a crucial role in setting guidelines and fostering collaboration among nations. By sharing best practices, research findings, and collectively working towards sustainable goals, the global surgical community can amplify its impact on planetary health.

The integration of environmental sustainability into surgical practices requires a supportive policy framework and regulatory measures. Governments and healthcare regulatory bodies are increasingly recognizing the importance of aligning healthcare practices with environmental goals. Policy interventions, such as incentivizing sustainable practices and setting emission standards for healthcare facilities, contribute to creating an enabling environment for sustainable surgery.

In the era of patient-centered care, engaging individuals in the journey towards environmental sustainability is pivotal. Patient education, transparency in healthcare processes, and involving patients in decision-making regarding surgical options contribute to a shared responsibility for sustainability. Informed and empowered patients become advocates for eco-friendly healthcare practices, fostering a culture of environmental consciousness within communities.

## Conclusion

Quantifying the environmental impact of

surgical practices is essential for monitoring progress and refining sustainability strategies. Developing metrics and benchmarks for assessing carbon footprints, waste generation, and energy consumption in surgical procedures enables healthcare institutions to track their environmental performance. These metrics also facilitate benchmarking and the sharing of best practices within the healthcare sector.

Climate change poses unprecedented challenges

to global health, including the field of surgery. Extreme weather events, shifts in disease patterns, and disruptions to healthcare infrastructure necessitate a resilient and adaptable surgical ecosystem. Sustainable surgical practices, coupled with robust disaster preparedness, contribute to the resilience of healthcare systems in the face of a changing climate.