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SURGICAL PROCEDURES FOR A GREENER FUTURE: AN APPROACH TO ASSESS THE ENVIRONMENTAL IMPACT

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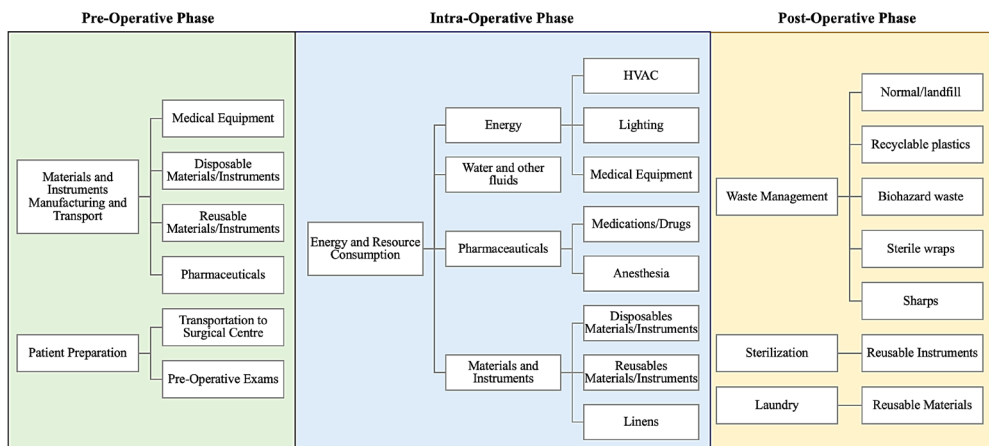
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Abstract – The healthcare sector is responsible for around 4.4 % of worldwide greenhouse gas emissions, according to estimates. These emissions comprise both direct and indirect sources, with direct emissions encompassing aspects like patient transport, fuel consumption, and anaesthetic gases. Indirect emissions are associated with energy usage, including electricity purchases, as well as the products employed in healthcare, such as drugs and medical supplies. Operating rooms (OR) are responsible for the greatest rate of resource consumption and overall hospital waste, varying from 20 % to 33 %. Hence, it is essential to comprehend the environmental impact of surgical procedures to obtain insight into the total emissions associated with the healthcare sector. Moreover, the lack of uniformity in data collection and the discrepancy of the data used by researchers makes it challenging, if not ineffective, to conduct a rigorous scientific comparison among the currently available studies on the environmental impacts of surgical procedures. This study aims to provide a practical and standardised framework that can be utilised to evaluate, simply and consistently, the environmental impacts of surgical procedures. The adoption of a uniform methodology guarantees the inclusion of important variables and factors, preventing any oversights in the evaluation of the entire process. This allows for emphasis on the most sustainable techniques and permits the identification of controllable factors that can be modified within a short timeframe and are under the direct control of healthcare professionals. These factors include the selection of disposable or reusable instruments, the use of different anaesthetic gases, and the installation of different equipment.

Keywords – Framework; Greenhouse gas (GHG); Life Cycle Assessment; Operating room (OR); surgery; waste management



Data collection scheme to assess the environmental impact of the surgical procedure.