

## A comprehensive framework to evaluate, simply and consistently, the environmental impacts of operating rooms.

- Operating rooms (ORs) are responsible for the greatest rate of resource consumption and overall hospital waste, varying from 20% to 33%.
- The wide range of goals and strategies employed to determine the environmental impact of ORs limits a fair comparison between different studies.

Scenario		Pre-operative				Intra-operative	Post-operative	
		Natural Resource Extraction	Processing	Manufacturing & Production	Transportation to the Facility	Resource Use & Consumption	Reconditioning Process	Waste Management
1		-	-	-	-	Yes	-	-
2		-	-	-	-	Yes	Yes	Yes
3		Yes	Yes	Yes	Yes	Yes	Yes	Yes

- The whole process of surgical operation is divided into three phases: pre-operative, intra-operative and post-operative.
- Temporal representation of the material and resource flows is essential to identify the boundaries of different scenarios.
- Each scenario defines and proposes a different method of environmental impact analysis based on the depth of the analysis required.

### Introduction

The healthcare sector accounted for approximately 4,4% of the total global greenhouse gas emissions. The healthcare facility's departments with the highest material and energy use are the operating rooms.

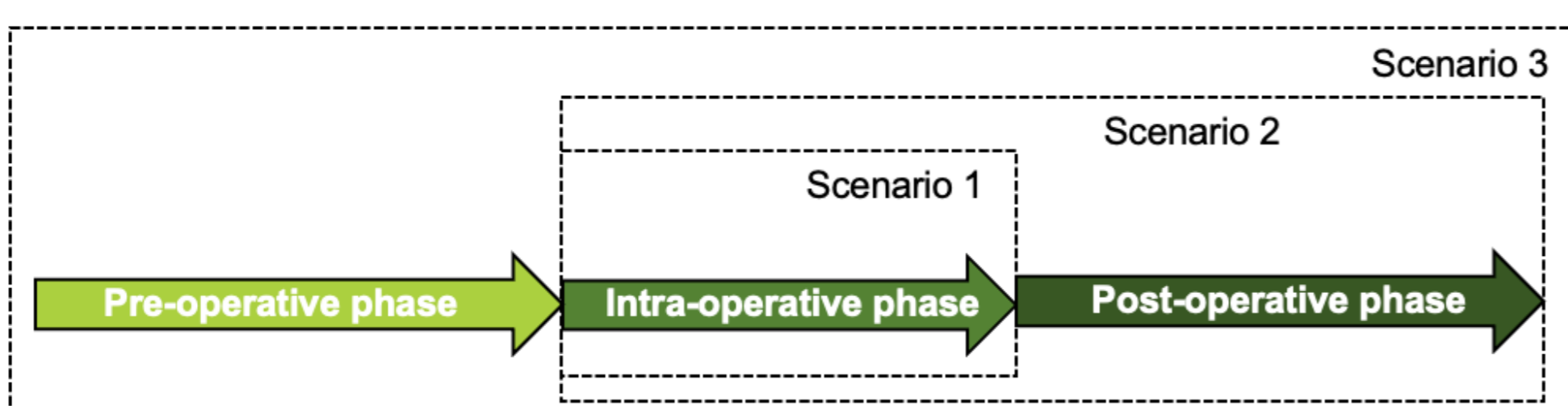
Numerous studies assess the environmental consequences of surgical procedures, however there is a lack of uniformity across these investigations. A structured and methodological framework can serve as a roadmap for researchers interested in conducting studies in this field, outlining the most efficient approach while also evaluating the availability of data and the purpose of the analysis.

To pave the way for a more sustainable surgical practice is important to incorporate the principles of environmental sustainability into the field of surgery.

### Phases and Scenarios Identification

The three phases of the surgical procedure have distinct effects on the consumption of natural resources and the release of harmful substances into the environment.

Depending on the phase and processes under consideration, the three identified scenarios have distinct boundaries.



### Results

#### Main flowchart of resource consumption

