SUSTAINABLE HEALTHCARE: AN EXAMPLE OF PHARMACEUTICAL INTERVENTION

Keywords
Pharmacist
Carbon footprint
Ecoresponsability
Surgery
Life cycle assessment

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Aim and Objectives

Assessment of the environmental footprint of 3 different care pathways for patients undergoing carpal tunnel release surgery using life cycle assessment.

Background and Importance

- Context of climate change
- Concerns about healthcare eco-responsibility

Current situation of our healthcare facility: approximately 400 carpal tunnel surgeries/year

Conducted using **3 distinct ambulatory methods**

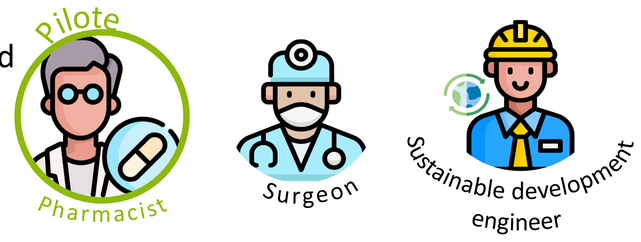
Care pathway 1:
Ultrasound-guided surgery in the operating room (OR)

Care pathway 2:
Office ultrasound-guided surgery in the consultation room
(Office surgery)

Care pathway 3:
Endoscopy-assisted surgery in the OR

Materials and Methods

1 Constitution of a mixed multidisciplinary team



2 Conduction of 3 life cycle assessments of each care pathway assuming equal patient-to-healtfacility distance and surgical efficiency [1]

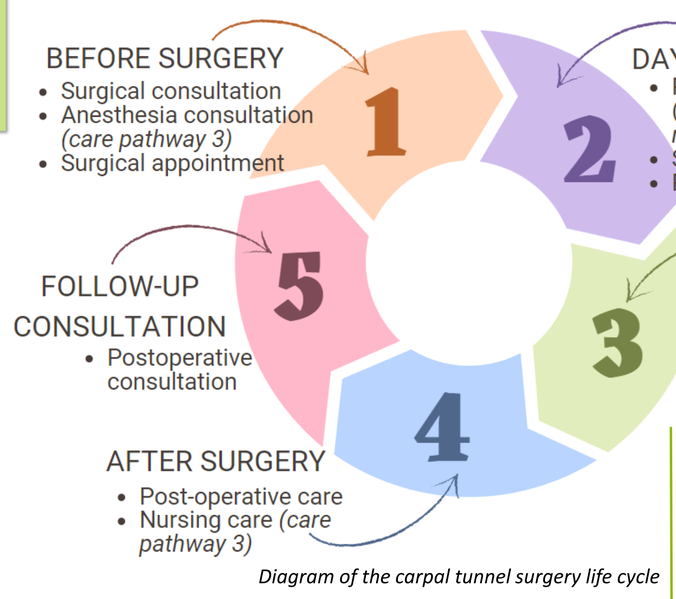


Diagram of the carpal tunnel surgery life cycle

Functional unit : "Performing an outpatient CT surgery, from planning to post-op care"

Ten impact categories considered

Simapro® Software (version 9.4.0.1)

Global warming (kgCO2 e)
Terrestrial, freshwater, and marine ecotoxicity (kg 1,4-DCB)
Human Carcinogenic and non-carcinogenic toxicity (kg 1,4-DCB)
Land Use (m².year)
Mineral ressource and Fossil resource scarcity (kg eq oil)
Water consumption (m3)

MAIN RESULTS

Results of implementing **teleconsultation**

potential savings of

For the **follow-up consultation** Of **care pathway 1 and 2**
6 kg CO2e

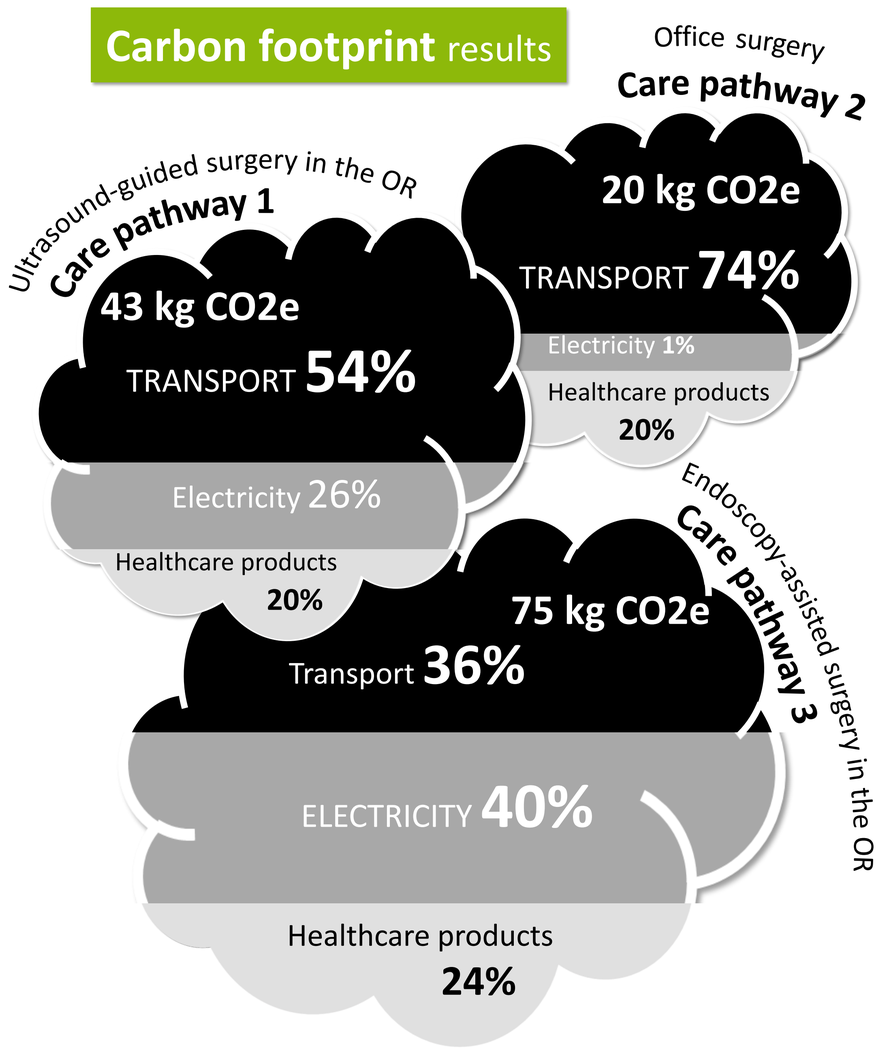
For the **follow-up consultation** and the **anesthesia consultation** of **Care pathway 3**
12 kg CO2e

Focus on the impact on **drugs** and **sterile medical devices**

Skin preparation
DRUGS
70-100% of impacts
0-30% of impacts
STERILE MEDICAL DEVICES

Anesthesia
DRUGS
10% of impacts
STERILE MEDICAL DEVICES
90% of impacts

Carbon footprint results



Focus on the carbon footprint of the most impacting **process steps**

Stages with the **highest** healthcare products impacts

1. **Draping** and **sterile dressing**

	Carbon footprint	Bottled water equivalent
Care pathway 1	0.28 kg CO2eq	1 L
Care pathway 2	2.7 kg CO2eq	10 L
Care pathway 3	6.7 kg CO2eq	25 L

2. **Skin preparation** of the operating area

	Carbon footprint	Bottled water equivalent
Care pathway 1	0.9 kg CO2eq	3 L
Care pathway 2	0.5 kg CO2eq	2 L
Care pathway 3	0.9 kg CO2eq	3 L

3. Anesthesia

	Carbon footprint	Bottled water equivalent
Care pathway 1	0.3 kg CO2eq	1 L
Care pathway 2		
Care pathway 3	6.7 kg CO2eq	4 L

Conclusion and relevance

Office surgery, with its minimal impact and equivalent clinical effectiveness, **should be promoted**. Further reducing its environmental footprint **requires essential steps**, such as promoting teleconsultation. Pharmacists can also make a significant impact **by optimizing healthcare products utilization** (e.g., right-sized drapes, no reinforced gowns for non-invasive procedures, controlled betadine use, efficient neurostimulation needle cable recycling).

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[1] Moscato L, Helmi A, Kouyoumdjian P, Lalonde D, Mares O. The impact of WALANT anesthesia and office-based settings on patient satisfaction after carpal tunnel release: A patient reported outcome study. Orthopaedics & Traumatology: Surgery & Research. May 2023 ; 109 : 339-342