



How to improve orthopaedic surgery's carbon footprint? Unexpected results of the comparison of single-use versus reusable medical devices in the treatment of distal radius fracture



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Introduction

- 640,000 DRF/Year in the USA
- Public Health & environmental Issue
- Volar plate : a common surgical choice
- Carbon footprint in Orthopaedics : unknown

Aim: measure and compare carbon footprint of single-use Vs reusable sets

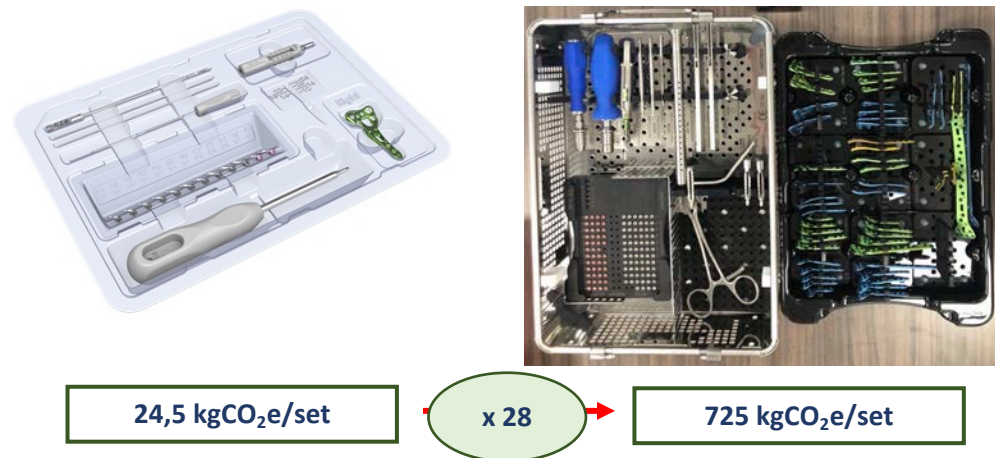
Methods

- Life cycle assessment according GHG protocol
- Production in France & Use in Paris
- Single use & Reusable set

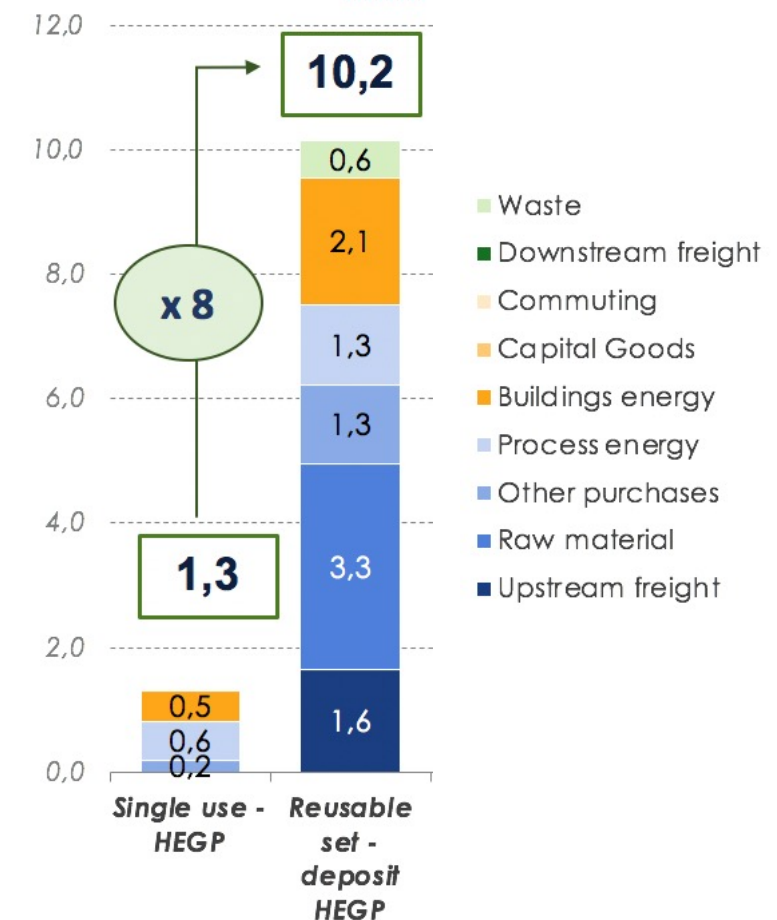
Results

- **Sterilization : 1st position of GHG's hospital emissions** (6.4 kgCO₂e/set)
- **Single use : - 35% of GHG emissions**
27 Vs 41 kgCO₂e for single-use Vs. reusable set
- **Advantages abroad:** an increased gap in GHG emissions due to energy required during freight & use (coil)
Germany: 27 Vs 65 kgCO₂e for single-use Vs. reusable set (n=200)
Australia: 34 vs 117 kgCO₂e for single-use Vs. reusable set (n=200)

Manufacturing



Use for 1 set



Conclusions

- Favor single-use
- Consider distance & freight between production and use of medical device
- Associate politics of green anesthesia & selective sorting

References

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