

#822: The Environmental Impact of Reusable and Single-Use Catheters for Intermittent Catheterisation: A Life Cycle Analysis

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Background and Aim

Reusable intermittent catheters have been shown to be safe, cost-effective and acceptable to people who wish to use them. Their comparative environmental impact, however, was unknown.

This study determined the environmental impact of:

- Reusable-only and mixed reusable/single-use catheterisations compared with single-use only.
- Different single-use catheter designs.

Study Design and Methods

- Cradle-to-grave life-cycle analysis to ISO 14040:2006 and ISO 14044:2006.
- Seventeen impact categories assessed; this poster focuses on climate change.
- Four single-use designs: hard case, integrated bag, hydrophilic (with sachet and hydrophilic without sachet).
- Impacts modelled over 28 days at four catheterisations per day.

Catheter-use Scenarios Modelled over 28 days

(1) Reusable only:

4 reusable catheterisations per day

(2) Mixed- use:

2.8 reusable and 1.2 average of hydrophilic (with and without sachet) catheterisations per day

(3) Mixed- use:

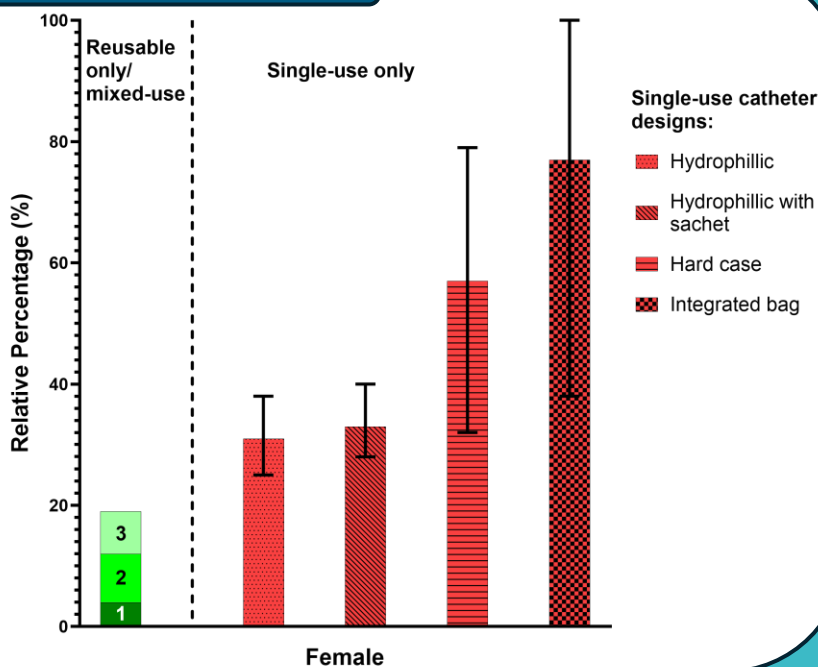
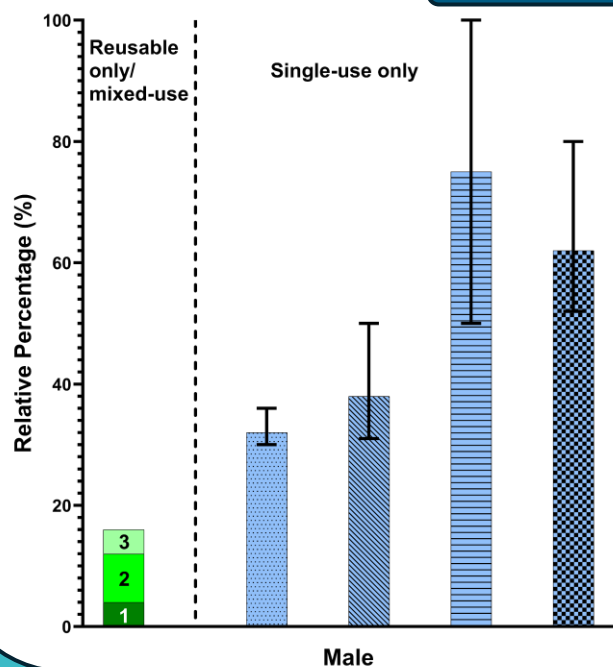
2.8 reusable and 1.2 average of hydrophilic (with and without sachet), hard case and integrated bag catheterisations per day

Single- use only:

Male- 4 single-use catheterisations per day

Female- 4 single-use catheterisations per day

Results



Key Findings

1. **Lower Impact-** Reusable catheters have less impact
2. **Consistent Pattern-** Findings consistent across sexes
3. **Design Matters-** Hydrophilic have the lower impact
4. **Heavier Products-** Heavier designs have higher impact
5. **Main Driver-** Product weight is the principal determinant

Interpretation and Conclusions

Environmental impact can be substantially reduced by using a reusable catheter for all catheterisations or as part of mixed use.

- Among single-use devices, hydrophilic catheters typically had a lower climate-change footprint than hard case or integrated bags.
- Reducing materials, designing lighter, or replacing disposable cases and bags could further reduce impact.

Key message: Design light. Reuse more.