

Anesthesia Breathing Circuit Reuse is Common Globally, But Rare in the United States: An International Cross-Sectional Survey

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BACKGROUND

- Healthcare systems in high income countries (HICs) contribute disproportionately to climate change.
- Reuse of anesthesia breathing circuits is safe, and can save hospitals money, water and energy.
- Anecdotally, few U.S. hospitals reuse circuits, but some HIC nations (Germany and the United Kingdom) use circuits for up to 7 days.
- Little data is available about use patterns in the U.S., as well as in middle- and low-income nations.

METHODS

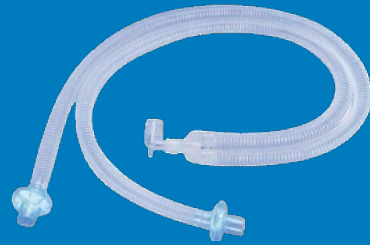
- Hypothesis 1: No correlation between country income level and prevalence of reuse; Hypothesis 2: No difference in prevalence of reuse in the U.S. compared to other countries.
- Snowball convenience sampling via English-language survey emailed to colleagues.
- Chi-square testing and post-pairwise testing.

RESULTS

- 416 participants from 42 countries.
- 69% of all participants endorsed reuse, and reuse was common in all groups analyzed except the U.S.
- Most common barriers cited were infection transmission (74%), institutional policy (24%) and “no concerns” (22%).
- U.S. participants: 26% “willing”, 54% “unsure” and 21% “unwilling to consider reusing circuits.”

DISCUSSION

Our global mapping survey demonstrates circuit reuse is common outside of the U.S. Given known safety data, cost-savings and the urgent need for waste mitigation, this practice should be adopted more widely in the U.S.



Anesthesia breathing circuit reuse is rare in the United States, but common globally, including in other high-income nations.

Table 1. Study Demographics, Prevalence of Reuse and Cited Barriers, Stratified by Country Income Level

	Total Participants, n (%)	Reuse Prevalence	P-values	Barriers to Reuse
All	416 (100%)	55%	<0.00001	78%
High Income Countries	186 (45%)	69%	0.0001	57%
Upper-Middle Income Countries	29 (7%)	76%	1.00	86%
Lower-Middle Income Countries	163 (39%)	100%	0.04	95%
Low Income Countries	38 (9%)	69%	<0.00001	97%
United States	45 (11%)	2%	<0.00001	89%
Non-U.S. HICs	140 (34%)	73%		47%

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