

Greenwashing in Health Care Marketing

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Caveat Emptor: Buyers Beware!

Has your department been told a disposable laryngoscope “can be included in any existing hospital recycling program?”¹ Or that “Even if not recycled, the steel blade will rusts (*sic*) away and the overall weight of the plastic in the handle is small, leaving a smaller environmental footprint than the process associated with cleaning reusables?”¹ Such claims may constitute “greenwashing”: the process of conveying a false or misleading impression intended to deceive consumers into believing that a product or service is environmentally friendly or preferable to the alternatives.² Greenwashing is pervasive in many industries and is becoming prevalent in health care as the sustainability movement has gained traction. Concern for the environment is now trendy, creating a lucrative marketing strategy.³

Reduced carbon footprint, recyclability, superior infection prevention and lower costs are sustainability related claims frequently touted in the advertising of health care equipment and medications. Such claims could be true. However, the burden of proof should be on the claimant. Absent compelling evidence, claims that a product supports sustainability should be met with healthy skepticism. Consumers should exercise appropriate diligence in evaluating the evidence before purchasing an item based on claims of reduced environmental impact.

While standards do exist for environmental reporting by manufacturers of health care products, these standards contain gaps, making interpretation difficult and inconsistent. As customers demand greater transparency, the reporting should become more reliable and actionable. However, until

such data are easily accessible, environmental or sustainability claims must often be evaluated by consumers themselves. Several evaluation options, including literature review, product trait checklists and life cycle analysis (LCA) should be utilized when available.

All Investigations Should Begin With a Literature Review

Peer-reviewed studies that provide insight into the environmental impacts of various products and practices should be reviewed, including outside the health care sector. This information can help confirm or debunk many of these greenwashing claims. These data should be actively sought when evaluating a product. Unfortunately, there is a dearth of life-cycle inventory databases that contain “cradle-to-grave” emissions information on health care-related basic materials and whole medical products that support research in the clinical setting. Nonetheless, studies are beginning to appear in the literature, including on devices and drugs used in anesthesia care.

Desflurane has gained widespread negative attention over the last decade, due to published research highlighting its relatively high ability to trap infrared radiation compared to alternative inhaled anesthetics and its chemical stability resulting in an atmospheric lifetime of 14 years, i.e., its global warming potential (GWP).⁴ In response, the manufacturer of desflurane generated a brochure titled, “Inhaled Anesthetic Agents and the Environment,” including a cover image of a globe nestled on a bed of moss and ferns (Figure 1).⁵



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The brochure outlines strategies to minimize environmental impact:

“When possible, select inhaled anesthetics that are halogenated only with fluorine as chlorine and bromine substituted anesthetics are long lived, damage the ozone layer, and may increase the UV radiation reaching the Earth.

- Desflurane and sevoflurane contain no chlorine or bromine.
- Anesthetic use of nitrous oxide can be a significant contributor to overall greenhouse gas emissions.”⁵

This could be misleading. The statement refers to ozone depletion potential (ODP, a compound’s ability to damage the ozone layer, which increases the penetration of ultraviolet radiation to earth’s surface), and not GWP. By focusing on ODP, the statement implies that sevoflurane and desflurane have similar environmental consequences. However, according to scientists at the California Institute of Technology Jet Propulsion Laboratory, the 100-year GWP₁₀₀ for desflurane is nearly 20 times greater than for sevoflurane⁴ (Table 1).

Product Checklists Are Imperfect, but Can Be Helpful

Organizations interested in environmentally preferred purchasing often create checklists of traits to help identify products with less environmental impact. Similarly, some product vendors are also creating environmentally preferred purchasing criteria and dashboards to help their customers select products that fulfill these criteria. These checklists often identify traits of interest such as: presence or

absence of harmful chemicals (mercury, polyvinyl chloride [PVC], phthalates, flame retardants, etc.), whether the product and/or packaging is made from recycled materials, a product’s Energy Star efficiency rating, and whether the product is suitable for reprocessing. Of note, checklists rarely provide specific data. Although vendor checklists are often helpful in guiding purchasing decisions, environmental claims made by vendors can be misleading and additional vigilance should be exercised to ensure their accuracy.

For example, a product may be listed as recyclable, or have a recycling logo on its packaging, without any other explanation (Figure 2). This can create the impression of a sustainable product choice, as can the green color of the product and print. The recycling symbol is permitted on a product so long as it is potentially recyclable in at least 60 percent of communities,⁷ which does not ensure that it can be recycled in a specific community. While #2 (resin identification code) plastic bottles are often recyclable, plastic film such as a patient transfer sheet may be rejected by municipal programs, even if uncontaminated, because plastic film requires special processing equipment. Guidelines for “green” claims have been published by the Federal Trade Commission⁷ and are worth reviewing when assessing marketing claims.

Medical devices and products often have many components, only some of which may be potentially recyclable. Recycling vendors may require additional decontamination processing

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Figure 1: Sample image found in commonly seen greenwashing literature.

Table 1: Comparison of Environmental Impacts			
	Desflurane	Sevoflurane	Nitrous Oxide
ODP ⁴	0	0	0.017
GWP ₁₀₀ ⁴	2540	130	298
Equivalent miles driven at 1 lpm FGF ⁶	189 miles per MAC-hour	4 miles per MAC-hour	57 miles per 0.6 MAC-hour ^b
Equivalent miles driven at 10 lpm FGF ⁶	1,876 miles per MAC-hour	38 miles per MAC-hour	564 miles per 0.6 MAC-hour ^b

ODP: Ozone Depletion Potential is the ratio of integrated perturbations to total ozone in relation to an equal emission of chlorofluorocarbon (CFC)-12

GWP₁₀₀: Global Warming Potential compared with CO₂ over the 100 years after release

Assumes EPA 2012 fuel efficiency average of 23.9 miles per gallon

lpm: liters per minute

FGF: Fresh gas flow

MAC: Minimum Alveolar Concentration, b) 0.6 MAC-hour used as typical example, since 100% nitrous oxide cannot be administered



Figure 2: Picture of the familiar recycling logo from product packaging indicating the possibility – but no guarantee – of recyclability.

by a facility prior to accepting waste. Disassembly, separation of materials and transportation to special facilities may be required. If this infrastructure does not exist, then recycling may not be possible. The original device company may offer a recycling vendor, but there may be substantial transportation distances and additional costs which must be considered.

Life Cycle Analysis Is a Powerful Tool to Evaluate Environmental Claims

Life cycle analysis is an internationally standardized (ISO 14040) scientific method used to quantify the environmental emissions of a process or product, including natural resource extraction, manufacturing, packaging, transportation, use/reuse and waste management.⁸ A robust life cycle analysis represents the gold standard of a given product's environmental impact. This tool is increasingly being used to evaluate the environmental impacts of medical equipment and pharmaceuticals, though most clinical supplies and processes remain unevaluated at this point. Fortunately, there is a growing body of life cycle analyses within the field of anesthesiology that help refute greenwashing claims of product vendors.

Manufacturers of disposable laryngoscopes often tout the benefits of their products over reusable laryngoscopes by claiming less environmental impact due to eliminating

chemicals used in reprocessing,⁹ less risk of infection,¹⁰ recyclability of their product⁹ and decreased cost.¹¹ In contrast, a recent life cycle analysis comparing single-use disposable versus reusable laryngoscopes refuted these claims. According to this analysis, disposable handles/blades were more harmful in all environmental impact categories. In particular, the analysis showed the disposable laryngoscope handles and blades generate significantly higher greenhouse gas emissions (16-25 times and six to eight times, respectively) compared to their reusable counterparts. This analysis included all the materials, energy and chemicals used for natural resource extraction, manufacturing, packaging, transportation, cleaning/reuse and eventual waste management. In addition, the financial analysis estimated a total facility cost increase of nearly \$800,000 to substitute single-use disposable rigid laryngoscopes per year in a large academic medical center that performs 60,000 intubations annually.¹² Of note, some aspects of life cycle assessment are context-specific. Life cycle assessments performed in the United States and Europe are favoring reusable equipment, whereas those performed in Australia (where the predominant energy source used for facility reprocessing is brown coal) tend to favor disposable equipment.^{13,14} The conclusion here should be to advocate for improved energy sources, rather than to argue for adoption of disposable equipment in all cases.

Sustainability Related Claims by Manufacturers Should Be Met With Healthy Skepticism

Literature searches, product checklists and life cycle analyses are tools that should be utilized before allowing the claim to influence purchasing decisions. Reduced carbon footprint, superior infection prevention, recyclability and lower costs are claims frequently touted in the advertising of single-use health care equipment. A thorough review of the literature, including that outside of the health care sector, will confirm or debunk many of these claims. In addition, the ASA Environmental Task Force website provides an overview of considerations regarding equipment choices in an open-source Greening the Operating Room and Perioperative Arena manual, as well as other valuable resources.¹⁵

Knowledge of your hospital's policies and procurement processes will allow you to guide your institution toward a more environmentally sustainable supply chain. Anesthesiologists should continue speaking as expert users who bring clinical knowledge and global health concerns to the decision-making process.

Author note: *Both authors contributed equally to this article.*

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