

# Reprocessing single-use med devices boosts circular economy for hospitals

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Regulated reprocessing of single-use medical devices at over 8,000 hospitals diverted over 15 million pounds of medical waste in 2019, but researchers say hospitals are reprocessing only a small portion of what could be done. Credit: Association of Medical Device Reprocessors

Regulated medical device reprocessing is an important tool in improving environmental and public health outcomes, according to a new analysis published in *Health Affairs*. The paper indicates that health care systems generate significant amounts of air pollution and greenhouse gas emissions, the vast majority of which come from the supply chain. Hospitals that have medical devices reprocessed by regulated reprocessors removed over 7,100 tons of waste, a number that could grow dramatically, according to the researchers.

"COVID-19 has shined a light on [health](#) care supply chain vulnerabilities and research like this outlines the path to a more resilient, cost-effective and less toxic health care system of the future," said Dan Vukelich, president, Association of Medical Device Reprocessors. "A circular medical device industry, in the words of the study's authors, established on 'principles of resource conservation,

efficiency, and cycles of reuse and material recovery' will require safe, effective products and services provided by regulated reprocessors."

The study, led by Andrea MacNeill, MD, clinical associate professor, Department of Surgery at the University of British Columbia, traced these environmental issues to health care supply chains. Specifically, the authors noted an over-reliance on medical devices that are designed and labeled for "single-use," used once, and then disposed of—even if many of these products can be reused safely. This cycle of singular use and then disposal, according to the researchers, constitutes what they refer to as a "linear [economy](#)." The linear economy at hospitals is a primary source of waste, pollution and emissions in the health care system, as well as a cause of unnecessary financial costs and vulnerability to disruption or demand fluctuation.

## Flipping the Switch from Linear to Circular Economies

To address these issues, the authors recommend that the linear economy be replaced with a "circular economy," in which products are maintained in circulation for as long as possible before disposal. The authors identified improvements through which stakeholders in the health care system, such as hospitals, medical device manufacturers and regulators, could increase the circularity of the industry.

To drive the circular economy, improvements could include a full, life-cycle accounting of the environmental impact of [medical devices](#) and stricter procurement policies on the part of hospitals giving preference to reusable and sustainable products. Further, reusable and reprocessible single-use devices should be preferred over single-use or other devices that are used once and discarded.

"Reprocessing" refers, among other steps, to the

cleaning, inspection, testing and repackaging of a medical [device](#) originally labeled for [single-use](#) so that it may be returned to service one or more times. Relying on AMDR data, the study noted that in 2018 alone, reprocessing companies in the United States, Canada, and Europe reduced hospital solid waste generation by almost 7,100 tons and generated cost savings of more than \$470 million for healthcare institutions.

"I am personally quite proud to see allies of reuse and reprocessing, such as those from the [prestigious universities](#) that participated in this study, lauding the enormous environmental and public health benefits of reprocessing in *Health Affairs*," said Mr. Vukelich.

**More information:** Andrea J. MacNeill, et al. Transforming The Medical Device Industry: Road Map To A Circular Economy. *Health Affairs*, [doi.org/10.1377/hlthaff.2020.01118](https://doi.org/10.1377/hlthaff.2020.01118)

Provided by The Association of Medical Device  
Reprocessors

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