

# What is the carbon footprint of a hospital bed?

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Researchers from the University of Waterloo completed the first-ever assessment of a Canadian hospital to reveal its total environmental footprint and specific carbon emission hotspots.

Studying a [hospital](#) in British Columbia during its 2019 [fiscal year](#), the researchers identified energy and [water use](#) and purchasing of medical products as the hospital's primary hotspots, accounting for over half of the yearly footprint, totaling 3,500-5,000 tons of CO<sub>2</sub> equivalent. One hospital bed is roughly equivalent to the [carbon footprint](#) of five Canadian households.

The study, "[Environmental footprinting of hospitals: Organizational life cycle assessment of a Canadian hospital](#)", appears in the *Journal of Industrial Ecology*.

The new method brings an unprecedented level of comprehensiveness and detail to hospital emissions data that can equip administrative leaders to assess which improvements to focus on to meet their environmental commitments.

"In our work, we often find that the biggest environmental footprints are where you least expect them to be. As the adage goes: out of sight, out of mind," said Alex Cimprich, a postdoctoral fellow in the School of Environment, Enterprise and Development. "The goal is to make hidden environmental footprints more visible so that we can start to manage them."

The researchers calculated the carbon footprint by assessing thousands of unique products purchased by hospitals and using a combination of statistical sampling and calculations of carbon intensity—CO<sub>2</sub> equivalent per dollar spent—for the sampled products. The approach is distinct from commonly used environmental assessments that give a rough overall estimate because it employs a bottom-up approach.

"The results suggest that hospital sustainability initiatives need to look further to achieve deeper emissions reductions," said Cimprich. "While transportation of patients and products supplied to hospitals and hospital

waste are visible areas of environmental concern, other more hidden areas like the supply-chains of medical products could have much bigger environmental footprints."

Future research could zoom in on the hotspots identified, and the new approach could also be applied to other hospitals and other types of health care facilities, such as [primary care](#) or long-term care, or even organizations outside the health care sector.

**More information:** Alexander Cimprich et al, Environmental footprinting of hospitals: Organizational life cycle assessment of a Canadian hospital, *Journal of Industrial Ecology* (2023). [DOI: 10.1111/jiec.13425](#)

Provided by University of Waterloo

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