# Taking steps towards emissions reduction in health care

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Monash University experts, along with an international group of researchers, have highlighted the need to accurately identify the carbon footprint of digital health interventions to help move towards more environmentally sustainable health care.

The health care industry is the fifth largest contributor to planetary pollution. Adapting digital health technologies like telehealth, electronic health records, usage of artificial intelligence (AI) and the internet of things etc. would help to reduce carbon emissions in the sector.

Published recently in the *Journal of the American Medical Informatics Association*, the new research reviewed 3,299 studies and found that across the world there are no standard tools or methods of measuring the carbon footprint of digital health interventions.

Also, current approaches to environmental impact assessment for digital health technologies are fragmented and tend to focus on a single component of the technology, for example, energy consumption, rather than overall impact from design to implementation then disposal.

Lead researcher Associate Professor Zerina Tomkins from Monash University's School of Nursing and Midwifery said governments, hospitals and health care practitioners are keen to reduce emissions contributed by the sector but need the right tools to implement sustainable change.

"The COVID-19 pandemic has put significant pressure on the health care sector and forced urgent and ad-hoc adoption of digital health technologies across the world," Associate Professor Zerina Tomkins said.

"This has led to changes in models of care, and while we can see that there was a reduction in carbon emission associated with travel time in the context of telehealth, the health care teams did not prospectively evaluate the overall environmental impact of digital health technologies used to deliver those services.

"To create long-term impact to reduce health care's carbon emissions, there needs to be a transparent, standardized, and accessible way to evaluate environmental impacts over the full 'life-cycle' of the digital health intervention inclusive of digital health technologies at the systems level before their implementation in health care settings."

The researchers said environmental impact assessments of digital health technologies need to consider the type of technologies used, digital health intervention design, manufacturing and disposal of the technology. They also need to consider how the technology is being used, how it is transforming clinical practice and patient outcomes, and its impact on the organization.

Digital Health expert at Monash University's Faculty of Information Technology, Professor Chris Bain, said information and communication technologies also contribute to carbon emissions through energy used for processing and data storage, improper disposal of e-waste, environmental pollution through toxic e-waste chemicals etc.

"Leaders and decision-makers in the health care industry need to have the right knowledge through standardized transparent validated tools and frameworks in multiple languages so that they can identify the right digital health technologies to bring about sustainable changes," Professor Bain said.

The researchers emphasized that to change carbon footprint assessment of digital health technologies, decision makers must implement an end-to-end systems-based environmental assessment.

The research team's future focus is to develop a framework and associated tools to encourage every level of the health care sector including governing bodies, leaders, organizations, health care workers and practitioners to design, develop and implement greener digital health care solutions.

Provided by Monash University

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