Tracing the path: A Comprehensive Material Flow Analysis and Reduction Strategies of Single-use Plastic Gloves in Danish Hospitals

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Abstract

The healthcare sector plays a pivotal role in safeguarding human health but has a substantial contribution to the environmental footprint, approximately 5% of the total Greenhouse gas emissions globally. In Denmark, the healthcare sector is responsible for approximately 6% of the annual CO2 emissions. In 2020, the Danish climate act was passed, committing to the reduction in Greenhouse gas emissions by 70%, compared to 1990 and become climate neutral by 2025. The Danish health care sector has since intensified the focus towards reducing their carbon footprint, without compromising the current health standards. One of the key areas of interest is disposable plastic gloves, which are a significant contributor to the mass flow of plastic consumables in the healthcare sector, due to their single-use nature and multiple uses.
The aim of the study is to produce a material flow analysis of plastic gloves use to facilitate a discussion about pathways to reduce consumption in the healthcare sector. This study employs a mixed methods approach, to develop a material flow analysis of single-use, plastic gloves in hospitals from three of five Danish regions: Capital Region of Denmark, Central Denmark Region and Region Zealand. Quantitative data will be obtained from procurement and waste management data. The waste fraction data will aid in identifying key hotspots and end-of-life patterns, highlighting opportunities for improved waste management. Qualitative data from hospital observations and interviews with key stakeholders will furthermore be obtained to understand practices and procedures related to specific flows between hospitals and departments. This will help map exactly where in the healthcare system the purchased gloves are used and to understand workflow behaviors and consumption patterns.

Keywords: Single, use plastics, Material Flow Analysis, Healthcare, Plastic reduction

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