EXPLORATORY STUDY ON SUSTAINABILITY IN MEDICAL ITEMS UTILISED IN NURSING CARE: A CASE STUDY IN BELGIAN HOSPITALS

Background

Over the past decades, the use of single-use devices (SUDs) in healthcare has considerably increased and further intensified by the COVID-pandemic [1]. SUDs used to be preferred due to their advantages such as patient safety, low cost, and time savings. However, the environmental implications were seldom questioned. With the urge to comply with the sustainable development goals (SDG) and waste reduction [2], XX University Hospital aimed to investigate waste reduction by considering the dichotomy of SUD and reusable (RU) equipment. The study was commissioned by the Federal Public Service for Health, Food Chain Safety and Environment, the Directorate-General for the Environment.

Aim(s)

The purpose of this study was to identify the most sustainable and feasible options for three of the most relevant SUDs used in nursing care in Belgian hospitals.

Methods

A cross-sectional multi-centre study was conducted between August-November 2022, involving a hospital survey across all Belgian hospitals to collect procurement data on SUDs. Based on consumption and cost rates, three SUDs and their RU alternatives were selected, with each alternative requiring a different process for reuse. Subsequently, an exploratory study assessed the selected SUDs and their RU alternatives in terms of environmental sustainability, safety, costs and efficiency [3-5].

Results

Based on the procurement data from the 12 participating hospitals the single-use kidney tray (thermal disinfection), blanket (laundry), and cover caps for thermometer (change item) were selected. RU kidney trays were found to be more environmentally friendly than SUD, with the disinfection method impacting both the environment and cost. Safety was comparable, while the SUD kidney tray showed better efficiency in terms of time consumption. RU blankets were more beneficial for sustainability and cost than SUD. Safety and efficiency were similar, unless the hospital has its own laundry facility. The use of cover caps for tympanic temperature measurement showed lower cost and better sustainability than when disinfection was needed between patients. Non-contact thermometers, requiring no disinfection or additional equipment, proved to be the cheapest, most sustainable, safest and most efficient alternative.

Discussion

The findings contribute to hospitals' efforts to reduce waste and promote sustainability. RU alternatives of commonly used items in nursing care are more sustainable. RU medical textiles emerged also from literature as the most sustainable approach [6-7]. Safety was not a concern as long as adequate and correct cleaning & disinfection and washing methods are employed. However, limited data availability and underrepresentation of actual costs post challenges in analysing and comparing the items. The sustainability assessment did not include a life cycle analysis (LCA) and should be interpreted with caution.

Implications and future perspectives

This study suggests several implications for hospitals and nursing care, including 1) integrating sustainability requirements and RU options into the procurement process, 2) implementing more RU textiles, and 3) adapting logistics and procedures for cleaning, disinfection, laundering of RU items when switching from SUD to RU alternatives. Further research using LCA to compare RU kidney trays and SUD, considering disposal and disinfection methods, would provide valuable insight into making sustainable choices. Additionally, designing and testing reusable textiles as alternative for SUD, such as isolation gowns, surgical caps, could be studied.

References

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