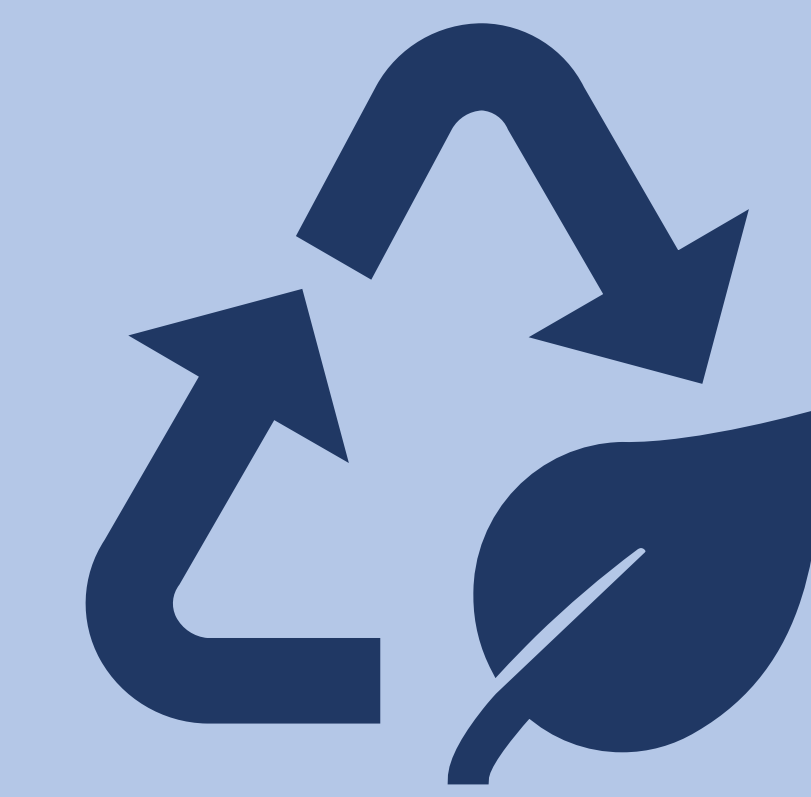




# TACKLING WASTE IN PATIENT ROOMS: IMPROVING WASTE REDUCTION, DIVERSION, SORTING, AND RECYCLING



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## INTRODUCTION & BACKGROUND

According to the World Health Organization, nearly 85% of the healthcare waste produced is non-hazardous. Due to inadequate staff training and the lack of waste management systems, the waste is often improperly sorted where recyclable materials are mixed with the landfill stream, and non-hazardous waste is mixed with hazardous waste<sup>[1,2]</sup>. As the cost to dispose hazardous waste is nearly 3.5 times the cost of disposing regular waste, the adoption of strategies for improving sorting and increasing waste diversion from landfill are essential for both reducing costs and reducing the environmental impact of the healthcare industry<sup>[2]</sup>.

## RESEARCH QUESTIONS & OBJECTIVES

The objective of this research is to study challenges and efforts on waste management in hospital patient rooms. As a previous internship was done with SickKids, recommendations on waste management in patient rooms will be provided for the hospital.

The research questions answered in this study are the following:

- (1) How can hospitals support new or improved management of non-biohazardous, biohazardous and recyclable waste generated in patient rooms and what challenges do they face in doing so?
- (2) Can lessons from improved management in patient rooms from other hospitals be applied to SickKids?

## METHODS

### Web-based Literature

A web-based research method was used to review academic and non-academic literature and establish an understanding of the practices and challenges involved with waste management and sorting in patient rooms.

### Interviews

Interview subjects were identified through a web search of Ontario hospitals that mentioned tackling waste management efforts on their website. The interview also used the snowball sampling method to recruit other participants for interviews.

10 individuals were interviewed through Microsoft Teams. This included sustainability coordinators/managers, members of the hospital's green team, or other relevant healthcare key informants.

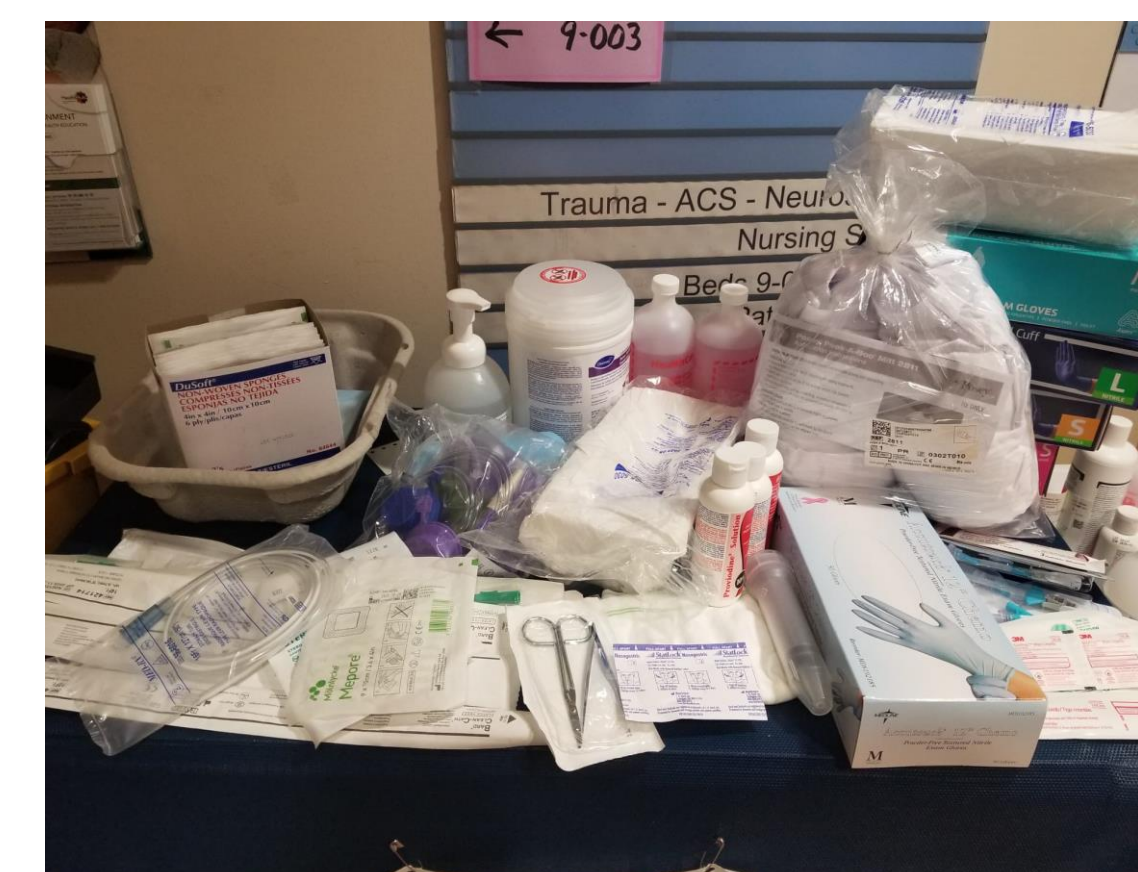
Interviews were recorded and transcribed, and analysis of transcripts through hand-coding was performed to identify key initiatives, common themes, and significant quotes from the interviews.

## RESULTS

Hospital	Waste Facilities in Patient Room	Type of Waste Most Generated
SickKids	Biohazardous bin, recycling bin, sharps bin, garbage in bathroom	N/A
Anonymous Hospital 1	Garbage bin, sharps bin, occasionally hazardous bin depending on ward (i.e., delivery and labour)	General garbage
Woodstock Hospital	Garbage bin, sharps bin, some wards have PVC recycling bins	General garbage but tubing and PVCs, have own bins for them
Children's Hospital of Eastern Ontario (CHEO)	Garbage bin, recycling bin, sharps bin	Fast food garbage waste, packaging, diapers
Synergie Santé Environnement	N/A	Mostly common general waste
Anonymous Hospital 2	2 waste bins (one in bathroom), sharps bin on wall, occasionally cytotoxic precautions for cytotoxic materials	75% waste, 25% recyclable (estimate)
Anonymous Hospital 3	Garbage bins and sharps	N/A
Sumac Creek Health Center	N/A	General garbage
Mt. Sinai	Garbage bins, sharps bin (1 bin per bed)	50% garbage, 50% recyclable (estimate)
Anonymous Hospital 4	1 garbage bin, sharps bin, bedside biohazardous bin only in wards like ICU, diaper brief bin in other hospital with long-term care	Lots of packaging, single-use items for infection control, Styrofoam cups and paper towels, food waste from cafeteria, briefs

### Waste Concerns, generation, contamination, and sorting issues in patient rooms:

- Bin Types and Locations:** Having recycling and garbage side-by-side resulted in higher contamination of the recycling bin.
- Mixing of Biohazardous and Non-Biohazardous Waste:** Non-biohazardous waste in biohazardous waste bins is costly to dispose.
- Bedside Waste:** Extra supplies are often left by staff in patient rooms for convenience, but they must be disposed of once the patient discharges, even if they are unused.
- Communications:** Lack of signage or effective electronic communication methods.
- A Stressful Environment:** Patients may be too stressed to think about sorting their waste.
- Space Constraints:** Regulations and space constraints make it challenging to incorporate additional bins into the room.
- Procurement Constraints:** Hospitals are tied to group-buy organizations and contractual obligations.



Medical supplies accumulated in patient room for a patient that was in the unit for 5 days. These supplies cannot be reused, therefore end up being disposed.

### Planned or Current Initiatives

- Bin Types and Placement:** Implementation of recycling programs and new bins for specific medical supplies – including recycling programs like PVC 123 and LifeCycle Revive.
- Education and Communication:** Signage, ongoing and consistent communication through mandatory training modules for all staff, and campaigns or event days like Earth day.
- Implementation Strategies:** Obtaining buy-in from stakeholders, demonstrating a business case for the initiative, and encouraging quality over quantity.
- Advocates for Waste:** Establishing floor champions & green teams, and creating a sustainability department.

## THE CASE STUDY: SICKKIDS

SickKids differs from other hospitals in the type of waste facilities present in patient rooms, as they have a biohazardous waste bin (large yellow bin) in the main area of the room but only a garbage bin in the patient bathroom.



SickKids has one small recycling bin in patient rooms, although their recycling collector asks for separation of plastics and paper. Although plastic and paper recyclables have separate bins across the hospital, all plastic and paper recyclables are commingled in the same bin in patient rooms and end up in the garbage stream after collection.



Recycling bin in patient room

## RECOMMENDATIONS FOR SICKKIDS

1. Conduct a waste audit of bins, waste containers and bedside waste in patient rooms before and after introduction of new waste reduction initiatives.
2. Assess the placement and style of biohazardous bins found in patient rooms and instructions for their use.
3. Assess the placement and style of recycling bins in patient rooms and instructions for their use.
4. Investigate the feasibility of a recycling program for PVC and other types of single use medical supplies containing plastic.
5. Enhance the hospital's education and communications programs around waste.
6. Expand the hospital's green team to include other relevant stakeholders, like housekeeping staff or other corporate staff.
7. Establishing a sustainability department at the hospital.

## REFERENCES

1. WHO. (2018). Health-care waste. *World Health Organization*. <https://www.who.int/news-room/fact-sheets/detail/health-care-waste>
2. NHS Scotland. (n.d.). NHS Scotland Waste Prevention and Re-use Guide. Zero Waste Scotland. <https://www.zerowastescotland.org.uk/content/nhs-scotland-waste-prevention-and-re-use-guide>