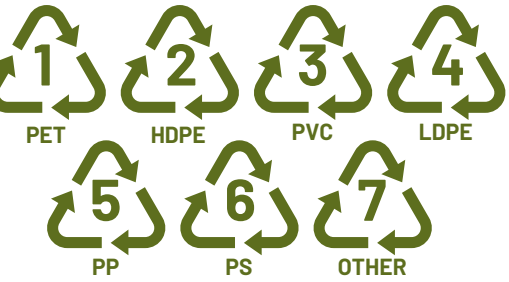
CASCADES

SUSTAINABLE PERIOPERATIVE CARE

Project Charter Summary

REDUCE & MANAGE WASTE

Managing Plastic Waste



PROJECT CHARTER: See the full version of the project charter for more change ideas, details, and a complete list of references.

Healthy system waste prevention, reduction, and reuse should be prioritized through public health measures, avoidance of unnecessary care, and medical product reuse.

Approximately 20-25% of total operating room (OR) waste, by weight, is plastics (e.g., single-use devices and packaging). However, while up to 90% of OR waste is non-hazardous and potentially recyclable, there are multiple barriers to recycling: a lack of awareness of what can be safely recycled, and improper waste segregation, contamination, and recycling procedures.

OR plastics like irrigation bottles, intravenous fluid bags, and soft-edged plastic packaging are typically labelled with resin codes 1-7. Not all plastic resins can be recycled, and this depends on locale-specific markets for medical plastics. Unfortunately, those that can be are often incorrectly disposed of in regular or biomedical waste streams.

An example of a specialty recycling program is the PVC 123 recycling program (started at St. Joseph's Health Centre and Humber River Hospital, in partnership with the Canadian Vinyl Institute) has seen OR PVC waste remanufactured and "upcycled" into useful materials such as hoses and automotive supplies.

GOAL: Reduce the amount of recyclable plastic waste incorrectly placed in the regular waste bin

PROJECT SCOPE: All plastic waste eligible for recycling, generated within the operating room (OR)

EMISSIONS SCOPE: Scope 3 (emissions arise from activities or products related to health sector activities, but not owned or controlled by your organization)

ESTIMATING IMPACT

ACTIVITY/OUTCOME METRIC

A. Change in weight (in kg) of OR plastics sent for recycling per month

- Source from a waste audit, waste hauler data, or financial data (hauler fees).
  - # of bags/bins of recycling will do if you can get average weight per bag/bin from the hauler or your own audit.

X

RELATED ENVIRONMENTAL METRIC

B. -0.282 kg CO_2e/kg (environmental savings from recycling)

C. Avoided environmental costs of improper disposal

(A X B) - (A x C)

- Multiply by the emissions value for how plastic waste is otherwise disposed of at your center:
  - 1.833 kg CO_2e/kg (incinerated as hazardous waste)
  - 1.179 kg CO_2e/kg (incinerated as regular waste)
  - 0.461 kg CO_2e/kg (autoclaved, landfilled as regular waste)

=

ENVIRONMENTAL IMPACT

Estimation of total impact in kg CO_2e

- Change in monthly plastic is assumed to be waste otherwise been disposed of as regular or biohazardous waste, (but now recycled).
- The environmental metrics are approximations and will not precisely reflect every center.
- Use the Natural Resources Canada Greenhouse Gas Equivalencies Calculator to translate your results to stakeholders.

Project Charter developed in collaboration with Dr. Syed Ali Akbar Abbass, St. Joseph's Health Centre. Charter summary developed by Dr. Connor Brenna.

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Root Causes and Change Ideas for Managing Plastic Waste

PLAYBOOK: View the playbook for other perioperative sustainability opportunities and resources.

VIDEO: PVC 123 Recycling Program with Dr. Ali Abbass

VIDEO: OR Recycling at UHN with Ed Rubenstein

EDUCATION & AWARENESS

There is a lack of awareness about which OR plastic wastes are recyclable and the extent to which they are being placed in the incorrect waste streams, as well as concerns regarding the lack of effectiveness of recycling.

- Determine which types of plastics can be recycled in your OR
  - Complete a waste audit (or analyze purchasing data) to determine the types and volumes of plastic waste generated
  - Collaborate with waste haulers/recyclers to understand local opportunities to recycle and/or connect with new facilities or programs.
  - Refer to BC Greencare's Clinical Recycling Trainer Program Guide and Practice Greenhealth's Medical Plastics Recycling in the OR Guide for ideas.
- Create visual reminders (e.g., waste disposal charts) for clinical areas, and embed educational offerings in OR staff orientation and onboarding.
- Involve custodial staff in recycling education and interventions.
- Identify champions (and become one!) within the OR, able to educate staff in the moment on correct plastic segregation.

CLINICAL WORKFLOW

Many hospitals lack recycling procedures or policies for reusable products to reduce single-use plastic devices.

- Because up to 40% of OR waste is packaging material, it can be safely collected at the beginning of surgery and placed in a recycling bin without concern for bodily fluid contamination.
- Implement recycling bins for regular plastics, ahead of specialty recycling programs (e.g., for blue wrap or PVC).
  - If available in your area, implement a PVC 123 recycling program and segregate PVC waste to be recycled separately.

FINANCES & PROCUREMENT

Implementing a specific plastic recycling program can be expensive, and plastics which require specialized recycling can end up in regular recycling.

- Because packaging contributes so heavily to OR waste, procurement offices can often pressure vendors to rethink the design and packaging of products with plastic waste in mind (to reduce it and/or ease its recycling).

INFRASTRUCTURE

There are rarely recycling bins in ORs, and bags used to collect recycling can be mistaken as regular garbage, It can be difficult to recycle some types of plastic waste (e.g., PVC), and plastic waste is not accepted by municipal recycling programs.

- Establish clear visual markers to differentiate plastic waste from other waste.
- Use a uniquely coloured (e.g., blue) bag, and a visibly different reusable bin, to collect plastic recycling.
- Including a colour-coded bag helps to ensure that it reaches the proper disposal destination (the blue recycling bin). The bag must be identifiable to custodial staff, and later by other team members who take it from the soiled utility room to the proper compactor/bin at the loading dock, after collection.
- Distinct bag colours also allow haulers to audit their large (20-40 ft) bins to ensure that recycling and non-recycling waste have not mixed.

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