

SUSTAINABLE PERIOPERATIVE CARE

Project Charter Summary

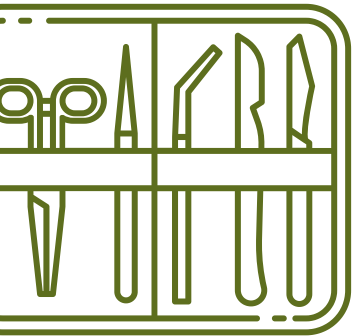
REDUCE & MANAGE WASTE

Optimizing Custom Packs in the OR

Custom packs are industry-prepared, pre-packaged sterile bundles used for surgical procedures. Generic custom packs often contain items that are not routinely used due to surgeon preference or change in practice—called “overage”—which are readied ahead of surgery but remain unused. These are discarded at the end of surgery due to potential contamination. The unnecessary waste in generic custom packs can be addressed via several strategies, including the optimization of custom packs, the adoption of the “just-in-time” model, and the reuse of eligible items



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



Optimizing custom packs has been shown to generate both environmental and cost savings: in [one study](#), redesigning their contents led to a 45% reduction in mean-per-case costs associated with unused pack contents. In [another](#), a hospital redesigned thoracotomy kits for savings of 2,419 kg of waste and \$81,278 USD. Not all overage is equal: [targeting particular types of products \(e.g., those made of cotton\)](#) can be particularly transformative. An alternative approach is the “just-in-time” model where items are available in the OR but [only opened as required](#), and [reused where appropriate](#).

GOAL: Optimize operating room custom packs to better reflect the actual needs of the procedure, reducing waste

PROJECT SCOPE: All operating rooms, and those involved in procurement practices for custom packs

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

Weight of overage items by material (kg) **×** Number of packs used per unit time

- Can be sourced from vendor data, procurement data, EMR logs, or self-audits.
- Focusing on overage (unused supply in packs) is the simplest way to measure the environmental savings associated with optimization. Another approach would involve comparing the weights (by product type) of the original vs. optimized packs.

RELATED ENVIRONMENTAL METRIC

Life cycle emissions of materials in kg CO₂e per kg

- Metrics:
 - Plastic: 3.25 kg CO₂e/kg
 - Steel: 2.71 kg CO₂e/kg
 - Glass: 0.89 kg CO₂e/kg
 - Cotton: 9 kg CO₂e/kg
- Sources: [Macneill et al., 2017](#) and [Campion et al., 2015](#) (including US metrics which may be imprecise in Canadian contexts).
- Materials have other environmental impacts (e.g., eutrophication) omitted here for simplicity.

ENVIRONMENTAL IMPACT

Estimation of total impact in kg CO₂e

- This calculation should give you an estimate of the environmental savings from your optimized custom pack(s).
- Use the [Natural Resources Canada Greenhouse Gas Equivalencies Calculator](#) to translate your results to stakeholders.

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Root Causes and Change Ideas for Optimizing Custom Packs



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



VIDEO: Custom Pack Optimization with Cameron Irani

OR staff may not be aware of the amount of unused items being disposed of, or that they can inform the nurse or clinician in charge of a given service to request that items be removed. There may be a general lack of awareness of the environmental and cost impacts of unused items.

EDUCATION & AWARENESS

- Educate OR leadership teams and decision makers that custom packs can be redesigned to save staff time, money, and waste.
- Establish a communication process for OR staff to flag unused items and request that they be removed from custom packs.

Work culture requiring easy access to “just-in-case” items within the custom pack may challenge ordering off of a pick list. There is a need for a dedicated person or team to regularly review custom packs to determine which items are still needed, and a desire to make improvements needs to be present in hospital staff.

CLINICAL WORKFLOW

- Conduct an audit to determine which items are frequently unused. [Practice Greenhealth’s guide for reformulating OR custom packs](#) recommends omitting those items used less than 80% of the time.
- Compare custom packs to those at other hospitals to help classify products as necessary or obsolete.
- Identify surgeries which use similar items, to standardize custom packs between them. Encourage standardization among surgical teams.
- Implement regular discussions among OR staff on custom pack contents.
- Seek support from OR leadership to give staff time to work on developing optimal custom packs.
- Engage stakeholders like surgeons, nurses, MDRD, OR supply chain, energy, and environment staff to encourage ownership for change.
- Identify a surgeon champion, and seek support from the Surgeon-in-Chief or CEO of the hospital to further engage hospital staff.

If there are too many variations of custom packs, hospitals may not be able to get a bulk discount. Custom pack items are restricted to what vendors can supply and may not always reflect the needs of the surgery. Existing contracts with vendors may need to be renegotiated (or a change in vendor may be required), and vendors may prefer generic packs that can be used in several centers to increase profit margins and reduce storage requirements.

FINANCES & PROCUREMENT

- Incorporate custom pack optimization into the portfolio of the person managing the procurement budget. Ideally, they should become the internal champion for custom packs and lead a supply chain team integrated into the OR.
- Engage your vendor to review the items in custom packs and identify those that may be outdated or wasteful.
- Conduct a business case in collaboration with your vendor to determine the threshold for cost savings, including how many different custom packs are needed before it is more costly than the current process, how often items are discarded before they are targeted for removal from the packs, hard savings, and theoretical savings from waste hauling fees.
- Identify alternative vendors if your current contract is not flexible.

Multiple different custom packs require more storage space for the vendor and the hospital. If custom packs are stored improperly, their wrapping can be damaged (making them unusable).

INFRASTRUCTURE

- Explore opportunities for proper on-site storage of optimal custom packs.