

PROJECT CHARTER

Optimize Custom Packs in the Operating Room

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Executive Sponsor:

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A modifiable PPT version of this project charter can be [downloaded](#) to be applied to your own healthcare setting. To access all downloadable project charters featured in this playbook, click [here](#).

Please contact CASCADES@utoronto.ca if you have any questions.

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Goal & Scope

1 What do you want to achieve?

Optimize the custom packs used in the OR to more closely reflect the actual needs of a given procedure, thereby reducing custom pack waste (or “overage”).

2 Define the limits of what you want to be included in the project and consider the environmental impacts you are targeting for change.

Project Scope: The OR at a hospital and their procurement practices for custom packs that generate unnecessary waste from the time the packs are ordered until their disposal.

Emission Scope: Scope 3; these emissions arise from activities or products that are related to health sector activities, but not owned or controlled by the organization, such as pharmaceuticals and other medical products and devices



Problem/Opportunity Statement

3 Briefly state the problem you want to solve or the opportunity you want to realize.

Custom packs are industry-prepared, pre-packaged, sterile bundles used for surgeries. Although initially prepared with the aim to reduce time, error and contamination risk, generic custom packs have become costly and wasteful (1). Generic custom packs often contain items that are not routinely used due to surgeon preference or change in practice. This leads to “overage” – equipment/supplies that are readied ahead of a surgery but remain unused. At the end of surgery, the unused items are discarded due to their potential exposure to biohazardous materials. (2) 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.

Optimizing custom packs has been shown to generate both environmental and cost savings. In one study, a redesign of the surgeons’ “pick lists,” in-service education, and custom packs led to a 45% reduction in mean-per-case costs associated with unused custom pack contents (2). In another study, the reformulation of thoracotomy custom packs led to a reduction of 5,332 pounds (2419 kgs) of waste and cost savings of \$81,278 USD annually for the hospital (3). Notably, not all overage is equal in terms of its environmental impacts, and targeting particular types of products can enhance the environmental benefits of custom pack optimization. In a life cycle assessment (LCA) of a vaginal birth disposable custom pack, cotton was found to have the highest environmental impact across all impact categories; reformulating the pack to omit unnecessary cotton products was therefore key to minimizing the pack’s environmental footprint (1).



Problem/Opportunity Statement

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Beyond reformulation, another approach to reduce overage is to adopt the “just-in-time” model, in which items are available in the operating theatre but only opened when required (4). Using this model, surgical items and devices are only opened when there is a reasonable probability that they will be used during surgery. Modeling studies have predicted cost savings using the “just-in-time” approach for laparoscopy instrument sets (5).

Finally, considering reuse scenarios for items that *are* used in surgery (either as part of a custom pack, or via the “just-in-time” model) can produce further environmental savings. In the LCA of the vaginal birth disposable custom pack discussed on the previous slide, the authors note that reusing towels for non-sterile hospital use (such as fluid absorption or cleaning) would significantly reduce the environmental footprint of the pack as laundering cotton is far less impactful than producing new towels (1).

Generic custom packs generate unnecessary waste since they contain items that may not be used during a surgical procedure. Transitioning to optimized custom packs, which are tailored to the needs of each surgery, can have significant environmental and cost savings.



Current State of the System/Process

4 What do things look like today?

- Hospital staff (e.g., clinical support nurse) from the OR identifies items to include in the custom pack for all surgeries in partnership with procurement staff (e.g., Procurement, Supply Chain Department), and or the vendor.
- The custom pack is ordered by procurement staff.
- The custom pack is prepared and shipped by the vendor to the hospital and stored on site.
- Before an operation, the OR nurse, or built-in automation, orders the custom pack to the OR from the pick list.
- The custom pack is delivered on a case cart to the OR.
- The OR nurse opens the custom pack.
- Any items required for the surgery that are not included in the custom pack are on existing picklists for the surgery or are ordered separately by the OR nurse, as needed.
- After the surgery, all items from the pack, whether used or unused, are thrown away. Clean but unused items cannot be used in subsequent surgeries as they are now considered non-sterile.
 - In some cases, items likely to be unused are removed in advance of the surgery for other purposes (e.g., education, donations).



Root Cause Analysis

5 What gets in your way?

Education & Awareness

- OR staff may not be aware of the amount of unused items that are being disposed of, they are focused on the patient.
- OR staff may not know they can inform the Nurse/Clinician in charge of that service to request that items be removed, or may be hesitant to request the change if they are not supported by their colleagues.
- Lack of awareness of the environmental and cost impacts of unused surgical items.

Clinical workflow

- Work culture requiring easy access to “just in case” items within the custom pack instead of ordering off a pick list (e.g., sites without a supply dispensing machine in the OR)
- There is a need for a dedicated person/team to regularly review the custom packs and determine which items can be removed for specific surgeries. Teamwork and collaboration from multiple stakeholders is required (e.g., procurement staff, surgical services staff, supply chain department, nurse coordinators, surgical champions, vendor).
- A desire to make this change needs to be present in the hospital staff.



Root Cause Analysis

5 What gets in your way?

Infrastructure

- Multiple different custom packs requires more storage space by the vendor and the hospital.
- If custom packs are not stored properly, their wrapping can be damaged which makes them unsterile.

Finances & Procurement

- If there are too many variations of custom packs, the hospital may not be able to get a bulk discount.
- Custom pack items are restricted to what the current vendor can supply and may not reflect the needs of the surgery.
- Existing contracts with vendors may need to be renegotiated, or a change in vendor may be required.
- Business cases are required to justify changes to the custom packs.
- Vendor may prefer generic packs that can be used in several hospitals, thus increasing their profit margins and reducing storage requirements.



Design the Improvement & Define Change Ideas

6 What are your ideas to achieve your goals, address your root causes and close the gap from your problem statement?

Education & Awareness

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

Clinical workflow

- Conduct an audit to determine which items frequently go unused; Practice Greenhealth's [guide for reformulating OR custom packs](#) recommends omitting items which are used less than 80% of the time (6).
- Compare custom packs with those of other hospitals or organizations to help classify products as necessary or obsolete. (1)
- Identify surgeries that use similar surgical items and standardize custom packs for similar surgeries.
- Encourage standardization so surgeons are using the same supplies for similar surgeries.
- Implement regular discussions among the OR staff on custom pack contents, e.g., every 3 months, and encourage ongoing feedback.
- Seek support from OR leadership to give staff time to work on custom packs.
- Engage all stakeholders in custom pack decisions to encourage ownership for change (e.g., surgeons, nurses, Medical Device Reprocessing Department (MDRD), OR supply chain, energy and environment staff)
- Identify a surgeon champion and seek support from the Surgeon-in-Chief/CEO of the hospital to engage hospital staff



Design the Improvement & Define Change Ideas

6 What are your ideas to achieve your goals, address your root causes and close the gap from your problem statement?

Finances & Procurement

- Incorporate the custom pack optimization task into the portfolio of the person who manages the procurement budget (e.g., OR Supply Chain Manager). Ideally, this person should become the internal champion for custom packs and lead a supply chain team that is integrated into the OR.
- Engage the vendor to do a review of the items in the custom packs to identify items that may be outdated or wasteful.
- Conduct a business case in collaboration with the vendor to determine the threshold for cost savings. It should focus on what is best for your hospital and not the preference of the vendor. The business case could include:
 - How many different custom packs are needed before it becomes more costly than the current process
 - How often an item is used before it is targeted for removal from the packs (e.g., 80% of cases)
 - Hard savings (i.e., increased efficiency can save on human resources)
 - Theoretical savings from waste hauling fees
- Identify another vendor if the current contract is not flexible.



Measure & Test Impact

7 How will you estimate the environmental impact of your changes?

Activity/Outcome Metric

Weight of overage items by material (kg)

- Plastic*
- Steel
- Glass
- Cotton

*Note: Most disposable textiles are made of plastics (1)

Source(s):

- Vendor data
- Self-audit
- Procurement data
- Electronic medical record (EMR) log

Considerations:

- Focusing on overage is the simplest way to get a handle on the environmental savings associated with optimizing the pack.
- Another approach would involve comparing the weights (by product type) of the original vs. optimized custom packs. As optimized custom packs sometimes include frequently used pick-list items, be sure to include any of these in the weight for the original custom pack.



Number of packs used per week/month/year



Related Environmental Metric

Life cycle emissions of materials in kg CO2e per kg:

- Plastic: 3.25 kg Co2e/kg (1)
- Steel: 2.71 kg CO2e/kg (1)
- Glass: 0.89 kg CO2e/kg (1)
- Cotton: 9 kg CO2e/kg (2)

Source(s):

- MacNeill et al. 2017 (adapted from kgCO2e/tonne) (7)
- Campion et al. 2015 (8)

Considerations:

- These data points include US metrics, and may therefore have limited applicability to the Canadian context.
- These materials produce other types of environmental impacts (i.e. eutrophication), but these have been omitted for simplicity.



Environmental savings

Considerations:

- This calculation should give you an estimate of the environmental savings associated with your optimized custom pack.
- The calculation will yield ESTIMATES only.
- Use the [Natural Resources Canada Greenhouse Gas Equivalencies Calculator](#) to translate your results to stakeholders.



Embed & Spread

8 What steps have been taken to ensure lasting change? How could it be spread to other contexts?

Micro (What can you do?)

- Initiate an educational campaign for nurses and surgeons to monitor custom packs frequently to see if items need to be removed.
- Incorporate OR procurement into greening committee meetings to better understand backorders and how they may be affecting custom packs.

Meso (What can you do within your organization?)

- Share learnings, business cases, and results from waste audits with sustainability champions within your OR so they can use these tools to advocate for change.

Macro (What can your organization do?)

- Share how your organization customizes their custom packs with other hospitals.
- Share learnings, business cases, and results from waste audits with other hospitals/organizations so they can use these tools to advocate for change in their setting.



References

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