

# PROJECT CHARTER

## Reusable Gowns

Developed in collaboration with:  
Angelina Lomoro, Michael Garron Hospital  
Ed Rubinstein and Dr. Laura Donahoe, University Health Network

Team members: Operating Room (OR) Nurses, OR Leadership teams, OR Educators, OR Attendants, Surgeons, Anesthesiologists, Procurement staff

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](mailto:CASCADES@utoronto.ca) if you have any questions.

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# Goal & Scope

## 1 What do you want to achieve?

Replace disposable surgical gowns with reusable surgical gowns to reduce OR waste

## 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:** Replace all disposable gowns for all surgical procedures within the perioperative care unit with reusable gowns.

**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.

Surgical linens, including gowns, towels, table and stand covers, are a major source of OR waste. Linens have been estimated to account for 2% of total hospital waste (1). Unused single use gowns that are on sterile fields during surgery are indicated for disposal at the end of the procedure, resulting in large amounts of waste depending on the number of surgeries performed and surgical staff involved. Compared to disposable linens that are used only once and then discarded, reusable gowns can be washed and sterilized for multiple uses, reducing energy use by 64% and greenhouse gas emissions by 66%. (2).

A 2021 analysis done in the UK on the switch from single-use to reusable personal protective equipment (PPE) estimated that six months of disposable gown use resulted in emissions of 5,419,004 kg CO<sub>2</sub>e (3). In comparison, reusable gowns that were laundered and re-used 75 times prior to disposal were shown to decrease greenhouse gas emissions by two-thirds. Although the upfront cost of reusable gowns may be higher, they are a more cost-effective option in the long run as they can be used multiple times, reducing the need for frequent replacement. The comfort and protection offered by reusable gowns has been found to be similar or even superior to disposable gowns, and their use can reduce the amount of surgical waste that is sent to landfill (4,5).



# Current State of the System/Process

## 4 What do things look like today?

### Single-Use Gowns

- Single-use gowns are purchased with custom surgical packs to be opened at each procedure.
- Single use gowns are individually wrapped for PRN use in disposable plastic and most are classified as level 3 or 4 which indicate the protection provided by the gowns and the material the gown is made from.
- After a procedure is completed, single use gowns are disposed of in biohazardous or regular waste, depending on whether the gown is wet with bodily fluids.
- This waste is sent for incineration (for biohazardous waste) or to landfill (for regular waste)

### Reusable Gowns

- Reusable gowns are provided by a contracted company which handles delivery (if gowns are not cleaned on-site, the vendor also handles pick up, laundering, and return).
  - They are shipped to the hospital as single or triple packs, in muslin wraps
- Reusable gowns are often stocked in the medical device reprocessing department (MDRD).
- If a hospital stocks both disposable and reusable gowns, they generally allow the individual clinician to determine which type of gown to use
- When a reusable gown is used, the muslin wrap is opened at the time of use.
- After surgery, used gowns are sent for laundering and sterilization, which can occur within the hospital (on-site) or by the contracted company (off-site).
  - If a gown ends up unused, it is stored in a sterile case and returned to MDRD.
- When gowns have reached end-of-life, they may be used in health professional courses or as non-sterilized gowns in a hospital (e.g. warming gowns) before being sent to landfill, or they may go directly to landfill.



# Root Cause Analysis

## 5 What gets in your way?

### **Education & Awareness**

- Infection prevention and control concerns exist from the misbelief that single use gowns are sturdier and will ensure sterility better than reusable gowns.

### **Clinical Workflow**

- Reusable gowns are often made from Gore-Tex which can be warm and present comfort issues.
- Single use gowns are found in hospital custom packs, which can be more convenient than opening reusable gowns.
- Some surgeries (e.g., orthopedic) require single use “space suits”.

### **Finances & Procurement**

- Reusable gowns come in limited sizes; these may not fit all staff members, requiring the hospital to have the option of a single use gown
- Cost of laundering higher quantities of reusable gowns may appear more larger than bulk purchasing single-use gowns.
- Community hospitals often only have disposable gowns, due to the costs of laundering reusable gowns.



# 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

- Create an educational campaign for all staff that need to be scrubbed into surgery (nurses, surgery residents, fellows, staff) that:
  - Establishes the importance of reusable gowns from a sustainability perspective.
  - Dismantles common misconceptions about reusable gowns and surgical site infections.
  - **Resources:** [The Ottawa Hospital Reusable Gowns Evaluation \(TOH\)](#); [Reusable Gowns Brief \(Naba Khan\)](#); [Life Cycle Assessment of Surgical Gowns \(EcoTex\)](#)

### Clinical Workflow

- Establish storage and collection processes to make reusable gowns easy to access for use before procedures and for cleaning after use.
- Create a system where single-use gowns are only given for special circumstances or to those that need them due to sizing.

### Infrastructure

- Work with laundering staff or the contracted company to implement cleaning infrastructure that maximizes the number of gowns that can be cleaned per load or transport cycle.

### Finances & Procurement

- Collaborate with procurement and OR departments to purchase reusable gowns and remove single use gowns from custom packs, operating theaters, and sterile cores.
- Create a business case to show the cost savings of purchasing reusable gowns compared to single use.
  - Consider partnering with multiple hospitals to obtaining group discounted group contracts for reusable gowns.



# Measure & Test Impact

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

### Activity/Outcome Metric

- 1A. # of single use gowns disposed of per month
- 1B. # of reusable gowns disposed of per month

#### Source(s):

- Procurement data
- Self-audit

#### Considerations:

- Monthly counts are recommended to observe progress, but data can be processed for any given time frame.



### Related Environmental Metric

- 2A. 0.31 kg CO<sub>2</sub>e (kg CO<sub>2</sub>e for 1 disposable gown)
- 2B. 13 kg CO<sub>2</sub>e (kg CO<sub>2</sub>e for 1 reusable gown)

#### Source:

- Vozzola, Overcash, and Griffing, 2018 (6)

#### Considerations:

- While *individual* disposable gowns have a much smaller footprint than reusable gowns, this is not a one-to-one comparison, as each reusable gown can be used many times. These estimates were adapted from a study in which the “functional unit” was 1000 isolation gown uses. While each reusable gown can generally be used 75–100 times, the authors used a conservative estimate of 60 uses. In this scenario, 1000 uses of an isolation gown requires 1000 disposable gowns or 16.7 reusable gowns (1000 uses/60). 1000 disposable gowns have a carbon footprint of 310 kg CO<sub>2</sub>e (0.31 kg CO<sub>2</sub>e \* 1000 gowns), which is larger than the footprint of a reusable gown (including laundering and transportation).
- This data does not come from a Canadian source, and may therefore have limited applicability to the Canadian context.



### Environmental impact

#### Considerations:

- Tally the kg CO<sub>2</sub>e for both types of gowns (1A\*2A)+(1B\*2B)
- There should be a REDUCTION in this number over time if you are increasing the proportion of reusable gowns, and using them a minimum of 60 times.
- Reusable gowns can often be used more than 60 times, increasing their environmental benefits (1)
- Use the [Natural Resources Canada Greenhouse Gas Equivalencies Calculator](#) to translate your results to stakeholders.
- **Calculations will yield ESTIMATES only**



# 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?)**

- Educate staff on the importance of reducing single-use plastic waste.
- Document your learnings to be shared with others (e.g., process steps that could be improved, what you learned learnt from your failures, how you course correct, etc.).
- Audit custom packs to remove disposable gowns and evaluate what other equipment can be replaced or removed.

### **Meso (What can you do within your organization?)**

- Partner with other hospitals for group contracts or a province-wide contract for reusable gowns.

### **Macro (What can your organization do?)**

- Advocate for provincial policy to encourage or mandate reusable gowns in most procedures.
- Lobby organizations to make sterile reusable gowns and laundering more affordable.



# References

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