

# Sustainability-Embedded Quality Improvement (SE-QI) Toolkit

## Train-the-trainer

2025-2026





# Why the SE-QI toolkit?

1. Address climate change and sustainability at the system level
2. Support teams in embedding sustainability into their quality improvement (QI) projects and building internal capacity
3. Respond to the need for guidance in developing and reporting sustainability metrics
4. Align with national and international efforts for reporting sustainability metrics in QI projects (e.g. SQUIRE)

## SE-QI Toolkit

Sustainability-Embedded Quality Improvement Toolkit



Christine Henderson  
Interior Health



Arianna Cruz  
CASCADES Canada  
Vancouver Coastal Health



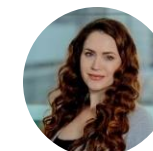
Ilona Hale  
Interior Health



Andrea MacNeill  
Vancouver Coastal Health



Amanda McKenzie  
Interior Health



Nicole Simms  
CASCADES Canada



Andrea Wnuk  
Health Quality BC



Naba Khan  
CASCADES Canada



Rashmi Chadha  
Vancouver Coastal Health



Colin Chan  
Vancouver Coastal Health



Raluca Radu  
Providence Health Care

# Sustainability-Embedded Quality Improvement (SE-QI) Toolkit

Make the connection between your project and the environment!



- Efforts to improve quality often enhance sustainability, and vice versa!

## What does the SE-QI Toolkit do?

Helps QI teams, trainers, and leaders to:

- Understand the role of QI as a vehicle for climate action
- Take **ANY QI project** and:
  - Identify applicable sustainable health system principles
  - Explore relevant sustainability opportunity areas, resources, and recommended metrics
  - Classify and report sustainability metrics alongside quality measures

## How do you use the SE-QI Toolkit?

The Toolkit is a **Google Form** that asks a series of Yes/No/Unsure questions about a past, present, or prospective QI project

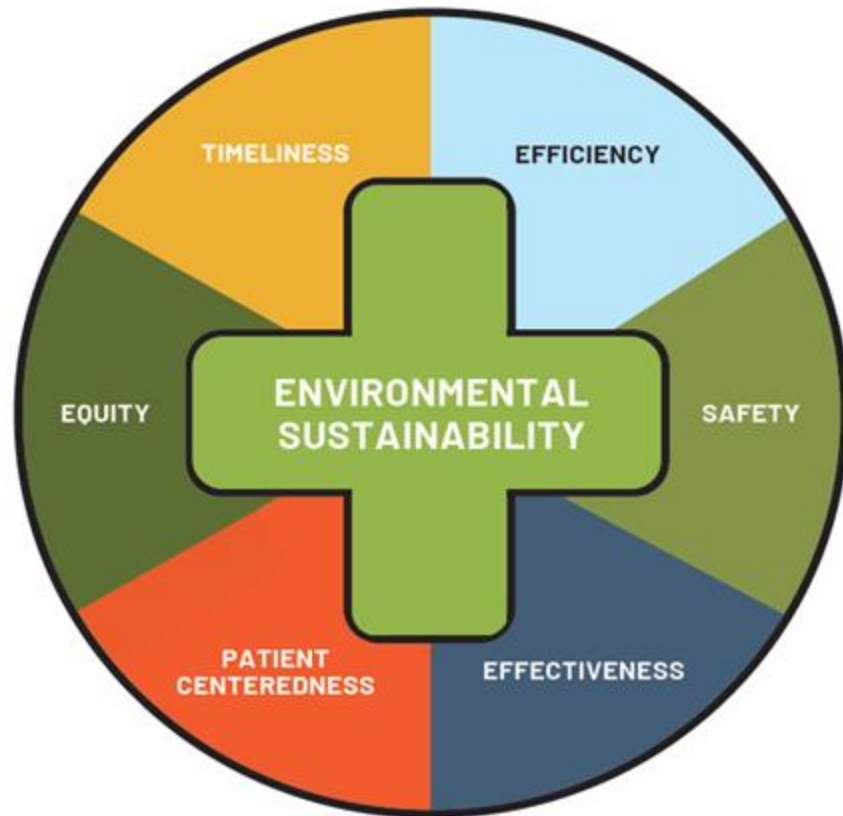
Responses to each section will generate **reports** indicating applicable sustainability principles and related metrics and resources

Individuals, teams, and trainers can **access the Toolkit on the CASCADES website:**

<https://cascadescanada.ca/resources/se-qi-toolkit/>

# CASCADES Approach (2020):

Sustainability is embedded in all domains of quality



- Positions sustainability as a goal and outcome of high-quality care
- Embeds sustainability across all six IOM quality domains
- Transforms sustainability from an “add-on” to a defining feature of high-value care
- Co-benefits: If we focus on delivering high quality care to all, we also move toward care that is more sustainable



## How can the toolkit be used in practice?



To **integrate sustainability into an existing QI project**



To **retrospectively apply to a completed QI project** (for learning or reporting)



To use as a **training or capacity-building tool** to support others applying it in their projects

# Who is the SE-QI toolkit for?

## All QI projects

1

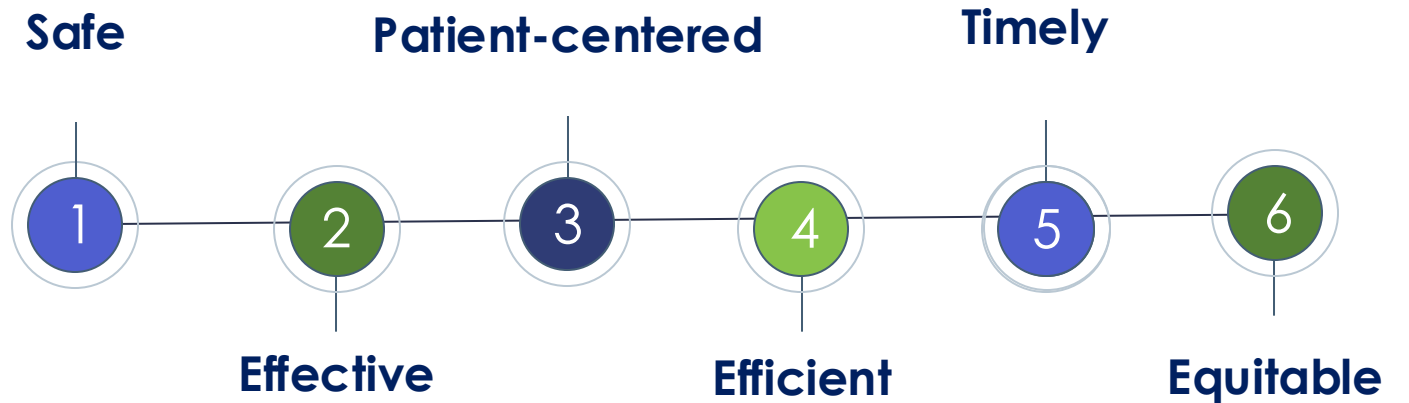
Sustainability as the **focus** of your work :

Initiate projects with an explicit environmental sustainability mandate

2

Sustainability as a **co-benefit** of your work :

Embed an environmental sustainability component into projects with another quality dimension as the focus



# Example: Sustainability as a co-benefit

Ontario  
Surgical Quality  
Improvement  
Network

## Surgical Site Infection



**21% reduction**  
in 24 hospitals

from April 1, 2018 to March 31, 2019

That's an estimated 686 adult<sup>†</sup>  
and 226 pediatric<sup>§</sup> patients who  
avoided an SSI

### Top 3 change ideas:

- Antibiotic prophylaxis
- Normothermia
- Bathing before surgery

## Activity Data

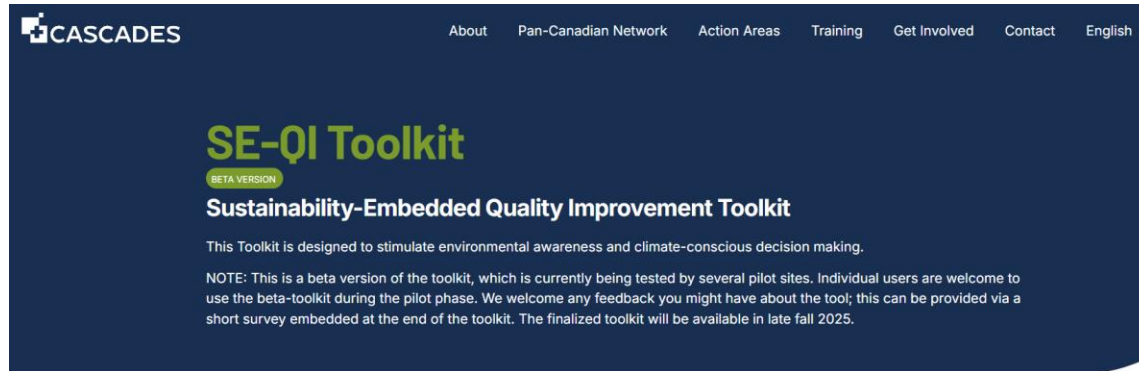
*What are you already doing?*

Table 1: The cost analysis of environmental impact of SSI

Environmental Metrics	per SSI	Cost per unit	Total Cost
GHG Emissions (tCO <sub>2</sub> e)	0.58	£ 70.00	£ 40.50
Direct fresh water use (m <sup>3</sup> )	5	£ 1.97	£ 9.40
Hazardous waste disposal (t)	0.02	£ 475.00	£ 11.08
Non-hazardous waste disposal (t)	0.04	£ 142.00	£ 6.13
Cost of SSI associated environmental impact (per SSI)			£ 67.11

## Environmental Impact Data

# SE-QI Toolkit



The screenshot shows the homepage of the SE-QI Toolkit. At the top left is the CASCADES logo. A navigation menu includes 'About', 'Pan-Canadian Network', 'Action Areas', 'Training', 'Get Involved', 'Contact', and 'English'. The main heading is 'SE-QI Toolkit' with a 'BETA VERSION' tag. Below it is the full name 'Sustainability-Embedded Quality Improvement Toolkit'. A paragraph states: 'This Toolkit is designed to stimulate environmental awareness and climate-conscious decision making.' A note follows: 'NOTE: This is a beta version of the toolkit, which is currently being tested by several pilot sites. Individual users are welcome to use the beta-toolkit during the pilot phase. We welcome any feedback you might have about the tool; this can be provided via a short survey embedded at the end of the toolkit. The finalized toolkit will be available in late fall 2025.'

[Home](#) / [Resources](#) / [Toolkit for Sustainability-Embedded Quality Improvement \(SE-QI\)](#)

## Toolkit Structure

It is recommended that you complete the subsequent Toolkit steps in order, however, you may choose to skip ahead.

### Step 1

To incorporate environmental sustainability into your QI initiative, determine which sustainable healthcare principles apply to your project.

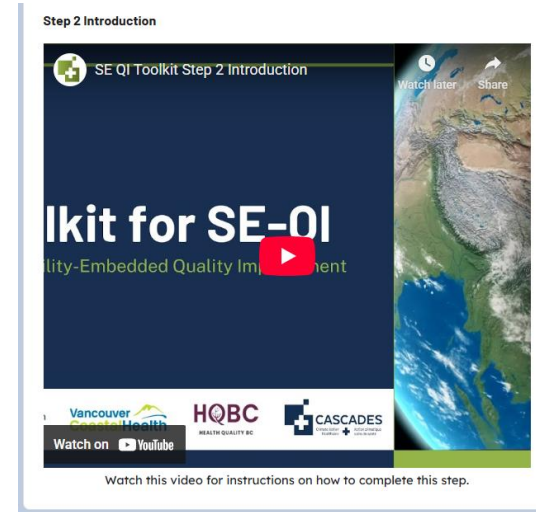
### Step 2

Assess which sustainability opportunities are relevant to your project and access associated recommendations and resources.

### Step 3

Evaluate the level of focus that environmental sustainability will take in your project, and start to consider metrics.

## [Toolkit for Sustainability-Embedded Quality Improvement \(SE-QI\) - CASCADES Canada](#)



The screenshot shows a video player for 'SE-QI Toolkit Step 2 Introduction'. The video title is 'SE-QI Toolkit Step 2 Introduction' and the main text on the video frame is 'Toolkit for SE-QI' and 'Sustainability-Embedded Quality Improvement'. Logos for Vancouver Coastal Health, HQBC (Health Quality BC), and CASCADES are visible at the bottom. A caption below the video reads: 'Watch this video for instructions on how to complete this step.'

## Prevention

*If you select "Yes" or "Unsure", you will be prompted to answer a few follow-up questions to tailor your report.*

*If you select "No", you will skip this section.*

**Does your project involve prevention or improved health outcomes? \***

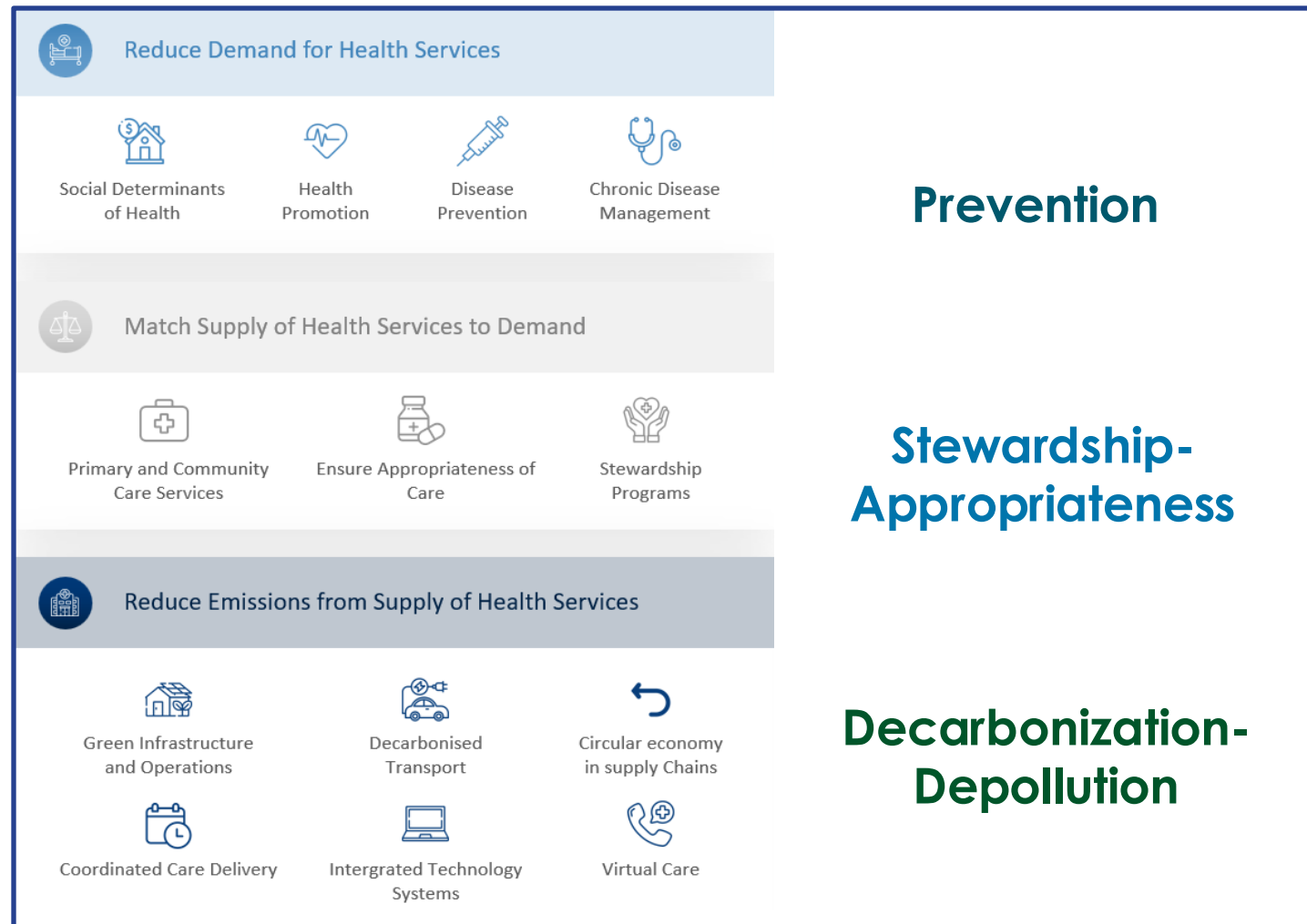
- Yes
- No
- Unsure



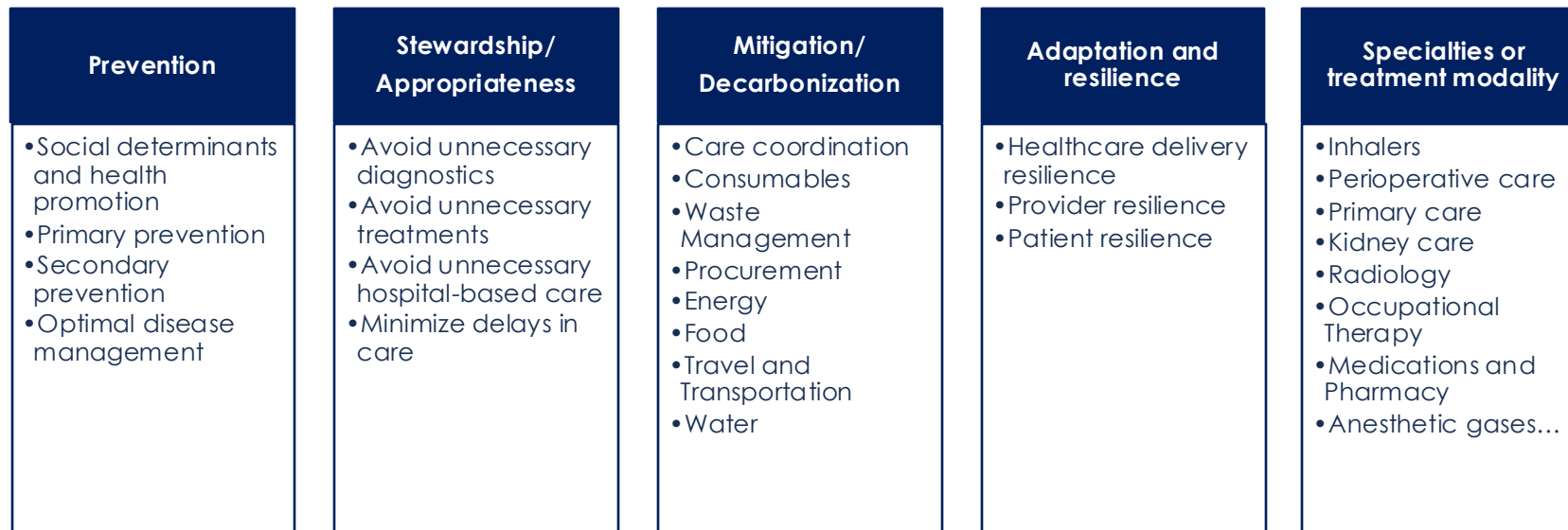
# Step 1: Identify applicable sustainable health system principles

## Framework for Planetary Healthcare

MacNeill A, McGain F, Sherman J.  
*Lancet Planet Health*. 2021



# Step 2: Explore relevant sustainability opportunity areas, resources and metrics





# Step 3: Environmental Metric Selection

- Quantifying environmental impact
- Activity vs Environmental Data
- Interpreting data

## Metric Examples

Select the sustainability metric examples that are relevant to your project.

You can refer to your Step 2 report to see which activity and environmental metrics may apply.

An example of healthcare products, processes, and outcomes...

	Select
Healthcare products, processes, and outcomes	<input checked="" type="checkbox"/>
Travel and transportation	<input type="checkbox"/>
Energy and electricity	<input checked="" type="checkbox"/>
Paper	<input type="checkbox"/>
Anesthetic gases	<input type="checkbox"/>
Food services	<input type="checkbox"/>
Water use	<input type="checkbox"/>
Water pollution	<input type="checkbox"/>
Inhalers	<input checked="" type="checkbox"/>



# Report sample

Project: From MDIs to DPIs in the ED  
11/17/2025

## STEP 1 REPORT

Sustainability-Embedded Quality Improvement (SE-QI) Toolkit

To incorporate environmental sustainability into your QI initiative, this report outlines which sustainable healthcare principles apply best to your project.

### Framework for Sustainable Principles

<p><b>1 Prevention</b></p> <p>Reduce demand for health services by addressing social determinants of health and implementing disease prevention strategies, aiming to decrease disease incidence or severity, thereby lowering healthcare needs and avoiding environmental costs of care.</p>	<p><b>2 Stewardship and Appropriateness</b></p> <p>Match supply of health services to demand through appropriate care, avoiding unnecessary investigations and treatments, and stewarding healthcare resources to avoid harms to patients and reduce environmental costs of care.</p>	<p><b>3 Decarbonization and Depollution</b></p> <p>Reduce emissions from supply of health services by improving operational efficiency, decarbonizing energy/fuel sources, transitioning to circular economy practices for medical devices, and integrating environmental considerations into value-based healthcare reforms.</p>
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The principle of "Prevention" could be a secondary principle of your project.

This means your QI effort incorporates a lens that can help reduce the incidence, severity, or progression of disease, and/or help avoid complications or hospitalization, or shorten the length of stay—thereby reducing the demand for resource-intensive healthcare services.

The principle of "Stewardship and Appropriateness" is not a principle of your project.

The principle of "Decarbonization and Depollution" is a primary principle of your project.

This means your QI effort focuses on delivering necessary and appropriate care in ways that are more resource-efficient and less polluting—while maintaining or improving health outcomes. It may involve actions such as replacing single-use items with reusables, choosing lower-polluting alternatives, or adopting more environmental practices.

Project: From MDIs to DPIs in the ED

## STEP 2 REPORT

Sustainability-Embedded Quality Improvement (SE-QI) Toolkit

Your project's potential environmental impacts and opportunities are listed below, as identified by the questionnaire. Read through the recommendations and browse the linked resources to get an idea of which best relate to your project.

Response	Opportunity Area	Question	Recommendations	Potential Activity Data	Potential Environmental Data	Resource 1	Tr	Resource 2
Unsure	Secondary prevention	Does your project aim to reduce incidence or severity of disease (e.g., avoid medical complications during care delivery or improve patient health outcomes)?	Reducing complications and improving patient health outcomes avoids cascading healthcare needs (and associated environmental impacts) and can send patients home early, improving the efficiency of healthcare resources per patient	Improved health outcomes compared to baseline and avoided healthcare interventions; decrease in number of readmissions or subsequent treatments.				
Unsure	Optimal disease management	Does your project aim to improve disease management and prevent patient deterioration (e.g. glucose management)?	Optimizing disease management is the best case scenario for both patients and the planet. This can prevent cascading care needs from subsequent health events.	Health events prevented; substance use decrease; pollution avoided (e.g. needles prevented or safely collected, etc)				
Yes	Clinical Specialty or Treatment Modality	Does your project involve clinical practice, including lab or pharmacy?	See the linked resources applicable to any clinical specialty	waste diverted, reusables adopted, patient travel avoided, etc		<a href="#">CASCADES Key areas for climate action in healthcare System Enablers</a> . See also: <a href="#">CASCADES Operational Readiness Playbook</a>		<a href="#">United Kingdom Centre for Sustainable Health Care Hub</a> . Search for a hub in your clinical specialty and explore the topics and resources they've linked
Yes	Inhalers	Does your project involve inhaler ordering, dispensing, disposal or inpatient transport?	Substantial work has been done to establish climate-conscious inhaler practices. Ensure inhalers aren't lost during transport. Confirm patient diagnosis and correct technique. Minimize metered-dose inhaler (MDI) use in favour of dry power or soft mist inhalers. Avoid duplicate inhalers dispensing. Dispose MDIs via incineration. See linked resources many more ideas	Number and type of inhaler prescribed per patient per day, month, visit or year; dollars saved	kg CO <sub>2</sub> e avoided from changes in inhaler use	<a href="#">CASCADES Detailed Inhaler Comparison Chart</a>		<a href="#">CASCADES Playbooks: Climate Conscious Inhaler Practices in Inpatient Care or Outpatient Care</a> . Also check out <a href="#">BCinhalers.ca</a>
Yes	Medications & Pharmacy	Does your project impact prescribing/ordering or managing medications or pharmacy?	Confirm diagnosis before prescribing, consider deprescribing and weigh risks vs benefits for every prescription with patients. Advise patients return unused medications to community pharmacy for disposal.			<a href="#">IBC Therapeutics Initiative</a>		<a href="#">Climate Resilient Low-Carbon Sustainable Pharmacy CASCADES Playbook</a>
Yes	Emergency Room	Does your project involve the emergency room?	See the resources for sustainability ER	Waste diverted, reusables adopted		<a href="#">Emergency Rooms, CASCADES</a>		<a href="#">Reducing the Emergency Department's Footprint: Annals of Emergency Medicine</a>

Project: From MDIs to DPIs in the ED  
11/17/2025

## STEP 3 REPORT

Sustainability-Embedded Quality Improvement (SE-QI) Toolkit

This report contains examples of environmental metric calculations based on the relevant data types for your project's sustainability opportunity areas.

Data Type	Description	Example	Emissions Factor	Environmental Impact Calculation	Resources
PRODUCT/PROCESS/OUTCOME: g/kg/tonnes CO <sub>2</sub> e	You can estimate the carbon footprint of products, processes or outcomes using existing LCAs. Proceed with caution, as the conditions and assumptions of the LCA may differ from your context.	Your project is estimated to prevent 412 surgical site infections	GHG emissions per SST is 0.58 tonnes CO <sub>2</sub> e	412 patients x 0.58 tonnes CO <sub>2</sub> e = 239 tonnes CO <sub>2</sub> e savings	<a href="#">Healthcare LCA Database</a>
INHALERS: g/kg/tonnes CO <sub>2</sub> e per inhaler or per dose	You can estimate the carbon footprint of changes in inhalers use and prescribing	Your project replaced 50 Ventolin plus Atrovent metered-dose inhalers (MDI) prescriptions with Combivent Respimat prescriptions	Ventolin: 28.2 kg CO <sub>2</sub> e per inhaler; Atrovent: 14.6 kg CO <sub>2</sub> e. Combivent: 1.6 kg CO <sub>2</sub> e (calculated by multiplying the g CO <sub>2</sub> e per actuation by number of doses, using CASCADES Inhaler Coverage Chart GHG emissions and dose data)	MDIs' carbon footprint: 28.2 + 14.6 = 42.8 kg CO <sub>2</sub> e Combivent's carbon footprint: 1.6 kg CO <sub>2</sub> e Carbon footprint difference: 42.8 - 1.6 = 41.2 kg CO <sub>2</sub> e savings per Combivent prescription Total GHG emissions savings: 41.2 kg CO <sub>2</sub> e * 50 prescriptions = 2 tonnes CO <sub>2</sub> e	<a href="#">CASCADES Inhaler Coverage Chart</a>



# Report

## SE-QI Toolkit Results



CASCADES <cascadescanada.ca@gmail.com>

To ● Cruz, Arianna [VCH]



If there are problems with how this message is displayed, click here to view it in a web browser.



SE-QI Toolkit Report TEST- Arianna Cruz.pdf  
70 KB

Check your  
SPAM and  
Junk e-mail

[Report comes from: cascadescanada.ca@gmail.com](mailto:cascadescanada.ca@gmail.com)

# SE-QI Toolkit



Apply the SE-QI Toolkit to ANY QI project and:

- Find the alignment with environmental sustainability
- Explore relevant sustainability opportunity areas & resources
- Consider practical environmental metrics



Fill out the Google Form while learning about sustainability



Receive emailed results with curated insights



Consider your recommendations and learnings



Demonstrate your project's impact and protect planetary health