SUSTAINABILITY-EMBEDDED QUALITY IMPROVEMENT (SE-QI) PLAYBOOK

Why • The Case for Change
What • The Tools for Change
How • The Strategy for Change

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Canada

CASCADES

NAVIGATION

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INTRODUCTION

Sustainability-Embedded Quality Improvement (SE-QI) positions quality improvement (QI) as a practical pathway for embedding sustainability within clinical and operational practice.

At its core, this work is grounded in the premise that sustainability is inseparable from high-quality care: **healthcare systems cannot achieve high-quality outcomes if care delivery contributes to environmental harm that ultimately undermines population health and system resilience.** In this context, many improvement efforts already generate environmental co-benefits, while sustainability-focused initiatives can reinforce quality outcomes.

This playbook introduces the SE-QI framework and provides background information, resources, and considerations for embedding sustainability in healthcare improvement projects. It was developed in collaboration with key partners and experts in QI across Canada. It serves as a resource for clinicians, health care professionals, students, trainees, and decision-makers involved in QI work, aiming to inform them of:

- **WHY** SE-QI is an essential and practical approach to quality improvement in healthcare,
- **WHAT** tools are available to support planning and implementation, and
- **HOW** to effectively implement SE-QI into practice to advance high-quality, low-carbon, resilient healthcare.

Suggested citation

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PLAYBOOK STRUCTURE

WHY
The Case for Change

An introduction to the issue being addressed in the playbook

WHAT
The Tools for Change

A structured presentation of the opportunities for action and resources to plan and implement change

HOW
The Strategy for Change

An outline of strategies for sustaining change

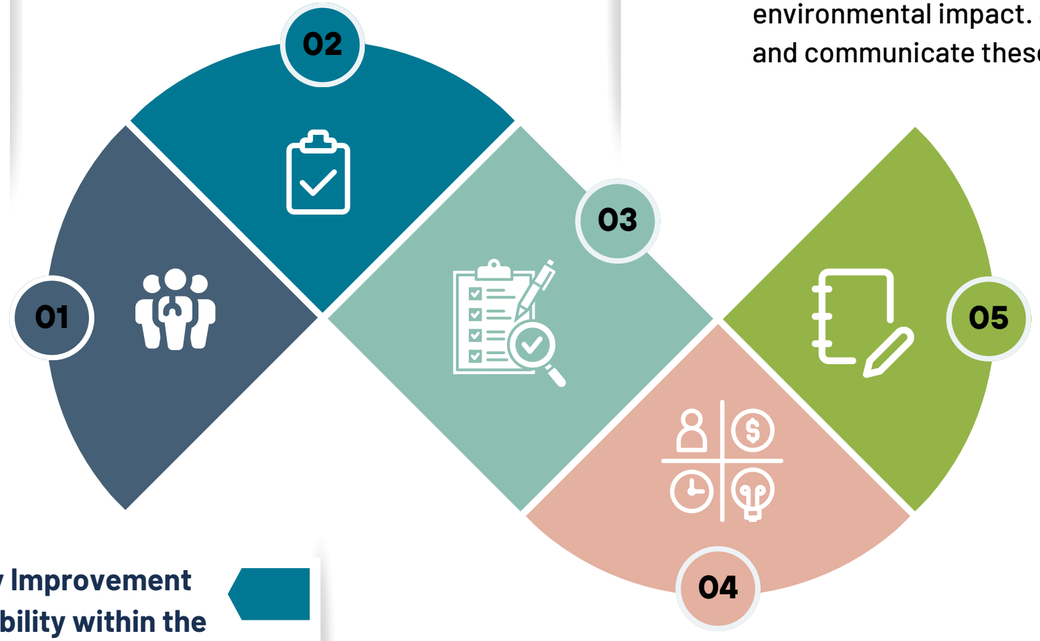
EXECUTIVE SUMMARY

Environmental sustainability is an essential component of high-quality care

Healthcare systems must improve patient outcomes while avoiding harm. Care that contributes to environmental degradation, and in turn undermines the ecological determinants of health, cannot be considered high-quality care.

SE-QI links regular quality improvement efforts to sustainability co-benefits

Many initiatives designed to improve safety, effectiveness, efficiency, or other dimensions of quality also reduce environmental impact. SE-QI helps teams recognize, measure, and communicate these co-benefits.



Practical tools and guidance facilitate SE-QI implementation and spread

Tools, strategies, and real-world examples help clinicians, improvement teams, and health system leaders identify opportunities, implement SE-QI projects, measure impact, and scale successful initiatives.

The Sustainability-Embedded Quality Improvement (SE-QI) framework embeds sustainability within the quality agenda

SE-QI integrates environmental considerations across existing dimensions of quality and established improvement methods, enabling teams to improve outcomes while reducing environmental impact and supporting high-value care.

SE-QI links sustainability-focused initiatives to quality aims

When environmental impact reduction is the primary aim, SE-QI supports teams in linking these initiatives to improvements in clinical outcomes, efficiency, cost reduction, and overall value of care.

WHY

The Case for Change

1. Sustainability as a goal and outcome of high-quality care
2. Quality improvement as a vehicle for climate action
3. Sustainability-Embedded Quality Improvement (SE-QI) Framework

Sustainability as a Goal and Outcome of High-Quality Care

Healthcare systems' ability to deliver uninterrupted, high-quality care is increasingly challenged by environmental, social, economic, and demographic pressures. Among these, climate change poses growing threats. Extreme heat, wildfires, flooding, and other events affect human health while disrupting healthcare operations, supply chains, and workforce capacity. (1, 2) Climate change also amplifies existing health inequities, disproportionately affecting populations already facing social and structural disadvantage. (1-3)

The health sector is not only on the receiving end of this equation: healthcare produces approximately 4–5% of global greenhouse gas (GHG) emissions, undermining its mission to protect and improve health by contributing to the very environmental changes that threaten it. (1-3)

Because climate change impacts both health and healthcare systems, environmental sustainability, which includes **mitigation, adaptation, and resilience** (*), is essential for maintaining safe, high-quality care. (1, 3)

(*) **Mitigation** focuses on reducing greenhouse gas emissions and other environmental harms associated with health system activities such as energy use, models of care, procurement, and waste management. (4,5)

Adaptation focuses on preparing health services for climate impacts and maintaining continuity of care during system disruption. (4,6)

Resilience refers to strengthening a system's capacity to anticipate, adapt to, and recover from acute shocks and chronic stressors. (4)

REVISITING HOW QUALITY IS DEFINED

The pursuit of healthcare quality requires being attentive to environmental impacts on and of patient care.

- The Institute of Medicine's Crossing the Quality Chasm defines quality through six widely used domains: safety, effectiveness, patient-centredness, efficiency, timeliness, and equity. (7)
- Increasingly, the environmental consequences of healthcare delivery are being recognized as directly relevant to these domains.
- Pollution and climate-related risks increase disease burden, compromise patient safety, and disproportionately affect marginalized populations. (1-3,7)
- These connections highlight the interdependence of environmental health and healthcare quality. As climate change places growing pressure on populations, ecosystems, and health system infrastructure, integrating sustainability into quality improvement offers a pathway to support more resilient, efficient, and sustainable models of care.

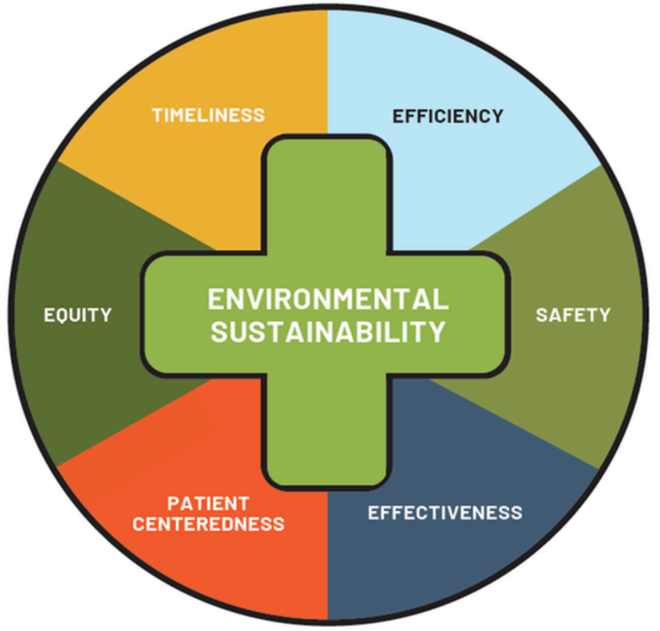


Figure 1. Sustainability is embedded across all domains of quality. (CASCADES)

INCREASING RECOGNITION THAT SUSTAINABILITY RELATES TO QUALITY

Quality organizations and improvement leaders are integrating environmental sustainability into quality decisions, performance measurement, and QI practice. Examples include:

- **United Kingdom**
  - the Royal College of Physicians identifies sustainability as a core quality consideration (8), and the Centre for Sustainable Healthcare developed a sustainability in quality improvement model to integrate environmental, social, and financial impacts into quality improvement. (9, 10)
- **International Society for Quality in Health Care (ISQua)**
  - recognizes environmental sustainability as aligned with safe, equitable, and high-quality care. (11)
- **Institute for Healthcare Improvement**
  - notes that climate action is integral to the quality, safety, equity, and staff well-being agendas of modern healthcare systems, and should be embedded into existing improvement and leadership structures. (12, 13)
- **Canadian Provincial Quality Frameworks**
  - are beginning to incorporate environmental responsibility within quality definitions (14, 15), as discussed in the following section.

A NECESSARY EVOLUTION

Healthcare organizations increasingly recognize climate change as a major health threat affecting disease burden, equity, and system functioning. (16)

Integrating sustainability as a component of health-system quality:

- protects health for current and future generations (16),
- strengthens resilience and continuity of care (2),
- supports equity by reducing disproportionate impacts (1), and
- stewards resources for more fair and efficient allocation.

Quality Improvement as a Vehicle for Climate Action

Existing quality improvement structures provide practical pathways for integrating environmental sustainability into clinical and operational improvement efforts. **Six features make QI a useful vehicle for climate action.**

1 QI FRAMEWORKS INCREASINGLY RECOGNIZE ENVIRONMENTAL CONSIDERATIONS

Sustainability is increasingly being incorporated into healthcare quality frameworks in Canada and internationally.

Models such as the Sustainability in Quality Improvement (SusQI) model, the BC Health Quality Matrix, and the Alberta Quality Dimensions for Health include environmental considerations within definitions of high-quality care.

As environmental performance becomes part of how quality is defined, QI offers a practical mechanism for addressing environmental impacts alongside other dimensions of care.

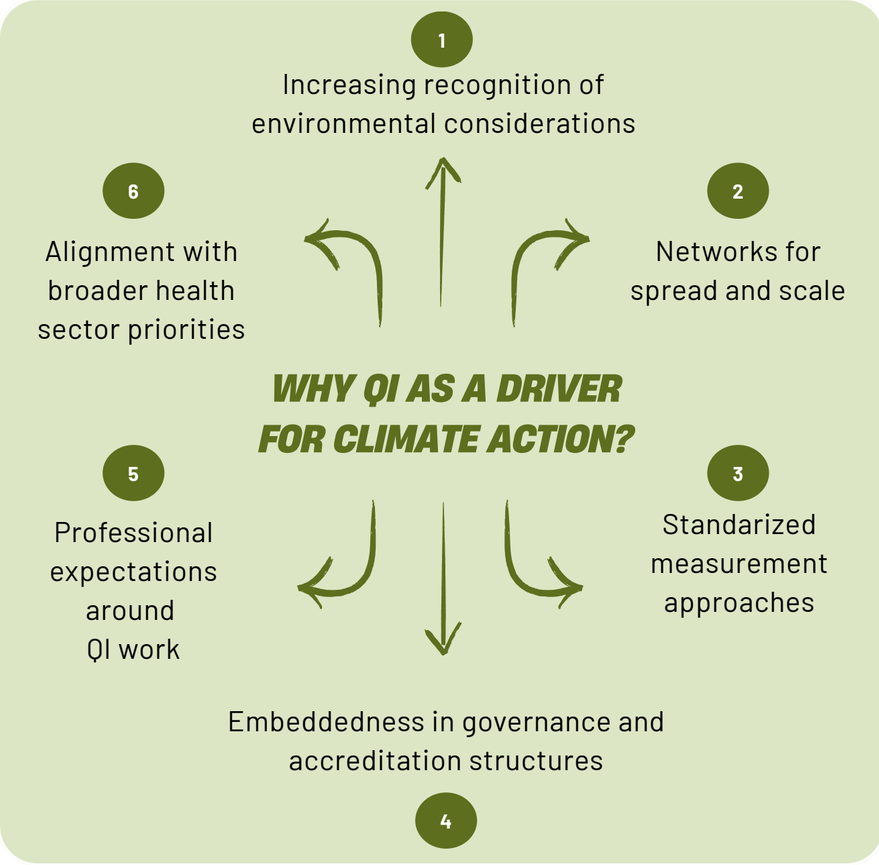


Figure 2. Features of QI that can be leveraged for climate action.

2 QI NETWORKS AND PROGRAMS SUPPORT SPREAD AND SCALABLE ACTION

QI collaboratives, learning networks, and structured improvement supports enable climate-aligned practices to spread across teams and regions. Initiatives such as the following show how existing networks mobilize environmental improvement at scale:

- Health Quality BC (HBQC)'s Low-Carbon High-Quality Care Collaborative mobilized participants in two streams working on sustainable QI projects on inhaler practices and perioperative practices. Now, the Provincial Sustainable Clinical Services Advisory Group is providing recommendations on provincial sustainable initiatives and supporting implementation.
- The Ontario Surgical Quality Improvement Network's "Cut the Carbon" campaign leveraged ONSQIN's annual campaign structure to undertake sustainable QI work in hospitals across the province
- Alberta Health Services supported teams in implementing SusQI projects, and showcased projects at their annual Green Team Competition

3 QI PROVIDES SHARED INDICATORS, MEASUREMENT, AND ACCOUNTABILITY

QI enables environmental impacts to be measured through the same systems used to track other quality indicators. Sustainability indicators and dashboards can be integrated into QI platforms, allowing environmental outcomes to be defined, monitored, and reported through established reporting and performance monitoring structures.

SPOTLIGHT: ONTARIO HEALTH PLANETARY HEALTH

CASCADES supported Ontario Health in developing planetary health indicators for its provincial QI platform. These indicators identify priority areas for environmental improvement and provide teams with mechanisms to select measures, design change ideas, and track progress using the same data systems used for other QI priorities.

4 QI IS EMBEDDED IN GOVERNANCE AND ACCREDITATION STRUCTURES

Quality improvement is embedded in the governance and operational structures of healthcare organizations. Board-level quality committees, executive leadership roles, and improvement teams provide established pathways for integrating sustainability into oversight and accountability mechanisms.

Accreditation and governance standards are also increasingly incorporating sustainability.

- The Health Standards Organization (HSO) and Accreditation Canada's 2025 Declaration on Climate Action includes a commitment to embed climate resilience, decarbonization, and sustainable care practices into healthcare standards and assessment programs.

Embedding sustainability within existing improvement systems increases feasibility and uptake, particularly in healthcare environments facing workforce pressures and limited capacity.

Environmental initiatives are more likely to succeed when integrated into established planning, governance, and measurement processes rather than implemented as parallel programs. (17-19)

SPOTLIGHT: SUNNYBROOK HEALTH SCIENCES CENTRE, SUSTAINABILITY IN QUALITY GOVERNANCE

Sunnybrook Health Sciences Centre in Toronto, Ontario included a nitrous-oxide waste reduction initiative into its 2023–2024 Quality Improvement Plan. Listed under the domain "Sustainable/ Environmental Impact," the project includes targets and indicators to reduce nitrous-oxide waste and emissions. Because it appears within the Quality Improvement Plan, performance is overseen through the same monitoring, reporting, and resource-allocation processes that guide clinical quality priorities.

5 QI PARTICIPATION IS INCREASINGLY A PROFESSIONAL EXPECTATION

Participation in QI is increasingly expected across the healthcare workforce. Regulatory colleges, healthcare systems, and educational institutions are embedding QI competencies into professional standards and training. This creates opportunities to advance environmental priorities through improvement activities already expected of clinicians. Many healthcare professionals also view climate change as a health issue and believe healthcare systems have a responsibility to respond. (20)

Capacity-building programs, including British Columbia's Physician Quality Improvement (PQI) initiative and BC Cancer's 2024-2025 Planetary Health Nursing Internship provide protected time, mentorship, and coaching for sustainability-focused improvement work.

SPOTLIGHT: LONDON HEALTH SCIENCES CENTRE, COLLEGE OF PHYSICIANS AND SURGEONS OF ONTARIO (CPSO) HOSPITAL PARTNERSHIP QI PROGRAM

In Ontario, the College of Physicians and Surgeons of Ontario (CPSO) requires most physicians to participate in its Quality Improvement Program which involves completing a structured improvement activity on a five-year cycle. Because physicians select their own focus, sustainability-related priorities can be addressed within the existing regulatory framework. Similar expectations for practice improvement exist in Nova Scotia and Quebec. (21,22)

At London Health Sciences Centre, an interdisciplinary surgical instrument tray optimization project improved workflow efficiency while reducing unnecessary resource use. Physicians involved were able to apply their participation toward completion of their CPSO Quality Improvement Program requirement. (23)

6 QI ALIGNS MULTIPLE SYSTEM PRIORITIES

QI offers a pathway for considering multiple health system priorities in the pursuit of high-quality care. When environmental considerations are incorporated into QI design and measurement, the alignment between sustainability and other core system values is highlighted, allowing sustainability to become embedded in organizational culture.

SPOTLIGHT: REDUCING NON-SURGICAL GLOVE USE AT PROVIDENCE HEALTH CARE

In 2023, the Cardiac Surgery Intensive Care Unit (ICU) at St. Paul's Hospital (Providence Health Care, British Columbia) launched a QI pilot targeting unnecessary use of non-surgical examination gloves. Over six months, the unit reduced glove consumption by 53%, avoiding 90,100 gloves. Compliance with appropriate glove-use standards rose from 39% to 75%. By applying standard QI methods (audit, feedback, change ideas, and PDSA cycles) the initiative delivered clinical, environmental, operational, financial, and staff-wellbeing benefits simultaneously.

The SE-QI Framework

PURPOSE AND DEFINITION

Developed by CASCADES Canada, the Sustainability-Embedded Quality Improvement (SE-QI) Framework positions environmental sustainability as both a goal and an outcome of high-quality care. Rather than introducing a separate quality domain, SE-QI embeds environmental considerations within existing dimensions of healthcare quality and can be mapped to existing quality frameworks and infrastructures.

SE-QI'S DISTINCTIVE CONTRIBUTION: FROM CONCEPTUAL ALIGNMENT TO FULL INTEGRATION

SE-QI builds on earlier approaches that frame sustainability as a distinct dimension of healthcare quality. In some contexts, this can be a useful way to elevate sustainability and create space for action.

SE-QI addresses a different implementation need: many teams work within established quality structures where adding new domains is not feasible. In these settings, SE-QI operationalizes sustainability through existing improvement infrastructure, embedding environmental considerations across established quality domains and helping teams identify and measure environmental co-benefits of routine quality improvement work.

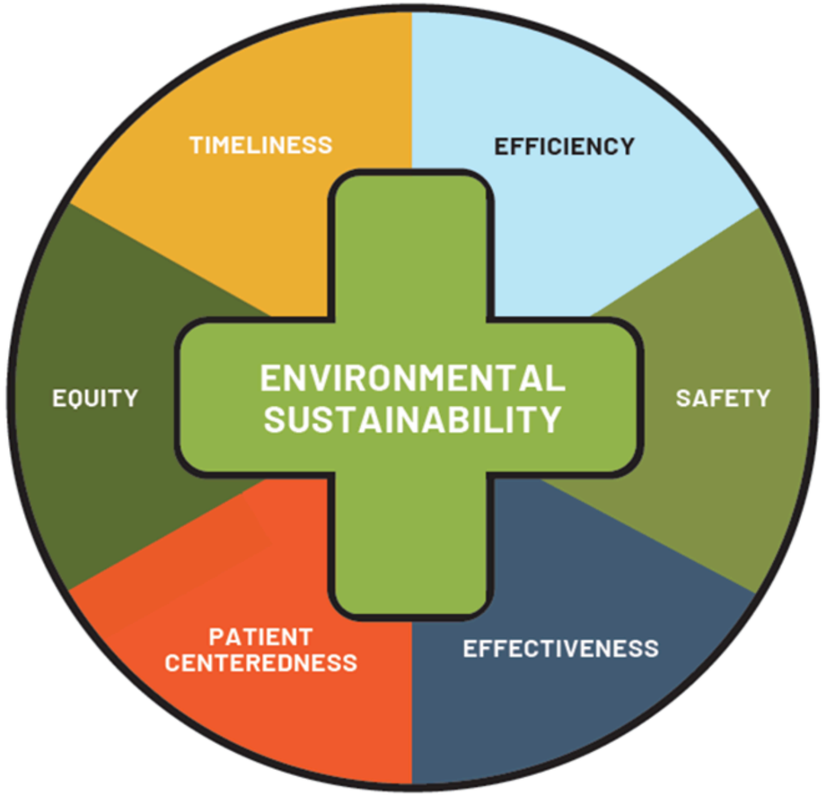


Figure 3. Sustainability-Embedded Quality-Improvement (SE-QI) Framework. (CASCADES)

SUSTAINABILITY PRINCIPLES IN HEALTHCARE SYSTEMS

To reflect environmental sustainability within healthcare QI, it is useful to consider impacts across the full continuum of care, including upstream drivers and downstream consequences. This perspective recognizes that much of healthcare's environmental footprint arises not from waste or facilities, but from patterns of illness, models of care, and the production and use of health system resources.

Guided by the "Planetary Healthcare Framework" developed by Drs. MacNeill, McGain, and Sherman (24), SE-QI draws on three interconnected principles that describe where healthcare improvement efforts most often influence environmental outcomes; these principles are:

Prevent Disease

Reduce demand for health services by preventing avoidable disease onset, progression and adverse outcomes. (24)

Provide Appropriate Care

Improve system efficiency by matching supply to demand for health services, minimizing unnecessary or low-benefit tests and treatment while also preventing harmful underuse for underserved populations. (24)

Reduce Emissions from Care Delivery

Target the environmental footprint of healthcare delivery by shifting to lower-carbon models of care and reducing emissions from healthcare infrastructure and supply chains. (24)

These principles provide the foundation for embedding environmental sustainability within established dimensions of healthcare quality by helping teams and organizations identify practical entry points for sustainability in existing improvement work.

Space to add local, national,

ADVANCING SUSTAINABILITY IN SE-QI THROUGH DUAL PATHWAYS: PRIMARY AIMS AND CO-BENEFITS

Within SE-QI, sustainability may be advanced through two complementary pathways.

- In many cases, sustainability becomes visible as a co-benefit of initiatives designed to improve safety, efficiency, or other dimensions of quality.
- In others, environmental sustainability is the primary focus of improvement work, with quality benefits emerging alongside it. Recognizing both pathways helps teams describe how environmental and clinical outcomes reinforce one another within the same improvement effort.

Quality improvement generates environmental co-benefits

Quality improvement efforts frequently yield environmental benefits, even when these outcomes are not explicit aims. Initiatives that reduce low-value care, improve efficiency, prevent complications, and streamline clinical pathways also reduce emissions, conserve resources, and limit pollution. When viewed through an environmental lens, QI activities routinely reveal avoided environmental harms that are measurable and attributable to improved health system performance.

Sustainability initiatives should strengthen quality goals

Similarly, initiatives with a stated environmental sustainability aim should demonstrate co-benefits in core dimensions of quality, including safety, effectiveness, equity, timeliness, efficiency, and patient experience. Environmental interventions that compromise clinical outcomes, access, or system performance are inconsistent with healthcare's mandate to prevent harm. Sustainability actions should reinforce, rather than trade off against, the delivery of high-quality care.

Methodologically, SE-QI provides a structured way to articulate the environmental impacts of QI initiatives, whether sustainability is a primary objective or arises as a co-benefit of improvement work.
These two pathways support teams to both intentionally advance sustainability and to recognize and report sustainability gains that emerge through routine quality improvement practice.

SE-QI makes visible an important principle

- Quality improvement that reduces complications and low-value care can also eliminate preventable environmental harm, even when not explicitly designed to do so.
- These reciprocal gains reinforce that environmental stewardship and high-quality care are aligned objectives, and that sustainability should be embedded within the structures, measurement, and governance of quality improvement rather than treated as an external mandate.

SPOTLIGHT: IDENTIFYING THE ENVIRONMENTAL CO-BENEFITS OF ONSQIN'S SURGICAL SITE INFECTIONS CAMPAIGN

In a previous campaign, the Ontario Surgical Quality Improvement Network sought to reduce surgical site infections (SSIs) across participating hospitals. Designed as a patient-safety initiative rather than an environmental intervention, the campaign achieved a 21% reduction in SSIs across 24 sites.

Post campaign, the team considered the environmental implications of improved safety by consulting a published estimate of the environmental footprint of an SSI, including GHG emissions, water use, and waste generation. Applying these values to the avoided SSIs demonstrated that safer care prevented associated emissions, resource consumption, and waste generation. ONSQIN is now considering environmental benefits associated with reduced length of stay and avoidance of unnecessary blood transfusions.

Learn more

INTEGRATING ENVIRONMENTAL METRICS IN QI PROJECTS

Once sustainability aims (for sustainability-forward projects) or co-benefits (for other QI projects) are identified, they can be concretely integrated into projects by combining internal activity data with external environmental impact data to generate an estimate of environmental costs or savings.

Activity Data

The quantity or frequency of an activity that generates GHG emissions or other pollutants; can be obtained through internal sources such as Electronic Health Records (EMRs), procurement, and facilities

Environmental Impact Data

The quantity of GHG emissions or pollutants generated by the activity in question; can be obtained through sources such as published life cycle assessments or carbon footprints, reports, and databases. The HealthcareLCA database brings together life cycle assessments on healthcare practices and products from around the world.

As in QI more broadly, precise measurement may not always be feasible. Reasonable estimates based on available activity data and published lifecycle assessments can still provide meaningful insight and help guide improvement decisions.

LINKING THE SIX IOM DOMAINS TO ENVIRONMENTAL SUSTAINABILITY AND RESILIENCE

Environmental sustainability and resilience are already reflected in the core domains of healthcare quality. Viewed through the SE-QI lens, each quality domain can reflect sustainability considerations, and many QI interventions aligned with these aims may also generate environmental co-benefits.

Safety

Avoiding harm extends to preventing environmental exposures and pollution-related health risks, and reducing risks to healthcare infrastructure and care delivery from environmental shocks and stressors.

Effectiveness

Unnecessary or low-value care generates wasteful emissions and contributes to ecological harm.

Efficiency

Responsible resource use (energy, materials, pharmaceuticals, etc.) supports both fiscal sustainability and environmental stewardship.

Timeliness

Climate-related disruptions undermine access, continuity, and reliability of care delivery, while timely care can prevent avoidable disease progression and reduce additional care caused by delays (e.g., repeated imaging or ongoing management while awaiting definitive treatment).

Patient Centredness

Patients increasingly expect responsible, climate-conscious care aligned with their health values, and efforts to improve sustainability often enhance patient experience.

Equity

Climate & environmental burdens disproportionately affect marginalized populations, and inefficient or unnecessary use of healthcare resources for one patient or population may limit access to care for others.

The following examples illustrate how QI interventions aligned with core quality aims can also generate environmental co-benefits, and how sustainability actions can reinforce quality outcomes, demonstrating SE-QI's co-benefits principle.

DIMENSION: SAFE CARE

Antimicrobial stewardship to avoid unnecessary antibiotics and resistant organisms

Links to quality domain:

- Reduces risk of medication-related adverse events
- Mitigates development of antibiotic-resistant organisms

Links to environmental sustainability and resilience:

- Avoids resource-intensive hospital admissions related to medication complications
- Reduces emissions associated with pharmaceutical manufacturing and distribution
- Decreases environmental release of antibiotic residues that disrupt ecosystems

DIMENSION: EFFECTIVE CARE

Appropriate glove use and hand hygiene practices.

Links to quality domain:

- Reduces healthcare-associated infections
- Enhances patient safety by reducing cross-contamination

Links to environmental sustainability and resilience:

- Reduces supply chain emissions associated with glove production
- Decreases solid waste generation

DIMENSION: EFFICIENT CARE

Reducing unnecessary daily bloodwork in inpatient populations.

Links to quality domain:

- Improves patient experience by minimizing discomfort
- Saves staff time and lowers operational costs
- Decreases need for blood transfusions

Links to environmental sustainability and resilience:

- Reduces volume of laboratory waste
- Lowers energy and supply-chain emissions associated with blood testing
- Decreases volume of single-use blood collection material waste

The following examples illustrate how QI interventions aligned with core quality aims can also generate environmental co-benefits, and how sustainability actions can reinforce quality outcomes, demonstrating SE-QI's co-benefits principle.

DIMENSION: TIMELY CARE

Implementing virtual care visits for patients in rural or remote communities

Links to quality domain:

- Improves timely access to care for patients in rural or underserved areas
- Supports continuity of care without delays caused by travel or distance

Links to environmental sustainability and resilience:

- Reduces patient travel emissions
- Decreases travel time and logistical burdens associated with accessing care
- Strengthens continuity of care during disruptions (e.g., extreme weather, wildfire, or transportation interruptions)

DIMENSION: PATIENT-CENTRED CARE

Incorporating traditional, culturally appropriate, locally grown, and seasonal foods into hospital menus.

Links to quality domain:

- Improves patient experience and choice
- Strengthens nutrition-based clinical outcomes
- Enhances cultural safety and patient preferences

Links to environmental sustainability and resilience:

- Potentially reduces food-related transportation emissions
- Supports regional and sustainable food systems
- Minimizes food waste

DIMENSION: EQUITABLE CARE

Reducing disparities in access to cancer screening (e.g., outreach programs to increase screening uptake in underserved populations).

Links to quality domain:

- Improves clinical outcomes
- Reduces inequities in quality and timeliness of care
- Ensures high-quality services are available to all

Links to environmental sustainability and resilience:

- Supports access for populations disproportionately impacted by climate-related illness
- Enhances community resilience by advancing health equity
- Aligns resource stewardship with fairness and social responsibility

SPOTLIGHT: EMBEDDING SUSTAINABILITY ACROSS THE DOMAINS OF QUALITY, BC HEALTH QUALITY MATRIX

Figure 4. BC Health Quality Matrix

In British Columbia, the BC Health Quality Matrix (developed by Health Quality BC in consultation with partners across the health system) provides a shared definition of quality grounded in seven dimensions. In its most recent iteration, the Matrix has been strengthened to highlight environmental sustainability as foundational to high-quality care, embedding sustainability considerations alongside other dimensions of quality such as safety, equity, and effectiveness. This evolution illustrates how environmental performance can be incorporated within existing quality domains and organizational structures, situating sustainability as an integral part of how quality is defined and measured rather than as a separate or parallel agenda.

WHAT

The Tools for Change

1. Sustainability-Embedded Quality Improvement (SE-QI) Toolkit
2. Sustainability-Embedded Quality Improvement (SE-QI) Project Charter
3. Project Charter Templates
4. SQUIRE-ENV Extension

CASCADES SE-QI TOOLS

Integrating environmental sustainability into QI does not require new methodologies or parallel workstreams. SE-QI instead encourages teams to apply existing improvement methods and governance structures with an expanded lens that makes environmental considerations visible.

To support this work, CASCADES Canada and partners have developed a suite of practical tools for use within familiar QI structures.

The resources currently in use, and/or undergoing provincial pilot application, include:

- **A. SE-QI Toolkit**
- **B. SE-QI Project Charter**
- **C. Completed project charters**
- **D. SQUIRE-ENV Extension**

Sustainability-Embedded Quality Improvement (SE-QI) Toolkit

Co-developed by CASCADES, Health Quality BC, Interior Health, and Vancouver Coastal Health, the SE-QI Toolkit provides practical guidance for integrating environmental considerations into QI work.

Available as an online guided form, the SE-QI Toolkit walks users through structured prompts designed to:

1. Help identify environmental opportunities relevant to a QI project,
2. Support the selection of appropriate metrics,
3. Highlight connections to core principles of sustainable healthcare (prevention, stewardship, decarbonization).

CLICK HERE
to access the SE-QI Toolkit (beta version)

Upon completion, users receive a personalized output report summarizing:

- identified environmental considerations,
- example metrics and resources to support measurement and reporting, based on external environmental impact data from a variety of sources that can be used to estimate the environmental implications of quality interventions

The Toolkit can be used flexibly to:

- integrate sustainability into an existing QI project
- retrospectively identify sustainability links for a completed QI project (for learning or reporting)
- training or building capacity to support others applying it in their projects.

Ready to start?

Access the Toolkit

The Toolkit was piloted across six provinces, demonstrating strong relevance and usability. Pilot feedback informed refinement of the current version, with an updated Toolkit expected in June 2026.

RESOURCES:

- SE-QI Toolkit
- Sustainability-Embedded Quality Improvement (SE-QI) Toolkit : Train-the-Trainer Slide Deck, CASCADES
  - A brief training deck for users who wish to teach others at their site how to use the SE-QI toolkit

The SE-QI Project Charter

The SE-QI Project Charter builds on the familiar Model for Improvement by adding sustainability prompts to standard charter components such as aim statements, process mapping, and measurement planning. It does not replace local charter templates; rather, it helps teams embed environmental thinking into:

- Problem definition
- Current state assessment
- Root cause analysis
- Change idea development
- Measurement

The Charter is organized around three guiding questions:

1. **What is the problem?** (Including what we are trying to achieve)
2. **What do we need to learn?** (Including root causes, environmental drivers, and upstream determinants)
3. **What does improvement look like?** (Including what change ideas we will test and how we will measure impact)

CLICK HERE
download the SE-QI Project Charter

Figure 5. Project Charter Templates

Project Charter Templates

In partnership with various groups and individuals, CASCADES has created several project charter templates focused on specific opportunity areas.

Most of these templates were developed for the Sustainable Perioperative Care Playbook, but they address projects that can be applied in other contexts.

Each project charter can be downloaded and modified to suit the needs of your team.

CLICK HERE
to view CASCADES' Sustainable Perioperative Care Playbook and associated resources

Beyond the perioperative space, CASCADES has worked with partners to develop a project charter and other resources aimed at integrating planetary health into educational rounds as part of the Planetary Health Rounds for Internal Medicine project.

This multi-resource initiative, which aims to embed formal education on planetary health within a medical teaching unit, can enhance understanding of sustainable health and foster engagement of QI within clinical practice.

Action Area	Available Project Charters
Minimize Direct Emissions	Eliminate Desflurane
	Low Flow Administration of Anesthetic Gases
	Nitrous Oxide Waste Reduction
Substitute Reusable Alternatives	Bring your own reusable bag (BYORB)
	Reusable Gowns
	Extended Breathing Circuits
	Reusable Laryngeal Mask Airways (LMAs)
Reduce and Manage Waste	Biomedical Waste Management
	Plastic Waste in the Operating Room
	Perioperative Pharmaceutical Waste
	Device Remanufacturing
	Optimize Custom Packs in the Operating Room
	Optimize Surgical Trays in the Operating Room

Click through the examples of Sustainable QI project charters designed to be adapted by local teams (a link to download and edit each charter appears on the second slide).

SQUIRE-ENV Extension

The SQUIRE-ENV extension is being led by the Centre for Quality Improvement and Patient Safety (CQuIPS) in collaboration with CASCADES and national and international quality improvement leaders. Building on the internationally recognized Standards for Quality Improvement Reporting Excellence (SQUIRE), this extension establishes structured guidance for reporting environmental sustainability in quality improvement projects where sustainability is a co-benefit or primary aim.

Because SQUIRE is widely used by journals, conferences, and healthcare systems to report improvement work, SQUIRE-ENV will help embed sustainability into how QI initiatives are designed, documented, and shared. Publication is anticipated in 2026.

CQuIPS

SQuIRE
Standards for Quality Improvement Reporting Excellence

Coming Soon

HOW

The Strategy for Change

1. Find your community
2. Align your work with organizational priorities
3. Embed sustainability in accountability, governance, and quality structures
4. Empower teams through training and capacity building opportunities
5. Celebrate, spread, and sustain success

Find your community

SE-QI is more likely to succeed when supported by a motivated community of colleagues who care about healthcare's environmental impact and are positioned to act.

In most organizations, those allies already exist.

Surveys from the UK, Ireland, and Canada (25,26) show a consistent pattern:

Clinicians across multiple specialties care deeply about climate change, view environmental stewardship as part of their professional responsibility, and are already modifying personal and workplace behaviours in response. These individuals often sit within everyday clinical operations, QI programs, procurement teams, and leadership portfolios, making them natural champions for SE-QI.

Your "community" can exist at multiple levels:

- A. Inside your own organization
- B. Within your professional discipline
- C. Within national and international networks

A. INSIDE YOUR OWN ORGANIZATION

Many of your colleagues likely share concerns about healthcare's environmental impact. Identifying these individuals, whether through interest groups, QI programs, Green Teams, policy teams, or clinical networks, creates immediate pathways for collaboration and shared action.

SPOTLIGHT: SUNNYBROOK HEALTH SCIENCES CENTRE'S GREEN TASK FORCE

Sunnybrook Health Sciences Centre in Toronto, Ontario established a Green Task Force in 2022 to guide and support environmental sustainability initiatives across the organization. This voluntary group comprises 18 members from various departments with diverse interests, backgrounds, and levels of leadership and expertise. This team focuses on four key themes: green building and grounds; research, education, and culture; clinical operations; and waste and procurement. The task force reports to the Vice President of Human Resources.

SPOTLIGHT: INTERIOR HEALTH'S ENVIRONMENTAL SUSTAINABILITY TEAM

Interior Health in British Columbia has a formal and established Environmental Sustainability Team, led by an Environmental Sustainability Manager who reports to the Executive Director of Corporate Services under the Chief Financial Officer and Vice President of Corporate Services. Additionally, a Climate Change and Health Lead within the Population and Public Health Team reports to the Chief Medical Health Officer's portfolio. Interior Health also established a Regional Planetary Health Table with physician representation from ten medical staff associations in the southern Interior region, enabling regional collaboration and the spread of local initiatives across sites. To further engage staff in sustainability efforts, Interior Health has Environmental Sustainability Committees focused on local, site-level, and broader regional initiatives.

SPOTLIGHT: IWK HEALTH'S HEALTH SYSTEM SUSTAINABILITY PORTFOLIO

IWK Health in Halifax, Nova Scotia has established a Health System Sustainability portfolio. Under the direction of an appointed Executive Lead, the health centre has developed a strategic framework and objectives and key results (OKRs) to guide its sustainability efforts across four pillars: infrastructure, governance, people, and practices.

B. WITHIN YOUR PROFESSIONAL DISCIPLINE

Across Canada and internationally, clinical associations and professional societies are increasingly recognizing climate change as a health emergency and naming environmental stewardship as part of clinical responsibility. These declarations provide legitimacy, language, and alignment when advocating and mobilizing for SE-QI integration. (27-32)

C. WITHIN NATIONAL AND INTERNATIONAL NETWORKS

CASCADES, Choosing Wisely Canada, the UK's Centre for Sustainable Healthcare, as well as specialty-specific communities of practice (e.g., perioperative care, waste management, respiratory care, critical care, surgical services) offer QI-related tools, playbooks, education, communities of practice, and platforms to implement and scale SE-QI efforts. These structures ensure that teams are not working in isolation, but rather contributing to shared learning, a national evidence base, and aligned momentum. For example, see Choosing Wisely Canada's Climate-Conscious Recommendations.

Within every system, there are already individuals who believe climate action is necessary and are eager to align improvement efforts with environmental responsibility. Finding and connecting with these people is often the earliest, and most powerful, step toward embedding sustainability in quality improvement.

Align your work with organizational priorities

SE-QI is more likely to gain traction when aligned with organizational priorities. In some healthcare systems, planetary health or environmental sustainability is already named explicitly in strategic plans. In others, relevant entry points may sit within broader priorities such as quality and safety, operational excellence, resilience, equity, value, or responsible resource use.

Mapping sustainability goals to existing strategic commitments helps position SE-QI as part of organizational success rather than an external request. This can make it easier to secure sponsorship, integrate projects into established portfolios, report through existing channels, and show how environmental stewardship contributes to high-quality, resilient care.

SPOTLIGHT: BC HEALTH AUTHORITIES' PLANETARY HEALTH STRATEGIES

Fraser Health, Interior Health, Island Health, Northern Health and Vancouver Coastal Health have developed Planetary Health organizational strategies aimed at guiding and informing each organization's efforts to create a climate-resilient, sustainable, and low-carbon health system. These strategic frameworks identify key areas of impact with clear objectives, incorporating both mitigation and adaptation goals. They also emphasize the organizations' roles and responsibilities in building healthier communities. It is important to note that these roadmaps go beyond the provincial accountabilities mandated by the Climate Change Accountability Act, which sets legally binding targets for emissions reductions.

Leading change: Mobilizing Quality Improvement for Sustainable Healthcare, CASCADES

This video was part of CASCADES Leadership and Strategy for Sustainable Health Systems Seminar Series, May 2024.

- Speakers discuss the frameworks and principles of quality improvement and how sustainability can be embedded within QI at the organizational and provincial levels.

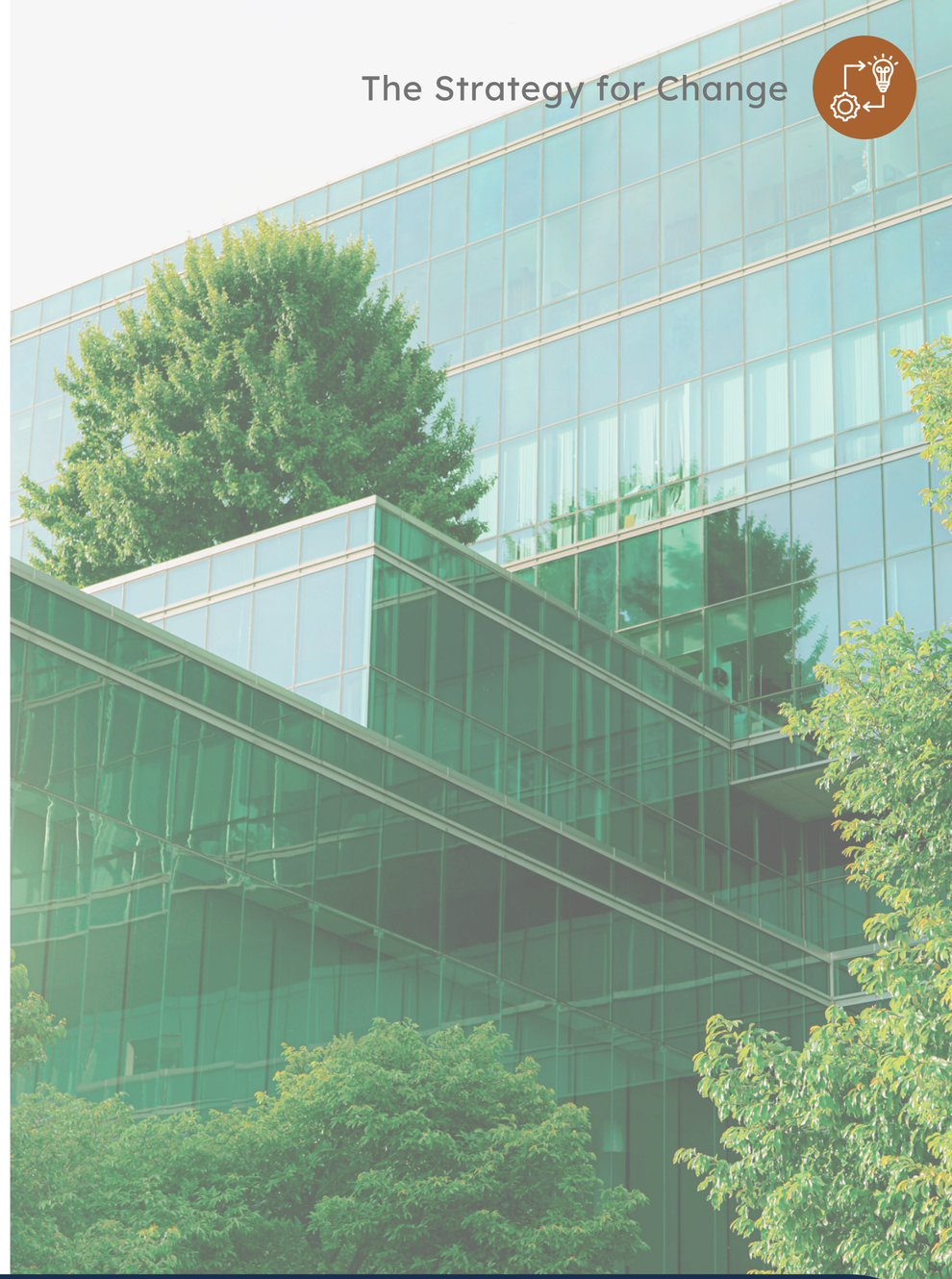
Embed sustainability in accountability, governance, and quality structures

Embedding SE-QI into existing organizational structures ensures it becomes part of how quality is defined, measured, and delivered. When environmental considerations are woven into QI committees, working plans and reporting structures, sustainability becomes normalized rather than exceptional.

Possible pathways to embedding SE-QI into organizational structures include:

- Adding environmental measures into QI project charters and business cases (e.g. Health Quality BC Improvement Charter Template)
- Incorporating sustainability in QI Plans or other reporting mechanisms
- Integrating sustainability curricula into QI programs (e.g. Physician Quality Improvement Program)

Embedding sustainability into these structures supports long-term, system-level integration rather than one-off projects.



Equip teams through training and capacity-building opportunities

Building capability across teams is a critical enabler of SE-QI. Providing targeted training and capacity-building opportunities ensures that clinicians and healthcare leaders are equipped to integrate environmental sustainability into existing QI efforts, supporting consistent and scalable implementation.

SPOTLIGHT: SUSTAINABILITY EMBEDDED QUALITY IMPROVEMENT (SE-QI) WORKSHOPS AND TRAINING

CASCADES offers SE-QI workshops and courses to provide practical support for teams applying sustainability principles to local improvement work. Sessions build shared understanding of the relationship between sustainability and quality, introduce the SE-QI tools, and help participants identify environmental co-benefits within ongoing or emerging projects. Typical content includes:

- alignment between sustainability and quality
- the SE-QI Framework and sustainable healthcare principles
- use of the Model for Improvement to advance environmental outcomes
- applied use of the SE-QI Charter and Toolkit
- environmental outcome, process, and balancing measures.

Together, these workshops help make environmental considerations visible, measurable, and actionable within QI practice. The SE-QI Toolkit is accompanied by a ready-to-use slide deck to support training delivery.

Capacity building through dedicated offerings or integration into existing programs can build confidence and motivate action

SPOTLIGHT: EMBEDDING SUSTAINABILITY IN QI TRAINING – CQUIPS EQUIP

The Centre for Quality Improvement and Patient Safety (CQuIPS) has incorporated environmental sustainability into its EQUIP training program, encouraging participants to consider environmental impacts alongside clinical, operational, and patient outcomes when designing improvement projects. This helps build capacity for sustainability-focused QI and supports spread across healthcare systems.

"The goal of the EQUIP is to train current and future clinicians and leaders working at university-affiliated academic health centres or clinics to build capacity in QI" - CQuIPS

Celebrate, spread, and sustain success

Recognition fuels momentum. Highlighting teams that embed sustainability into QI demonstrates feasibility, accelerates adoption, and inspires others. Cases, learning reports, presentations, and peer-to-peer mentoring all help normalize and accelerate widespread adoption. Celebrating progress shows that environmental stewardship can improve safety, quality, and value, and that SE-QI is achievable in everyday practice.

SPOTLIGHT: ALBERTA HEALTH SERVICES GREEN TEAM COMPETITION

Alberta Health Services (AHS) has implemented a Green Team Competition to engage frontline staff in sustainability-focused quality improvement. The initiative supports teams in identifying and implementing local projects that reduce environmental impact while improving care processes. By combining practical application with shared learning and organizational recognition, this model helps build capability and momentum for sustainability-aligned QI across the organization.

The 2025 AHS Green Team Competition projects were projected to achieve:

$140,912
annual cost savings

28.68 tonnes
CO_2e per year in emission savings

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