Citizen Brief

Taking a Step Towards Achieving Worry-free Surgery in Ontario

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McMaster University | McMaster HEALTH FORUM

EVIDENCE >> INSIGHT >> ACTION

The McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

About citizen panels

A citizen panel is an innovative way to seek public input on high-priority issues. Each panel brings together 14-16 citizens from all walks of life. Panel members share their ideas and experiences on an issue, and learn from research evidence and from the views of others. The discussions of a citizen panel can reveal new understandings about an issue and spark insights about how it should be addressed.

About this brief

This brief was produced by the McMaster Health Forum to serve as the basis for discussions by the citizen panel on taking a step towards achieving worry-free surgery in Ontario. This brief includes information on this topic, including what is known about:

- the underlying problem;
- three possible elements of a comprehensive approach to address the problem; and
- potential barriers and facilitators to implement these options.

This brief does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

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Key messages

What's the problem?

Taking a step towards achieving worry-free surgery in Ontario remains challenging because:

- more surgeries are being performed, which creates challenges for society as a whole (including patients, caregivers, health professionals and the health system);
- surgery-related complications have serious consequences for everyone;
- how we assess and manage risk with surgery patients is not always optimal;
- care is not always delivered based on the best-available data, evidence and guidelines (they do not, at times, reach health professionals and decision-makers); and
- health system-level factors make it difficult to support widespread uptake of optimal clinical practice.

What do we know about elements of a potentially comprehensive approach for addressing the problem?

- **Element 1: Strategies to support the implementation of optimal risk assessment and management for patients having surgery**
  - This could include: 1) strategies to change the behaviour and culture of health professionals to ensure that they deliver optimal risk assessment and management with surgery patients and their caregivers; and 2) strategies to meaningfully partner with patients and the public in risk assessment and management.
- **Element 2: Financial levers to support the implementation of optimal risk assessment and management for patients having surgery**
  - This could include: 1) providing financial rewards to patients, health professionals and organizations to support their adherence to clinical practice guidelines; 2) having financial penalties for health professionals and organizations if they do not adhere to clinical-practice guidelines; and 3) changing how peri-operative care is funded to ensure it is aligned with clinical-practice guidelines.
- **Element 3: Broader changes to the health system to support the implementation of optimal risk assessment and management for patients having surgery**
  - This could include: 1) strategies to improve the accountability of the health system; and 2) strategies to improve how care is delivered.

What implementation considerations need to be kept in mind?

- The biggest barrier to implementing these elements likely lies in the possible resistance to dropping unnecessary pre-operative testing, to standardizing care, and to monitoring and evaluating clinical practices.
- Windows of opportunity for implementing these elements might include a growing interest by health-system leaders in improving patient safety, reducing the overuse of unnecessary care, and improving clinical practice.

Questions for the citizen panel

>> We want to hear your views about a problem, three elements of a potentially comprehensive approach to addressing it, and how to address barriers to moving forward.

This brief was prepared to stimulate the discussion during the citizen panel. The views and experiences of citizens can make a significant contribution to finding the best ways to meet their needs. More specifically, the panel will provide an opportunity to explore the questions outlined in Box 1. Although we will be looking for common ground during these discussions, the goal of the panel is not to reach consensus, but to gather a range of perspectives on this topic. To help you better understand some of the terminology when considering these questions and reading through the brief, we provide a glossary of key terms in Box 2.

Box 1: Questions for citizens

Questions related to the problem

- What was your greatest source of worry about surgery-related risks before, during and after the surgery (while in hospital and back at home)?
- What could have been avoided?
- What has to change to take a step towards achieving worry-free surgery in Ontario?

Questions related to the elements of a potentially comprehensive approach to address the problem

- General question
  - What would help make surgery "worry free"?

- Element 1 – Strategies to support the implementation of optimal risk assessment and management for patients having surgery
  - What do you think is needed to help professionals use the best available clinical-practice guidelines to assess and manage risk in surgery patients?
  - What do you think is needed to meaningfully engage surgery patients (and their caregivers) in risk assessment and management?

- Element 2 – Financial levers to support the implementation of optimal risk assessment and management for patients having surgery
  - Do you think patients, professionals and organizations should be financially rewarded if they adhere to clinical-practice guidelines?
  - Do you think professionals and organizations should be financially penalized if they do not adhere to clinical-practice guidelines?

- Element 3 – Broader changes to the health system to support the implementation of optimal risk assessment and management for patients having surgery
  - What kinds of broader changes do you think are required to take a step towards achieving worry-free surgery in Ontario?
  - What role do you think patients and citizens in Ontario should play in supporting policymakers in bringing about the changes in the system required to achieve worry-free surgery?

Questions related to implementation considerations

- What are the biggest barriers to pursuing these elements?
- What are the biggest opportunities that could help to implement these elements?

Box 2: Glossary

Surgery

A procedure (or operation) to remove or repair tissue, an organ or a part of the body. Some surgeries require an overnight hospital stay, while others do not. Surgeries can be grouped in four categories, based on their timing:

- *elective surgeries* that are scheduled in advance because they do not involve a medical emergency;
- *semi-elective surgeries* that must be done to preserve the patients' life, but do not need to be performed immediately;
- *urgent surgeries* that can wait until the patient is medically stable, but should generally be done today or tomorrow; and
- *emergency surgeries* that must be performed without delay to avoid risk of permanent disability or death.

Worry-free surgery

A surgery that encompass at least three characteristics:

- engaging the patient and the care team in the decision-making process in order to respond to the patient's needs and conditions;
- using care pathways that are informed by the best available clinical-practice guidelines; and
- minimizing risk for surgery-related complications by proactively identifying and addressing risk factors.

Peri-operative

The period describing the duration of a patient's full surgical journey. This period generally includes three common phases: pre-operative (before the surgery), intra-operative (during the surgery), and post-operative (after the surgery).

Risk assessment

A process of assessing how likely it is that a surgery patient may experience an unfavourable outcome.

Risk management

The steps taken to reduce the levels of risk in a surgery patient.

Complication

An unfavourable evolution or consequence of a disease, a health condition or a treatment, which may occur before, during or after a surgery.

Box 2: Glossary (continued)

Adverse event

Unintended injuries or complications that result in disability at the time of discharge, a prolonged hospital stay, or death. Adverse events are caused by the care provided to patients, rather than the patient's underlying disease or health condition. Some adverse events can be prevented.(2)

Harmful event

Unintended outcome of care that may be prevented with evidence-informed practices and that is identified and treated in the same hospital stay.(3) Examples of harmful events include incidents due to the medication, healthcare-associated infections, patient injuries, and incidents during the surgical procedures.

Never event

Incidents that result in serious patient harm or death, and that can be prevented.(4) Examples of never events include, but are not limited to: a surgery on the wrong body part or the wrong patient; conducting the wrong surgical procedure; unintended foreign object left in a patient following a procedure; and patient death or serious harm arising from the use of improperly sterilized instruments or equipment provided by the healthcare facility.(4)

Clinical-practice guideline

Guidelines that have been developed to help health professionals and patients make decisions about appropriate care options for specific circumstances. Guidelines are developed by expert panels, which often include patient representatives. These expert panels carefully review the best available research evidence, assess the benefits and harms of different care options, and then provide recommendations.(6) Here are some examples:

- guidelines on peri-operative cardiac risk assessment and management for patients who undergo non-cardiac surgery (developed by the Canadian Cardiovascular Society); and
- guidelines for cancer surgeries (developed by Cancer Care Ontario).

Caregiver

An individual who is providing ongoing care or social support to a family member, neighbour or friend who is in need as a result of physical, cognitive or mental health conditions.

Health professional

A doctor, a nurse or any other professional working collaboratively to deliver the best quality of care in every healthcare setting.

There is room for improvement in how we assess and manage risk in surgery patients.

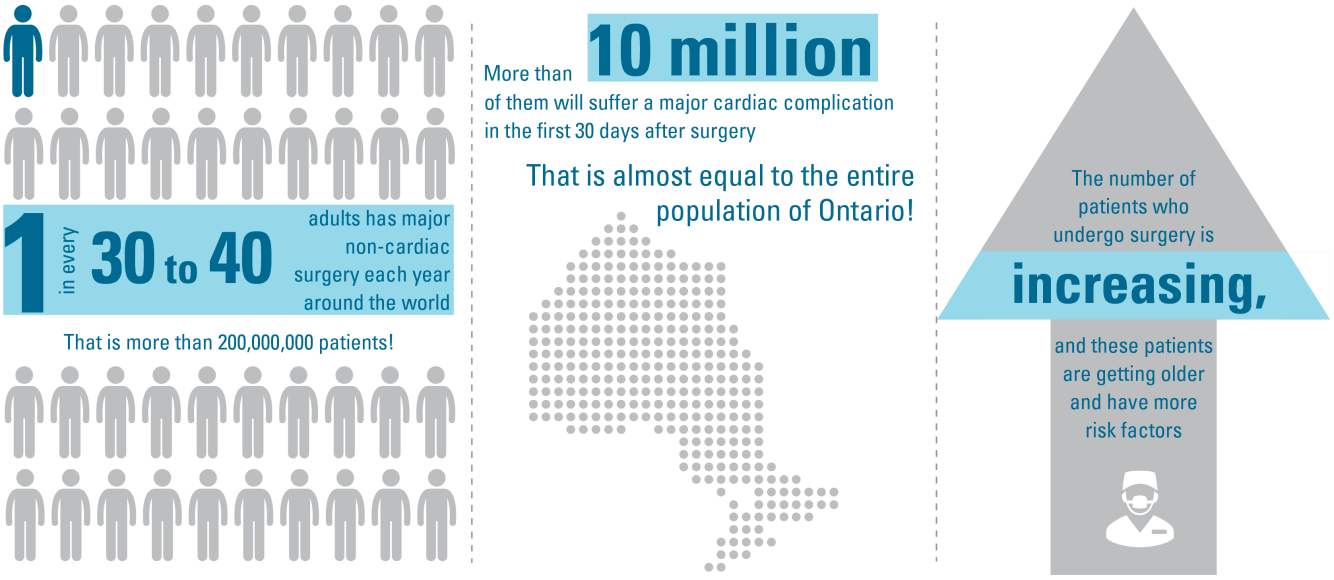
The context: Why is taking a step towards achieving worry-free surgery a high priority?

Each year, more than 200 million surgeries are performed around the world.(7) Peri-operative care has improved through:

- better processes to select patients who could benefit from surgery;
- new surgical techniques;
- better ways to identify and manage risk early;
- new models of care to improve recovery after surgery; and
- a growing number of national and international initiatives to improve the quality and safety of surgical care.

Despite this, rates of surgery-related complications remain high,(7) as revealed by a recent analysis on non-cardiac surgeries (Figure 1).(9)

Figure 1. Patients requiring non-cardiac surgery around the world



Source: (9)

There is room for improvement in how we assess and manage risk before, during and after surgeries. This brief aims to inform deliberations about taking a step towards achieving worry-free surgery in Ontario. We define 'worry-free surgery' as:

- engaging the patient and the care team in the decision-making process in order to respond to the patient's needs and conditions;
- using models of care that are informed by the best available clinical-practice guidelines; and
- minimizing risk for surgery-related complications by proactively identifying and addressing risk factors.

Worry-free surgery does not imply that surgeries will no longer involve risk and complications. It is a call to action to ensure that all surgery patients will receive the best care possible, regardless of where and by whom the care is delivered. The views and experiences of citizens are critical, if we want to achieve this vision.

In Box 3 below, we provide some information about the health system in Ontario that can be useful when reading through the brief.

Box 3: The health system in Ontario

How the health system is governed

- The provincial government has the authority to make a number of decisions about how the system works, but it has also delegated some of this authority to other organizations, such as the ones that regulate what different types of professionals (e.g., nurses or doctors) can do, and the Local Health Integration Networks (LHINs) that plan, integrate and fund care in 14 regions within the province.(1)
- Medicine is a self-regulating profession, which means that the government has established a regulatory college (led by both members of the profession and the general public) to regulate medical practice (for example, who can be considered a doctor and what a doctor is allowed to do). This self-regulation means that some of the levers available to intervene in the system are not under the control of policymakers, which often leaves them to focus on how health workers are remunerated and organizations are funded.(1)
- Health Quality Ontario is the province's advisor on healthcare quality. It supports continuous quality improvement, as well as public reporting about clinical practice, among other topics, and making evidence-based recommendations about standards of care and funding of technologies.

How the health system is financed

- Medical care provided in hospitals (or with hospitals) and by physicians is fully paid for as part of Ontario's publicly funded health system.
- Public spending on healthcare in Ontario is mostly financed through taxes, while private spending is financed primarily through out-of-pocket payments and premiums paid to private insurance plans.(5)
- Many physicians are paid by fee for service, but up to one-third of income received by physicians in Ontario is now paid through alternative payment models. Other health professionals such as nurses are typically paid through salaries or contracts.(5)

How the health system is organized

- Healthcare in Ontario is delivered by professionals in 28 regulated health professions, as well as by unregulated health workers (e.g., physician assistants and personal-support workers).(5)
- Technology is used to support the delivery of care through a teletriage system called Telehealth Ontario (to assess a health problem and provide advice, but not diagnose or prescribe treatment), and telemedicine (videoconferencing to provide clinical care at a distance through the Ontario Telemedicine Network), as well as through an increasing number of patient portals that provide patients with access to their personal health information.(5)
- Health Links (82 out of an approximate planned total of 100 are currently in operation) support the delivery of integrated care for those with complex needs, which is typically people living with four or more chronic diseases and who comprise roughly 5% of the population.(8)

Surgery-related complications have serious consequences for patients, their caregivers, healthcare professionals and the health system.

The problem: Why is it challenging to achieve worry-free surgery?

Taking a step towards achieving worry-free surgery in Ontario remains challenging because of five key factors:

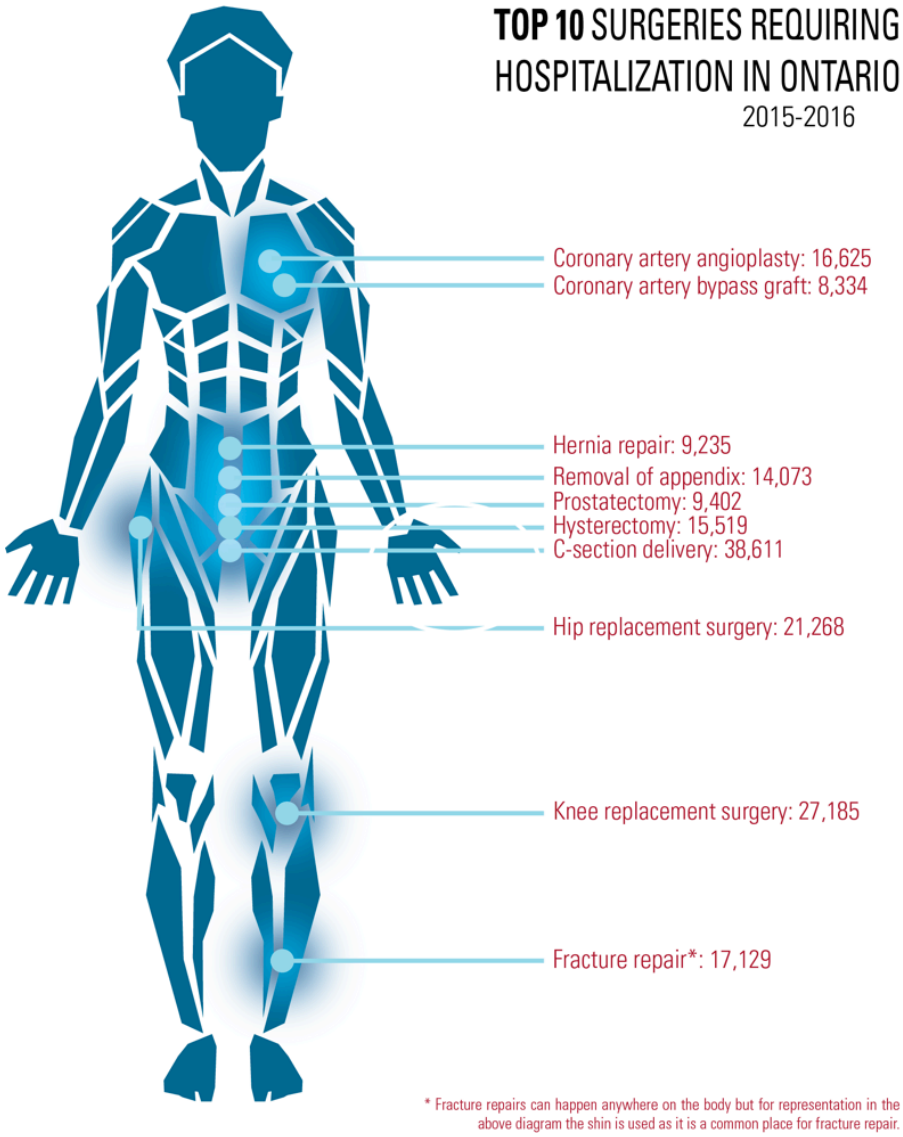
- more surgeries are being performed, which creates challenges for society as a whole (including patients, caregivers, health professionals and the health system);
- surgery-related complications have serious consequences for everyone;
- how we assess and manage risk with surgery patients is not always optimal;
- care is not always delivered based on the best-available data, evidence and guidelines; and
- health system-level factors make it difficult to support widespread uptake of optimal clinical practice.

These factors are described in more detail below.

More surgeries are performed, which create challenges for society as a whole

What constitutes a 'surgery' is not always clear. An analysis of what is considered a 'surgical procedure' in Canada revealed that the scope of surgical procedures has increased more than 400% in the past decade, from just under 3,500 types of surgeries in 2000 to about 18,000 types of surgeries in 2012.(10) These numbers include many different types of surgeries, from minimally invasive to invasive surgeries, as well as surgeries requiring hospitalizations or not. Figure 2 presents the 10 surgeries requiring hospitalization that were most often performed in Ontario in 2015-2016.(11)

Figure 2. Top 10 surgeries requiring hospitalization in Ontario (2015-2016)



Source: (11)

For many of these types of surgeries, the number of surgeries performed has grown steadily over the past years in Ontario. For example:

- 28.4% of women gave birth by caesarean section (known as C-section) in 2015, an increase of 8.2% from 1999;
- 19,848 hip replacements were done in 2013-2014, an increase of 19.2% from 2009-2010; and
- 25,765 knee replacements were done in 2013-2014, an increase of 18.4% from 2009-2010.

Several factors contribute to the growing number of surgeries being done, including:

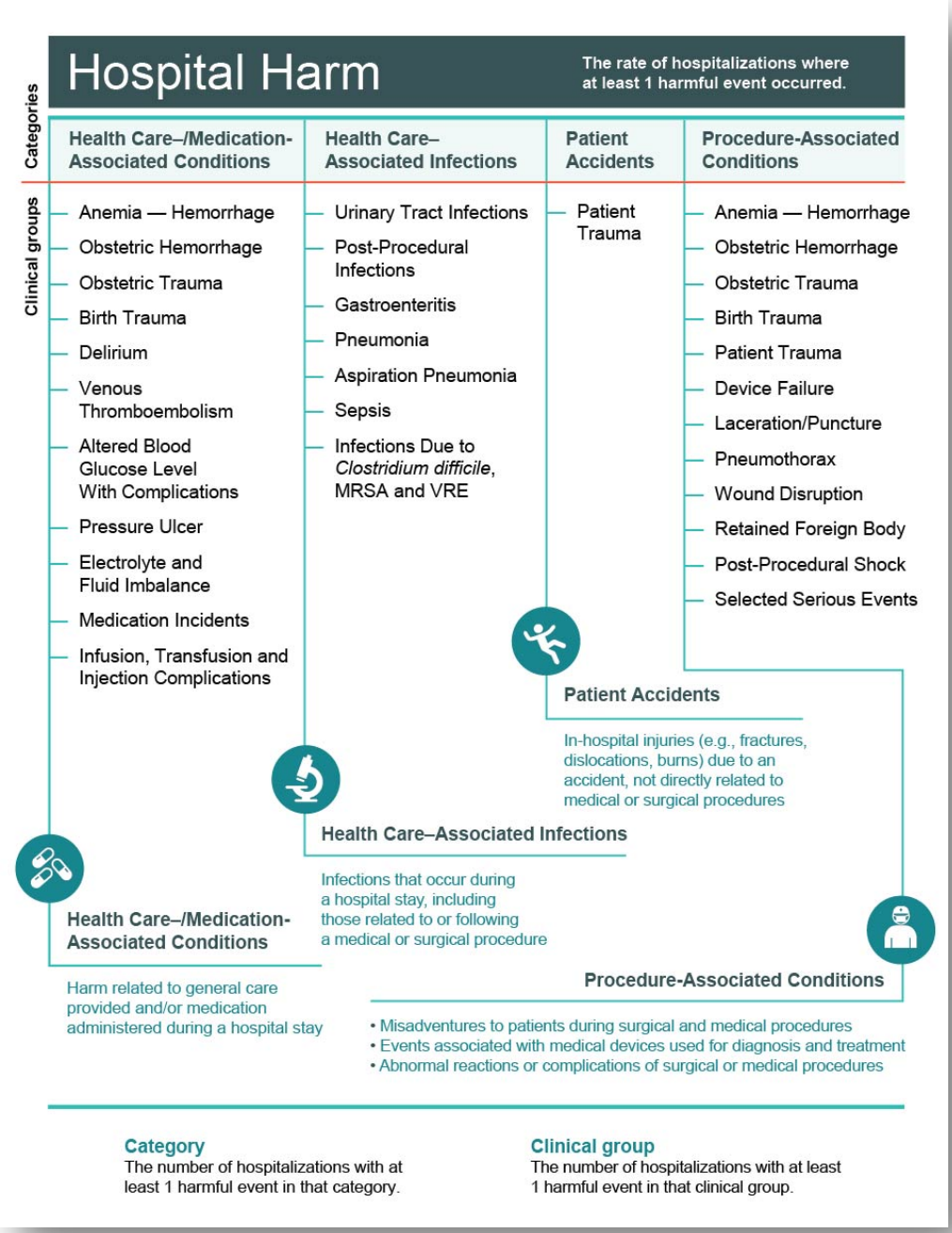
- changing demographics (for example, population growth and aging);
- a growing number of people suffering from chronic diseases;
- new surgical techniques; and
- the capacity to perform surgery on older and sicker patients.

In addition, there have been efforts across the country to reduce wait times for many types of surgeries, including cancer surgery, heart surgery, hip and knee replacement surgery, and cataract surgery. These efforts have contributed to an increase in surgeries performed in some areas in the past decade.(12)

Surgery-related complications have serious consequences for everyone

Despite improvements in the quality and safety of surgeries, rates of surgery-related complications remain high.(7) In 2014-2015, patients suffered potentially preventable harm in more than 138,000 hospitalizations in Canada, or about 1 in 18 hospitalizations (5.6%). Of the patients who experienced harm, approximately 20% experienced more than one harmful event while in hospital.(3) For surgical patients, the harm rate was 7.6%. Of all surgical patients with at least one harmful event, 5.3% died in hospital. In contrast, 0.4% of surgical patients who did not experience a harmful event died in hospital.(3) Harmful events during hospitalization can be associated with various factors (see Figure 3).

Figure 3. Hospital Harm Framework (reproduced with permission)(3)



However, most complications occur within 30 days after a surgical patient has been discharged. As a result, the above data is only reporting on a portion of the harms experienced during hospitalizations. In 2014-2015, the hospital readmission rate for surgery patients was 7% in Ontario (note: some patients may have multiple readmissions and discharges from hospital within any given year). Given that readmissions may be needed if the patient's condition is getting worse, this may indicate that the quality of care delivered in the hospital or in the community after being discharged was inadequate in some way for some of the readmitted patients.(13)

Post-operative complications can vary depending on the types of surgeries. An analysis conducted by the Canadian Institute for Health Information identified the five types of surgeries that were associated with the largest number of readmissions:

1) percutaneous coronary intervention;
2) colostomy (a surgery where a portion of the large intestine is brought through the abdominal wall to carry stool out of the body);
3) unilateral knee replacement;
4) hysterectomy (the surgical removal of the uterus); and
5) pacemaker implantation/removal.

Among these, two major causes of complications are cardiac issues and infection.(14)

The number of complications (and readmissions) are likely to continue to grow as a result of an increasing number of surgeries being performed on sicker patients (for example frail elderly patients and patients with multiple chronic conditions). It is also likely to grow because of an increased number of complex surgeries being performed that are associated with a high risk of complications (for example, surgeries for esophagus cancer, hepato-biliary cancer, lung cancer, ovarian cancer and pancreatic cancer).(15)

Surgery-related complications have serious consequences that can have rippling effects on everyone.

- **Patients:** Beyond physical harm, complications can have serious emotional, mental, social and financial consequences for patients.(3)
- **Caregivers:** Caregivers experience similar consequences, including the physical, social, emotional and financial burden of carrying out the care tasks required for their loved ones.(3)
- **Health professionals:** Professionals are also experiencing the impact of surgery-related complications, including the guilt, remorse, anger, loss of self-confidence, confusion, stress from threats of legal action, and diminished opinions of how colleagues perceive them, all of which can have an impact on their continuing high performance and career satisfaction.
- **Health system:** Surgery-related complications can also pose a significant burden on the health system as a result of substantial increases in morbidity, longer hospitalization, adverse effects and pre-mature mortality.(9) These consequences can take many forms, including increased costs, increased levels of dissatisfaction towards the system, and increased stress on health-system leaders due to growing demands for improvements.

How we assess and manage risk with surgery patients is not always optimal

Despite a growing number of initiatives aimed at improving the quality and safety of surgical care, many surgery patients still do not receive optimal risk assessment and management. Risk assessment and management should be optimal through the surgical pathway: when selecting the right patients that could benefit from surgery, when running pre-operative tests, when preparing the patients for surgery, when performing the surgery, when planning the patient's discharge, and when monitoring the patient during the recovery period and beyond.

Yet, problems often arise right from the start. The overuse of unnecessary pre-operative testing (commonly referred to as 'routine testing') constitutes an example of risk assessment and management that is not optimal.(16-20) Many low-risk surgery patients are undergoing unnecessary pre-operative testing (as compared to what is recommended in the best available clinical-practice guidelines).(21) It is estimated that 18% to 35% of patients who had a low-risk procedure had a pre-operative test in 2012-2013 in Ontario.(22)

Several professional organizations in Canada have made recommendations regarding pre-operative tests that are still routinely used, but are not supported by research evidence and could potentially expose patients to harm.(23) These include, but are not limited to:

- pre-transfusion testing for all patients before a surgery;
- baseline laboratory tests (for example, complete blood count or coagulation testing) for asymptomatic patients undergoing low-risk non-cardiac surgery;
- electrocardiogram (a heart test) for asymptomatic patients undergoing low-risk non-cardiac surgery; and
- cardiac stress testing (a stress test for the heart) in patients having non-cardiac surgery.(23)

Such routine testing usually provides little added value. In fact, it can:

- lead to more unnecessary tests that may increase patient harm (each test having certain risks);
- result in delays and cancellation of surgeries;
- increase patient anxiety or provide a false sense of reassurance; and
- increase health-system costs and use of limited resources.(21;24)

Care is not always delivered based on the best available data, evidence and guidelines

Ensuring that care is based on the best available data, evidence and guidelines remains challenging. For example, the culture of medical practice is hard to change despite the development of clinical-practice guidelines. It has been shown that health professionals' adherence to a clinical-practice guideline usually decreases after more than one year after its implementation.(25) In addition, the existence of multiple and conflicting guidelines from different professional organizations appears to be a source of confusion and frustration among professionals.(26)

Patients are also struggling to adhere to often complex pre-operative and post-operative instructions. A lack of adherence to those instructions can lead to the cancellation of surgical procedures and negative health outcomes.(27) Several factors may contribute to this challenge, such as:

- a lack of patient information and education;
- insufficient time spent by professionals to provide the instructions; and
- limited capacity of some patients to understand and use health information.(28)

Health systems and organizations around the world are also struggling to improve care based on data, evidence and guidelines. Ontario is somewhat unique though, given that it is home to many centres with world-class expertise in these domains.(29-30) Several ongoing initiatives have been identified that could specifically improve risk assessment and management for surgery patients in Ontario.

- At the provincial level
    - Health Quality Ontario and other partners have developed recommendations on how to provide the best care possible for some surgeries. These recommendations support the Ontario Ministry of Health and Long-Term Care's Quality-Based Procedures strategy, which introduced new hospital funding models with clinical best-practice recommendations for specific patient populations.
    - Choosing Wisely in Hospitals campaign aims to reduce pre-operative testing in non-cardiac situations and optimize blood transfusions.
    - Surgical Quality Improvement Network provides hospitals involved in the network with access to data to identify top performers and areas for improvement, as well as track progress in surgical quality improvement.

- National Surgical Quality Improvement Program provides a platform for a concerted and focused effort on quality improvement in surgery, and offers the capacity to perform to, and benchmark against, other major hospitals in the United States and Canada.

- At the local level
  - The North York General Hospital developed a toolkit called "Drop the Pre-op" to support the reduction of unnecessary tests in pre-operative clinics.(23)

Health system-level factors make it difficult to support widespread uptake of optimal clinical practice

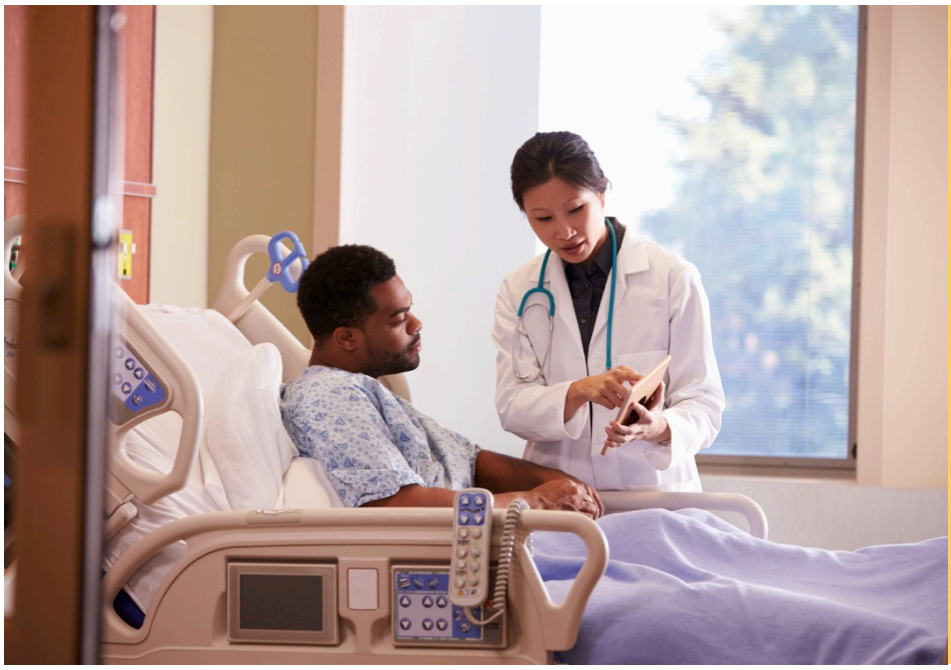
A number of challenges in the health system further complicate efforts to support the widespread uptake of optimal clinical practice. In Table 1, we describe some of these challenges as they relate to how care is delivered, how care is paid for, and how the system is governed.

Table 1. Main system-level challenges related to supporting widespread uptake of optimal clinical practice

System-level challenges	Main challenges
How care is delivered	• There is a lack of clarity among health professionals regarding who is responsible for ordering pre-operative tests.(26) • There is a lack of communication and coordination among professionals, which may lead professionals to order tests 'just in case' they are expected by a colleague.(26) • Health professionals have difficulty balancing many competing priorities (for example, the patients' priorities, those of the hospital, those of their colleagues). • Health professionals often do not have time to properly discuss risk with their patients and to engage them meaningfully in decisions about their care.(31) • Care is fragmented (for example, data about patients is not properly integrated between professionals, and electronic medical records are not readily accessible).

How care is paid for	• Financial incentives are often used to help doctors and organizations to do things differently. But to be effective, financial incentives need to be routinely modified following the release of a new or updated clinical-practice guideline, which is typically not done.
	• Current billing system may impede new models of care
	  ○ Fee-for-service remuneration creates incentives for doctors to provide more, but not necessarily more appropriate, tests.
	  ○ Existing billing system does not allow surgeons and hospitals to be paid for monitoring and supporting patients remotely after being discharged.

How the system is governed	• It is difficult for surgeons to monitor patients after being discharged (for example, 30 days after surgery). Several factors contribute to this problem.
	  ○ There is no consistent system to collect and report surgical data (including number of surgeries being done, rates of complications and outcomes).
	  ○ There are growing organizational pressures to discharge patients sooner after surgery.
	  ○ There is a significant shift towards more surgeries being done without the patient being hospitalized.



A comprehensive approach to achieving worry-free surgery will require the consideration of a number of elements.

Elements of an approach to address the problem

>> To promote discussion about the pros and cons of potential solutions, we have selected three elements to take a step towards achieving worry-free surgery in Ontario

Many approaches could be selected as a starting point for discussion. We have selected the following three elements for which we are seeking public input:

1. strategies to support the implementation of optimal risk assessment and management for patients having surgery;
2. financial levers to support the implementation of optimal risk assessment and management for patients having surgery; and
3. broader changes to the health system to support the implementation of optimal risk assessment and management for patients having surgery.

These elements should not be considered separately. Instead, each should be considered as contributing to a comprehensive approach to addressing the problem. New elements could

also emerge during the discussions. Box 4 below summarizes research evidence that has been identified, selected and synthesized for each element.

Box 4: Identification, selection and synthesis of research evidence presented in this brief

- Whenever possible, we describe what is known about each element based on systematic reviews.
- A systematic review is a summary of all the studies looking at a specific topic.
- A systematic review uses very rigorous methods to identify, select and appraise the quality of all the studies, and to summarize the key findings from these studies.
- A systematic review gives a much more complete and reliable picture of the key research findings, as opposed to looking at just a few individual studies.
- We identified systematic reviews in Health Systems Evidence (www.healthsystemsevidence.org). Health Systems Evidence is the world's most comprehensive database of research evidence on health systems.
- A systematic review was included if it was relevant to one of the elements covered in the brief.
- We then summarized the key findings from all the relevant systematic reviews.

Element 1 – Strategies to support the implementation of optimal risk assessment and management for patients having surgery

Overview

Using clinical-practice guidelines could help to improve risk assessment and management in surgery patients. However, as mentioned earlier, health professionals and patients have difficulties in adhering to these guidelines. Element 1 focuses on strategies that could help to change the behaviours of health professionals and patients in order to support the use of clinical-practice guidelines. Several strategies could be used.

- Strategies targeting health professionals, such as:
  - providing information and education to professionals (for example, educational materials and meetings);
  - integrating guidelines into technologies most frequently used by professionals (for example, smartphone apps); and
  - adopting mechanisms to evaluate the performance of professionals and providing feedback to them (a strategy known as 'audit and feedback').
- Strategies targeting patients and the general public, such as:
  - engaging patients and the public to raise awareness about the existence of guidelines and to encourage their use;(32)
  - improving communication and shared decision-making between professionals and patients based on the best available guidelines;
  - educating patients about what peri-operative care they need (for example, with tools to help patients become engaged in making treatment and recovery-related decisions); and
  - developing mass media campaigns to raise awareness about the need to address overuse of unnecessary routine testing before surgeries.

Evidence to consider

We found several systematic reviews that provide evidence about several of these strategies. We summarize these findings in Table 2.

Questions to consider

Overarching question to consider

- What would help make surgery "worry free"?

Additional questions to consider

- What do you think is needed to help professionals use the best available clinical-practice guidelines to assess and manage risk in surgery patients?
- What do you think is needed to meaningfully engage surgery patients (and their caregivers) in risk assessment and management?

Table 2. Types of activities that could be included in element 1

Strategies	Key findings

Strategies targeting clinicians	• Several educational interventions can improve the care provided by professionals, including:
	  ○ educational materials;(33)
	  ○ educational meetings;(34)
	  ○ educational outreach visits;(35)
	  ○ local opinion leaders that can champion change;(36)
	  ○ audit and feedback;(37) and
	  ○ computerized reminders.(38)
	• There is mixed evidence about integrating guidelines into information technologies most frequently used by clinicians:
	  ○ computerized reminders can be useful, but the use of more complex systems have not been as successful;(38-39) and
	  ○ smartphone and tablet-based apps can help to improve surgical care.(40)
	• Mechanisms to evaluate the performance of professionals and provide them with feedback (known as 'audit and feedback' mechanisms) can improve care, especially when:
	  ○ baseline performance is low;
	  ○ when feedback is provided more than once;
	  ○ when feedback includes both explicit targets and an action plan;
	  ○ when the person providing the feedback is a supervisor or colleague; and
	  ○ when feedback is delivered both verbally and in a written format.(37)

Strategies targeting patients and the general public	• There is mixed (but mostly positive) evidence about the effects of tools designed to support shared decision-making,(41) including:
	  ○ communication-skills workshops or education sessions;
	  ○ coaching sessions targeted at patients or health professionals;
	  ○ computerized decision aids;
	  ○ video-based interventions to improve informed decision-making and shared decision-making;
	  ○ counselling sessions;
	  ○ booklets or DVD decision aids; and
	  ○ paper-based hand-outs.
	• These tools had positive effects on:
	  ○ knowledge;
	  ○ participation;
	  ○ decisional conflict (when a patient is uncertain about what to do, when different treatment options have different benefits and risks, and when they challenge their personal values); and

	○ self-efficacy of disadvantaged populations (their confidence in their ability to achieve something).(41) • These tools had no significant effect on: ○ adherence levels; ○ anxiety; and ○ screening/treatment preferences, intentions or uptake.(41) • The most frequently reported barriers by clinicians for implementing shared decision-making were: ○ time constraints; ○ lack of applicability due to patient characteristics; and lack of applicability based on the clinical situation.(42) • The most frequently reported facilitators by clinicians for implementing shared decision-making were: ○ clinicians' motivation and perception that shared decision-making would lead to improved clinical processes and patient outcomes.(42) • Interventions targeting both patients and clinicians appear more effective than interventions targeting patients alone.(43-44) • Decision aids are effective in supporting patients and their families when deciding on optimal approaches to care, and such tools can: ○ increase patients' knowledge of screening and treatment options;(45-48) ○ encourage patient involvement;(48) ○ support realistic perception of outcomes and risk;(46;48-51) ○ reduce decision-related conflict;(48) ○ increase patient-practitioner communication;(48) and ○ support professionals to provide information and counselling about the available choices.(45) • Mass media campaigns can have positive effects on a range of outcomes, including: ○ health behaviour changes (e.g., weight loss, physical activity and dietary awareness);(52-55) ○ voluntary lifestyle behaviours;(56) ○ knowledge related to health conditions and prevention;(53) ○ awareness of symptoms;(57) and ○ the use of needed health services (e.g. cancer screening, immunization programs).(54;58) • There is mixed evidence about the use of social media by clinicians to facilitate communication or improve patient knowledge.(59)

Element 2 – Financial levers to support the implementation of optimal risk assessment and management for patients having surgery

Overview

Financial levers are often used to bring about change in the health system (for example, how doctors are paid and how hospitals are funded). Element 2 focuses on the use of financial levers to improve risk assessment and management for surgery patients. Financial levers could include:

- financial rewards to patients to improve their adherence to pre-operative and post-operative instructions;
- financial rewards to professionals and/or hospitals (for example, link doctors' remuneration with the use of clinical-practice guidelines, or link the quality of care with hospital funding);
- financial penalties to professionals and/or hospitals (for example, no payment for additional costs associated with preventable errors); and
- modifying the funding for peri-operative care to reflect new models of care as identified by the best available clinical guidelines (for example, changing billing systems to support discharge planning and remote monitoring).

Evidence to consider

We found several systematic reviews that provide evidence about these sub-elements. We summarize these findings in Table 3.

Questions to consider

Overarching question to consider

- What would help make surgery "worry free"?

Additional questions to consider

- Do you think patients, professionals and organizations should be financially rewarded if they adhere to clinical-practice guidelines?

- Do you think professionals and organizations should be financially penalized if they do not adhere to clinical-practice guidelines?

Table 3. Types of activities that could be included in element 2

Area of focus	Key findings
Using financial incentives targeting patients, clinicians and/or organizations	• Financial rewards targeting patients can be effective at changing behaviours such as those required before surgery (for example, smoking cessation). However, the evidence supporting these effects is either inconsistent,(60) indicates that effects are not sustained in the long-term,(61-63) or require substantial cash rewards to sustain behaviour changes.(64) • Financial rewards targeting professionals,(65-69) health organizations (70) and for both professionals and health organizations,(71-74) found that evidence is either insufficient,(67;69;72-73) or modest and of variable effects.(66;68;74) • Financial rewards targeting professionals are more effective for changing some behaviours in the short-run,(66;72) but not for more complex behaviours (for example, improving adherence to clinical guidelines).(66) • Combining financial rewards with other interventions can help to achieve intended effects (for example, using cash rewards plus other motivational interventions for patients, or combining financial rewards with educational interventions or audit and feedback for health professionals) (61;75).
Modifying funding for peri-operative care services to reflect optimal models of care	• A recent high-quality review that evaluated activity-based funding (i.e., shaping payments and financial rewards using diagnosis-related groups) found that it is associated with a 24% increase in admission to post-acute care after hospitalization, an increase in severity of illness (although this might be due to changes in diagnostic coding required for implementation), and no systematic differences in mortality rates or volume of care as compared to usual payment models.(76) • When implementing activity-based funding, it is important to ensure that appropriate supports are in place from the outset of implementation, to provide educational resources, and also to foster enhanced collaboration, communication and interaction between units and committees.(70)

Element 3 – Broader changes to the health system to support the implementation of optimal risk assessment and management for patients having surgery

Overview

Strategies outlined in elements 1 and 2 likely need to be accompanied by strategies to make broader changes to the health system. Element 3 focuses on broader changes that must be made to improve risk assessment and management for surgery patients.

Several strategies may be included in element 3. For example, it may include strategies to improve how the system is governed, such as:

- implementing accountability mechanisms (for example, publicly reporting surgical outcomes).

It may also include strategies to improve how care is delivered, such as:

- ensuring that models of care reflect what is recommended in the best available clinical guidelines (for example, by having predefined templates of tests that should be ordered that are consistent with guideline recommendations and incorporate them in electronic medical records);
- improving teamwork and communication within surgical teams; and
- enabling remote monitoring after discharge from hospital to home (or to a discharge facility) to ensure timely follow-up and early identification of potential complications.

Lastly, it may include systems to monitor the quality and safety of peri-operative care. These systems could:

- encourage a culture of continuous quality improvement where mistakes are openly reported;
- ensure accountability for hospitals to develop and implement quality-improvement plans that will make measureable progress in enhancing implementation of optimal peri-operative risk assessment and management;
- provide routine safety procedures (for example, surgical safety checklists) and opportunities for identifying how to improve (for example, "black boxes" that record everything that happens in the operating room); and

- encourage routine and open discussion and planning, as well as problem solving with patients and families as full and active participants.

Evidence to consider

We found several systematic reviews that provide evidence about these sub-elements. We summarize these findings in Table 4.

Questions to consider

Overarching question to consider

- What would help make surgery "worry free"?

Additional questions to consider

- What kinds of broader changes do you think are required to take a step towards achieving worry-free surgery in Ontario?
- What role do you think patients and citizens in Ontario should play in supporting policymakers and planners in bringing about the changes in the system required to achieve worry-free surgery?

Table 4. Types of activities that could be included in element 3

Area of focus	Key findings

Improving how the system is governed	• The evidence is mixed about the effectiveness of public reporting in improving performance and patient outcomes; one systematic review found positive effects (77) and three other reviews reported either mixed or limited evidence.(78-80)
	• Targeting professionals and managers with performance reports seems more effective since they have the power to change things.(80)
	• The following elements are needed in a public reporting strategy:
	  ○ clear objectives that include accountability and quality improvement;
	  ○ targets that include healthcare organizations;
	  ○ report content that is transparent and comprehensive;
	  ○ information provided in easy-to-use formats; and
	  ○ wide distribution of reports using a variety of approaches.(81)
	• Public reporting can have negative implications and widen health inequities. It may lead professionals and hospitals to 'cherry-pick' patients who may help them score well, or avoid those who may cause them to score poorly in their performance reports.(82)

Improving how care is delivered	• Telemedicine can be used to monitor surgery patients remotely after being discharged from hospital (for example, scheduled follow-up, routine monitoring and management of issues as they present). It was found that:
	  ○ telemedicine can reduce travel time and cost to patients without compromising clinical outcomes; and
	  ○ both patients and clinicians reported high satisfaction with telemedicine.(83)
	• Surgical safety checklists can have a positive effect on:
	  ○ improving teamwork in the operating room;(84-85)
	  ○ improving compliance with safety measures;(85) and
	  ○ reducing morbidity and mortality.(85)
	• Implementing surgical safety checklists raises several implications:
	  ○ incorporating them into busy and interprofessional operating-room settings may be challenging; and
	  ○ poor usage of checklists can have dysfunctional effects on teamwork.(84)

Implementation considerations

It is important to consider what barriers we may face if we implement the proposed elements. These barriers may affect different groups (for example, patients, citizens, health professionals), different healthcare organizations or the health system. While some barriers could be overcome, others could be so substantial that they force a re-evaluation of whether we should pursue these elements.

Perhaps the biggest barriers are:

- **Potential resistance to drop unnecessary routine testing:** Many patients share the belief that 'more is better' (the perception that more pre-operative testing will improve risk assessment and management, and lead to better outcomes). They could thus be resistant to dropping unnecessary routine testing.(86) As for clinicians, they often prefer to be 'better safe than sorry,' and could also be resistant to dropping unnecessary routine testing.
- **Potential resistance to standardize care:** Efforts to promote the use of clinical-practice guidelines could be perceived by professionals as a way to standardize care, and thus an encroachment on their professional autonomy.
- **Potential resistance to monitor and evaluate clinical practices:** Some professionals and organizations may resist monitoring and evaluation, particularly if they involve public reporting and frequent changes to what they do.

The implementation of each of the three elements could also be influenced by the ability to take advantage of potential windows of opportunity. A window of opportunity could be, for example, a recent event that was highly publicized in the media, a crisis, a change in public opinion, or an upcoming election. A window of opportunity can facilitate the implementation of an option.

Examples of potential windows of opportunity

- **Patient safety is an issue of national and international interest:** The growing awareness of (and interest in) improving patient safety puts pressure on health-system leaders and professionals.
- **Several organizations in Ontario have unique expertise to support the use of clinical practice guidelines:** Ontario is home to some of the world's best organizations dedicated to producing clinical-practice guidelines and supporting their implementation.(29)
- **Some policymakers may be receptive to this issue:** Ontario Deputy Minister of Health Dr. Bob Bell is a surgeon focused on using data to drive policy changes, which could help garner interest and action on this issue. Other policymakers increasingly realize that adopting the most advanced surgical practices that are informed by the best available evidence can lead to significant benefits (e.g., improving patient safety, saving unnecessary use of limited resources, and increasing patient and professional satisfaction).

In considering these potential barriers and windows of opportunity, recall the questions we posed at the beginning of the brief. A reminder is provided in Box 5 below.

Box 5: A reminder of the questions to consider for your deliberations

Questions related to the problem

- What was your greatest source of worry about surgery-related risks before, during and after the surgery (while in hospital and back at home)?
- What could have been avoided?
- What has to change to take a step towards achieving worry-free surgery in Ontario?

Questions related to the elements of a potentially comprehensive approach to address the problem

- General question
  - What would help make surgery "worry free"?

- Element 1 – Strategies to support the implementation of optimal risk assessment and management for patients having surgery
  - What do you think is needed to help professionals use the best available clinical-practice guidelines to assess and manage risk in surgery patients?
  - What do you think is needed to meaningfully engage surgery patients (and their caregivers) in risk assessment and management?

- Element 2 – Financial levers to support the implementation of optimal risk assessment and management for patients having surgery
  - Do you think patients, professionals and organizations should be financially rewarded if they adhere to clinical-practice guidelines?
  - Do you think professionals and organizations should be financially penalized if they do not adhere to clinical-practice guidelines?

- Element 3 – Broader system arrangements that support the implementation of optimal risk assessment and management for patients having surgery
  - What kinds of broader changes do you think are required to take a step towards achieving worry-free surgery in Ontario?
  - What role do you think patients and citizens in Ontario should play in supporting policymakers in bringing about the changes in the system required to achieve worry-free surgery?

Questions related to implementation considerations

- What are the biggest barriers to pursuing these elements?
- What are the biggest opportunities that could help to implement these elements?

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Merit review

The citizen brief was reviewed by a small number of citizens, other stakeholders, policymakers and researchers in order to ensure its relevance and rigour.

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