

Surgical Site Infections

Care in All Settings: Prevention, Identification, and Care Coordination



**Ontario
Health**

Scope of This Quality Standard

This quality standard addresses care for people of all ages who have a surgical procedure that requires an incision (a cut through the skin). The standard identifies what can be done to prevent a surgical site infection when a surgery is planned; however, many of the statements also apply to unplanned or emergency surgeries when decisions are made quickly. The standard outlines the best methods for communication among patients, family members, caregivers, and the health care team; it does not address specific treatment modalities. It applies to care for people in all settings where surgical care is provided and surgical wounds are managed, including acute care, primary care, emergency departments, hospital outpatient care, home and community care, rehabilitation, and long-term care.

What Is a Quality Standard?

Quality standards outline what high-quality care looks like for conditions or processes where there are large variations in how care is delivered, or where there are gaps between the care provided in Ontario and the care patients should receive. They:

- Help patients, families, and caregivers know what to ask for in their care
- Help health care professionals know what care they should be offering, based on evidence and expert consensus
- Help health care organizations measure, assess, and improve their performance in caring for patients

Quality standards and their accompanying patient guides are developed by Ontario Health, in collaboration with health care professionals, patients, and caregivers across Ontario.

For more information, contact QualityStandards@OntarioHealth.ca.

Quality Statements to Improve Care: Summary

These quality statements describe what high-quality care looks like for people who have a surgical procedure that requires an incision (a cut through the skin).

Quality Statement 1: Risk Assessment

People having surgery receive a routine preoperative health assessment that includes general health evaluations and an assessment of their risk for developing a surgical site infection. These assessments are documented using a standardized approach.

Quality Statement 2: Preoperative Patient Care

People having surgery are advised to have (or are helped to have) a shower, bath, or bed bath on the day before or the day of surgery. If hair removal is required, it is performed immediately before surgery. Nasal decolonization may be performed if indicated.

Quality Statement 3: Antibiotic Prophylaxis

If antibiotic prophylaxis is indicated prior to surgery, people receive appropriate medication based on the type of surgery—at the appropriate time, dose, and postoperative duration. This includes repeat intraoperative doses when indicated.

Quality Statement 4: Perioperative Monitoring

People having surgery have their body temperature and oxygen levels optimized during the perioperative period.

Quality Statement 5: Operating Room Procedures

People having surgery receive care from an operating room team that minimizes the transfer of microorganisms during the procedure. Specific safety measures are required for operating room personnel, equipment, and patients, as well as for the management of traffic in and out of the operating room.

Quality Statement 6: Patient, Family, and Caregiver Education

People having surgery, as well as their family members and caregivers, receive information, education, and support for all stages of their care. This includes the results of the risk assessment, how to prevent and recognize an infection, and who to contact if they have concerns about wound healing.

Quality Statement 7: Coordination of Postoperative Care

People who have had surgery are given an appropriate referral for follow-up care and treatment, if required. All members of the care team use regular written, verbal, or electronic communications to share information about the patient's status and treatment regimen.

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A Note on Terminology

In this quality standard, “surgical site infection” refers to an infection in a surgical incision. It may present with local signs and symptoms (for example, heat, redness, pain, and swelling), and in more serious cases, with systemic signs of fever or a raised white blood cell count. A surgical site infection may prevent healing, causing the incision edges to separate, or it may cause an abscess in deeper tissues. Definitions of the severity of surgical site infections vary, and this variation should be considered when comparing reported rates of surgical site infections.¹

“Perioperative period” refers to the time surrounding a surgical procedure. It can include admission to hospital and the preoperative (before), intraoperative (during), and postoperative (after) phases of surgical care.²

Why This Quality Standard Is Needed

Surgical site infections occur when an incision becomes colonized by bacteria at a load higher than the immune system can cope with, creating a wound. Surgical site infections lead to substantially increased morbidity, mortality, and health care costs among people who have surgery.³ A surgical site infection occurs within 30 days after the surgery and may involve the skin and subcutaneous tissue (superficial incisional), the deep soft tissue of the incision (e.g., fascia or muscle; deep incisional), or any other anatomy (e.g., organs and spaces) that was opened or manipulated during surgery.⁴

Surgical site infections are the most common type of health care–associated infection among surgical patients,³ and they are the third leading cause of hospital-acquired infections in Canada, accounting for 77% of infection-related patient deaths.^{5,6} In Canada, health care–associated infections (including surgical site infections) result in 3.7 million excess hospital days,⁵ and surgical site infections on their own cost the health care system \$350,000 to \$1 million each year.⁷

Approximately 2% to 5% of people who undergo a clean extra-abdominal surgical procedure (a surgery in which an organ is moved outside the body to be sutured), and up to 20% of those who undergo an intra-abdominal surgical procedure (a surgery in which an organ is sutured inside the body) develop a surgical site infection.³ Surgical patients who acquire a surgical site infection are five times more likely to be readmitted to hospital and twice as likely to die as those who do not acquire a surgical site infection.³ Shorter hospital stays—as well as higher

numbers of patients with complex health needs who require more complicated surgical procedures—have contributed to an increase in surgical site infections associated with inpatient surgeries.⁶ Because almost three-quarters of surgeries are performed as outpatient procedures, there is also a growing need to effectively detect and treat surgical site infections in the community.⁶

According to data published by the National Surgical Quality Improvement Program, surgical site infections are an important area in need of improvement in Canadian hospitals.⁵ The Ontario Surgical Quality Improvement Network (ON-SQIN) is a community of practice that includes surgical teams and specialties across Ontario aimed at improving surgical care using clinical reporting data. Data from ON-SQIN suggest that the rate of surgical site infections for all procedures was decreasing from 2019 to 2021, but increased to 3.48% in 2022.⁸

Disparities in access to surgical care can be related to geographical and environmental challenges (e.g., long distance to care, dangerous travel conditions in winter), limited access to appropriate transportation, financial constraints, and other barriers.^{9,10} These disparities may be particularly pronounced among those who live in rural and remote communities (e.g., Indigenous people), for whom travel for surgery and perioperative care may be especially costly, difficult, and disruptive for recovery.^{10,11}

In 2014/15, the provincial hospital readmission rate for surgical patients was 7 per 100, slightly higher than the national average of 6.8 per 100.¹² In 2020/21, the 44 ON-SQIN collaborative hospitals reported readmission rates for surgical patients at 3.5%; this readmission rate for all surgical procedures has remained steady for the past 2 years.⁸

Populations at a greater risk of complications from surgery (such as surgical site infections) include those with chronic, complex, or comorbid medical conditions; children; the frail and the elderly; those experiencing poor housing conditions or homelessness; and those who are discharged to correctional facilities.¹ People with learning disabilities and language barriers may also be disproportionately affected, based on their ability to use certain interventions or understand and follow up on perioperative instructions.¹ People's access to postsurgical care (e.g., home and community care) and the cost of uninsured devices or supplies are barriers that should be considered, as well as rural or remote location, continuity of supplies between hospital and home, and the cost of supplies not covered through provincial health plans.

In Ontario, postoperative wound infections and cellulitis are the most common reasons for community nursing visits, and more than half of these visits are attributed to care for surgical wounds.⁶ There are many opportunities to improve

the quality of surgical wound care in Ontario, enabling the optimal prevention and treatment of surgical site infections in all care settings.¹³ An important issue to be addressed during the preoperative risk assessment is how the outcome will affect postsurgical discharge planning if the person is at high risk for a surgical site infection. This requires enhanced communication between health care providers in acute care, primary care, and home and community care.⁶

Measurement to Support Improvement

The Surgical Site Infections Quality Standard Advisory Committee identified four overarching indicators to monitor the progress being made toward improving care for people having surgery in Ontario.

Indicators That Can Be Measured Using Provincial Data

- Rate of surgical site infections within 7, 30, or 90 days after surgery (cut-off depends on the type of surgery)
- Rate of emergency department visits with a surgical site infection within 30 days after surgery
- Rate of hospital admissions with a surgical site infection within 30 days after surgery

Indicator That Can Be Measured Using Only Local Data

- Percentage of people with a surgical site infection (and their families and caregivers) who report being satisfied with the care they received

Quality Statements to Improve Care

01

Risk Assessment

People having surgery receive a routine preoperative health assessment that includes general health evaluations and an assessment of their risk for developing a surgical site infection. These assessments are documented using a standardized approach.

Sources: Institute for Clinical Systems Improvement, 2020¹⁴ | National Institute for Health and Care Excellence, 2019¹

Definitions

Having surgery: Undergoing an operative procedure during which at least one incision is made through the skin or mucous membrane (including laparoscopic approaches). This can also include reoperation through an incision that was left open after a previous operative procedure and that takes place in an operating room. Surgeries can be planned, short notice (unplanned), or emergent. Patients require a health assessment and risk assessment regardless of whether the surgery is planned, short-notice, or emergent. The patient's assessments may occur more quickly for short-notice and emergent surgeries compared to planned surgeries.

Preoperative health assessment: A health screening and assessment that includes a focused medical history and appropriate physical and emotional assessments. In some cases, it also includes blood work and other testing to help direct management and assess surgical risk. Current information about the person's medical status is documented, and medical conditions that could lead to adverse perioperative outcomes are assessed to mitigate any risks.¹⁴

The medical history should evaluate, at a minimum:

- Indication for the surgical procedure
- Allergies and adverse reactions to medications (specify reaction type)

- Anaesthesia-related complications or adverse events (personal and family history)
- History of a difficult airway or intubation
- General medical history and chronic medical problems
- Surgical history
- Current medications, including prescription medications, over-the-counter medications, vitamins and minerals, herbal and natural health products; traditional medicines; and medication samples from health care providers
- Implantable devices (cardiac device, spinal simulator, pain pump, etc.)

The physical assessment should include, at a minimum:

- Weight, height
- Vital signs
- Cardiovascular and pulmonary examination
- Other examinations pertinent to the surgical procedure and planned anaesthesia, such as:
 - Skin examination for signs of infection
 - Neurologic examination
 - Musculoskeletal examination
 - Airway examination, including dentition

Assessing a person's emotional readiness for surgical intervention and their emotional health or expected outcomes from their surgical procedure is also important, because emotional well-being can affect incision healing and surgical outcomes. Anxiety related to the surgery—and any pre-existing anxiety diagnoses—should be assessed and managed using methods such as education and patient handouts that give people opportunities to ask questions and share concerns (see quality statement 6). People having surgery should also be given opportunities to talk about specific concerns, listen to music or read before surgery, or use relaxation techniques.¹⁵

Assessment of risk for developing a surgical site infection: Factors that may affect incision healing and increase the risk of a surgical site infection should be assessed and documented during the perioperative period and communicated to the person having surgery. When a person is at higher risk of developing a surgical site infection, health assessments should be conducted more frequently

during the postoperative period to ensure timely risk modification where possible. Organizations should also ensure that the required staffing capacity is available for continued postoperative surgical incision assessment and care. The following risk factors should be identified and addressed where possible¹⁴:

- Age
- Underlying illnesses or comorbidities (e.g., diabetes, cardiovascular disease)
- Obesity, smoking, alcohol use, or substance use
- Site and complexity of the procedure

Standardized approach: An overall patient risk assessment that identifies the potential for postoperative complications—surgical site infections being one possible complication. Organizations may use their own risk assessments informed by best practice; commonly used tools are listed below:

- The American Society of Anesthesiologists Physical Status Classification System ([asahq.org/standards-and-guidelines/asa-physical-status-classification-system](https://www.asahq.org/standards-and-guidelines/asa-physical-status-classification-system)) has established categories to classify a person's status by identifying patient-related risk factors for a surgical site infection (classes I to V)
- The American College of Surgeons National Surgical Quality Improvement Program Surgical Risk Calculator (riskcalculator.facs.org/RiskCalculator) estimates the chance of an unfavourable outcome after surgery (including a surgical site infection) based on information from the patient's medical history

Rationale

A preoperative health assessment conducted in preparation for surgery—including an assessment of risk using a standardized approach—allows clinicians to identify and manage medical conditions or emotional health factors that may affect incision healing during the perioperative period, and to note any patient-specific risks for developing a surgical site infection that can be addressed early.^{14,15} Presurgical screening for anemia (by testing hemoglobin levels) should be considered for those who have a history of anemia, or of recent blood loss and anemia, and whose planned procedure may create substantial blood loss or physiologic stress.^{14,16}

When the surgical procedure cannot be planned (e.g., surgery on short notice from a waitlist, emergency surgery) and risk factors cannot be addressed before surgery, any intrinsic factors (e.g., underlying health conditions) or extrinsic factors

(e.g., the patient's physical environment) that can be managed postoperatively should be identified and optimized as soon as possible.¹⁵

What This Quality Statement Means

For People Having Surgery

Before your surgery, your health care providers should assess your overall health, including your risk of getting a surgical site infection. If you have had a surgical site infection before, or if you have a complex health condition, you may be at higher risk. Your health care providers will talk to you about how to reduce your risk of getting a surgical site infection. You are at higher risk of a surgical site infection if you smoke, are overweight, or use substances, such as alcohol or drugs.

For Clinicians

During the perioperative period, assess every person who is having surgery to determine their overall health and their risk of postoperative complications, including surgical site infections (e.g., age; underlying illnesses or comorbidities; lifestyle factors such as smoking, diet, or exercise; and the site and complexity of the procedure). Ensure that the assessments are conducted using a standardized approach, and that the results are documented. If a person is at higher risk of developing a surgical site infection, ensure that any identified risks are addressed appropriately, and that assessments are completed more frequently during the postoperative period.

For Health Services Planners

Ensure that health care professionals in primary care and acute care settings have access to standard, validated tools for preoperative health and risk assessment, and that assessments are documented as needed to mitigate risks.

QUALITY INDICATOR:

HOW TO MEASURE IMPROVEMENT FOR THIS STATEMENT

- Percentage of people having surgery who receive a routine preoperative health assessment documented in their health record using a standardized approach that includes the following:
 - General health evaluations, including medical history, physical assessment, and (if applicable) emotional assessments
 - Assessment of their risk of developing a surgical site infection

Measurement details for this indicator, as well as indicators to measure overarching goals for the entire quality standard, are presented in Appendix 2.

Preoperative Patient Care

People having surgery are advised to have (or are helped to have) a shower, bath, or bed bath on the day before or the day of surgery. If hair removal is required, it is performed immediately before surgery. Nasal decolonization may be performed if indicated.

Sources: Centers for Disease Control and Prevention, 2017¹⁷ | Institute for Clinical Systems Improvement, 2020¹⁴ | National Institute for Health and Care Excellence, 2019¹ | Ontario Health, 2022¹⁸ | World Health Organization, 2018⁴

Definitions

Shower, bath, or bed bath: Showering or bathing will be directed by a health care professional; some patients will require multiday cleansing with an antiseptic wash (e.g., chlorhexidine, povidone-iodine solution) or a non-antiseptic wash (e.g., soap and water), depending on the surgery.^{1,4,17} If antimicrobial soap is used for pediatric patients, the manufacturer's instructions should be followed to reduce the risk of skin irritation and allergic reactions.⁴

Hair removal: Hair removal is not routinely required, and razors are not used because they increase the risk of surgical site infections.^{1,4,14} If hair removal is needed, health care professionals should remove hair from the surgical area using electronic clippers to reduce the risk of microabrasions (and therefore the risk of a surgical site infection). This should take place on the day of surgery in a designated area outside the operating room. Hair removal can also be performed inside the operating room, if required.^{1,14} If patients have concerns about hair removal for religious or cultural reasons, they should speak with their health care professional.

Nasal decolonization: People who are having higher-risk surgeries (e.g., orthopaedic, cardiothoracic, vascular, gastrointestinal, or some general surgeries) and who are known to be *Staphylococcus aureus* carriers (from previous testing) should receive an intranasal application of a topical antibacterial agent (usually

mupirocin with chlorhexidine body wash).^{4,18,19} People who are having other surgeries should be considered for nasal decolonization before procedures in which *S. aureus* is a likely cause of a surgical site infection,¹⁴ including surgeries that involve the insertion of hardware.

Rationale

Bathing or showering with an antiseptic or non-antiseptic solution the day before or the day of surgery is best clinical practice for reducing the risk of infection, especially at the site of the surgical incision.^{4,14,17} Preoperative education that explains the need for a bath, shower, or nasal decolonization should be offered to people having surgery.¹

What This Quality Statement Means

For People Having Surgery

Your health care providers should encourage you to have a bath or shower on the day of your surgery, or the day before. Showering or bathing will help reduce the number of bacteria on your skin. If you cannot do this by yourself, ask a close friend or family member to help you. Do not shave the area where you are having surgery. If body hair needs to be removed, a health care provider will do it for you. If you cannot have body hair removed from the surgical area for religious, cultural, or other reasons, speak with your health care professional. If you are at high risk of getting a surgical site infection, or if you have tested positive for a type of bacteria called *Staphylococcus aureus*, your health care provider may ask you to use an ointment or cream inside your nose to remove bacteria (a process called "nasal decolonization").

For Clinicians

Educate people having surgery and their family members or caregivers about the importance of having a bath or shower before surgery. Help people to have a bath or shower if needed, or arrange assistance. As well, educate them about avoiding hair removal, and about performing nasal decolonization if required.

For Health Services Planners

Ensure that health care providers receive resources and education that address the importance and frequency of preoperative bathing for patients. Ensure that organizations have processes and resources in place to evaluate whether patients are cleansing prior to surgery. Ensure that processes and systems are available so that people who are at high risk for surgical site infections can receive nasal decolonization.

QUALITY INDICATORS: HOW TO MEASURE IMPROVEMENT FOR THIS STATEMENT

- Percentage of people having surgery who receive education about the need for a bath, shower, or bed bath the day before or day of surgery
- Percentage of people who are having higher-risk surgery and who are known to be *Staphylococcus aureus* carriers who undergo nasal decolonization

Measurement details for these indicators, as well as indicators to measure overarching goals for the entire quality standard, are presented in Appendix 2.

Antibiotic Prophylaxis

If antibiotic prophylaxis is indicated prior to surgery, people receive appropriate medication based on the type of surgery—at the appropriate time, dose, and postoperative duration. This includes repeat intraoperative doses when indicated.

Sources: Centers for Disease Control and Prevention, 2017¹⁷ | National Institute for Health and Care Excellence, 2019¹ | World Health Organization, 2018⁴

Definitions

Surgery for which antibiotic prophylaxis is indicated: Antibiotics (a type of antimicrobial, which also includes antifungals, antiparasitics, and antivirals) are an effective method of preventing surgical site infections in certain types of procedures (see glossary for descriptions):

- Clean surgery involving the placement of a prosthesis or implant, as clinically indicated
- Clean-contaminated surgery
- Contaminated surgery
- Surgery on a dirty or infected wound (requires additional antibiotic treatment after surgery)

Appropriate medication: Before a surgical incision is made, an appropriate antibiotic is chosen (when indicated) based on the type of surgery, or an alternative medication is chosen if the person having surgery has medication allergies.^{20,21} The choice of medication should cover the organisms most likely to cause infection and be influenced by the strength of the association between the antibiotic used and any potential adverse effects. The most appropriate antibiotic agent (including dose, timing of administration, duration, and narrowest spectrum of antibiotic activity) should be used to ensure effective prophylaxis, but also to minimize potential adverse effects associated with antibiotic use, such as

allergies, *Clostridoides difficile* infection, and increased prevalence of antibiotic-resistant bacteria.²¹

Antibiotics can be given intravenously when anaesthesia is started (or earlier for procedures in which a tourniquet is used).²⁰ Administration should be timed so that an appropriate antibiotic concentration has been established in the body when the incision is made—preferably 60 to 120 minutes before the incision, considering the type of antibiotic and its half-life.^{4,20} When choosing an antibiotic, the patient's risk of developing bacterial resistance to a medication should be considered, depending on their medical history, surgical procedure, and risk of an antibiotic-resistant infection.²¹

Repeat intraoperative dose: A repeat intraoperative dose of antibiotics should be given when the duration of the operation is longer than the serum half-life of the antibiotic given,¹ or if the patient experiences substantial blood loss during surgery.

Rationale

Antibiotic prophylaxis is effective in preventing surgical site infections, depending on the type of procedure.^{2,22} For example, the risk of postoperative infection can be reduced by 75% with antibiotic prophylaxis for colorectal surgery.²⁰ For clean and clean-contaminated surgeries, there is limited evidence to support the use of additional doses of antibiotic prophylaxis after the surgical incision has been closed. Postoperative antibiotic prophylaxis should be limited to no more than 24 hours in duration.²¹ For clean and contaminated surgeries, sutures coated with triclosan (polychlorophenoxyphenol) have antimicrobial properties and can reduce the incidence of surgical site infections compared to noncoated sutures (e.g., monofilament or braided) by inhibiting bacterial colonization.^{20,23} Antimicrobial agents (e.g., ointments, solutions, or powders) should not be applied to the surgical incision.¹

What This Quality Statement Means

For People Having Surgery

Depending on the type of surgery you are going to have, your health care providers may give you antibiotics before your surgery. They will give them to you intravenously (that is, through a thin plastic tube into a vein in your arm). These antibiotics will help prevent a surgical site infection. If your surgery will take a long time, your health care providers may give you more antibiotics during the surgery.

For Clinicians

Inform patients if they will need antibiotics before surgery, if they will be given antibiotics during surgery, and if they will need antibiotics after surgery. If antibiotics are indicated before surgery, ensure that they are administered at the appropriate time, dose, and duration, and document the administration in the patient's health record. Ensure that any potential adverse effects are mitigated based on the results of the preoperative health assessment.

For Health Services Planners

Ensure that adequate training, systems, processes, and resources are in place for health care professionals to prescribe appropriate antibiotic prophylaxis before and during surgery based on the procedure being performed.

QUALITY INDICATORS:

HOW TO MEASURE IMPROVEMENT FOR THIS STATEMENT

- Percentage of people having surgery for whom antibiotics are indicated and who receive antibiotics before surgery
- Percentage of people having surgery for whom antibiotics are indicated and who receive antibiotics within 60 minutes (120 minutes for fluoroquinolones and vancomycin) before the skin incision is made
- Percentage of people having surgery who are given antibiotics and who receive a repeat dose when:
 - The duration of the operation is longer than the serum half-life of the antibiotic given
 - The person experiences substantial blood loss during surgery

Measurement details for these indicators, as well as indicators to measure overarching goals for the entire quality standard, are presented in Appendix 2.

04

Perioperative Monitoring

People having surgery have their body temperature and oxygen levels optimized during the perioperative period.

Sources: Institute for Clinical Systems Improvement, 2020¹⁴ | National Institute for Health and Care Excellence, 2019¹ | World Health Organization, 2018⁴

Definitions

Body temperature: Normal body temperature (i.e., equal to or higher than 36°C) should be maintained during and after surgery.^{1,4} Hypothermia can be prevented with warming devices, to reduce the risk of surgical site infections.^{4,14}

Oxygen levels: During and after surgery, a patient's blood oxygen saturation should be maintained at 95% or higher (considering baseline oxygen levels as a result of underlying medical conditions, such as chronic obstructive pulmonary disease).^{1,4} People who are undergoing general anaesthesia and are intubated may benefit from supplemental 80% fractionated inspired oxygen (F_iO_2) during surgery to reduce the risk of a surgical site infection.⁴ Providing 80% F_iO_2 rather than 30% F_iO_2 ensures that the surgical site is adequately perfused during surgery.⁴

Rationale

Achieving and maintaining normal body temperature and target oxygen levels during the perioperative period can reduce the risk of a surgical site infection.^{1,4} Optimizing blood flow to the surgical incision, in combination with maintaining normal body temperature and adequate perfusion during surgery,¹⁷ helps to prevent a surgical site infection by avoiding hypothermia and hypoxia.⁴ Maintaining normal body temperature during the perioperative period may require body warming; moderate-level evidence shows that body warming helps to prevent surgical site infections.⁴ For patients with diabetes, perioperative monitoring may also include checking and optimizing blood glucose levels to reduce the risk of a surgical site infection.^{4,14,17,24} There is limited evidence to support blood glucose monitoring in patients without a diabetes diagnosis.²⁴ However, blood glucose monitoring may be considered for patients without

diabetes when clinically indicated, such as for critically ill patients and patients undergoing cardiac surgery.^{25,26}

What This Quality Statement Means

For People Having Surgery

Your health care providers should check your temperature and oxygen levels before, during, and after your surgery to reduce your risk of a surgical site infection. If your temperature or oxygen levels are not in the best range for you, your health care providers will work with you to correct them.

For Clinicians

Provide a temperature-controlled environment for patients undergoing surgery, to maintain their body temperature during surgery, and provide patients with supplemental oxygen during and after surgery.

For Health Services Planners

Ensure that health care providers have the tools and resources available—including appropriate monitoring systems, warming devices, and other monitoring equipment—to allow for monitoring and maintaining patients' body temperature and oxygenation during the perioperative period.

QUALITY INDICATOR:

HOW TO MEASURE IMPROVEMENT FOR THIS STATEMENT

- Percentage of people having surgery who undergo perioperative monitoring of body temperature and oxygen levels

Measurement details for this indicator, as well as indicators to measure overarching goals for the entire quality standard, are presented in Appendix 2.

Operating Room Procedures

People having surgery receive care from an operating room team that minimizes the transfer of microorganisms during the procedure. Specific safety measures are required for operating room personnel, equipment, and patients, as well as for the management of traffic in and out of the operating room.

Sources: National Institute for Health and Care Excellence, 2019¹ | World Health Organization, 2018⁴

Definitions

Safety measures for operating room personnel:

- Hand hygiene is important for reducing the transfer of microorganisms, minimizing contamination in the surgical field, and protecting health care personnel in case a glove puncture occurs⁴ or if there are small tears or imperfections in the gloves
- Surgical team members should wear sterile surgical gowns, masks, hats, shoe covers (or dedicated shoes for the operating room), and gloves¹ to reduce the risk of surgical site infections. Double-gloving may reduce bacterial contamination if a glove puncture occurs, and it may also reduce the risk of sharps injuries or bloodborne infections. Gloves should be changed when a perforation is observed⁴

Safety measures for equipment:

- Operating rooms are cleaned thoroughly each day (or more often, depending on the surgical case)
- Operating rooms are also cleaned between each case, removing contaminants on surfaces—both hand-touch surfaces and those the patient's blood or bodily fluids come into contact with⁴

Safety measures for patients:

- Intraoperative skin preparation is performed with an alcohol-based antiseptic to reduce bacteria levels on the skin (unless contraindicated)¹
- Consideration is given to the patient's condition, because some antiseptic solutions may irritate the skin or mucous membranes^{1,4,10,12}
- Sterile drapes (nonwoven disposable or woven reusable) should be used during procedures to prevent surgical site infections⁴

Safety measures for management of traffic:

- Minimizing traffic in and out of the operating room requires staff to follow operating room discipline and not enter a procedure room unless they are part of the surgical team
- Avoiding unnecessary traffic reduces the number of microorganisms that can enter the procedure room²

Rationale

The purpose of hand hygiene and wearing surgical gowns over scrub wear is to reduce the number of transient bacteria or pathogens on the hands and clothing of operating room personnel, and to prevent their transfer to the patient during a procedure.⁴ If staff are not wearing sterile surgical wear, they should minimize their movements in and out of the operating room, reduce traffic,¹ and reduce the number of conversations between personnel.²⁷ For colorectal surgeries, emerging evidence suggests that dedicated incision closure trays may reduce variability in closure practices. The contents of closure trays may differ, but all trays provide the important instruments and materials to facilitate incision closure and healing²⁸⁻³⁰

With appropriate planning, preparation, and foresight, surgical teams will be better able to manage movement and reduce conversations in the operating room, decreasing the patient's risk of a surgical site infection.²⁷

What This Quality Statement Means**For People Having Surgery**

The team of people performing your surgery should take steps to reduce your risk of getting an infection. These steps include washing their hands, wearing protective clothing, and moving in and out of the operating room as little as possible.

For Clinicians

Minimize the transfer of bacteria or pathogens that could cause surgical site infections by washing hands with antimicrobial soap or antiseptic solution before surgery, wearing personal protective equipment during surgery, using sterile drapes to cover the patient, and minimizing traffic in and out of the operating room.

For Health Services Planners

Ensure that health care providers have access to appropriate hand hygiene products and personal protective equipment for use during surgery to reduce the risk of surgical site infections. Ensure that organizations have appropriate cleaning procedures in place to reduce the transfer of microorganisms between surgical cases. Ensure that signage is posted in and around operating rooms to reduce traffic during surgeries.

QUALITY INDICATORS:

HOW TO MEASURE IMPROVEMENT FOR THIS STATEMENT

- Percentage of operating room personnel who are observed to perform hand washing before and after contact with the patient or patient environment in the operating room
- Percentage of hand hygiene compliance by operating room personnel using an electronic monitoring system

Measurement details for these indicators, as well as indicators to measure overarching goals for the entire quality standard, are presented in Appendix 2.

Patient, Family, and Caregiver Education

People having surgery, as well as their family members and caregivers, receive information, education, and support for all stages of their care. This includes the results of the risk assessment, how to prevent and recognize an infection, and who to contact if they have concerns about wound healing.

Sources: Institute for Clinical Systems Improvement, 2020¹⁴ | National Institute for Health and Care Excellence, 2019¹

Definition

Information, education, and support: Health care providers should provide information, education, and support to patients, family members, and caregivers during all stages of the patient's care (including incision care). They should use an approach that is culturally appropriate and age appropriate, considers the patient's skin tone,³¹ is delivered in a language the patient understands, and considers the person's level of health literacy. If needed, patients should be supported with any language needs (e.g., with translation or interpretation services at the hospital) to ensure that they fully understand their procedure and after care.

Information and education should be developed and available in a variety of accessible formats, including written, verbal, and electronic (e.g., patient portal, web-based educational platform, smartphone app), and should address people's needs and preferences throughout their care journey.^{1,14} This includes education about risks identified in the patient's initial risk assessment, and expected outcomes related to their surgical procedure, ways to reduce the risk of infection, and how infections are managed if they occur.^{1,14} Patients should also be given information about how to care for their incision after the procedure, including things to avoid (such as putting stress on the affected body part) and the signs and symptoms of a surgical site infection.¹⁴ Education about signs and symptoms should be provided in consideration of the patient's skin tone.³¹

Rationale

People having surgery, as well as their family members and caregivers, benefit from information, education, and support throughout the perioperative period. The best way to ensure people's understanding is to use a teach-back technique, in which the person and their family members and caregivers summarize the information the health care professional has provided.¹⁴ People should also be given clear directions about who to contact if they have concerns about their incision.

What This Quality Statement Means

For Patients, Family, and Caregivers

Your health care providers should offer you information, education, and support for all stages of care. This includes information about your risk of infection and how to prevent and recognize an infection. They should provide it in a language you understand, or offer translation or interpretation services if you need them. They should let you know what to do before and after your surgery. For example, they should tell you about symptoms of infection to watch for and what these might look like for your skin tone, and who to contact if you have a problem.

For Clinicians

Ensure that patients, family members, and caregivers are supported throughout the perioperative period by providing information and education about the procedure and any associated risks, what to do if a problem arises with their incision(s), and who to call if they have a problem. The use of photographs and images showing wound healing and infection, including for various skin tones, help increase understanding and recall for patients, their family members, and caregivers. Some patients may live in institutional settings where formal caregivers require information, education, and support so that they can inform and educate patients.

For Health Services Planners

Ensure that systems are in place so that health care providers can provide information and education that explains the signs and symptoms of a surgical site infection, and tells patients who they should contact if they have a problem.

QUALITY INDICATORS: HOW TO MEASURE IMPROVEMENT FOR THIS STATEMENT

- Percentage of people having surgery (or their family members and caregivers) who receive information, education, and support in an accessible format for all stages of their care
- Percentage of people having surgery (as well as their family members or caregivers) who report that information is explained in a way that is easy to understand when they have an appointment with their health care provider

Measurement details for these indicators, as well as indicators to measure overarching goals for the entire quality standard, are presented in Appendix 2.

Coordination of Postoperative Care

People who have had surgery are given an appropriate referral for follow-up care and treatment, if required. All members of the care team use regular written, verbal, or electronic communications to share information about the patient's status and treatment regimen.

Source: Advisory committee consensus

Definition

Appropriate referral for follow-up care and treatment:

- Advise all patients who to contact and where to access care if they have signs or symptoms of a surgical site infection
- People who are identified as being at high risk for a surgical site infection (see quality statement 1) are referred to home and community care before their surgical procedure to ensure a seamless transition from hospital to home (see glossary for definition of "home")³²
- People who develop a surgical site infection while in hospital are referred to home and community care when they are discharged home
- People who develop a surgical site infection after they have been discharged from hospital (regardless of their risk for a surgical site infection) are referred for follow-up care and treatment with their primary care provider or surgeon, or with home and community care. They are referred from the place where they seek medical care, including their surgeon's office, their primary care provider, an emergency department, a walk-in clinic, or any other health system location

Rationale

Communication among health care providers needs to be seamless between care providers and settings to ensure that people at high risk for a surgical site infection (or those who have developed one) receive the benefits of integrated

care.³³ Regular communication between health care providers can help reduce a patient's risk of readmission,³⁴ and it provides an opportunity to update the referring provider on the the patient's care and status. Health care providers should maintain regular contact with patients (and family members and caregivers, if patients wish) to ensure that transitions between care settings are seamless.³⁵ Health care providers should also advise patients who to contact and where to access timely care if they have signs or symptoms of a surgical site infection.

Referrals for home and community care are important for the person's transition between hospital and home and have been shown to reduce the rate of hospital readmissions for people with surgical site infections.³⁵ The *International Consolidated Wound Infection Guideline*³³ recommends that health care professionals connect with people who have a surgical site infection to assess their wound at least every 14 days to improve wound healing outcomes.

The [*Transitions Between Hospital and Home quality standard*](#)³² addresses care for people moving from hospital to home after a hospital admission, including the continuity of orders from acute care to home and community care, and the continuity of products used for wound care. If the wound care provider from home and community care has questions or concerns about orders or suggested products to use, they can contact the referring provider directly.³⁶ If a person is transitioning to a long-term care home, the receiving health care team should also be given information about changes to the patient's care plan and any new equipment needed.³²

What This Quality Statement Means

For Patients

If you are at high risk for a surgical site infection or you get a surgical site infection while you are in hospital, your health care team should refer you to home and community care before you leave the hospital. If you have signs of a surgical site infection after you leave hospital, you can get help from your primary care provider (for example, a family doctor or nurse practitioner), your surgeon, a walk-in clinic, an emergency department, or any other health system location. If they find that you do have a surgical site infection, they should refer you for follow-up care and treatment with your surgeon, your primary care provider, or a home and community care provider.

You (and your family members and caregivers, if you wish) are part of the health care team. Members of your health care team should include you in communication about your treatment and how you are doing. They can share this

information with you in person or over the phone, write it down, or make it available electronically (for example, through an app, website, or patient portal). They should share information in a language you understand, or offer translation or interpretation services if you need them.

For Clinicians

Refer patients to home and community care for follow-up care and treatment if they are identified as being at risk for a surgical site infection during the preoperative assessment, or if they are discharged home from hospital with a surgical site infection.

Advise all patients who to contact (their surgeon or a delegate) and where to access timely care if they develop signs or symptoms of an infection.

Refer patients who develop a surgical site infection, regardless of their risk, for follow-up care and treatment with their surgeon, their primary care provider, or home and community care.

Communicate regularly (written, verbal, or electronic [via email or through electronic medical records]) with your fellow health care providers (primary care, surgery, and home and community care), and with the patient, family members, or caregivers. Regular communication will help all members of the team to stay current with respect to the patient's status and their treatment regimen, reducing the risk of hospital readmissions and improving wound healing.

For Health Services Planners

Ensure that systems and services are adequately resourced so that patients who are at risk for a surgical site infection, or who develop a surgical site infection, have timely access to home and community care. Ensure that systems, processes, and resources are in place so that patients who develop a surgical site infection in the community (particularly those who are socially disadvantaged or who face barriers to accessing care) can be referred to appropriate care providers. Ensure that systems, processes, and resources are available for providers when advising patients on who to contact and where to access timely care if they develop signs or symptoms of an infection. Ensure that systems and tools are available for health care providers to communicate (in writing, verbally, or electronically) with other members of the health care team, the patient, and family members and caregivers.

QUALITY INDICATORS: HOW TO MEASURE IMPROVEMENT FOR THIS STATEMENT

- Percentage of people having surgery who are identified as being at high risk for a surgical site infection and who are referred to home and community care services before their procedure
- Percentage of people having surgery who have a surgical site infection prior to discharge from hospital and who are referred to home and community care services before discharge from hospital
- Percentage of people with signs and symptoms of a surgical site infection who require follow-up care and who are referred to home and community care services
- Percentage of people who have had surgery and require follow-up care, and who report that there was good communication between their surgical team, primary care provider, and home and community care providers
- Local availability of integrated electronic medical records that allow surgical teams, primary care providers, and home and community care providers to communicate with one another

Measurement details for these indicators, as well as indicators to measure overarching goals for the entire quality standard, are presented in Appendix 2.

Appendices

Appendix 1. About This Quality Standard

How to Use This Quality Standard

Quality standards inform patients, clinicians, and organizations about what high-quality care looks like for health conditions or processes deemed a priority for quality improvement in Ontario. They are based on the best evidence.

Guidance on how to use quality standards and their associated resources is included below.

For People Having Surgery

This quality standard consists of quality statements. These describe what high-quality care looks like for people who have a surgical procedure that requires an incision (a cut through the skin).

Within each quality statement, we've included information on what these statements mean for you, as a patient.

In addition, you may want to download the accompanying [patient guide](#) to help you and your family have informed conversations with your health care providers. Inside, you will find questions you may want to ask as you work together to make a plan for your care.

For Clinicians and Organizations

The quality statements within this quality standard describe what high-quality care looks like for people who have a surgical procedure that requires an incision (a cut through the skin). They are based on the best evidence and designed to help you know what to do to reduce gaps and variations in care.

Many clinicians and organizations are already providing high-quality evidence-based care. However, there may be elements of your care that can be improved. This quality standard can serve as a resource to help you prioritize and measure improvement efforts.

Tools and resources to support you in your quality improvement efforts accompany each quality standard. These resources include indicators and their definitions (Appendix 2). Measurement is key to quality improvement. Collecting and using data when implementing a quality standard can help you assess the quality of care you are delivering and identify gaps in care and areas for improvement.

There are also a number of resources online to help you, including:

- Our [patient guide](#) for people who have or are at risk for a surgical site infection, which you can share with patients and families to help them have conversations with you and their other health care providers. Please make the patient guide available where you provide care
- Our [measurement resources](#), which include our measurement guide of technical specifications for the indicators in this quality standard, and our “case for improvement” slide deck to help you to share why this standard was created and the data behind it
- Our [placemat](#), which summarizes the quality standard and includes links to helpful resources and tools
- Our [Getting Started Guide](#), which includes links to templates and tools to help you put quality standards into practice. This guide shows you how to plan for, implement, and sustain changes in your practice
- [Quorum](#), an online community dedicated to improving the quality of care across Ontario. This is a place where health care providers can share information and support each other, and it includes tools and resources to help you implement the quality statements within each standard
- The [Health Equity Impact Assessment tool](#), which can help your organization consider how programs and policies impact population groups differently. This tool can help maximize positive impacts and reduce negative impacts, with an aim of reducing health inequities between population groups

How the Health Care System Can Support Implementation

As you work to implement this quality standard, there may be times when you find it challenging to provide the care outlined due to system-level barriers or gaps. These challenges have been identified and documented as part of the development of the quality standard, which included extensive consultation with health care professionals and lived experience advisors and a careful review of available evidence and existing programs. Many of the levers for system change fall within the purview of Ontario Health, and as such we will continue to work to address these barriers to support the implementation of quality standards. We will also engage and support other provincial partners, including the Ministry of Health or other relevant ministries, on policy-level initiatives to help bridge system-level gaps.

In the meantime, there are many actions you can take on your own, so please read the standard and act where you can.

Appendix 2. Measurement to Support Improvement

The Surgical Site Infections Quality Standard Advisory Committee identified four indicators for this quality standard. These indicators can be used to monitor the progress being made to improve care for people having surgery. All four indicators are provincially measurable.

Using data from these indicators will help you assess the quality of care you are delivering and the effectiveness of your quality improvement efforts. We realize this standard includes a lengthy list of statement-specific indicators. These indicators are provided as examples; you may wish to create your own quality improvement indicators based on the needs of your population. We recommend you identify areas to focus on in the quality standard and then use one or more of the associated indicators to guide and evaluate your quality improvement efforts.

Organizations can use these indicators for quality improvement initiatives related to the types of surgeries their team is interested in. We do not intend for data to be collected about types of surgeries that are beyond a team's focus.

To assess equitable delivery of care, you can collect data for locally measured indicators by patient socioeconomic and demographic characteristics, such as age, education, gender, income, language, race, and sex.

Our [measurement guide](#) provides more information and concrete steps on how to incorporate measurement into your planning and quality improvement work.

Measuring the Success of This Quality Standard

Indicators That Can Be Measured Using Provincial Data

Rate of surgical site infections within 7, 30, or 90 days after surgery (cut-off depends on the type of surgery)

- Denominator: total number of surgical episodes of care
- Numerator: number of health care visits with a surgical site infection within 7, 30, or 90 days after surgery (cut-off depends on the type of surgery) among people in the denominator
- Data sources: Discharge Abstract Database (DAD), National Ambulatory Care Reporting System (NACRS), Ontario Health Insurance Plan (OHIP) Claims Database, Registered Persons Database (RPDB)
- Potential stratification: type of surgery

Rate of emergency department visits with a surgical site infection within 30 days after surgery

- Denominator: total number of surgical episodes of care
- Numerator: number of emergency department visits with a surgical site infection within 30 days after surgery among people in the denominator
- Data sources: NACRS, RPDB
- Potential stratification: type of surgery

Rate of hospital admissions with a surgical site infection within 30 days after surgery

- Denominator: total number of surgical episodes of care
- Numerator: number of hospital admissions with a surgical site infection within 30 days after surgery among people in the denominator
- Data sources: DAD, RPDB
- Potential stratification: type of surgery

Indicator That Can Be Measured Using Only Local Data

Percentage of people with a surgical site infection (and their families and caregivers) who report being satisfied with the care they received

- Denominator: total number of people with a surgical site infection
- Numerator: number of people in the denominator (and their families and caregivers) who report being satisfied with the care they received
- Data source: local data collection
- Potential stratification: type of surgery

How to Measure Improvement for Specific Statements

Quality Statement 1: Risk Assessment

Percentage of people having surgery who receive a routine preoperative health assessment documented in their health record using a standardized approach that includes the following:

- General health evaluations, including medical history, physical assessment, and (if applicable) emotional assessments
- Assessment of their risk of developing a surgical site infection

- Denominator: total number of people having surgery
- Numerator: number of people in the denominator who receive a routine preoperative health assessment documented in their health record that includes the components listed above
- Data source: local data collection

Quality Statement 2: Preoperative Patient Care

Percentage of people having surgery who receive education about the need for a bath, shower, or bed bath the day before or day of surgery

- Denominator: total number of people having surgery
- Numerator: number of people in the denominator who receive education about the need for a bath, shower, or bed bath from the calendar date before a surgery to the calendar date of a surgery (before surgery begins)
- Data source: local data collection

Percentage of people who are having higher-risk surgery and who are known to be *Staphylococcus aureus* carriers who undergo nasal decolonization

- Denominator: total number of people having higher-risk surgery and who are known to be *Staphylococcus aureus* carriers
- Numerator: number of people in the denominator who undergo nasal decolonization
- Data source: local data collection
- Note: Nasal decolonization prescriptions may differ among people having surgery. The regimen may include nasal decolonization with mupirocin twice daily for 5 to 10 days; it may also include topical body decolonization with a skin antiseptic solution for 5 to 14 days before surgery

Quality Statement 3: Antibiotic Prophylaxis

Percentage of people having surgery for whom antibiotics are indicated and who receive antibiotics before surgery

- Denominator: total number of people having surgery for whom antibiotics are indicated
- Numerator: number of people in the denominator who receive antibiotics before surgery
- Data source: local data collection

- Note: We recommend that organizations document whether antibiotic prophylaxis is indicated so that they can best capture appropriate antibiotic use. If this information is not available, then the denominator would be the total number of people having surgery, but the rate for this indicator should not be 100% for all types of surgeries

Percentage of people having surgery for whom antibiotics are indicated and who receive antibiotics within 60 minutes (120 minutes for fluoroquinolones and vancomycin) before the skin incision is made

- Denominator: total number of people having surgery for whom antibiotics are indicated
- Numerator: number of people in the denominator who receive antibiotics before the skin incision is made within the appropriate timeframe
- Data source: local data collection

Percentage of people having surgery who are given antibiotics and who receive a repeat dose when:

- The duration of the operation is longer than the serum half-life of the antibiotic given
- The person experiences substantial blood loss during surgery
- Denominator: total number of people having surgery who are given antibiotics
- Numerator: number of people in the denominator who receive a repeat dose in either of the situations listed above
- Data source: local data collection

Quality Statement 4: Perioperative Monitoring

Percentage of people having surgery who undergo perioperative monitoring of body temperature and oxygen levels

- Denominator: total number of people having surgery
- Numerator: number of people in the denominator who undergo perioperative monitoring of body temperature and oxygen levels
- Data source: local data collection
- Potential stratification: each stage of care

- Note: Body temperature and oxygen levels should be monitored at least once during each stage of care (preoperatively, intraoperatively, and postoperatively).

Quality Statement 5: Operating Room Procedures

Percentage of operating room personnel who are observed to perform hand washing before and after contact with the patient or patient environment in the operating room

- Denominator: total number of observed hand hygiene indications for operating room personnel before and after contact with the patient or patient environment in the operating room
- Numerator: number of times hand hygiene is performed by operating room personnel before and after contact with the patient or patient environment in the operating room
- Data source: local data collection
- Stratify by before and after contact with the patient or patient environment in the operating room
- Note: This indicator is intended for organizations that do not have electronic monitoring systems to capture hand hygiene compliance. A validated tool for direct observation of hand hygiene compliance is available from the Just Clean Your Hands program run by Public Health Ontario. Observers should be trained to identify the indications for hand hygiene
- Note: Hospitals that use the observed hand hygiene compliance data collection method submit hand hygiene compliance data to the Ministry of Health via the self-reporting initiative. However, these data are aggregated at the hospital level and are not available by unit. Therefore, local data collection is required for this indicator, even for inpatient surgeries

Percentage of hand hygiene compliance by operating room personnel using an electronic monitoring system

- Denominator: estimated total number of hand hygiene opportunities per patient hour in the operating room
- Numerator: total hand sanitizer and soap dispenser activations via a wireless signal to a wireless hub in the operating room
- Data source: local data collection
- Note: This indicator is intended for organizations that have electronic monitoring systems. Hospitals that have electronic monitoring systems submit hand hygiene compliance data to the Ministry of Health via the self-

reporting initiative. However, these data are aggregated at the hospital level and are not available by unit. Therefore, local data collection is required for this indicator, even for inpatient surgeries

Quality Statement 6: Patient, Family, and Caregiver Education

Percentage of people having surgery (or their family members and caregivers) who receive information, education, and support in an accessible format for all stages of their care

- Denominator: total number of people having surgery (or their family members or caregivers)
- Numerator: number of people in the denominator who receive information, education, and support in an accessible format for all stages of their care
- Data source: local data collection
- Potential stratification: preoperative and postoperative

Percentage of people having surgery (as well as their family members or caregivers) who report that information is explained in a way that is easy to understand when they have an appointment with their health care provider

- Denominator: total number of people having surgery (or their family members or caregivers) who answer the question, "When you have an appointment with your health care provider, how often does your health care provider explain your care in a way that is easy to understand?" (response options: always, often, sometimes, rarely, never)
- Numerator: number of people in the denominator who answer "always" or "often"
- Data source: local data collection

Quality Statement 7: Coordination of Postoperative Care

Percentage of people having surgery who are identified as being at high risk for a surgical site infection and who are referred to home and community care services before their procedure

- Denominator: total number of people having surgery who are identified as being at high risk for a surgical site infection
- Numerator: number of people in the denominator who are referred to home and community care services before their procedure
- Data sources: local data collection, Home Care Database

Percentage of people having surgery who have a surgical site infection prior to discharge from hospital and who are referred to home and community care services before discharge from hospital

- Denominator: total number of people having surgery who have a surgical site infection prior to discharge from hospital
- Numerator: number of people in the denominator who are referred to home and community care services before discharge from hospital
- Data sources: local data collection, Home Care Database

Percentage of people with signs and symptoms of a surgical site infection who require follow-up care and who are referred to home and community care services

- Denominator: total number of people with signs and symptoms of a surgical site infection who require follow-up care (as determined by a health care provider) with home and community care services
- Numerator: number of people in the denominator who are referred to home and community care services
- Data sources: local data collection, DAD, Home Care Database, NACRS, OHIP Claims Database, RPD

Percentage of people who have had surgery and require follow-up care, and who report that there was good communication between their surgical team, primary care provider, and home and community care providers

- Denominator: total number of people who have had surgery and require follow-up care, and who answer the question, "Do you feel that there was good communication about your care between your surgical team, primary care provider, and home and community care providers?" (response options: always, usually, sometimes, never)
- Numerator: number of people in the denominator who answer "always" or "usually"
- Data source: local data collection

Local availability of integrated electronic medical records that allow surgical teams, primary care providers, and home and community care providers to communicate with one another

- Data source: local data collection

Appendix 3. Glossary

Adults: People aged 18 years and older.

Caregiver: A paid or unpaid person who provides care and support in a nonprofessional capacity. Other terms commonly used to describe this role include "care partner," "informal caregiver," "family caregiver," "carer," and "primary caregiver."

Children and adolescents: People under 18 years of age.

Clean surgery: A procedure with a surgical incision where no infection or inflammation is encountered. A clean incision is primarily closed and drained with a closed drain. Incisions that require an operation to close and are nonpenetrating (blunt) trauma should be categorized as "clean" if they meet the criteria.⁴

Clean-contaminated surgery: A procedure with a surgical incision where the respiratory, alimentary, genital, or urinary tract is entered under controlled conditions and without unusual contamination (e.g., no evidence of infection or break in sterile technique).⁴

Contaminated surgery: A procedure that involves open, fresh, or accidental wounds, along with breaks in sterile technique or spillage from the gastrointestinal tract during surgery. It can also include procedures where acute, nonpurulent inflammation is encountered (e.g., necrotic tissue without evidence of purulent drainage).⁴

Culturally appropriate care: Care that incorporates cultural or faith traditions, values, and beliefs; is delivered in the person's preferred language; adapts culture-specific advice; and incorporates the person's wishes to involve family or community members.³⁷

Dirty or infected surgery: A procedure involving old, traumatic wounds with retained devitalized tissue, or wounds that involve existing clinical infection or perforated internal organs. The organisms causing postoperative infection may have been present in the surgical field before the procedure was complete.⁴

Family: The people closest to a person in terms of knowledge, care, and affection; this may include biological family, family through marriage, or family of choice and friends. The person defines their family and who will be involved in their care.

Health care providers: Health care professionals, as well as people in unregulated professions, such as administrative staff, behavioural support workers, personal support workers, recreational staff, and spiritual care staff.

Home: Setting where a person resides, either permanently or temporarily and receives care following discharge from the hospital. These settings can include home (a person's usual place of residence), long-term care homes, residential facilities, retirement homes, group homes, or transitional facilities.

Surgical site infection: Definitions of the severity of surgical site infections vary, and this variation should be considered when comparing reported rates of surgical site infections.¹

Primary care: A setting where people receive general health care (e.g., screening, diagnosis, and management) from a regulated health care professional whom the person can access directly without a referral. This is usually the primary care physician, family physician, nurse practitioner, or other health care professional with the ability to make referrals, request biological testing, and prescribe medications.^{38,39}

Primary care provider: A family physician (also called a primary care physician) or nurse practitioner.

Surgery (or surgical procedure): An operative procedure during which at least one incision is made through the skin or mucous membrane (including laparoscopic techniques). This can also include reoperation through an incision that was left open after a previous operative procedure and that takes place in an operating room.

Surgical incision: A cut in the skin or tissue with a scalpel or other sharp cutting device that is closed in the operating room using sutures, adhesive tape, staples, or glue, so that the edges align with each other.⁴

Surgical wound: A surgical incision that has become infected. Bacteria can infiltrate different levels of the skin, tissues, and organs to cause an infection. This includes superficial infection, which affects the skin and subcutaneous tissue; deep incisional infection, which affects the fascia or muscle layers with one or more primary incisions, as well as bacteria that infiltrate secondary incisions; or organ or space infection, which involves parts of the body opened or manipulated during surgery, excluding the skin incision, muscle, and fascia.⁴⁰

Appendix 4. Values and Guiding Principles

Values That Are the Foundation of This Quality Standard

This quality standard was created, and should be implemented, according to the [Patient, Family and Caregiver Declaration of Values for Ontario](#). This declaration "is a vision that articulates a path toward patient partnership across the health care system in Ontario. It describes a set of foundational principles that are considered from the perspective of Ontario patients, and serves as a guidance document for those involved in our health care system."

These values are:

- Respect and dignity
- Empathy and compassion
- Accountability
- Transparency
- Equity and engagement

A quality health system is one that provides good access, experience, and outcomes for all people in Ontario, no matter where they live, what they have, or who they are.

Guiding Principles

In addition to the above values, this quality standard is guided by the principles outlined below.

Acknowledging the Impact of Colonization

Health care providers should acknowledge and work toward addressing the historical and present-day impacts of colonization in the context of the lives of Indigenous Peoples throughout Canada. This work involves being sensitive to the impacts of intergenerational and present-day traumas and the physical, mental, emotional, and social harms experienced by Indigenous people, families, and communities, as well as recognizing their strength and resilience. This quality standard uses existing clinical practice guideline sources that may not include culturally relevant care or acknowledge traditional Indigenous beliefs, practices, and models of care.

French Language Services

In Ontario, the *French Language Services Act* guarantees an individual's right to receive services in French from Government of Ontario ministries and agencies in 26 [designated areas](#) and at government head offices.⁴¹

Social Determinants of Health

Homelessness and poverty are two examples of economic and social conditions that influence people's health, known as the social determinants of health. Other social determinants of health include employment status and working conditions, ethnicity, food security and nutrition, gender, housing, immigration status, social exclusion, and residing in a rural or urban area. Social determinants of health can have strong effects on individual and population health; they play an important role in understanding the root causes of poorer health. People with a mental illness or addiction often live under very stressful social and economic conditions that worsen their mental health,⁴² including social stigma, discrimination, and a lack of access to education, employment, income, and housing.⁴³

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Advisory Committee

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About Us

We are an agency created by the Government of Ontario to connect, coordinate and modernize our province's health care system. We work with partners, providers and patients to make the health system more efficient so everyone in Ontario has an opportunity for better health and wellbeing. We work to enhance patient experience, improve population health, enhance provider experiences, improve value and advance health equity.

Equity, Inclusion, Diversity, and Anti-Racism

Ontario Health is committed to advancing equity, inclusion and diversity and addressing racism in the health care system. As part of this work, Ontario Health has developed an [Equity, Inclusion, Diversity and Anti-Racism Framework](#), which builds on existing legislated commitments and relationships and recognizes the need for an intersectional approach.

Unlike the notion of equality, equity is not about sameness of treatment. It denotes fairness and justice in process and in results. Equitable outcomes often require differential treatment and resource redistribution to achieve a level playing field among all individuals and communities. This requires recognizing and addressing barriers to opportunities for all to thrive in our society.

For more information: OntarioHealth.ca/about-us/our-people

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