

# Surgical Site Infections

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

Measurement Guide

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**Ontario  
Health**

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# 1. How to Use the Measurement Guide

This document is meant to serve as a measurement guide to support implementation of the surgical site infections quality standard. Care for people with surgical site infections is a critical issue, and there are significant gaps and variations in the quality of care that people with surgical site infections receive in Ontario. Recognizing this, Ontario Health released this quality standard to identify opportunities that have a high potential for quality improvement.

This guide is intended for use by those looking to implement the surgical site infections quality standard, including health care professionals working in regional or local roles.

This guide has dedicated sections for each of the two types of measurement within the quality standard:

- Local measurement: what you can do to assess the quality of care that you provide locally
- Provincial measurement: how we can monitor the progress being made to improve care on a provincial level using existing provincial data sources

## 1.1 Important Resources for Quality Standard Implementation

Ontario Health has created resources to assist with the implementation of quality standards:

- 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

## 2. Quality Indicators in Quality Standards

Quality standards inform providers and patients about what high-quality health care looks like for aspects of care that have been deemed a priority for quality improvement in the province. They are intended to guide quality improvement, monitoring, and evaluation.

Measurability is a key element in developing and describing the quality statements; each statement is accompanied by one or more indicators. This section describes the measurement principles behind the quality indicators, the process for developing these indicators, and the technical definitions of the indicators.

An effective quality statement must be measurable. Measurement is necessary to demonstrate if a quality statement has been properly implemented, and if it is improving care for patients. This is a key part of the [Plan-Do-Study-Act](#) improvement cycle. If measurement shows there has been no improvement, you need to consider a change or try something different.

### 2.1 Measurement Principles

The process, structure, and outcome indicator framework was developed by [Donabedian](#) in 1966. The three indicator types play essential and interrelated roles in measuring the quality of health care and the impact of introducing and using quality standards.

The indicators provided are suggestions. It is not expected that every provider, team, or organization will be able to measure all of them (or even want to measure all of them), but they can identify which indicators best capture areas of improvement for their care and what can be measured given existing local data sources.

### 2.2 Process Indicators

Process indicators assess the activities involved in providing care. They measure the percentage of individuals, episodes, or encounters for which an activity (process) is performed. In most cases, the numerator should specify a time frame in which the action is to be performed, established through evidence or expert consensus. When a quality statement applies to a subset of individuals rather than the total population, the denominator should reflect the population of the appropriate subgroup, rather than the entire Ontario population. If exclusions are required or stratifications are suggested, they are reflected in the indicator specifications.

Process indicators are central to assessing whether or not the quality statement has been achieved; nearly all quality statements are associated with one or more process indicators. In most cases, the numerator and denominator for process indicators can be derived from the language of the quality statement itself; additional parameters (such as a time frame) can also appear in the background and definitions sections. In some cases, a proxy indicator is provided that indirectly measures the process. Proxy indicators are used only when the actual indicator cannot be measured with currently available data.

While most quality statements focus on a single concept and are linked with a single process indicator, some statements include two or more closely related concepts. In these

cases, multiple process indicators can be considered to capture all aspects of the quality statement. For example, a quality statement might suggest the need for a comprehensive assessment with several components, and each of those components might have a process indicator.

Examples of process indicators include the percentage of patients with hip fracture who receive surgery within 48 hours, or the percentage of patients with schizophrenia who are offered clozapine. Please refer to the published [quality standards](#) for more examples.

## 2.3 Structural Indicators

Structural indicators assess the structures and resources that influence and enable delivery of care. These can include equipment; systems of care; availability of resources; and teams, programs, policies, protocols, licences, or certifications. Structural indicators assess whether factors that are in place are known to help in achieving the quality statement.

Some quality statements have structural indicators associated with them. Structural indicators are binary or categorical and do not require the definition of a numerator and denominator. However, in some cases it could be useful to specify a denominator defining an organizational unit, such as a hospital, a primary care practice, or a local region. In many cases data to measure structural indicators are not readily available using existing administrative data, so local data collection might be required. This local data collection might require regional or provincial level data collection systems to be developed.

Structural indicators should be defined for a quality statement or for the quality standard as a whole when there is strong evidence that a particular resource, capacity, or characteristic is important for enabling the effective delivery of a process of care. It should be theoretically feasible for these structural elements to be implemented across Ontario, even if adoption is aspirational in some cases. In rare instances, a quality statement might have two or more associated structural indicators if the quality standard advisory committee decides that multiple factors are crucial to the delivery of the quality statement.

Examples of structural indicators include the local availability of cognitive behavioural therapy (CBT) programs, the existence of discharge planning protocols, and access to a specialized behavioural support team. Please refer to the published [quality standards](#) for more examples.

## 2.4 Outcome Indicators

Outcome indicators assess the end results of the care provided. They are crucial and are arguably the most meaningful measures to collect, but many health outcomes—such as mortality or unplanned hospital readmissions—are often the product of a variety of related factors and cannot be reliably attributed to a single process of care. For this reason, although relatively few quality statements are directly linked to an outcome indicator, a set of overall measures—including key outcome indicators—is defined for the quality standard as a whole, reflecting the combined intended effect of all of the quality statements in the standard. Similar to process indicators, outcome indicators should be specified using a defined denominator and a numerator that, in most cases, should include a clear time frame.

Examples of outcome indicators include mortality rates, improvement (or decline) in function, and patients' experience of care. Please refer to the published [quality standards](#) for more examples.

## 2.5 Balancing Measures

Balancing measures indicate if there are important unintended adverse consequences in other parts of the system. Examples include staff satisfaction and workload. Although they are not the focus of the standard and generally not included in the standard, the intention of these types of measures is to monitor the unintended consequences.

## 3. Local Measurement

As part of the surgical site infections quality standard, *specific* indicators were identified for each of the statements to support measurement for quality improvement.

As an early step in your project, we suggest that your team complete an *initial assessment* of the relevant indicators in the standard and come up with a draft measurement plan.

Here are some concrete next steps:

- Review the list of identified indicators for each quality statement (see Appendix 2 in the quality standard), and determine which ones you will use as part of your implementation planning, given your knowledge of current gaps in care
- Determine the availability of data related to the indicators you have chosen
- Identify a way to collect local data related to your chosen indicators. This may be through clinical chart extraction or administration of local surveys for example
- Develop a draft measurement plan

The earlier you complete the above steps, the more successful your quality improvement project is likely to be.

### 3.1 Local Data Collection

Local data collection refers to data collection at the health provider or team level for indicators that cannot be assessed using provincial administrative or survey databases (such as databases held by the Institute for Clinical Evaluative Sciences or the Canadian Institute for Health Information). Examples of local data include data from electronic medical records, clinical patient records, regional data collection systems, and locally administered patient surveys. Indicators that require local data collection can signal an opportunity for local measurement, data advocacy, or improvement of data quality.

Local data collection has many strengths: it is timely, can be tailored to quality improvement initiatives, and is modifiable on the basis of currently available data. However, caution is required when comparing indicators using local data collection between providers and over time to ensure consistency in definitions, consistency in calculation, and validity across patient groups.

### 3.2 Measurement Principles for Local Data Collection

Three types of data can be used to construct measures in quality improvement: continuous, classification, and count data. For all three types of data, it is important to consider clinical relevance when analyzing results (i.e., not every change is a clinically relevant change).

#### 3.2.1 Continuous Data

Continuous data can take any numerical value in a range of possible values. These values can refer to a dimension, a physical attribute, or a calculated number. Examples include patient weight, number of calendar days, and temperature.

### 3.2.2 Classification Data

Classification (or categorical) data are recorded in two or more categories or classes. Examples include sex, race or ethnicity, and number of patients with depression versus number of patients without depression. In some cases, you might choose to convert continuous data into categories. For example, you could classify patient weight as underweight, normal weight, overweight, or obese.

Classification data are often presented as percentages. To calculate a percentage from classification data, you need a numerator and a denominator (a percentage is calculated by dividing the numerator by the denominator and multiplying by 100). The numerator includes the number of observations meeting the criteria (e.g., number of patients with depression), and the denominator includes the total number of observations measured (e.g., total number of patients in clinic). Note that the observations in the numerator must also be included in the denominator (source population).

Examples of measures that use classification data include percentage of patients with a family physician and percentage of patients who receive therapy.

### 3.2.3 Count Data

Count data often focus on attributes that are unusual or undesirable. Examples include number of falls in a long-term care home and number of medication errors.

Count data are often presented as a rate, such as the number of events per 100 patient-days or per 1,000 doses. The numerator of a rate counts the number of events/nonconformities, and the denominator counts the number of opportunities for an event. It is possible for the event to occur more than once per opportunity (e.g., a long-term care resident could fall more than once).

$$\text{Rate of 30-day hospital readmission} = \frac{\text{Number of hospital readmissions within 30 days of discharge [numerator]}}{\text{Number of discharges from hospital [denominator]}}$$

### 3.2.4 Benefits of Continuous Data

It is common practice in health care to measure toward a target instead of reporting continuous measures in their original form. An example would be measuring the number of patients who saw their primary care physician within 7 days of hospital discharge instead of measuring the number of days between hospital discharge and an appointment with a primary care physician. Targets should be evidence-based or based on a high degree of consensus across clinicians.

When a choice exists, continuous data sometimes are more useful than count or classification data for learning about the impact of changes tested. Measures based on continuous data are more responsive and can capture smaller changes than measures based on count data; therefore, it is easier and faster to see improvement with measures based on continuous data. This is especially true when the average value for the continuous measure is far from the target. Continuous data are also more sensitive to change. For



example, while you might not increase the number of people who are seen within 7 days, you might reduce how long people wait.

### 3.3 Benchmarks and Targets

Benchmarks are markers of excellence to which organizations can aspire. Benchmarks should be evidence-based or based on a high degree of consensus across clinicians. At this time, Ontario Health does not develop benchmarks for the indicators. Users of these standards have variable practices, resources, and patient populations, so one benchmark might not be practical for the entire province.

Targets are goals for care that are often developed in the context of the local care environment. Providers, teams, and organizations are encouraged to develop their own targets appropriate to their patient populations, their current performance and their quality improvement work. Organizations that include a quality standard indicator in their quality improvement plans are asked to use a target that reflects improvement. Time frame targets, like the number of people seen within 7 days, are typically provided with process indicators intended to guide quality improvement.

In many cases, achieving 100% on an indicator is not possible. For example, someone might not receive care in a wait time benchmark due to patient unavailability. This is why it is important to track these indicators over time, to compare results against those of colleagues, to track progress, and to aim for the successful implementation of the standard.

For guidance on setting benchmarks and targets at a local level, refer to:

- [Approaches to Setting Targets for Quality Improvement Plans](#)
- [Long-Term Care Benchmarking Resource Guide](#)

## 4. Provincial Measurement

In its quality standards, Ontario Health strives to incorporate measurement that is standardized, reliable, and comparable across providers to assess the impact of the standards provincially. Where possible, indicators should be measurable using province-wide data sources. However, in many instances data are unavailable for indicator measurement. In these cases, the source is described as local data collection.

For more information on the data sources referenced in this standard, please see the **appendix**.

### 4.1 Accessing Provincially Measurable Data

Provincial platforms are available to users to create custom analyses to help you calculate results for identified measures of success. Examples of these platforms include IntelliHealth and eReports. Please refer to the links below to determine if you have access to the platforms listed.

#### *4.1.1 IntelliHealth—Ministry of Health*

[IntelliHealth](#) is a knowledge repository that contains clinical and administrative data collected from various sectors of the Ontario healthcare system. IntelliHealth enables users to create queries and run reports through easy web-based access to high quality, well organized, integrated data.

#### *4.1.2 eReports—Canadian Institute for Health Information*

[Quick Reports](#) offer at-a-glance comparisons for the organizations you choose. The tool also provides some ways to manipulate the pre-formatted look and feel of the reports. [Flexible or Organization Reports](#) offer you many choices to compare your organization's data with those of other organizations. With these customizable reports, you can view data by different attributes and for multiple organizations.

#### *4.1.3 Applied Health Research Questions (AHRQ) – Institute for Clinical Evaluative Sciences*

ICES receives funds from the Ministry of Health to provide research evidence to organizations from across the Ontario health care system (Knowledge Users). This knowledge is used to inform planning, policy and program development. Knowledge Users can submit an [Applied Health Research Question](#) (AHRQ) to ICES. As a health services research institute that holds Ontario's administrative data, ICES is well positioned to respond to AHRQs that directly involve the use of ICES data holdings.

## 5. Measurement to Support Improvement

This measurement guide accompanies Ontario Health's surgical site infections quality standard. Early in the development of each quality standard, several performance indicators are chosen to monitor the progress being made to improve care for people having surgery. These indicators guide the development of the quality standard so that every statement within the standard aids in achieving the standard's overall goals.

This measurement guide includes information on the definitions and technical details of the indicators listed below:

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

This guide includes data sources for indicators that can be consistently measured across providers, across the sectors of health care, and across the province.

Indicators are categorized as:

- Provincially measurable (there are well-defined or validated data sources available) *or*
- Locally measurable (the indicator is not well defined, and data sources do not currently exist to measure it consistently across providers and at the system level)

For more information on statement-specific indicators, please refer to the quality standard (Appendix 2).

### 5.1 Quality Standard Scope

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.

This quality standard includes seven quality statements. They address areas identified by Ontario Health's Surgical Site Infections Quality Standard Advisory Committee as having

high potential for improving the quality of care in Ontario for people with surgical site infections.

In this quality standard, the term *patient* includes community care clients and residents of long-term care homes.

## 5.2 Cohort Identification

For the purpose of measurement at the provincial level, people with surgical site infections can be identified using administrative data. For the purpose of local measurement, people with a surgical site infection may be identified using local data sources (such as electronic medical records or clinical patient records).

### 5.2.1 Cohort Identification Using Administrative Data

To identify people who have visited the emergency department or who have had a hospital admission for a surgical site infection (for the provincially measurable indicators in this quality standard), the National Ambulatory Care Reporting System (NACRS) or the Discharge Abstract Database (DAD) data can be used.

The NACRS captures data for all hospital-based and community-based ambulatory care (day surgery, outpatient and community-based clinics, emergency departments) in Ontario and other jurisdictions in Canada. Data are submitted to the Canadian Institute for Health Information (CIHI) from participating facilities in the province. For more information on this data set, please refer to

[cihi.ca/en/national-ambulatory-care-reporting-system-metadata](https://cihi.ca/en/national-ambulatory-care-reporting-system-metadata).

The DAD captures administrative, clinical, and demographic information on hospital discharges in Ontario and Canada (excluding Quebec). Data are submitted to CIHI from acute care facilities in the province. For more information on this data set, please refer to [cihi.ca/en/discharge-abstract-database-metadata](https://cihi.ca/en/discharge-abstract-database-metadata).

To identify people who had an emergency department visit or who had a hospital admission for a surgical site infection, the following parameters can be used; these are the **ICD-10-CA inclusions**:

- T81.4: Infection following a procedure
  - Exclusions:
    - T80.2 (infection due to infusion, transfusion and therapeutic injection)
    - T82.6, T82.7, T83.5, T83.6, T84.5, T84.7, T85.7 (infection due to prosthetic devices, implants and grafts)
    - K83.0 (Cholangitis)
    - J12–J18 (Pneumonia)
- O86.0: Infection of obstetric surgical wound

To identify people who had a primary care visit for a surgical site infection (for the provincially measurable indicators in this quality standard), administrative data from the Ontario Health Insurance Plan (OHIP) claims database can be used. The OHIP claims database covers all reimbursement claims to the ministry made by fee-for-service physicians, community-based laboratories, and radiology facilities. The OHIP database at the Institute for Clinical Evaluative Sciences contains encrypted patient and physician identifiers, codes for services provided, dates of service, associated diagnoses, and fees paid. For more information on this data set, please refer to [datadictionary.ices.on.ca/Applications/DataDictionary/Library.aspx?Library=OHIP](http://datadictionary.ices.on.ca/Applications/DataDictionary/Library.aspx?Library=OHIP).

To identify people who had a primary care visit for a surgical site infection, the following parameter can be used; this is the **ICD-9-CA inclusion**:

- 998: Other complications of procedures, not elsewhere classified

### 5.3 Indicators That Can Be Measured Using Provincial Data

The Surgical Site Infections Quality Standard Advisory Committee identified a number of overarching goals **for this quality standard**. These have been mapped to indicators that may be used to assess quality of care provincially. The following indicators are currently potentially measurable in Ontario's health care system:

- 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

Methodologic details are described in the tables below.

**Table 1: Rate of surgical site infections within 7, 30, or 90 days after surgery (cut-off depends on the type of surgery)**

<b>General Description</b>	
Indicator description	Name: Rate of surgical site infections within 7, 30, or 90 days after surgery (cut-off depends on the type of surgery)
Directionality: A lower rate is better	
Measurability	Measurable at the provincial level
Dimension of quality	Safe
Quality statement alignment	All quality statements
<b>Definition and Source Information</b>	
Calculation: General	
<b>Denominator</b>	
Total number of surgical episodes of care	
<b>Numerator</b>	
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	
<i>Inclusions</i>	
<b>ICD-10-CA codes</b>	
T81.4: Infection following a procedure	
O86.0: Infection of obstetric surgical wound	
<b>ICD-9-CA code</b>	
998: Other complications of procedures, not elsewhere classified	
People of all ages who have a surgical procedure involving an incision through the skin, including minimally invasive surgery such as arthroscopic, thoracoscopic, and laparoscopic surgery. All settings where surgical care is provided, including acute care and ambulatory settings.	
For procedures done in ambulatory settings (NACRS), those with Ambulatory Case Type of day surgery, oncology, or scheduled visit to the emergency department.	
<i>Exclusions</i>	
<b>ICD-10-CA codes</b>	
T80.2 (infection due to infusion, transfusion and therapeutic injection)	

T82.6, T82.7, T83.5, T83.6, T84.5, T84.7, T85.7 (infection due to prosthetic devices, implants and grafts)  
K83.0 (Cholangitis)  
J12-J18 (Pneumonia)

Deaths on arrival to the emergency department  
Invalid health card number  
Non-Ontario resident  
Age  $\geq 105$  or missing  
Sex missing

Procedures that do not involve a conventional surgical incision: vaginal hysterectomy, transurethral resection of the prostate, oral surgery, or ophthalmological surgery. The Canadian Classification of Health Intervention (CCI) was used to identify excluded procedures. Examples of excluded CCI codes: 1.RM.87.CAGX Excision partial, uterus and surrounding structures per orifice [transvaginal] approach using device NEC; 1.QT.87.BA Excision partial, prostate, endoscopic per orifice approach (TURP) using device NEC; 1.FC.^<sup>^</sup> Therapeutic interventions on the soft palate; 1.CC.^<sup>^</sup> - 1.CZ.^<sup>^</sup> Therapeutic interventions on the eye and ocular adnexa.

Surgical procedures involving intravascular catheters, shunts, pin sites, and endoscopy. Examples of excluded CCI codes are those with agent/device qualifier LW (lines, intravenous), QB (valved shunt or tube), and KC (external fixation device), and those with approach/technique qualifier BA (using endoscopic per orifice approach).

For procedures done in inpatient settings (DAD), those with Treatment Status of abandoned after onset, those with Admission Category of cadaver (admitted for organ/tissue retrieval) or stillborn infants born in reporting hospital, and those done by tele or video health providers.

### Method

Numerator  $\div$  Denominator  $\times 100$

### Data sources:

Discharge Abstract Database (DAD), National Ambulatory Care Reporting System (NACRS), Ontario Health Insurance Plan (OHIP) Claims Database, Registered Persons Database (RPDB)

## Additional Information

Limitations

- Data from emergency department visits capture only those who visit the emergency department and may not reflect the total burden in the population
- Data from emergency department visits capture only those who visit the emergency department and may not reflect the total burden in the population
- Diagnostic capabilities are limited in home and community care databases
- Dependent on coding accuracy (e.g., ICD-10-CA and ICD-9-CA codes)

Comments

We advise you to adjust the denominator to reflect your surgical area of interest.

We are only able to capture emergency department visits, hospital admissions or primary care billings with a recorded surgical site infection.



**Table 2: Rate of emergency department visits with a surgical site infection within 30 days after surgery**

<b>General Description</b>	
Indicator description	Name: Rate of emergency department visits with a surgical site infection within 30 days after surgery  Directionality: A lower rate is better
Measurability	Measurable at the provincial level
Dimension of quality	Safe
Quality statement alignment	All quality statements
<b>Definition and Source Information</b>	
Calculation: General	<p><b>Denominator</b> Total number of surgical episodes of care</p> <p>(See inclusion and exclusion criteria for the denominator in Table 1)</p> <p><b>Numerator</b> Number of emergency department visits with a surgical site infection within 30 days after surgery among people in the denominator</p> <p><i>Inclusions</i> <b>ICD-10-CA codes</b> T81.4: Infection following a procedure O86.0: Infection of obstetric surgical wound</p> <p><i>Exclusions</i> <b>ICD-10-CA codes</b> T80.2 (infection due to infusion, transfusion and therapeutic injection) T82.6, T82.7, T83.5, T83.6, T84.5, T84.7, T85.7 (infection due to prosthetic devices, implants and grafts) K83.0 (Cholangitis) J12-J18 (Pneumonia)</p> <p>Deaths on arrival to the emergency department</p> <p><b>Method</b> Numerator ÷ Denominator × 100</p>

## Additional Information

### Limitations

#### Data sources:

National Ambulatory Care Reporting System (NACRS),  
Registered Persons Database (RPDB)

Data from emergency department visits capture only those who visit the emergency department and may not reflect the total burden in the population.

Data for Ontario residents who visit an emergency department or die outside of the province are not included.

Dependent on coding accuracy (e.g., ICD-10-CA codes).

### Comments

We advise you to adjust the denominator to reflect your surgical area of interest.

We are only able to capture emergency department visits, hospital admissions or primary care billings with a recorded surgical site infection.

**Table 3: Rate of hospital admissions with a surgical site infection within 30 days after surgery**

<b>General Description</b>	
Indicator description	Name: Rate of hospital admissions with a surgical site infection within 30 days after surgery  Directionality: A lower rate is better
Measurability	Measurable at the provincial level
Dimension of quality	Safe
Quality statement alignment	All quality statements
<b>Definition and Source Information</b>	
Calculation: General	<p><b>Denominator</b> Total number of surgical episodes of care</p> <p>(See inclusion and exclusion criteria for the denominator in Table 1)</p> <p><b>Numerator</b> Number of hospital admissions with a surgical site infection within 30 days after surgery among people in the denominator</p> <p><i>Inclusions</i> <b>ICD-10-CA codes</b> T81.4: Infection following a procedure O86.0: Infection of obstetric surgical wound</p> <p><i>Exclusions</i> <b>ICD-10-CA codes</b> T80.2 (infection due to infusion, transfusion and therapeutic injection) T82.6, T82.7, T83.5, T83.6, T84.5, T84.7, T85.7 (infection due to prosthetic devices, implants and grafts) K83.0 (Cholangitis) J12-J18 (Pneumonia)</p> <p><b>Method</b> Numerator ÷ Denominator × 100</p> <p><b>Data sources:</b> Discharge Abstract Database (DAD), Registered Persons Database (RPDB)</p>

## **Additional Information**

Limitations

Dependent on coding accuracy (e.g., ICD-10-CA codes).

Comments

We advise you to adjust the denominator to reflect your surgical area of interest.

We are only able to capture emergency department visits, hospital admissions or primary care billings with a recorded surgical site infection.



## 5.4 Indicator That Can Be Measured Using Only Local Data

You might want to assess the quality of care you provide to your patients with surgical site infections. You might also want to monitor your own quality improvement efforts. It can be possible to do this using your own clinical records, or you might need to collect additional data. We recommend the following indicator, which cannot be measured provincially using currently available data:

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

Methodologic details are described in the table below.

## Table 4: Percentage of people with a surgical site infection (and their families and caregivers) who report being satisfied with the care they received

<b>General Description</b>	
Indicator description	Name: Percentage of people with a surgical site infection (and their families and caregivers) who report being satisfied with the care they received  Directionality: Higher is better
Indicator status	Developmental
Dimension of quality	Effective
Quality statement alignment	All quality statements
<b>Definition and Source Information</b>	
Calculation: General	<p><b>Denominator</b> Total number of people with a surgical site infection</p> <p><b>Numerator</b> Number of people in the denominator (and their families and caregivers) who report being satisfied with the care they received</p> <p><b>Method</b> <math>\text{Numerator} \div \text{Denominator} \times 100</math></p> <p><b>Data source:</b> Local data collection</p> <p>An example of a validated survey question that can be used to inform your local data collection is available in the <a href="#">Health Care Experience Survey (Ministry of Health)</a>: <i>"In general, how satisfied are you with health care in your community: would you say very satisfied, somewhat satisfied, not very satisfied or not satisfied at all?" (Response options: very satisfied, somewhat satisfied, not very satisfied, not satisfied at all, don't know, refused)</i></p>
<b>Additional Information</b>	
Limitations	<p>This indicator has all the limitations that are normally associated with survey-specific indicators (e.g., resource intensive, recall bias, etc.).</p> <p>A patient or caregiver may feel they cannot respond honestly because of risk to their services. This can be</p>

mitigated by the survey not being conducted by the provider.

The patient's response may be influenced by other health care services provided, in addition to the surgical site infection.

## 6. Resources and Questions

### 6.1 Resources

Several resources are available for more information:

- The [quality standard](#) provides information on the background, definitions of terminology, numerators and denominators for all statement-specific indicators
- The [Getting Started Guide](#) includes quality improvement tools and resources for health care professionals, including an action plan template
- The [case for improvement deck](#) provides data on why a particular quality standard has been created and the data behind it

### 6.2 Questions?

Please contact [QualityStandards@OntarioHealth.ca](mailto:QualityStandards@OntarioHealth.ca). We would be happy to provide advice on measuring quality standard indicators or put you in touch with other providers who have implemented the standards and might have faced similar questions.

Ontario Health offers an online community dedicated to improving the quality of health care across Ontario together called [Quorum](#). Quorum can support your quality improvement work by allowing you to:

- Find and connect with others working to improve health care quality
- Identify opportunities to collaborate
- Stay informed with the latest quality improvement news
- Give and receive support from the community
- Share what works and what doesn't
- See details of completed quality improvement projects
- Learn about training opportunities
- Join a community of practice



## 7. Appendix: Data Sources Referenced in This Quality Standard

Within this quality standard, there are several data sources that can be used for provincial measurement. The data source(s) for each indicator are listed within the individual indicator specifications. More details on the specific data sources that Ontario Health used to produce the indicators are noted below.

### **Discharge Abstract Database—Canadian Institute for Health Information**

The Discharge Abstract Database by the Canadian Institute for Health Information contains information abstracted from hospital records that capture administrative, clinical, and patient demographic data on all hospital in-patient separations, including discharges, deaths, sign-outs, and transfers. The institute receives Ontario data directly from participating facilities, from their respective regional health authorities, or from the Ministry of Health. The database includes patient-level data for acute care facilities in Ontario. Data are collected, maintained, and validated by the institute.

The main data elements of this database are patient identifiers (e.g., name, health card number), patient demographics (e.g., age, sex, geographic location), clinical information (e.g., diagnoses, procedures), and administrative information.

### **National Ambulatory Care Reporting System—Canadian Institute for Health Information**

The National Ambulatory Care Reporting System by the Canadian Institute for Health Information contains data for all hospital- and community-based emergency and ambulatory care, including day surgeries, outpatient clinics, and emergency departments. Data are collected, maintained, and validated by the institute. The institute receives Ontario data directly from participating facilities, from their respective regional health authorities, or from the Ministry of Health. Data are collected, maintained, and validated by the institute.

Data elements of this reporting system include patient identifiers (e.g., name, health card number), patient demographics (e.g., age, sex, geographic location), clinical information (e.g., diagnoses, procedures), and administrative information.

### **Ontario Health Insurance Plan—Ministry of Health**

The Ontario Health Insurance Plan (OHIP) claims database covers all reimbursement claims to the ministry made by fee-for-service physicians, community-based laboratories, and radiology facilities. The OHIP database at the Institute for Clinical Evaluative Sciences contains encrypted patient and physician identifiers, codes for services provided, dates of service, associated diagnoses, and fees paid. Services missing from OHIP data include some laboratory services, services received in provincial psychiatric hospitals, services provided by health service organizations and other alternative providers, diagnostic procedures performed on an in-patient basis, and laboratory services performed at hospitals (both in-patient and same day). Also excluded is remuneration to physicians through alternative funding plans; this could distort analyses because of their concentration in certain specialties or geographic areas.

## QUALITY STANDARDS

# Looking for more information?

Visit [HQOntario.ca](https://www.hqontario.ca) or contact us at [QualityStandards@OntarioHealth.ca](mailto:QualityStandards@OntarioHealth.ca) if you have any questions or feedback about this guide.

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