

Quality Standards

Osteoarthritis

Care for Adults With Osteoarthritis of the Knee, Hip, or Hand

Measurement Guide

September 2018

**Health Quality
Ontario**

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Contents

1	How to Use the Measurement Guide.....	3
2	Quality Indicators in Quality Standards.....	4
2.1	Measurement Principles	4
2.2	Process Indicators	4
2.3	Structural Indicators.....	5
2.4	Outcome Indicators	5
2.5	Balancing Measures	6
3	Local Measurement	7
3.1	Local Data Collection.....	7
3.2	Measurement Principles for Local Data Collection.....	7
3.3	Benchmarks and Targets	8
4	Provincial Measurement	10
4.1	Accessing Provincially Measurable Data.....	10
5	How Success Can Be Measured for This Quality Standard	11
5.1	Quality Standard Scope.....	11
5.2	Cohort Identification.....	12
5.3	How Success Can Be Measured Provincially.....	12
5.4	How Success Can Be Measured Locally.....	12
6	Resources and Questions	18
6.1	Resources	18
6.2	Questions?	18

1 How to Use the Measurement Guide

This document is meant to serve as a measurement guide to support the adoption of the Osteoarthritis quality standard. Care for people with osteoarthritis is a critical issue, and there are significant gaps and variations in the quality of care that people with osteoarthritis receive in Ontario. Recognizing this, Health Quality Ontario 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 adopt the osteoarthritis 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 measure the success of the quality standard on a provincial level

Important Resources for Quality Standard Adoption

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

- A [Getting Started Guide](#) that outlines a process for using quality standards as a resource to deliver high-quality care. It includes links to templates, tools, and stories and advice from health care professionals, patients, and caregivers. You can use this guide to learn about evidence-based approaches to implementing changes to practice
- A [Quality Improvement Guide](#) to give health care teams and organizations in Ontario easy access to well-established quality improvement tools. The guide provides examples of how to adapt and apply these tools to our Ontario health care environments
- An online community called [Quorum](#) that is dedicated to working together to improve the quality of health care across Ontario. Quorum can support your quality improvement efforts

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 principle in developing 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

Health Quality Ontario uses the process, structure, and outcome indicator framework developed by [Donabedian](#) in 1966 to develop indicators for quality standards. 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 intended to support quality improvement and implementation of the standard. 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 timeframe 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 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 timeframe) can also appear in the definitions section. 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 after first- and second-line antipsychotics have been ineffective. 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 known to help in achieving the quality statement are in place.

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 availability of a stroke unit, the existence of discharge planning protocols, or 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 effect of all 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 timeframe.

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, the intention of these measures is to monitor the unintended consequences.

3 Local Measurement

As part of the Osteoarthritis 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:

1. Review the list of identified indicators (in the quality standard), and determine which ones you will use as part of your adoption planning, given your knowledge of current gaps in care
2. Determine the availability of data related to the indicators you have chosen
3. Identify a way to collect local data related to your chosen indicators
4. 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 data quality improvement.

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 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.

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).

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, Health Quality Ontario does not develop benchmarks for quality standard 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 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. Timeframe 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. 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, Health Quality Ontario 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 and Long-Term Care](#)

“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.

5 How Success Can Be Measured for This Quality Standard

This measurement guide accompanies Health Quality Ontario's osteoarthritis quality standard. During the development of each quality standard, a few performance indicators are chosen to measure the success of the entire standard. 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:

- Percentage of people with osteoarthritis who report the long-term control of their pain as acceptable
 - Percentage of people with osteoarthritis who report a high level of success in coping with and self-managing their condition
 - Percentage of people with osteoarthritis who have timely access to appropriate rehabilitation management strategies (such as education, exercise, and weight management)
 - Median wait time to first appointment with a health care professional with additional skills in osteoarthritis management (i.e., additional skills in rheumatology, orthopaedic surgery, sport and exercise medicine, or pain management)
 - Percentage of people with osteoarthritis referred to a health care professional with additional skills in osteoarthritis management (i.e., additional skills in rheumatology, orthopaedic surgery, sport and exercise medicine, or pain management) who have their first appointment in a timely manner
- Note:** The target timeframe to see a health care professional with additional skills in osteoarthritis management will vary depending on the type of professional and the clinical characteristics of the patient.

All the indicators in this guide rely on local data collection. This may change over time as data sources or analysis methods are developed.

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

5.1 Quality Standard Scope

This quality standard addresses care for adults 18 years of age or older who have been diagnosed with or are suspected to have osteoarthritis of the knee, hip, or hand (i.e., thumb or fingers). The quality standard focuses on the assessment, diagnosis, and management of osteoarthritis for people across all health care settings and health care professionals. It provides guidance on nonpharmacological and pharmacological care. It covers referral for consideration of joint surgery but does not address specific surgical procedures. This quality standard does not apply to care for people with osteoarthritis affecting the spine, other peripheral joints (i.e., shoulder, elbow, wrist, foot, ankle), or neck or low back pain. Similarly, this quality standard also excludes those with inflammatory arthritis or medical conditions and treatments that can lead to osteoarthritis.

This quality standard includes 10 quality statements addressing areas identified by Health Quality Ontario's Osteoarthritis Quality Standard Advisory Committee as having high potential for improving the quality of osteoarthritis care in Ontario.

5.2 Cohort Identification

Local data collection may be used to identify a cohort.

5.3 How Success Can Be Measured Provincially

The overarching goals for this quality standard are mapped to indicators that may be used to assess quality of care provincially. At this time, no indicators identified by the Quality Standard Advisory Committee are currently measurable in Ontario's health care system using available data sources. Further data advancement is needed for the collection of data for these indicators at the Provincial level.

5.4 How Success Can Be Measured Locally

You might want to assess the quality of care you provide to your patients with osteoarthritis. 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 list of indicators, which can be captured using local data collection.

- Percentage of people with osteoarthritis who report the long-term control of their pain as acceptable
- Percentage of people with osteoarthritis who report a high level of success in coping with and self-managing their condition
- Percentage of people with osteoarthritis who have timely access to appropriate rehabilitation management strategies (such as education, exercise, and weight management)
- Median wait time to first appointment with a health care professional with additional skills in osteoarthritis management (i.e., additional skills in rheumatology, orthopaedic surgery, sport and exercise medicine, or pain management)
- Percentage of people with osteoarthritis referred to a health care professional with additional skills in osteoarthritis management (i.e., additional skills in rheumatology, orthopaedic surgery, sport and exercise medicine, or pain management) who have their first appointment in a timely manner

Note: The target timeframe to see a health care professional with additional skills in osteoarthritis management will vary depending on the type of professional and the clinical characteristics of the patient.

Methodologic details are described in the tables below.

Table 1: Percentage of people with osteoarthritis who report the long-term control of their pain as acceptable

GENERAL DESCRIPTION	Indicator description	Name: This indicator measures the percentage of people with osteoarthritis who report the long-term control of their pain as acceptable Directionality: A higher percentage is better
	Indicator status	Developmental
	Dimension of quality	Patient-Centered, Effective
	Quality statement alignment	Quality Statement 3: Patient Education Quality Statement 4: Patient self-management plan Quality Statement 5: Therapeutic Exercise Quality Statement 6: Physical Activity Quality Statement 8: Pharmacological Symptom Management
DEFINITION & SOURCE INFORMATION	Calculation: General	Denominator Total number of people with osteoarthritis Numerator Number of people in the denominator who report the long-term control of their pain as acceptable Method $\text{Numerator/denominator} \times 100$
	Data source	Local data collection
ADDITIONAL INFORMATION	Comments	Currently no provincial data sources exist to capture this information. Validated tools to measure pain do exist, but it should be noted that these measures are self-reported which may lead to variation or bias.

Table 2: Percentage of people with osteoarthritis who report a high level of success in coping with and self-managing their condition

GENERAL DESCRIPTION	Indicator description	Name: This indicator measures the percentage of people with osteoarthritis who report a high level of success in coping with and self-managing their condition Directionality: A higher percentage is better
	Indicator status	Developmental
	Dimension of quality	Patient-Centered, Effective
	Quality statement alignment	Quality Statement 3: Patient Education Quality Statement 4: Patient Self-Management Plan Quality Statement 8: Pharmacological Symptom Management
DEFINITION & SOURCE INFORMATION	Calculation: General	Denominator Total number of people with Osteoarthritis Numerator Number of people in the denominator who report a high level of success in coping with and self-managing their condition Method $\text{Numerator/denominator} \times 100$
	Data source	Local data collection
ADDITIONAL INFORMATION	Comments	Currently no provincial data sources exist to capture this information. Validated tools to measure coping and self-management do exist, but it should be noted that these measures are self-reported, which may lead to variation or bias.

Table 3: Percentage of people with osteoarthritis who have timely access to appropriate rehabilitation management strategies (such as education, exercise and weight management)

GENERAL DESCRIPTION	Indicator description	Name: This indicator measures the percentage of people with osteoarthritis who have timely access to appropriate rehabilitation management strategies (such as education, exercise and weight management) Directionality: A higher percentage is better
	Indicator status	Developmental
	Dimension of quality	Patient-Centered, Timely
	Quality statement alignment	Quality Statement 2: Comprehensive Assessment to Inform the Care Plan Quality Statement 3: Patient Education Quality Statement 5: Therapeutic Exercise Quality Statement 6: Physical Activity Quality Statement 7: Weight Management Quality Statement 9: Referral to a Health Care Professional with Additional Skills in Osteoarthritis Management
DEFINITION & SOURCE INFORMATION	Calculation: General	Denominator Total number of people with osteoarthritis who accessed appropriate rehabilitation management strategies (such as education, exercise and weight management) Numerator The number of people in the denominator who had timely access to appropriate rehabilitation management strategies Method $\text{Numerator/denominator} \times 100$
	Data source	Local data collection
ADDITIONAL INFORMATION	Comments	Currently no provincial data sources exist to capture this information. It should be noted that the definition of timely may vary depending on the type of appropriate management strategy.

Table 4: Median wait time to first appointment with a health care professional with additional skills in osteoarthritis management (i.e., additional skills in rheumatology, orthopaedic surgery, sport and exercise medicine, or pain management)

GENERAL DESCRIPTION	Indicator description	Name: This indicator measures the median wait time people with osteoarthritis waited for their first appointment with a health care professional with additional skills in osteoarthritis management (i.e., additional skills in rheumatology, orthopaedic surgery, sport and exercise medicine, or pain management) Directionality: A lower value is better
	Indicator status	Developmental
	Dimension of quality	Timely, Patient-Centered
	Quality statement alignment	Quality Statement 9: Referral to a Health Care Professional with Additional Skills in Osteoarthritis Management Quality Statement 10: Referral for Consideration of Joint Surgery
DEFINITION & SOURCE INFORMATION	Calculation: General	Denominator N/A Numerator N/A Method The median is the number of days within which 50% of people with osteoarthritis waited from the day of referral to a health care professional with additional skills in osteoarthritis management to their first appointment
	Data source	Local data collection
ADDITIONAL INFORMATION	Comments	Currently no provincial data sources exist to capture this information. While the median is one measure of the distribution, other measures, such as the mean or quartiles, may also be used to measure distribution.

Table 5: Percentage of people with osteoarthritis referred to a health care professional with additional skills in osteoarthritis management (i.e., additional skills in rheumatology, orthopedic surgery, sport and exercise medicine, or pain management) who have their first appointment in a timely manner

GENERAL DESCRIPTION	Indicator description	Name: This indicator measures the percentage of people with osteoarthritis referred to a health care professional with additional skills in osteoarthritis management (i.e., additional skills in rheumatology, orthopedic surgery, sport and exercise medicine, or pain management) who have their first appointment in a timely manner Directionality: A higher percentage is better
	Indicator status	Developmental
	Dimension of quality	Patient-Centered, Timely
	Quality statement alignment	Quality Statement 9: Referral to a Health Care Professional with Additional Skills in Osteoarthritis Management Quality Statement 10: Referral for Consideration of Joint Surgery
DEFINITION & SOURCE INFORMATION	Calculation: General	Denominator Total number of people with osteoarthritis with a clinically indicated reason for referral who had an appointment with a health care professional with additional skills in osteoarthritis management Numerator The number of people in the denominator who had their first appointment in a timely manner. Method $\text{Numerator/denominator} \times 100$
	Data source	Local data collection
ADDITIONAL INFORMATION	Comments	Currently no provincial data sources exist to capture this information. Note: The target timeframe to see a health care professional with additional skills in osteoarthritis management will vary depending on the type of professional and the clinical characteristics of the patient.

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 **information and data brief** provides data on why a particular quality standard has been created and the data behind it

6.2 Questions?

Please contact qualitystandards@hgontario.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.

Health Quality Ontario 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

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