QUALITY STANDARDS

Medication Safety

Care in All Settings

Measurement Guide

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Ontario Health

Contents

1 How to Use the Measurement Guide

This document is meant to serve as a measurement guide to support the adoption of the medication safety quality standard. Care for people of all ages who are taking medications is a critical issue, and there are significant gaps and variations in the quality of care that people taking medications 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 adopt the medication safety 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:

- **Provincial measurement:** how we can measure the success of the quality standard on a provincial level using existing provincial data sources
- **Local measurement:** what you can do to assess the quality of care that you provide locally

Important Resources for Quality Standard Adoption

Ontario Health 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 environment
- 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 element in developing and describing the quality statements. 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

Ontario Health uses the process, structure, and outcome indicator framework developed by Donabedian in 1966 to develop indicators for quality standards. The three indicator types (process, structural and outcome) are added where appropriate and play essential and interrelated roles in measuring the quality of health care and the impact of introducing and using quality standards. Note that the Mediation Safety Quality Standard does not include any suggested structural indicators.

The indicators provided are merely 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 timeframe in which the action is to be performed, established through evidence or expert consensus. When a measurement applies to a subset 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.

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.

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 the quality standard 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.

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 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 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 and generally not included in the standard, the intention of these types of measures is to monitor the unintended consequences.

3 Local Measurement

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 (See Appendix 1 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
- 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 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 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).

$$Rate\ of\ 30\text{-}day\ hospital\ readmission =$$

$$\frac{Number\ of\ hospital\ readmissions\ within\ 30\ days\ of\ discharge\ [\mathbf{numerator}]}{Number\ of\ discharges\ from\ hospital\ [\mathbf{denominator}]}$$

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. 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. 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.

4.2 How Success Can Be Measured for This Quality Standard

This measurement guide accompanies Ontario Health's quality standard for medication safety. Early in 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 who take one or more prescription medications and who report that their care provider has reviewed and discussed their medications with them in the previous 12 months
- Percentage of people who are eligible for the Ontario Drug Benefit program (i.e., who are aged 65 years or older) who have a MedsCheck medication review within 7 days of being discharged home from hospital
- Percentage of people aged 65 years and older who take prescription medication and who are prescribed medication that appears in the Screening Tool of Older Persons' Prescriptions (STOPP) and Screening Tool to Alert to Right Treatment (START) or Beers Criteria for potentially inappropriate medication use in older adults
- Percentage of people discharged from hospital to home who have a drug-related emergency department visit within 30 days after discharge
- Percentage of people discharged from hospital to home who have a drug-related hospital readmission within 30 days after discharge
- Percentage of people in hospital who are taking one or more medications and who have a medication-related patient safety incident

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 and validated data sources) *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)

4.3 Quality Standard Scope

This quality standard addresses care for people of all ages who are taking one or more medications.

This quality standard includes 5 quality statements. They address areas identified by Ontario Health's Medication Safety Quality Standard Advisory Committee as having high potential for improving the quality of care in Ontario for people of all ages who are taking one or more medications.

4.4 Cohort Identification

For measurement at the provincial level, people taking one or more medications can be identified using the following methods:

- People having one or more prescription medications can be identified within survey data e.g. Canadian Community Health Survey
- People who are eligible for the Ontario Drug Benefit program can be identified within the program
- People who are discharged from hospitals can be identified by the administrative databases e.g. Discharge Abstract Database
- People aged 65 and older in Ontario who take at least one drug that appears in the Beers list or in the Screening Tool of Older Persons' Prescriptions (STOPP) and Screening Tool to Alert to Right Treatment (START)can be identified in National Prescription Drug Utilization Information System, Canadian Institute for Health Information

For local measurement, people taking one or more medications may be identified using local data sources (such as electronic medical records or clinical patient records).

4.5 How Success Can Be Measured Provincially

The Medication Safety Quality Standard Advisory Committee identified a small number of indicators **for this quality standard** that may be used to assess quality of care provincially. The following indicators are currently measurable in Ontario's health care system:

- Percentage of people who take one or more prescription medications and who report that their care provider has reviewed and discussed their medications with them in the previous 12 months
- Percentage of people who are eligible for the Ontario Drug Benefit program (i.e., who are aged 65 years or older) who have a MedsCheck medication review within 7 days of being discharged home from hospital
- Percentage of people aged 65 years and older who take prescription medication and who are prescribed medication that appears in the Screening Tool of Older Persons' Prescriptions (STOPP) and Screening Tool to Alert to Right Treatment (START) or Beers Criteria for Potentially Inappropriate Medication Use in Older Adults
- Percentage of people discharged from hospital to home who have a drug-related emergency department visit within 30 days after discharge
- Percentage of people discharged from hospital to home who have a drug-related hospital readmission within 30 days after discharge

Methodologic details are described in the tables below.

Table 1: Percentage of people who take one or more prescription medications and who report that their care provider has reviewed and discussed their medications with them in the previous 12 months

GENERAL DESCRIPTION	Indicator description	Name: Percentage of people who take one or more prescription medications and who report that their care provider has reviewed and discussed their medications with them in the previous 12 months Directionality: A higher percentage is better
	Measurability	**Measurable at the provincial level**
	Dimensions of quality	Patient-centered, Safe
	Quality statement alignment	**Quality Statement 4: Structured Medication Review** People taking medication have structured medication reviews, especially during health care visits when medications are a major component of their care, or as clinically indicated
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Weighted number of respondents who stated that they take prescription medication by answering the following survey question: Are you taking any prescription medicines on a regular or on-going basis? • Yes • No • Don't know • Refused *Exclusions* Responses for No, Don't know and Refused **Numerator** Weighed number of people surveyed who answer "yes" to the following survey question: In the last 12 months, has your provider reviewed and discussed with you the prescription medicine(s) you are using? • Yes (includes reviewed, discussed or both) • No • Don’t know • Refused

		Method Numerator divided by the denominator times 100 **Data source:** Health Care Experience Survey (HCES)
ADDITIONAL INFORMATION	Limitations	Only people aged 16 years and older can complete the survey. People living in institutions, non-residential phone numbers, and people with invalid/missing household addresses in the Registered Persons Database (RPDB) are not captured. Respondents who were unable to speak English or French or were not healthy enough (physically or mentally) to complete the interview were not surveyed. This indicator does not capture medication review with a pharmacist.
	Comments	The results are weighted to account for the design characteristics of the survey and post-stratified by age and sex to reflect Ontario population. References 'your provider in the questionnaire can mean a family doctor, GP, nurse practitioner, or anyone else the respondent said they get their primary care from. The education stratification analysis is restricted to people aged 25 and older. This indicator was selected by the PCPM prioritization group with the stipulation that when reporting this indicator, an equity cross-cut would be the focus of attention. The HCES is a quarterly survey of a random sample of the Ontario population 16 years and older, conducted on behalf of the MOHLTC by the Institute for Social Research at York University.

Abbreviations: GP, General Practitioner; PCPM, Primary Care Performance Management
Source: https://data.ontario.ca/dataset/health-care-experience-survey-hces

Table 2: Percentage of people who are eligible for the Ontario Drug Benefit program (i.e., who are aged 65 years or older) who have a MedsCheck medication review within 7 days of being discharged home from hospital

GENERAL DESCRIPTION	Indicator description	Name: Percentage of people who are eligible for the Ontario Drug Benefit (ODB) program (i.e., who are aged 65 years or older) who have a MedsCheck medication review within 7 days of being discharged home from hospital Directionality: A higher percentage is better
	Measurability	**Measurable at the provincial level**
	Dimension of quality	Patient-Centered, Safe
	Quality statement alignment	**Quality Statement 4: Structured Medication Review** People taking medication have structured medication reviews, especially during health care visits when medications are a major component of their care, or as clinically indicated
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** All ODB eligible individuals who presented to a pharmacy within 7 days of being discharged home from hospital, and who meet the criteria for a MedsCheck. Eligibility for MedsCheck: • Dispensed 3 or more medications for chronic conditions in the 100 days prior to hospital discharge; OR • Dispensed at least one diabetes medication in the 365 days prior to hospital discharge. Includes medication or testing agents with therapeutic classification 68:20 or 96:05. *Inclusions* Eligible patients must have presented to pharmacy within 7 days of hospital discharge: any drug dispense within 7 days of hospital discharge date. Includes ODB claims for a MedsCheck review. *Exclusions* • Individuals not covered by the Ontario Drug Benefit (ODB)

		• Individuals living in Long-Term Care homes: individuals dispensed any medications in the 30 days following hospital discharge that were flagged as LTC. • Hospital admissions with admit category not equal to emergent/urgent. **Numerator** Individuals in the denominator who had any MedsCheck review claim within 7 days of hospital discharge. MedsCheck PINs: 93899979 = MedsCheck Annual 93899981 = MedsCheck Follow-up: Hospital Discharge 93899982 = MedsCheck Follow-up: Pharmacist Decision 93899983 = MedsCheck Follow-up: MD/NP Referral 93899984 = MedsCheck Follow-up: Hospital Admission 93899988 = MedsCheck Diabetes Annual Assessment Summary 93899989 = Diabetes Education Follow-up 93899987 = MedsCheck Home Assessment Summary **Method** Numerator divided by the denominator times 100 **Data sources:** • Discharge Abstract Database (DAD), Canadian Institute of Health Information • Ontario Drug Benefit (ODB), Ministry of Health
ADDITIONAL INFORMATION	Limitations	The indicator does not include individuals not covered by the Ontario Drug Benefit (ODB); individuals dispensed any medications in the 30 days following hospital discharge that were flagged as LTC and individuals admitted to hospital with not emergent/urgent category.
	Comments	If an individual presented to more than one pharmacy in the 7 days following hospital discharge, the earliest visit was selected. Research on MedsCheck after hospital discharge can be found at the following link: https://pubmed.ncbi.nlm.nih.gov/31395749/

Abbreviations: PINs, Product Identification Numbers

Source: https://www.ocpinfo.com/about/key-initiatives/quality-indicators-for-pharmacy/

Table 3: Percentage of people aged 65 years and older who take prescription medication and who are prescribed medication that appears in the Screening Tool of Older Persons' Prescriptions (STOPP) and Screening Tool to Alert to Right Treatment (START) or Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

GENERAL DESCRIPTION	Indicator description	Name: Percentage of people aged 65 years and older who take prescription medication and who are prescribed medication that appears in the Screening Tool of Older Persons' Prescriptions (STOPP) and Screening Tool to Alert to Right Treatment (START) or Beers Criteria for Potentially Inappropriate Medication Use in Older Adults Directionality: A lower percentage is better
	Measurability	**Measurable at the provincial level**
	Dimension of quality	Patient-Centered, Safe, Effective
	Quality statement alignment	**All statements align with this indicator**
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Total number of people aged 65 years and older with at least one claim accepted by a public drug program. *Inclusions* All people aged 65 years and older *Exclusions* All non-seniors (age younger than 65 years) **Numerator** Total number of people aged 65 years and older with at least one claim for a drug that appears in the Screening Tool of Older Persons' Prescriptions (STOPP) and Screening Tool to Alert to Right Treatment (START) or Beers Criteria accepted by a public drug program *Inclusions* All people aged 65 years and older with at least one claim for a drug that appears in the STOPP and START or Beers Criteria *Exclusions* All non-seniors (age younger than 65 years) People aged 65 years and older without a claim appearing in the STOPP and START or the Beers Criteria **Method** Numerator divided by the denominator times 100

		Data sources: National Prescription Drug Utilization Information System (NPDUIS), Canadian Institute of Health Information
ADDITIONAL INFORMATION	Limitations	The National Prescription Drug Utilization Information System (NPDUIS) Database includes claims accepted by public drug programs, either for reimbursement or toward a deductible. Claims are included regardless of whether the patient actually used the drugs. The NPDUIS Database does not include information regarding: • Prescriptions that were written but never dispensed • Prescriptions that were dispensed but for which the associated drug costs were not submitted to or not accepted by the public drug programs • Diagnoses or conditions for which prescriptions were written There may be differences in population characteristics (such as age and health status) between seniors with and without public coverage. In regions where a lower proportion of seniors have claims accepted by the public plan, drug utilization patterns among those with public coverage are more likely to be affected by these differences and, therefore, may be less reflective of utilization patterns among all seniors in the region. So individual patient characteristics that influence medication choices are not captured in this indicator.
	Comments	People aged 65 and older are at greater risk for adverse drug reactions (ADRs) as well as other types of drug-related adverse events due to the number of drugs they take, the higher prevalence of certain chronic conditions and age-related changes in the body. The higher prevalence of chronic conditions does contribute to the number of drugs seniors take. However, it is important to evaluate the appropriateness of each medication prescribed. This indicator is interpreted as the percentage of people aged 65 years and older who take a medication identified as potentially inappropriate to prescribe to seniors because it is either ineffective or it poses unnecessarily high risk for older persons and a safer alternative is available. It should be noted that there may be cases where it is appropriate for older people to take drugs that appears in the STOPP and START or on the Beers list. Please refer to the following links to keep updated with the most recent information on STOPP/START and the Beers Criteria. https://www.ismp-canada.org/beers_list/#l=qone https://academic.oup.com/ageing/article/44/2/213/2812233

Table 4: Percentage of people discharged from hospital to home who have a drug-related emergency department visit within 30 days after discharge

GENERAL DESCRIPTION	Indicator description	Name: Percentage of people discharged from hospital to home who have a drug-related emergency department visit within 30 days after discharge Directionality: A lower percentage is better
	Measurability	**Measurable at provincial level (developmental)**
	Dimensions of quality	Patient-centered, Safe
	Quality statement alignment	**All statements align with this indicator**
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Total number of incident hospital discharges *Inclusions* • Discharge disposition, dischdisp = 02, 04, 05 (prior to 2018) • Discharges at a facility with An_Inst_Type= 1 (Acute Care) • Discharges for all reasons (medical, surgical, obstetric) • Hospital Admissions in facilities in Ontario Incident = 1st event in a calendar period without any look-back for past events (If multiple hospitalizations in Calendar Year, use first). *Exclusions* • Invalid health card number • Non-Ontario resident • Age > 105 • Transfers from another acute care institution **Numerator** Number of individuals in the denominator with an unscheduled ED visit for a drug related reason following the incident hospital visit within 30 days after discharge *Exclusions* • Scheduled ED visits • ED visits outside in facilities outside of Ontario • ED visits that result in hospital admission

		• ED visits that represent transfers from other EDs • ED visits where the patient left without being seen Notes: • Count only the first visit per health card number during the 30-day follow-up period • Incident hospital discharges are restricted to calendar years but 30-day follow-up for numerator can cross over into the next calendar year. • For episodes of care that involve transfers, ED visits should be attributed to the last hospital from which the patient was discharged before the visit. **Method** Numerator divided by the denominator times 100 **Data sources:** Discharge Abstract Database, National Ambulatory Care Reporting System
ADDITIONAL INFORMATION	Limitations	• In some cases, the ED visit may be hard to directly link and identify as drug related • This measure may only capture very obvious drug-related ED visit • This measure may have low sensitivity and specificity if the cause of ED visit i.e. a drug-related is a rare event due to not be captured precisely. • Emergency department visits can be influenced by many factors (which may or may not be related to the recent hospitalization), including the quality of hospital and community care, the individual's health status, the quality of the transition and the delivery of care within communities. Some areas, for example, may use the emergency department as a source of primary care. Based on the HCES survey, in 2019 over 38% of surveyed Ontarians stated that their emergency department visit could have been managed by their primary care provider.
	Comments	The development of this indicator is in progress by Ontario College of Pharmacists and Canadian Institute for Health Information. While not all unplanned emergency department visits are avoidable, interventions during and after a hospitalization can be effective in reducing emergency department visits following the discharge, e.g. for people who are eligible for the Ontario Drug Benefit (ODB) program, a MedsCheck within 7 days after discharge; survey questions available in the province, that ask patients 'In the last 12 months, has your provider reviewed and discussed with you the prescription medicine(s) you are using?' (the Health Care Experiences Survey, MOH). These practices can prevent this type of ED visit.

Abbreviations: MOH: Ministry of Health, ED: Emergency Department, HCES: Health Care Experience Survey

Table 5: Percentage of people discharged from hospital to home who have a drug-related hospital readmission within 30 days after discharge

GENERAL DESCRIPTION	Indicator description	Name: Percentage of people discharged from hospital to home who have a drug-related hospital readmission within 30 days after discharge Directionality: A lower percentage is better
	Measurability	**Measurable at provincial level (developmental)**
	Dimensions of quality	Patient-centered, Safe
	Quality statement alignment	**All statements align with this indicator**
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Total number of incident hospital discharges *Inclusions* • Discharge disposition, dischdisp = 02, 04, 05 (prior to 2018) • Discharges at a facility with An_Inst_Type= 1 (Acute Care) • Discharges for all reasons (medical, surgical, obstetric) • Hospital Admissions in facilities in Ontario Incident = 1st event in a calendar period without any look-back for past events (If multiple hospitalizations in Calendar Year, use first). *Exclusions* • Invalid health care number • Non-Ontario resident (1st two characters of PRCDDABLK ne '35') • Age > 105 • Discharge disposition: 01, 03, 06, 07, 08, 09, 12, ZZ • Transfers from another acute care institution **Numerator** Number of individuals in the denominator with a non-elective hospital admission for a drug related reason following the incident hospital visit within 30 days after discharge *Exclusions* • Elective hospital admissions • Hospital admissions to facilities outside of Ontario • An acute care hospitalization that occurs less than seven hours after discharge from the previous acute care hospitalization or same-day surgery visit, regardless of whether the transfer is coded

		• An acute care hospitalization or same-day surgery visit that occurs between 7 and 12 hours after discharge from the previous acute care hospitalization or same-day surgery visit, and at least one of the hospitalizations or visits has coded the transfer Notes: • Count only the first readmission per health card number during the 30 days follow-up period • Incident hospital discharges are restricted to calendar years but 30 days follow-up for numerator can cross over into the next calendar year. • For episodes of care that involve transfers, readmissions should be attributed to the last hospital from which the patient was discharged before readmission **Method** Numerator divided by the denominator times 100 **Data source:** Discharge Abstract Database
ADDITIONAL INFORMATION	Limitations	• Hospital readmissions due to medication are likely difficult to identify in administrative databases • This measure may only capture very obvious drug-related hospital readmissions e.g. drug poisoning • This measure may have low sensitivity and specificity if a drug related readmission is a rare event because it is difficult to identify. • There is a wide range of evidence investigating what proportion of acute care readmissions are preventable, with one review showing ranges from 5% to 79% (van Walraven, 2011). Although we do not know the exact proportion, this indicator can still be interpreted as a proxy measure for the preventable readmissions.
	Comments	The development of this indicator is in progress by Ontario College of Pharmacists and Canadian Institute for Health Information. Readmission rates can be influenced by many factors (which may or may not be related to the recent hospitalization), including the quality of hospital and community care, the individual's health status, the quality of the transition, etc. While not all unplanned readmissions are avoidable, interventions during and after a hospitalization can be effective in reducing drug related hospital readmission e.g. timely medication review, patient caregiver education, good communication between care providers and patients, well planned transition, etc.

4.6 How Success Can Be Measured Locally

You might want to assess the quality of care you provide to your patients having one or more medications. 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 potential indicator, that cannot be measured provincially using currently available data:

- Percentage of people in hospital who are taking one or more medications and who have a medication-related patient safety incident

Methodologic details are described in the tables below.

Table 6: Percentage of people in hospital who are taking one or more medications and who have a medication-related patient safety incident

GENERAL DESCRIPTION	Indicator description	Name: Percentage of people in hospital who are taking one or more medications and who have a medication-related patient safety incident Directionality: It may not always be straightforward. Improved documentation and data collection may show results worsening before they improve. Further analyses can be used to understand any changes in indicator results.
	Indicator status	**Measurable at local level**
	Dimensions of quality	Patient-centered, Safe
	Quality statement alignment	**Quality Statement 5: Medication-Related Patient Safety Incidents** Patients, caregivers, health care providers, and organizations recognize, report, and learn from medication-related patient safety incidents. Health care providers and organizations support a patient safety culture that is person-centred, just, and trusting.
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Total number of people in hospital who are taking one or more medications who are discharged from hospital during the reporting period *Inclusions* • Acute and post-acute hospital discharges **Numerator** Number of people in the denominator who have a medication-related patient safety incident *Inclusions* • Patients with medication-related incidents resulting in death or serious disability • Patients with near misses that are events that could have led to inappropriate medication use or patient harm but were intercepted before they reached the patient • Patients with incidents or events that reached them and could potentially have caused harm or injury but did not

		Method Numerator divided by the denominator times 100
	Data source	Local data collection
ADDITIONAL INFORMATION	Limitations	The data for this indicator is collected locally which may affect interpretation of results and comparison over time or across organizations: Differences in processes, documentation and resources across hospitals may result in differences in their ability to capture data about medication-related patient safety incidents, so hospitals with better documentation may have higher incident rates. Hospitals serve different patient populations, and it is important to take this into account when comparing across hospitals.
	Comments	Patients expect health care to be safe, and for most people it is. Despite health professionals' focus on safety, a small proportion of patients experience some type of unintended medication-related safety incidents as a result of the care they receive. Tracking and reporting medication-related safety incidents is a vital step to investigating, monitoring, and understanding patient safety improvement efforts. Please refer to the following link to learn about recording near misses and medication-related incidents. https://www.ocpinfo.com/news-resources/e-learning-modules/?set=251&catname=AIMS%20Program%20e-Training
	Potential proxy indicator	Percentage of medication errors analyzed with at least one action implemented to address the contributing factors

5 Resources and Questions

5.1 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

5.2 Questions?

Please contact 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

6 Appendix: Data Sources Referenced in This Quality Standard

Within this quality standard, there are several data sources 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.

Canadian Patient Experiences Reporting System—Canadian Institute for Health Information
The Canadian Patient Experiences Reporting System (CPERS) collects standardized patient experience information from participating hospitals across Canada, starting with acute inpatient care. Information from CPERS provides insight into patients' perspectives on the health services they received. This information is used to inform and improve patient-centred care and patient outcomes.
CPERS receives data about patient experiences from hospitals or jurisdictions that administer the Canadian Patient Experiences Survey on Inpatient Care (CPES-IC).
Data is collected on patients from 3 hospital service lines: medical, surgical, and maternity in accordance with the following:

- 22 items from the Hospital Consumer Assessment of Healthcare Providers and Systems survey
- 19 questions that address key areas relevant to the Canadian context (e.g., discharge, transitions)
- 7 questions to collect demographic information

Data elements include patients' responses to CPES-IC questions, information on the survey methods and processes used to administer the survey and administrative information needed to support submissions, analysis, and reporting.

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.

Health Care Experience Survey—Ministry of Health
The Health Care Experience Survey is a voluntary telephone survey aimed at Ontarians aged 16 and older and is conducted on a quarterly basis. This survey asks randomly selected Ontarians for their views about their health care system, how healthy they are, if they have chronic conditions, if they have a primary care provider (family doctor, nurse practitioner, or other health care provider), how long it takes to see their provider, their experience using the health care system, if they have been to an emergency room or a walk-in clinic, and their household and demographic characteristics. Excluded are

people living in institutions, those in households without telephones, and those with invalid/missing household addresses in the Registered Persons Database.

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 Drug Benefit Program—Ministry of Health
The Ontario Drug Benefit (ODB) program covers most of the cost of approximately 5,000 prescription drug products. It also helps you pay for allergy shots and epinephrine injectable products (used in response to severe allergic reaction); some products used in monitoring and testing for diabetes; some prescribed over-the-counter drugs under specific circumstances (for example, Ibuprofen 200mg, Ferrous sulphate 300); some nutrition products; some drugs used in the treatment of HIV/AIDS; some drugs used in palliative care; help to quit smoking: up to a year of pharmacist-assisted counselling (talk to your pharmacist or health care provider) and drugs for treatment if you are age 18 years or older.
The
ODB program may cover the cost of a drug that you can purchase without a prescription (also called an over-the-counter drug). Your doctor or nurse practitioner must write you a prescription for that drug and the drug must be either:

- listed on the ODB formulary
- covered through the Exceptional Access Program (EAP).

For the Exceptional Access Program to cover an over-the-counter drug:

- you must meet the EAP program criteria
- your doctor or nurse practitioner must send us a request for coverage
- we must approve the request.

National Prescription Drug Utilization Information System—Canadian Institute for Health Information
The National Prescription Drug Utilization Information System (NPDUIS), housed at the Canadian Institute for Health Information, collects information about pan-Canadian prescription drug claims-level

data, focusing primarily on publicly financed drug benefit programs. The database includes the following:

- Claims data — Cost and utilization information on prescribed drugs. This information is used to measure and analyze prescription drug use in Canada.
- Formulary data — Information on which drugs are included in public drug programs in Canada and how they are covered.
- Drug product information — Used to identify drug products in a standardized format.
- Plan information — An outline of the administrative policies of public drug plans or programs in Canada. This data may help explain differences in drug utilization patterns across the country.

NPDUIS contains claims and formulary data for public drug programs from 10 provinces/territories. It also contains formulary information from 1 federal drug program. Historical claims data for Ontario are available from April 2010. Claims data up to 2019-2020 is available; 2020-2021 data will be available in July 2021.The most current formulary data from NPDUIS is maintained. Historical formulary data for Ontario are available from January 2003. Claims data is collected in a standardized format based on the Canadian Pharmacists Association's pharmacy claim standard. Drugs are identified using Health Canada's Drug Identification Number. They are classified based on the World Health Organization's Anatomical Therapeutic Chemical Classification System as assigned by Health Canada.
Data elements of this reporting system include unique client identifier, client age, client gender, unique pharmacy identifier, pharmacy province, unique prescriber identifier, prescriber specialty code (limited), prescriber province, drug cost data elements related to ingredient, markup and professional fee, plan/program paid amounts.

QUALITY STANDARDS

Looking for more information?

Visit hqontario.ca or contact us at qualitystandards@ontariohealth.ca if you have any questions or feedback about this guide.

Ontario Health
130 Bloor Street West, 10th Floor
Toronto, Ontario
M5S 1N5

Tel: 416-323-6868
Toll Free: 1-866-623-6868
Fax: 416-323-9261
Email:qualitystandards@ontariohealth.ca
Website: hqontario.ca

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