Quality Standards

Chronic Obstructive Pulmonary Disease

Care in the Community for Adults

Measurement Guide

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Health Quality Ontario
Let's make our health system healthier

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Contents

1 How to Use the Measurement Guide

This document is meant to serve as a measurement guide to support the adoption of the Chronic Obstructive Pulmonary Disease quality standard. Care for people with Chronic Obstructive Pulmonary Disease is a critical issue, and there are significant gaps and variations in the quality of care that people with Chronic Obstructive Pulmonary Disease 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 Chronic Obstructive Pulmonary Disease 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 using existing provincial data sources

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 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

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 merely suggestions. It is not expected that every provider, team, or organization will be able 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 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 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 Chronic Obstructive Pulmonary Disease 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 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 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, the intention of these measures is to monitor the unintended consequences.

3 Local Measurement

As part of the Chronic Obstructive Pulmonary Disease 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 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, Health Quality Ontario 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 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, 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.

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

ICES receives funds from the Ministry of Health and Long-Term Care 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 How Success Can Be Measured for This Quality Standard

This measurement guide accompanies Health Quality Ontario's Chronic Obstructive Pulmonary Disease quality standard. 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:

Process indicators:

- Percentage of people with COPD whose diagnosis is confirmed by spirometry
- Percentage of people hospitalized for COPD who had an in-person follow-up assessment with a physician within 7 days of discharge
- Percentage of people with moderate to severe COPD who have access to a pulmonary rehabilitation program (stratification: community-based and inpatient rehabilitation)

Outcome indicators:

- Percentage of people with COPD with one or more urgent acute-care visits for COPD in the past year:
  - Emergency department visits
  - Nonelective hospitalizations
- Percentage of people with COPD who smoke cigarettes daily
- Percentage of people with COPD whose disease has a low or medium impact on their life (stratification: low, medium, high, and very high impact)

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 (the indicator is well defined and validated) *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.

5.1 Quality Standard Scope

This quality standard addresses care for people with chronic obstructive pulmonary disease (COPD), including the assessment of people who may have COPD. It provides guidance on the diagnosis, management, and treatment of COPD in community-based settings. The scope of this quality standard applies to primary care, specialist care, home care, and long-term care. This quality standard does not address care provided in an emergency department or hospital inpatient setting for the management of acute exacerbations of COPD.

In 2015, Health Quality Ontario and the Ministry of Health and Long-Term Care published an updated *Quality-Based Procedures: Clinical Handbook for COPD (Acute and Postacute)*,[1] a document that provides guidance on the care of people with COPD while they are in hospital and after being discharged. The COPD quality standard aligns with this clinical handbook, which can be used in conjunction with the quality standard.

In partnership with in the Ontario Palliative Care Network, Health Quality Ontario has also developed the quality standard *Palliative Care: Care for Adults With a Progressive, Life-Limiting Illness*,[2] which can be used together with the COPD quality standard throughout the care journey of people with COPD. It is common for people with COPD to also have other health conditions. Health Quality Ontario has quality standards for some of these conditions, such as dementia, heart failure (in development), and asthma (in development). All quality standards are available at www.hqontario.ca.

This quality standard includes 14 quality statements addressing areas identified by Health Quality Ontario’s Chronic Obstructive Pulmonary Disease Care in the Community Quality Standard Advisory Committee as having high potential to improve the quality of care for adults with Chronic Obstructive Pulmonary Disease.

5.2 Cohort Identification

People with Chronic Obstructive Pulmonary Disease can be identified in administrative databases using the following codes from ICD-10-CA (*International Statistical Classification of Diseases and Related Health Problems*, 10th Revision): J41, J42, J43, J44or the following ICD-9 codes: 491, 492, 496.

Researchers at the Institute for Clinical Evaluative Sciences (ICES) have developed a COPD cohort using the following administrative databases:

- Discharge Abstract Database
- National Ambulatory Care Reporting System
- Ontario Health Insurance Plan Claims Database
- Ontario Registered Persons Database

The COPD cohorts holds data for prevalent cases starting in April 1991 and incident cases starting in April 1996. More information on these cohorts can be found here:

> Gershon AS, Wang C, Guan J, Vasilevska-Ristovska J, Cicutto L, To T. Identifying individuals with physician diagnosed COPD in health administrative databases. COPD. 2009;6(5):388-94.

Local data collection may also be used to identify the cohort.

5.3 How Success Can Be Measured Provincially

The Chronic Obstructive Pulmonary Disease Quality Standard Advisory Committee identified a small 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 measurable in Ontario's health care system:

Process indicators:

- Percentage of people with COPD whose diagnosis is confirmed by spirometry
- Percentage of people hospitalized for COPD who had an in-person follow-up assessment with a physician within 7 days of discharge
- Percentage of people with COPD who have filled a prescription for long-acting bronchodilator therapy (measurable for people aged 65 years and older only)

Outcome indicators:

- Percentage of people with COPD with one or more urgent acute-care visits for COPD in the past year:
  - Emergency department visits
  - Nonelective hospitalizations
- Percentage of people with COPD who smoke cigarettes daily

Methodologic details are described in the tables below.

For other indicators of quality of care for people with COPD, contact Dr. Andrea Gershon at the Institute for Clinical Evaluative Sciences (ICES).

Table 1: Percentage of people with COPD whose diagnosis is confirmed by spirometry

GENERAL DESCRIPTION	Indicator description	This indicator measures the percentage of people being treated for COPD who have had their COPD diagnosis confirmed by spirometry. Directionality: A higher percentage is better.
	Measurability	**Measurable at the provincial level**
	Dimension of quality	Effective
	Quality statement alignment	QUALITY STATEMENT 1: **Diagnosis Confirmed With Spirometry** People clinically suspected of having COPD have spirometry testing to confirm diagnosis within 3 months of developing respiratory symptoms.
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Incident cases of COPD in the COPD cohort aged 40 years and older **Numerator** For each fiscal year, among those in the denominator, identify individuals with one of the spirometry codes below in the following window: • one year prior to first diagnostic code for COPD (either OHIP or CIHI, diagdate in COPD cohort) **to** • 3rd ohip visit or CIHI discharge date (note: This may change depending on the algorithm used) Physician Claim must include one of the following interventions: Flag 1: any code among: J301: PFT with perm record vital capacity J304: PULM/FUNC. FLOW VOL.LOOP-STANDARD LUNG MECHANICS J307: PULM/FUNCT-FUNCTIONAL RESIDUAL CAPACITY J310: PULM/FUNC-SINGLE BREATH DIFFUSING CAPACITY J324: PULM.FUNC.-REPEAT J301 AFTER BRONCHODILATOR J327: PULM.FUNC.-REPEAT J304 AFTER BRONCHODILATOR **Method** Numerator divided by the denominator times 100 **Data sources:** COPD specific cohort, OHIP

ADDITIONAL INFORMATION	Limitations	Spirometry offered in Community Health Centers (CHCs) or offered by providers that do not bill OHIP would not be captured in the numerator. This indicator does not include those with undiagnosed COPD.
	Comments	Spirometry is a lung function test that measures airflow, including forced vital capacity (FVC), which is the volume of air forcibly exhaled from the point of maximal inspiration, and forced expiratory volume in 1 second (FEV1), which is the volume of air exhaled during the first second of the FVC measurement. Reference values to interpret the test are based on age, height, sex, and race. Spirometry results are presented as a percentage of the predicted value or as an absolute with upper and lower limits of normal. To diagnose COPD, testing should be administered and results interpreted by trained health care professionals using spirometers that regularly undergo quality control and calibration to meet American Thoracic Society (ATS) and European Respiratory Society (ERS) specifications. Spirometry should be performed before and after the administration of an inhaled bronchodilator. See the Quality Standard for more information.

Abbreviations: COPD: Chronic Obstructive Pulmonary Disease; OHIP: Ontario Health Insurance Plan

Table 2: Percentage of people hospitalized for COPD who had an in-person follow-up assessment with a physician within 7 days of discharge

GENERAL DESCRIPTION	Indicator description	This indicator measures the percentage of people with Chronic Obstructive Pulmonary Disease discharged from the hospital that had a follow - up visit to any physician (includes primary care physicians and respirologists) within 7 days of discharge. Directionality: A higher percentage is better.
	Measurability	**Measurable at the provincial level**
	Dimension of quality	Effective
	Quality statement alignment	QUALITY STATEMENT 11: **Follow-Up After Hospitalization for an Acute Exacerbation of COPD** People with COPD who have been hospitalized for an acute exacerbation have an in-person follow-up assessment within 7 days after discharge.
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Acute care discharges from episodes of care in which Chronic Obstructive Pulmonary Disease was coded as any diagnosis. ***Inclusions*** • Age≥ 40 years • Diagnosis codes: J41, J42, J43, J44, with the exception of panlobular emphysema (J43.1), centrilobular emphysema (J43.2), and Macleod syndrome (J43.0). Discharge disposition • DAD:04 (discharged to home or home setting with support services) or 05 (discharged to home with no support service from an external agency required) ***Exclusions*** • Records without a valid health insurance number • Records without an Ontario residence • Sex not recorded as male or female • Invalid date of birth, admission date/time, discharge date/time Note: Admission to another institution within 24 hours of discharge from an institution should be considered part of the same episode of care **Numerator** The number of patients who visited a physician within 7 days of discharge following a Chronic Obstructive Pulmonary Disease related hospitalization.

		All- cause follow- up: Any visit to a physician taking place in office, home, or long - term care. **Method** Numerator divided by the denominator times 100, expressed as a proportion or percentage. **Data sources:** Ontario Health Insurance Plan (OHIP) Claims History Database, Registered Persons Database (RPDB), Discharge Abstract Database (DAD)
ADDITIONAL INFORMATION	Limitations	The indicator does not capture medical services delivered in other forms of post - discharge care and by non - physician providers. (e.g., salaried physicians, community mental health programs, client-based initiatives). The indicator includes all follow-up visits, regardless of whether these were related to the hospitalization.

Abbreviations: COPD: Chronic Obstructive Pulmonary Disease; DAD: Discharge Abstract Database; ICD-10-CA, International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada.: Reference: https://goldcopd.org/wp-content/uploads/2016/12/wms-GOLD-2017-Pocket-Guide.pdf

Table 3a: Percentage of people with COPD with one or more urgent acute-care visits for COPD in the past year:

o Emergency department visits

GENERAL DESCRIPTION	Indicator description	This indicator measures the percentage of people with Chronic Obstructive Pulmonary Disease that had a one or more urgent emergency department visits for COPD in the past year. Directionality: A lower percentage is better
	Measurability	**Measurable at the provincial level**
	Dimension of quality	Efficient
	Quality statement alignment	QUALITY STATEMENT 2: **Comprehensive Assessment** People with COPD have a comprehensive assessment to determine the degree of disability, risk of acute exacerbation, and presence of comorbidities near the time of diagnosis and on an annual basis. The severity of airflow limitation, as initially determined by spirometry testing to confirm diagnosis, is reassessed when people's health status changes. QUALITY STATEMENT 4: **Education and Self-Management** People with COPD and their caregivers receive verbal and written information about COPD from their health care professional and participate in interventions to support self-management, including the development of a written self-management plan. QUALITY STATEMENT 6: **Pharmacological Management of Stable COPD** People with a confirmed diagnosis of COPD are offered individualized pharmacotherapy to improve symptoms and prevent acute exacerbations. Their medications are reviewed at least annually. QUALITY STATEMENT 10: **Management of Acute Exacerbations of COPD** People with COPD have access to their primary care provider or a health care professional in their care team within 24 hours of the onset of an acute exacerbation. QUALITY STATEMENT 13: **Palliative Care** People with COPD and their caregivers are offered palliative care support to meet their needs.
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Prevalent cases of COPD in the specific cohort aged 40 years and older in each fiscal year ***Inclusions*** • Age≥ 40years

		• Diagnosis codes: J41, J42, J43, J44, with the exception of panlobular emphysema (J43.1), centrilobular emphysema (J43.2), and Macleod syndrome (J43.0). ***Exclusions*** • Records without a valid health insurance number • Records without an Ontario residence • Invalid date of birth, admission date/time, discharge date/time Note: Admission to another institution within 24 hours of discharge from an institution should be considered part of the same episode of care **Numerator** For each fiscal year, among those in the denominator, use NACRS to identify individuals with at least one: • Unplanned Emergency department visits for COPD (Main problem) • Unplanned Emergency department visits for COPD (Any problem) Unscheduled/unplanned ED visits are identified by: NACRS variables VISITTYPE = [1,2,4] OR SCHEDEDVISIT = N Where, VISITTYPE, Values 1= Unplanned Emergency Dep visit for a new clinical condition 2 = Unplanned return visit to Emergency Dep for the same clinical condition 3 = Planned return visit to follow-up to the Emergency Dep visit for the same clinical condition 4 = Patients referred for Emergency Department service provider assessment 5 = Patient referred and seen by a non-Emergency Dept service provider SCHEDEDVISIT Values: N = Not scheduled, Y = Scheduled **Method** Numerator divided by the denominator times 100 **Data sources:** COPD cohort, National Ambulatory Care Reporting system (NACRS)

ADDITIONAL INFORMATION	Limitations	Not all emergency department visits are preventable. ED visits may be necessary for people with COPD experiencing an exacerbation.

Abbreviations: COPD: Chronic Obstructive Pulmonary Disease; ICD-10-CA, International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada.

Table 3b: Percentage of people with COPD with one or more urgent acute-care visits for COPD in the past year:

- Nonelective hospitalizations

GENERAL DESCRIPTION	Indicator description	This indicator measures the percentage of people with Chronic Obstructive Pulmonary Disease that had a one or more urgent non-elective hospitalization for COPD in the past year. Directionality: A lower percentage is better
	Measurability	**Measurable at the provincial level**
	Dimension of quality	Efficient
	Quality statement alignment	QUALITY STATEMENT 2: **Comprehensive Assessment** People with COPD have a comprehensive assessment to determine the degree of disability, risk of acute exacerbation, and presence of comorbidities near the time of diagnosis and on an annual basis. The severity of airflow limitation, as initially determined by spirometry testing to confirm diagnosis, is reassessed when people's health status changes. QUALITY STATEMENT 3: **Goals of Care and Individualized Care Planning** People with COPD discuss their goals of care with their future substitute decision-maker, their primary care provider, and other members of their interprofessional care team. These discussions inform individualized care planning, which is reviewed and updated regularly. QUALITY STATEMENT 4: **Education and Self-Management** People with COPD and their caregivers receive verbal and written information about COPD from their health care professional and participate in interventions to support self-management, including the development of a written self-management plan. QUALITY STATEMENT 6: **Pharmacological Management of Stable COPD** People with a confirmed diagnosis of COPD are offered individualized pharmacotherapy to improve symptoms and prevent acute exacerbations. Their medications are reviewed at least annually. QUALITY STATEMENT 10: **Management of Acute Exacerbations of COPD** People with COPD have access to their primary care provider or a health care professional in their care team within 24 hours of the onset of an acute exacerbation. QUALITY STATEMENT 13: **Palliative Care** People with COPD and their caregivers are offered palliative care support to meet their needs.

DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Prevalent cases of COPD in the specific cohort aged 40 years and older in each fiscal year ***Inclusions*** • Age≥ 40years • Diagnosis codes: J41, J42, J43, J44, with the exception of panlobular emphysema (J43.1), centrilobular emphysema (J43.2), and Macleod syndrome (J43.0). ***Exclusions*** • Records without a valid health insurance number • Records without an Ontario residence • Invalid date of birth, admission date/time, discharge date/time Note: Admission to another institution within 24 hours of discharge from an institution should be considered part of the same episode of care **Numerator** For each fiscal year, among those in the denominator, use DAD to identify individuals with at least one: • Nonelective hospitalizations for COPD (MrDx) • Nonelective hospitalizations for COPD (Any diagnosis) Emergent or urgent (non-elective) readmission to an acute care hospital using Admission Category Code = U and Facility Type Code = 1. **Method** Numerator divided by the denominator times 100 **Data sources:** COPD cohort, Discharge Abstract Database (DAD)
ADDITIONAL INFORMATION	Limitations	Not all hospitalizations for people with COPD are preventable.

Abbreviations: COPD: Chronic Obstructive Pulmonary Disease; ICD-10-CA, International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada.

Table 4: Percentage of people with COPD who smoke cigarettes daily

GENERAL DESCRIPTION	Indicator description	This indicator measures the percentage of people with Chronic Obstructive Pulmonary Disease who smoke Directionality: A lower percentage is better
	Measurability	**Measurable for a sample of the population at the provincial level**
	Dimension of quality	Effective
	Quality statement alignment	QUALITY STATEMENT 5: **Promoting Smoking Cessation** People with COPD are asked about their tobacco-smoking status at every opportunity. Those who continue to smoke are offered pharmacological and nonpharmacological smoking cessation interventions. QUALITY STATEMENT 2: **Comprehensive Assessment** People with COPD have a comprehensive assessment to determine the degree of disability, risk of acute exacerbation, and presence of comorbidities near the time of diagnosis and on an annual basis. The severity of airflow limitation, as initially determined by spirometry testing to confirm diagnosis, is reassessed when people's health status changes. QUALITY STATEMENT 3: **Goals of Care and Individualized Care Planning** People with COPD discuss their goals of care with their future substitute decision-maker, their primary care provider, and other members of their interprofessional care team. These discussions inform individualized care planning, which is reviewed and updated regularly. QUALITY STATEMENT 4: **Education and Self-Management** People with COPD and their caregivers receive verbal and written information about COPD from their health care professional and participate in interventions to support self-management, including the development of a written self-management plan. QUALITY STATEMENT 9: **Pulmonary Rehabilitation** People with moderate to severe, stable COPD are referred to a pulmonary rehabilitation program if they have activity or exercise limitations and breathlessness despite appropriate pharmacological management.
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** People who received the CCHS survey who responded "1:Yes" to the question: CCC_Q030 Do you have chronic bronchitis, emphysema or chronic obstructive pulmonary disease or COPD?

		Numerator People who responded “1: Daily or 2: Occasionally” to the question: SMK_Q005 At the present time, do you smoke cigarettes every day, occasionally or not at all? **Method** Numerator divided by the denominator times 100 **Data sources:** Canadian Community Health Survey (CCHS), Statistics Canada
ADDITIONAL INFORMATION	Limitations	Because of the significant changes to the survey methodology, Statistics Canada does not recommend making comparisons of the redesigned 2015 cycle of the CCHS with past cycles. As this indicator relies on self-reported data, the true rate might in fact be higher or lower. In addition, the survey coverage excludes: persons living on reserves and other Aboriginal settlements in the provinces; full-time members of the Canadian Forces; the institutionalized population, children aged 12-17 that are living in foster care, and persons living in the Quebec health regions of Région du Nunavik and Région des Terres-Cries-de-la-Baie-James. Altogether, these exclusions represent less than 3% of the Canadian population aged 12 and over.

Abbreviations: COPD: Chronic Obstructive Pulmonary Disease

5.4 How Success Can Be Measured Locally

You might want to assess the quality of care you provide to your patients with Chronic Obstructive Pulmonary Disease. 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 potential indicators, some of which cannot be measured provincially using currently available data:

- Percentage of people with COPD whose disease has a low or medium impact on their life (stratification: low, medium, high, and very high impact)
- Percentage of people with moderate to severe COPD who have access to a pulmonary rehabilitation program (stratification: community-based and inpatient rehabilitation)

Methodologic details are described in the tables below.

Table 5: Percentage of people with COPD whose disease has a low or medium impact on their life

GENERAL DESCRIPTION	Indicator description	Name: This indicator measures the percentage of people with Chronic Obstructive Pulmonary Disease who whose disease has a low or medium impact on their life Directionality: A higher percentage is better
	Indicator status	**Developmental**
	Dimension of quality	Effective
	Quality statement alignment	All statements align
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Total number of people with Chronic Obstructive Pulmonary Disease **Numerator** Number of people in the denominator who reported that their disease has a low or medium impact on their life **Method** Numerator/denominator × 100 **Suggested Stratification** Low, medium, high, and very high impact
	Data source	Local data collection; The COPD Assessment Test (CAT) may be used where applicable. Link: http://www.catestonline.org
ADDITIONAL INFORMATION	Limitations	The COPD Assessment Test (CAT) is one of many possible tools available to collect this data.

Abbreviations: COPD: Chronic Obstructive Pulmonary Disease; CAT: COPD Assessment Test

Table 6: Percentage of people with moderate to severe COPD who have access to a pulmonary rehabilitation program

GENERAL DESCRIPTION	Indicator description	Name: This indicator measures the percentage of people with Chronic Obstructive Pulmonary Disease who have access to a pulmonary rehabilitation program Directionality: A higher percentage is better
	Indicator status	**Developmental**
	Dimension of quality	Effective
	Quality statement alignment	QUALITY STATEMENT 9: **Pulmonary Rehabilitation** People with moderate to severe, stable COPD are referred to a pulmonary rehabilitation program if they have activity or exercise limitations and breathlessness despite appropriate pharmacological management. QUALITY STATEMENT 11: **Follow-Up After Hospitalization for an Acute Exacerbation of COPD** People with COPD who have been hospitalized for an acute exacerbation have an in-person follow-up assessment within 7 days after discharge. QUALITY STATEMENT 12: **Pulmonary Rehabilitation After Hospitalization for an Acute Exacerbation of COPD** People who have been admitted to hospital for an acute exacerbation of COPD are considered for pulmonary rehabilitation at the time of discharge. Those who are referred to a pulmonary rehabilitation program start the program within 1 month of hospital discharge.
DEFINITION & SOURCE INFORMATION	Calculation: General	**Denominator** Total number of people with Chronic Obstructive Pulmonary Disease **Numerator** Number of people in the denominator who reported that they had access to a pulmonary rehabilitation program **Inclusions** People with COPD who remain symptomatic despite appropriate pharmacological management (see Statement 6) **Method** Numerator/denominator × 100 **Suggested Stratification** Community-based and inpatient rehabilitation

	Data source	Local data collection. The National Rehabilitation Reporting System (NRS) can be used to measure who received inpatient rehabilitation but cannot identify those with access to pulmonary rehabilitation.
ADDITIONAL INFORMATION	Comments	Pulmonary rehabilitation is an interdisciplinary intervention designed and individually tailored to optimize the physical and psychological condition of people with chronic respiratory conditions such as COPD. People who complete a pulmonary rehabilitation program benefit from participation in exercise programs to maintain function.

Abbreviations: COPD: Chronic Obstructive Pulmonary Disease

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 **slide deck** provides data on why a particular quality standard has been created and the data behind it
- The **data tables** provide data that can be used to examine variations in indicator results across the province

6.2 Questions?

Please contact qualitystandards@hqontario.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.

For other indicators of quality of care for people with COPD, please contact Dr. Andrea Gershon at the Institute for Clinical Evaluative Sciences (ICES).

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

7 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 Health Quality Ontario used to produce the indicators are noted below.

Canadian Community Health Survey—Statistics Canada
The Canadian Community Health Survey, conducted by Statistics Canada, is a nationally representative, cross-sectional survey of the Canadian community-dwelling population. It collects information related to health status, health care use, and health determinants of the Canadian population. It relies upon a large sample of respondents and is designed to provide reliable estimates at the health region level every 2 years.

Starting in 2007, data for the Canadian Community Health Survey were collected annually instead of every 2 years. Also, the sample size was changed to 65,000 respondents each year.

The Canadian Community Health Survey covers the population 12 years of age and older. Excluded from the survey are residents living on reserves and other Indigenous settlements in the provinces and territories; full-time members of the Canadian Forces; people living in institutions; children aged 12 to 17 living in foster care; and people living in the Quebec health regions of Région du Nunavik and Région des Terres-Cries-de-la-Baie-James.

The Canadian Community Health Survey is offered in English and French. To remove language as a barrier in conducting interviews, each of the Statistics Canada regional offices recruits interviewers with a wide range of language competencies.

In 2012, the survey began work on a major redesign project that was completed and implemented for the 2015 cycle. The objectives of the redesign were to review the sampling methodology, adopt a new sample frame, modernize the content, and review the target population.

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 and Long-Term Care. 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 care 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 and Long-Term Care. Data are collected, maintained, and validated by the institute.

Data elements of this reporting system include patient identifiers (e.g., name, health care 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 and Long-Term Care

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.

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