30-Day All-Cause Readmission Rate After Percutaneous Coronary Intervention (PCI)

Name	30-Day All-Cause Readmission Rate After Percutaneous Coronary Intervention (PCI)
Short/Other Names	PCI Readmission
Description	Risk-adjusted rate of all-cause urgent readmission occurring within 30 days following discharge for an episode of care with a percutaneous coronary intervention (PCI). For further details, please see the Cardiac Care Quality Indicators (CCQI) General Methodology Notes.
Interpretation	Lower rates are desirable.
HSP Framework Dimension	Health System Outputs: Appropriate and effective
Areas of Need	Getting Better
Geographic Coverage	All provinces/territories except Quebec
Reporting Level /Disaggregation	National, Province/Territory, Facility
Indicator Results	https://www.cihi.ca/en/cardiac-care

Identifying Information

Name	30-Day All-Cause Readmission Rate After Percutaneous Coronary Intervention (PCI)
Short/Other Names	PCI Readmission

Indicator Description and Calculation

Description	Risk-adjusted rate of all-cause urgent readmission occurring within 30 days following discharge for an episode of care with a percutaneous coronary intervention (PCI). For further details, please see the Cardiac Care Quality Indicators (CCQI) General Methodology Notes. The risk-adjusted rate for a facility is calculated by dividing the observed number of readmissions for each facility by the expected number of readmissions for the facility and multiplying by the Canadian average readmission rate.
Calculation: Description	Unit of analysis: Episode of care An episode of care refers to all contiguous inpatient hospitalizations and same-day surgery visits. For episodes with transfers within or between facilities, transactions were linked regardless of diagnoses. For further details, please see the CCQI General Methodology Notes.
Calculation: Geographic Assignment	Place of service
Calculation: Type of Measurement	Rate - Rate, per 100
Calculation: Adjustment Applied	The following covariates are used in risk adjustment: Age, sex, cerebrovascular disease, peripheral vascular disease, coronary syndrome status, shock, cardiac dysrhythmias, multiple cardiac interventions, previous acute myocardial infarction, previous cardiac interventions, multivessel PCI, acute renal failure, Charlson Index, acute care transfer For detailed definitions of covariates and the risk-adjustment method, please refer to the CCQI General Methodology Notes.
Calculation: Method of Adjustment	Logistic regression
Denominator	**Description:** Number of hospitalization episodes for patients age 18 and older who underwent a PCI **Inclusions:** 1. Episodes that had a PCI (CCI code: 1.IJ.50.^^ or 1.IJ.57.GQ^^), where the intervention was not coded as out of hospital or abandoned (Out-of-Hospital Indicator not equal to Y and Intervention Status Attribute not equal to A) 2. Discharge date of end of episode between April 1 and March 1 of the fiscal year (to allow for a 30-day follow-up to capture readmissions occurring in the same fiscal year) **Exclusions:** 1. In-hospital death (Discharge Disposition = 07)
Numerator	**Description:** Number of hospitalization episodes within the denominator with a non-elective readmission within 30 days of discharge after the PCI index episode of care **Inclusions:** 1. Emergent or urgent (non-elective) readmission to an acute care hospital (Admission Category = U) 2. (Admission date on readmission record) - (Discharge date on the last record of the index episode of care) less than or equal to 30 days **Exclusions:** None

Background, Interpretation and Benchmarks

Rationale	Considering that about 2.4 million Canadians are living with heart disease and that Canada's population is increasingly at risk,[1] it's important to examine the quality of cardiac care in order to support improvements in care and ultimately in the health of Canadians.

Percutaneous coronary intervention (PCI) is a well-established procedure to treat coronary artery stenosis. As the number of PCIs has increased in recent years, there is a high potential for variation in quality of care.[2] Unplanned 30-day readmission after PCI has been identified as a key quality indicator for PCI care by the Canadian Cardiovascular Society.[3]

Urgent readmissions to acute care facilities are increasingly being used to measure institutional or regional quality of care and care coordination. Readmission rates can be influenced by a variety of factors, including patient characteristics, the quality of inpatient and outpatient care (including potential complications of the intervention), the effectiveness of the care transition and coordination, and the availability and use of effective community-based disease management programs. Understanding the reasons for readmission and whether it was avoidable is an important metric by which to evaluate quality of care.

The indicator can provide direction for quality improvement and can help hospitals identify peers to facilitate knowledge sharing around best practices of care. |
Interpretation	Lower rates are desirable.
HSP Framework Dimension	Health System Outputs: Appropriate and effective
Areas of Need	Getting Better
Targets /Benchmarks	Not applicable
References	1. Government of Canada. Heart Disease in Canada. Accessed February 22, 2019.

2. Quraishi A, et al. Quality of care for percutaneous coronary intervention: Development of Canadian Cardiovascular Society quality indicators. *Canadian Journal of Cardiology*. December 2016.

3. Canadian Cardiovascular Society. The Canadian Cardiovascular Society Quality Indicators E-Catalogue: Quality Indicators for Percutaneous Coronary Intervention. 2015.

4. Donabedian A. *The Criteria and Standards of Quality*. 1982. |

Availability of Data Sources and Results

Data Sources	DAD, NACRS
Available Data Years	**Type of Year:** Fiscal
First Available Year: 2013
Last Available Year: 2017
Geographic Coverage	All provinces/territories except Quebec
Reporting Level/Disaggregation	National, Province/Territory, Facility

Result Updates

Update Frequency	Every year
Indicator Results	**Web Tool:** *Cardiac Care Quality Indicators Report* **URL:** https://www.cihi.ca/en/cardiac-care
Updates	Please refer to the CCQI General Methodology Notes.

Quality Statement

Caveats and Limitations	– Cardiac care is delivered by many different health care professionals, and the resulting outcomes are a reflection of the whole system of care, rather than being attributable to a particular physician in a centre. Quality outcomes depend not only on a physician's technical skills, but also on the structure and care processes that are found in the environment in which health care is delivered.[4]

– Some cardiac care centres are more specialized, perform interventions on more complex patients or accept higher-risk patients than average. CIHI is able to adjust for some of these differences across patient populations; however, the administrative data submitted is limited in its ability to capture and adjust for all differences associated with patient populations. Centres with more complex patients may have increased mortality and/or readmission rates because not all aspects of complexity can be adjusted for in the administrative data.

– Transferring patients to a different hospital following a cardiac intervention is normal practice for many cardiac care centres. As such, there are potential learning opportunities beyond the centres included in this indicator.

– Rates with wide confidence intervals should be interpreted with caution as they reflect a less-precise estimate.

– Direct comparisons between cardiac care centres or provinces are discouraged. Comparisons with the Canadian average provide more meaningful information.

– Indicator results do not provide a final conclusion about cardiac care performance and can be used as a first step in an improvement process to identify areas for follow-up and potential improvements.

– There is no comprehensive capture of PCI data in Quebec, so Quebec cannot be included in analyses. |

Trending Issues	Not applicable
	This indicator belongs to a suite of Cardiac Care quality indicators (CCQI) that provide pan-Canadian comparable information on outcomes related to selected cardiac interventions. The goal is to support monitoring and quality improvement in cardiac care.

More information on the CCQI Report is available on our Cardiac Care web page. |
| Comments | Publicly available indicator results are based on 3 years of pooled data.

Indicator results based on 1 year of data are also available

- In the Data Preview for Indicators Tool (https://www.cihi.ca/en/secure/health-system-performance/your-health-system-tools/data-preview-for-indicators)
- By request. |