

# 30-Day Acute Myocardial Infarction Readmission

Name	30-Day Acute Myocardial Infarction Readmission
Short/Other Names	Not applicable
Description	<p>This indicator provides the risk-adjusted rate of urgent readmission following discharge for acute myocardial infarction (AMI).</p> <p>For further details, please see the <a href="#">General Methodology Notes</a>.</p>
Interpretation	Lower rates are desirable.
HSP Framework Dimension	Health System Outputs: Appropriate and effective
Areas of Need	Getting Better
Geographic Coverage	All provinces/territories
Reporting Level/Disaggregation	National, Province/Territory, Region, Neighbourhood Income Quintile
Indicator Results	<a href="http://yourhealthsystem.cihi.ca/epub/?language=en">http://yourhealthsystem.cihi.ca/epub/?language=en</a>

## Identifying Information

Name 30-Day Acute Myocardial Infarction Readmission

Short/Other Names Not applicable

## Indicator Description and Calculation

Description This indicator provides the risk-adjusted rate of urgent readmission following discharge for acute myocardial infarction (AMI).

For further details, please see the [General Methodology Notes](#).

Risk-adjusted readmission rate for each region = Observed number of readmissions for each region ÷ Expected number of readmissions for the region × Canadian average readmission rate

Unit of analysis: Episode of care

Calculation: Description 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. To construct an episode of care, a transfer is assumed to have occurred if either of the following conditions is met:

a) An acute care hospitalization or a same-day surgery visit 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;

b) An acute care hospitalization or same-day surgery visit 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.

Calculation: Geographic Assignment Place of residence

Calculation: Type of Measurement Rate - per 100

Calculation: Adjustment Applied The following covariates are used in risk adjustment:  
For a detailed list of covariates used in the model, please refer to the [Model Specification](#) document.

Calculation: Method of Adjustment Logistic regression

### Description:

Number of AMI episodes of care discharged between April 1 and March 1 of the fiscal year

### Inclusions:

1. a. Acute myocardial infarction (AMI) (ICD-10-CA: I21, I22; ICD-9/ICD-9-CM: 410) is coded as most responsible diagnosis (MRDx) but not also as a diagnosis type (2); or

b. Where another diagnosis is coded as MRDx and also as a diagnosis type (2), and a diagnosis of AMI is coded as a type (1) [type (C) for Quebec data] or (type (W), (X) or (Y) but not also as type (2)); or

c. Where coronary artery disease (ICD-10-CA: I25.0, I25.1, I25.8, I25.9; ICD-9/ICD-9-CM: 429.2, 414.0, 414.8, 414.9) is coded as MRDx, AMI as type (1) [type (C) for Quebec data] or type (W), (X) or (Y) but not also as type (2); along with revascularization procedure (percutaneous coronary intervention—CCI: 1.IJ.50^^ ; 1.IJ.57.GQ^^ ; 1.IJ.54.GQ-AZ [this code is used for 2006–2007 to 2008–2009 data only]; CCP: 48.02, 48.03; ICD-9-CM: 36.01, 36.02, 36.05; or coronary artery bypass—CCI: 1.IJ.76^^ ; CCP: 48.1^ ; ICD-9-CM: 36.1^).

2. Episodes involving inpatient care. An episode may start or end in a day surgery setting. Episodes that both start and end in day surgery settings are not included.
3. Discharge between April 1 and March 1 of the following year (period of case selection ends March 1 to allow for 30 days of follow-up)
4. Age 20 and older
5. Sex recorded as male or female

Denominator	<p><b>Exclusions:</b></p> <ol style="list-style-type: none"> <li>1. Records with an invalid health card number</li> <li>2. Records with an invalid code for province issuing health card number</li> <li>3. Records with an invalid admission date or time</li> <li>4. Records with an invalid discharge date or time</li> <li>5. Discharges as deaths or self sign-outs or did not return from a pass (Discharge Disposition Code = 06, 07, 12)</li> <li>6. Any one of the following diagnoses recorded in any position in the index episode:             <ol style="list-style-type: none"> <li>a. Cancer (ICD-9/ICD-9-CM: 140-208, V58.1, V58.0; or ICD-10-CA: C00-C97, Z51.0 and Z51.1)</li> <li>b. HIV (ICD-9: 042, 043, 044, 795.8; or ICD-9-CM: 042, 043, 044, 795.71, V08; or ICD-10-CA: B24, Z21, R75 and O98.7)</li> <li>c. Trauma (ICD-9/ICD-9-CM: E800-848, E880-886, E888, E890-899, E900-910, E913-926, E928, E950-958, E960-968, E970-976, E990-998; or ICD-10-CA:                 <ul style="list-style-type: none"> <li>- One of the following external cause codes: V01-V99, W00-W23, W25-W27, W30, W31, W33-W40, W44, W45, W50-W60, W64-W70, W73-W77, W81, W83-W84, W85-W99, X00-X09, X10-X19, X20-X29, X30, X31, X33-X38, X51, X53, X54, X57, X60-X84, X85-Y09, Y35.0-Y35.4, Y35.6, Y35.7 and Y36</li> </ul> </li> </ol> </li> </ol> <p>and at least one S or T code but not one of the following: S00, S10, S20, S30, S40, S50, S60, S70, S80, S90, T00, T090, T110, T130, T140, T201, T205, T211, T215, T221, T225, T231, T235, T241, T245, T251, T255, T291, T295, T301, T305, T33, T350, T900, T36-T65, T96, T97, T78 or T80-T88)</p> <p><b>Description:</b> Cases within the denominator with a readmission for any reason within 30 days of discharge after the index episode of care</p> <p><b>Inclusions:</b></p> <ol style="list-style-type: none"> <li>1. Emergent or urgent (non-elective) readmission to an acute care hospital (Admission Category Code = U)</li> </ol>
Background, Interpretation and Benchmarks	Readmissions to acute care facilities are increasingly being used to measure institutional or regional quality of care and care coordination. Readmission rates after AMI can be influenced by a variety of factors, including the quality of inpatient and outpatient care, effectiveness of the care transition and coordination, or the availability of appropriate diagnostic or therapeutic technologies during the initial hospital stay. While not all urgent readmissions are avoidable, interventions during and after a hospitalization can be effective in reducing readmission rates.
Rationale	Lower rates are desirable.
Interpretation	Health System Outputs: Appropriate and effective
HSP Framework Dimension	Getting Better
Areas of Need	Not applicable
Targets/Benchmarks	Ashton CM, Wray NP. A Conceptual Framework for the Study of Early Readmission as an Indicator of Quality of Care. <i>Soc Sci Med</i> ; 1996; 43: 1533-1541.
References	Hosmer DW, Lemeshow S. Confidence Interval Estimates of an Index of Quality Performance Based on Logistic Regression Models. <i>Stat Med</i> 1995; 14: 2161-2172.
Availability of Data Sources and Results	Krumholz HM, et al. Hospital 30-Day Acute Myocardial Infarction Readmission Measure. Methodology. Baltimore, MD: Centers for Medicare & Medicaid Services; 2008. <a href="http://www.qualitynet.org/dcs/ContentServer?pagename=QnetPublic%2FPage%2FQnetTier4&amp;cid=1219069855841">http://www.qualitynet.org/dcs/ContentServer?pagename=QnetPublic%2FPage%2FQnetTier4&amp;cid=1219069855841</a> . Accessed October 10, 2012.
Data Sources	DAD, HMDB, NACRS
Available Data Years	<p><b>Type of Year:</b> Fiscal</p> <p><b>First Available Year:</b> 2007</p> <p><b>Last Available Year:</b> 2017</p>
Geographic Coverage	All provinces/territories
Reporting Level/Disaggregation	National, Province/Territory, Region, Neighbourhood Income Quintile
Result Updates	
Update Frequency	Every year
<b>Web Tool:</b>	

Indicator Results	Health Indicators e-Publication <b>URL:</b> <a href="http://yourhealthsystem.cih.ca/epub/?language=en">http://yourhealthsystem.cih.ca/epub/?language=en</a>
Updates	Not applicable
Quality Statement	
Caveats and Limitations	Patients can appear in the denominator more than once if they have multiple episodes of care between April 1 and March 1 of the fiscal year.
Trending Issues	Planned readmissions reported as urgent admissions are included in the readmission rate.
Comments	Not applicable