

Indicator: Hospitalized Heart Attacks

Data Years: 2008 to 2012

Indicator Description: Age-standardized rate of new acute myocardial infarction (AMI) events admitted to an acute care hospital for patients age 20 and older (per 100,000)

Note: A new event is defined as a first-ever hospitalization for an AMI or a recurrent hospitalized AMI occurring more than 28 days after the admission for the previous event in the reference period.

Rationale: AMI, commonly known as heart attack, is among the leading causes of morbidity and death in Canada.¹ From a disease surveillance perspective, there are 3 groups of AMI events: non-diagnosed events, fatal events occurring outside the hospital and events admitted to acute care hospitals. Although AMIs admitted to a hospital do not reflect all heart attacks in the community, this information provides a useful and timely estimate of the disease occurrence in the population.² Measuring the occurrence of cardiovascular disease, including AMI, in the population is important for planning and evaluating preventive strategies, allocating health resources and estimating costs.^{1,3}

Data Sources: Discharge Abstract Database (DAD) and Hospital Morbidity Database (HMDB), Canadian Institute for Health Information

Income Disaggregator: Neighbourhood-level income from the Postal Code Conversion File Plus, Statistics Canada

Denominator Description: Total population age 20 and older based on the 2001 and 2006 census counts, with linear-based extrapolation to derive population estimates for between-census years, as well as for 2011 and 2012ⁱ

Numerator Description: Individuals age 20 and older admitted to an acute care institution due to an AMI event

Inclusions:

1. Age at admission 20 and older
2. Admission to an acute care institution

Exclusions:

1. Stillborn or cadaveric donor records
2. Records with an invalid health card number or date of birth (non-Quebec records)
3. Records with an invalid admission date
4. AMI admissions within 28 days after the admission date of the previous AMI hospitalization

i. Population counts are available upon request (cphi@cihi.ca).

5. Transfersⁱⁱ
6. Records where sex was not recorded as male or female
7. Records with invalid postal code or unassigned income information

Method of Age-Standardization: Direct age-standardization to the Canada 2011 standard population

Age Groupings for Standardization: 20–24; 25–29; 30–34; 35–39; 40–44; 45–49; 50–54; 55–59; 60–64; 65–69; 70–74; 75–79; 80–84; 85–89; 90+

Geographic Assignment: Patient’s province of residence according to postal code

Geographic Coverage: All provinces and territories

Note: Due to inconsistencies in data availability between provinces, the date range was restricted to 2008 onward.

Interpretation: Lower rates are desirable.

Case Selection Criteria:

Indicator	ICD-10 Code	Qualifier
Myocardial infarction	I21, I22	Coded as diagnosis type (1) or as [type (M), (W), (X) or (Y), but not also as diagnosis type (2)]

Percentage Missing Due to Income:

	2008	2009	2010	2011	2012
Percentage Missing*	0.42	0.88	0.92	0.95	1.11

Note

* Percentage missing refers to the proportion of hospital separation records for this indicator that are missing or have invalid postal code for patient’s place of residence and are therefore excluded from analyses based on neighbourhood-level income quintiles.

Data Source Descriptions:

Discharge Abstract Database: The DAD is a national-level database that captures administrative and clinical information from inpatient separation records (discharges, deaths, sign-outs and transfers) from acute care hospitals within a fiscal year (April 1 to March 31) from all provinces and territories in Canada, with the exception of Quebec. Selected day surgery, rehabilitation, psychiatric, long-term care and other data is also captured in the DAD.⁴

Hospital Morbidity Database: The HMDB captures administrative, clinical and demographic information on inpatient separation records from acute care hospitals across Canada (including Quebec). Data sources include the DAD and the ministère de la Santé et des Services sociaux du Québec.⁵

ii. If a subsequent AMI admission occurs on the same day as or prior to the discharge date of a previous AMI admission, it is considered a transfer.

References

1. Manuel DG, Leung M, Nguyen K, Tanuseputro P, Johansen H. Burden of cardiovascular disease in Canada. *Can J Cardiol*. 2003;19(9):997-1004.
2. Manuel D, Lim J, Tanuseputro P, Stukel T. How many people have had a myocardial infarction? Prevalence estimated using historical hospital data. *BMC Public Health*. 2007;7:174.
3. The Heart and Stroke Foundation. *The Growing Burden of Heart Disease and Stroke in Canada*. Ottawa, ON: HSF; 2003. http://www.cvdinfobase.ca/cvdbook/CVD_En03.pdf. Accessed November 7, 2014.
4. Canadian Institute for Health Information. Discharge Abstract Database (DAD) metadata. http://www.cihi.ca/CIHI-ext-portal/internet/en/document/types+of+care/hospital+care/acute+care/dad_metadata. Updated 2014. Accessed February 2, 2015.
5. Canadian Institute for Health Information. The Hospital Morbidity Database (HMDB). http://www.cihi.ca/cihi-ext-portal/internet/en/document/types+of+care/hospital+care/acute+care/hmdb_metadata. Updated 2014. Accessed February 2, 2015.