

About the Data: Hospital Admissions

Last Updated: July 24, 2018

Hospital Admissions: 2015/16 to 2016/17, 2014/15 to 2015/16 (Archived)

Introduction

Hospital Admissions refer to all unscheduled Hospital admissions to an acute care¹ hospital during the given observation periods.

Reasons for Hospitalization

Hospital admissions were grouped according to the reason for hospitalization. We used ICD diagnosis codes and Case Mix Groups² (CMGs), recorded for each admissions by Canadian Institute for Health Information (CIHI) in order to group hospitalizations by type:

- All admissions (regardless of the reason for hospitalization)
- Mental Health and Addiction-related Hospital Admissions
- Ambulatory Care Sensitive Conditions (ACSC) Hospitalizations
- Medical Hospital Admissions
- Surgical Hospital Admissions
- Prenatal, Delivery and Postnatal Conditions

Other Hospitalization Measures

- Alternate Level of Care (ALC) Days
- Hospital Readmissions within 30 days

Data Source

Data sources are housed at the Institute for Clinical Evaluative Sciences (ICES).

- The Canadian Institute for Health Information (CIHI), Discharge Abstract Database (DAD)³
- Ontario Mental Health Reporting System⁴ (OMHRS)
- Registered Persons Database⁵ (RPDB)

Measures for reporting

1. Crude Rates: Hospital admissions are reported based on the rate of admission /1000 population (/100000 population for ACSC). Crude rates are reported for specific age groups and sex.
2. Age-Standardized Rates (ASR): Rates are Age-Standardized using the direct method and the 1991 Canada population as the standard population.

Numerator

1. All Hospitalizations: all unscheduled Hospital admissions to an acute care hospital during specified fiscal years
2. Hospitalizations by Medical, Surgical, Prenatal, Delivery and Postnatal Conditions: all unscheduled Hospital admissions grouped based on CMG² groupings during specified fiscal years
3. Mental Health and Addiction-related Hospital Admissions:
 - a. all admissions reported in Ontario Mental Health Reporting System (OMHRS)⁴ and
 - b. all admissions in CIHI with specific mental health related ICD recorded as the diagnosis codes for hospitalization
4. Ambulatory Care Sensitive Conditions (ACSC) hospitalizations: all admissions identified as ACSC hospitalizations based on the algorithm developed by CIHI (See Appendix A)
5. Alternate Level of Care (ALC) Days: the total days of stay in hospital as reported as Alternate Level of Care Length Of Stay (ALCLOS) for all patients hospitalized in a fiscal year were estimated and used as the numerator in calculating ALC rates.
6. Hospital Readmission within 30 days: calculated based on total number of readmissions happened within 30 days of discharge for specific conditions.

See Appendix A for definitions and codes.

Hospital Admissions 2015/16 to 2016/17

Denominator

We used Ontario Ministry of Health and Long-Term Care Registered Persons Database (RPDB), to generate population counts. Population were counted based on the following criteria:

- Population who had valid health card number
- Population who were alive and living in the Ontario on April 1st, 2016.
- Population who have been in contact with Ontario's health care system, at least once, in the last three years.

Geography:

All rates and measures are reported for the following geographies:

- City of Toronto
- Ontario Neighbourhoods
 - 140 Toronto Central and City of Toronto Neighbourhoods (LHIN 7)
 - 104 Neighbourhoods in Central LHIN (LHIN 8)
- 76 Ontario Sub-Regions:
- 14 Ontario Local Health Integration Networks (LHINs)
- Province of Ontario

Hospital Admissions 2014/15 to 2015/16 (Archived)

(Ambulatory Care Sensitive Conditions (ACSC) hospitalizations only)

Denominator

Demographics - Denominator: Based on 2016 Census population estimates. Statistics Canada, 2016 Census of Population.

Geography:

All rates and measures are reported for the following geographies:

- City of Toronto
- Ontario Neighbourhoods
 - 140 Toronto Central and City of Toronto Neighbourhoods (LHIN 7)
- 14 Ontario Local Health Integration Networks (LHINs)
- Province of Ontario

Appendix A

CIHI Definition for ACSC

Inclusions:

1. Hospitalization for an ambulatory care sensitive condition is identified as any most responsible diagnosis code of

–Grand mal status and other epileptic convulsions

ICD-9/9-CM: 345

ICD-10-CA: G40, G41

–Chronic obstructive pulmonary disease (COPD)

a. Any most responsible diagnosis (MRDx) code of

ICD-9/9-CM: 491, 492, 494, 496

ICD-10-CA: J41, J42, J43, J44, J47

b. MRDx of acute lower respiratory infection, only when a secondary diagnosis* of J44 in

ICD-10-CA or 496 in ICD-9/9-CM is also present

ICD-9/9-CM: 466, 480–486, 487.0

ICD-10-CA: J10.0, J11.0, J12–J16, J18, J20, J21, J22

*Secondary diagnosis refers to a diagnosis other than the most responsible one.

–Asthma

ICD-9/9-CM: 493

ICD-10-CA: J45

–Diabetes

ICD-9: 250.0, 250.1, 250.2, 250.7

ICD-9-CM: 250.0, 250.1, 250.2, 250.8

ICD-10-CA: E10.0, E10.1, E10.63, E10.64, E10.9

E11.0, E11.1, E11.63, E11.64, E11.9

E13.0, E13.1, E13.63, E13.64, E13.9

E14.0, E14.1, E14.63, E14.64, E14.9

–Heart failure and pulmonary edema[†]

ICD-9/9-CM: 428, 518.4

ICD-10-CA: I50, J81

–Hypertension[†]

ICD-9/9-CM: 401.0, 401.9, 402.0, 402.1, 402.9

ICD-10-CA: I10.0, I10.1, I11

–Angina[†]

ICD-9: 411, 413

ICD-9-CM: 411.1, 411.8, 413

ICD-10-CA: I20, I23.82, I24.0, I24.8, I24.9

† Excluding cases with cardiac procedures.

List of cardiac procedure codes for exclusion:

CCP: 47[^], 480[^]–483[^], 489.1, 489.9, 492[^]–495[^], 497[^], 498[^]

ICD-9-CM: 336, 35[^], 36[^], 373[^], 375[^], 377[^], 378[^], 379.4–379.8

CCI: 1.HA.58, 1.HA.80, 1.HA.87, 1.HB.53, 1.HB.54, 1.HB.55, 1.HB.87, 1.HD.53, 1.HD.54, 1.HD.55, 1.HH.59, 1.HH.71, 1.HJ.76, 1.HJ.82, 1.HM.57, 1.HM.78, 1.HM.80, 1.HN.71, 1.HN.80, 1.HN.87, 1.HP.76, 1.HP.78, 1.HP.80, 1.HP.82, 1.HP.83, 1.HP.87, 1.HR.71, 1.HR.80, 1.HR.84, 1.HR.87, 1.HS.80, 1.HS.90, 1.HT.80, 1.HT.89, 1.HT.90, 1.HU.80, 1.HU.90, 1.HV.80, 1.HV.90, 1.HW.78, 1.HW.79, 1.HX.71, 1.HX.78, 1.HX.79, 1.HX.80, 1.HX.83, 1.HX.86, 1.HX.87, 1.HY.85, 1.HZ.53 rubric (except 1.HZ.53.LA-KP), 1.HZ.55 rubric (except 1.HZ.55.LA-KP), 1.HZ.56, 1.HZ.57, 1.HZ.59, 1.HZ.80, 1.HZ.85, 1.HZ.87, 1.IF.83, 1.IJ.50, 1.IJ.55, 1.IJ.57, 1.IJ.76, 1.IJ.80, 1.IJ.86, 1.IK.57, 1.IK.80, 1.IK.87, 1.IN.84, 1.LA.84, 1.LC.84, 1.LD.84, 1.YY.54.LA-NJ[‡]

‡ 1.YY.54.LA-NJ was retired as of CCI version 2012 and was included when calculating indicator results prior to 2012–2013.

Note: Code may be coded in any position. Procedures coded as cancelled or abandoned after onset are excluded.

List of Eligible Inpatient Grouper (HIG) Conditions

HIG	HIG description
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Acute Myocardial Infarction (Age ≥ 45)

193a Myocardial Infarction/Shock/Arrest with Coronary Angiogram

193b Myocardial Infarction/Shock/Arrest with Coronary Angiogram with Comorbid Cardiac Conditions

194a Myocardial Infarction/Shock/Arrest without Coronary Angiogram

194b Myocardial Infarction/Shock/Arrest without Coronary Angiogram with Comorbid Cardiac Conditions

Stroke (Age ≥ 45)

25 Hemorrhagic Event of Central Nervous System

26 Ischemic Event of Central Nervous System

28 Unspecified Stroke

COPD (Age ≥ 45)

139c Chronic Obstructive Pulmonary Disease with Lower Respiratory Infection

139d Chronic Obstructive Pulmonary Disease without Lower Respiratory Infection

Pneumonia (All ages)

136 Bacterial Pneumonia

138 Viral/Unspecified Pneumonia

143 Disease of Pleura

Congestive Heart Failure (Age ≥ 45)

196 Heart Failure without Cardiac Catheter

Diabetes (All ages)

437a Diabetes, Other

- 437b Diabetes with renal complications
- 437c Diabetes with ophthalmic, neurological, or circulatory complications
- 437d Diabetes with multiple complications

Cardiac CMGs (Age ≥ 40)

- 202 Arrhythmia without Coronary Angiogram
- 204a Unstable Angina/Atherosclerotic Heart Disease without Coronary Angiogram 6
- 204b Unstable Angina/Atherosclerotic Heart Disease without Coronary Angiogram with Comorbid Cardiac Conditions
- 208a Angina (except Unstable)/Chest Pain without Coronary Angiogram
- 208b Angina (except Unstable)/Chest Pain without Coronary Angiogram with Comorbid Cardiac Conditions

Gastrointestinal HIGs (All ages)

- 231 Minor Upper Gastrointestinal Intervention
- 248 Severe Enteritis
- 251 Complicated Ulcer
- 253 Inflammatory Bowel Disease
- 254 Gastrointestinal Hemorrhage
- 255 Gastrointestinal Obstruction
- 256 Esophagitis/Gastritis/Miscellaneous Digestive Disease
- 257 Symptom/Sign of Digestive System
- 258 Other Gastrointestinal Disorder
- 285 Cirrhosis/Alcoholic Hepatitis
- 286 Liver Disease except Cirrhosis/Malignancy
- 287 Disorder of Pancreas except Malignancy
- 288 Disorder of Biliary Tract

References:

1. Data were included from inpatient records from acute care hospitals as well as acute care hospitals with psychiatric beds (AP) and acute care hospitals without psychiatric beds (AT).
2. The CMGs are computed at CIHI based on the patient's diagnostic codes upon discharge and recorded in the Discharge Abstract Database (DAD) database (see note below). We are using CMG2016 for 2015/17 data (as provided by CIHI) in order to group admissions into Medical, Surgical or Prenatal, Delivery and Postnatal Conditions. For more information on CMG groupings, see <https://www.cihi.ca/en/data-and-standards/standards/case-mix>
3. Discharge Abstract Database (DAD) : The DAD database contains demographic, administrative and clinical data for all acute care discharges (including hospital delivery and birth data) in Ontario. The data are reported for completed cases only (discharges). Hospitals do not report on cases that are still being treated. After each patient is discharged, a medical records coder at the hospital completes an abstract according to the instructions outlined in the CIHI Abstracting Manual.
4. The Ontario Mental Health Reporting System (OMHRS) in Ontario officially collects data on patients in adult designated inpatient mental health beds. This includes beds in General, Provincial Psychiatric, and Specialty Psychiatric facilities. Child and adolescent mental health care will continue to be collected in the CIHI/DAD. Resident Assessment Instrument – Mental Health (RAI-MH) is utilized to collect the data in OMHRS.
5. The Registered Persons Database (RPDB) Registered Persons Database (RPDB) includes the resident population of Ontario eligible for health coverage by age, sex and residential address. Residents are eligible for health coverage if they are Canadian citizens, landed immigrants or convention refugees, make their permanent and principal home in Ontario, and are physically present in Ontario 153 days in any 12-month period.

Background references for this document

- Anderson, G. M. "Common Conditions Considered Sensitive to Ambulatory Care." In *Patterns of Health Care in Ontario*, 2nd Ed. Eds. V. Goel et al. Ottawa, Ont.: Canadian Medical Association, 1996, pp. 104–110.
- Billings, J., G. M. Anderson and L. S. Newman. "Recent Findings on Preventable Hospitalizations." *Health Affairs* 15 (1996): pp. 239–249.
- Billings, J. et al. "Impact of Socio-Economic Status on Hospital Use in New York City." *Health Affairs* 12 (1993): pp. 162–173.