

About the Data: Hospital Admissions

Last Updated: March 27, 2016

Hospital Admissions: 2012/13-2013/14, 2010/11-2011/12, 2009-2011, 2008-2010

Introduction

Hospital Admissions refer to all unscheduled hospital admissions to an acute care* hospital during the observation periods noted. Hospital admissions include the following types of admissions and are classified as such upon patient discharge:

- Medical
 - Surgical
 - Prenatal
 - Mental Health
 - Ambulatory Care Sensitive Conditions (ACSC) Hospitalizations
- Age-Standardized acute care hospitalization rates for ACSC conditions where appropriate ambulatory care prevents or reduces the need for admission to hospital, per 100,000 population under age 75 years (Statistics Canada and CIHI, 2009).

Alternate Level of Care (ALC) Days

An alternate level of care (ALC) patient is one who does not require acute care treatment, but is occupying a bed designated for that type of care. The reporting of ALC cases is a clinical decision and must be indicated on the patient's chart by the attending physician - (CIHI, DAD Abstracting Manual 2005-2006 Edition, September, 2005). The patient remains in an acute care bed while his or her needs may be better met in an alternative, less-costly setting such as a long-term care facility (St. Joseph's Health Care, 2005). Patients remain in hospital longer than necessary for various reasons, including no available room in residential facilities or a delay in discharge arrangements. A reduction in ALC days results in more acute care beds being available for those who need acute care treatment.

The data are provided for the following levels of geography:

- 140 City of Toronto Neighbourhoods
- 67 Ontario Health Links (HL)
- 14 Ontario Local Health Integration Networks (LHINs)

**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).*

Data Source

The data sources for “Hospital Admissions” indicator is the Canadian Institute for Health Information (CIHI), Discharge Abstract Database (DAD)** and Ontario Mental Health Reporting System (OMHRS) housed at the Institute for Clinical Evaluative Sciences (ICES).

Numerator

1. Hospitalizations by Medical, Surgical, Prenatal conditions: Based on the reported Case Mix Groups (CMGs) in CIHI databases, hospitalizations for Medical, Surgical or Prenatal were identified. 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). For more information on CMG groupings, see <https://www.cihi.ca/en/data-and-standards/standards/case-mix>
Also see ICD-10 codes at the end of this document for CMG groupings.
2. For Mental Health (MH) Hospitalizations: the Ontario Mental Health Reporting System (OMHRS) was used to identify hospitalizations that were for Mental Health admissions. Ontario officially collects data on patients in adult designated inpatient mental health beds. This includes beds in general, provincial psychiatric, and specialty psychiatric facilities.
3. Ambulatory Care Sensitive Conditions (ACSC) Hospitalizations were defined based on the algorithm developed by CIHI to classify hospitalizations as ACSC. ACSC hospitalizations are identified using the ICD-10 which identifies the main diagnosis for major ACS conditions. The total numbers of admissions for these conditions in each area were used as the numerator in calculating rates.
4. Alternate Level of Care (ALC) Days: in reporting on length of stay in hospitals, we used the Alternate Level of Care Length Of Stay (ALCLOS) variable in CIHI, DAD. The total ALCLOS for all patients hospitalized in a given area during the observation period were estimated and used as the numerator in calculating ALC rates for each area.

****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.

Methods used to generate the data and calculate the numbers

Denominator: Based on 2011 Census population estimates, Statistics Canada.

2011 Census-based population denominators: Toronto Neighbourhoods

The data sets we used to calculate population denominators were derived from the Statistics Canada from the “2011 Census of Canada: Topic-based tabulations” section and contain 1-, 5- and 10- year age and sex specific population counts by Census Tract (CT), as well as totals for males, females and total population.

When calculating custom age/sex groups for specific indicators we used sums of the largest possible census age groups in order to minimize rounding errors.

When showing total populations for males, females and total population we used relevant total variables from the census data. Males plus females does not equal the total due to rounding at the census tract level.

When generating population counts for Toronto Neighbourhoods, we used CT-level data to minimize the effects of suppression and rounding.

2011 Census-based population denominators: Ontario Health Links and Local Health Integration Networks (LHINs)

The data sets we used to calculate population denominators were derived from the Statistics Canada from the “2011 Census of Canada: Topic-based tabulations” section and contain 1-, 5- and 10- year age and sex specific population counts by Dissemination Area (DA), as well as totals for males, females and total population.

When calculating custom age/sex groups for specific indicators we used sums of the largest possible census age groups in order to minimize rounding errors.

When showing total populations for males, females and total population we used relevant total variables from the census data. Males plus females does not equal the total due to rounding at the dissemination area level.

When generating population counts for Ontario Health Links and Ontario Local Health Integration Networks (LHINs), we used DA-level data to minimize the effects of suppression and rounding.

Numerator: All unscheduled Hospital admissions for observation periods noted.

1. Using the CIHI databases DAD and OMHRS: All Hospitalizations, Medical, Surgical, Prenatal, Mental Health, and Ambulatory Care Sensitive Conditions (ACSC) records for given fiscal years were generated;
2. Using individual postal codes and the postal code conversion file (PCCF) each individual was assigned to a dissemination area (DA) in 2011;
3. Based on Census 2011, each DA was assigned to the geographic area of: Toronto Neighborhood, Health Link (HL) or Local Health Integration Network (LHIN);
4. The total numbers of admissions for each area were counted and recorded as the numerator for each of the types of hospitalizations (All Hospitalizations, Medical, Surgical, Prenatal, Mental Health, and Ambulatory Care Sensitive Conditions).

Age and sex standardized rates (ASR): Rates are Age-Standardized using the direct method and the 1991 Canada population as the standard population.

Mental Health, Ambulatory Care Sensitive Conditions (ACSC) for 2 fiscal years 2012/13- 2013/14:

Denominator: Based on 2011 Census population estimates, Statistics Canada.
Numerator: All unscheduled Hospital admissions for Mental Health Conditions and Ambulatory Care Sensitive Conditions for 2 fiscal year 2012/13 and 2013/14 (April 1, 2012-March 31, 2014) observation period.
-Mental Health Conditions data are provided for Toronto Neighbourhoods, Ontario Health Links, and Ontario LHINs.
-Ambulatory Care Sensitive Conditions (ACSC) data are provided for Toronto Neighbourhoods and Ontario LHINs

All Hospital Admissions, Medical, Surgical, Prenatal Conditions, Alternate Level of Care (ALC) Days, for 2 fiscal years 2010/11- 2011/12:

Denominator: Based on 2011 Census population estimates, Statistics Canada.
Numerator: Represents the average annual rate of hospitalizations for 2 year observation period: 2010/11 and 2011/12 (April 1, 2010-March 31, 2012) observation period.
-Data are provided for Toronto Neighbourhoods, Health Links in Toronto Central LHIN, and Ontario LHINs.

Mental Health Conditions for 3 fiscal years 2009-2011:

Denominator: Based on 2011 Census population estimates, Statistics Canada.
Numerator: All unscheduled Hospital admissions for Mental Health for 3 fiscal year (2009-2011) observation period.
-Data are provided for Health Links in Toronto Central LHIN.

All Hospital Admissions for 3 fiscal years 2008-2010:

Denominator: Based on 2006 Census population estimates, Statistics Canada.
Numerator: Represents the average annual rate of hospitalizations for 3 fiscal years (2008-2010) observation period.
-Data are provided for Health Links in Toronto Central LHIN.

Below are the ICD codes used in defining Medical, Surgical and Prenatal groupings (CMGs):

Medical

010-022, 028, 060, 062, 063, 100-102, 104, 107-109, 113-116, 135-147, 200, 205-208, 212, 213, 219, 220, 222, 225, 226, 229, 232-235, 237, 240, 242, 279, 281, 285, 286, 289, 290, 294, 297, 323-326, 329, 391-394, 397-399, 401, 402, 404, 407, 409, 411, 413, 414, 439, 440, 443, 446, 447, 452, 454, 483, 485, 487-489, 520-522, 524, 525-527, 529, 532, 534-536, 538, 560, 561-563, 592, 594-596, 674-696, 704, 709, 710, 726, 730, 735-737, 751, 756, 757, 761, 763, 811, 813, 818, 823, 831, 834, 841, 842, 846, 847, 849, 850-852, 860-868, 895, 898, 910, 999

Surgical

001, 003-007, 040, 050-055, 057, 075-078, 081-093, 125-129, 175-179, 181-186, 188, 189, 191, 193, 194, 201-204, 210, 211, 215-218, 250-253, 255, 258, 260-262, 264-266, 269, 271, 310-315, 317, 320, 350-352, 354-356, 358-363, 365, 367-369, 372, 374-386, 425, 427-429, 432, 434, 435-438, 476-480, 482, 500-510, 512, 514, 550-552, 554, 555, 575-579, 581-587, 650-670, 700, 701, 703, 725, 728, 733, 734, 750, 803-805, 830, 832, 833, 840, 880-885, 887, 890-893, 900-902, 906, 908

Pregnancy & childbirth

599-624, 912

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.