

# Hospital Stays for Harm Caused by Substance Use

Name	Hospital Stays for Harm Caused by Substance Use
Short/Other Names	Hospital Stays for Harm Caused by Substance Use
Description	<p>Age-standardized rate of hospital stays for harm caused by substance use per 100,000 population age 10 and older</p> <p>The indicator includes hospital stays for inpatient care and day surgery for poisonings, mental and behavioural effects of all substances and medical conditions associated with alcohol. All hospital stays in general and psychiatric hospitals are considered. It does not include emergency department visits.</p> <p>Substance categories include alcohol, opioids, cannabis, other central nervous system (CNS) depressants, cocaine, other CNS stimulants, other substances, and unknown and multiple substances.</p> <p>Examples of "other CNS depressants" include benzodiazepines (for sleep, anxiety), gabapentin and pregabalin (anticonvulsant drugs used for pain).</p> <p>Examples of "other CNS stimulants" include amphetamines (e.g., crystal meth, ecstasy) and prescription drugs for attention deficit disorder.</p> <p>Examples of "other substances" include hallucinogens and inhaled solvents.</p> <p>When the substance has not been identified, may be composed of mixed unknown drugs or cannot be classified in other categories, this hospital stay is categorized in the "unknown and multiple substances" group.</p> <p>For details, please see the <a href="#">General Methodology Notes</a>.</p>
Interpretation	Lower rates are desirable.
HSP Framework Dimension	Health System Outputs: Access to comprehensive, high-quality health services
Areas of Need	Getting Better
Geographic Coverage	All provinces/territories
Reporting Level /Disaggregation	National, Province/Territory
Indicator Results	<a href="https://yourhealthsystem.cihi.ca/hsp/inbrief?lang=en#/indicators/080/hospital-stays-for-harm-caused-by-substance-use">https://yourhealthsystem.cihi.ca/hsp/inbrief?lang=en#/indicators/080/hospital-stays-for-harm-caused-by-substance-use</a>
<b>Identifying Information</b>	
Name	Hospital Stays for Harm Caused by Substance Use
Short/Other Names	Hospital Stays for Harm Caused by Substance Use
Indicator Description and Calculation	<p>Age-standardized rate of hospital stays for harm caused by substance use per 100,000 population age 10 and older</p> <p>The indicator includes hospital stays for inpatient care and day surgery for poisonings, mental and behavioural effects of all substances and medical conditions associated with alcohol. All hospital stays in general and psychiatric hospitals are considered. It does not include emergency department visits.</p> <p>Substance categories include alcohol, opioids, cannabis, other central nervous system (CNS) depressants, cocaine, other CNS stimulants, other substances, and unknown and multiple substances.</p> <p>Examples of "other CNS depressants" include benzodiazepines (for sleep, anxiety), gabapentin and pregabalin (anticonvulsant drugs used for pain).</p> <p>Examples of "other CNS stimulants" include amphetamines (e.g., crystal meth, ecstasy) and prescription drugs for attention deficit disorder.</p> <p>Examples of "other substances" include hallucinogens and inhaled solvents.</p> <p>When the substance has not been identified, may be composed of mixed unknown drugs or cannot be classified in other categories, this hospital stay is categorized in the "unknown and multiple substances" group.</p> <p>For details, please see the <a href="#">General Methodology Notes</a>.</p> <p>(Total number of hospital stays for harm caused by alcohol, opioids, cannabis, other CNS depressants, cocaine, other CNS stimulants, other substances, or unknown and multiple substances among patients age 10 and older ÷ Total mid-year population age 10 and older) × 100,000 (age-adjusted)</p>
Calculation: Description	Unit of analysis: Hospital discharge
Calculation: Geographic Assignment	Place of residence
Calculation: Type of Measurement	Rate - per 100,000 population
Calculation: Adjustment Applied	Age-adjusted

Calculation: Direct Standardization  
Method of **Standard Population:**  
Adjustment Standard Population: Canada 2011

Denominator **Description:**  
Total mid-year population age 10 and older

**Description:**

Total number of hospital stays for harm caused by alcohol, opioids, cannabis, other CNS depressants, cocaine, other CNS stimulants, other substances, or unknown and multiple substances among patients age 10 and older

**Inclusions:**

- Sex recorded as male or female
- Discharge from a general or psychiatric hospital, or a day surgery clinic

See Appendix 1 for an overview of ICD-10-CA and DSM-5 (ICD-9-CM version) codes used in the numerator.

**Alcohol**

The following criteria were used to identify harm caused by alcohol use:

Outside Quebec

a) **Inpatient and day surgery records:** ICD-10-CA codes for harm from conditions 100% attributable to alcohol (or 100% alcohol-attributable fraction [AAF] codes, Appendix 2) coded as diagnosis type (M), (1), (2), (W), (X), (Y) or (9) in the Discharge Abstract Database (DAD) or as Main Problem (MP) or Other Problem (OP) in the National Ambulatory Care Reporting System (NACRS); or

b) **Records from the Ontario Mental Health Reporting System (OMHRS):**

- DSM-5 (ICD-9-CM version) 100% AAF codes (Appendix 2) coded as a principal diagnosis or secondary diagnosis for inpatient records; or
- A category diagnosis of substance-related and addictive disorders coded as a principal diagnosis or secondary diagnosis with an emergency department visit that has a 100% AAF in NACRS within 7 days prior to admission to an OMHRS bed (for patients without a DSM-5 [ICD-9-CM version] 100% AAF code and without another specific DSM-5 (ICD-9-CM version) substance code [Appendix 4]).

In Quebec

a) **Inpatient and day surgery records:**

- 100% AAF codes coded as type (M), (1), (2), (W), (X), (Y) or (9) in the Hospital Morbidity Database (HMDB); or
- 100% AAF codes coded as type (C) and ICD-10-CA codes for conditions partially attributable to alcohol (partial AAF codes) (Appendix 3) coded as diagnosis type (M) or (9).

Numerator

**Other substance categories**

The following criteria were used to identify harm caused by opioids, cannabis, other CNS depressants, cocaine, other CNS stimulants, other substances, or unknown and multiple substances:

Outside Quebec

a) **Inpatient and day surgery records:** ICD-10-CA codes for harm caused by substance use (Appendix 4) coded as diagnosis type (M), (1), (2), (W), (X), (Y) or (9) in the DAD or as Main Problem (MP) or Other Problem (OP) in NACRS; or

b) **Records from OMHRS:**

- DSM-5 (ICD-9-CM version) codes for harm caused by specific or non-specific substance use (Appendix 4) coded as a principal diagnosis or secondary diagnosis for inpatient records; or a category diagnosis of substance-related and addictive disorders coded as a principal diagnosis or secondary diagnosis

In Quebec

a) **Inpatient and day surgery records:**

- ICD-10-CA codes for harm caused by substance use (Appendix 4) coded as type (M), (1), (C), (2), (W), (X), (Y) or (9) in the HMDB.

**For detailed descriptions of the codes for conditions 100% attributable to alcohol, opioids, cannabis, other CNS depressants, cocaine, other CNS stimulants, and multiple and other substance use, see the [Hospital Stays for Harm Caused by Substance Use: Appendices to Indicator Library](#).**

**Note:** When more than one substance was documented on a hospital record as a significant diagnosis, the hospital stay was counted once in the indicator.

**Exclusions:**

- Records with admission category of cadaveric donor or stillbirth (Admission Category Code = R or S)
- 2018–2019 data onward: Medical assistance in dying (MAID) (Discharge Disposition Code = 73)

Background, Interpretation and Benchmarks

Harm caused by substance use has serious effects on individuals and puts unnecessary strain on health care resources. This indicator provides an indication of whether Canadians are getting **access** to the information and services they need to prevent or manage harm caused by substance use.

This indicator can also help to

- Bring awareness to the extent of harms from substance use;
- Estimate the burden substance use puts on health systems;
- Assist in monitoring the effectiveness of treatment and prevention policies and services; and
- Drive action to reduce and prevent substance use by informing policy and priority areas of need.

Prevention and management of harm caused by substance use that occur at different levels of the health care system are not readily measured. Hospital stays may indirectly reflect inadequate access to these programs. Although substance use may vary across jurisdictions, a higher rate of hospitalization may signal challenges with access to community-based prevention, mental health care and addictions services.

Interpretation Lower rates are desirable.

HSP

Framework

Health System Outputs: Access to comprehensive, high-quality health services

Dimension

Areas of Need Getting Better

Targets/Benchmarks Not applicable

1. Alberta Health. *Opioids and Substance of Misuse: Alberta Report, 2018 Q1*. 2018.
2. Canadian Institute for Health Information. [Indicator Library > Hospitalizations Entirely Caused by Alcohol](#) [web tool]. Accessed November 21, 2018.
3. Canadian Institute for Health Information. *Opioid-Related Harms in Canada*. 2018.
4. Canadian Substance Use Costs and Harms Scientific Working Group. *Canadian Substance Use Costs and Harms (2007–2014)*. 2018.
5. Chief Public Health Officer. *The Chief Public Health Officer's Report on the State of Public Health in Canada 2018: Preventing Problematic Substance Use in Youth*. 2018.
6. MHASEF Research Team. *Mental Health and Addictions System Performance in Ontario: A Baseline Scorecard. Technical Appendix*. 2018.
7. Statistics Canada. *Canadian Tobacco, Alcohol and Drugs Survey (CTADS): Summary of results for 2017*. Accessed November 21, 2018.

Availability of Data Sources and Results

Data Sources DAD, HMDB, NACRS, OMHRS

**Type of Year:**

Fiscal

Available Data Years **First Available Year:**

2017

**Last Available Year:**

2018

Geographic Coverage All provinces/territories

Reporting Level/Disaggregation National, Province/Territory

Result Updates

Update Frequency Every year

**Web Tool:**

Indicator Results Your Health System: In Brief

**URL:** <https://yourhealthsystem.cihi.ca/hsp/inbrief?lang=en#!/indicators/080/hospital-stays-for-harm-caused-by-substance-use>

Updates Not applicable

Quality Statement

The indicator includes hospital stays in general, psychiatric and day surgery facilities for harm caused by substance use; examples could be

- A person with liver cirrhosis due to alcohol who is at the end of their life;
- A person in a trauma unit who was injured while under the influence of a substance;
- A person in the intensive care unit due to an opioid overdose;
- A person admitted to hospital because of psychosis while using cannabis; and
- A person experiencing seizures due to substance withdrawal.

The indicator definition does not include

- Treatment for substance use outside of hospitals (e.g., addiction treatment centres, outpatient clinics, emergency departments);
- Hospital stays for conditions partially attributable to harm from substance use (e.g., cancer, stroke, respiratory disease, trauma). (It is estimated that out of all hospitalizations attributable to alcohol, 30% are due to wholly attributable conditions and 70% are due to partially attributable conditions.);
- Harm to bystanders who did not use a substance (e.g., victim of impaired driving collision);
- Hospital stays for detoxification at a general or psychiatric hospital;
- Deaths outside of hospital settings (e.g., a fatal overdose at home);
- Children younger than 10 (e.g., neonatal withdrawal symptoms); or
- Tobacco use. (Other indicators provide information about tobacco use.)

Caveats  
and  
Limitations

Other important notes:

- This indicator includes day surgery, which allows for the capture of procedures for medical conditions associated with substance use (e.g., banding of esophageal varices from chronic alcohol use).
- Stigma associated with substance use may influence what is recorded in hospital records (e.g., liver disease might not be linked to alcohol). Documentation and coding variation among hospitals may also influence the capture of diagnosis codes. This may result in either under-reporting or over-reporting of harm caused by substance use.
- Records in OMHRS without valid health cards could not be linked to NACRS for confirmation of substance when unknown. Some of these records are individuals who are homeless. Harmful substance use may occur at a higher than average rate in this population. However, the proportion of records without valid health cards in OMHRS is less than 3%.
- Quebec-specific selection methods are outlined in the numerator criteria to address differences in data collection for Quebec, as it is not possible to distinguish comorbidities from secondary diagnoses in Quebec data.

Trending  
Issues

Not applicable

This indicator belongs to the [Shared Health Priorities](#) portfolio measuring access to mental health and addictions services and to home and community care.

Comments

More information on this indicator is available in the companion report on the [Shared Health Priorities page](#).

Both the indicator [Hospitalizations Entirely Caused by Alcohol](#) and the indicator Hospital Stays for Harm Caused by Substance Use have a common approach to case identification. For additional information, please see the other Indicator Library entry.