

# Opioid-Related Hospitalizations

## SECTION 1: HEADER

Indicator Type : Core Indicator

### Description

- **Number of opioid-related hospitalizations\***.
- **Crude rate of opioid-related hospitalizations:** The number of opioid-related hospitalizations\* per 100,000 population
- **Age-specific rate of opioid-related hospitalizations:** the number of opioid-related hospitalizations\* in a given age group per 100,000 population in that age group.
- **Age-standardized rate (SRATE) of opioid-related hospitalizations:** the number of opioid-related hospitalizations\* that would occur if the population had the same age distribution as the 2011 Canadian population, per 100,000 population.

\***Note:** Each of the above indicators may be calculated separately for each of the following types of opioid-related hospitalizations:

- Hospitalizations for opioid poisonings
- Hospitalizations for opioid-related mental health conditions
- Total opioid-related hospitalizations (i.e. both of the above, combined)

### Related OPHS Topics

This section cross-links the indicator to related Core Indicators products, by referencing the OPHS Alignment tables. List all OPHS topics where this indicator would be used; these will be linked to the appropriate OPHS Standard pages.

Population Health Assessment

Substance Use and Injury  
Prevention

## SECTION 2: METHOD OF CALCULATION

## Method of Calculation

**Note:** Each of the following indicators may be calculated separately for each of the following types of opioid-related hospitalizations:

- Hospitalizations for opioid poisonings
- Hospitalizations for opioid-related mental health conditions
- Total opioid-related hospitalizations (i.e. both of the above, combined)

### Crude Rate for Opioid-Related Hospitalizations

$$\frac{\text{Number of opioid-related hospitalizations}}{\text{Total population}} \times 100,000$$

### Age-specific rate

$$\frac{\text{Number of opioid-related hospitalizations in an age group}}{\text{Total population in that age group}} \times 100,000$$

### Age-standardized Rate (SRATE)

$$\frac{\text{Sum of (age-specific rate} \times \text{standard population in that age group) across all age groups}}{\text{Total standard population}} \times 100,000$$

## Recommended Subset Analysis Categories

### Basic Categories

- Suggested Age Groups:
  - 0-14, 15-24, 25-44, 45-64, 65+ \*Note: Health units may choose to merge age categories due to small numbers, or change age categories depending on the specific analysis questions.
- Sex: male, female and total.
- Geographic areas of residence: Ontario, public health unit, municipality, and smaller areas of geography based on aggregated postal code.

- Temporal: year, quarter, month, day
  - Intention: Accidental (X42), Intentional (X62), Undetermined (Y12) and Therapeutic (Y45.0)
- Note: ICD-10 codes for intention are specific to poisoning-related diagnoses and so should not be used with related mental health conditions (See ICD-10 Code table below).

## SECTION 3: DATA SOURCES

## Data Sources Table

Numerator	Denominator
<div style="background-color: #0070C0; color: white; padding: 10px; display: inline-block;">Inpatient Hospitalizations</div>	<div style="background-color: #0070C0; color: white; padding: 10px; display: inline-block;">Population Estimates</div>
<b>Original Source:</b> Discharge Abstract Database (DAD), Canadian Institute for Health Information (CIHI) Ontario Mental Health Reporting System (OMHRS), Canadian Institute for Health Information (CIHI)	<b>Original Source:</b> Statistics Canada
<b>Distributed by:</b> Ontario Ministry of Health and Long-Term Care (MOHLTC): IntelliHEALTH ONTARIO (IntelliHEALTH)	<b>Distributed by:</b> Ontario Ministry of Health and Long-Term Care (MOHLTC): IntelliHEALTH ONTARIO (IntelliHEALTH)
<b>Suggested Citation</b> (see Data Citation Notes) Inpatient Discharges for Opioid-Related Cause [years], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [date].  Ontario Mental Health Reporting System [years], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [date]	<b>Suggested Citation:</b> Population Estimates [years], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [date].

## ICD Codes

Classification	ICD-10-CA/DSM-5
Opioid Poisoning	T40.0 Poisoning by opium T40.1 Poisoning by heroin T40.20 Poisoning by codeine and derivatives T40.21 Poisoning by morphine T40.22 Poisoning by hydromorphone T40.23 Poisoning by oxycodone T40.28 Poisoning by other opioids, not elsewhere classified T40.3 Poisoning by methadone

	<p>T40.40 Poisoning by fentanyl and derivatives</p> <p>T40.41 Poisoning by tramadol</p> <p>T40.48 Poisoning by other synthetic narcotics, not elsewhere classified</p> <p>T40.6 Poisoning by other and unspecified narcotics</p>
Opioid-Related Mental Health Conditions	<p><b>ICD-10-CA</b></p> <p>F11.0 - Acute intoxication due to use of opioids</p> <p>F11.1 - Harmful use due to opioid use</p> <p>F11.2 - Dependence syndrome due to opioid use</p> <p>F11.3 - Withdrawal state due to opioid use</p> <p>F11.4 - Withdrawal state with delirium due to opioid use</p> <p>F11.5 - Psychotic disorder due to opioid use</p> <p>F11.6 - Amnesic syndrome due to opioid use</p> <p>F11.7 - Residual and late-onset psychotic disorder due to opioid use</p> <p>F11.8 - Other Mental and behavioural disorders due to opioid use</p> <p>F11.9 - Unspecified mental and behavioural disorder due to opioid use</p> <p><b>ICD-9-CM</b></p> <p>304.00 - Opioid Dependence</p> <p>305.50 - Opioid Abuse</p>
All Opioid-Related Harms - Total	Includes all codes shown above
Intention Codes ( <i>these codes relate to poisoning codes only (T-codes)</i> ).	<p>X42* - Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified</p> <p>X62* - Intentional self-poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified</p> <p>Y12* - Poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified, underdetermined effect</p> <p>Y450 - Opioid and related analgesics causing adverse effect in therapeutic use</p>

*\*identifies intention for poisonings involving cannabis (derivatives), cocaine, codeine, heroin, lysergide [LSD], mescaline, methadone, morphine, and/or opium (alkaloids)*

## SECTION 4: NOTATIONS

### Analysis Checklist

#### General

- The IntelliHEALTH licensing agreement does not require suppression of small cells, but caution should be used when reporting at a level that could identify individuals, (e.g. reporting at the postal code level by age and sex). Please note that privacy policies may vary by organization. Prior to releasing data, ensure adherence to the privacy policy of your organization.
- Aggregation (e.g. combining years, age groups, categories) should also be considered when small numbers result in unstable rates.
- An 'Inpatient Discharge User Guide' is available within IntelliHEALTH.
- Comparisons over time within a community or between communities/geographies need to consider the effect than an underlying demography may have. Please refer to the [Standardization of Rates](#) methodology resource page for analytic recommendations and sample calculations.
- Individuals whose sex is categorized as “other” in Intellihealth are included in the total number of opioid-related hospitalizations, but are excluded in data presented by sex.
- Individuals whose age is categorized as “999” are included in the total number of opioid-related hospitalizations, but are excluded in data presented by age group.

#### Extracting from the Discharge Abstract Database (DAD):

- Add a filter on “All Dx Code” to **equal** the ICD-10 codes for the indicator of interest (available in the ICD-10 Code Table).
- Add a filter on “All Dx Prefix Code” to **exclude** ‘Q’. This will ensure query diagnoses are not included in the aggregation.
- Add a filter on “Hospital Type” to include ‘ACUTE CARE TREATMENT HOSP W/O PSYCH UNIT’ and ‘ACUTE CARE TREATMENT HOSP WITH PSYCH UNIT’. Within the system, there are a few non-acute hospitals that report into the system. This ensures that only acute-care hospitals are included.
- If you are extracting data for Ontario, ensure that “Patient PHU” **excludes** ‘(YYYY) OUT OF PROVINCE’. Otherwise, you can add a filter specific to your geography of interest.
- When filtering data by municipality, the Patient Municipality field is recommended as it is a direct subset of the Patient PHU classification. The Patient CSD field is generated using different methodology and should be avoided if wanting to align with PHU designation.
- Select ‘# Dschg(D)’ Measure. This will ensure that duplicate counts are removed from aggregated counts. NOTE: If extracting record level data into a spreadsheet, it is important to remove duplicates from the ‘DAD Key’ field before using the measure. This will ensure each visit will not be counted more than once.
- NOTE:** In order to gather details about the visit as close to the event as possible, use “Admit” categories. For example, depending on how long a patient’s stay is, there may be a discrepancy between their “Admit CYear” and “CYear” (the year they were discharged).

## Extracting from the Ontario Mental Health Reporting System (OMHRS):

- ❑ Add a filter to include all records that contain “OPIOID” in all “DSM-IV Axis” and “DSM-5 Psychiatric Dx (Retired 2019)” fields within the Section Q - Psychiatric Diagnostic Information folder.
- ❑ Add an additional filter on all “DSM-5 Psychiatric Dx (Retired 2019)” A-F fields to include all records that start with “30400”, “30550” and on “DSM-5 Psychiatric Dx” A-F fields to include all records that start with “F11”.
- ❑ **NOTE:** Adding in the filters above can be a time consuming process. In order to simplify this process, please access a completed filter statement [here](#). You may add in this code by adding in a Static Filter to the query (accessed from the Static Filter folder in the Insertable Objects pane) and replacing the filter text added with the provided filter statement above.
- ❑ DSM-IV codes based on ICD-9-CM were replaced with the DSM-5 codes also based on ICD-9-CM starting approximately on April 1, 2016 although the changeover was not precise – when extracting data you may find both codes before and after that date. Similarly, DSM-5 codes based on ICD-10-CA replaced those approximately on April 1, 2019 but you may find both types before and after that date.
- ❑ Additionally, a completed query is available in Team Content (Team content > IH Reports > Standard Reports > 50 APHEO Public Health Indicators) for reference.
- ❑ If you are extracting data for Ontario, ensure that the ‘Ontario Patients’ filter is applied from the ‘Static Filters’ folder under the ‘Insertable objects’ tab. Otherwise, you can add a filter specific to your geography of interest.
- ❑ It’s important to ensure duplicate counts are removed from the ‘Episode Key’ field before using the measure. This will ensure each visit will not be counted more than once.

## Indicator Comments

### General Comments

- Data from Intellihealth only captures those who visit the hospital and may not reflect the total burden in the population.
- Data for Ontario residents who visit a hospital outside of the province are not included.
- Despite updates to improve the availability of specific codes for some opioids-related poisonings in April 2018, current testing methods may limit the ability to definitely determine what substances were present.
- Some mental health and behavioural disorder opioid-related visits may be coded under multiple psychoactives (F19) if the predominant cause can’t be determined.
- Individuals may have made more than one visit on different occasions, and therefore the number of visits should not be interpreted as the number of distinct individuals.
- The term ‘Hospitalization’ as used in this indicator uses ‘Admit Date’ rather than ‘Discharge Date’. As hospital stays can vary in length, this ensures the details of the hospital stay are gathered closest to the event itself. In this definition, hospital discharges would refer to the indicator that uses ‘Discharge Date’.
- Patients admitted into mental health beds will have re-assessments every quarter. Diagnostic codes may change for unique visits during this reevaluation and so past counts may change over time.

## SECTION 5: REFERENCES

## Glossary

**Opioid-Related Poisonings** - Acute toxicity resulting from the direct effects of the accidental or intentional administration of exogenous substance(s) where one or more of the substances is an opioid.

**Opioid-Related Mental Health Conditions** - This measure includes mental health and behavioural disorders related to opioid use including intoxication, dependence, withdrawal and psychoses.

**Hospitalization** - The event in which a patient is admitted to the hospital. Admission details are gathered to identify details closest to the event (e.g. Admit Age, Admit Date).

**Hospital Discharge** - The event in which a patient is discharged from the hospital. Admission details are gathered to identify details closest to discharge from hospital (e.g. Dschg Age, Discharge Date).

## General References

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Interactive Opioid Tool. Toronto, ON: Queen's Printer for Ontario; 2019. Available from:

<https://www.publichealthontario.ca/en/data-and-analysis/substance-use/interactive-opioid-tool>

IntelliHealth Ontario: Inpatient Discharge User Guide [2017], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, Date Extracted: [October 25, 2019].

Canadian Institute for Health Information. Hospital Stays for Harm Caused by Substance Use — Appendices to Indicator Library, December 2022. Ottawa, ON: CIHI; 2022.

<https://www.cihi.ca/sites/default/files/document/appendix-hospital-stays-for-harm-caused-by-substance-use-en-web.pdf>

## SECTION 6: CREDITS

## Acknowledgements

<p><b>Lead Authors</b>  <b>Katie Bradley</b>, Durham Region Health Department  <b>Leah Johnston</b>, York Region Public Health  <b>Michael King</b>, Public Health Sudbury &amp; Districts  <b>Auburn Larose</b>, North Bay Parry Sound District Health Unit</p>	<p><b>Reviewers</b>  <b>Jacob MacKinlay</b>, Wellington-Dufferin-Guelph Public Health</p>
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<b>Michael Whyte</b> , Wellington-Dufferin-Guelph Public Health Unit	
<p><b>Contributing Authors</b></p> <p><b>Shelby Huffman</b>, Grey Bruce Health Unit  <b>Cameron McDermid</b>, Ottawa Public Health  <b>Jeremy Herring</b>, Public Health Ontario  <b>Regan Murray</b>, Public Health Agency of Canada/Office of the Chief Coroner  <b>Kristen Wheeler</b>, Halton Region Health Department  <b>Renate van Dorp</b>, Huron Perth Public Health  <b>Olamide Adeyanju</b>, Chatham-Kent Public Health  <b>Brianne Kinahan</b>, York Region Public Health  <b>Jasmine Song</b>, York Region Public Health  <b>Dylan Melmer</b>, North Bay Parry Sound District Health Unit</p>	<p><b>Other Acknowledgements</b></p> <p><b>James Macintosh</b>, Region of Waterloo Public Health and Emergency Services  <b>Desirée Sutton-Batabyal</b>, Region of Waterloo Public Health and Emergency Services</p>

## Revision History \*previously known as “Changes Made”

Complete the standard text, and link it to the subgroup webpage:

This Core Indicator Product webpage is maintained by the [Subgroup Name] Subgroup.

Use the following table structure to document changes made to the indicator over time, and by whom:

Date	Review Type	Author	Changes	PDF
[Month DD, YYYY]	[Type of Indicator Review, as listed below*]	[Author Name] OR [Author Name], on behalf of the [Workgroup Name or Acronym]	➤ [List all substantive changes made to the indicator]	[Insert PDF Symbol]
<i>Most recent changes added to bottom of table.</i>				
<b>EXAMPLE:</b> April 23, 2019	Website Update: No Review of Content	James Lane, on behalf of the CIWG	<p><b>No changes made to indicator definitions or documentation.</b> Migrated to new website structure and format, including:</p> <ul style="list-style-type: none"> <li>➤ Reorganized content to provide high-level information at a glance, and move in-depth analytic information into dedicated sections.</li> <li>➤ Reworded formulas for plain language.</li> <li>➤ Added descriptive sub-headings to the Analysis Checklist and Indicator Comments sections.</li> <li>➤ Added Revision History table with PDF copy of previous version for reference.</li> </ul>	