TECHNICAL NOTES

Interactive Opioid Tool

3rd Revision: September 2022

Background

Following an increase in public health, health care and media concern about opioid-related harms in Ontario and across Canada, understanding and addressing this problem became a provincial priority. PHO has developed a surveillance tool to describe the magnitude and distribution of opioid-related morbidity and mortality in Ontario since 2003. The tool was created in collaboration with the Ministry of Health and Long-Term Care, Office of the Chief Coroner of Ontario and other partners. In a series of interactive visualizations, trends in emergency department visits, hospitalizations and deaths by month and year are presented. Patterns by age, sex, and PHU and LHIN geographies are explored.

Indicators

Emergency Department (ED) Visits for Opioid Poisonings

$$\frac{\text{\# of ED visits for opioid poisonings}}{\text{Total population}} \times 100,000$$

- Includes unscheduled ED visits for opioid poisoning (all diagnosis types).

- Includes ICD-10-CA codes T40.0 (poisoning by opium), T40.1 (poisoning by heroin), T40.20-T40.28 (poisoning by codeine and derivatives [T40.20], poisoning by morphine [T40.21], poisoning by hydromorphone [T40.22], poisoning by oxycodone [T40.23], poisoning by other opioids not elsewhere classified [T40.28]), T40.3 (poisoning by methadone), T40.40-T40.48 (poisoning by fentanyl and derivatives [T40.40], poisoning by tramadol [T40.41], poisoning by other synthetic narcotics not elsewhere classified [T40.48]), T40.6 (poisoning by other and unspecified narcotics).

- Excludes cases with a query/suspected diagnosis (diagnosis prefix = Q).

Hospitalizations for Opioid Poisonings

$$\frac{\text{\# of hospitalizations for opioid poisonings}}{\text{Total population}} \quad \text{x } 100{,}000$$

- Includes hospitalizations for opioid poisoning (all diagnosis types).

- Includes ICD-10-CA codes T40.0 (poisoning by opium), T40.1 (poisoning by heroin), T40.20-T40.28 (poisoning by codeine and derivatives [T40.20], poisoning by morphine [T40.21], poisoning by hydromorphone [T40.22], poisoning by oxycodone [T40.23], poisoning by other opioids not elsewhere classified [T40.28]), T40.3 (poisoning by methadone), T40.40-T40.48 (poisoning by fentanyl and derivatives [T40.40], poisoning by tramadol [T40.41], poisoning by other synthetic narcotics not elsewhere classified [T40.48]), T40.6 (poisoning by other and unspecified narcotics).

- Excludes cases with a query/suspected diagnosis (diagnosis prefix = Q).

Deaths from Opioid Poisonings

$$\frac{\text{\# of deaths from opioid poisonings}}{\text{Total population}} \quad \text{x } 100{,}000$$

- Includes all deaths where opioid poisoning was considered as contributing to the cause of death.

Type of Opioid Present at Death

$$\frac{\text{\# of deaths from specific opioid poisoning}}{\text{Total \# of deaths from opioid poisonings}} \quad \text{x } 100$$

- Includes deaths from specific types of opioids: codeine, fentanyl (including carfentanil and other fentanyl analogues), heroin, hydrocodone, hydromorphone, methadone, morphine, nitazenes, oxycodone.

- More than one opioid can be counted as present at time of death; presence of a drug does not necessarily indicate that it contributed to death.

Methodological Notes

- Indicators are calculated by visit registration year and month (ED visits), admission year and month (hospitalizations) and death date and month (deaths).

- Monthly and quarterly rates in the 'Trends', 'Preliminary ED Trends', and 'Preliminary Death Trends' tab have been annualized for comparability between different time periods.

- Data presented on the 'Preliminary ED Trends' tab have been collected as part of a weekly reporting initiative by Ontario hospitals and should be considered preliminary. Data in this tab based on counts between 1 and 4 are denoted as * in this table, and have been suppressed due to terms of a data sharing agreement.

- For ED visit and hospitalization data which are discharged-based, updates to include a current quarter of data may include admissions which happened in a previous quarter.

- Data for ED visits and hospitalizations are updated quarterly, approximately 4-6 months after the quarter has passed (shortly after the data is made available to PHO); data for deaths will be updated as that data is made available to PHO.

- Demographic stratifiers include by sex and by age-group (<15, 20-24, 25-44, 45-64, 65+).

- Geographic stratifiers include by public health unit (PHU) and local health integration network (LHIN).

- Death data were geocoded to PHU/LHIN by joining the postal code of the decedent with Statistics Canada Postal Code Conversion File (PCCF) and health-region boundary correspondence files using the single-link indicator (SLI).

- Generally, the postal code represents the residence of the decedent. Due to some variation in the data abstraction process or if the postal code of residence was not available, some records may have been assigned the postal code of the location of death.

- Between 2005 and 2016 approximately 5% of records were unable to be geocoded due to missing/incorrect postal code.

- Death data for 2003 and 2004 at the PHU/LHIN are not included due to high missingness of postal code.

- Records without a recorded sex, age or PHU/LHIN were not included in stratified results but are included in the overall totals.

- Population data for month of year was calculated by interpolating the % change in population counts between the calendar year before and after with the annual estimates assigned to July (mid-year).

- Some deaths are attributed to multi-drug toxicity, therefore a death can include more than one opioid as a cause; the percentage attributed to any one opioid is calculated using the total number of unique deaths.

- Deaths in which heroin and morphine were both present have only been considered as heroin deaths.

- Testing for detection of nitazenes (benzimidazole-opioids) in post-mortem toxicology became routine in Sept 2021 and detection in opioid-related deaths may be under-reported for 2021; nitazenes may have been detected in combination with other opioids, and due to limited understanding of these emerging substances, may not always be attributed to the cause of death.

- Data for which sufficient risk of re-identification of an individual exists will be suppressed, for example, data for deaths by specific type of opioids have been suppressed when the denominator (total number of deaths) was between 1 and 4 deaths.

Limitations

- Data from ED visits and hospitalizations only capture those who visit the ED/are hospitalized and may not reflect the total burden in the population.

- Data for Ontario residents who visit an ED/hospital or die outside of the province are not included.

Data Sources

ED Visits

National Ambulatory Care Reporting System. January 2003 – March 2022 [data file]. Ottawa, ON: Canadian Institute for Health Information [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, IntelliHealth Ontario [distributor]; [unpublished] [data extracted 2022 Aug 9].

ED Visits (Preliminary)

National Ambulatory Care Reporting System. April 2022 – June 2022 [data file]. Ottawa, ON: Canadian Institute for Health Information [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, Health Analytics Branch [distributor]; [unpublished] [data received 2022 Aug 10].

Hospitalizations

Discharge Abstract Database. January 2003 – March 2022 [data file]. Ottawa, ON: Canadian Institute for Health Information [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, IntelliHealth Ontario [distributor]; [unpublished] [data extracted 2022 Aug 9].

Deaths

Ontario Opioid-Related Death Database. January 2003 – March 2021 [data file]. Toronto, ON: Office of the Chief Coroner for Ontario; [unpublished] [data received 2022 Aug 3].

Population

- Population estimates, 2003 – 2016 [data file]. Ottawa, ON: Canadian Institute for Health Information [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, IntelliHealth Ontario [distributor]; [unpublished] [data extracted 2017 Oct 19].

- Population projections, 2017 – 2022 [data file]. Ottawa, ON: Canadian Institute for Health Information [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, IntelliHealth Ontario [distributor]; [unpublished] [data extracted 2019 Aug 12].

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