Public Health Ontario | Santé publique Ontario

TECHNICAL NOTES

Substance Use and Harms Tool

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Introduction

Following an increase in public health, health care and media concern about substance-related harms in Ontario and across Canada, understanding and addressing this problem became a provincial priority. Public Health Ontario (PHO) has developed an interactive surveillance report to describe the magnitude and distribution of substance-related morbidity and mortality in Ontario. This report enables the user to view trends in emergency department visits, hospitalizations and deaths, presented by public health unit, age group, sex, and drug type (in some instances).

Indicators

Emergency Department Visits for Opioid Poisonings

Includes:

- Unscheduled emergency department (ED) visits for opioid poisoning (all diagnosis types)
- 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

Includes:

- Hospitalizations for opioid poisoning (all diagnosis types)
- 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 due to opioid toxicity

Includes:

- All deaths where acute opioid toxicity was considered as contributing to the cause of death
- Confirmed opioid-related deaths where a stimulant or benzodiazepine also contributed to cause of death are reported as separate indicators
- Both confirmed and probable opioid-related deaths:
  - Confirmed opioid-related deaths are those for which conclusions on cause of death and autopsy results have indicated an opioid directly contributed to the cause of death
  - Probable opioid-related deaths are suspect drug-related deaths (with conclusions on cause of death/autopsy results pending) where toxicology is positive for opioids. These deaths should be considered as preliminary and are subject to change as remaining cases are closed by the Office of the Chief Coroner for Ontario
- Deaths from specific types of opioids:
  - Codeine
  - Fentanyl (including carfentanil and other fentanyl analogues)
  - Heroin
  - Hydrocodone
  - Hydromorphone
  - Methadone
  - Morphine
  - Nitazenes
  - Oxycodone

Excludes:

- Deaths due to chronic substance use, medical assistance in dying, or trauma where an intoxicant contributed to the circumstances of the injury and deaths classified as homicide

Deaths due to stimulant toxicity

Includes:

- All deaths where acute opioid toxicity was considered as contributing to the cause of death
- Confirmed stimulant-related deaths (those for which conclusions on cause of death and autopsy results have indicated a stimulant directly contributed to the cause of death)
- Deaths from specific types of stimulants:
  - Cocaine
  - Methamphetamines
  - Other stimulants (Amphetamine, methylenedioxyamphetamine (MDA), methylenedioxymethamphetamine (MDMA), mephedrone, methylphenidate, phentermine, pseudoephedrine, and methylenedioxypyrovalerone)

Excludes:

- Deaths due to chronic substance use, medical assistance in dying, or trauma where an intoxicant contributed to the circumstances of the injury, and deaths classified as homicide

Deaths due to benzodiazepine toxicity

Includes:

- All deaths where acute benzodiazepine toxicity was considered as contributing to the cause of death
- Confirmed benzodiazepine-related deaths (those for which conclusions on cause of death and autopsy results have indicated a benzodiazepine directly contributed to the cause of death)
- Deaths from specific types of benzodiazepines
  - Approved benzodiazepines with Canadian federal approval for medical use (including diazepam, lorazepam, alprazolam, temazepam, clonazepam, oxazepam, nitrazepam, bromazepam, chlordiazepoxide, demoxepam (chlordiazepoxide metabolite), clobazam, flurazepam and midazolam)
  - Unapproved benzodiazepines without Canadian federal approval for medical use (including etizolam, flualprazolam and flubromazolam)

Excludes:

- Deaths due to chronic substance use, medical assistance in dying, or trauma where an intoxicant contributed to the circumstances of the injury, and deaths classified as homicide

Methodological Notes

- Some deaths are attributed to multi-drug toxicity therefore, a death can include more than one drug as a cause; the percentage attributed to any one drug is calculated using the total number of unique deaths.
- Testing for detection of nitazenes (benzimidazole-opioids) in post-mortem toxicology became routine in September 2021. 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 presented for ED visits for opioid poisoning in the most recent quarter have been collected as part of a weekly reporting initiative by the Ministry of Health and Ontario hospitals and should be considered as preliminary and subject to change
- 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 are updated as that data is made available to PHO.
- Indicators are calculated by visit registration date (ED visits), admission date (hospitalizations) and death date (deaths).
- For hospitalization data which are discharged-based, updates to include a current quarter of data may include admissions which happened in a previous quarter.
- Demographic stratifiers include by sex and by age-group (<15, 20-24, 25-44, 45-64, 65+).
- Death data were geocoded to Public Health Unit (PHU) 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).
- For ED visits and hospitalizations, the postal code represents the residence of the decedent. For deaths, the postal code represents the location of the incident, and if that was not available the location of death, followed by the location of residence. In death records prior to May 2017 the location of residence was used exclusively because incident and death location were not available.
- Records without a recorded sex, age or PHU were not included in stratified results but are included in the overall totals.
- Population data for month of year was calculated by interpolating the percent (%) change in population counts between the calendar year before and after with the annual estimates assigned to July (mid-year).
- Monthly and quarterly rates have been annualized for comparability between different time periods (i.e., monthly rates have been multiplied by 12 while quarterly rates have been multiplied by 4)
- Data for which sufficient risk of re-identification of an individual exists have been suppressed. For example, data for deaths by specific type of opioids, stimulants, and benzodiazepines have been suppressed when the denominator (total number of deaths in that drug class) was between 1 and 4 deaths.

Limitations

- Data from ED visits and hospitalizations only capture those who visit the ED/are hospitalized while only deaths investigated by the Office of the Chief Coroner are included 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. Ottawa, ON: Canadian Institute for Health Information [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, IntelliHealth Ontario [distributor]; [unpublished]

ED Visits (Preliminary)

National Ambulatory Care Reporting System. Ottawa, ON: Canadian Institute for Health Information [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, Health Analytics Branch [distributor]; [unpublished}

Hospitalizations

Discharge Abstract Database (DAD). Ottawa, ON: Canadian Institute for Health Information [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, IntelliHealth Ontario [distributor]; [unpublished]

Deaths

Ontario Substance-related Death Database. Toronto, ON: Office of the Chief Coroner for Ontario/Ontario Forensic Pathology Service (OCC/OFPS); [unpublished]

Population

Population estimates and projections. Ottawa, ON: Statistics Canada [producer]; Toronto, ON: Ontario. Ministry of Health and Long-Term Care, IntelliHealth Ontario [distributor]; [unpublished]

Citation

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How to Cite this Tool

Generic Citation

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Example Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Substance use and harms tool >> exact title of chart in sentence case [Internet]. Toronto, ON: King's Printer for Ontario; c2024 [modified 2024 Sep 22; cited 2024 Sep 23]. Available from: URL

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