

Data on Toronto opioid toxicity deaths from the Opioid Investigative Aid

In May 2017, the Office of the Chief Coroner for Ontario (OCC) started collecting and sharing additional information about people whose deaths were caused by opioids. This includes details on the socio-demographic characteristics of those who died and the circumstances surrounding their death. Additional information is also available on the nature and origin of the substances contributing to the deaths and any intervention attempting to resuscitate the decedent.

This document is produced quarterly by Toronto Public Health as a part of the [Toronto Overdose Information System \(TOIS\)](#). It presents findings for confirmed opioid-related deaths in Toronto in the most recent one-year period with available data (January 1, 2022 to December 31, 2022), with comparisons with the rest of Ontario and earlier periods.

The numbers reported here are preliminary and subject to change. Only cases confirmed by the OCC as opioid toxicity deaths are included. Additionally, as coroners' investigations proceed, it is expected that new cases for this time period will be identified, therefore these numbers may increase in the coming months.

Preliminary data show that there were 490^{1,2} confirmed opioid toxicity deaths among residents of Toronto from January 1 to December 31, 2022. This number is 17% lower than the previous one-year period (January 1, 2021 to December 31, 2021). In the rest of Ontario, there were 1,918 deaths from January 1 to December 31, 2022, which was 15% lower compared to the previous one-year period (January 1, 2021 to December 31, 2021).

The majority of opioid toxicity deaths from January 1 to December 31, 2022 were accidental, both in Toronto (95%) and in the rest of Ontario (94%). Three percent (3%) of deaths in Toronto and four percent (4%) in the rest of Ontario were classified as suicide.²

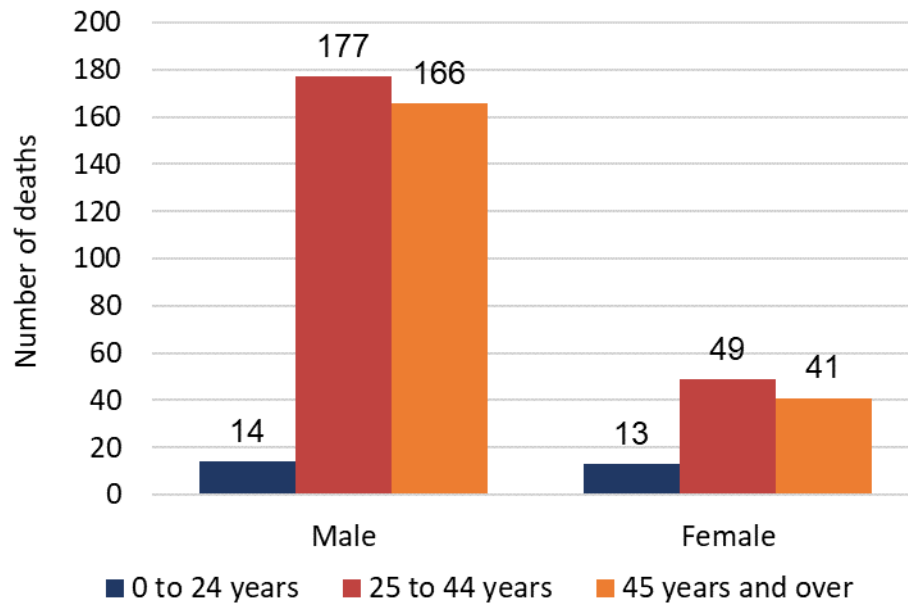
Socio-demographic Characteristics

Seventy-eight percent (78%) of accidental opioid toxicity deaths in Toronto from January 1 to December 31, 2022 occurred among males. Forty-nine percent (49%) of all accidental opioid toxicity deaths occurred among individuals aged 25 to 44 years.

¹ Due to differences in extraction dates, data are presented on 484 of these deaths

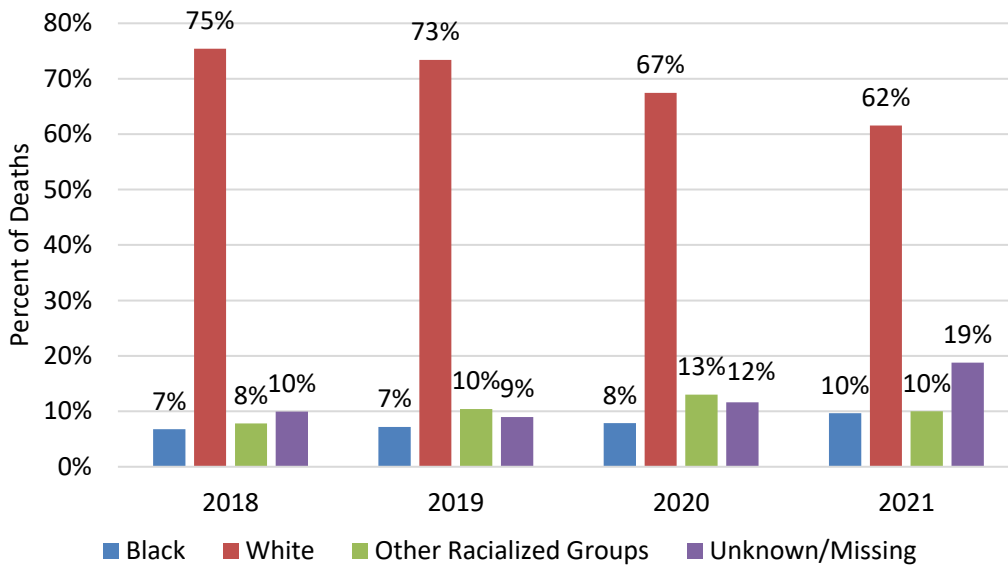
² Numbers are preliminary and subject to change

Figure 1: Accidental opioid toxicity deaths by age group and sex, Toronto, from January 1 to December 31, 2022



The majority of accidental deaths due to opioid toxicity in Toronto occurred among White individuals. However, this percentage has been decreasing each year since 2018 (Figure 2). The percentage of deaths with unknown or missing racial identity has increased in recent years, and in 2022 the percentage of deaths with unknown or missing racial identity was too high to report, thus data by racial identity for 2022 had to be suppressed.

Figure 2: Accidental opioid toxicity deaths by racial identity, Toronto, from January 1, 2018 to December 31, 2021^{3,4}



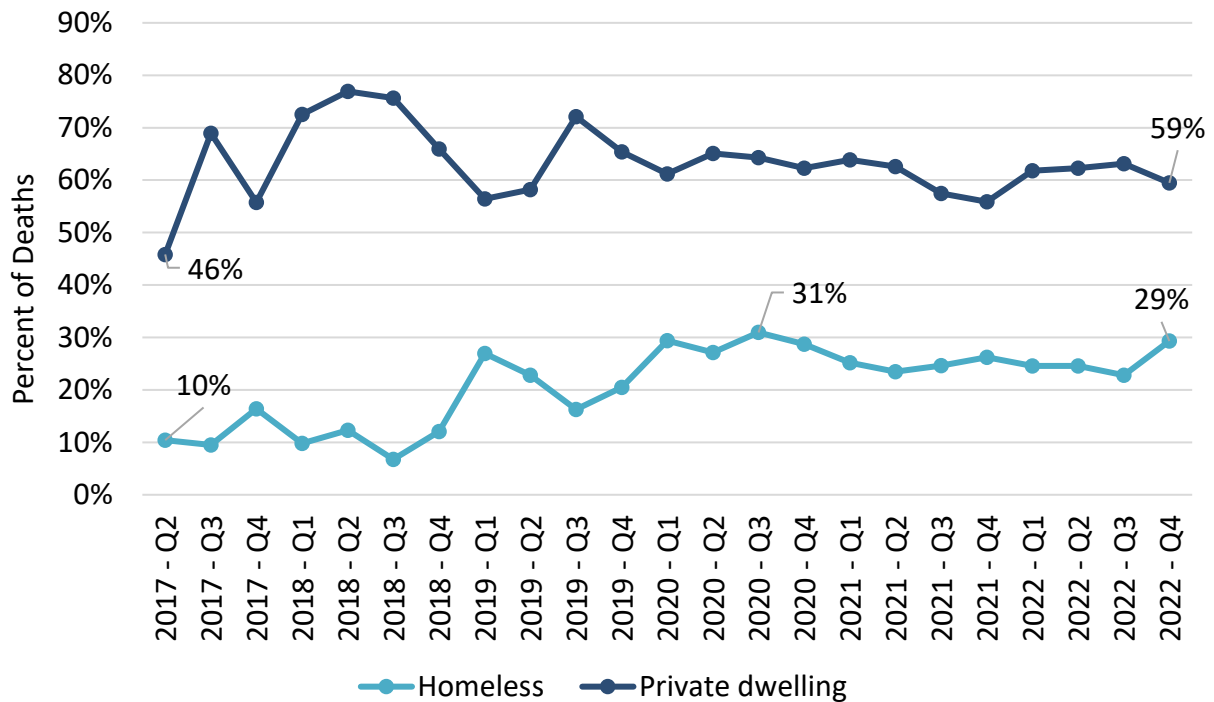
Living arrangements and circumstances surrounding death

Private dwellings were the most common living arrangement of those who died from accidental opioid toxicity in Toronto. However, the percentage of deaths among people experiencing homelessness has been fluctuating on a quarterly basis with an increasing trend since the end of 2018 with a peak (31%) reached in the third quarter of 2020 (July-September) (Figure 3). In recent quarters (Q1-3 2022) this percentage has stabilized around 20-25% but increased to 29% in Q4 2022.

³ Data for Indigenous identity continues to be unavailable as the OCC continues to consult with stakeholders

⁴ 'Other Racialized Groups' includes East or Southeast Asian, Latin American, Middle Eastern and South Asian. Categories were combined due to small counts.

Figure 3: Accidental opioid toxicity deaths by selected living arrangements of the decedent, Toronto, May 1, 2017 to December 31, 2022^{2, 5, 6}

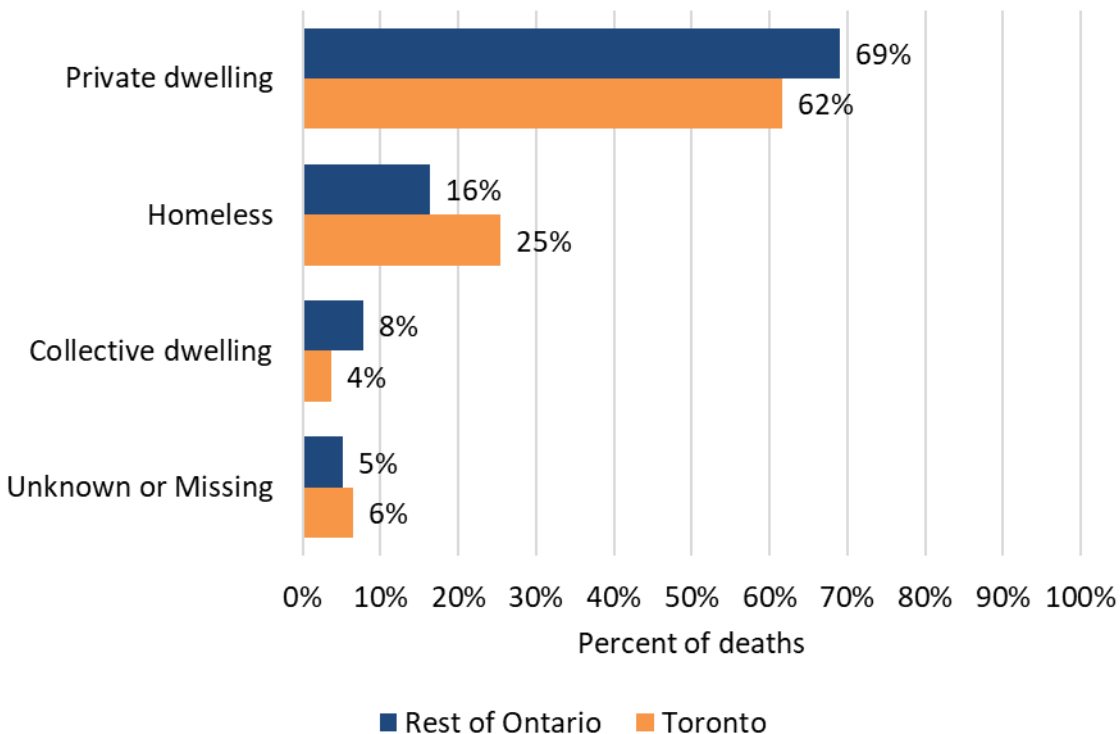


From January 1 to December 31, 2022, 62% of people who died from accidental opioid toxicity in Toronto resided in a private dwelling at the time of their death compared to 69% in the rest of the province (Figure 4). Twenty-five percent (25%) of individuals who died from accidental opioid toxicity in Toronto were experiencing homelessness in the most recent one-year period, compared to 16% in the rest of Ontario.⁵ Information on living arrangements was unknown or missing for six percent (6%) of individuals in Toronto.^{2, 6} In three percent (3%) of cases in Toronto, the person had been released from a correctional facility in the past four weeks, although information was missing in 69% of cases.²

⁵ Individuals with missing and unknown data are included in the denominator for this analysis.

⁶ Counts of 5 or less are assessed for risk of identification and potentially suppressed.

Figure 4: Accidental opioid toxicity deaths by living arrangements of the decedent, Toronto compared to the rest of Ontario, January 1 to December 31, 2022.^{5,6}



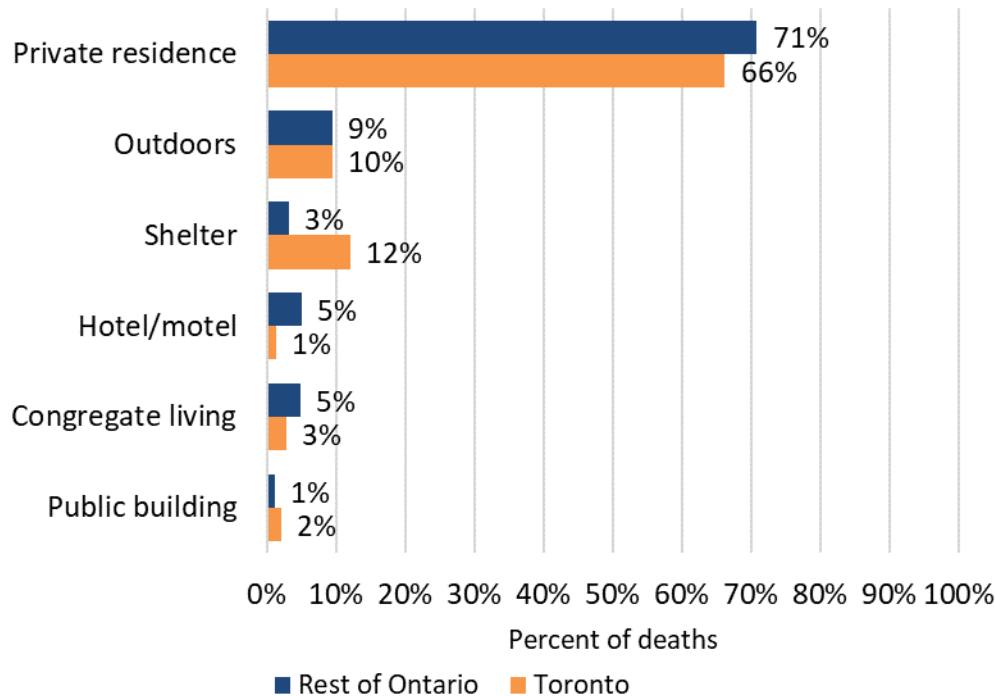
For the majority of accidental opioid toxicity deaths in Toronto (66%) and in the rest of Ontario, (71%), the overdose incident occurred indoors in a private residence (Figure 5). In ten percent (10%) of accidental opioid toxicity deaths in Toronto and nine percent (9%) in the rest of Ontario, the incident occurred outdoors. In one percent (1%) of accidental opioid toxicity deaths in Toronto and five percent (5%) in the rest of Ontario, the incident occurred in a hotel or motel. Please note that for Toronto, hotels may also include deaths in temporary hotel shelters implemented for COVID-19 response. Additional locations can be seen in Figure 5.^{2,6}

In 48% of accidental opioid toxicity deaths occurring in Toronto from January 1 to December 31, 2022, the deceased person was at home at the time of the death. Fifty percent (50%) of deaths occurred without the presence of another individual who could intervene at the time of overdose; however, this information was missing in 40% of cases.^{2,5}

There was an attempt to resuscitate the deceased individual in 38% of the cases in Toronto, which was lower than in the rest of Ontario (46%). Naloxone use was reported in 23% of accidental opioid toxicity deaths; however, there was missing information in 21% of cases.² In 63% of cases where naloxone use was reported, it was administered by bystanders. In 41% of

cases, it was administered by emergency responders and in 17%, it was administered by hospital workers. This information was missing in 3% of cases.^{2,5}

Figure 5: Accidental opioid toxicity deaths by location of overdose incident leading to death, Toronto compared to the rest of Ontario, January 1 to December 31, 2022^{2,6}



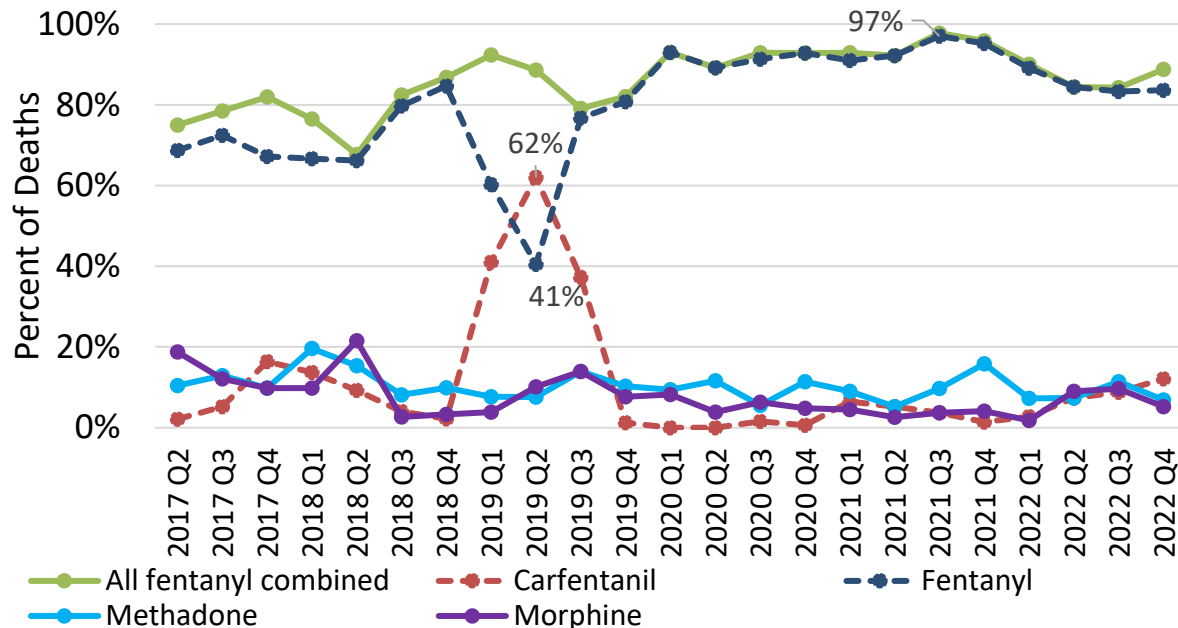
In 10% of deaths in Toronto and in the rest of Ontario from January 1 to December 31, 2022, there was evidence of both injection drug use and pipe/foil used for inhalation. There was evidence of only pipe/foil used for inhalation in 33% of accidental opioid toxicity deaths in Toronto, lower than in the rest of Ontario (42%). In seven percent (7%) of deaths in Toronto and in the rest on Ontario, there was only evidence of injection drug use. The investigating coroner found no evidence of injection drug use or pipe/foil use in 50% of deaths in Toronto, which was higher than in the rest of Ontario (40%).² When no pipe, foil or evidence of injection is present, mode may include oral, nasal, transdermal, other or unknown modes of drug use.

Nature and origin of substances contributing to death

From May 2017 to December 2022, fentanyl has consistently directly contributed to the highest percentage of accidental opioid toxicity deaths. This percentage has been increasing with fluctuations from 69% in the second quarter of 2017 to a peak of 97% in the third quarter of 2021 (Figure 6). Recently this percentage has declined to 84% in the fourth quarter of 2022. An exception was seen during the second quarter of 2019, when carfentanil contributed to a

higher percentage of deaths than fentanyl (62% compared to 41%). Other notable opioids contributing to deaths included carfentanil, morphine and methadone (Figure 5).²

Figure 6: Accidental opioid toxicity deaths by selected type of opioid directly contributing to death, Toronto, May 1, 2017 to December 31, 2022^{2, 7, 8, 9}



From January 1 to December 31, 2022, fentanyl and its analogues contributed to 87% of deaths in Toronto and 86% of deaths in the rest of Ontario. Methadone contributed to 8% of deaths in Toronto and 11% in the rest of Ontario. Morphine contributed to seven percent (7%) of deaths in Toronto and four percent (4%) of deaths in the rest of Ontario.²

Cocaine has remained the non-opioid substance directly contributing to the highest percentage of confirmed opioid toxicity deaths in Toronto from May 2017 to December 2022. In 2020, a peak was seen where it directly contributed to 63% of accidental opioid toxicity deaths. Another increase was seen in the first quarter of 2022 when it contributed to 57% of deaths. In the most recent quarter it increased again to 53%. The proportion of deaths where methamphetamine directly contributed to the death has also increased in recent years from

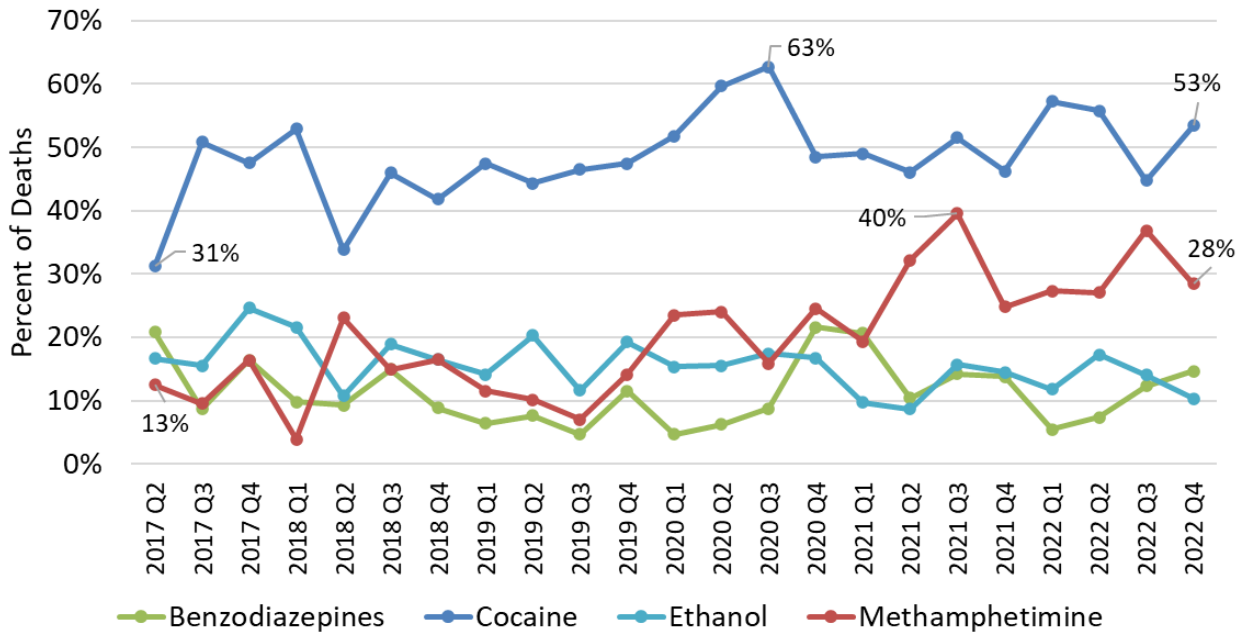
⁷ Drug categories are not mutually exclusive; some deaths are attributed to multi-drug toxicity where a death can include more than one drug as a cause.

⁸ The “All fentanyl combined” category includes fentanyl, carfentanil and fentanyl analogues.

⁹ Only selected substances are presented in this figure: all fentanyl combined, carfentanil, fentanyl, heroin, methadone and morphine. Other substances not shown include hydromorphone, buprenorphine, codeine, hydrocodone, other fentanyl analogues, oxycodone, tramadol, U47700 and oxycodone.

13% in the second quarter of 2017, reaching a peak of 41% in the third quarter of 2021, but has since gone down to 28% in the fourth quarter of 2022 (Figure 7).²

Figure 7: Accidental opioid toxicity deaths by selected type of non-opioid directly contributing to death, Toronto, May 1, 2017 to December 31, 2022^{2,5}



From January 1 to December 31, 2022, cocaine contributed to 53% of deaths in Toronto and 38% of deaths in the rest of Ontario. Ethanol (alcohol) contributed to 13% of deaths in Toronto and 12% of deaths in the rest of Ontario. Methamphetamines contributed to 30% of deaths in Toronto and 34% of deaths in the rest of Ontario. Benzodiazepines contributed to 10% of deaths in Toronto and in the rest of the province.²

In 80% of accidental opioid toxicity deaths that occurred in Toronto from January 1 to December 31, 2022, the opioids contributing to death were exclusively non-pharmaceutical in origin, which was similar to the rest of Ontario (78%). In nine percent (9%) of deaths in Toronto and ten percent (10%) in the rest of Ontario, the opioids were exclusively pharmaceutical in origin. The opioids were of mixed origin in 8% of deaths in Toronto and 9% of deaths in the rest of Ontario. The origin of the opioids was unclassified in three percent (3%) of accidental opioid-related toxicity deaths in Toronto and in the rest of Ontario.²

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³Data for Indigenous identity continues to be unavailable as the OCC continues to consult with stakeholders

⁴'Other' includes East or Southeast Asian, Latin American, Middle Eastern and South Asian. Categories were combined due to small counts.

⁵Individuals with missing and unknown data are included in the denominator for this analysis.

⁶Counts of 5 or less are assessed for risk of identification and potentially suppressed.

⁷Drug categories are not mutually exclusive; some deaths are attributed to multi-drug toxicity where a death can include more than one drug as a cause.

⁸The “All fentanyl combined” category includes fentanyl, carfentanil and fentanyl analogues.

⁹Only selected substances are presented in this figure: all fentanyl combined, carfentanil, fentanyl, heroin, methadone and morphine. Other substances not shown include hydromorphone, buprenorphine, codeine, hydrocodone, other fentanyl analogues, oxycodone, tramadol, U47700 and oxycodone.

Data sources:

Coroner's Opioid Investigative Aid, May 2017 to December 2022, Office of the Chief Coroner for Ontario.

- Yearly counts were extracted on May 10, 2023.
- Detailed socio-demographic characteristics, living arrangements and circumstances surrounding death and nature and origin of substances were extracted June 7, 2023.

Data Notes:

- The deaths included in this report are caused by opioid toxicity, with or without other drugs also contributing to death.
- Deaths due to chronic substance use, medical assistance in dying, homicides and trauma where an intoxicant contributed to the circumstances of the injury are excluded.
- The Office of the Chief Coroner for Ontario implemented the Opioid Investigative Aid in May of 2017. The detailed information resulting from this tool are not available prior to this date.
- Deaths have been assigned to Toronto based on the six-digit postal code of the residence of the deceased individual. If the postal code of the residence was not available, the postal code of the incident location was used. If this information was not available, the postal code of the death location was used. In cases where postal code is unavailable, other geographic information such as city of residence/incident/death may be used to assign PHU.
- Gender is based on gender identity at time of death.
- Living arrangement categories include:
 - Private dwelling –a separate set of living quarters designed for or converted for human habitation. Must include a source of heat or power and must be an enclosed space that provides shelter/protection from the elements. In Toronto, this includes community housing units.
 - Homeless –without stable, permanent, appropriate housing, or the immediate prospect, means and ability of acquiring it; includes no fixed address and those temporarily residing in shelters.
 - Collective dwelling –lodging and rooming houses, hotels, motels, tourist establishments, campgrounds and parks, sober living facilities, school residences and training centre residences, work camps, religious establishments, military bases, commercial vessels.

- Correctional facility – may include federal correctional institutions, provincial and territorial custodial facilities, young offenders’ facilities, jails and police lock-up facilities.
- Residential care facility (including group homes) – institutions or establishments that provide accommodation, and potentially treatment, to various groups (e.g., physically handicapped, children/youth, persons with psychiatric disorders or developmental disabilities).
- Hospital or Long-term Care home – an institution or establishment providing medical care (short term or continuous).
- All other living arrangements.
- Unknown or missing
- Incident location categories include:
 - Private residence (Apartment/Condominium, Single-detached house, Rowhouse/townhouse, Semi-detached house, Private residence, Trailer/Mobile home, Private Residence, Rural/Agricultural: Residential, Shed, Community Housing, Barn)
 - Public building (Airport, Recreational building, Commercial, Commercial/retail building, Other public building)
 - Hotel/motel (this may also include deaths in temporary hotel shelters implemented for COVID-19 response)
 - Congregate living (Long-term care home, Supported living, Rooming house)
 - Shelter
 - Hospital/clinic
 - Correctional facility
 - In a vehicle
 - Outdoors (Urban/Suburban, Recreational space, Railroad: On tracks, Forest/Park/Conservation area)
- An individual is considered to have died at home if the location of death address is the same as the decedent’s home address.
- Emergency Responders refer to EMS, Police and Fire.
- Non-pharmaceutical origin of opioids includes:
 - Heroin, fentanyl analogues (including carfentanil), U-47700
 - Fentanyl without evidence of patch, vial or other pharmaceutical formulation or prescription is determined to be of suspected non-pharmaceutical origin;
 - Morphine without or unknown evidence of a prescription, with or without 6-monoacetylmorphine (6-MAM) and with evidence suggesting non-pharmaceutical heroin use (e.g., other non-pharmaceutical opioids detected on toxicology such as carfentanil or history of consuming or seeking heroin);
 - Codeine without or unknown evidence of a prescription, with 6-MAM, or without 6-MAM but with morphine (without a prescription) and with evidence suggesting non-pharmaceutical heroin use.
- Pharmaceutical origin of opioids includes:

- Buprenorphine/naloxone, codeine without 6-MAM or 6-MAM and evidence suggesting non-pharmaceutical heroin use, dextromethorphan, fentanyl (with evidence of patch, vial or other pharmaceutical formulation), hydrocodone, hydromorphone, loperamide, meperidine, methadone, morphine with evidence of a morphine or codeine prescription, oxycodone, oxymorphone or tramadol.
- This category may include opioids that were prescribed to the deceased person or that were prescribed to someone else (i.e., diverted).
- Origin of opioid could not be classified: The opioid could not be clearly categorized as non-pharmaceutical or pharmaceutical including:
 - Morphine without or unknown evidence of a prescription for morphine and without 6-MAM and no evidence suggesting non-pharmaceutical heroin use.