
Substance Related Harms in New Brunswick

DEATHS, OVERDOSES AND TAKE HOME NALOXONE KITS

2023 – QUARTER 3

March 2024

Department of Health



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Introduction

This quarterly surveillance report describes data on apparent opioid- and stimulant-related harms including suspect overdoses, apparent opioid or stimulant toxicity deaths, hospitalizations for poisonings, and take-home naloxone kit distribution and use. Together these data sources add to our understanding of the complex substance overdose situation in New Brunswick; however, comparisons should not be made between different data sources as each represents a different population.

Key Messages and Summary

- The rate of individuals responding to naloxone in Q1-3 2023 is the highest to date.
- The number of individuals administered naloxone by an Ambulance New Brunswick paramedic and who responded to it are substantially higher in Q3 2023 compared to previous quarters.
- The rate of all apparent substance toxicity deaths in 2022 is the highest to date, followed by Q1-3 2023.
- The rate of accidental and pending intent apparent opioid toxicity deaths in 2022 is the highest to date, followed by Q1-3 2023.
- The rate of accidental and pending intent apparent stimulant toxicity deaths in 2022 is the highest to date, Q1-3 2023 is within an expected range.
- The proportion of accidental and pending intent apparent opioid toxicity deaths involving fentanyl are elevated in 2022 and Q1-3 2023 compared to previous years; additional accidental and pending intent apparent opioid toxicity deaths involved nitazenes, bromazolam, para-fluorofentanyl, and etizolam.
- The number of hospitalizations for opioid-related poisonings and stimulant-related poisonings in Q1-3 2023 is in an expected range compared to previous quarters.
- Non-government organizations that distribute take home naloxone kits have distributed over 5,500 kits since 2018 to individuals at risk of an overdose or their close family and friends.
- The average quarterly number of take home naloxone kits distributed in Q1-3 2023 is the highest to date compared to previous years.

Over the last several quarters, New Brunswick has continued to see elevated rates of individuals responding to naloxone administered by an Ambulance New Brunswick (ANB) paramedic, increased rates of substance, opioid and stimulant toxicity deaths, as well as ongoing high numbers of take home naloxone (THN) kits being distributed into the community.

In addition, data from Coroner investigations demonstrate that the proportion of apparent fentanyl toxicity deaths has increased; there have also been more novel substances detected in decedents compared to previous years. Despite this, elevated rates of deaths are not as pronounced in Q1-3 2023 as 2022.

While the consistent distribution and administration of naloxone from ANB and THN kits may help mitigate the harm from opioid overdoses, it may not be sufficient to combat the increasingly toxic drug supply and will have no effect against substances such as stimulants or benzodiazepines. At this time, New Brunswick continues to trend towards, but remains below, the national average rate of various substance related harms; continued vigilance and surveillance remains warranted.

Data Sources

AMBULANCE NEW BRUNSWICK

Data from ANB are aggregate and include information about:

- patients who were administered naloxone by a paramedic for a suspected opioid overdose, and
- patients who responded to naloxone.

The number of patients who were administered naloxone might be an overestimation of the actual number of opioid overdoses; therefore, the number of patients responding to naloxone was also collected and reported. If a patient responds to naloxone, this indicates that the patient was experiencing an opioid-related overdose as naloxone only has an effect if opioids were consumed. Data in this report reflect data received from ANB as of January 23, 2024.

Limitations: The number of suspect opioid overdoses is an estimate based on the decision to administer naloxone by a paramedic. As such, the data do not include overdoses where patients were already dead on arrival or those who were not given naloxone by a paramedic.

See Appendix A for a detailed description of ANB data.

CHIEF CORONER'S OFFICE

Data received from the Chief Coroner's Office include a line list of all apparent substance toxicity deaths. Data in this report reflect data received from the Chief Coroner's Office as of January 29, 2024.

Limitations: Due to the inherent delay in investigating deaths, data are preliminary and may change over time as investigations are concluded and more information is acquired, or new cases are added.

See Appendix A for a detailed description of Coroner Data.

HOSPITAL DATA

Data for opioid- and substance-related poisoning hospitalizations are extracted from the Discharge Abstract Database. Data in this report reflect data received as of February 9, 2024.

An opioid- or stimulant-related poisoning hospitalization is defined by any acute care hospitalizations which has a diagnosis for opioid- or stimulant-related poisoning, respectively.

Limitations: Due to the inherent delay in data coding, there exists a data lag of several months.

See Appendix A for a detailed description of hospital data.

TAKE HOME NALOXONE KITS

Data for take home naloxone kits (THN kit) come from three non-government organizations (NGOs): AIDS NB in Fredericton, Avenue B in Saint John, and Ensemble in Moncton. Data include the number of THN kits that are distributed and used. An individual may be given a THN kit if 1) the individual is at risk of an opioid overdose due to current opioid use, or they have previously used opioids and are at risk of using opioids again; or 2) they are a family member or friend who is likely to witness and respond to an overdose. The data in this report reflect data received from the three NGOs as of February 22, 2024.

Limitations: Certain data elements are disclosed at the client's discretion and level of comfort, therefore not all variables requested may be collected. Data may be updated as additional information is obtained and reported, and as forms continue to be validated.

See Appendix A for a detailed description of the take home naloxone kit data.

Methodology

Data were received from ANB, the Chief Coroner's Office, the NGOs, and the Discharge Abstract Database then validated and analyzed by PHNB. Descriptive analyses were conducted for each data source.

Throughout this report, estimated rates were calculated using person-time contributed to the specified period. This method is used to provide a better estimate of rates that are calculated for partial years. Caution should be used when interpreting data in this report as small numbers can lead to wide variations.

All data are subject to change in the coming reports. Since the last report, updates have been made to previously reported counts and rates based on revised data.

See Appendix B for a detailed description of the methodology.

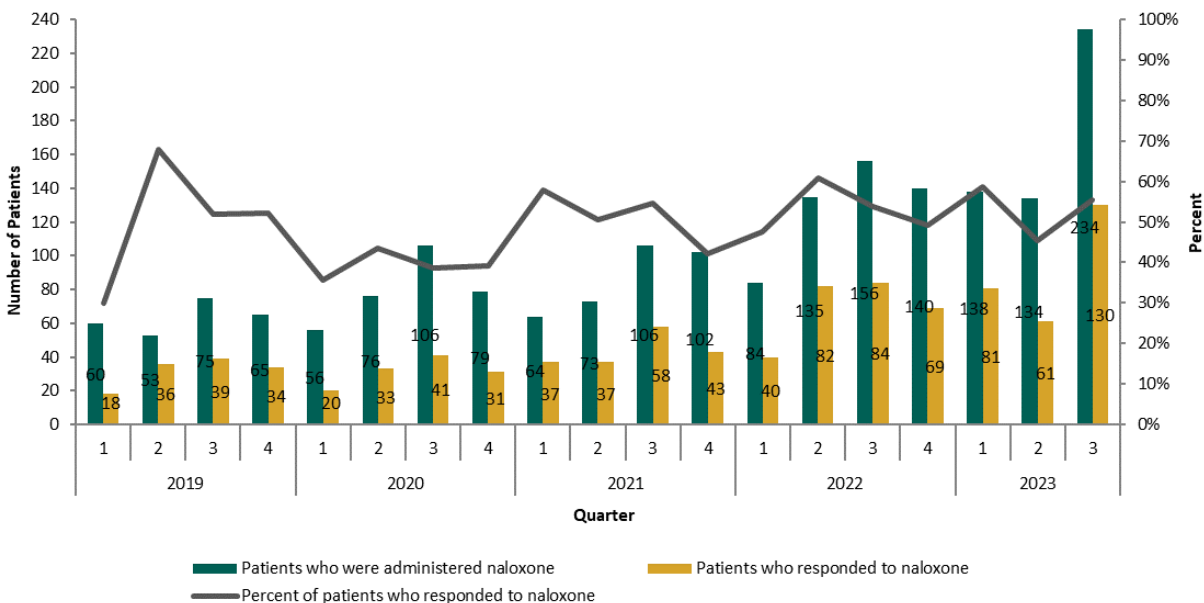
Suspect Opioid Overdoses

AMBULANCE NEW BRUNSWICK

January to September 2023

In Q1-3 2023, **naloxone was administered to 506 suspect opioid overdose patients** (Graph 1), with an average of 56 patients per month. Of the 506 suspect opioid overdose patients, **272 (54%) responded to naloxone** which corresponds to an average of 30 patients per month (range: 15 to 60). The number of individuals who were administered naloxone and who responded to it in Q3 2023 is substantially higher than previous quarters (Graph 1; Graph 2).

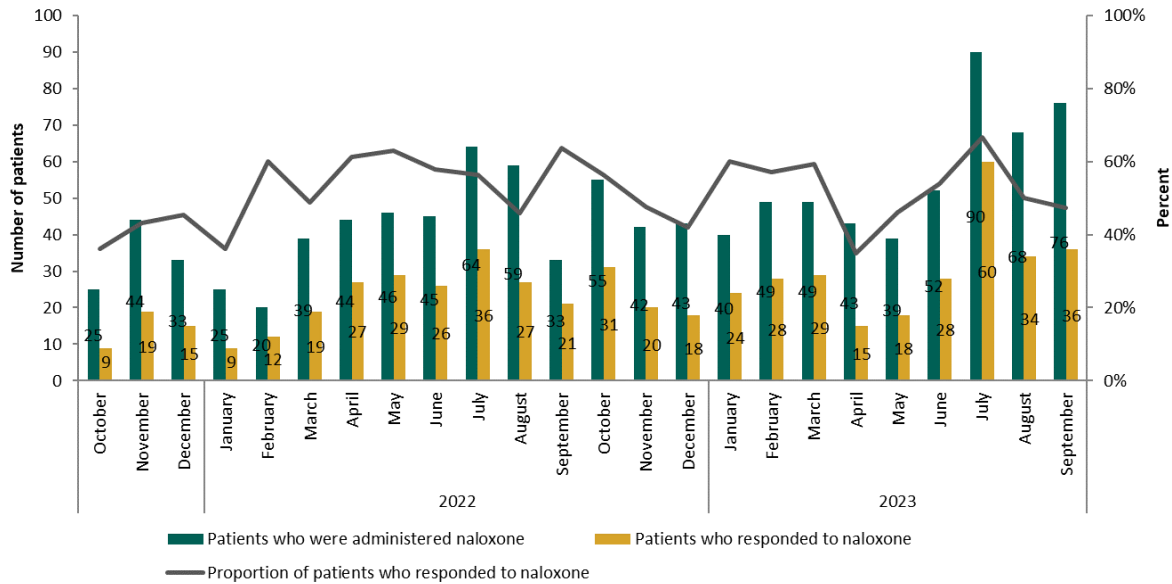
Graph 1. Number of suspect opioid overdose patients who were administered naloxone and the number and percentage of patients who responded to naloxone, quarterly in New Brunswick, from January 2019 to September 2023*.



Data source: Ambulance New Brunswick, January 23, 2024.

*These numbers may change as more information becomes available.

Graph 2. Number of suspect opioid overdose patients who were administered naloxone and the number and percentage of patients who responded to naloxone, monthly in New Brunswick, in the last 24 months*.



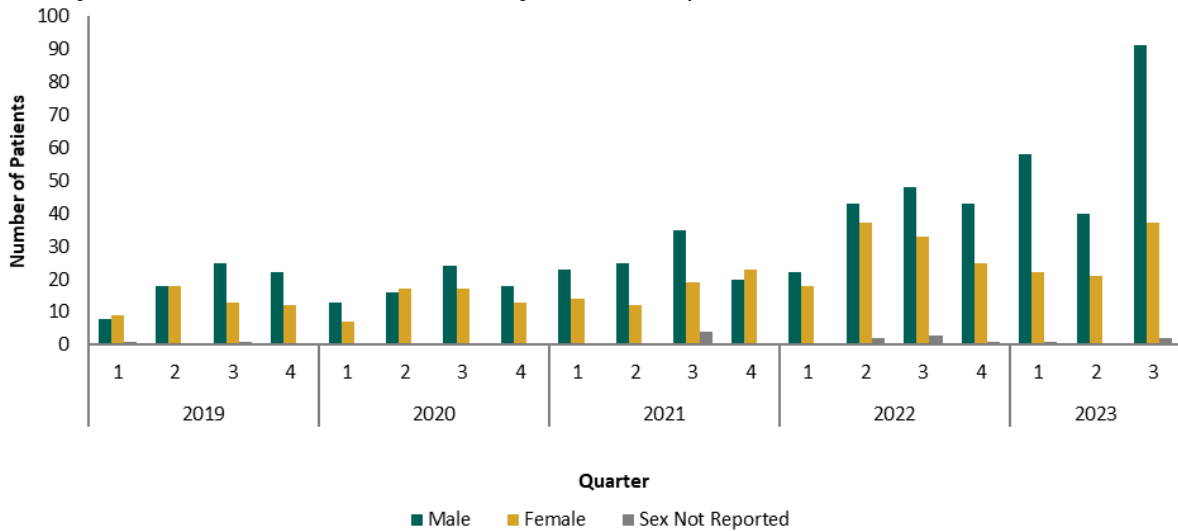
Data source: Ambulance New Brunswick, January 23, 2024.

*These numbers may change as more information becomes available.

Among the 272 patients who responded to naloxone in Q1-3 2023:

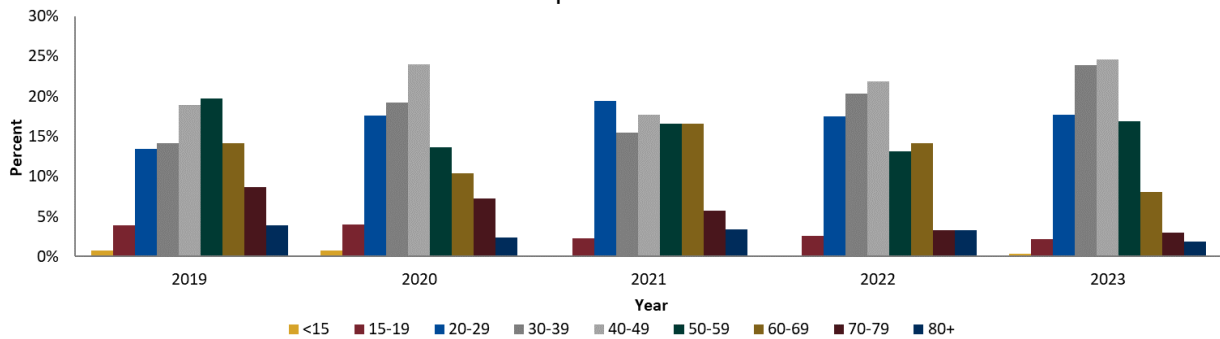
- **There were more males than females:** 189 (69%) were male, 80 (29%) were female, and 3 (1%) were unspecified sex (Graph 3).
- The **largest proportion of individuals were between 40-49 years old** (25%) (Graph 4).

Graph 3. Number of suspect opioid overdose patients who responded to naloxone by sex, quarterly in New Brunswick, from January 2019 to September 2023*.



Data source: Ambulance New Brunswick, January 23, 2024.
 *These numbers may change as more information becomes available.

Graph 4. Distribution by age group of suspect opioid overdose patients who responded to naloxone in New Brunswick in 2019 to September 2023*.



Data source: Ambulance New Brunswick, January 23, 2024.
 *These numbers may change as more information becomes available.

The estimated crude rate of suspect opioid overdose patients who responded to naloxone in New Brunswick in Q1-3 2023 is **44.7 cases per 100,000 person-years**. This is the highest rate to date and notably surpasses 2022 (34.8 deaths per 100,000 person-years).

Apparent Opioid and Stimulant Toxicity Deaths

ALL APPARENT SUBSTANCE TOXICITY DEATHS

Apparent substance toxicity deaths have taken a toll on the lives of New Brunswickers, their families, and their friends. **Between January 2016 and September 2023, there were 595 apparent substance toxicity deaths.** Apparent opioid toxicity deaths were responsible for 347 (58%) of these deaths. Apparent stimulant toxicity deaths were responsible for 271 (46%) of these deaths.

Among the 595 apparent substance toxicity deaths, 463 were accidental or pending intent.

In 2022, there were 123 apparent substance toxicity deaths. One hundred and one were accidental or pending intent among which accidental or pending intent apparent opioid and stimulant toxicity deaths accounted for 88 (87%) deaths:

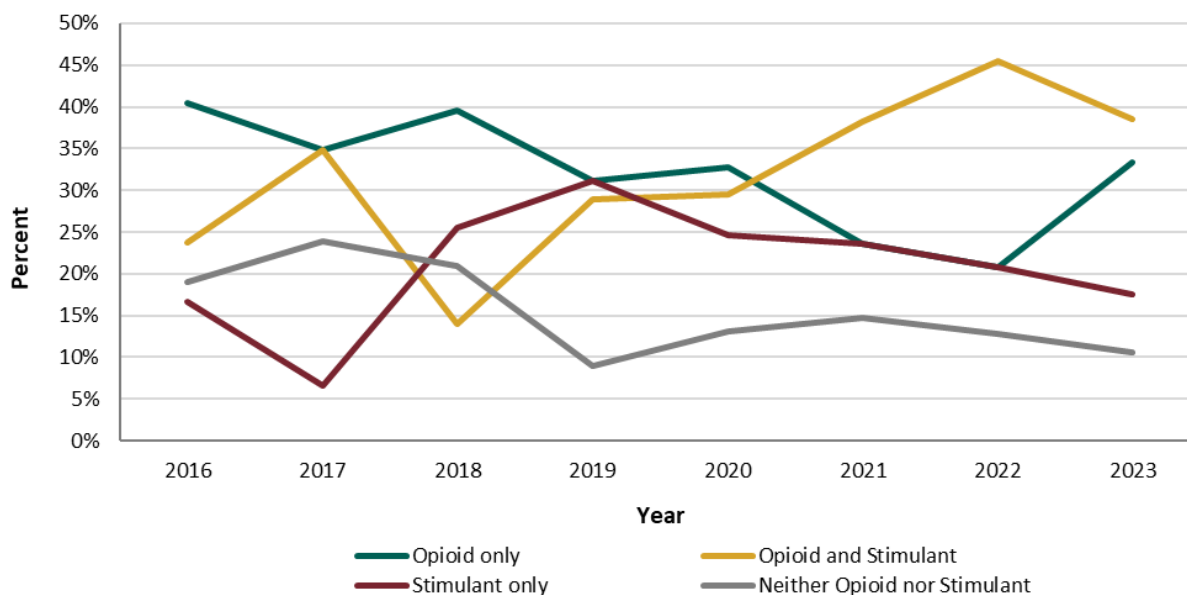
- 21 (21%) were opioid only
- 21 (21%) were stimulant only
- 46 (46%) were both opioid and stimulant

In Q1-3 2023, there have been 64 apparent substance toxicity deaths. Fifty-seven were accidental or pending intent among which accidental or pending intent apparent opioid and stimulant toxicity deaths accounted for 51 (89%) deaths:

- 19 (33%) were opioid only
- 10 (18%) were stimulant only
- 22 (39%) were both opioids and stimulant

The proportion and number of accidental and pending intent deaths that are related to opioids and stimulants have both fluctuated over time. In particular, the proportion of deaths related to both opioids and stimulants has increased in the last few years and in Q1-3 2023 accounts for the highest proportion of the deaths reported (Graph 5). In contrast, the proportion of accidental and pending intent deaths related to neither opioids nor stimulants continues to be on a downward trend.

Graph 5. Proportion of accidental and pending intent deaths that are due to stimulants only, opioids only, both opioids and stimulants, and neither opioids nor stimulants, yearly in New Brunswick, 2016 to September 2023.



Data source: Chief Coroner's Office, January 29, 2024

*These numbers may change as more information becomes available and coroner investigations are concluded.

The estimated annual crude mortality rate for all substance toxicity deaths in 2022 has reached a record high at 15.1 deaths per 100,000 person-years; the rate in Q1-3 2023 is 10.5 deaths per 100,000 person-years and is in line with rates around 2020 and 2021. **The rates for accidental and pending intent substance toxicity deaths in 2022 and Q1-3 2023 are 12.4 and 9.4 deaths per 100,000 person-years, respectively.**

ACCIDENTAL AND PENDING INTENT OPIOID AND STIMULANT TOXICITY DEATHS

Opioids

2022

Of the **76 apparent opioid toxicity deaths in 2022** (Graph 6A), **67 were accidental or pending intent**. Twenty-seven of the accidental or pending intent deaths were related to fentanyl or fentanyl analogues. This is the second largest proportion of fentanyl toxicity deaths to date at 40% of accidental or pending intent opioid related deaths in 2022.

Of the 67 apparent opioid toxicity deaths classified as accidental or with pending intent:

- The **majority were male** (64% male, 36% female) (Graph 7A).
- The largest proportion of individuals were **between 40-49 years old** (22%) (Graph 8A).

- Twenty-eight (42%) individuals consumed opioids of an illicit source, 18 (27%) consumed prescribed opioids, and 21 (31%) consumed opioids of an unknown source.

The estimated annual crude mortality rate for accidental or pending intent apparent opioid toxicity deaths in 2022 New Brunswick is **8.3 deaths per 100,000 person-years**; this is the highest rate to date.

Data for 2022 are subject to change as coroner investigations continue.

Q1-3 2023

Of the **42 apparent opioid toxicity deaths** in Q1-3 2023 (Graph 6A), **41 were accidental or pending intent**. Twenty-two of the accidental or pending intent deaths were related to fentanyl or fentanyl analogues. This is the largest proportion of fentanyl toxicity deaths to date at 54% of accidental or pending intent opioid related deaths in Q1-3 2023.

Of the 41 apparent opioid toxicity deaths classified as accidental or with pending intent:

- There **majority were male** (56% male, 44% female) (Graph 7A).
- The largest proportion of individuals were **between 30-39 years old** (32%) (Graph 8A).
- Nineteen (46%) individuals consumed opioids of an illicit source, 7 (17%) consumed prescribed opioids, and 15 (37%) consumed opioids of an unknown source.

The estimated annual crude mortality rate for accidental or pending intent apparent opioid toxicity deaths in Q1-3 2023 New Brunswick is **6.7 deaths per 100,000 person-years**; this is the second highest rate to date.

Data for 2023 are subject to change as coroner investigations continue.

Stimulants

2022

Of the **68 apparent stimulant toxicity deaths** (Graph 6B), **67 were accidental or pending intent**. Among the 67 deaths, 44 (66%) were apparent methamphetamine toxicity deaths and 33 (49%) were apparent cocaine toxicity deaths (not mutually exclusive).

Of the 67 apparent stimulant toxicity deaths classified as accidental or with pending intent:

- The **majority were male** (72% male, 28% female) (Graph 7B).
- The largest proportion of individuals were **between 40-49 years old** (31%) (Graph 8B).

The estimated annual crude mortality rate for accidental or pending intent apparent stimulant toxicity deaths in 2022 New Brunswick is **8.3 deaths per 100,000 person-years**; this is the highest rate to date.

Q1-3 2023

Of the **32 apparent stimulant toxicity deaths** (Graph 6B), **32 were accidental or pending intent**. Among the 32 deaths, 23 (72%) were apparent methamphetamine toxicity deaths and 11 (34%) were apparent cocaine toxicity deaths (not mutually exclusive).

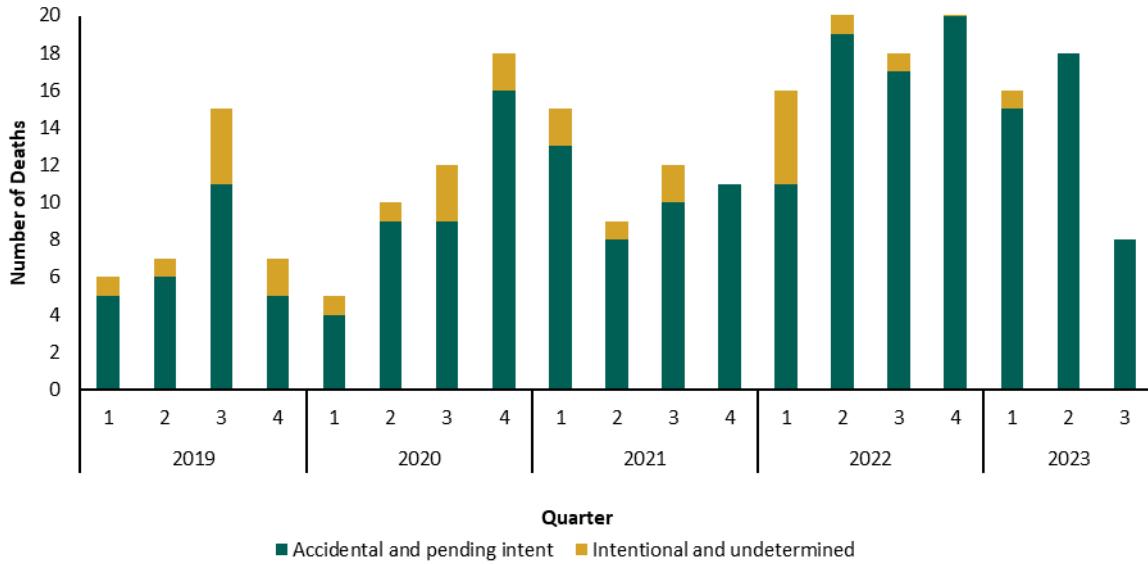
Of the 32 apparent stimulant toxicity deaths classified as accidental or with pending intent:

- There were **more males than females** (72% male, 28% female) (Graph 7B).
- The largest proportion of individuals were **between 40-49 years old** (34%) (Graph 8B).

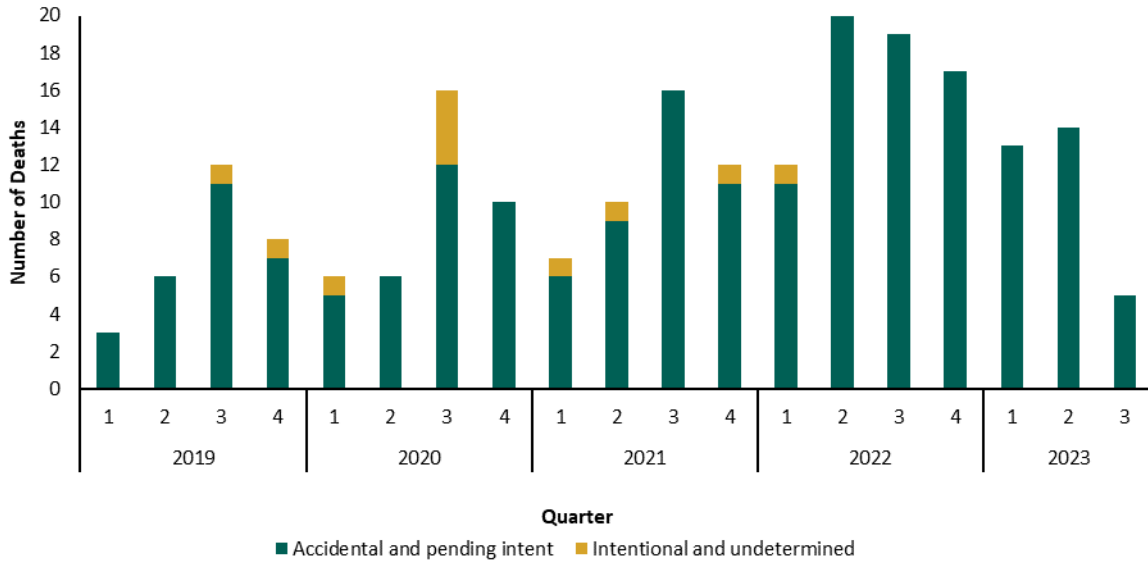
The estimated annual crude mortality rate for accidental or pending intent apparent stimulant toxicity deaths in Q1-3 2023 New Brunswick is **5.3 deaths per 100,000 person-years**; this is in an expected range.

Graph 6. Number of A) apparent opioid toxicity and B) apparent stimulant toxicity deaths by intent (accidental and pending intent, and intentional and undetermined), quarterly in New Brunswick, from January 2019 to September 2023.

A)



B)

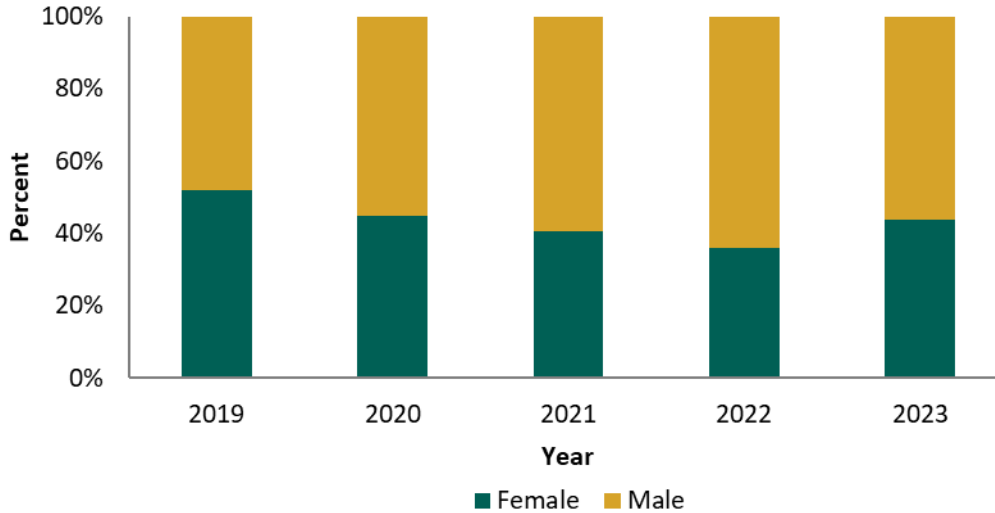


Data source: Chief Coroner's Office, January 29, 2024

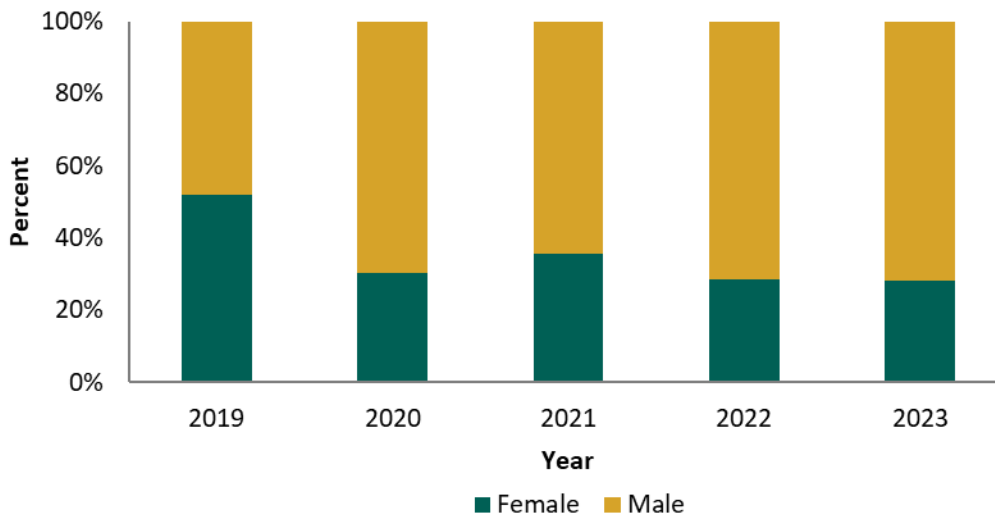
*These numbers may change as more information becomes available and coroner investigations are concluded.

Graph 7. The proportion of A) apparent opioid toxicity and B) apparent stimulant toxicity deaths classified as accidental or with pending intent by sex, yearly, in New Brunswick from January 2019 to September 2023*.

A)



B)

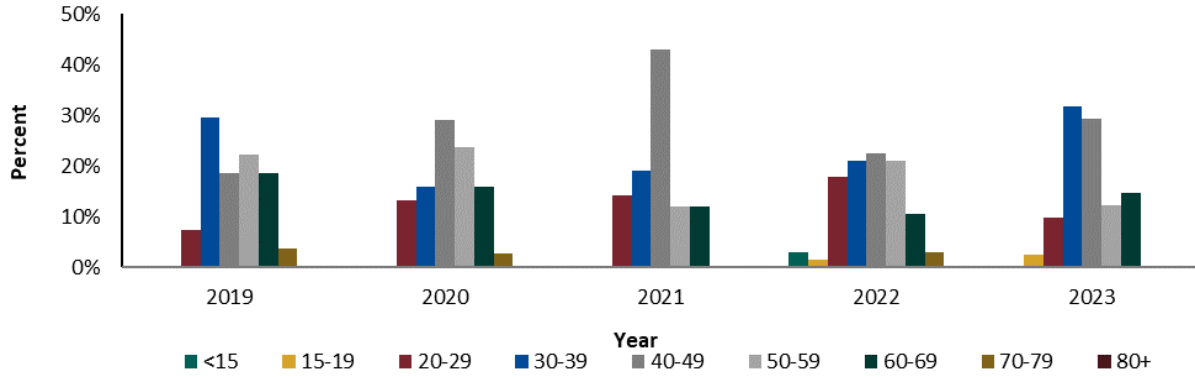


Data source: Chief Coroner's Office, January 29, 2024

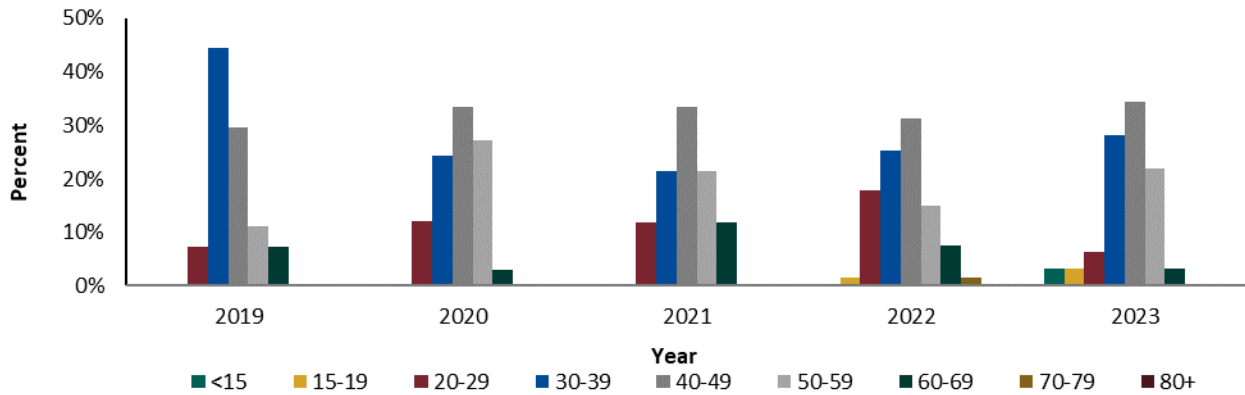
*These numbers may change as more information becomes available and coroner investigations are concluded.

Graph 8. Number of A) apparent opioid toxicity and B) apparent stimulant toxicity deaths classified as accidental or with pending intent, by age group in New Brunswick, from January 2019 to September 2023*.

A)



B)



Data source: Chief Coroner's Office, January 29, 2024

*These numbers may change as more information becomes available and coroner investigations are concluded.

CO-OCCURRENCE

Co-occurrence is defined by the presence¹ of two or more drug classes that were either knowingly or unknowingly used at or around the time of death². Given that most apparent substance toxicity deaths in New Brunswick demonstrate the presence of multiple drug classes, co-occurrence is of notable concern.

Of the 595 apparent substance toxicity deaths between January 2016 and September 2023, **two or more drug classes** (e.g., opioid, alcohol, benzodiazepines, stimulants, etc.) **were present among 543 (91%) decedents.**

Between January 2016 and September 2023, two or more drug classes were present among:

- 436 (94%) of 463 accidental and pending intent apparent substance toxicity deaths (Table 1).
- 434 (96%) of 452 apparent opioid or stimulant toxicity deaths (Table 1).
- 378 (96%) of 394 accidental and pending intent apparent opioid or stimulant toxicity deaths (Table 1).

Of the 297 decedents who died from an accidental and pending intent apparent opioid toxicity death (AOTD) since January 2016, **one or more non-opioid drug classes were present among 290 (98%) decedents. Benzodiazepines and stimulants were the two most common drug classes** and co-occurred among 175 (59%) and 171 (58%) decedents who died from an accidental and pending intent AOTD, respectively (Table 2). **The detection of both benzodiazepines and stimulants were present among 99 (33% of AOTD; 46% female, 54% male) decedents.**

Of the 254 decedents who died from an accidental and pending intent apparent stimulant toxicity death (ASTD) since January 2016, **one or more non-stimulant drug classes were present among 158 (62%) decedents. Opioids and benzodiazepines were the two most common drug classes** and co-occurred among 192 (76%) and 133 (52%) decedents who died from an accidental and pending intent ASTD (Table 2). **The detection of both benzodiazepines and stimulants were present among 110 (43% of AORD; 45% female, 55% male) decedents.**

¹ The presence of a drug class is determined by detection in toxicology testing or through circumstantial evidence of consumption or use.

² The presence of a drug class does not indicate when the substance was consumed prior to death; it is only indicative of the substance being present in the decedent's system at the time of death.

It is important to note that co-occurrence of other drug types in addition to opioids or stimulants does not necessarily indicate that they contributed to death. It only indicates that the drug was present in the decedent's system at the time of death; therefore, this data should not be used to identify the number of individuals who died as a result of the indicated drug class but should be used only to identify the number of people in whom these drug classes were detected from toxicological testing or circumstantial evidence. Nonetheless, there is an increased risk of drug toxicity with concomitant use of certain drugs or drug classes at the same time (e.g., opioids and other CNS depressants). It should also be noted that the drug classes chosen for these analyses do not include all drugs detected.

Table 1. Number (percent) of decedents who died from an apparent substance toxicity death, accidental and pending intent apparent substance toxicity death, apparent opioid or stimulant toxicity death, or accidental and pending intent apparent opioid or stimulant toxicity death, and for whom there was co-occurrence of one or more drug classes*, from January 2016 to September 2023**.

	Number of deaths	Opioids	Stimulants	Benzodiazepines	Antidepressants	Cannabinoids	Antipsychotics	Alcohol
Apparent substance toxicity deaths	595	402 (68%)	290 (49%)	314 (53%)	284 (48%)	154 (26%)	136 (23%)	98 (16%)
Accidental and pending intent apparent substance toxicity deaths	463	346 (75%)	270 (58%)	248 (54%)	204 (44%)	135 (29%)	101 (22%)	73 (16%)
Apparent opioid or stimulant toxicity deaths	452	383 (85%)	287 (64%)	254 (56%)	196 (43%)	131 (29%)	94 (21%)	68 (15%)
Accidental and pending intent apparent opioid or stimulant toxicity deaths	394	332 (84%)	268 (68%)	217 (55%)	158 (40%)	121 (31%)	80 (20%)	56 (14%)

Data source: Chief Coroner's Office, January 29, 2024

*See Appendix D for a description of the specific substances in each substance category. Categories are subject to change.

**These numbers may change as more information becomes available and coroner investigations are concluded

Table 2. Number (percent) of decedents who died from an accidental or pending intent apparent opioid toxicity death or an apparent stimulant toxicity death and for whom there was co-occurrence of one or more drug classes*, from January 2016 to September 2023**.

Death Type	Drug Classes	Total (% of death type)**	Number by sex (% of row total)	
			Female	Male
Opioid	Benzodiazepines	175 (59%)	80 (46%)	95 (54%)
	Stimulants	171 (58%)	67 (39%)	104 (61%)
	Antidepressants	132 (44%)	65 (49%)	67 (51%)
	Cannabinoids	91 (31%)	37 (41%)	54 (59%)
	Antipsychotics	57 (19%)	26 (46%)	31 (54%)
	Alcohol	41 (14%)	13 (32%)	28 (68%)
Stimulant	Opioids	192 (76%)	73 (38%)	119 (62%)
	Benzodiazepines	133 (52%)	55 (41%)	78 (59%)
	Antidepressants	78 (31%)	31 (40%)	47 (60%)
	Cannabinoids	85 (33%)	29 (34%)	56 (66%)
	Antipsychotics	46 (18%)	14 (30%)	32 (70%)
	Alcohol	33 (13%)	10 (30%)	23 (70%)

Data source: Chief Coroner's Office, January 29, 2024

*See Appendix D for a description of the specific substances in each substance category. Categories are subject to change.

**These numbers may change as more information becomes available and coroner investigations are concluded

Hospitalization Data

Between January 2016 and September 2023, **1,106 opioid- or stimulant-related poisoning hospitalizations** have occurred: 659 (60%) were opioid-related, 297 (27%) were stimulant-related, and 150 (14%) were related to both substances.

There were 155 opioid- or stimulant-related poisoning hospitalizations in 2022 and **108 in Q1-3 2023** (Graph 9).

Of the 108 hospitalizations in Q1-3 2023, 73 poisoning hospitalizations were related to opioids (with or without stimulants) and 53 were related to stimulants (with or without opioids).

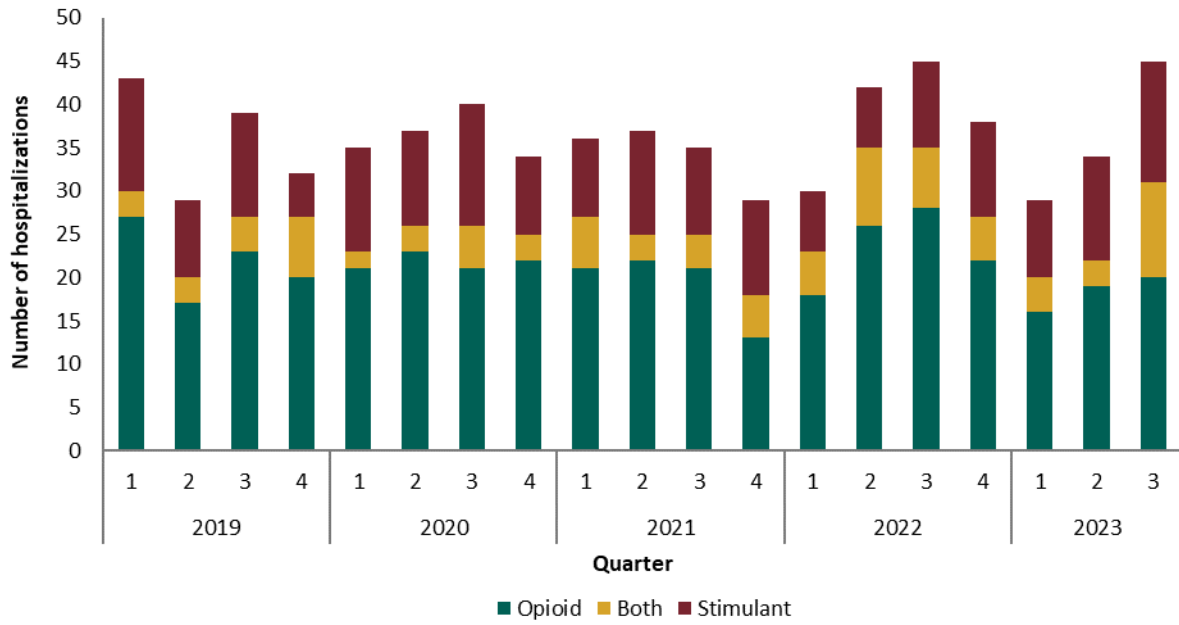
Of the 73 opioid-related poisoning hospitalizations in Q1-3 2023:

- The **majority were male** (Graph 10A).
- The highest proportion of hospitalizations were among **individuals aged 30-39 years old** (23%) (Graph 11A).
- More than half (59%) were classified as accidental, 18% intentional, and 23% undetermined (Graph 12A).

Of the 53 stimulant-related poisoning hospitalizations in Q1-3 2023:

- The **majority were female** (Graph 10B).
- The highest proportion of hospitalizations were among **individuals aged 30-39 years old** (23%) (Graph 11B).
- The largest proportion were classified as accidental (40%), 28% were intentional, and 32% were undetermined (Graph 12B).

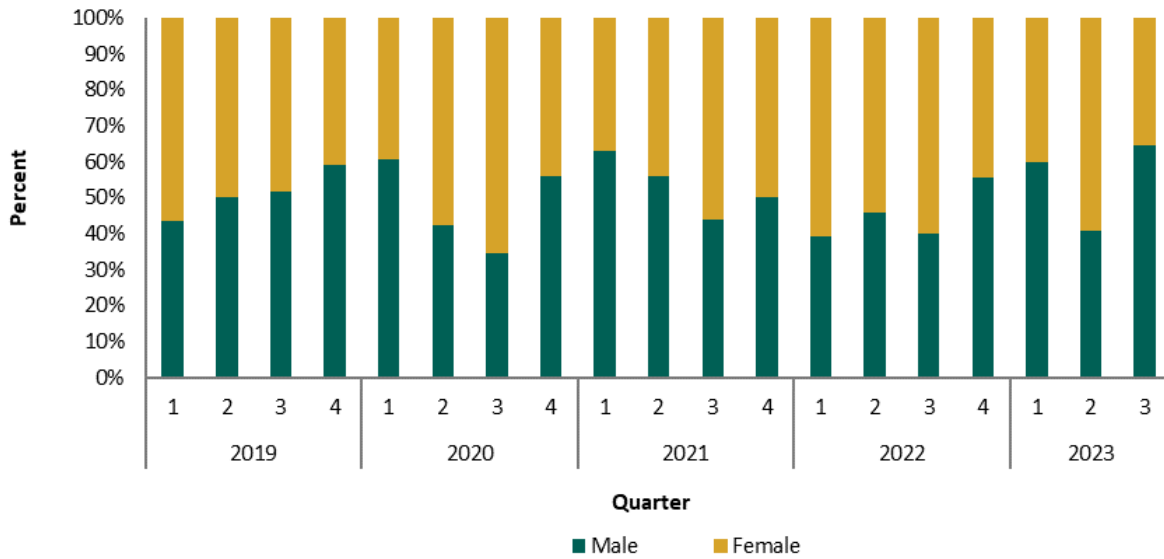
Graph 9. Number of opioid- and stimulant-related poisoning hospitalizations, quarterly, New Brunswick from January 2019 to September 2023.



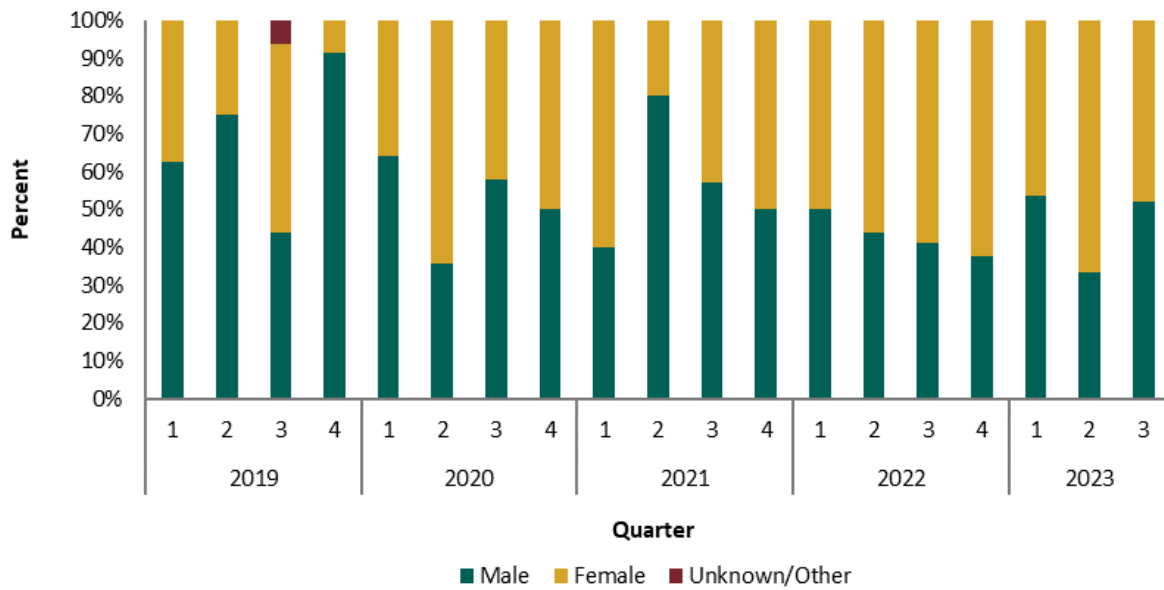
Data source: Discharge Abstract Database, February 9, 2024

Graph 10. Percent of A) opioid-related and B) stimulant-related poisoning hospitalizations by sex, quarterly, in New Brunswick from January 2019 to September 2023.

A)



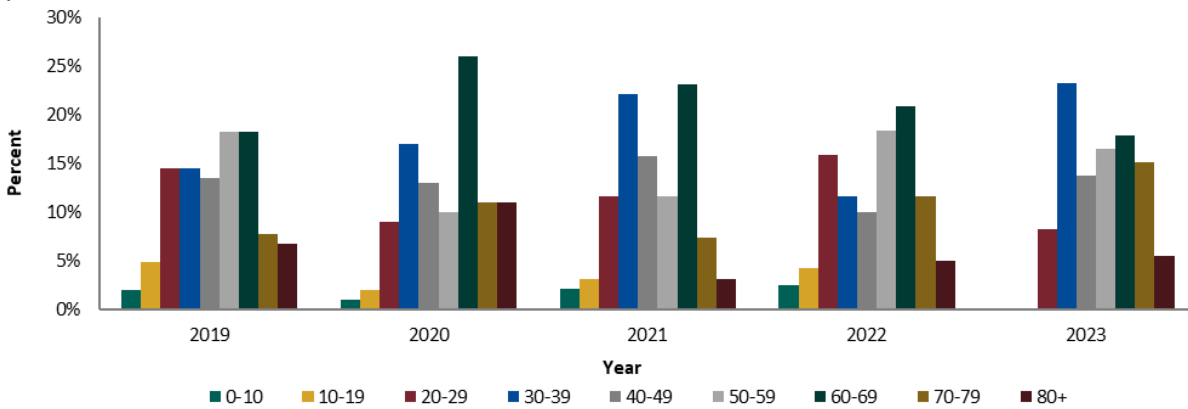
B)



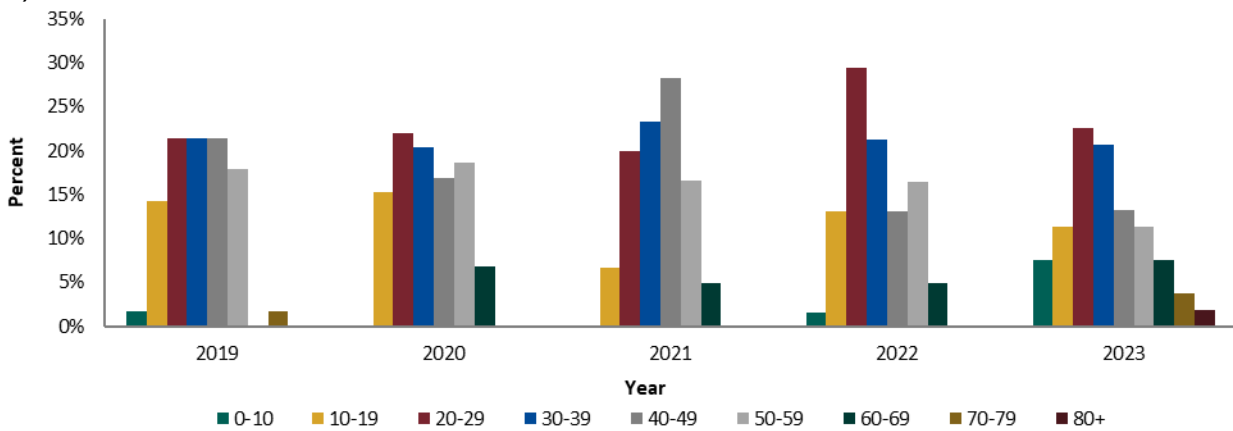
Data source: Discharge Abstract Database, February 9, 2024

Graph 11. Percent of A) opioid-related and B) stimulant-related poisoning hospitalizations by age group, yearly, in New Brunswick from January 2019 to September 2023.

A)



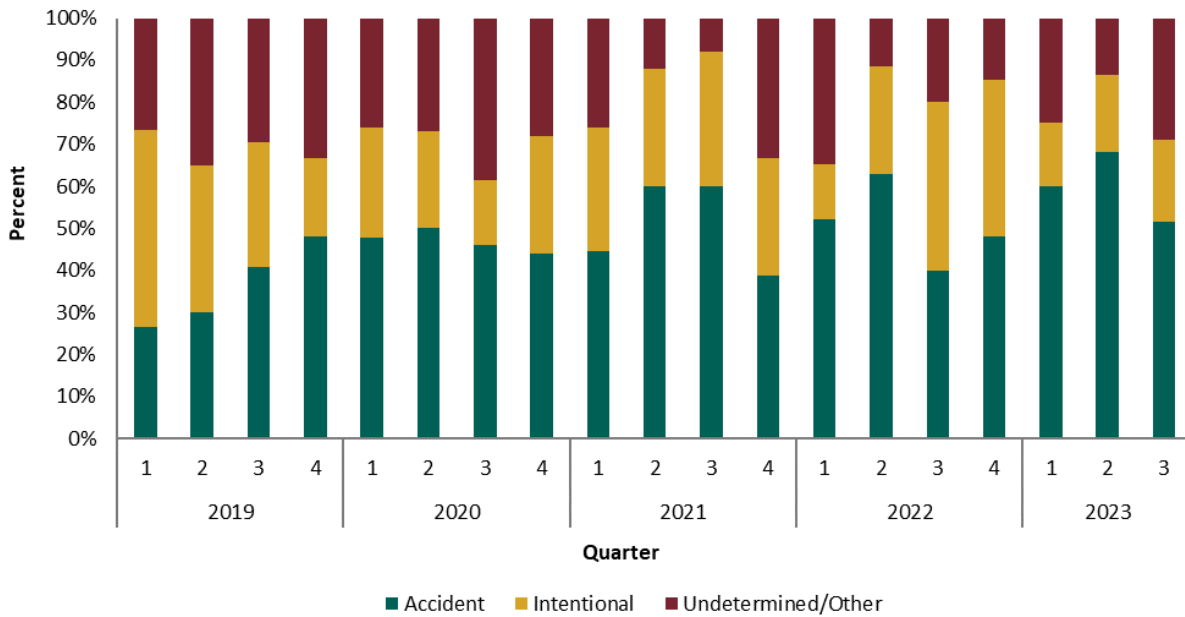
B)



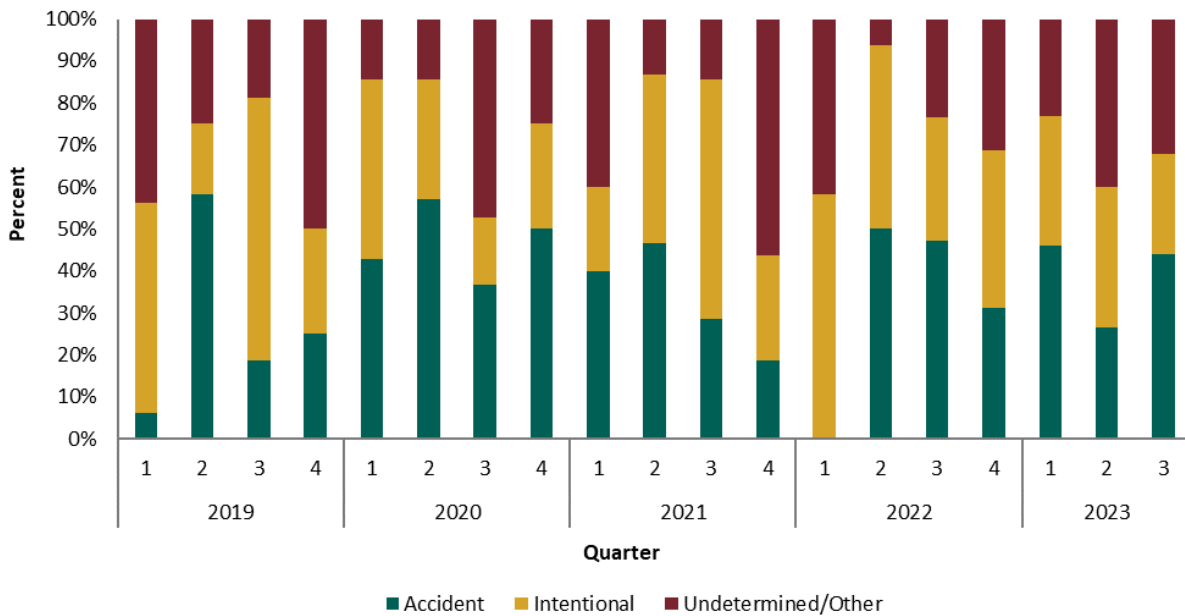
Data source: Discharge Abstract Database, February 9, 2024

Graph 12. Percent of A) opioid-related and B) stimulant-related poisoning hospitalizations by intent, quarterly, in New Brunswick from January 2019 to September 2023.

A)



B)



Data source: Discharge Abstract Database, February 9, 2024

Take-Home Naloxone Kit Data

KIT DISTRIBUTION

Since October 2018, **5,541 GNB-funded take home naloxone kits (THN kits)** have been distributed from NGO partners to individuals who are at risk of an overdose or their close family and friends. In 2022, 2,349 THN kits were distributed, and **2,058 THN kits have been distributed in Q1-3 2023** (Table 3). While outside the scope of this report, GNB has funded the distribution of roughly 5,000 additional THN kits via other partners including detoxification centres, community mental health and addiction centres, correctional centres, and others.

Table 3. Number of THN kits distributed to individuals by site, from October 2018* to September 2023.

Site Name	2018*	2019	2020	2021	2022	Q1-3 2023	Total
AIDS NB - Fredericton	71	147	86	259	491	219	1,273
Avenue B - Saint John	14	84	27	83	281	306	795
Ensemble - Moncton	13	25	33	292	1,577	1,533	3,473
Total	98	256	146	634	2,349	2,058	5,541

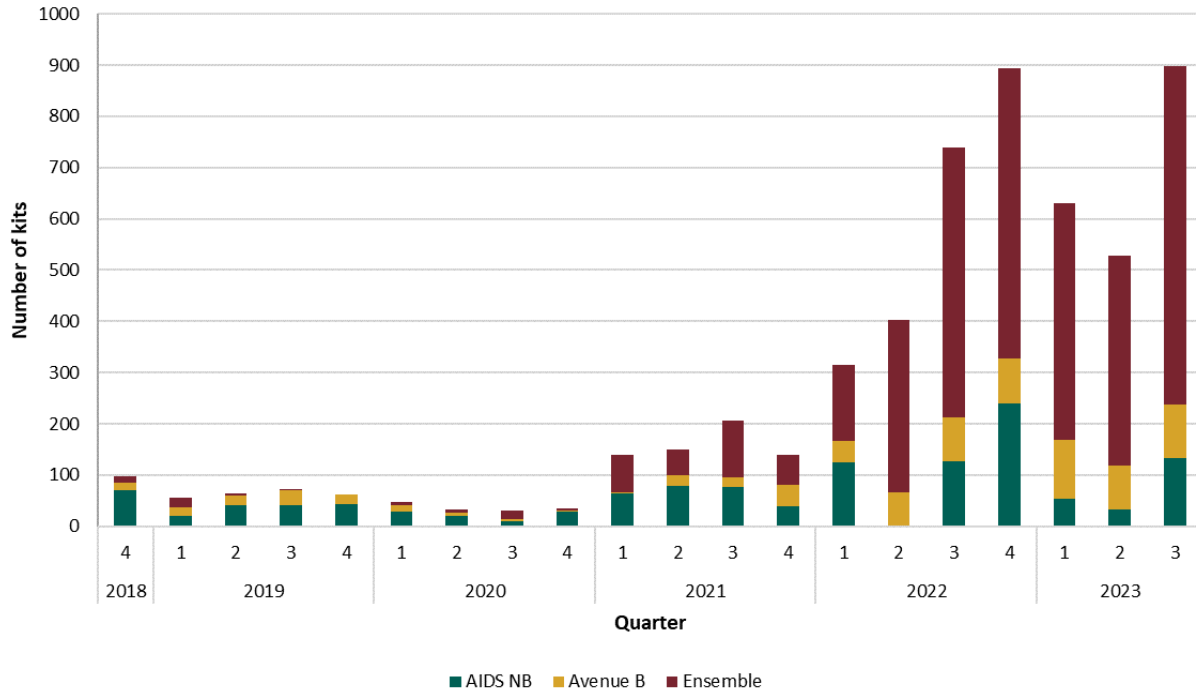
Data source: non-government organizations, February 22, 2024

*Data are only for Q4 in 2018.

The quarterly number of THN kits distributed in Q1-3 2023 has slightly surpassed Q4 2022, which was previously the quarter in which the greatest number of THN kits were distributed (Graph 13). The average quarterly number of THN kits distributed in Q1-3 2023 (686) is higher than the quarterly average of 2022 (587).

Overall, **more males received THN kits than females or individuals of other/unknown gender** in all years except 2019 (Graph 14).

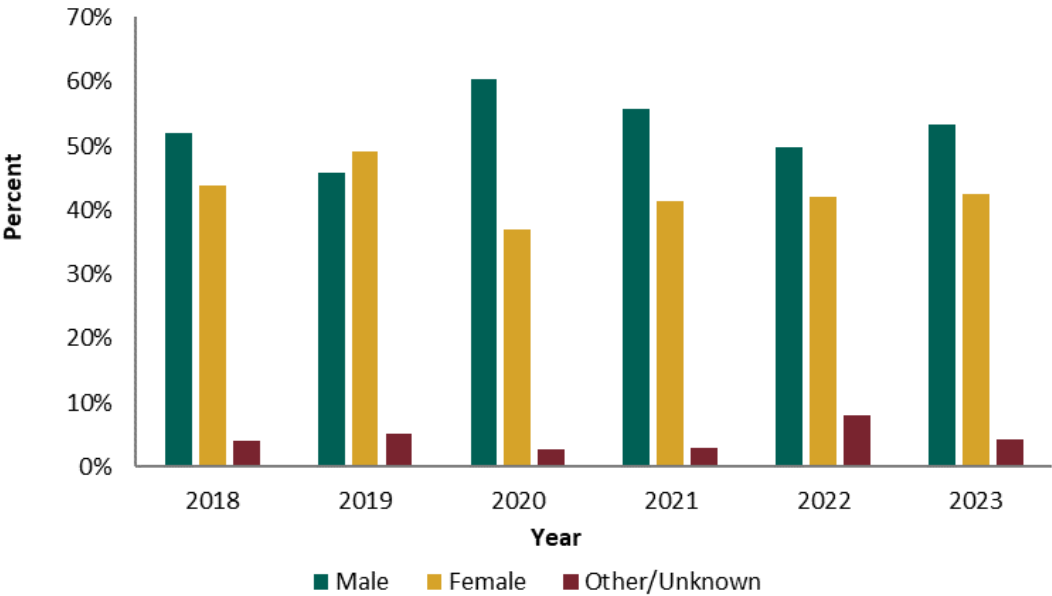
Graph 13. The number of THN kits distributed by NGO, quarterly, New Brunswick, October 2018* to September 2023.



Data source: non-government organizations, February 22, 2024

*Data are only for Q4 in 2018.

Graph 14. The proportion of individuals at risk of an overdose or their close family and friends who received take home naloxone kits, by gender, in New Brunswick, October 2018* to September 2023.



Data source: non-government organizations, February 22, 2024
 *Data are only for Q4 in 2018.

KIT USE

Since 2018, **replacement kits were requested 3,089 times** at NGOs (1,530 times in Q1-3 2023) from individuals at risk of an overdose or their close family and friends. Using a kit continues to be the primary reason provided for seeking a replacement in all years: **2,792 (90%) individuals who sought a replacement kit did so after having reportedly used a kit to treat an overdose** (1,450 times in Q1-3 2023) versus other reasons such as having lost the kit or given it away.

In addition to the three NGO sites, any site distributing THN kits in New Brunswick requests that individuals complete a questionnaire when seeking a replacement kit after reportedly using one. Among these sites, **385 individuals completed a questionnaire about the overdose**. The number of individuals completing a form remains elevated in Q1-3 2023 at 147.

Take home naloxone kits have been reportedly used to **treat more males than females or individuals of other/unknown sex** in all years except 2019 (61% males, 36% females, and 3% other/unknown in Q1-3 2023).

Overall, **308 individuals were not alone (80%)** at the time of overdose, 55 were alone (14%), and the remaining 22 instances were unknown or not reported (6%). These proportions have remained relatively stable over the years.

From 2018 to Q1-3 2023, the **majority of the overdoses occurred in a private residence** (186) followed by a street/alley/park (91). The proportion in these locations was roughly equal in Q1-3 2023 (38% private residence and 37% street/ally/park).

Since 2018, there were 177 (46%) reports of not calling 911. The proportion in 2022 is the lowest to date at 40% with Q1-3 2023 at 43%. The primary reason in 2018-2021 was fear the police would come, but in **2022 and Q1-3 2023, the primary reason is that individuals witnessing the overdose thought the person would get better** (22% and 40%, respectively).

The reported number of THN kits used may be an underestimation of the total number of THN kits being used in the community due to potential barriers that may inhibit individuals from reporting kit use (e.g., stigma, fear of re-traumatization, accessibility, fear of criminality). Data are subject to change.

Appendix A: Data Sources

AMBULANCE NEW BRUNSWICK

Data from ANB are abstracted in aggregate form and do not contain patient-level data. Monthly totals for the following variables are broken down by sex (male, female, and sex not reported) and age group in years (<15, 15-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80+, and age not reported):

- Suspect opioid overdoses
- Repeat individual opioid overdose cases
- Individuals who received 1 dose of naloxone
- Individuals who received 2 doses of naloxone
- Individuals who received 3 or more doses of naloxone
- Individuals who responded to naloxone

Data also include the monthly total of referrals to hospitals for patients with suspect opioid overdoses and those who responded to naloxone. The monthly totals of reason for dispatch are also included.

CHIEF CORONER OFFICE

Data from the Chief Coroner's Office include individual-level data. Data include all drug-related deaths and collect the following variables.

Variable	Variable Description	Response Options
Coroner Case ID	Unique ID number that coroner office assigns to each death	Number - Up to 8 digits
Quarter	The quarter of the year in which the death occurred	1, 2, 3, 4
Year	Year in which the death occurred	yyyy
DOD	Date of death based on the date the death is pronounced	(dd-mmm-yy)
Age	Age of case in years	
Sex	Sex of the case	Male Female
Case Status	Status of the case investigation.	Active Completed
Death Manner	The coroner assigns each case a manner of death	Accident Suicide Undetermined
Judicial District	The judicial district in which the death occurred.	Bathurst Campbellton

		Edmundston Fredericton Miramichi Moncton Saint John Woodstock
Residential First 3 Digits of Postal Code	The first three digits of the residential postal code of the case	
Cause of Death	The medical cause of death	
Opioid Related	Whether the case is opioid-related or not. This is determined using all available evidence.	Opioid Not Opioid
Source of Opioid	The source of the opioid taken by the case. This information is obtained by reviewing the file.	Prescribed Illicit Unknown NA
With/Without Other Substances	Whether the opioid was taken with or without other substances. Other substances include alcohol or non-opioid drugs. This is determined through the toxicology results.	With Other Substance Without Other Substance Unknown NA
Drug 1 - 15	List of drugs that were present in the toxicology report.	

TAKE HOME NALOXONE KITS


Data are from the three NGOs. They include de-identified individual-level data. Data are collected from two forms: a distribution form and a use form. Supplementary data come from detoxification centres, correctional centres, community mental health centres and other sites across the province.

The distribution form collects information on each kit that is distributed, including who is receiving it and why they are seeking one (e.g., first kit, replacement). The Use form collects detailed information about a reported overdose that occurred for which a THN kit was used; it collects information such as overdose setting, who was present, what emergency responders arrived, outcome, etc.

Q3 2023 Update: Data for take home naloxone kit now primarily focus on kits distributed solely to individuals at risk of an overdose or their close family and friends from the three NGO partners.

HOSPITAL DATA

Data are obtained from the discharge abstract database and include record-level data for all discharges related to opioid- or stimulant-related poisonings as defined by select



diagnoses. In addition to variables containing diagnostic information, demographic and hospital-related variables are collected and include but not limited to age, sex, residence area, date of admission, date of discharge, length of stay, etc.

POPULATION ESTIMATES

All population estimates were from 2023 population estimates received from Statistics Canada, Demography Division, March 2023.

Appendix B: Methodology

AMBULANCE NEW BRUNSWICK

Data are sent to the PHNB monthly and analyzed on a quarterly basis. Aggregate data are organized into various tables used to conduct descriptive analyses for suspect opioid overdoses and individuals who responded to naloxone; this includes counts, proportions, means, and rates. Health region specific rates, if reported, are estimated based on the hospital of referral as the location of dispatch pick-up is not available. Denominator data for the current year are based on the most recent estimates available (e.g., population estimates for 2023 are based on 2022 estimates).

Data in this report primarily focus on individuals who responded to naloxone and referrals to hospitals for those who responded to naloxone. Any data for monthly totals of individuals who responded to naloxone are a subset of the totals for individuals with a suspect opioid overdose. Data include suspect opioid overdoses regardless of intent, and therefore may differ in terms of demographics from other data sources (e.g., apparent opioid toxicity deaths).

All analyses were conducted using Excel 365 ProPlus.

CHIEF CORONER OFFICE

Cases for drug-related deaths are identified by coroner investigations. Once data are received by PHNB, the data are validated prior to analyses. Once data are validated, they are further classified by intent (accidental, pending intent, intentional, and undetermined) and drug type (non-opioids, non-fentanyl opioids, fentanyl opioids).

Descriptive analyses include counts, proportions, means, and rates. Denominator data for the current year are based on the most recent estimates available (e.g., population estimates for 2023 are based on 2022 estimates).

Analyses were conducted using Excel 365 ProPlus and Stata MP v16.

TAKE HOME NALOXONE KITS

Data are sent to PHNB monthly. For the purpose of reporting, the date on which a THN kit was used is based on the recorded date of the overdose; if this is unavailable, then it is based on the date at which the form was completed. Basic descriptive analyses includes counts, proportions, means.

All analyses were conducted using Excel 365 ProPlus and Stata MP v16.

HOSPITAL DATA

Data include any opioid- or stimulant-related poisoning hospitalization as defined³ by the following International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Canada (ICD-10-CA) codes:

- Opioid: T40.0-T40.4 and T40.6
- Stimulant: T40.5 and T43.6

An opioid- or stimulant-related poisoning hospitalization diagnosis requires a diagnosis type of “M” (most responsible diagnosis), “1” (pre-admission comorbidity), “2” (post-admission comorbidity), “W”, “X”, or “Y” (service transfer diagnosis). Any hospitalizations where the diagnoses was considered a query, i.e., a prefix code of “Q”, were excluded.

The intent of the opioid-related poisoning hospitalization was defined by the following diagnoses codes: “X42” for accidental, “X62” for intentional, and “Y12” for undetermined. The intent of the stimulant-related poisoning hospitalization was defined by the following diagnoses codes: “X41” or “X42” for accidental, “X61” or “X62” for intentional, and “Y11” or “Y12” for undetermined.

All analyses were conducted using Excel 365 ProPlus and Stata MP v16.

³ Definitions reflect previously published methodologies for opioid-related poisoning hospitalizations. <https://health-infobase.canada.ca/substance-related-harms/opioids/>

Appendix C: Definitions and Abbreviations

- **Illicit opioid:** Indicates the decedent consumed at least one street opioid or at least one opioid medically prescribed to another person.
- **Manner of death:**
 - **Accidental death:** A death considered to be accidental in nature based on the coroner investigation.
 - **Death with pending intent:** An open investigation where the intent of death is yet to be determined by the coroner.
 - **Intentional death:** A death classified as a suicide based on the coroner investigation.
 - **Undetermined death:** A closed death investigation where the intent of death was deemed unknown by the coroner.
- **Naloxone:** An opioid antagonist which reverses or prevents the effects of an opioid but has no effect in the absence of opioids.
- **Opioid:** A class of pain-relieving drugs that block pain messages by binding to specific receptors (opioid receptors) on cells in the body. They can include either non-fentanyl opioids or fentanyl and fentanyl analogs.
 - **Fentanyl and fentanyl analogs:** Synthetic opioids that can be extremely toxic. Includes but is not limited to fentanyl, norfentanyl, acetylfentanyl, 3-methylfentanyl, Carfentanil, butyrylfentanyl, furanyl-fentanyl, despropionyl-fentanyl.
 - **Nitazenes:** A type of opioid belonging to the benzimidazole-opioids class
 - **Non-fentanyl opioids:** Any opioid that is not a fentanyl or fentanyl analog opioid. Includes but is not limited to buprenorphine metabolites, codeine, dihydrocodeine, heroin, hydrocodone, hydromorphone (total, unconjugated), loperamide, meperidine, methadone, monoacetylmorphine, morphine (unconjugated, unconjugated-RIA), normeperidine, oxycodone, tapentadol, tramadol, U-47700.
- **Opioid Related Death:** Death from an acute intoxication/toxicity resulting from the direct effects of the administration of exogenous substance(s) where one or more of the substances is an opioid.
- **Prescription opioid:** Indicates the decedent consumed only opioids that were prescribed to the decedent.

- **Stimulant-related Death:** Death from an acute intoxication/toxicity resulting from the direct effects of the administration of exogenous substance(s) where one or more of the substances is a stimulant.
- **Take Home Naloxone Kit (THN Kit):** Take home naloxone kits include two doses of naloxone as well as the necessary supplies to administer naloxone (e.g., alcohol swabs, syringes) and for personal protection (e.g., gloves, face shield).
- **Q1:** Quarter 1, January to March
- **Q2:** Quarter 2, April to June
- **Q3:** Quarter 3, July to September
- **Q4:** Quarter 4, October to December

Appendix D: Polysubstance Use

Substance Types

Specific substances, drugs, and metabolites were used to identify individuals who co-consumed specific substance types. An individual was identified as having co-consumed these substances if there was one or more of the following substances detected. The detection of these substances is based on toxicology testing, rapid toxicology testing and circumstantial evidence in the absence of testing. Drug type categories are subject to change, and new substances may be added should they be identified among decedents who died from a substance related toxicity death. Further, not all drugs listed in the categories have been detected in decedents.

Antidepressant: Amitriptyline, Bupropion (Hydroxybupropion), Citalopram (Citalopram/Escitalopram, Escitalopram), Duloxetine, Fluoxetine (Norfluoxetine), Mirtazapine, Nortriptyline, Paroxetine, Sertraline (Desmethylsertraline), Trazodone (mCPP), Venlafaxine (O-Desmethylvenlafaxine)

Antipsychotic: Aripiprazole, Asenapine, Clozapine (Desmethylclozapine, Norclozapine), Fluphenazine, Haloperidol, Lurasidone, Loxapine, Olanzapine, Quetiapine (Desalkyquetiapine, Norquetiapine), Risperidone (9-Hydroxyrisperidone)

Benzodiazepine: Adinazolam, Alprazolam (Alpha-Hydroxyalprazolam), Bromazepam (Hydroxybromazepam), Bromazolam, Chlordiazepoxide, Clobazam (Norclobazam), Clonazepam (7-Amino Clonazepam), Clonazolam, Clorazepate, Delorazepam, Demoxepam, Diazepam (Nordiazepam), Diclazepam, Estazolam, Etizolam (Deschloroetizolam, Hydroxyetizolam), Flubromazepam, Flubromazolam, Flunitrazepam, Flurazepam (Hydroxyflurazepam, Hydroxyethylflurazepam, Desalkylflurazepam, Norflurazepam), Ketazolam, Loprazolam, Lorazepam (Lorazepam-glucuronide), Meclonazepam, Medazepam, Methazolamide, Midazolam (11-Hydroxymidazolam), Nimetazepam, Nitrazepam (7-Amino Nitrazepam), Oxazepam, Phenazepam, Pyrazolam, Temazepam, Tetrazepam, Triazolam (Hydroxytriazolam)

Opioids: 2-Furanylfentanyl, 3-Methylfentanyl, 4-ANPP, 6 Beta-Naltrexol, Acetylfentanyl, Acrylfentanyl, AH-7921, Buprenorphine (Norbuprenorphine), Butrylfentanyl, Carfentanil, Codeine, (Norcodeine), Cyclopropyl Fentanyl, Dihydrocodeine, Fentanyl (Norfentanyl), Fluoroisobutyrylfentanyl, Furanylfentanyl, Hydrocodone, Hydromorphone, Loperamide (Desmethylloperamide), Meperidine (Normeperidine), Methadone (EDDP), Methoxyacetylfentanyl, Metonitazene, Mitragynine, Monoacetylpropine (6-MAM), Morphine, MT-45, N-Pyrrolidino Etonitazene, Naltrexone, Oxycodone (Oxycodone/Acetaminophen), Oxymorphone, Para-Fluorofentanyl, Protonitazene, Tapentadol, Tramadol (O-Desmethyltramadol), U-47700

Stimulants: Amphetamine, Atomoxetine, Catha, Cocaine (Benzoylecgonine, Cocaethylene), Dexamfetamine, Dextroamphetamine, Ethylphenidate, Fluorophenmetrazine, Lisdexamfetamine, Methamphetamine, Methylenedioxyamphetamine (MDA), Methylenedioxymethamphetamine (MDMA), Methylphenidate (Ritalinic Acid), Modafinil, Pemoline, Phentermine, Pseudoephedrine (Norpseudoephedrine), TFMPP

Cannabinoids: Tetrahydrocannabinol (Delta-9 THC, Delta-9 Carboxy THC, 11-Hydroxy Delta-9 THC)

Alcohol: Ethanol