

Surveillance of Apparent Opioid Overdoses in New Brunswick

2019 – Quarter 3

December 2019

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Introduction

This quarterly surveillance report describes data on apparent opioid overdoses and deaths that were collected by Ambulance New Brunswick (ANB) and the Chief Coroner's Office. Data on the take home naloxone kit distribution and use collected by non-government organizations and detoxification centres throughout the province are also described. All data are reported to the Office of the Chief Medical Officer of Health (OCMOH). Data sources are updated at different time periods and may change in subsequent reports.

Data Sources

Comparisons should not be made between different data sources as each represents a different population. Together these data sources add to our understanding of the complex opioid overdose situation in New Brunswick.

Ambulance New Brunswick

Data from ANB are aggregate and include information about:

- a) patients who were administered naloxone by a paramedic for a suspected opioid overdose, and
- b) 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 October 16, 2019.

Limitations: The number of accidental/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 drug-related (opioid and non-opioid) overdose deaths. Data in this report reflect data received from the Chief Coroner's Office as of October 11, 2019.

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.

Non-Government Organizations and Detoxification Centres

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) and seven detoxification centres (located in Bathurst, Campbellton, Edmundston, Fredericton, Miramichi, Moncton and Saint John). Data include the number of take home naloxone kits that are distributed and used. An individual may be given a take home naloxone kit if 1) the individual is at risk of an opioid overdose due to current opioid use, or have previously used opioids and are at risk of using opioids again; or 2) they are a family member, friend or other person who is likely to witness and respond to an overdose. The data in this report reflect data received from the 10 centres as of October 25, 2019.

Limitations: Certain data elements are disclosed at the client's discretion and level of comfort, therefore not all variables requested may be collected.

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

Methodology

Data were received from ANB, the Chief Coroner's Office, and the NGOs and detoxification centres, then validated and analyzed by the OCMOH. Descriptive analyses were conducted for suspect opioid overdoses and apparent opioid overdose deaths.

Throughout this report, estimated rates were calculated using person-time contributed to the specified time 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.

The reported apparent opioid overdose death data are preliminary, and numbers 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.

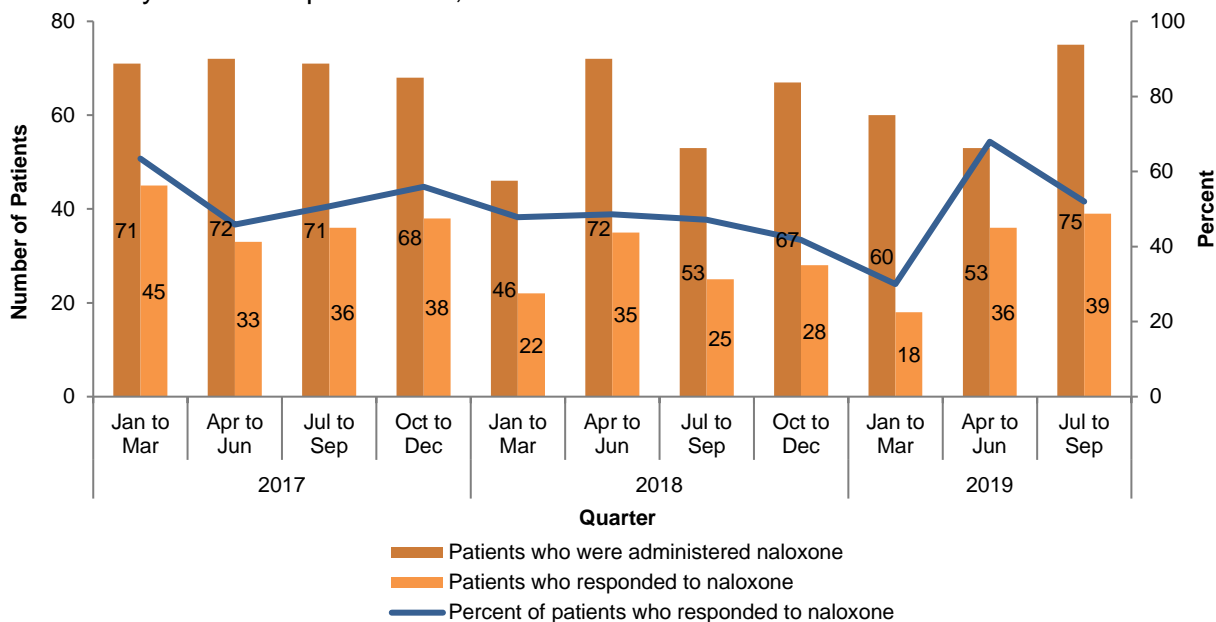
Suspect Opioid Overdoses

Ambulance New Brunswick

2019 Q1-3 (January 1 to September 30)

During the first three quarters of 2019, **naloxone was administered to 188 suspect opioid overdose patients** (Graph 1), with an average of 21 cases per month. Of the 188 suspect opioid overdose patients, **93 (50%) responded to naloxone** which corresponds to an average of 10 per month (range: 3 to 19). The number of people responding to naloxone in Q3 was 52%, which is comparable to the overall response rate of 50% (from January 2017-present).

Graph 1. Number of suspect opioid overdose patients who were administered naloxone and number and percentage of patients who responded to naloxone, quarterly in New Brunswick, from January 2017 to September 30, 2019.

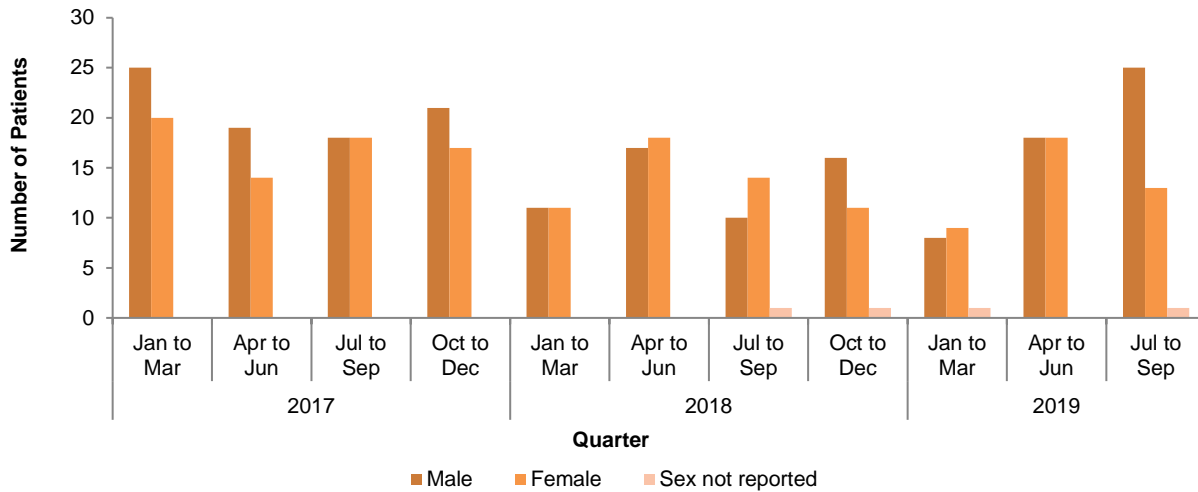


Data source: Ambulance New Brunswick, October 16, 2019

Among the 93 patients who responded to naloxone:

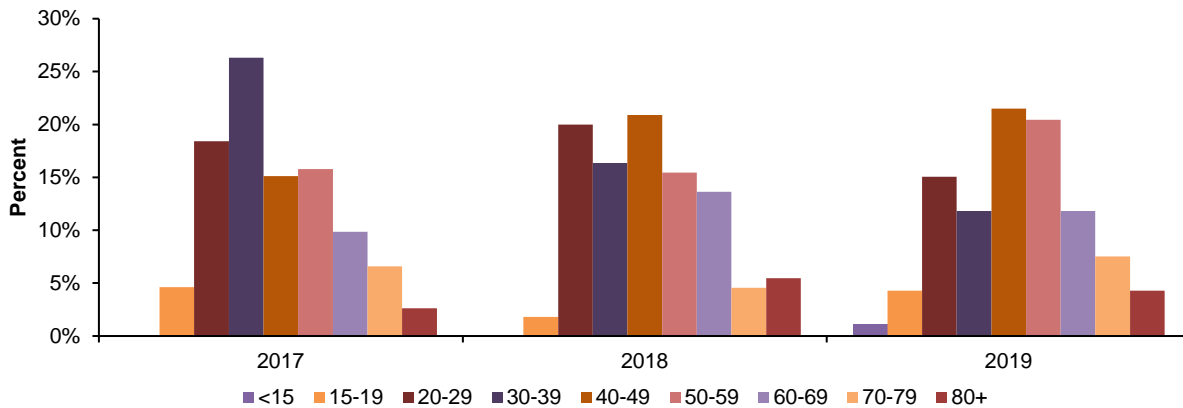
- **There were slightly more males than females: 51 (55%) were male** and 40 (43%) were female (Graph 2). Quarter 3 saw the highest proportion of males at 64%, compared to all other quarters since January 2017. Overall, however, the proportion of males to females is approximately equal at 53% males and 46% females.
- **The largest proportion was between 40 and 49 years old (22%)** (Graph 3). This is comparable to 2018 in which the largest proportion of patients who responded to naloxone were between 40 and 49 years old.

Graph 2. Number of patients who responded to naloxone, quarterly in New Brunswick, from January 2017 to September 2019.



Data source: Ambulance New Brunswick, October 16, 2019

Graph 3. Distribution by age group of suspect opioid overdose patients who responded to naloxone in New Brunswick, 2017, 2018 and January to September 2019.



Data source: Ambulance New Brunswick, October 16, 2019

In Q1-Q3 2019, the estimated crude rate of suspect opioid overdose patients who responded to naloxone in New Brunswick was **16.1 cases per 100,000 person-years**. This is comparable, but slightly higher, to the 2018 and 2017 annual rates of 14.3 cases per 100,000 person-years and 15.4 cases per 100,000 person-years, respectively. Regional rates for Q1-Q3 2019 are not reported as the small numbers involved can lead to unstable rates.

Apparent Opioid Overdose Deaths

Chief Coroner's Office

Drug-related deaths have taken a toll on the lives of New Brunswickers, their families, and their friends. Between January 2016 and June 2019, there were 204 drug-related deaths (Figure 1). Apparent opioid-related deaths were responsible for more than half (54%) of these deaths. Furthermore, apparent opioid-related deaths classified as accidental or pending intent account for 44% of all drug-related deaths. In 2018, **58 deaths** due to any type of drug (opioids and non-opioids) occurred, of which **31 (53%) were related to opioids**. In Q1-2 of 2019, there were **25 deaths** due to any type of drug (opioids and non-opioids), of which **10 (40%) were related to opioids**.

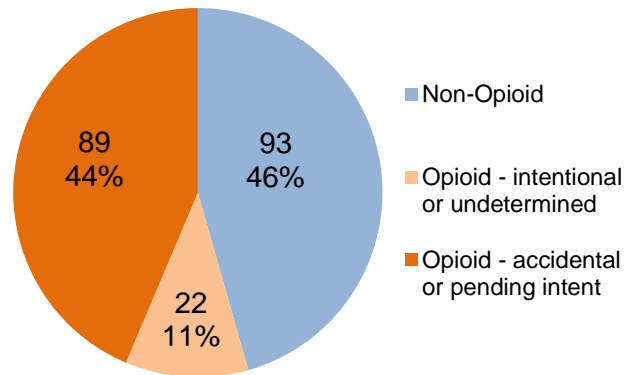


Figure 1. Distribution of drug related deaths in New Brunswick, by drug type and intent, January 2016 to June 2019*

*These numbers may change as more information becomes available and coroner investigations are concluded
Data Source: Chief Coroner's Office, October 11, 2019

Accidental and Pending Intent Deaths Due to Opioids

2018

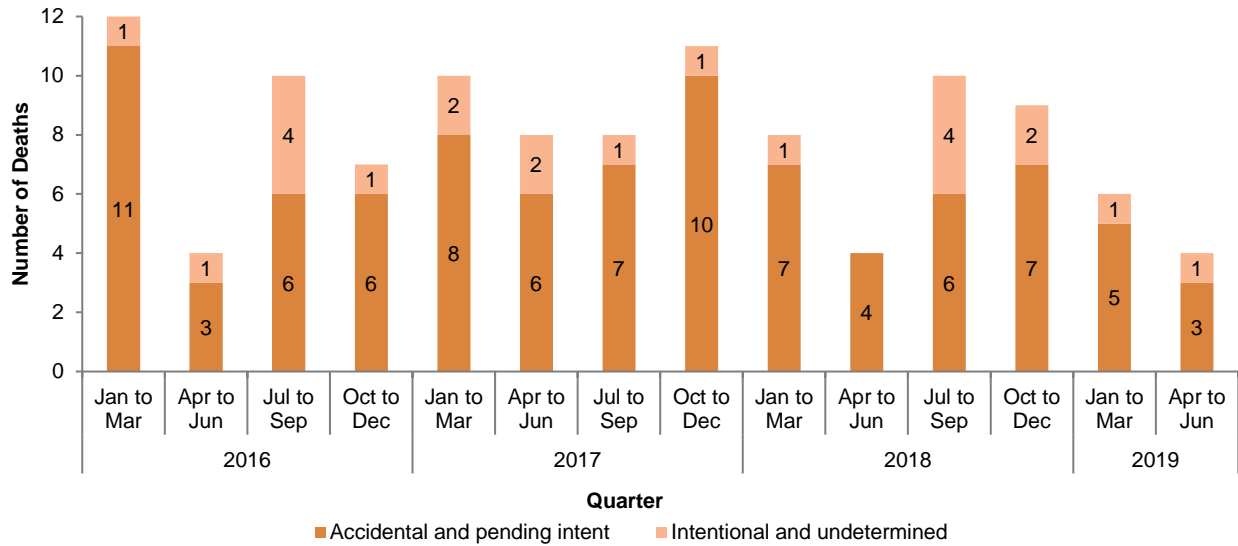
Data remain unchanged for 2018 from the previous report. There were 31 apparent opioid-related overdose deaths, of which **24 (77%) were classified as accidental or with pending intent** (Graph 4). Only **one case was associated with fentanyl**.

Of the 24 deaths classified as accidental or with pending intent, just **over half (54%) were female** and the **largest proportion (38%) were between 50-59 years old** (Graphs 5 and 6). While 50% of the deaths only involved prescribed opioids, another 42% implicated illicit opioids.

The estimated annual crude mortality rate for accidental or pending intent opioids-related overdose deaths in 2018 was **3.1 per 100,000 population**.

While data did not change since the last report, cases from 2018 may change in upcoming reports as active cases continue to be investigated or are concluded, and as new cases may be acquired.

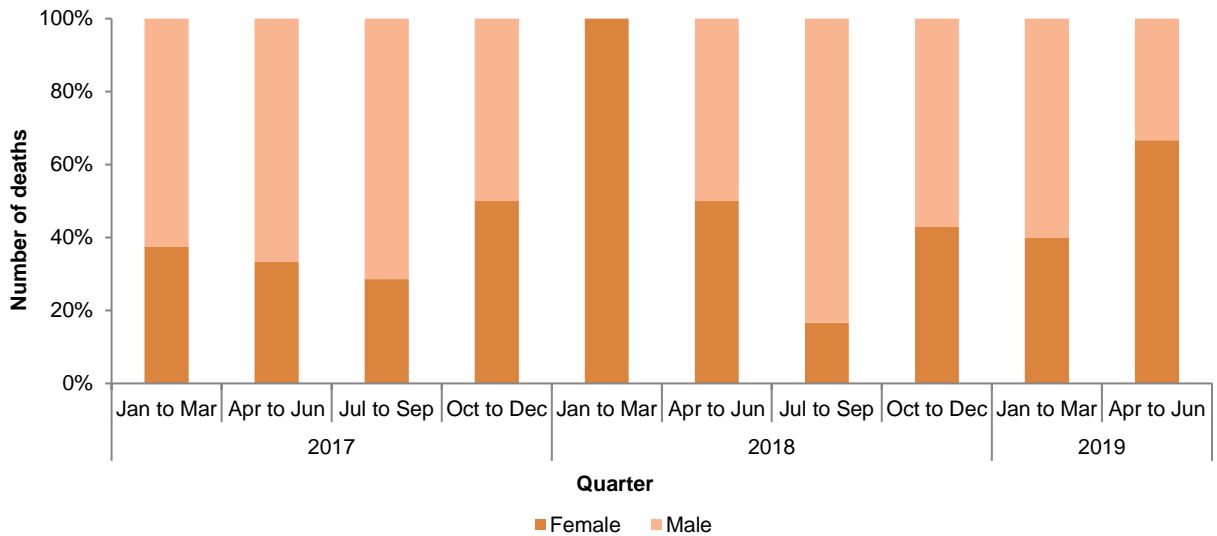
Graph 4. Number of apparent opioid-related overdose deaths by intent (intentional, accidental, pending intent or undetermined), quarterly in New Brunswick, from January 2017 to June 2019*.



Data Source: Chief Coroner's Office, October 11, 2019

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

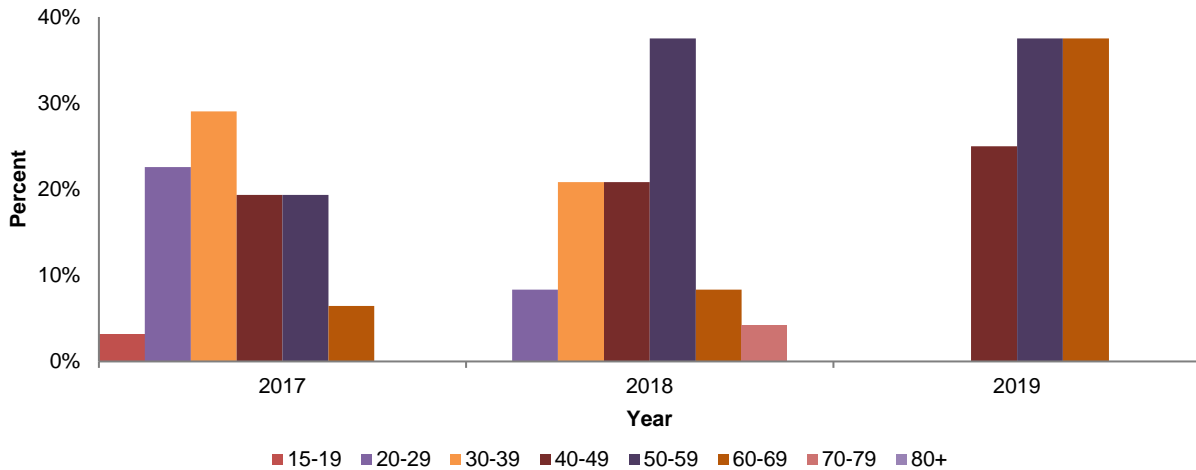
Graph 5. The proportion of apparent opioid-related overdose deaths classified as accidental or with pending intent by sex, quarterly, in New Brunswick from January 2016 to June 2019*.



Data source: Chief Coroner's Office, October 11, 2019

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

Graph 6. Number of apparent opioid-related overdose deaths classified as accidental or with pending intent, by age group in New Brunswick, from January 2017 to June 2019*.



Data source: Chief Coroner's Office, October 11, 2019

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

2019 Q1-Q2 (January 1 – June 30)

Of the 25 apparent drug-related overdose deaths in Q1-Q2 of 2019, **10 (40%) were opioid-related** of which **8 (80%) were accidental or pending intent** (Graph 4). Only **one case (10%) was associated with fentanyl**.

Of the 8 apparent opioid-related overdose deaths classified as accidental or with pending intent:

- There was an **equal number of males and females (50% each)** (Graph 5).
- **All individuals were between the ages of 40-69 years old** (Graph 6). The average and median age for 2019 Q1-Q2 are the highest to date with an average of 54.5 years and a median of 56 years.
- **Four (50%) of deaths were classified as prescribed opioids**, 2 (25%) were illicit and 2 (25%) were of unknown source.

During the first and second quarter of 2019, the estimated annual crude mortality rate for accidental or pending intent opioid-related deaths in New Brunswick was **2.1 per 100,000 person-years**. This is the smallest rate since surveillance began. Regional rates for Q1-Q2 2019 are not reported as the small numbers involved can lead to unstable rates.

Take-Home Naloxone Kit Data

Non-Government Organizations and Detoxification Centres

2019 Q1-Q3 (January 1 to September 30)

Since the beginning of 2019, preliminary data show that **495 take home naloxone kits (THN kits) were distributed** from the NGOs and detoxification centres (Table 2). Additionally, **17 kits were reportedly used to treat an overdose** since the beginning of 2019.

Table 2. Number of kits distributed by site, from January 1 to September 30, 2019.

Site Name	2019
AIDS NB - Fredericton	124
Ensemble - Moncton	71
Avenue B - Saint John	216
Detoxification Centres	84
Total	495

Data source: Non-government organizations and detoxification centres, October 25, 2019

Summary

When considering data from ANB, similar demographics have been observed in 2019 compared to previous years. The estimated crude rate of suspect opioid overdose patients who responded to naloxone in New Brunswick in Q1-Q3 of 2019 is slightly higher, but comparable, to previous years.

Compared to national results, the age distribution from 2018-June 2019 in New Brunswick indicate a slightly older demographic who are dying from apparent opioid-related overdose deaths within the province. This is particularly true of Q1-Q2 of 2019 wherein all decedents were over 40 years of age.

Lastly, take-home naloxone kits have been distributed to a large number of individuals, despite there being a low number of kits reportedly being used.

Though there have been notable changes in the data and trends since the last report and previous years, interpretation of these results should be done with caution due to the small numbers involved and the short duration over which these trends have been observed.

Appendix A: Data Sources

Ambulance New Brunswick

Data from ANB are abstracted in aggregate form and therefore do not contain patient-level data. Data are sent to OCMOH on a monthly basis. The 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):

- Accidental/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 accidental/suspect opioid overdoses and those who responded to naloxone. The monthly totals of reason for dispatch are also included.

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 an accidental/suspect opioid overdose. Data include accidental/suspect opioid overdoses regardless of intent, and therefore may differ in terms of demographics from other data sources (e.g., apparent opioid overdose deaths).

Chief Coroner Office

Data from the Chief Coroner's Office include individual-level data. They are sent to OCMOH on a quarterly basis for the previous quarter. Data include all drug-related deaths with 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 Natural Homicide
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	
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.	

Non-Government Organizations and Detoxification Centres

Data from the three NGOs and seven detoxification centres include individual-level data. Data are collected from two forms: a distribution form and a use form.

As this surveillance system is in the preliminary stages, the forms used to collect this information are being revised and have yet to be finalized, therefore only the total numbers are analyzed in this report as this information is not expected to change following form revisions. Future reports will include more details as data become available.

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 the form was completed.

Population Estimates

All population estimates were from 2019 population estimates received from Statistics Canada, Demography Division, March 2019.

Appendix B: Methodology

Ambulance New Brunswick

Data are sent to the OCMOH on a monthly basis and analyzed on a quarterly basis. Aggregate data are organized into various tables used to conduct descriptive analyses for apparent/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. the 2019 version of the population estimates were used for the 2018 population estimates).

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 OCMOH, the data are validated prior to analyses. The data validation process includes verifying the classification of all variables by using case files and the coroner database, identifying any changes to previous cases, and identifying new cases since the last data submission. 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 were conducted for apparent opioid overdose deaths; this includes counts, proportions, means, and rates. The rates are calculated using denominator data for the current year based on the most recent estimates available (e.g. the 2019 version of the population estimates were used for the 2018 population estimates).

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

Non-Government Organizations and Detoxification Centres

Data are sent to OCMOH on a monthly basis and cover the previous month, then cleaned and analyzed. Basic counts of the number of kits distributed and the number of kits reported as being used are calculated. Additional analyses may be conducted as more data are obtained in the future.

All analyses were conducted using Excel 365 ProPlus.

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 unintentional 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.
 - **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 resulting from the direct effects of consuming 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.
- **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