

# **Surveillance of Apparent Opioid Overdoses in New Brunswick**

**2018- Quarters 1 & 2**

November, 2018

## Surveillance of Apparent Opioid Overdoses in New Brunswick

### Quarters 1 & 2: January to June, 2018 Report

#### Highlights

##### **Suspect opioid overdoses: Ambulance New Brunswick, 2018 Q1 & 2 (Jan to Jun)**

- During the first two quarters of 2018, naloxone was administered to 118 suspect opioid overdose patients, of which 57 responded to naloxone.
- Of those who responded to naloxone:
  - 49.1% were males and 24.6% were between 40 and 49 years old.
  - The age distribution during the first two quarters of 2018 did not reflect the shift to the younger age groups that was seen during the same time period in 2017.
  - The estimated annual crude rate of suspect opioid overdose patients that responded to naloxone in New Brunswick was 15.0 per 100,000 population.

##### **Emergency Department (ED) non-suicidal opioid overdoses: Horizon and Vitalité Health Networks, 2018 Q1 & 2 (Jan to Jun)**

- There were 50 ED visits related to non-suicidal opioid overdoses, with an average of 8.3 visits per month between January and June 2018.
- 50.0% were males and 26.0% were between 30 and 39 years old.
- The estimated annual crude rate of ED visits related to non-suicidal opioid overdoses in New Brunswick is 13.2 per 100,000 population.

##### **Apparent opioid overdose deaths: Chief Coroner's Office, 2017 & 2018 Q1 (Jan to Mar)**

- There were 36 apparent opioid deaths in 2017 of which 31 were deemed accidental or with pending intent, including 7 related to fentanyl or fentanyl analogs (4 fentanyl, 2 furanyl-fentanyl and 1 carfentanyl).
- There were more deaths classified as accidental/pending intent in 2017 compared to 2016 (31 in 2017 versus 26 in 2016).
- In 2017, the estimated annual crude mortality rate for apparent accidental/pending intent opioid overdoses in New Brunswick was 4.1 deaths per 100,000 population.
- There were 6 apparent opioid deaths in Q1 of 2018 of which 5 were accidental or with pending intent. None were related to fentanyl or fentanyl analogs.
- Of the 36 apparent accidental/pending intent opioid overdoses in 2017 and Q1 of 2018:
  - 52.8% were males.
  - The median age was 37.5 years with 30.6% in the 30 to 39 year old age group.
  - Illicit opioid use was more common among males and those between 20 and 39 years old.
- Data are incomplete and numbers are expected to increase as coroner investigations continue.

## Introduction

This quarterly surveillance report focuses on apparent opioid overdose and death data collected by Ambulance New Brunswick (ANB), Horizon and Vitalité Health Networks and the Chief Coroner's Office, and reported to the Office of the Chief Medical Officer of Health (OCMOH). Additional sources of data will be included in future reports as they become validated. Data sources are updated at different time periods and may change in subsequent reports.

## Changes from last report

- Updates have been made to previously reported counts and rates based on revised data.
- Updated population estimates were available and used for rate calculations. This may have resulted in minor differences of previously reported rates.
- Due to reporting delays for some of the data sources, Quarters 1 & 2 of 2018 were combined for analysis.
- A review of apparent opioid overdose deaths was conducted and resulted in the reclassification of several deaths with respect to the source, the type of opioid used and whether or not the opioid was taken with other substances.

## Data Sources

### Ambulance New Brunswick

Data include the number of patients ANB treated for suspect opioid overdoses regardless of intent. A patient is counted as a suspect overdose when a first responder (paramedic) who attended the event suspects the patient might be experiencing symptoms compatible with an opioid overdose, resulting in the decision to administer naloxone. The number of patients receiving naloxone might be an overestimation of the actual number of opioid overdoses as naloxone will not have an effect if opioids were not taken. Therefore, the number of patients responding to naloxone is also collected and reported as this information is more specific to an opioid overdose. Data in this report reflects data received from ANB as of August 8, 2018.

**Limitations:** The number of suspect opioid overdoses is an estimate based on the decision to administer naloxone. As such, the data do not include overdoses where patients were already dead on arrival and those who were missed and not given naloxone. Data include suspect opioid overdoses regardless of intent (i.e., accidental, intentional or unknown), and therefore may differ in terms of demographics from other data sources (e.g., apparent opioid overdose deaths). The Health Region specific rates are estimated based on hospital of referral as location of dispatch pick-up is not available.

### Emergency Departments

Data include the number of patients who visited an Emergency Department (ED) for non-suicidal opioid or suspected opioid overdoses. Suspected opioid overdoses of undetermined intent are also included. Data in this report reflect data received from Horizon and Vitalité Health Networks as of September 6, 2018.

**Limitations:** Data captured from EDs are collected manually. Although a standard data collection tool and case definition are used, each hospital has a unique system and process

for collecting the data. Over or underreporting is also likely occurring in some hospitals. Because of these reporting differences, caution should be used when interpreting regional rates and comparisons should not be made between Health Regions. As data collection began in March 2017, no historical data are currently available so trends cannot be assessed at this time. Due to inconsistency in reporting during March and April 2017, analyses included in this report are based on data starting May 2017.

## Chief Coroner Office

Data include all apparent opioid overdose deaths (including fentanyl and fentanyl analogs) that are classified as either accidental (unintentional) or pending intent at the time of reporting. Deaths with intentional and undetermined intent related to any type of drugs (opioids and non-opioids) are also included. Data in this report reflect data received from the Chief Coroner's Office as of August 21, 2018.

**Limitations:** Due to the inherent delay in investigating deaths, the reported number of apparent opioid overdose deaths is preliminary and may change over time as the cause of death certification may lead to a change in classification.

## Methodology

Descriptive analysis was conducted for suspect opioid overdoses and apparent opioid overdose deaths. Throughout this report, estimated annual rates are 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 region-specific rates because of the small numbers involved that can lead to wide variation in rates. Also, the reported data are preliminary and numbers are subject to change in the coming reports.

Comparisons should not be made between different data sources as each represents a different population. For example, ANB data look at the number of patients they treated for suspect opioid overdoses regardless of intent, while ED data look at the number of patients that visited EDs for suspect non-suicidal opioid overdoses. Together these data sources add to our understanding of the complex opioid overdose situation in New Brunswick.

## Definitions used in this report

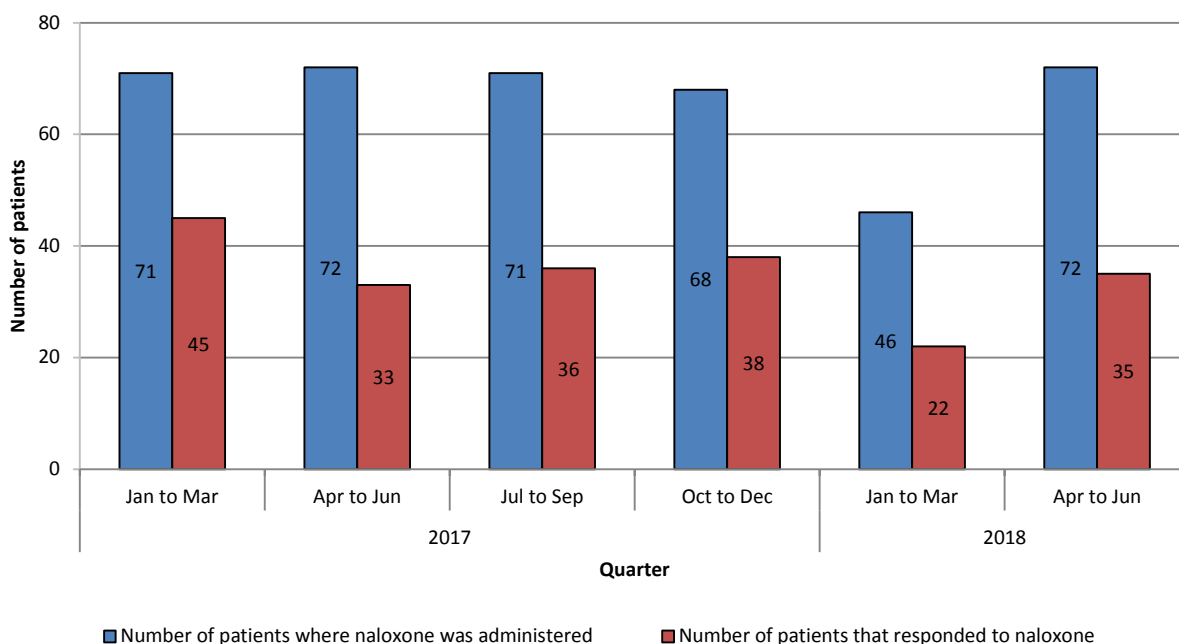
- **ANB patients treated for a suspect opioid overdose:** First responder (paramedic) who attended the event suspects the patient might be experiencing symptoms compatible with an opioid overdose, resulting in the decision to administer naloxone.
- **ED non-suicidal opioid or suspected opioid overdose:** A physiological event induced by the suspected introduction of an opioid (either prescribed or illicit) into the body of a person for a non-suicidal intent that results in a life-threatening situation and requires emergency medical assistance. Suspected opioid overdoses of undetermined intent are also included.
- **Apparent opioid overdose death:** A death caused by intoxication/toxicity (poisoning) as a result of drug use, where one or more of the drugs is an opioid. The data include both open (preliminary) and closed (certified) cases. The data do not include deaths due to chronic substance use, medical assistance in dying, or trauma where an exogenous substance contributed to the circumstances of the injury, or deaths classified as homicides.
- **Accidental death:** A death considered to be unintentional in nature.

- **Undetermined death:** A closed death investigation where the intent of death was deemed unknown by the coroner.
- **Intentional death:** A death classified as a suicide based on the coroner investigation.
- **Death with pending intent:** An open investigation where the intent of death is yet to be determined.
- **Non-fentanyl opioids:** Includes but 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.
- **Fentanyl and fentanyl analogs:** Includes but not limited to fentanyl, norfentanyl, acetylfentanyl, 3-methylfentanyl, carfentanil, butyrylfentanyl, furanyl-fentanyl, despropionyl-fentanyl.
- **Any opioid:** Either non-fentanyl opioids or fentanyl and fentanyl analogs.
- **Prescription opioid/fentanyl:** A medically prescribed opioid/fentanyl to the same patient/deceased person.
- **Illicit opioid/fentanyl:** Street opioid/fentanyl or opioid/fentanyl medically prescribed to a person other than the patient/deceased person.

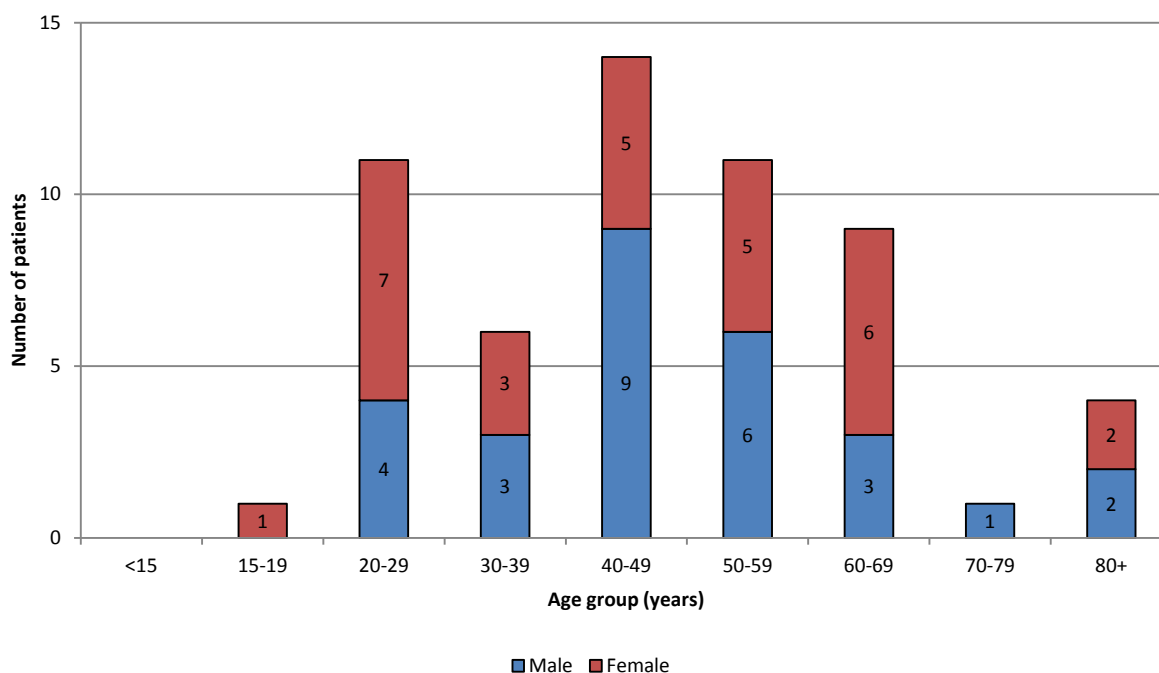
## Suspect opioid overdoses: Ambulance New Brunswick, Q1 & 2, 2018

- During the first two quarters of 2018, naloxone was administered for 118 suspect opioid overdoses, with an average of 19.7 per month (range: 14 to 26) (Graph 1).
- Of the 118 suspect opioid overdoses, 57 responded to naloxone (48.3%) which corresponds to an average of 9.5 per month (range: 5 to 16).
- Of the 57 patients who responded to administered naloxone :
  - Approximately half (49.1%) were males which is similar to the first two quarters of 2017 (56.4% males).
  - Fourteen (24.6%) were between 40 and 49 years old (Graph 2).
  - There was a decrease in the number of suspect opioid overdoses in both the 20 to 29 and 30 to 39 year old age groups compared to the same time period in 2017.
  - The age distribution during the first two quarters of 2018 did not reflect the shift to younger age groups that was seen during the same time period in 2017.
  - The estimated annual crude rate of suspect opioid overdoses that responded to naloxone in New Brunswick overall was 15.0 per 100,000 population and ranged from 0 to 28.7 per 100,000 population among Health Regions (Table 1). The highest crude rate was reported in the Saint John Health Region with 28.7 suspect opioid overdoses per 100,000 population. However, regional rates need to be interpreted with caution because of the small numbers involved which can lead to unstable rates.

**Graph 1.** Number of suspect opioid overdoses where naloxone was administered and number of patients that responded to naloxone, quarterly in New Brunswick, January 2017 to June 2018 (Data source: ANB, August 8, 2018).



**Graph 2.** Number of suspect opioid overdose patients that responded to naloxone by age group and sex in New Brunswick, Q1 & 2, 2018 (Data source: ANB, August 8, 2018).



**Table 1.** Estimated annual crude rate of suspect opioid overdose patients that responded to naloxone in New Brunswick, March 2017 to June 2018 (Data source: ANB, August 8, 2018).

Health Region	2017 (Mar to Dec)		2018 (Jan to Jun)	
	Number (%) of hospital referrals	Rate of patients that responded to naloxone per 100,000 population*	Number (%) of hospital referrals	Rate of patients that responded to naloxone per 100,000 population*
Moncton	33 (28.2%)	18.3	14 (25.5%)	12.9
Saint John	32 (27.4%)	22.0	25 (45.5%)	28.7
Fredericton	14 (12.0%)	9.5	7 (12.7%)	7.9
Edmundston	6 (5.1%)	15.4	0 (0%)	0.0
Campbellton	5 (4.3%)	23.6	2 (3.6%)	15.7
Bathurst	18 (15.4%)	29.0	6 (10.9%)	16.1
Miramichi	9 (7.7%)	24.0	1 (1.8%)	4.4
<b>New Brunswick<sup>†</sup></b>	<b>119</b>	<b>18.8</b>	<b>57</b>	<b>15.0</b>

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were 2017 population estimates received from Statistics Canada, Demography Division; March 2018.

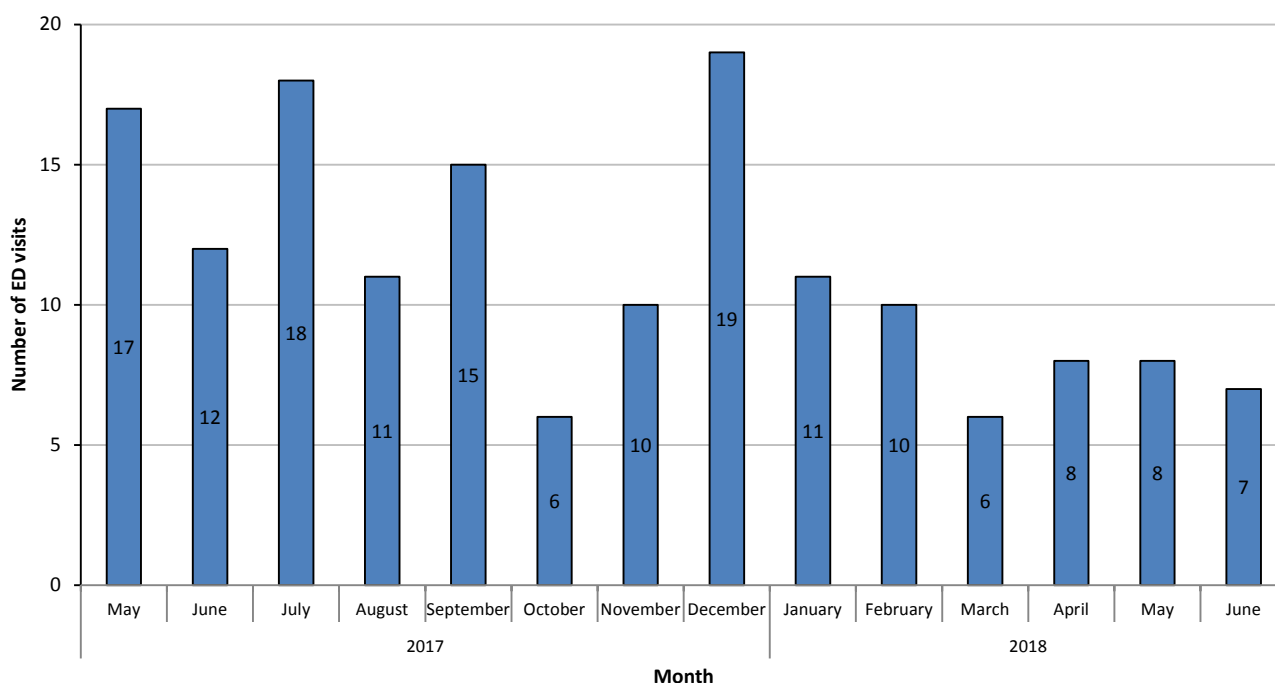
\* Caution should be used while interpreting region-specific rates because of the small numbers involved that can lead to unstable rates. Health Region specific rates are estimated based on the hospital of referral as location of dispatch pick-up is not available.

† The total number of hospital referrals for New Brunswick also includes suspect opioid overdoses where the hospital of referral is listed as "Other" (2017=2 and 2018=2). A hospital may be listed as "Other" if the patient was not transported to a hospital ER (e.g., cardiac arrest, terminated on-scene or patient refused to be transported).

## Emergency Department non-suicidal opioid overdoses: Regional Health Authorities (Horizon and Vitalité Health Networks), January to June 2018

- 50 ED visits related to non-suicidal opioid overdoses were reported from January to June 2018 with an average of 8.3 visits per month (range: 6 to 11). The highest number of visits was reported in January 2018 (Graph 3). Twenty-seven of these visits were reported in Quarter 1 and 23 were reported in Quarter 2.
- The estimated annual crude rate of ED visits related to non-suicidal opioid overdoses in NB was 13.2 per 100,000 population and ranged from 0 to 47.1 per 100,000 population among Health Regions (Table 2). The highest estimated annual crude rate was reported in the Campbellton Health Region. However, regional rates need to be interpreted with caution because of the small numbers involved which can lead to unstable rates. Under or over reporting is suspected in some of the regions.
- Of the ED visits related to non-suicidal opioid overdoses (Graph 4):
  - 50.0% (25/50) were males.
  - 26.0% (13/50) were between the ages of 30 and 39 years old.

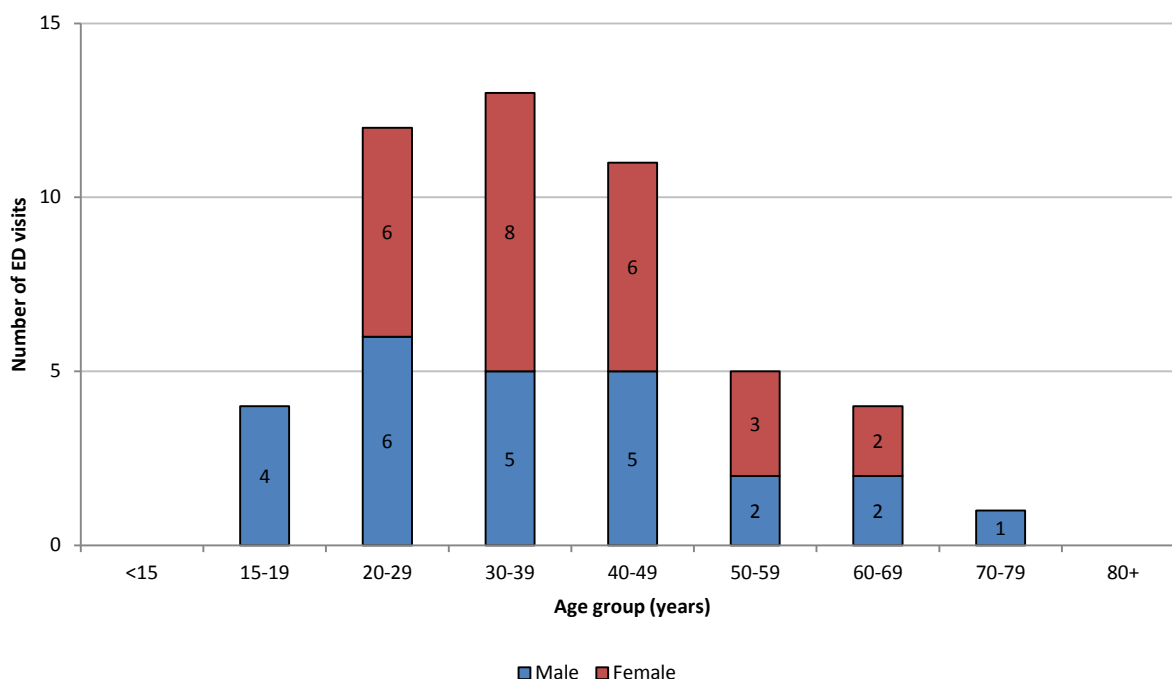
**Graph 3.** Number of Emergency Department visits due to non-suicidal opioid overdoses, monthly\* in New Brunswick, May 2017 to June 2018 (Data source: Horizon and Vitalité Health Networks, September 6, 2018).



\*Month is estimated based on weeks and therefore some ED visits may not appear in the same month as it actually occurred.



**Graph 4.** Number of Emergency Department visits due to non-suicidal opioid overdoses, by age group and sex in New Brunswick, January to June, 2018 (Data source: Horizon and Vitalité Health Networks, September 6, 2018).



**Table 2.** Estimated annual crude rate of Emergency Department visits due to non-suicidal opioid overdoses in New Brunswick, 2017 and 2018 (Data source: Horizon and Vitalité Health Networks, September 6, 2018).

Health Region	2017 (May to Dec)		2018 (Jan to Jun)	
	Number (%) of ED visits	Rate of ED visits per 100,000 pop*	Number (%) of ED visits	Rate of ED visits per 100,000 pop*
Moncton	41 (38.0%)	28.4	16 (32.0%)	14.8
Saint John	3 (2.8%)	2.6	4 (8.0%)	4.6
Fredericton	29 (26.9%)	24.6	9 (18.0%)	10.2
Edmundston	6 (5.6%)	19.2	4 (8.0%)	17.1
Campbellton	7 (6.5%)	41.2	6 (12.0%)	47.1
Bathurst	13 (12.0%)	26.2	11 (22.0%)	29.5
Miramichi	9 (8.3%)	30.0	0 (0%)	0.0
<b>New Brunswick</b>	<b>108</b>	<b>21.3</b>	<b>50</b>	<b>13.2</b>

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were 2017 population estimates received from Statistics Canada, Demography Division; March 2018. Rates have been updated from the previous report to reflect the updated population estimates.

\* Caution should be used while interpreting region-specific rates because of the small numbers involved that can lead to unstable rates. Under or over reporting is suspected in some of the regions. The Health Region specific rates are estimated based on the location of the hospital visited.

## Apparent Opioid Overdose Deaths: Chief Coroner's Office

### 2016: Update

- Since the last report, there have been no changes to the total number of deaths reported for 2016. However, after further review of the data, several deaths were reclassified with respect to whether or not the opioid was taken with or without other substances and the source of the opioid. In addition, one death was reclassified as fentanyl related.
- The total deaths (including intentional and accidental) due to any type of drugs (opioids and non-opioids) for 2016 is 62 deaths (Graph 5).
- Thirty-three (53.2%) of total deaths due to any drugs were related to opioids, including five which were associated with fentanyl or fentanyl analogs (4 accidental and 1 intentional).
- Twenty-six (78.8%) of the 33 apparent opioid overdose deaths were classified as accidental.
- Of the 26 apparent opioid overdose deaths classified as accidental:
  - Four were associated with fentanyl (Graph 6).
  - Twenty-three (88.5%) were associated with mixed use of opioids with other substances, including but not limited to, alcohol, benzodiazepines, cocaine, and W-18.
  - Almost half (46.2%) were from prescribed opioids, 38.5% were from illicit sources and 15.4% were from an unknown source.

### 2017

- Fifty-five deaths (including intentional, accidental, pending intent and undetermined) due to any type of drug (opioids and non-opioids) occurred in 2017, of which 36 (65.5%) were related to opioids (Graph 5).
- While the number of deaths from all drug sources decreased by 11.3% in 2017 compared to 2016, the number of drug-related deaths that involved opioids has increased by 9.1%. This means that, while less people are dying from drug overdoses overall, more people are dying from opioid related overdoses.
- Thirty-one (86.1%) of the 36 apparent opioid overdose deaths were classified as accidental or with pending intent at the time of reporting (Graph 6). The number of deaths where intent is pending is expected to change as additional information becomes available.
- Of the 31 apparent opioid overdose deaths classified as accidental or with pending intent:
  - Seven (22.6%) were associated with fentanyl or fentanyl analogs, whether detected with (4 deaths) or without other opioids (3 deaths). Fentanyl was reported in 4 deaths, fentanyl in 2, and carfentanyl in 1.
  - The estimated annual crude death rate for New Brunswick overall was 4.1 per 100,000 population and ranged from 0 to 6.3 deaths per 100,000 population among Health Regions (Table 3). These regional rates need to be interpreted with caution because of the small numbers involved which can lead to unstable rates.

## 2018 Q1

- Ten deaths (including intentional, accidental, pending intent and undetermined) due to any type of drug (opioids and non-opioids) occurred in quarter 1 of 2018, of which 6 (60.0%) were related to opioids (Graph 5).
- Five (83.3%) of the 6 apparent opioid overdose deaths were classified as accidental or with pending intent at the time of reporting (Graph 6). None of the deaths were associated with fentanyl or fentanyl analogs.
- The number of deaths where intent is pending is expected to change as additional information becomes available.

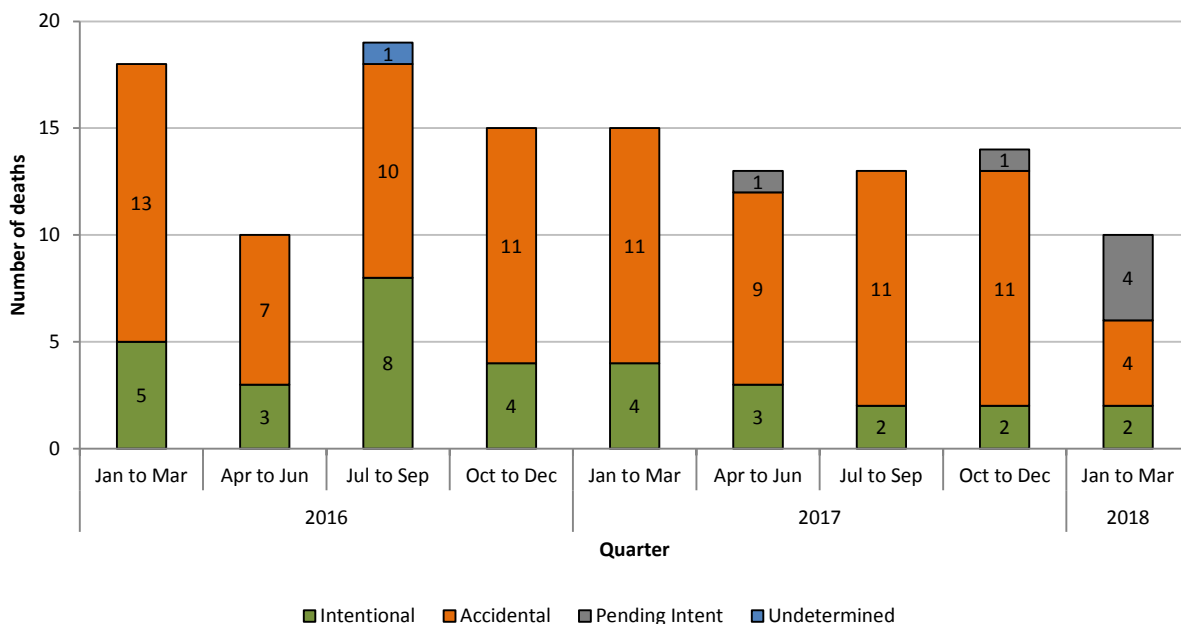
## 2017 & Q1 2018: Accidental or pending intent apparent opioid overdose deaths

- Due to the small numbers reported in Q1 of 2018, further breakdown of accidental and pending intent opioid related deaths was combined with 2017.
- Of the 36 apparent opioid overdose deaths classified as accidental or with pending intent:
  - Nineteen (52.8%) were males and 17 (47.2%) were females. The percentage of females was higher compared to 2016 (38.5%) and is likely due to the higher proportion of females in Q1 of 2018.
  - The median age was 37.5 years with 30.6% (11/36) of deaths occurring among the 30 and 39 years old age group (Graph 7). There has been a shift to the younger ages compared to 2016 where the median age was 45.0 years.
  - Sixteen (44.4%) were from illicit sources of opioids, 15 (41.7%) were from prescribed opioids and 5 (13.9%) were from an undetermined source of opioids (Graph 7). The highest percentage of illicit opioid use occurred among males (75.0%) and those in the 20 to 39 year old age group (62.5%).
  - Thirty-five (97.2%) of the accidental/pending intent apparent opioid overdose deaths were associated with mixed use of opioids with other substances, including but not limited to, alcohol, benzodiazepines, cocaine, and W-18.

## 2018 Quarter 2 (April 1 to June 30)

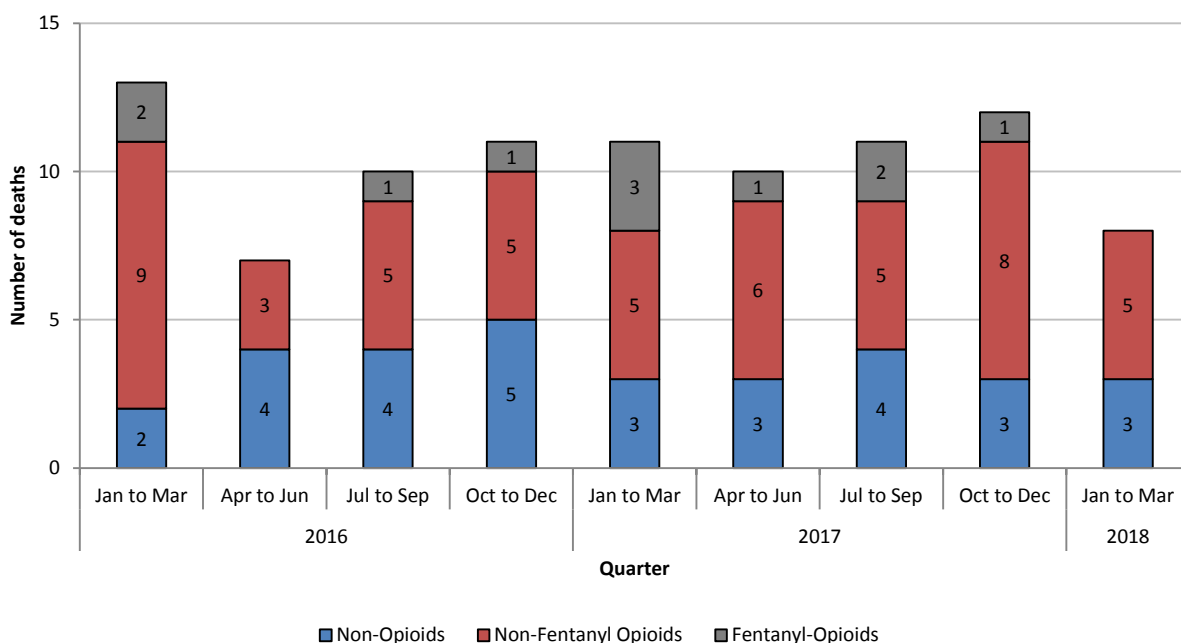
- Six deaths due to any type of drug (opioids and non-opioids) have been reported for the second quarter of 2018, of which, two were related to opioids.
- Both of the apparent opioid overdose deaths were classified as pending intent at the time of reporting.
- Data for the second quarter are incomplete and numbers are expected to increase as coroner investigations continue.

**Graph 5.** Total apparent drug overdose (opioid and non-opioid) deaths by intent (intentional, accidental, pending intent\* or undetermined), quarterly in New Brunswick, January 2016 to March 2018 (Data source: Chief Coroner’s Office, August 21, 2018).



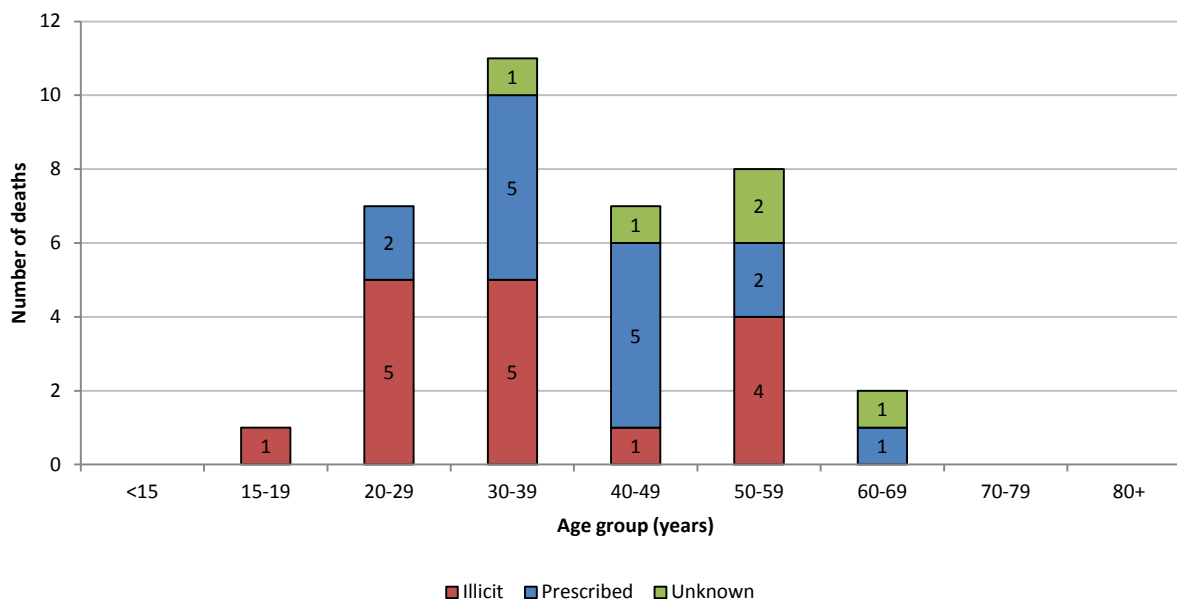
\*The number of deaths where intent is pending is expected to change as additional information becomes available.

**Graph 6.** Apparent drug-overdose deaths that are accidental or pending intent\* by drug type, quarterly, in New Brunswick, January 2016 to March 2018 (Data source: Chief Coroner’s Office, August 21, 2018).



\*Number of deaths where intent is pending was 0 in 2016, 2 in 2017, and 4 in 2018 (Quarter 1). These numbers are expected to change as additional information becomes available

**Graph 7.** Age distribution of apparent opioid overdose deaths classified as accidental or with pending intent, by drug source in New Brunswick, January 2017 to March 2018 (Data source: Chief Coroner's Office, August 21, 2018).



**Table 3.** Apparent opioid overdose estimated annual crude mortality rates\* for deaths that are accidental or with pending intent, by Health Region, New Brunswick, 2016 and 2017 (Data source: Chief Coroner's Office, August 21, 2018).

Health Region <sup>†</sup>	2016		2017	
	Number (%) of deaths reported	Death Rate per 100,000 population	Number (%) of deaths reported	Death Rate per 100,000 population
Moncton	10 (38.5%)	4.7	10 (32.3%)	4.6
Saint John	8 (30.8%)	4.6	11 (35.5%)	6.3
Fredericton <sup>‡</sup>	0 (0%)	0.0	6 (19.4%)	3.4
Edmundston	1 (3.8%)	2.1	0 (0%)	0.0
Campbellton	3 (11.5%)	11.7	1 (3.2%)	3.9
Bathurst	2 (7.7%)	2.7	1 (3.2%)	1.3
Miramichi	2 (7.7%)	4.4	2 (6.5%)	4.4
<b>New Brunswick</b>	<b>26</b>	<b>3.4</b>	<b>31</b>	<b>4.1</b>

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were 2017 population estimates received from Statistics Canada, Demography Division; March 2018.

\* Caution should be used while interpreting region-specific rates because of the small numbers involved that can lead to unstable rates.

<sup>†</sup> Where death occurred or where the deceased was found.

<sup>‡</sup> Fredericton corresponds to both Fredericton and Woodstock judicial districts.