

Surveillance of Apparent Opioid Overdoses in New Brunswick

2017- Quarter 3

December, 2017

Surveillance of Apparent Opioid Overdoses in New Brunswick

Quarter 3: July to September, 2017 Report

Highlights

Suspect opioid overdoses: Ambulance New Brunswick

- Both the number of suspect opioid overdose patients who were administered naloxone and those who responded to naloxone has increased almost every year from 2012-2017.

2017: Q1-3 (January to September)

- Naloxone was administered to 214 suspect opioid overdose patients of which, 114 responded to naloxone (53.3%).
- Of those 114 patients who responded to naloxone:
 - 54.4% were males.
 - 49.2% were between the ages of 20 and 39 years old.
 - A shift to the younger age groups has been observed in 2017 compared to the 5-year historical average.
 - The crude rate of suspect opioid overdose patients that responded to naloxone in New Brunswick was 17.9 per 100,000 person-years between March and September 2017.

Apparent opioid overdose deaths: Chief Coroner Office

2016

- There have been 32 apparent opioid overdose deaths (intentional and accidental) of which 26 were accidental, including 3 fentanyl-related.
- Of the 26 apparent accidental opioid overdoses, the crude mortality rate for New Brunswick was 3.4 deaths per 100,000 person-years.

2017

Q1 & Q2 (January to June)

- There have been 17 apparent opioid deaths (intentional, accidental and undetermined) of which 14 were accidental or undetermined, including 4 fentanyl-related.
- Of the 14 apparent accidental/undetermined opioid overdoses:
 - 64.3% were males.
 - 42.9 % were between the ages of 20 and 39 years old.
 - The crude mortality rate for New Brunswick was 3.7 deaths per 100,000 person-years.

Q3 (July to September)

- Two apparent opioid overdose deaths have been reported in quarter 3, both of which were accidental or undetermined, and one was fentanyl-related.
- Data for quarter 3 is incomplete and is expected to increase as coroner investigations continue.

Introduction

This quarterly surveillance report focuses on apparent opioid overdose and death data as collected by Ambulance New Brunswick (ANB) and the Chief Coroner's Office and shared with 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.

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 indicated the patient might be experiencing symptoms compatible with an opioid overdose and resulted 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 October 16, 2017.

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 dead on arrival and those who were not given naloxone. Data include suspect opioid overdoses regardless of intent (i.e. accidental, intentional and 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.

Chief Coroner Office

Data include: all apparent opioid overdose deaths (including fentanyl and fentanyl analogs) that are classified as either accidental (unintentional) or of undetermined intent at the time of reporting. Data on deaths, including intentional, related to any type of drugs (opioids and non-opioids) are also included. Data in this report reflects data received from the Chief Coroner's Office as of October 31, 2017.

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 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, 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. This is a change in methodology from previous reports where rates were based on annual population counts. The 2017 rates in this report should therefore not be compared to previous reports. Caution should be used while interpreting region-specific rates because of the small numbers involved that can lead to unstable rates.

Definitions used in this report

- ANB patients treated for a suspect opioid overdose: First responder (paramedic) who attended the event indicated the patient might be experiencing symptoms compatible with an opioid overdose and resulted in the decision to administer naloxone.
- 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:
 - Open (preliminary) and closed (certified) cases.
 - The data **do not** include:
 - Chronic substance use.
 - Medical assistance in dying.
 - Trauma where an exogenous substance contributed to the circumstances of the injury.
- Accidental death: A death considered to be non-intentional in nature.
- Undetermined death: The intent of death was unknown or is yet to be determined.
- Intentional death: The death was classified as a suicide based on the coroner investigation.
- 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 deceased person.
- Illicit opioid/fentanyl: Street opioid/fentanyl or opioid/fentanyl medically prescribed to a person other than the deceased person.
- Judicial district: Location of death or where the deceased was found.

Suspect opioid overdoses: Ambulance New Brunswick

Data from 2012 to the end of September 2017

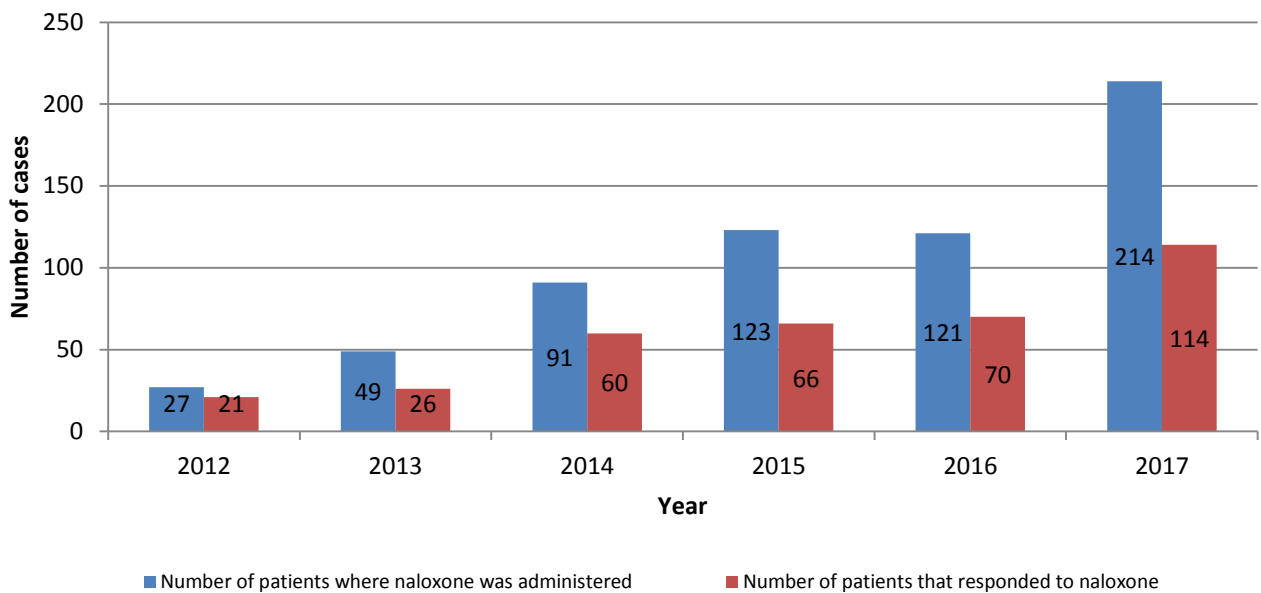
- Both the number of suspect opioid overdose patients who were administered naloxone and those who responded to naloxone have increased almost every year from 2012 to 2017 (Graph 1).
- The number of patients who were administered naloxone was 4.5 times higher in 2016 compared to 2012 and ranged from 27 to 121 patients per year during this period. During the first 3 quarters of 2017, there have already been 214 suspect opioid overdoses where naloxone was administered, surpassing the total for 2016.
- The number of patients that responded to naloxone was 3.3 times higher in 2016 compared to 2012 and ranged from 21 to 70 patients per year between 2012 and 2016. In the first three quarters of 2017, there have been 114 suspect opioid overdoses that responded to naloxone.
- In November of 2016, there was an expansion of the naloxone administration protocol which included an increase in naloxone dosage from 0.4 mg to 0.8 mg as well as increased repeat doses. This may explain some of the increases in the number of patients receiving and responding to naloxone between 2016 and 2017. There has been no known policy or administrative changes to explain the increase from 2012 to 2015.
- Between 2012 and 2016, the proportion of patients responding to administered naloxone was 59.1%.
- Of the patients who responded to administered naloxone:
 - Between 2012 and 2016, 54.3% were male (Table 1). This is similar to what has been reported in 2017 to date (54.4% males).
 - Between 2012 and 2016, 34.6% were between the ages of 20-39 years old; the highest number of patients that responded to naloxone was in the 40-49 year age group (25.1%). In 2017, to date, there has been a shift to the younger age groups with 49.2% between the ages of 20-39; the highest number of patients that responded to naloxone was in the 30-39 year old age group (28.1%).
 - In 2017, to date, there has been an increase for all age groups except among the <15 years and 80+ year age groups compared to the five-year historical average (2012-2016) (Graph 2).

A focus on 2017 data: Quarters 1-3 (January 1 to September 30, 2017)

- Naloxone was administered for 214 suspect opioid overdoses from January to September 2017, with an average of 23.8 administrations per month (range= 17 to 30 patients a month). The highest number of suspect opioid overdoses was reported in March (Graph 3).
- Of the 214 suspect opioid overdoses, 114 responded to naloxone (53.3%). The average number of patients that responded to naloxone was 12.7 per month (range=7 to 18 patients a month), with the highest number of patients reported in February.
- Of the patients who responded to naloxone in 2017, to date:

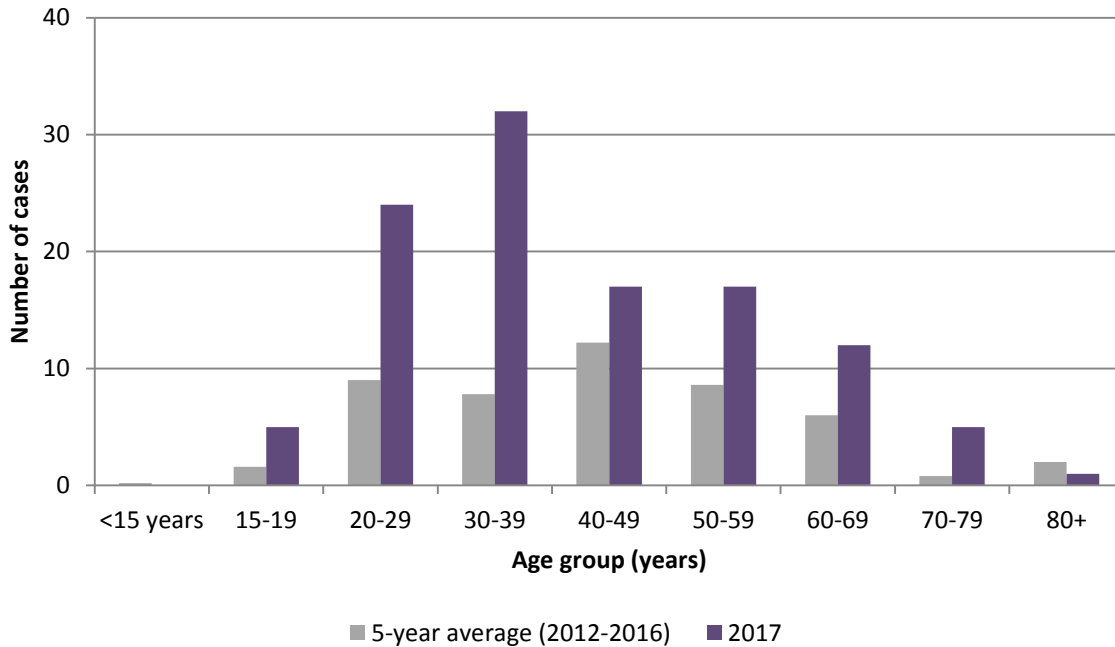
- Approximately half (54.4%) were males (Table 1); however, in January the proportion of males was 80.0% (12/15).
- 28.1% of patients that responded to naloxone were between 30-39 years old, and 21.1% were between 20 -29 years old.
- The crude rate of suspect opioid overdoses that responded to naloxone in New Brunswick overall was 17.9 per 100,000 person-years and ranged from 10.7 to 31.9 per 100,000 person-years by Health Region (Table 2). The highest crude rate was reported in the Bathurst Health Region with 31.9 suspect overdoses per 100,000 person-years. These rates need to be interpreted with caution as small numbers can lead to unstable rates.

Graph 1. Number of suspect opioid overdoses where naloxone was administered and number of patients that responded to naloxone, yearly in New Brunswick, 2012-2017* (Data source: ANB, October 16, 2017).



* 2017 data represents a partial year from January 1 to September 30, 2017.

Graph 2. Number of suspect opioid overdoses that responded to naloxone by age group in New Brunswick, 2017 (January to September) and previous 5-year average (2012-2016) (Data source: ANB, October 16, 2017).



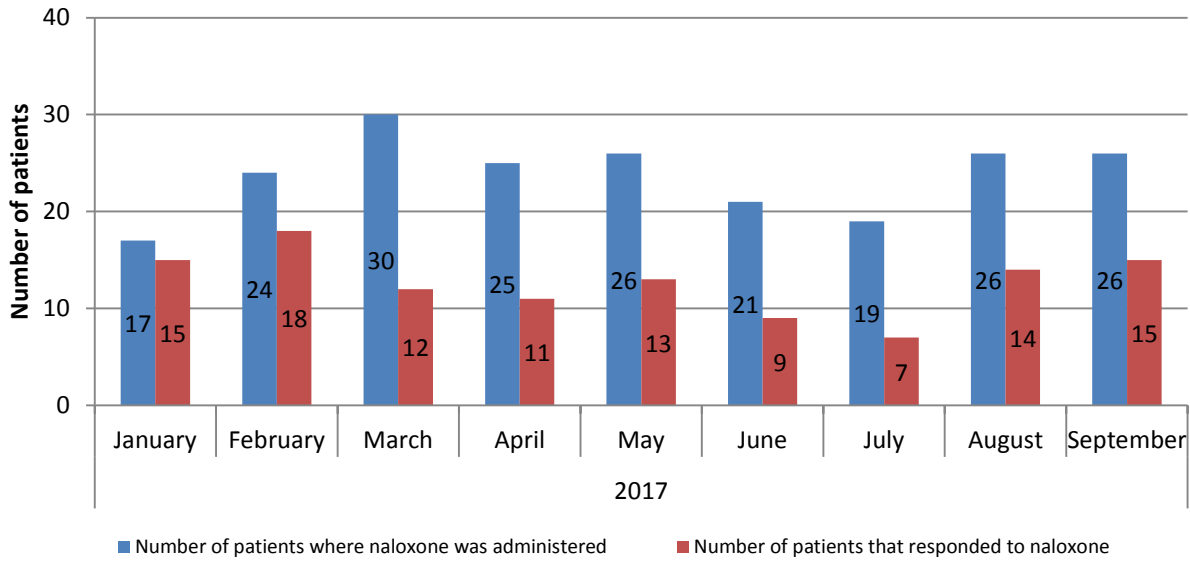
* 2017 data represents a partial year from January 1 to September 30, 2017.

Table 1. Number and percentage of suspect opioid overdoses that responded to naloxone by age group and sex, yearly in New Brunswick, 2012-2017* (Data source: ANB, October 16, 2017).

	2012	2013	2014	2015	2016	2017*
Age groups (years)						
<15	0 (0%)	1 (3.8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
15-19	0 (0%)	0 (0%)	1 (1.7%)	4 (6.1%)	3 (4.3%)	5 (4.4%)
20-29	3 (14.3%)	5 (19.2%)	12 (20.0%)	11 (16.7%)	14 (20.0%)	24 (21.1%)
30-39	2 (9.5%)	5 (19.2%)	11 (18.3%)	10 (15.2%)	11 (15.7%)	32 (28.1%)
40-49	4 (19.0%)	8 (30.8%)	15 (25.0%)	14 (21.2%)	20 (28.6%)	17 (14.9%)
50-59	5 (23.8%)	3 (11.5%)	11 (18.3%)	14 (21.2%)	10 (14.3%)	17 (14.9%)
60-69	2 (9.5%)	3 (11.5%)	6 (10.0%)	11 (16.7%)	8 (11.4%)	12 (10.5%)
70-79	1 (4.8%)	0 (0%)	1 (1.7%)	0 (0%)	2 (2.9%)	5 (4.4%)
80+	3 (14.3%)	0 (0%)	3 (5.0%)	2 (3.0%)	2 (2.9%)	1 (0.9%)
Unknown	1 (4.8%)	1 (3.8%)	0 (0%)	0 (0%)	0 (0%)	1 (0.9%)
Sex						
Male	12 (57.1%)	17 (65.4%)	26 (43.3%)	32 (48.5%)	45 (64.3%)	62 (54.4%)
Female	9 (42.9%)	8 (30.8%)	34 (56.7%)	34 (51.5%)	25 (35.7%)	52 (45.6%)
Unknown	0 (0%)	1 (3.8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total	21	26	60	66	70	114

* 2017 data represents a partial year from January 1 to September 30, 2017.

Graph 3. Number of suspect opioid overdoses where naloxone was administered and number of patients that responded to naloxone, monthly in New Brunswick, January to September, 2017 (Data source: ANB, October 16, 2017).



Graph 4. Number of suspect opioid overdose patients that responded to naloxone by age and sex in New Brunswick, January to September, 2017. (Data source: ANB, October 16, 2017).

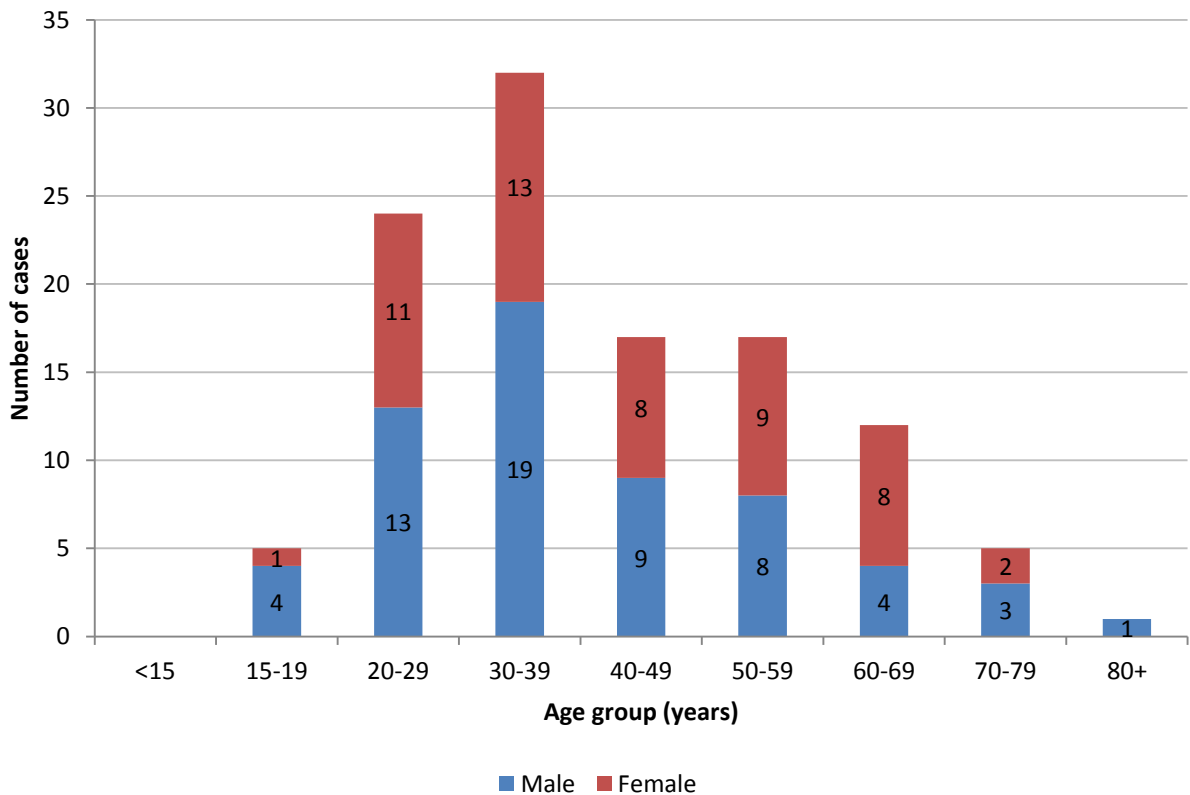


Table 2. Crude rate of suspect opioid overdose patients that responded to naloxone in New Brunswick, March to September 2017 (Data source: ANB, October 16, 2017).

<i>2017 (Mar to Sep)*</i>		
Health Region	Number (%) of hospital referrals	Rate per 100,000 person-years*
Moncton	22 (27.8%)	17.6
Saint John	17 (21.5%)	16.8
Fredericton	11 (13.9%)	10.7
Edmundston	6 (7.6%)	21.9
Campbellton	4 (5.1%)	26.8
Bathurst	14 (17.7%)	31.9
Miramichi	5 (6.3%)	18.9
New Brunswick[†]	81	18.3

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were 2016 population estimates received from Statistics Canada, Demography Division; March 2017.

* Rates are calculated using person-time contributed to the specified time period. Caution should be used while interpreting region-specific rates because of the small numbers involved that can lead to unstable rates. The 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 2 suspect opioid overdoses where the hospital of referral is listed as other. A hospital may be listed as other if the patient was not transported (e.g. cardiac arrest terminated on-scene or patient refused to be transported).

Apparent Opioid Overdose Deaths: Chief Coroner Office

2016: Update

- Since the last report, an additional five accidental deaths due to any type of drugs were reported for 2016, of which, two were related to non-opioids and three were related to non-fentanyl opioids. All five deaths occurred in Quarter 4.
- The updated total deaths (including intentional and accidental) due to any type of drugs (opioids and non-opioids) for 2016 is 60 deaths.
- Thirty-two (53.3%) of deaths due to any drugs were related to opioids, including four which were associated with fentanyl or fentanyl analogs (3 accidental and 1 intentional).
- Twenty-six (81.3%) of the 32 apparent opioid overdose deaths were classified as accidental, of which three were associated with fentanyl.
- Additional reports are expected for 2016 as not all deaths investigations have been concluded.

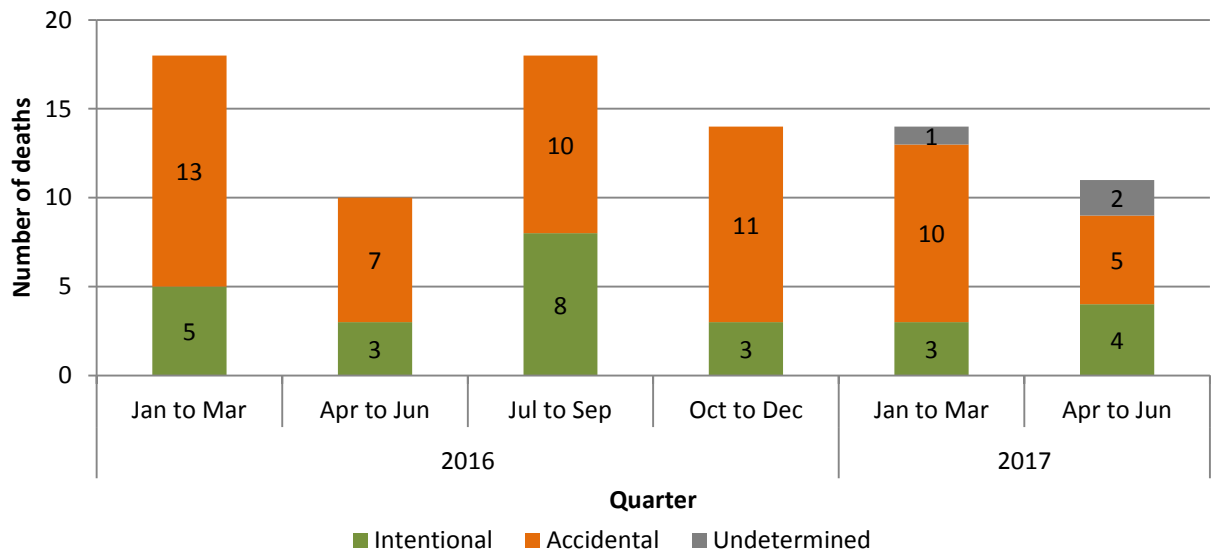
2017 Quarter 1 & 2 (January 1 to June 30, 2017)

- Twenty-five deaths (including intentional, accidental and undetermined) due to any type of drug (opioids and non-opioids) occurred between January and June 2017, of which 17 (68.0%) were related to opioids.
- Fourteen (82.4%) of the 17 apparent opioid overdose deaths were classified as accidental or of undetermined intent at the time of reporting. The number of undetermined deaths is expected to change as additional data become available.
- Four (28.6%) of all accidental/undetermined apparent opioid overdose deaths were associated with fentanyl or fentanyl analogs, whether detected alone (1 death) or mixed with other opioids (3 deaths). Fentanyl was reported in 2 deaths and fentanyl-fentanyl in 2 deaths. Fentanyl or fentanyl analogs were not associated with any of the intentional deaths.
- Of the 14 accidental/undetermined apparent opioid overdose deaths:
 - Nine were males (64.3%) and 5 were females.
 - 42.9% were between 20 and 39 years old.
 - Eight apparent opioid overdose deaths occurred in Quarter 1 and six occurred in Quarter 2.
 - 35.7% (5/14) of apparent opioid overdose deaths were from illicit opioids, 28.6% (4/14) from prescribed opioids, and 35.7% (5/14) had an undetermined source.
 - All five deceased from reported illicit opioid overdoses were in the 15 to 39 year old age group.
 - The crude death rate in New Brunswick overall was 3.7 per 100,000 person-years and ranged from 0 to 8.8 deaths per 100,000 person-years by judicial district (Table 3). These rates need to be interpreted with caution as small numbers can lead to unstable rates.
 - Thirteen of the accidental/undetermined apparent opioid overdose deaths (92.9%) were associated with the mixed use of opioids with other substances, which include, but not limited to, alcohol, benzodiazepines, cocaine, W-18 etc.

2017 Quarter 3 (July 1 to September 30, 2017)

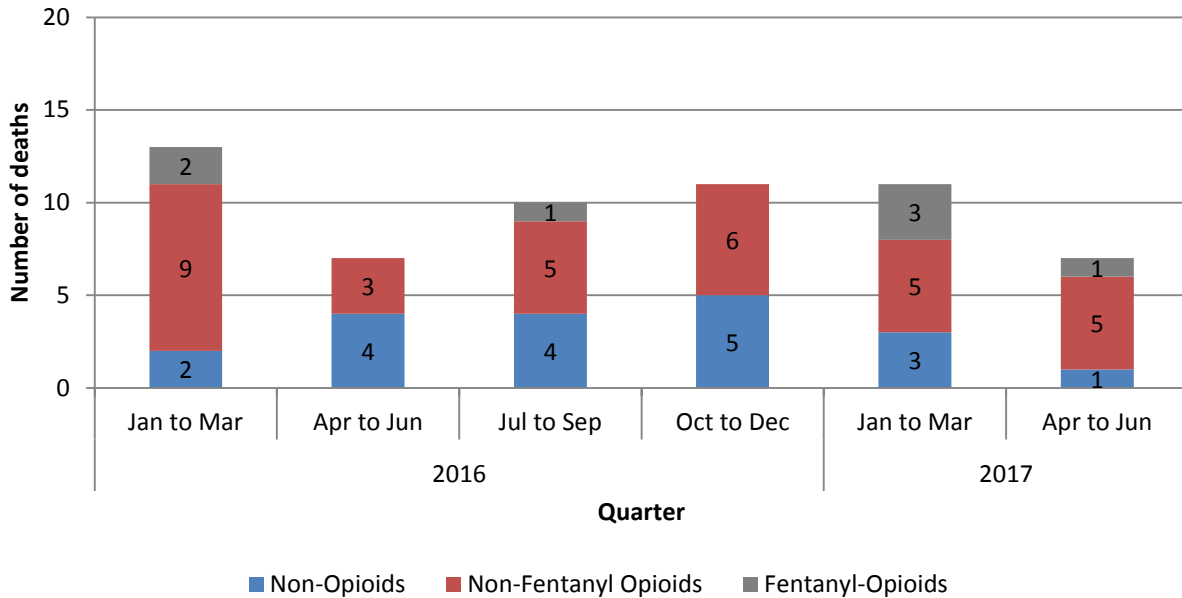
- Three deaths (including intentional, accidental and undetermined) due to any type of drug (opioids and non-opioids) have been reported for quarter 3, of which, two were related to opioids.
- Both of the apparent opioid overdose deaths were classified as accidental or of undetermined intent at the time of reporting and one was fentanyl-related.
- Data for quarter 3 is incomplete and is expected to increase as coroner investigations continue.

Graph 5. Total apparent drug overdose (opioid and non-opioid) deaths by intent (intentional, accidental or undetermined*), quarterly in New Brunswick, January 2016 to June 2017 (Data source: Chief Coroner Office, October 31, 2017).



*The number of undetermined deaths is expected to change as additional data become available.

Graph 6. Accidental and undetermined* apparent drug-overdose deaths by drug type, quarterly, in New Brunswick, January 2016 to June 2017 (Data source: Chief Coroner Office, October 31, 2017).



*Number of reported undetermined deaths was 0 in 2016 and 3 in 2017 (Quarter 1 and 2). The number of undetermined deaths is expected to change as additional data become available.

Graph 7. Age distribution of accidental and undetermined apparent opioid overdose deaths by drug source in New Brunswick, January to June 2017 (Quarter 1 and 2) (Data source: Chief Coroner Office, October 31, 2017).

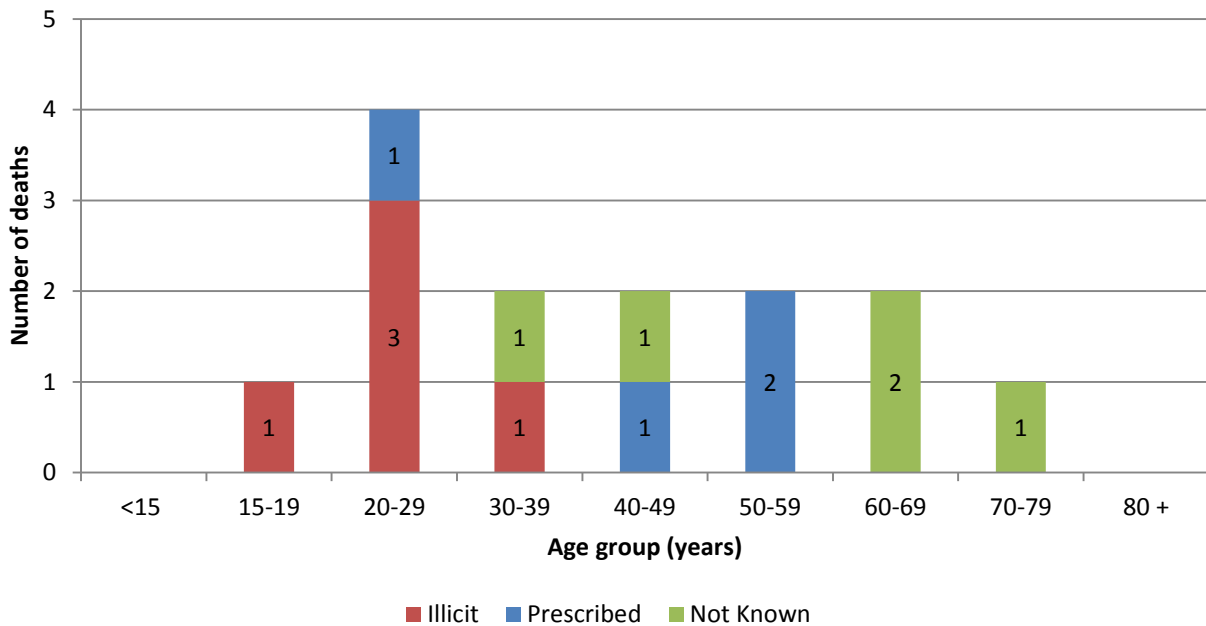


Table 3. Accidental and undetermined apparent opioid overdose crude mortality rates, by judicial district, New Brunswick, 2016 and 2017* (up to end of June) (Data source: Chief Coroner Office, October 31, 2017).

Judicial District(s)	2016		2017 (Jan to Jun)*	
	Number (%) of deaths reported	Death Rate per 100,000 person-years	Number (%) of deaths reported	Death Rate per 100,000 person-years
Moncton	10 (38.5%)	4.7	4 (28.6%)	3.7
Saint John	8 (30.8%)	4.6	5 (35.7%)	5.8
Fredericton/ Woodstock	0 (0%)	0.0	1 (7.1%)	1.1
Edmundston	1 (3.8%)	2.1	0 (0%)	0.0
Campbellton	3 (11.5%)	11.7	0 (0%)	0.0
Bathurst	2 (7.7%)	2.7	2 (14.3%)	5.3
Miramichi	2 (7.7%)	4.4	2 (14.3%)	8.8
New Brunswick	26	3.4	14	3.7

Source for rate calculations: OCMOH, Communicable Disease Control Branch. The denominators used were 2016 population estimates received from Statistics Canada, Demography Division; March 2017.

* Rates are calculated using person-time contributed to the specified time period. These rates should not be compared to rates in previous reports where different methodology was used. Caution should be used while interpreting region-specific rates because of the small numbers involved that can lead to unstable rates.