

SURVEILLANCE OF OPIOID MISUSE AND OVERDOSE IN MANITOBA

January 1 – March 31, 2017

Epidemiology & Surveillance

Active Living, Indigenous Relations, Population and Public Health

Manitoba Health, Seniors and Active Living

June 2017

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Acronyms

| Acronym | Description |
|----------------|--|
| CTAS | Canadian Triage and Acuity Scale |
| EDIS | Emergency Department Information System |
| FY | Fiscal Year |
| ICD | International Classification of Diseases |
| ICU | Intensive Care Unit |
| MHSAL | Manitoba Health, Seniors and Active Living |
| MPC | Manitoba Poison Centre |
| MTCC | Medical Transportation Coordination Centre |
| PHAC | Public Health Agency of Canada |
| RHA | Regional Health Authority |
| RN | Registered Nurse |
| WFPS | Winnipeg Fire and Paramedic Service |

Acknowledgements

The *Surveillance of Opioid Misuse and Overdose in Manitoba* report is the result of the ongoing efforts of a dedicated team of individuals throughout the province of Manitoba. Their combined efforts and expertise in the management of opioid misuse and overdose was necessary to produce this valuable report.

We kindly acknowledge the collaboration of the following organizations for providing the data for the opioid surveillance system:

- Diagnostic Services Manitoba
- Health Canada
- Health Links/Info Santé
- Manitoba Justice
- Manitoba Poison Centre
- Medical Transportation Coordination Centre
- Winnipeg Regional Health Authority
- Winnipeg Fire and Paramedic Service

Background

Public health surveillance is the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice¹. It is needed to provide an accurate assessment in the scope of a problem, provide information to define priorities, inform planning of public health programs, and evaluate those programs so that they can be improved². In 2016, the Minister of Health, Seniors and Active Living requested the development of an opioid misuse and overdose surveillance system in the province. Under *the Public Health Act* in Manitoba, such a surveillance system was created in order to anticipate, assess, monitor, and plan for addressing health needs and threats to public health³.

Opioids are medications that are primarily prescribed to treat individuals with varying degrees of acute and chronic pain; they can also produce a sense of euphoria as a side effect. The two main adverse outcomes directly resulting from opioid misuse are fatal opioid related overdoses and non-fatal opioid related overdoses. Non-fatal overdoses, which often go unreported, can result in respiratory conditions, muscular conditions, renal failure, brain injury, ambulance and emergency response, and social damages to family and friends who witness these events. Commonly used examples of opioids are fentanyl, hydrocodone, hydromorphone, morphine, and oxycodone.

Of recent concern has been the impact of the opioid fentanyl, a prescribed drug to treat chronic pain, and carfentanil, an analog of the synthetic opioid analgesic fentanyl. Fentanyl is up to 100 times more toxic than morphine, and carfentanil is up to 100 times more toxic than fentanyl. Fentanyl typically comes in a patch form, where some users cut up, suck on, or scrape off and smoke its contents. An illicit imported powdered variety of fentanyl and carfentanil from other countries has been found to be laced into other drugs, such as heroin, oxycodone, crystal methamphetamine, and cocaine (often unknown to the user increasing risk of an overdose). In Canada, fentanyl was a contributor in at least 655 deaths from 2009 – 2014⁴, and fentanyl-related deaths have been on the rise every year since 2009⁵. National

¹ World Health Organization. *Public Health Surveillance*. Geneva, Switzerland: WHO; 2015. Electronic. Available at: http://www.who.int/topics/public_health_surveillance/en/

² Gregg, Michael. *Field Epidemiology*, 3rd ed. New York, NY: Oxford University Press; 2008. Print.

³ Government of Manitoba. *Public Health Act*, 82(1)(b), 2006.

⁴ Canadian Centre on Substance Abuse. *Deaths Involving Fentanyl in Canada, 2009-2014*. Ottawa, ON: CCSA; 2015. Electronic. Available at: <http://www.ccsa.ca/Resource%20Library/CCSA-CCENDU-Fentanyl-Deaths-Canada-Bulletin-2015-en.pdf>

⁵ Canadian Centre on Substance Abuse. *Deaths Involving Fentanyl in Canada, 2009-2014*. Ottawa, ON: CCSA; 2015. Electronic. Available at: <http://www.ccsa.ca/Resource%20Library/CCSA-CCENDU-Fentanyl-Deaths-Canada-Bulletin-2015-en.pdf>

data shows that fentanyl misuse is emerging across socio-economic status and population groups.

The largest burden of fentanyl misuse and overdose has been seen in Canada's four largest provinces, British Columbia, Alberta, Ontario, and Quebec⁵. British Columbia even declared a Public Health Emergency in 2016 due to dramatic year over year rise in fentanyl-related deaths.

Given the increasing concerns of harm associated with opioid misuse, opioid overdose surveillance in Manitoba is essential to monitor these events in an attempt to accurately quantify the significance of the issue and to develop a provincial response plan. In addition, standardized opioid overdose surveillance data would allow for more accurate national estimates of opioid-related deaths, and nation-wide jurisdictional comparability.

Objective

The primary objective of the surveillance system is to manage, analyze, and interpret opioid data from a range of stakeholders to inform prevention programming and management of opioid misuse and overdoses in Manitoba. This collaboration with regional and provincial stakeholders in the province will assist in managing harm due to opioid misuse and overdose and to provide epidemiological evidence to inform policy and programs.

This report and its one-page summary will be produced quarterly.

Data Sources

Manitoba Health, Seniors and Active Living works with a range of stakeholders to collect opioid misuse and overdose data. The compilation of the data creates the surveillance system where the sum of the individual parts provides a useful picture of the provincial context.

The following data sources were used to generate this report:

- Office of the Chief Medical Examiner's data
- Emergency department information system data (*available for Winnipeg Regional Health Authority (RHA) only*)
- Hospital separation abstracts
- Calls to Health Links - Info Santé
- Provincial take-home naloxone program data
- Winnipeg Fire & Paramedic Service data (*available for Winnipeg RHA only*)
- Drug Analysis Service data, Health Canada
- Calls to Manitoba Poison Centre
- Medical Transportation Coordination Centre data (*available for rural and northern Manitoba*)
- Panorama Inventory Management System data
- Diagnostic Services Manitoba data

Produced quarterly, this report will provide an overview on each of the data sources to determine changes in trends and to inform public health action. Collectively, the information provides a description of the situation relating to opioid misuse and overdoses in the province.

Naloxone Distribution

Provincial Take-Home-Naloxone program

The Healthy Sexuality and Harm Reduction program in Winnipeg RHA launched a Take-Home-Naloxone program in January 2016 in order to increase access to opioid overdose prevention and response resources among people with a high risk of opioid overdose. It was later extended to the entire province in January 2017. As of April 1, 2017, there are 29 registered naloxone distribution sites, with 23 operating and six preparing to distribute.

The program provides training on how to recognize and respond to substance overdose and how to safely administer naloxone (a safe and highly effective opioid agonist) in an opioid overdose event. In addition to training, Take-Home-Naloxone kits are provided free of charge to people who are at risk of opioid overdose, with a priority focus on people who inject opioids.

The Manitoba Take-Home-Naloxone-kits contains:

- Instruction sheet (French and English)
- Alcohol Swabs
- Gloves and a breathing mask to protect the responder
- 3 Vanish Point® syringes
- Pill bottle containing 3 ampoules of naloxone
- 3 ampoule breakers



Between January 1st and March 31st, 2017, a total of 258 Take-Home-Naloxone kits were distributed across the province.

Manitoba's Materials Distribution Agency

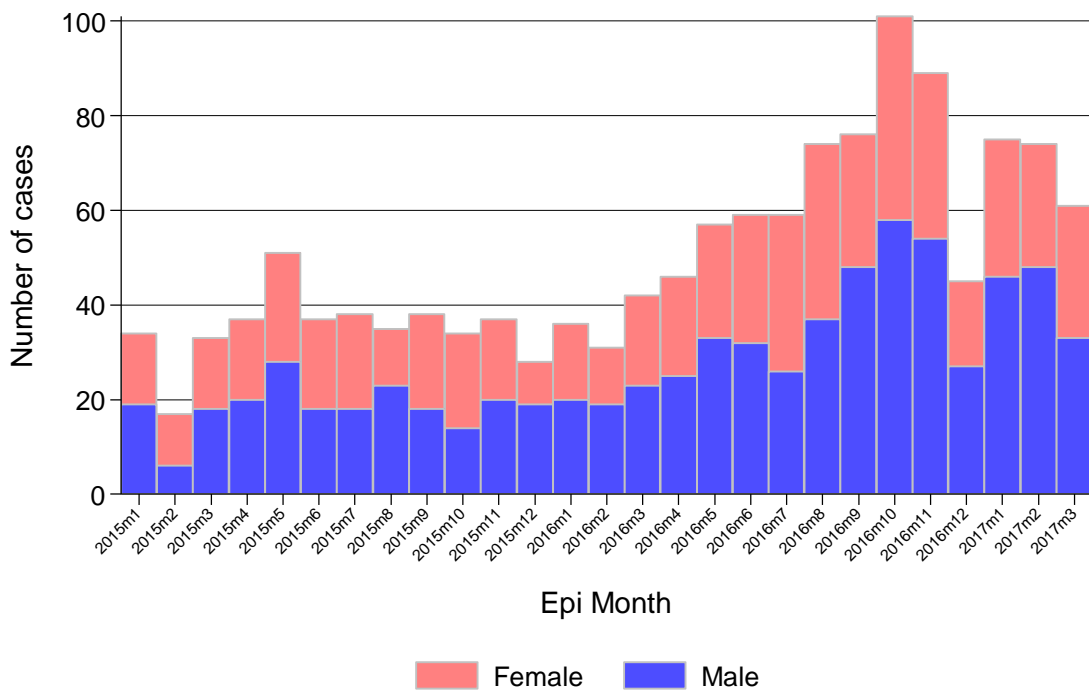
Beginning in December 29, 2016, all eligible Take-Home-Naloxone kit distribution sites ordered naloxone kits directly from Manitoba's Materials Distribution Agency (MDA). The Inventory Management Module within Panorama (an electronic public health management system) was used by distribution sites to order naloxone kits. Data from Panorama was analyzed in order to describe the number of naloxone kits shipped from the provincial warehouse.

- Between January 1st and March 31st, 2017, a total of 545 naloxone kits were shipped by MDA. Monthly distribution of these kits was 270 in January, 155 in February, and 120 in March (*data not shown*).
- The majority of naloxone kits were shipped to Winnipeg RHA (n=290), followed by Prairie Mountain Health (n=140).

Naloxone Administration

Winnipeg Fire and Paramedic Service

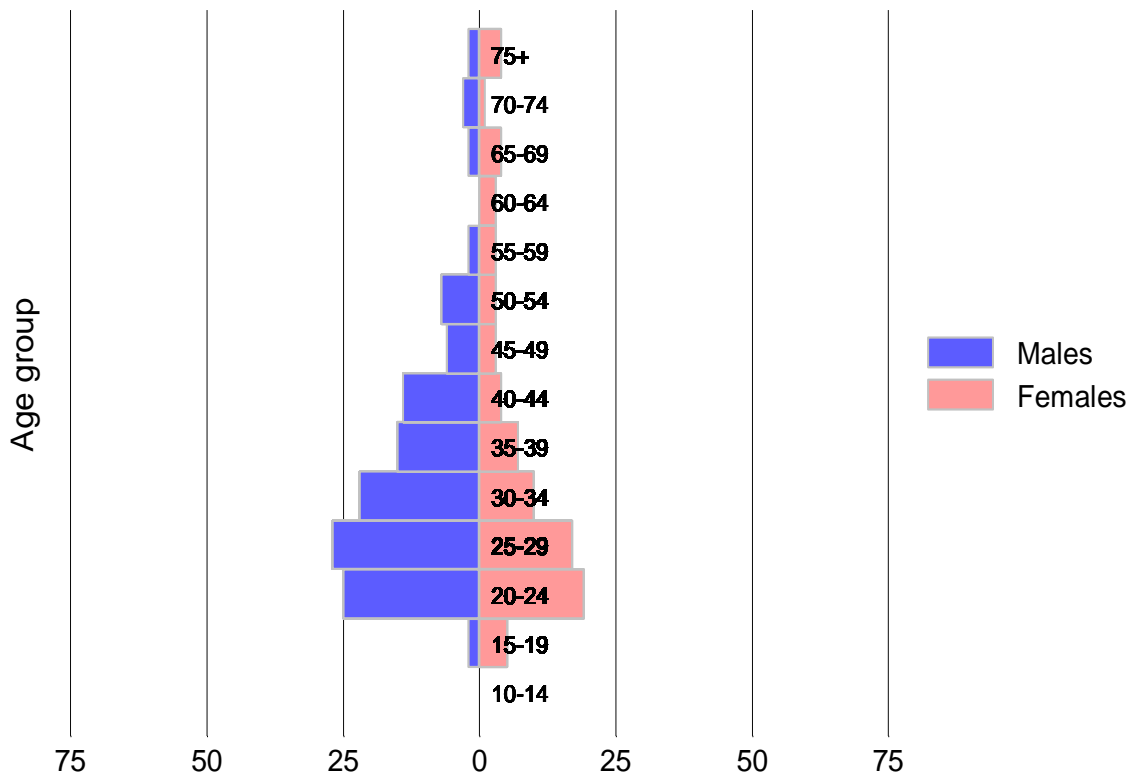
Winnipeg Fire and Paramedic Services (WFPS) will administer naloxone when it is suspected (by objective clinical assessment of patient vital signs and presentation) that an opioid overdose has occurred. The data in this report represents the number of suspected overdose cases receiving naloxone from WFPS between January 1st, 2015 and March 31st, 2017.



*Data provided by WFPS; Includes only those greater than 9 years of age.

Figure 1: Epidemic curve of suspected overdose cases receiving naloxone, Winnipeg Fire and Paramedic Service (January 1, 2015 – March 31, 2017)

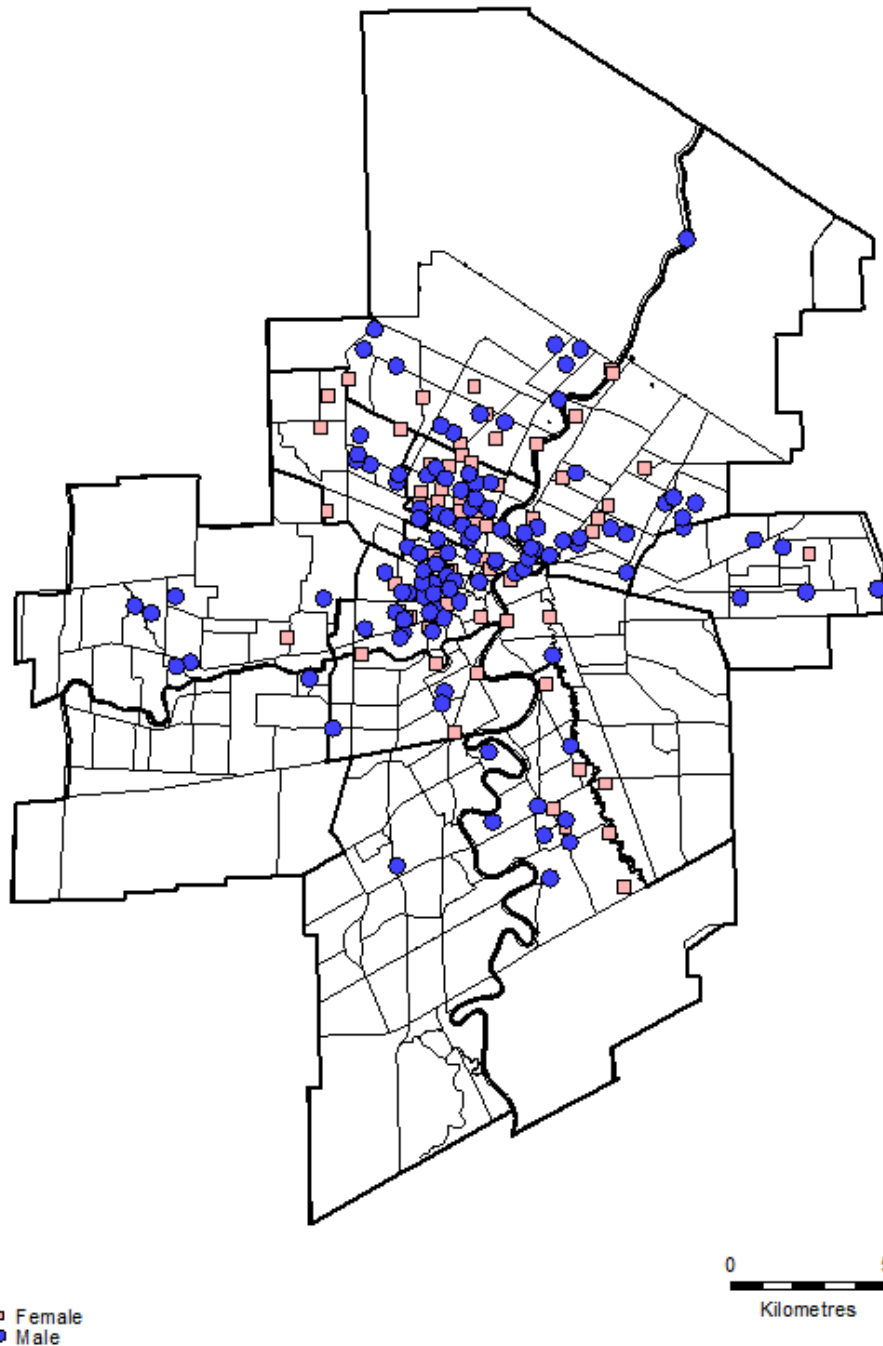
- In 2015, there were a total of 419 suspected overdose cases receiving naloxone from WFPS; in 2016, the corresponding numbers were 715. The increase of 296 administrations may indicate a true increase in burden or a difference in awareness by WFPS.
- Between January 1st and March 31st, 2017, there were 210 suspected overdose cases receiving naloxone, with the majority of these cases concerning males (n=127, ~60%).



*Data provided by WFPS; Includes only those greater than 9 years of age.

Figure 2: Age pyramid of suspected overdose cases receiving naloxone by sex, Winnipeg Fire and Paramedic Service (January 1 - March 31, 2017)

- Between January 1 and March 31, 2017, 42% (n=88) of the suspected overdose cases receiving naloxone from WFPS were in the 20 - 29 year age group.
- A larger population of female cases were in the age group of 50 years or older (n=18, ~22%) when compared to male cases (n=16, ~13%).

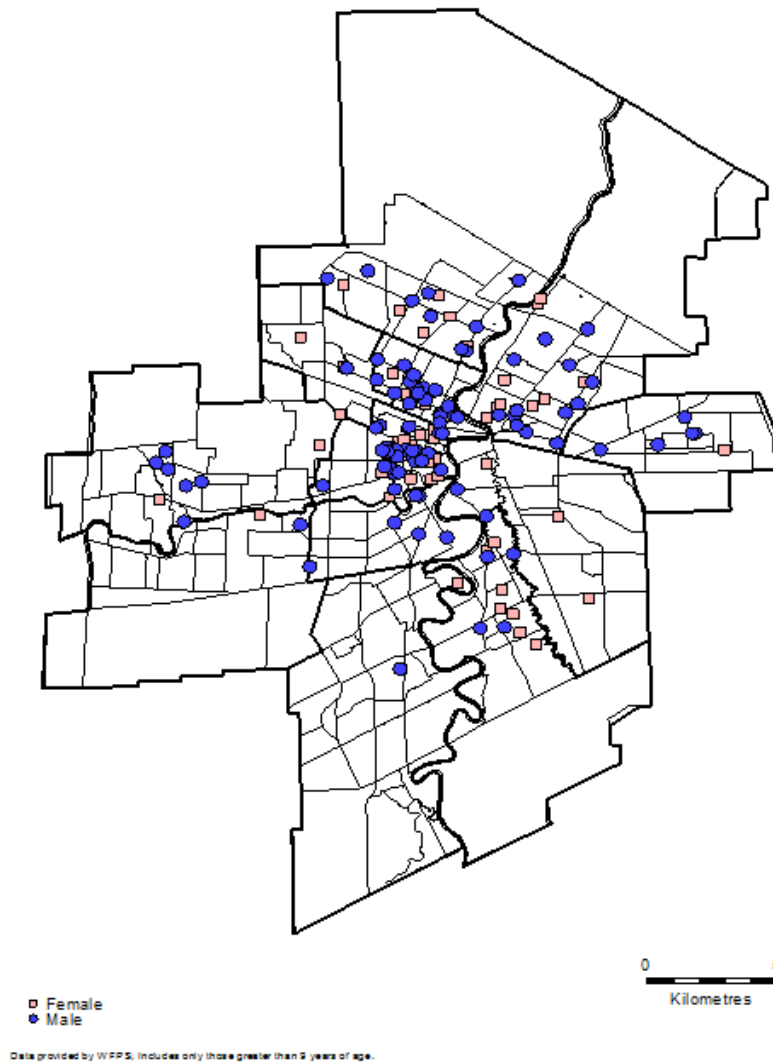


Residence. Data provided by WFPS; Includes only those greater than 9 years of age.

* Residential locations are not exact (randomized within neighborhoods).

Figure 3: Dot map of residential location of suspected overdose cases receiving naloxone, Winnipeg Fire and Paramedic Service (January 1 – March 31, 2017)

- Between January 1st and March 31st, 2017, suspected overdose cases receiving naloxone from WFPS were the highest among those living in the Point Douglas and Downtown community areas.



* Residential locations are not exact (randomized within neighborhoods).

Figure 4: Dot map of event locations of suspected overdose cases receiving naloxone, Winnipeg Fire and Paramedic Service (January 1 - March 31, 2017)

- Between January 1st and March 31st, 2017, over half of the suspected overdose cases receiving naloxone from WFPS occurred in the Downtown or Point Douglas community areas.
- It is possible that some individuals might be travelling from their home community areas into Downtown / Point Douglas to use drugs which might add to the overall burden of overdose events in these areas. For example, between January 1st and March 31st, 2017, there were 98 suspected overdose cases reported to be residing in Downtown or Point Douglas. However, during the same time frame, there were 116 corresponding events occurred in these areas, with a difference of 18 cases.

Note(s):

- *No drug or laboratory testing is undertaken by WFPS to confirm whether ingestion of an opioid has actually occurred. As a result, it is likely that a number of reported naloxone related calls for service are not opioid-related.*
- *The analysis of the WFPS is completed by the Winnipeg RHA for the quarterly report. Winnipeg RHA works closely with WFPS to continually explore mechanisms that provide data to inform public health programming in the region.*
- *The increase in reported naloxone administration in 2016 is in part due to a real increase in opioid overdose events in Winnipeg. However, a proportion of the increase is also likely due to a number of changes over the past year which could have inflated the count of naloxone-related calls and the intensity of naloxone administration. These changes are:*
 - *Naloxone only started being administered routinely by all levels of WFPS paramedics in May 2016.*
 - *Protocols for naloxone administration by WFPS changed in May 2016. Previous naloxone administration was based upon an initial administration of 0.4 mg of naloxone, and repeated until there were signs of improved patient condition. Now administration is more variable, with 0.4–2.0 mg doses repeated as required.*

Medical Transportation Coordination Centre

The Medical Transportation Coordination Centre (MTCC) is a command and control centre for the dispatch of emergency medical services in rural and northern Manitoba. MTCC began collecting data relating to suspected opioid events in December 2016 to assist with the provincial opioid misuse and overdose surveillance system. Data is collected at the moment of the 911 call, where information is solicited from the caller (1st or 2nd party). It is important to note that callers may not be forthright or knowledgeable with the information provided, and therefore the data may be subject to error and inaccuracy.

Table 1: Number of suspected overdose events in rural and northern Manitoba by certain characteristics, Medical Transportation Coordination Centre (December 9, 2016 – March 31, 2017)

| | N | % |
|---------------------------|-----------|--------------|
| <i>Total</i> | <i>76</i> | <i>100.0</i> |
| Age groups (years) | | |
| <=19 | 15 | 19.7 |
| 20-24 | 16 | 21.1 |
| 25-29 | 14 | 18.4 |
| 30-39 | 14 | 18.4 |
| 40-49 | 8 | 10.5 |
| 50+ | 6 | 7.9 |
| Unknown | 3 | 3.9 |
| Sex | | |
| Female | 40 | 52.6 |
| Male | 33 | 43.4 |
| Unknown | 3 | 4.0 |
| Transportation* | | |
| Not transported | 18 | 23.7 |
| Transported: Non-emergent | 43 | 56.6 |
| Transported: Emergent | 15 | 19.7 |

*Transportation is defined upon the initial assessment of the patient. Patients who are in a critical state upon assessment are transported in an emergent state such that sirens and flashing lights are used. Patients who do not display life-threatening or critical symptoms are transported in a non-emergent state.

- Approximately 41% of suspected overdose events reported by MTCC were among those aged 24 years or younger.
- Of the 76 total suspected overdose calls, 56.6% of patients were transported in “non-emergent” mode, where the assessed patient was not in critical state during transport. However, 19.7% of patients were transported in “emergent” mode in potentially life threatening circumstances, and needed to arrive at an emergency department as soon as possible.

Table 2: Crude rate (per 100,000) of overdose events in rural and northern Manitoba by Regional Health Authority (RHA), Medical Transportation Coordination Centre (December 9, 2016* – March 31, 2017)

| RHA | N | Crude rate |
|-----------------------------|----------|-------------------|
| Interlake-Eastern | 19 | 14.8 |
| Prairie Mountain | 19 | 11.2 |
| Southern Health - Santé Sud | 27 | 13.7 |
| Northern | 11 | 14.4 |

*The reported data period starts on December 9, 2016; therefore, the results cannot be presented as January 1 – March 31st, 2017 as similar other results in this report.

- Interlake-Eastern Health had the highest crude rate at 14.8 cases per 100,000 population between December 9th, 2016 and March 31st, 2017.

Provincial Take-Home-Naloxone Program

When a Take-Home-Naloxone kit dispensed from a distribution site is used by a lay responder in an overdose event, an overdose response form⁶ is completed by the staff replacing the kit. Between January 1st and March 31st, 2017, 30 naloxone kits were reported to public health staff as having been used in overdose events in Manitoba. The data presented below are drawn from these overdose events for which data was collected.

Table 3: Number of overdose events where a Take-Home-Naloxone kit was used by certain characteristics, Manitoba Provincial Take-Home Naloxone Program (January 1 – March 31, 2017)

| Characteristics | Categories | Female n (%) | Male n (%) | Unknown n (%) | Total N (%) |
|------------------------------------|--------------------|-------------------------|-----------------------|--------------------------|------------------------|
| <i>Total</i> | | 6 (100.0) | 20 (100.0) | 4 (100.0) | 30 (100.0) |
| Age group (years) | 19-30 | 3 (50.0) | 10 (50.0) | 1 (25.0) | 14 (46.7) |
| | 31-40 | 1 (16.7) | 6 (30.0) | 1 (25.0) | 8 (26.7) |
| | 45-50 | 1 (16.7) | 2 (10.0) | 0 (0.0) | 3 (10.0) |
| | Unknown | 1 (16.7) | 2 (10.0) | 2 (50.0) | 5 (16.7) |
| Location of overdose event | Private residence | 4 (66.7) | 13 (65.0) | 2 (50.0) | 19 (63.3) |
| | Street | 1 (16.7) | 2 (10.0) | 0 (0.0) | 3 (10.0) |
| | Unknown | 1 (16.7) | 5 (25.0) | 2 (50.0) | 8 (26.7) |
| City of overdose event | Winnipeg | 6 (100.0) | 16 (80.0) | 4 (100.0) | 26 (86.7) |
| | Selkirk | 0 (0.0) | 1 (5.0) | 0 (0.0) | 1 (3.3) |
| | Dauphin | 0 (0.0) | 1 (5.0) | 0 (0.0) | 1 (3.3) |
| | Steinbach | 0 (0.0) | 1 (5.0) | 0 (0.0) | 1 (3.3) |
| | Unknown | 0 (0.0) | 1 (5.0) | 0 (0.0) | 1 (3.3) |
| Opioid type* | Morphine | 1 (16.7) | 3 (15.0) | 0 (0.0) | 4 (13.3) |
| | Methadone | 0 (0.0) | 1 (5.0) | 0 (0.0) | 1 (3.3) |
| | Fentanyl | 3 (50.0) | 9 (45.0) | 0 (0.0) | 12 (40.0) |
| | Heroin | 1 (16.7) | 0 (0.0) | 0 (0.0) | 1 (3.3) |
| | Hydromorphone | 1 (16.7) | 0 (0.0) | 1 (25.0) | 2 (6.7) |
| | Carfentanil | 2 (33.3) | 6 (30.0) | 1 (25.0) | 9 (30.0) |
| | Other substances** | 1 (16.7) | 5 (25.0) | 0 (0.0) | 6 (20.0) |
| | Unknown | 0 (0.0) | 2 (10.0) | 2 (50.0) | 4 (13.3) |
| Month the overdose occurred | January | 1 (16.7) | 5 (25.0) | 2 (50.0) | 8 (26.7) |
| | February | 2 (33.3) | 7 (35.0) | 0 (0.0) | 9 (30.0) |
| | March | 2 (33.3) | 5 (25.0) | 2 (50.0) | 9 (30.0) |
| | Unknown | 1 (16.7) | 3 (15.0) | 0 (0.0) | 4 (13.3) |

* Results are not mutually exclusive.

** Other substances include benzodiazepine, cocaine/crack, alcohol, and crystal meth.

⁶ The overdose response form is accessible at:

http://www.gov.mb.ca/health/publichealth/surveillance/docs/mhsu_6836_20161215.pdf

- In Manitoba, majority of the Take-Home-Naloxone kits were used by males (n=20, 66.7%) between January 1st and March 31st, 2017.
- Half of the total Take-Home Naloxone kits used among the female and male population were in the age group of 19 - 30 years.
- The majority of the overdose events occurred in a private residence (n=19, 63.3%) and in the city of Winnipeg (n=26, 86.7%).
- Opioids were the common substance used for the overdose events (n=20, 66.7%).
- The most commonly self-reported opioids used were fentanyl (n=12, 40%) and carfentanil (n=9, 30%). Carfentanil is 10,000 times more toxic than morphine, and 100 times more toxic than fentanyl, making it among the most toxic commercially used opioids.

Table 4: Characteristics of emergency response to overdose events where Take-Home-Naloxone kit was used, Manitoba Provincial Take-Home-Naloxone Program (January 1 – March 31, 2017)

| Characteristics | Categories | Female n (%) | Male n (%) | Unknown n (%) | Total N (%) | |
|---------------------------------------|---|-----------------|---------------|------------------|----------------|-----------|
| <i>Total</i> | | 6 (100.0) | 20 (100.0) | 4 (100.0) | 30 (100.0) | |
| Was 911 called? | No | 5 (83.3) | 12 (60.0) | 2 (50.0) | 19 (63.3) | |
| | Yes | 1 (16.7) | 7 (35.0) | 1 (25.0) | 9 (30.0) | |
| | Unknown | 0 (0.0) | 1 (5.0) | 1 (25.0) | 2 (6.7) | |
| Reason(s) for NOT calling 911* | No phone | 0 (0.0) | 1 (5.0) | 0 (0.0) | 1 (3.3) | |
| | Thought the person would get better on their own | 1 (16.7) | 3 (15.0) | 0 (0.0) | 4 (13.3) | |
| | Worried police would come | 1 (16.7) | 3 (15.0) | 0 (0.0) | 4 (13.3) | |
| | Other reasons** | 0 (0.0) | 2 (10.0) | 0 (0.0) | 2 (6.7) | |
| | Unknown | 3 (50.0) | 3 (15.0) | 3 (75.0) | 9 (30.0) | |
| Actions taken during overdose* | Stayed with the person until (s)he came around | 4 (66.7) | 10 (50.0) | 2 (50.0) | 16 (53.3) | |
| | Checked the person's breathing | 4 (66.7) | 9 (45.0) | 2 (50.0) | 15 (50.0) | |
| | Provided artificial respirations (<i>without barrier</i>) | 0 (0.0) | 7 (35.0) | 0 (0.0) | 7 (23.3) | |
| | Provided artificial respirations (<i>with barrier</i>) | 1 (16.7) | 4 (20.0) | 1 (25.0) | 6 (20.0) | |
| | Slapped or shook the person (<i>not recommended</i>) | 3 (50.0) | 7 (35.0) | 1 (25.0) | 11 (36.7) | |
| | Put the person in the recovery position | 3 (50.0) | 3 (15.0) | 0 (0.0) | 6 (20.0) | |
| | Checked the person's pulse | 4 (66.7) | 7 (35.0) | 0 (0.0) | 11 (36.7) | |
| | Yelled at the person | 3 (50.0) | 7 (35.0) | 2 (50.0) | 12 (40.0) | |
| | Provided chest compressions | 1 (16.7) | 4 (20.0) | 0 (0.0) | 5 (16.7) | |
| | Stayed with the person until first responders arrived | 1 (16.7) | 7 (35.0) | 1 (25.0) | 9 (30.0) | |
| | Checked the person's airway for obstruction | 2 (33.3) | 3 (15.0) | 1 (25.0) | 6 (20.0) | |
| | Gave the person a sternal rub | 3 (50.0) | 7 (35.0) | 2 (50.0) | 12 (40.0) | |
| | Other actions taken*** | 0 (0.0) | 2 (10.0) | 0 (0.0) | 2 (6.7) | |
| | Number of naloxone given | One | 4 (66.7) | 4 (20.0) | 2 (50.0) | 10 (33.3) |
| | | Two | 0 (0.0) | 9 (45.0) | 1 (25.0) | 10 (33.3) |
| Three | | 0 (0.0) | 4 (20.0) | 0 (0.0) | 4 (13.3) | |
| Unknown | | 2 (33.3) | 3 (15.0) | 1 (25.0) | 6 (20.0) | |

*Results are not mutually exclusive.

**Other reasons include the person requesting to not call 911, or taking the person to the emergency room themselves.

***Other actions taken during the overdose include putting the person in a cold shower, or stimulation with ice.

- Notably, 911 was not called in the majority (n=19, 63.3%) of the overdose events.
- Majority of females received only one naloxone dose (67%), while two naloxone doses was most commonly administered to males (45%).

Severity

Hospital Admissions

Manitoba Health, Seniors and Active Living's (MHSAL) population-based hospital separation abstract database was used to measure the hospitalization due to opioid poisoning in Manitoba during the fiscal years of 2009/10 - 2016/17. We used the following ICD-10 (International Classification of Diseases) codes to identify hospitalization due to opioid poisoning⁷: *T40.0* - Poisoning by opium, *T40.1* - Poisoning by heroin, *T40.2* - Poisoning by other opioids (includes morphine, oxycodone, hydrocodone, and codeine), *T40.3* - Poisoning by methadone, *T40.4* - Poisoning by synthetic opioids (includes fentanyl, propoxyphene, and meperidine), and *T40.6* - Poisoning by unspecified/other opioids.

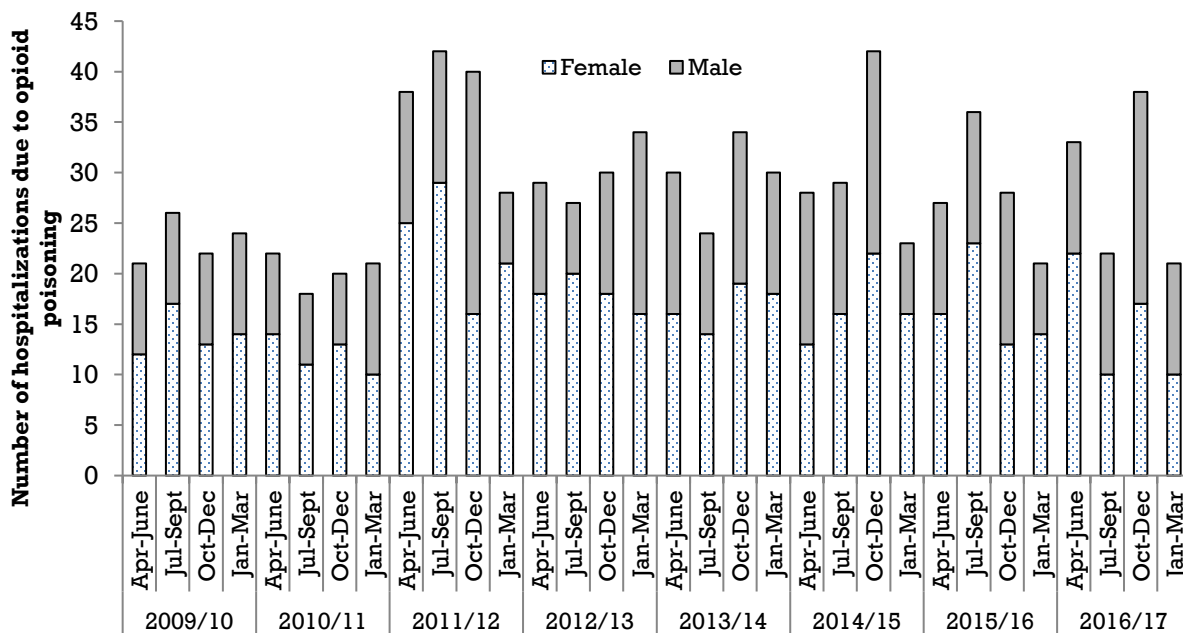


Figure 5: Epidemic curve of hospitalization due to opioid poisoning in Manitoba by fiscal year, Manitoba Health, Seniors and Active Living (fiscal years 2009/10 - 2016/17)

- The largest proportion of events occurred in the 2011/12 fiscal year (n=148).
- Overall, the female population (n = 526) had a higher number of hospitalizations due to opioid poisoning as compared to males (n = 382) from 2009/10 to 2016/17 fiscal year.

⁷ Canadian Institute for Health Information, Canadian Centre on Substance Abuse. Hospitalizations and Emergency Department Visits Due to Opioid Poisoning in Canada. Ottawa, ON: CIHI; 2016.

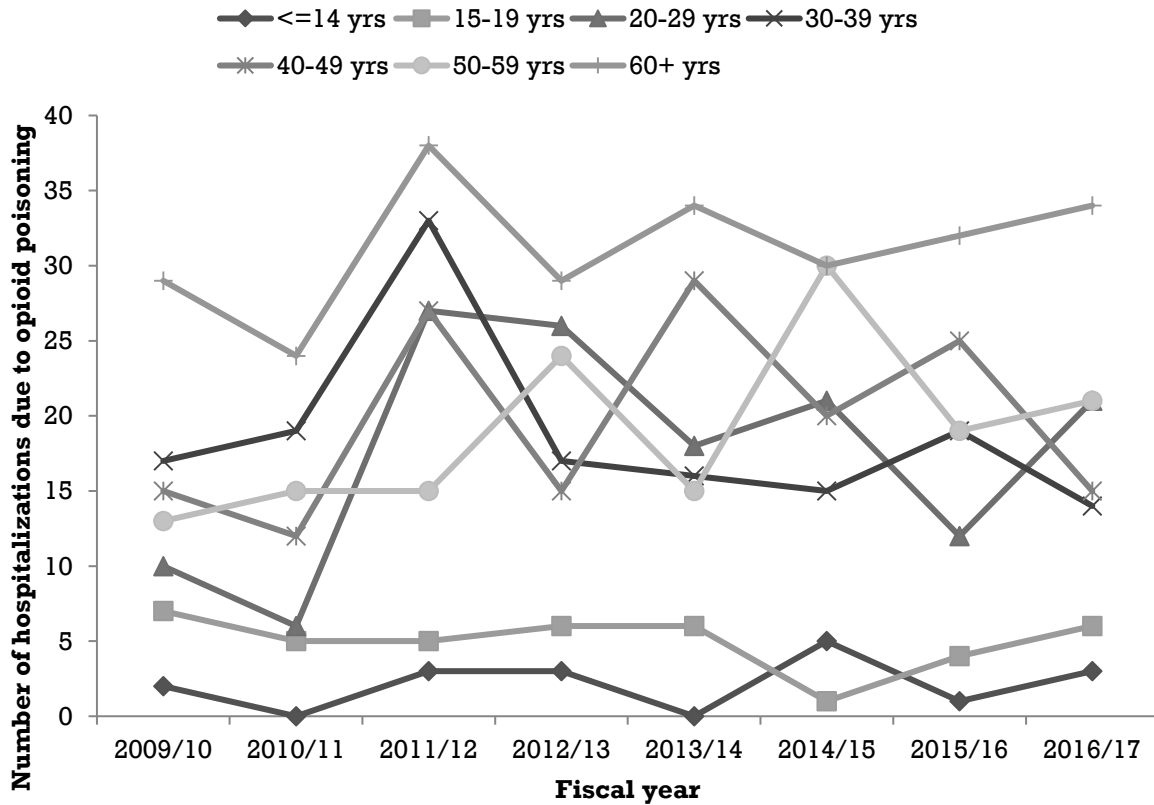
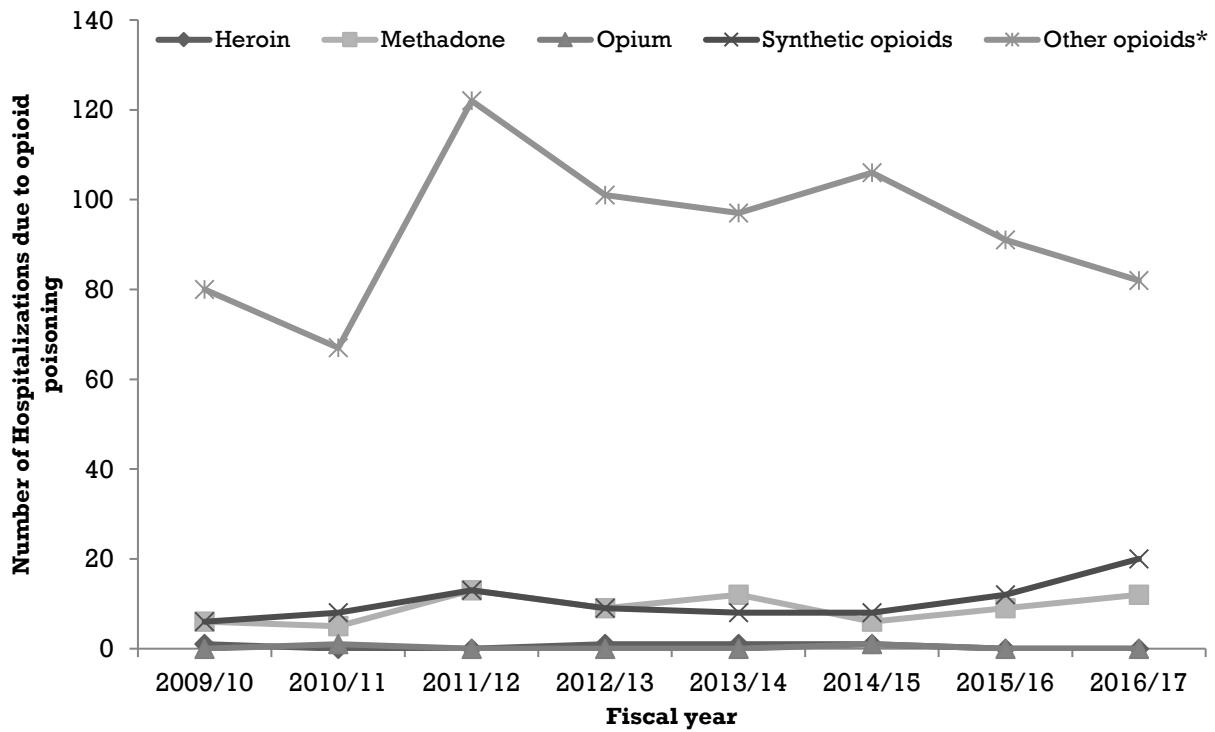


Figure 6: Number of hospitalizations due to opioid poisoning in Manitoba by age group, Manitoba Health, Seniors and Active Living (fiscal years 2009/10 - 2016/17)

- Between the fiscal years of 2009/10 and 2016/17, those older than 60 years had the highest proportion of hospitalizations due to opioid poisoning (28%), while those aged 19 years or younger had the lowest proportion of events (6%) during the same time period.



* Other opioids include oxycodone, morphine, hydromorphone, and unspecified opioids.

Figure 7: Number of hospitalizations due to opioid poisoning in Manitoba by opioid type, Manitoba Health, Seniors and Active Living (fiscal years 2009/10-2016/17)

- Number of hospitalization due to synthetic opioids (including fentanyl) poisoning has been on rise since 2014/15 fiscal year (8 in 2014/15, 12 in 2015/16, and 20 in 2016/17). A similar pattern was noted for hospitalizations relating to methadone poisoning.

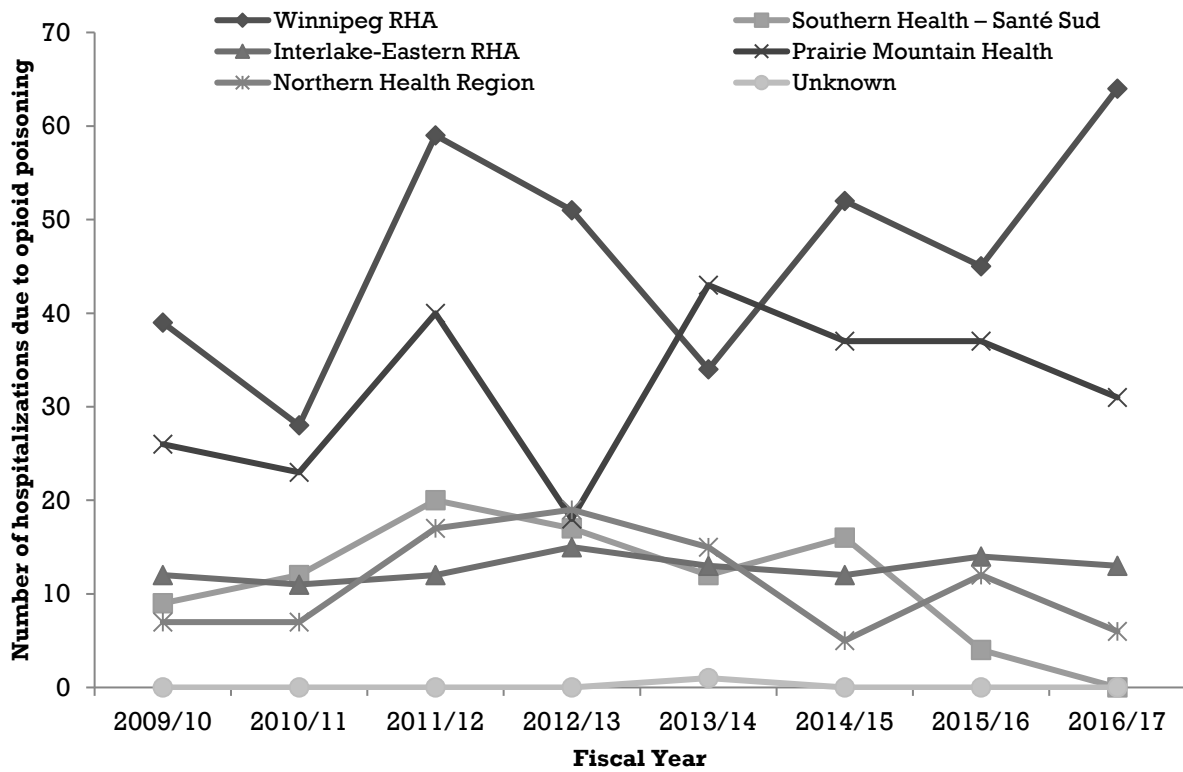
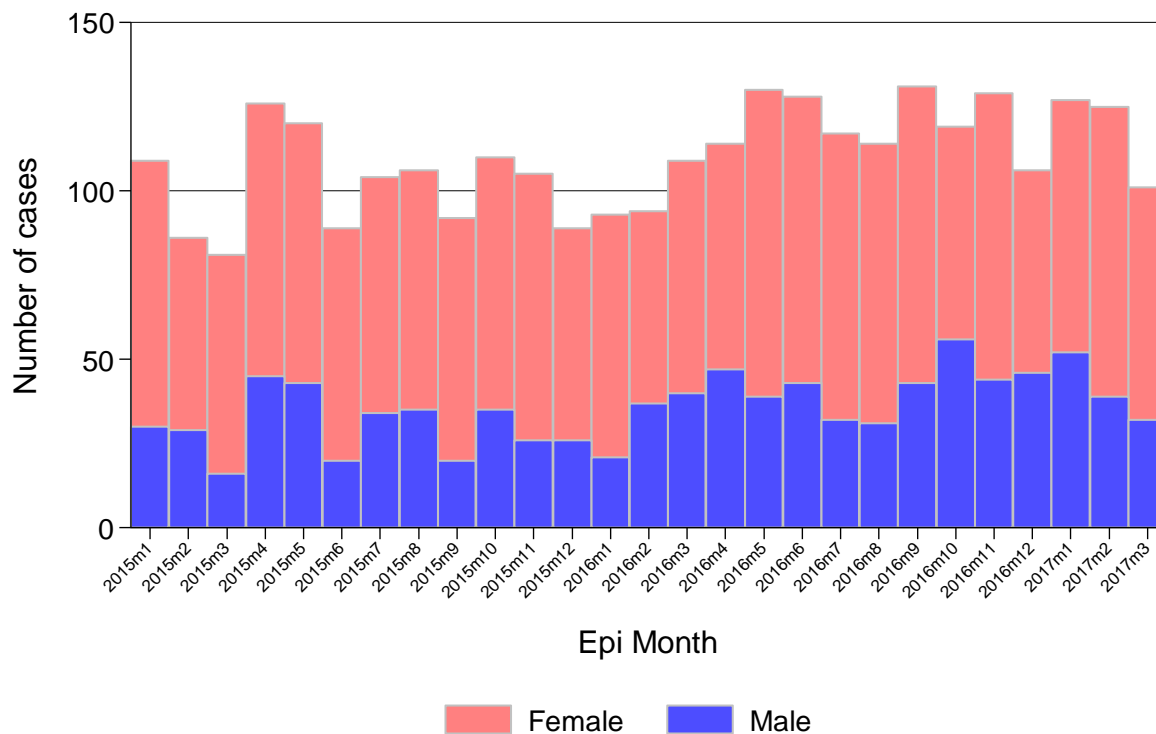


Figure 8: Number of hospitalizations due to opioid poisoning in Manitoba by Regional Health Authority (RHA), Manitoba Health, Seniors and Active Living (fiscal years 2009/10-2015/17)

- Based upon the region of residence, with the exception of 2013/14 fiscal year, Winnipeg RHA had the highest number of hospitalizations due to opioid poisoning followed by Prairie Mountain Health.

Emergency Department Admissions

The Emergency Department Information System (EDIS) contains information on a patient's experience as he or she progresses through an emergency department from the first point of entry at the triage desk through to discharge. Emergency department admissions due to overdose at CTAS 1 – Resuscitation and 2 - Emergent in Winnipeg RHA are described using EDIS data from January – March 2017. *Note that the EDIS data used in this report are not specific to opioid overdose, but are a reflection of overdose events of all types.*

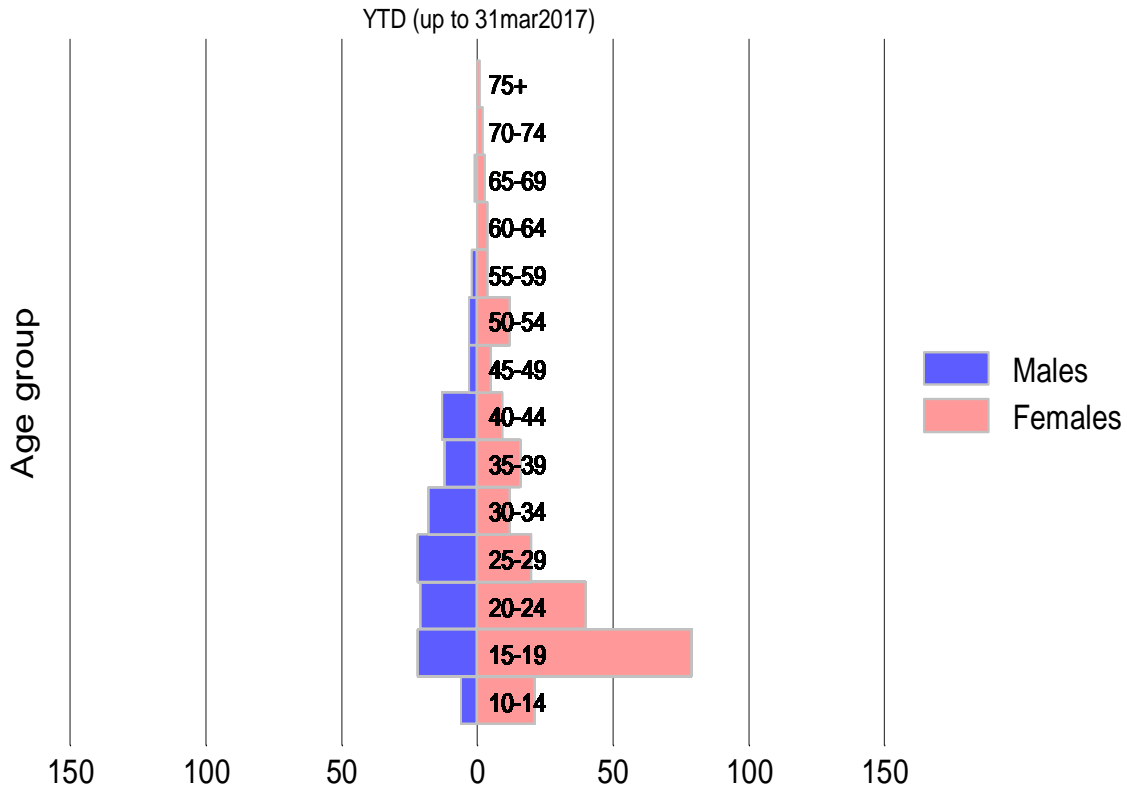


*Data from EDIS; Includes CTAS 1 & 2 and those greater than 9 years of age only.

Figure 9: Epidemic curve of suspected overdose cases arriving in Winnipeg Regional Health Authority emergency departments and urgent care facilities, Emergency Department Information System (January 1, 2015 - March 31, 2017) *

- Overall, the number of suspected overdose cases arriving at Winnipeg health region emergency departments and urgent care facilities has been on rise since the beginning of 2016. Females contributed to the largest proportion of these events.

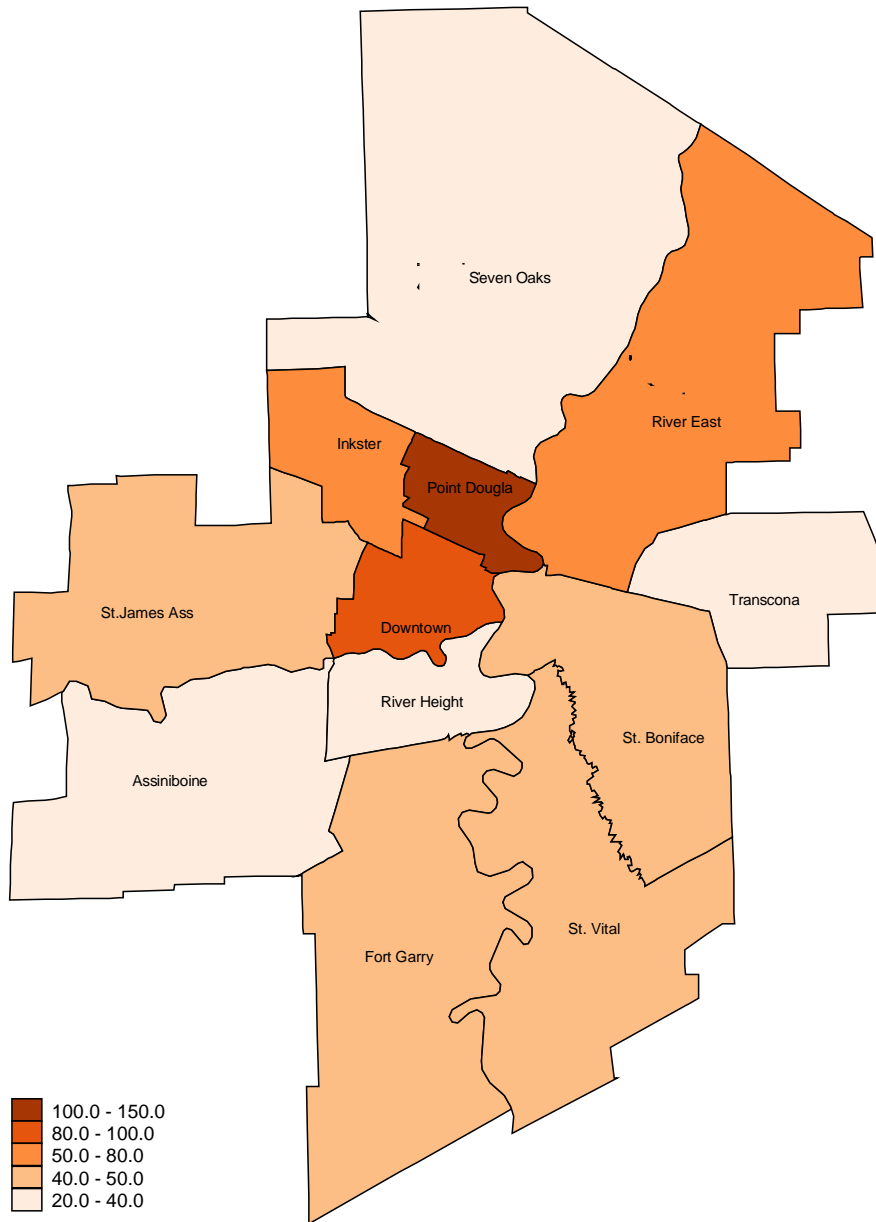
Fig. 5: Age pyramid, ED Overdose Cases*



*Data from EDIS; Includes CTAS 1 & 2 and those greater than 9 years of age only.

Figure 10: Age pyramid of suspected overdose cases arriving at Winnipeg health region emergency departments and urgent care facilities by sex, Emergency Department Information System (January 1 – March 31, 2017)

- Over half of the female suspected overdose cases arriving at Winnipeg health region emergency departments and urgent care facilities were within the age group of 15 - 24 years; the corresponding proportion of this age group among the males was lower (35%).

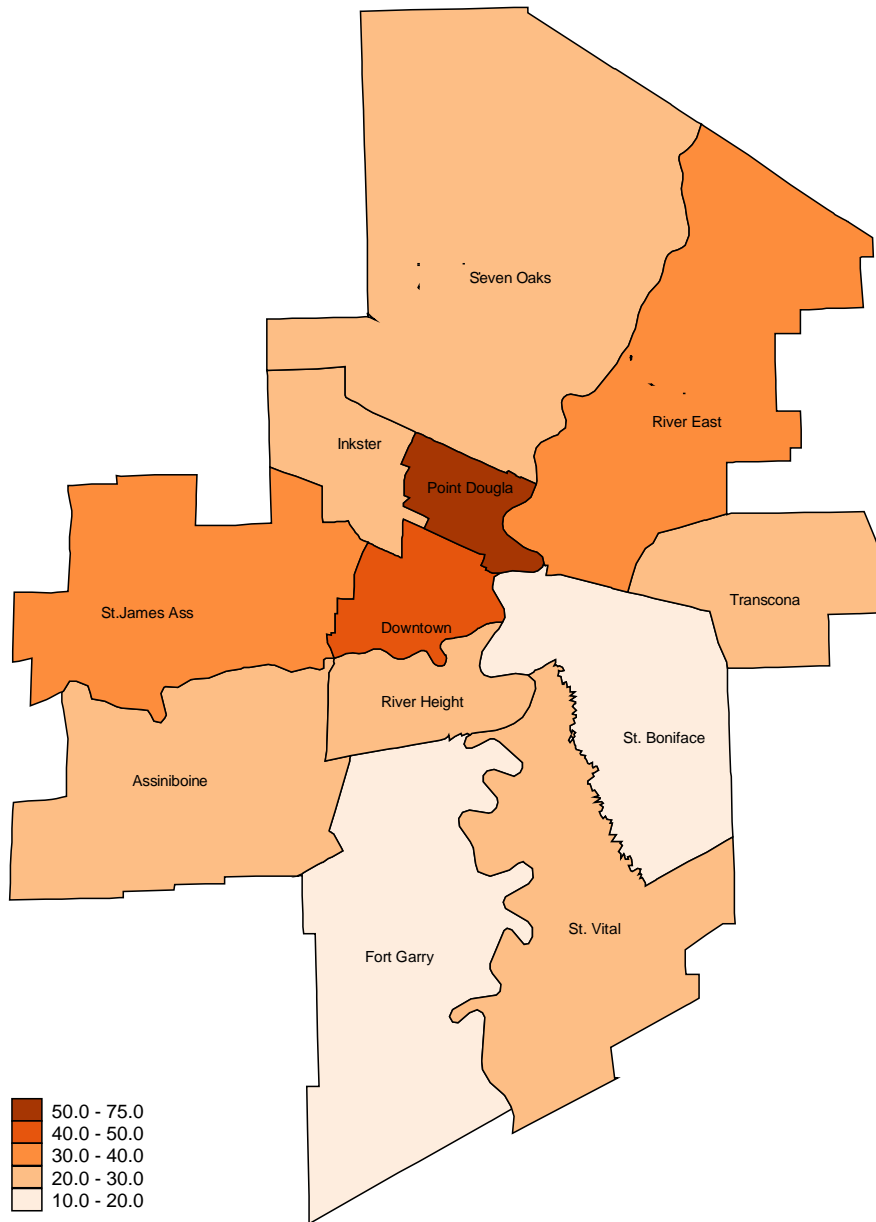


Female Visits up to 31mar2017. Total annual population (> 9years) used in rate calculations.

*Data from EDIS; Includes CTAS 1 & 2 and those greater than 9 years of age only.

Figure 11: Age standardized rates (cases per 100,000) of female suspected overdose cases arriving at Winnipeg health region emergency departments and urgent care facilities by community area of residence, Emergency Department Information System (January 1 – March 31, 2017)*

- Age-standardized rate (per 100,000) of female suspected overdose cases arriving in Winnipeg RHA emergency departments and urgent care facilities were the highest among those living in Point Douglas (130.5) and Downtown (91.9).



Male Visits up to 31mar2017. Total annual population (> 9years) used in rate calculations.

*Data from EDIS; Includes CTAS 1 & 2 and those greater than 9 years of age only.

Figure 12: Age standardized rates (cases per 100,000) of male suspected overdose cases arriving at Winnipeg health region emergency departments and urgent care facilities by community area of residence, Emergency Department Information System (January 1 – March 31, 2017)*

- Age-standardized rate (per 100,000) of male suspected overdose cases arriving at Winnipeg health region emergency departments and urgent care facilities were the highest among those living in Point Douglas (73.3) and Downtown (46.2) (see Figure A.1. in Appendix for the dot map of residential location of the cases).

Note(s):

At this point in time, EDIS does not collect information on the suspected substance involved in an overdose admission, nor is confirmatory drug testing routinely undertaken. A further limitation is that the chief complaint/visit reason of overdose used to extract the data for this report is based upon the triage nurse's initial impression when the patient first arrives and overdoses may not always be initially recognized. The result is that the number of overdose admissions is likely to be undercounted in this report.

Mortality

Office of the Chief Medical Examiner

Office of the Chief Medical Examiner's (OCME) mortality data from January 1st, 2016 and March 31st, 2017 was used to describe the apparent opioid-related apparent deaths in Manitoba. Data is gathered through chart reviews of the opioid-related deaths examined at OCME. This report applies the definitions by the Public Health Agency of Canada to be ensure consistency with other jurisdictions across Canada.

An apparent opioid-related death is defined as an acute intoxication/toxicity death resulting from the direct effects of the administration of exogenous substance(s) where one or more of the substances is an opioid. The definition includes open (preliminary) and closed (certified) cases, both intentional and unintentional cases, and those with or without personal prescriptions.

Examples of *fentanyl-related opioid(s)* include the subtypes fentanyl, carfentanil, and furanyl-fentanyl. Examples of *non-fentanyl-related opioid(s)* include codeine, heroin, and morphine. *Other substances* include but are not limited to alcohol, benzodiazepines, and cocaine.

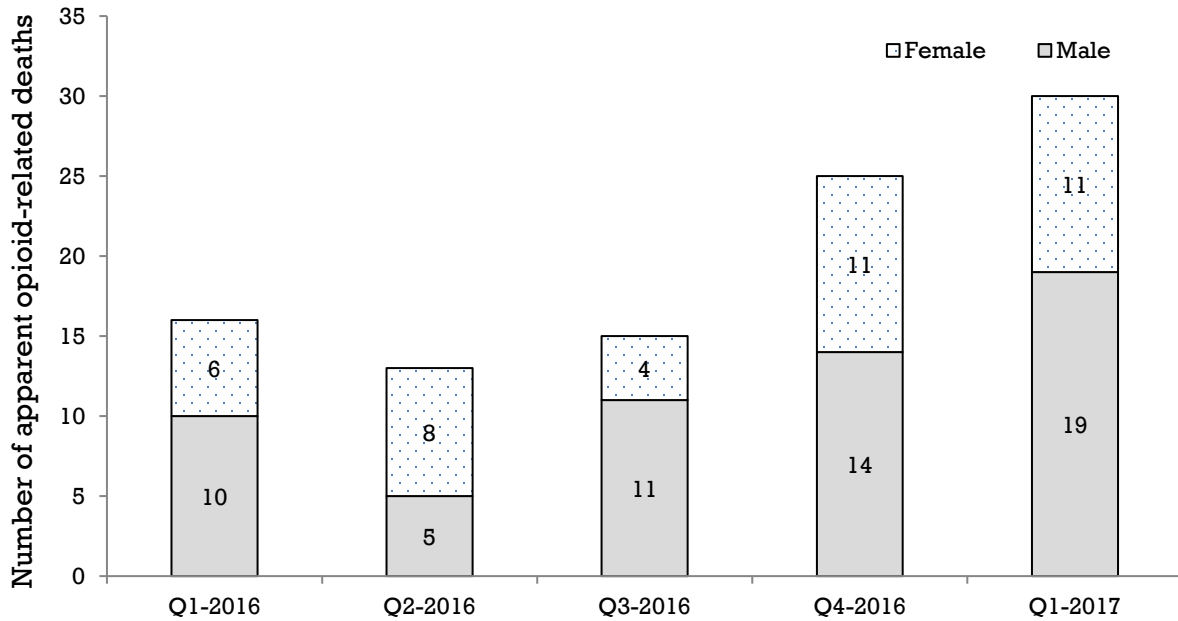
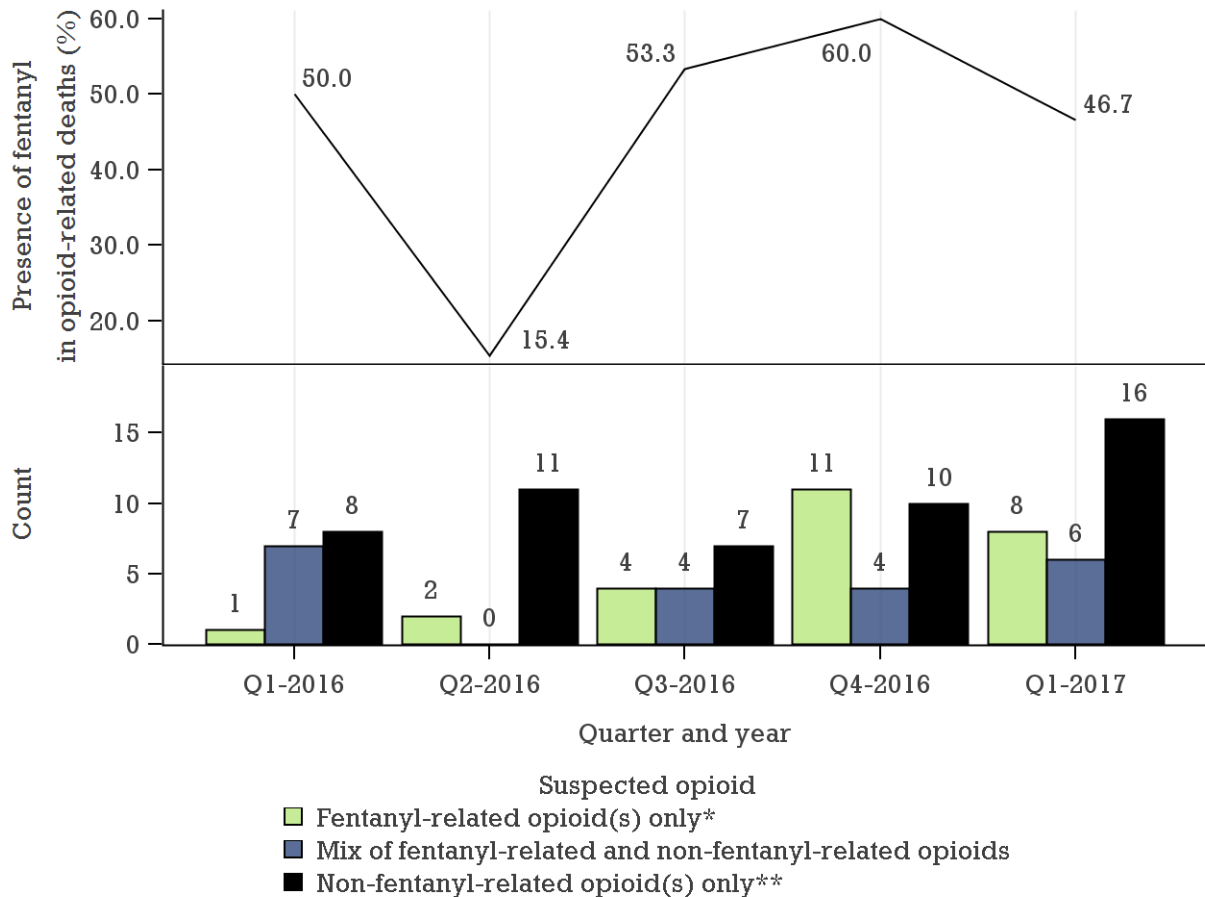


Figure 13: Number of apparent opioid-related deaths in Manitoba by quarter, Office of the Chief Medical Examiner (January 1, 2016 - March 31, 2017)

- The number of apparent opioid-related deaths from 16 deaths during the first quarter of 2016 to 30 deaths in the first quarter of 2017.
- Overall, males died more frequently from an apparent opioid-related death, with the exception of the second quarter of 2016.



* Fentanyl-related opioid(s) include fentanyl, carfentanil, furanyl-fentanyl, and etc.
 **Non-fentanyl related opioid(s) include codeine, heroin, morphine, and etc.

Figure 14: Presence of fentanyl in opioid-related deaths and the number of apparent opioid-related deaths in Manitoba by quarter and suspected opioid type, Office of the Chief Medical Examiner (January 1, 2016 - March 31, 2017)

- When looking specifically at the deaths where fentanyl was present, it is evident that there have been increases. For example, the number of apparent opioid-related deaths where only fentanyl-related opioids was present increased from one death during the first quarter of 2016 to 11 deaths during the fourth quarter of 2016 and eight deaths during the first quarter of 2017.
- In the first quarter of 2017 (January 1-March 31), fentanyl-related opioids were present in 14 of the 30 deaths (46.7%). During that same time period, 12 of the 30 deaths (40%) had the fentanyl analog carfentanil present.

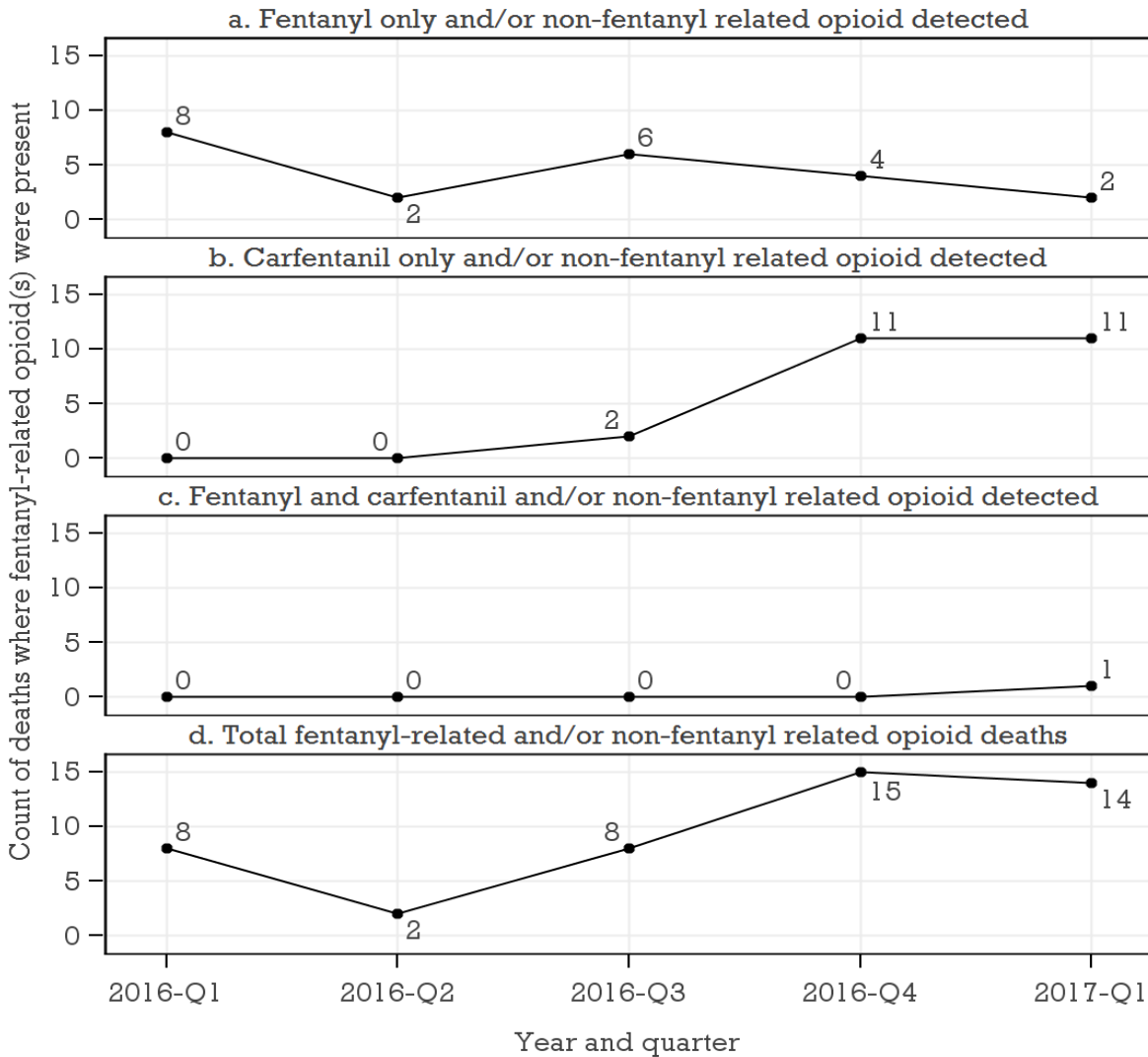


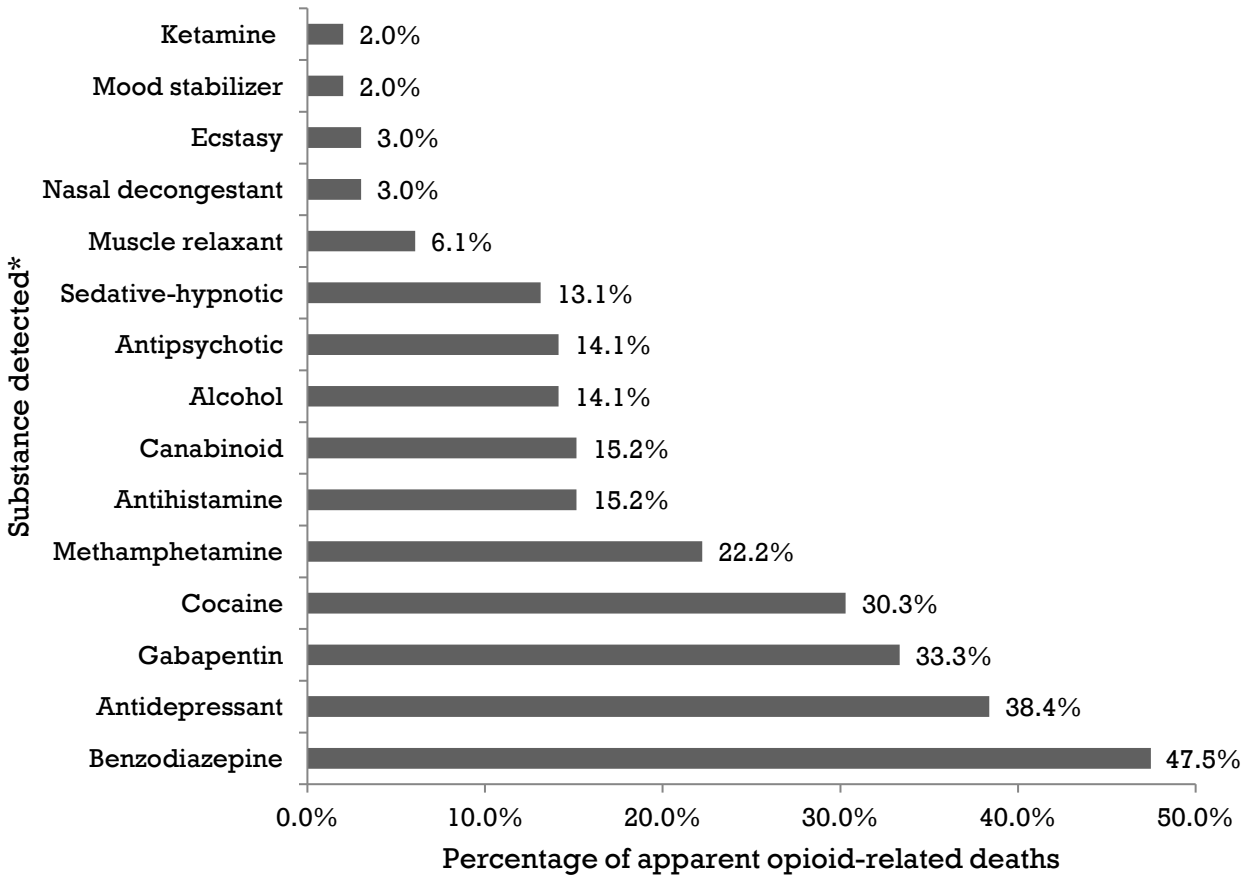
Figure 15: Count of opioid-related deaths where fentanyl-related opioids were present by quarter, Office of the Chief Medical Examiner (January 1, 2016 – March 31, 2017)

- The role of carfentanil- an analog of fentanyl- is particularly important to examine, given its toxicity. Recall that carfentanil is 10,000 more toxic than fentanyl.
- As shown in Figure 15, in the first quarter of 2017, there were 14 deaths that were fentanyl related and 12 included carfentanil:
 - 2 of the 14 deaths (14%) were classified as “fentanyl only and / or non-fentanyl opioids”. This means that neither of these deaths had carfentanil present.
 - 11 of the 14 deaths (79%) were classified as “carfentanil only and / or non-fentanyl related opioids”, and
 - 1 (7%) was a mix of the above categories which means that carfentanil was present.
- From the data available, the first reference to carfentanil a primary cause of death was in the third quarter of 2016 where there were 2 carfentanil deaths. After that point, the numbers increase substantially with 11 in the fourth quarter of 2016 and 12 in the first quarter of 2017.

Table 5: Number of apparent opioid-related deaths by certain characteristics, Office of the Chief Medical Examiner (January 1, 2016 – March 31, 2017)

| | Male | | Female | | Total | |
|-----------------------------|------|-----------|--------|-----------|-------|-----------|
| | n | % | n | % | N | % |
| <i>Total</i> | 59 | 100.0 | 40 | 100.0 | 99 | 100.0 |
| Age group (years) | | | | | | |
| <=19 | 1 | 1.7 | 0 | 0.0 | 1 | 1.0 |
| 20-29 | 16 | 27.1 | 7 | 17.5 | 23 | 23.2 |
| 30-39 | 24 | 40.7 | 8 | 20.0 | 32 | 32.3 |
| 40-49 | 6 | 10.2 | 8 | 20.0 | 14 | 14.1 |
| 50-59 | 3 | 5.1 | 7 | 17.5 | 10 | 10.1 |
| 60+ | 9 | 15.3 | 10 | 25.0 | 19 | 19.2 |
| Mean (Range) | 38.3 | (18 - 84) | 45.6 | (21 - 76) | 41.2 | (18 - 84) |
| Health Region | | | | | | |
| Winnipeg RHA | 45 | 76.3 | 23 | 60.5 | 68 | 68.7 |
| Interlake-Eastern RHA | 5 | 8.5 | 4 | 10.5 | 9 | 9.1 |
| Prairie Mountain Health | 2 | 3.4 | 6 | 15.8 | 8 | 8.1 |
| Southern Health – Santé Sud | 3 | 5.1 | 3 | 7.9 | 6 | 6.1 |
| Northern Health Region | 2 | 3.4 | 3 | 7.9 | 5 | 5.1 |
| Out of Province | 2 | 3.4 | 1 | 2.6 | 3 | 3.0 |
| Place of death | | | | | | |
| Home | 31 | 52.5 | 25 | 62.5 | 56 | 56.6 |
| Health care facility | 15 | 25.4 | 9 | 22.5 | 24 | 24.2 |
| Other | 13 | 22.0 | 6 | 15.0 | 19 | 19.2 |
| Place of overdose | | | | | | |
| Home | 38 | 64.4 | 31 | 77.5 | 69 | 69.7 |
| Work | 1 | 1.7 | 0 | 0.0 | 1 | 1.0 |
| Public Setting | 3 | 5.1 | 2 | 5.0 | 5 | 5.1 |
| Other | 17 | 28.8 | 7 | 17.5 | 24 | 24.2 |
| Manner of death | | | | | | |
| Intentional | 0 | 0.0 | 5 | 12.5 | 5 | 5.1 |
| unintentional | 28 | 47.5 | 16 | 40.0 | 44 | 44.4 |
| Unknown | 31 | 52.5 | 19 | 47.5 | 50 | 50.5 |

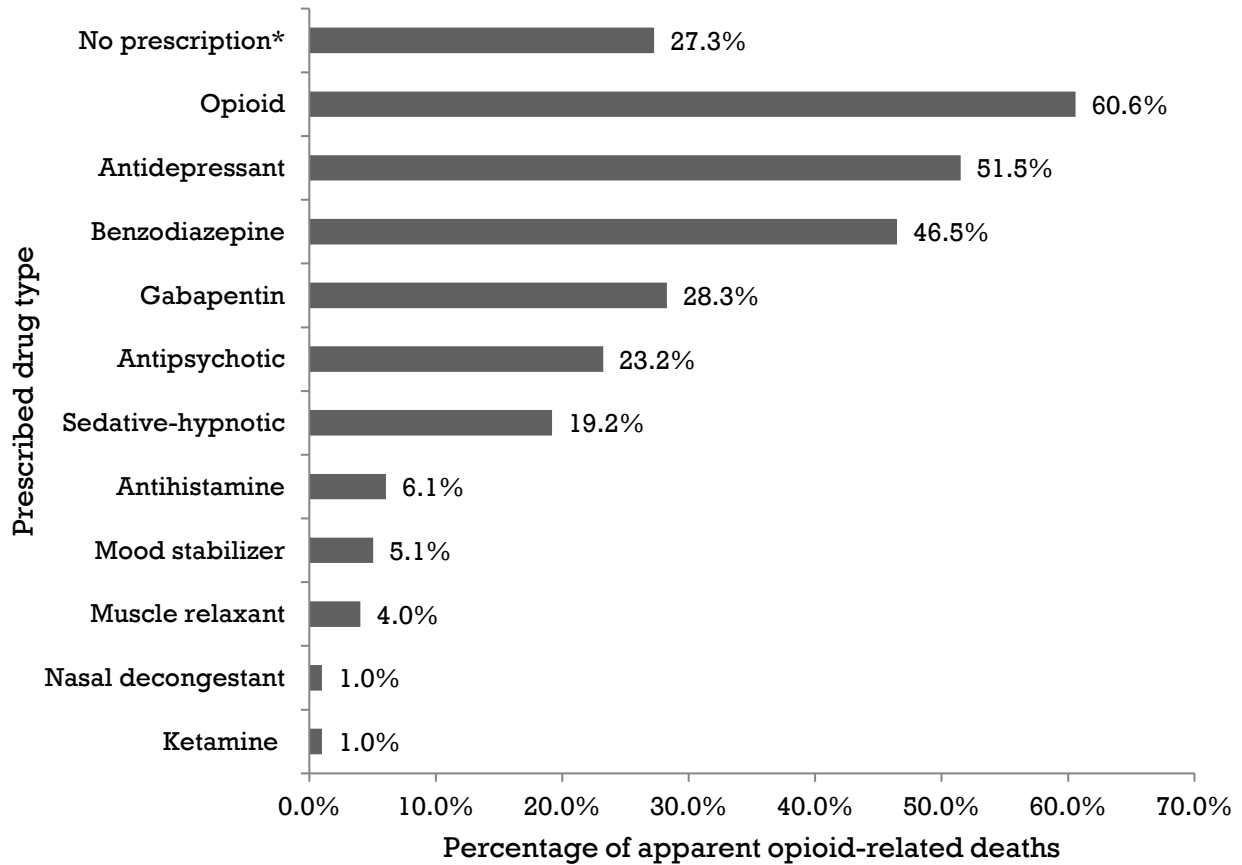
- Average age for males was lower (38 years) than females (~46 years).
- Winnipeg RHA had the largest proportion of apparent opioid-related deaths in the province (n=68, ~69%).
- Place of death or overdose were commonly home setting.



*Results are NOT mutually exclusive.

Figure 16: Proportion of other substances detected in case of apparent opioid-related deaths*, Office of the Chief Medical Examiner (January 1, 2016 – March 31, 2017)

- About 97% of apparent opioid-related deaths had at least one other substance detected (n=96).
- Among all other substances, benzodiazepines were the most frequently contributing to apparent-opioid related deaths (47.5%), followed by antidepressants (38.4%) and gabapentin, an *antiepileptic drug* (33.3%).
- Among apparent carfentanil-related deaths, the most commonly seen other substances contributing to death were cocaine (48%) and methamphetamine (56%) (*data not shown*).



*Prescription for drugs under review.

Figure 17: Count of prescription medication use within six months before apparent opioid-related deaths, Office of the Chief Medical Examiner (January 1, 2016 – March 31, 2017)

- According to chart review of the opioid-related deaths examined at OCME, opioids were the most frequently prescribed drugs within six months before apparent opioid-related death (60.6%), followed by antidepressants (51.5%), and benzodiazepines (46.5%).
- Most commonly prescribed opioids within six months before an apparent opioid-related death were codeine (53.3%), oxycodone (21.7%), and hydromorphone (16.7%) (*data not shown*).
- *Overall overdose deaths for 2016 in Manitoba are expected to remain stable or somewhat increased as compared to previous years. However the contribution of opioids, including fentanyl, to these overall overdose deaths appears to be increasing in 2016, and in early 2017.*
- *There are several prevention initiatives underway which may impact these numbers. For example, the Take-Home Naloxone program for individuals at risk of opioid overdose, and the provision of naloxone at the scene of suspected opioid overdoses by first responders may affect the number of overdose deaths. The impact of these programs may become clearer over time.*

Toxicology

The Office of the Chief Medical Examiner (OCME) can request Diagnostic Services Manitoba (DSM) to provide further evidence to support an investigation. As part of that process, DSM will screen samples for fentanyl analogs including carfentanil and furanyl fentanyl. The source of the screening results is blood and tissue samples received from physicians (clinicians and pathologists).

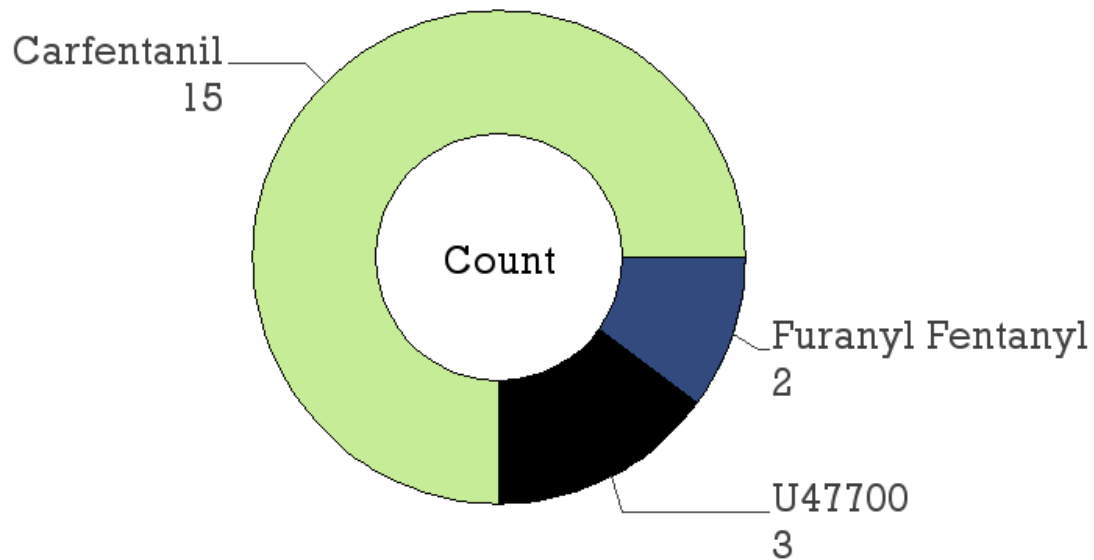


Figure 18: Number of positive toxicology screens by fentanyl analog*, Diagnostic Services Manitoba (January 1 - April 4, 2017)**

*Fentanyl analogs do not include fentanyl.

**The reported data period ends on April 4, 2017; therefore, the results cannot be presented as January 1 – March 31st, 2017 as similar other results in this report.

- There were a total of 20 positive screens for fentanyl analogs from January 1 - April 4, 2017.
- Seventy-five percent of all positive screens indicated the analog carfentanil was present. Carfentanil is a derivative of the synthetic opioid fentanyl but is approximately 10,000 times more toxic than morphine and 100 times more toxic than fentanyl.

Note: It cannot be presumed that the presence of a fentanyl analog is related to the cause of death. This requires the review by the Office of the Chief Medical Examiner, as toxicological findings must be consolidated with all cases and autopsy information in order to ascertain cause of death. Thus, there can be no implied correlation between the number of positive test results and the number of overdose-related deaths.

Call Centers

A number of call centers exist in Manitoba to provide the general public information in specific areas such as poisoning or general areas such as healthcare. Two call centers (Health Links – Info Santé and the Poison Control Centre) capture data on calls that are linked to opioids.

Health Links – Info Santé

Health Links – Info Santé is a provincial telenursing service that offers the following confidential services free-of-charge: (1) health assessment, care advice, and triage to the most appropriate level of care (e.g. “the Right Care at the Right Time”), (2) general health information and education, and (3) assistance in finding and accessing health resources in local communities to all residents in Manitoba. Health Links – Info Santé registered nurses use evidence-based guidelines and/or health education documents (e.g. “Health Information Advisor” (HIA) documents) to assist clients. Although guidelines and health education documents are a core asset in providing health information, professional nursing judgment is also used in providing information and triaging symptoms for clients.

Table 6: Number of calls to Health Links – Info Santé, Health Links – Info Santé (January 1, 2013 - March 31, 2017)

| Health Education Document Title | 2013 | 2014 | 2015 | 2016 | 2017* |
|--|------|------|------|------|-------|
| Substance Abuse | 14 | 13 | 16 | 11 | 4 |
| Recognizing Drug Abuse in Kids | 2 | 1 | 2 | 1 | 1 |
| Prescription Drug Abuse | 8 | 6 | 9 | 9 | 2 |
| Drugs - What You Should Know and Drug Testing | 26 | 30 | 17 | 12 | 2 |
| Street Drugs and their Slang Names | 0 | 0 | 0 | 3 | 0 |
| Street Connections Launches a Take-Home Naloxone Program | 0 | 0 | 0 | 0 | 0 |
| Detoxification | 34 | 33 | 52 | 61 | 4 |
| Treating Teens for Substance Abuse | 0 | 1 | 0 | 3 | 0 |
| Hallucinations | 5 | 10 | 17 | 14 | 2 |
| Talking with your Child about Drinking and Drugs | 1 | 0 | 1 | 1 | 0 |
| Drug, Alcohol and Tobacco Use During Pregnancy | 52 | 24 | 0 | 17 | 7 |
| Naloxone Programs and Kits** | n/a | n/a | n/a | n/a | 4 |
| Street Connections Launches a Take-Home Naloxone Program** | n/a | n/a | n/a | n/a | 0 |
| Fentanyl** | n/a | n/a | n/a | n/a | 1 |
| Withdrawal Symptoms: Drug and Alcohol Abuse** | n/a | n/a | n/a | n/a | 13 |
| Talking with Your Child about Drinking and Drugs** | n/a | n/a | n/a | n/a | 0 |

* 2017 includes data from January to March.

** Based upon increasing caller and RN demand, new/updated health education document title is added. Data is only available from 2017 onwards.

- There was an increased in the use of the “Detoxification” health education document, from 34 calls in 2013 to 61 calls in 2016.
- Although newly introduced, there is a proportionally higher volume of calls utilizing “Withdrawal Symptoms: Drug and Alcohol Abuse” health education document compared to other documents from January 1st to March 31st, 2017.

Note: Calls that utilize health education documents in the above tables are only topics discussed during calls – it is not known if callers are directly involved in the topic matter (opioid/drug use). Therefore, interpretation of the data presented in this section should be continued with caution.

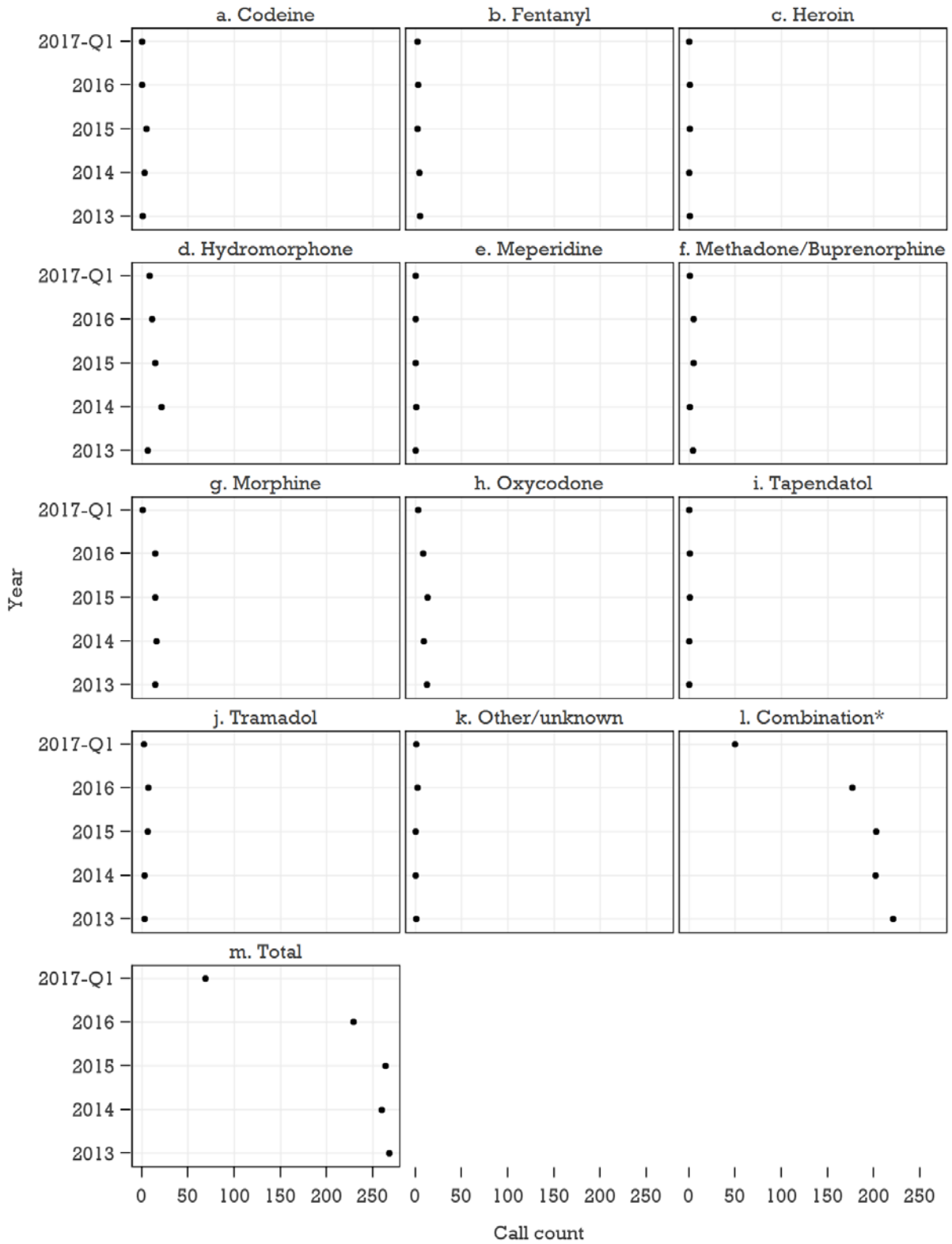
Manitoba Poison Centre

The Manitoba Poison Centre (MPC) is a telephone toxicology consultation service that provides expert poison advice 24 hours a day to the public and healthcare professionals throughout Manitoba.⁸ MPC data is used in this report to describe the opioid-related calls received between January 1st, 2013 and March 31st, 2017.

- Overall, number of opioid-related calls received by MPC was relatively stable between 2013 and 2015, but dropped in 2016.
- Calls were most commonly specific to opioids in combination with non-opioid analgesics. There was a steady increase in number of calls related to Tramadol.

Note: It is important to note that since overdose poisoning are not reportable diseases in Manitoba, there is no obligation for a patient or health care provider to call MPC to help manage an exposure. In fact, emergency room doctors are generally more comfortable with management and the use of naloxone. Therefore, MPC numbers may be an undercount and should not be relied on to provide a complete picture of the extent of the problem. In addition, the substance about which the caller inquired may not have been verified. Certainly, what was purchased on the streets may not be what is advertised.

⁸ Manitoba Poison Centre 2013 & 2014 Annual Report



*Combination with non-opioid analgesics

Figure 19: Number of opioid-related calls by opioid type, Manitoba Poison Centre (January 1, 2013 - March 31, 2017)

Others

Opioids Identified or Tracked by Drug Analysis Service of Health Canada

The Drug Analysis Service of Health Canada operates laboratories across Canada that are employed to analyze suspected illegal drugs seized by Canadian police forces and the Canada Border Services Agency. The laboratories receive over 110,000 samples per year, confirming the identity and in some cases the purity of the controlled substances seized by police.⁹

We used the Drug Analysis Service of Health Canada aggregated data for 2010/11 – 2016/17 fiscal years (FY) to summarize the opioids identified or tracked in Manitoba. It should be noted that a single sample may contain more than one substance.

- In Manitoba, overall number of illegal opioids identified or tracked by Drug Analysis Service of Health Canada steadily increased from 86 in 2012/13 FY to 216 in 2016/17 FY.
- In Manitoba, number of illegal fentanyl-related drugs identified or tracked sharply increased in 2015/16 FY (n = 33) and 2016/17 FY (n = 70) while the corresponding numbers for 2010/11–2014/15 FYs ranged from 0-7.

⁹Health Canada, Drug Analysis Service. Available at: <http://www.hc-sc.gc.ca/hc-ps/substancontrol/analysis-drugs-droques/index-eng.php> (Accessed Jan 13, 2017).

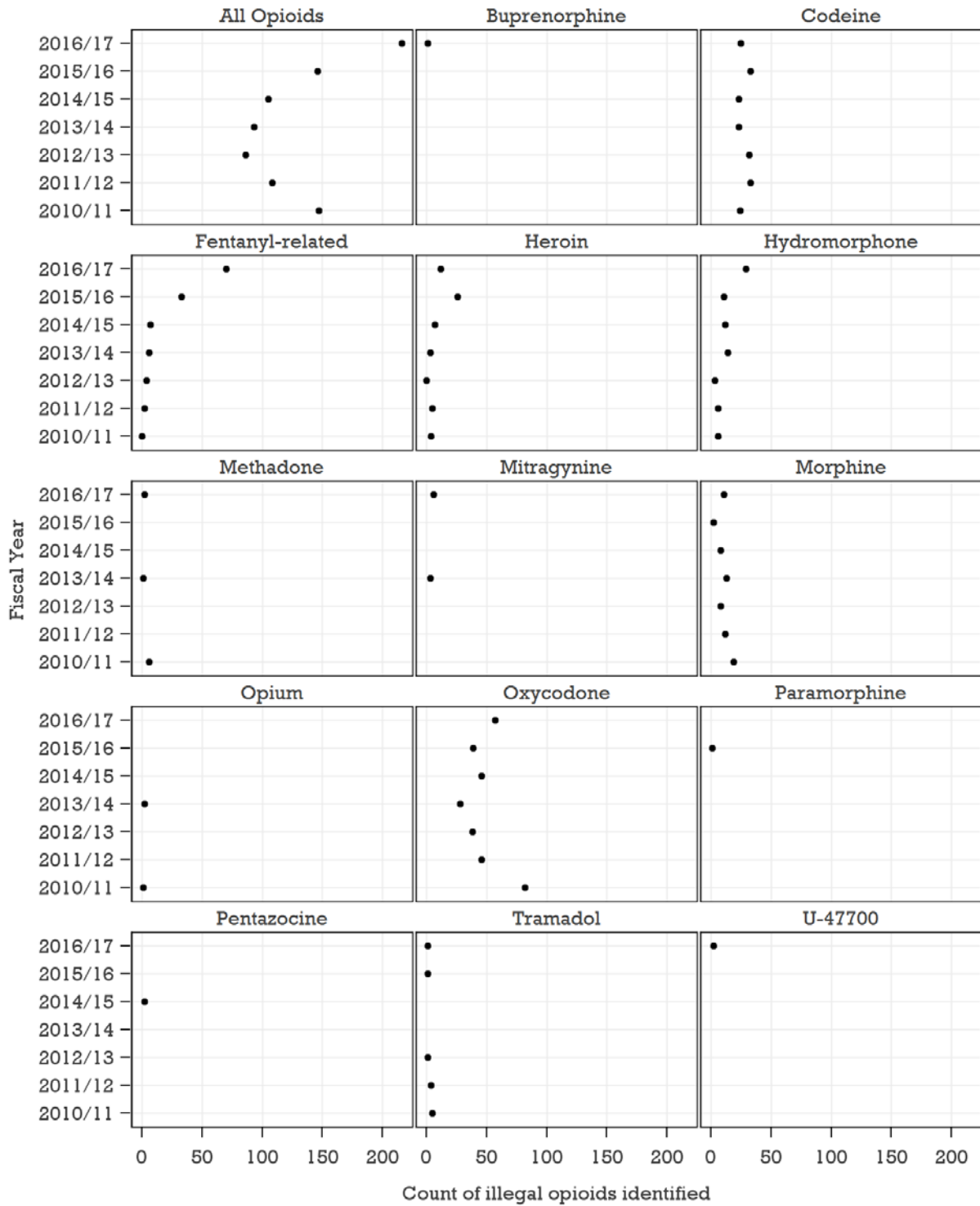


Figure 20: Number of illegal opioids identified or tracked in Manitoba by opioid type, Drug Analysis Service of Health Canada (2010/11 – 2016/17 fiscal years)

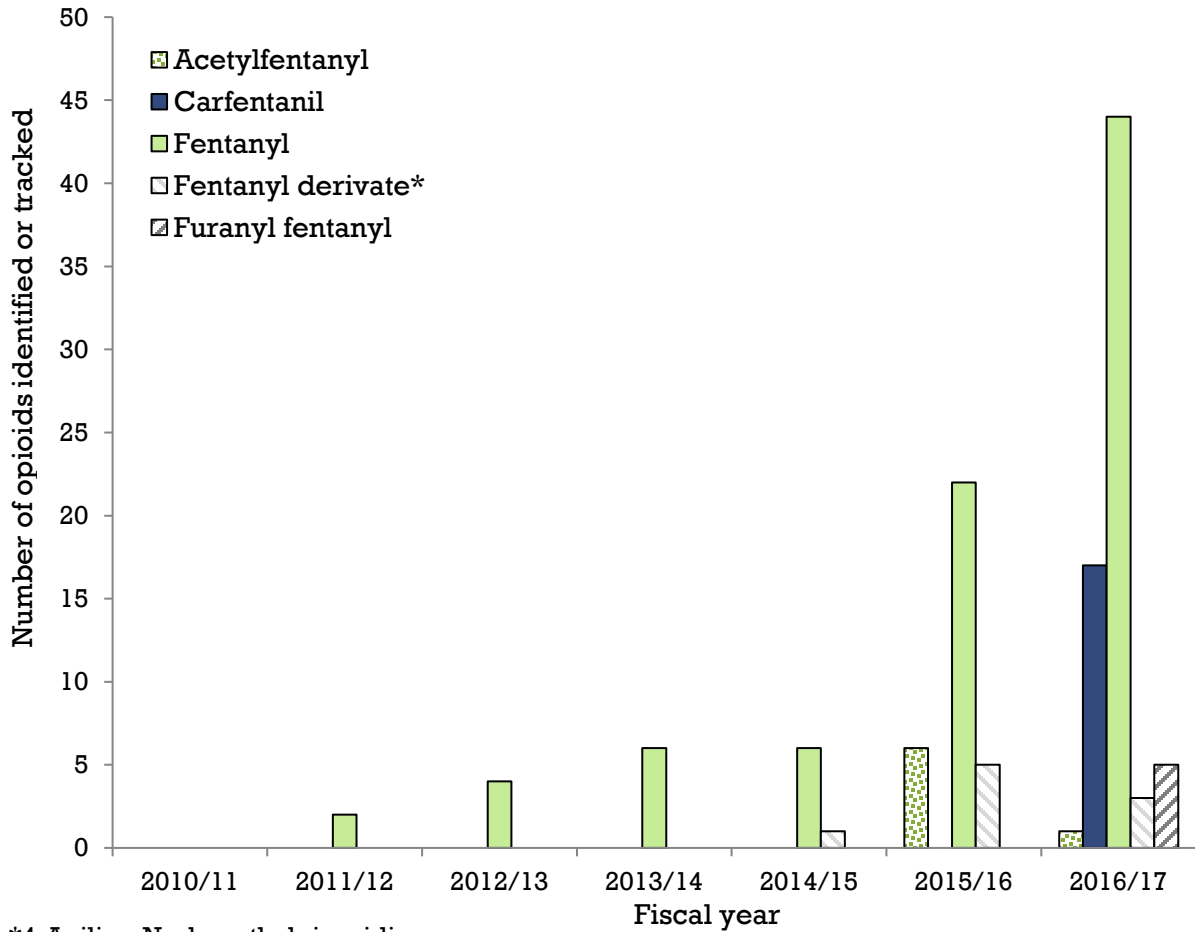


Figure 21: Type of illegal fentanyl-related opioids identified or tracked in Manitoba by fiscal year and opioid type, Drug Analysis Service of Health Canada (2010/11 – 2016/17 fiscal years)

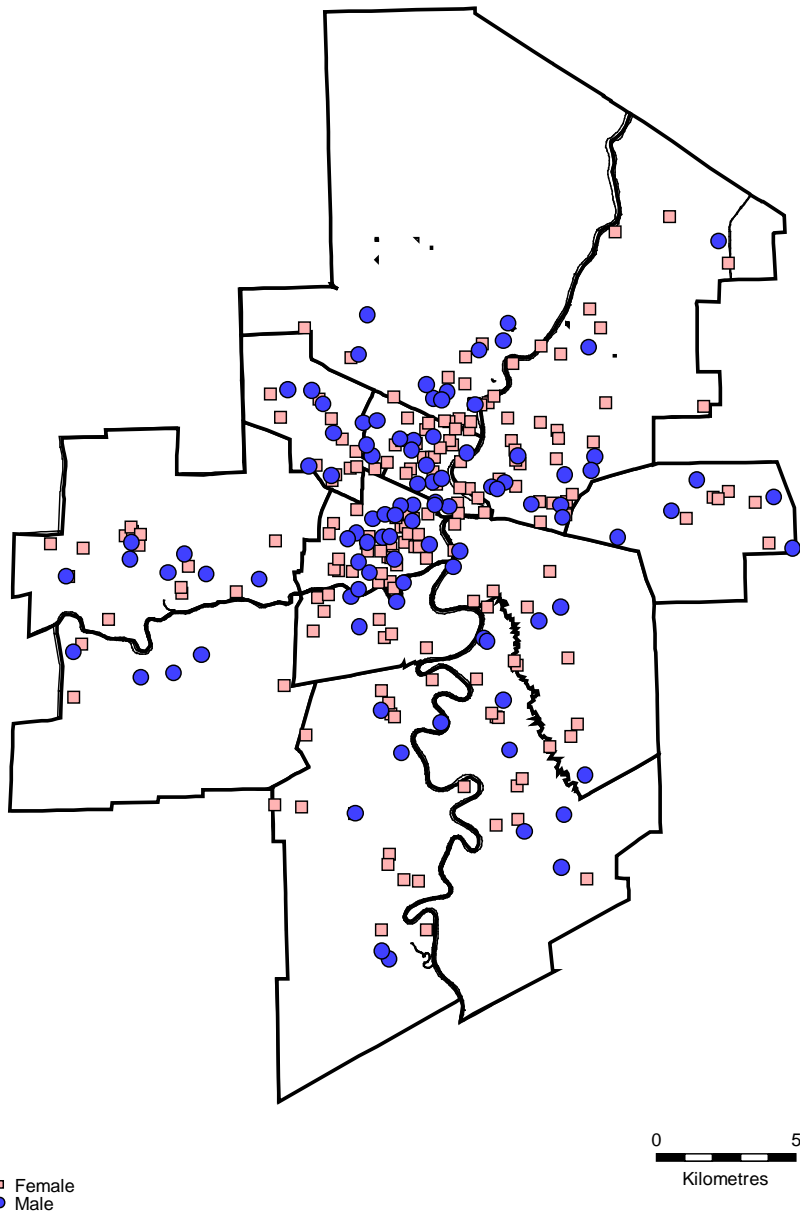
- In 2016/17 FY, there were 17 cases of carfentanil identified or tracked in Manitoba while there were zero cases of carfentanil 2010/11 - 2015/16 FYs. Across Canada, there were 91 carfentanil identified or tracked in 2016/17 FY. About 19% of these samples (~19%) were from Manitoba.
- Number of fentanyl identified or tracked increased 3.7 times from 2014/15 FY to 2015/16 FY and doubled in 2016/17 FY compared to previous FY.

Summary

This report aims to provide surveillance data needed to inform management of opioid misuse and overdoses in Manitoba. Overall, the number of apparent opioid-related deaths has dramatically increased from January 1st, 2016 to March 31st, 2017. The largest increase was noted for apparent fentanyl-related deaths. In the first quarter of 2017, there was an increase in the following area as compared to same quarter in 2016: suspected overdose cases receiving naloxone from Winnipeg Fire and Paramedic Service, and emergency department admissions due to suspected overdose cases in Winnipeg RHA. Lastly, the number of illegal fentanyl-related drugs identified or tracked by Drug Analysis Service of Health Canada sharply increased from 2011/12 FY to 2016/17 FY.

Appendix

Figure A.1: Dot map of residential location of suspected overdose cases arriving at Winnipeg health region emergency departments and urgent care facilities (January-March 2017)



Data from EDIS; Includes CTAS 1 & 2 and those greater than 9 years of age only.