epiREPORT

SURVEILLANCE OF OPIOID MISUSE AND OVERDOSE IN MANITOBA: *BASELINE REPORT*

Epidemiology & Surveillance
Active Living, Indigenous Relations, Population and Public Health
Manitoba Health, Seniors and Active Living

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Manitoba

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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
RHA	Regional Health Authority
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 following organizations for providing the data to this provincial surveillance system:

- 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 practice[1]. It is needed to provide an accurate assessment of 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 improved[2]. *The Public Health Act* of Manitoba allows the creation of a new surveillance system in order to anticipate, assess, monitor and plan for health needs and threats to public health[3]. In 2016, the Minister of Health, Seniors and Active Living requested a surveillance system be developed to monitor opioid misuse and overdose in the province.

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. Examples of opioids are fentanyl, hydrocodone, hydromorphone, morphine and oxycodone. 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.

Of recent concern has been the impact of the opioid fentanyl, a prescribed drug to treat chronic pain. Fentanyl is up to 100 times more potent than morphine, typically comes in patch form, which some users cut up, suck on, or scrape off and smoke. An illicit powdered variety of fentanyl, imported from other countries is also cut into or disguised as 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 – 2014[4] and fentanyl related deaths have been on the rise in Canada

[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

every year since 2009[5]. National 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 Quebec[5]. British Columbia even declared a Public Health Emergency in 2016 due to dramatic year over year rise in fentanyl related deaths.

Given increasing concerns about 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. Also, 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 provides BASELINE data up until the end of 2016.

[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 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 Chief Medical Examiner's data
- Emergency department information system data (*available for Winnipeg RHA only*)
- Hospital separation abstracts
- Critical care & medicine data (*available for Winnipeg RHA only*)
- Calls to Health Links - Info Santé
- Healthy sexuality and harm reduction take-home naloxone data (*available for Winnipeg RHA only*)
- 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

The report provides an overview of each of the data sources. Collectively, the information provides a description of the situation relating to opioid misuse and overdoses in the province. The intention is to reproduce this report quarterly in order to determine if changes in trends are occurring and to inform public health action.

Naloxone Distribution

Take-Home-Naloxone program

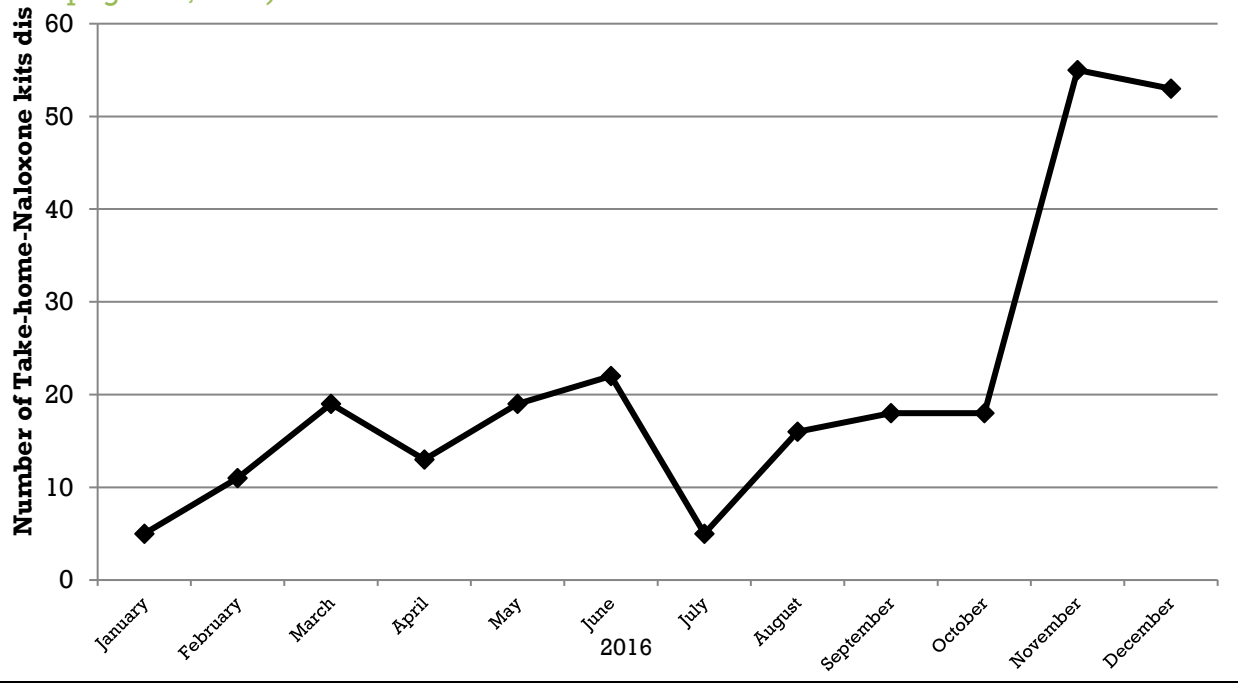
The Healthy Sexuality and Harm Reduction program in Winnipeg RHA launched a Take-Home-Naloxone program in January 2016 in order to increase access to opioid overdose prevention and response resources among people with a high risk of opioid overdose. It was extended to the entire province one year later. 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

This section describes the data on Take-Home-Naloxone kits dispensed from Healthy Sexuality and Harm Reduction in Winnipeg RHA (2016).

Figure 1: Distribution of Take-Home-Naloxone kits (Healthy Sexuality and Harm Reduction, Winnipeg RHA, 2016)

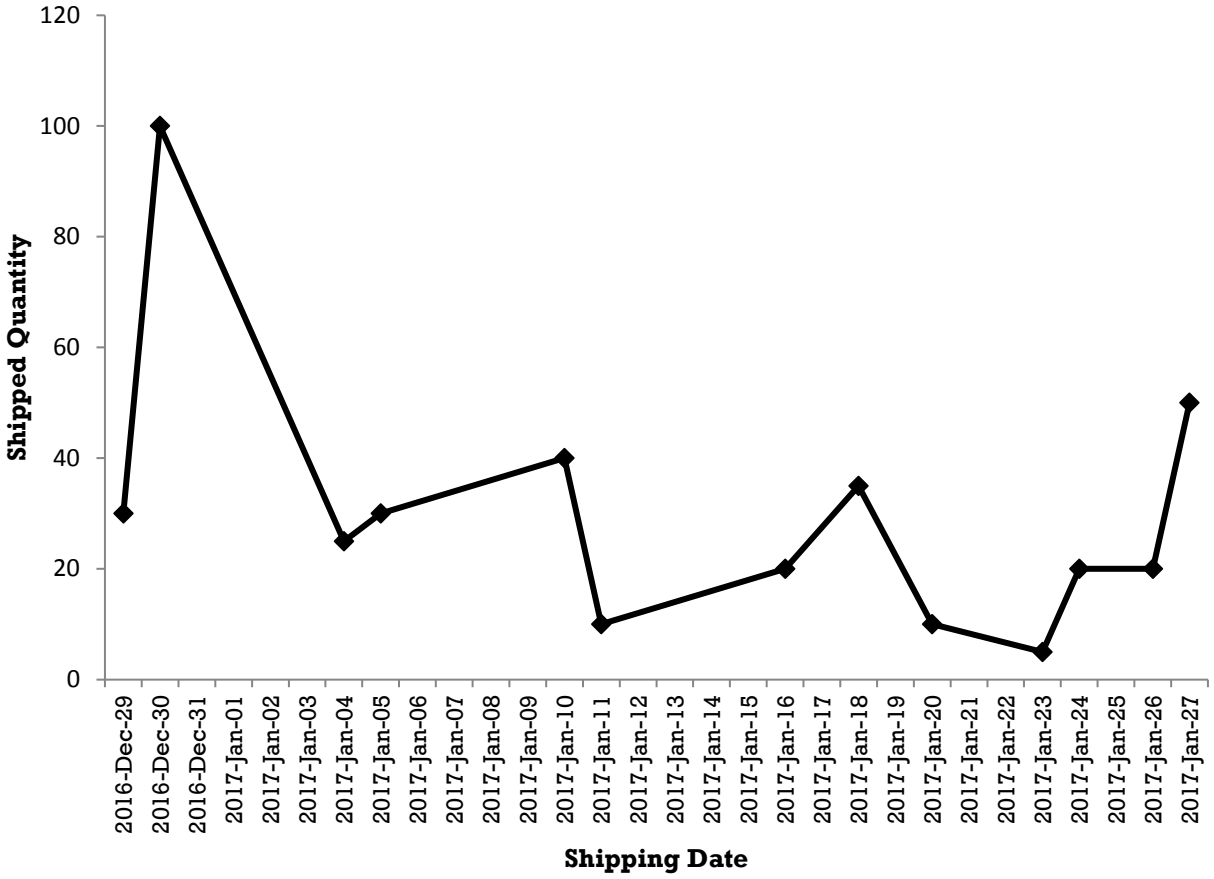


- In 2016, 250 naloxone kits were distributed by Healthy Sexuality and Harm Reduction Take-Home-Naloxone program in Winnipeg RHA.
- Most of the Take-Home-Naloxone kits were distributed in the last quarter of 2016.

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.

Figure 2: Number of naloxone kits shipped by Materials Distribution Agency (December 29, 2016-January 27, 2017)



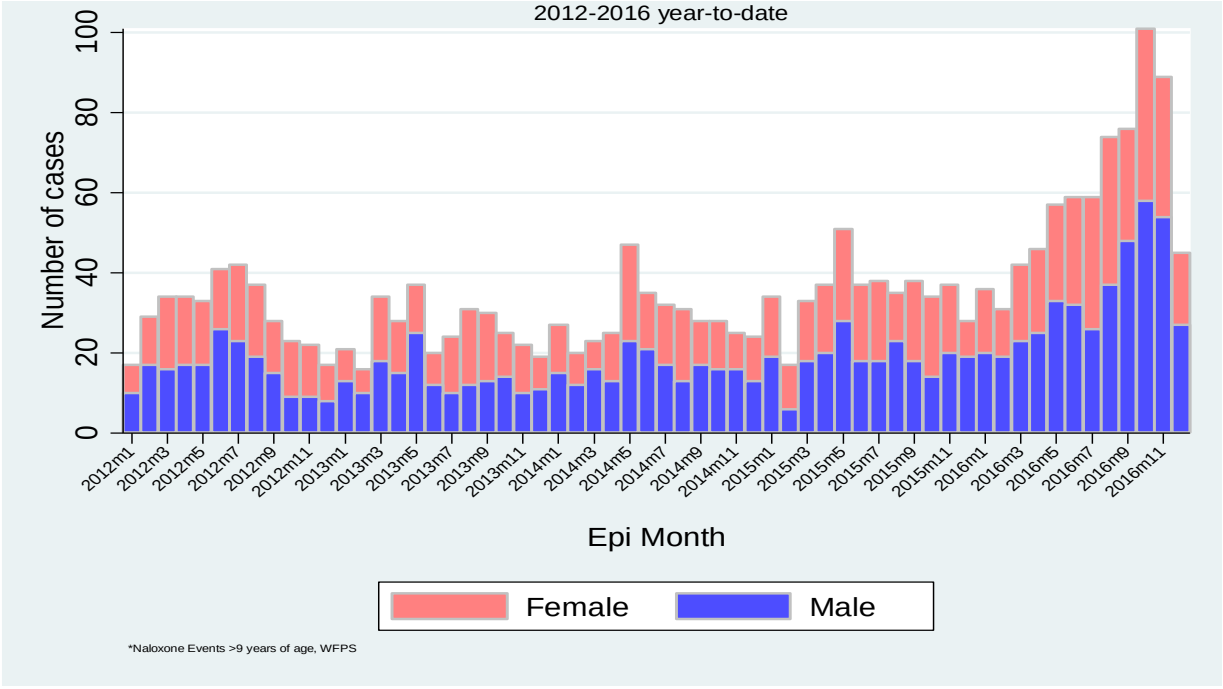
- Between December 29, 2016 and January 27, 2017 a total of 395 naloxone kits were shipped by MDA.
- The largest number of naloxone kits were shipped on December 30, 2016 (n=100).
- During December 29, 2016 – January 27, 2017, over half of the naloxone kits have been shipped to Winnipeg RHA (n=220), followed by Prairie Mountain Health (n=90).

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 (or count) of calls where WFPS administered naloxone by a paramedic. 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 to provide data to inform public health programming in the region.

Figure 3: Epidemic curve of naloxone administration for overdose events, Winnipeg Fire and Paramedic Service (2012–2016)



- In 2015, there were a total of 419 overdose events where naloxone was administered by WFPS; in 2016, there were a total of 715 overdose events where naloxone was administered by WFPS. The increase of 296 administrations may indicate a true increase in burden or different awareness by the WFPS.

Table 1: Characteristics of naloxone administration for overdose events, Winnipeg Fire and Paramedic Service (2016), aged 9+ years old

	Female		Male		Total	
	No.	%	No.	%	No.	%
Total	*313*	*100.0*	*402*	*100.0*	*715*	*100.0*
Age group (years)						
10-14	3	1.0	2	0.5	5	0.7
15-19	22	7.0	25	6.2	47	6.6
20-24	52	16.6	66	16.4	118	16.5
25-29	52	16.6	65	16.2	117	16.4
30-39	78	24.9	102	25.4	180	25.2
40-49	57	18.2	66	16.4	123	17.2
50+	49	15.7	76	18.9	125	17.5
Community area(s)						
Assiniboine South	4	1.3	8	2.0	12	1.7
Downtown	111	35.5	157	39.1	268	37.5
Fort Garry	5	1.6	12	3.0	17	2.4
Inkster	12	3.8	11	2.7	23	3.2
Point Douglas	68	21.7	74	18.4	142	19.9
River East	25	8.0	28	7.0	53	7.4
River Heights	20	6.4	18	4.5	38	5.3
Seven Oaks	11	3.5	19	4.7	30	4.2
St. Boniface	18	5.8	21	5.2	39	5.5
St. James Assiniboia	14	4.5	24	6.0	38	5.3
St. Vital	17	5.4	25	6.2	42	5.9
Transcona	8	2.6	5	1.2	13	1.8
Canadian Triage and Acuity Scale - initial						
1– Resuscitation	97	31.8	167	42.5	264	37.8
2 – Emergent	178	58.4	188	47.8	366	52.4
3 – Urgent	15	4.9	12	3.1	27	3.9
4 – Less urgent	15	4.9	23	5.9	38	5.4
5 – Non urgent	0	0.0	3	0.8	3	0.4
Dosage of naloxone administered (mg)						
0-0.40	122	39.0	136	33.8	258	36.1
0.41-0.80	88	28.1	117	29.1	205	28.7
0.81-1.20	33	10.5	53	13.2	86	12.0
1.21-2.00	42	13.4	62	15.4	104	14.5
2.01-4.00	23	7.3	22	5.5	45	6.3
4.01+	5	1.6	12	3.0	17	2.4

- A quarter of the naloxone administrations by WFPS were in 30-39 year age group.
- Over-half of the naloxone administration by WFPS occurred in the Downtown or Point Douglas community areas.
- For about 9 out of 10 of the events, the paramedics' initial Canadian Triage and Acuity Scale (CTAS) assessment was noted as either 1- Resuscitation or 2 – Emergent.

- For over half of overdose events, naloxone was administered at 0.41-2.00 mg doses.

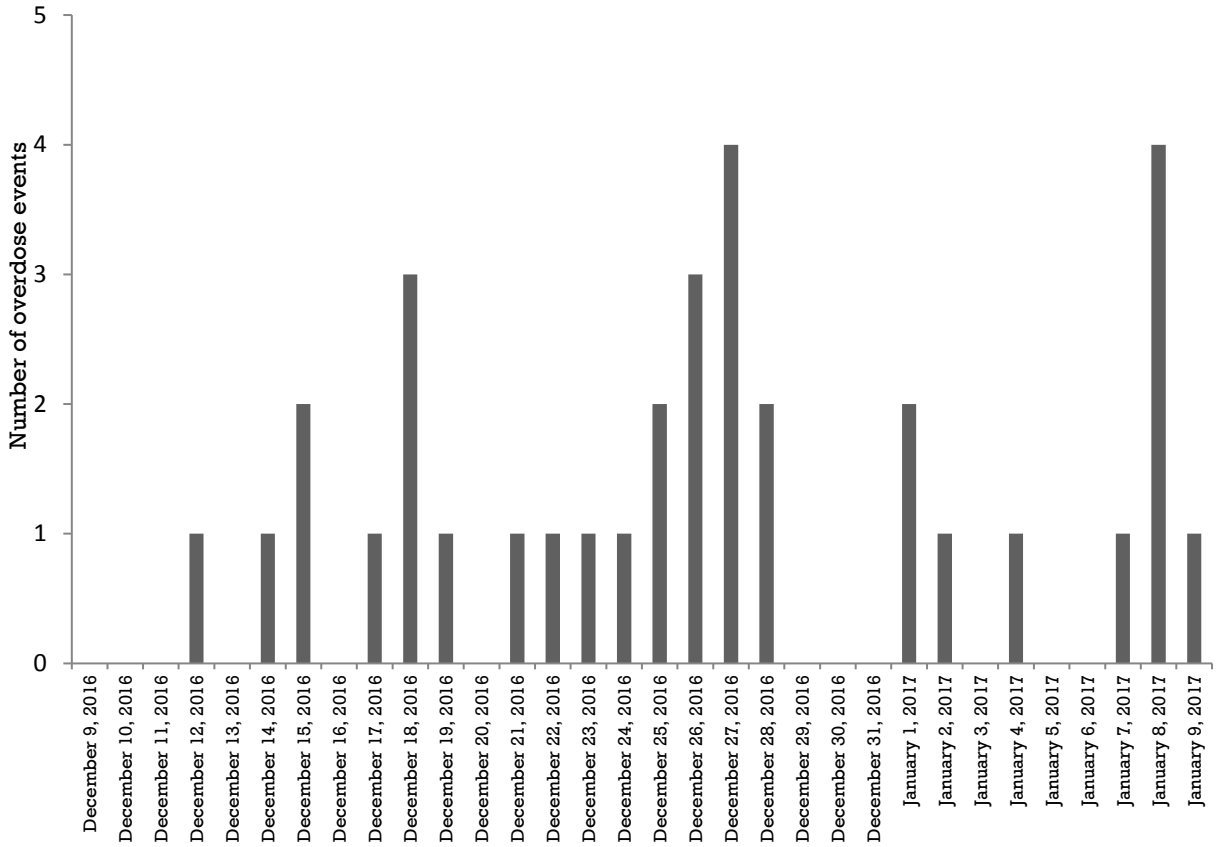
The increase in reported naloxone administration in 2016 is in part due to a real increase in opioid overdose events in Winnipeg. However, a proportion of the increase is also likely due to a number of changes over the past year which could have inflated the count of naloxone related calls and the intensity 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 October 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.

Figure 4: Epidemic curve of suspected overdose events in rural and northern Manitoba, Medical Transportation Coordination Centre (December 9, 2016-January 9, 2017)



- MTCC identified 34 calls with suspected opioid events in rural and northern Manitoba between December 9, 2016-January 9, 2017. Of those 34 calls, 23 resulted in a patient transport, and of those 23 transports, 6 were emergent (*data not shown*).
- The highest volumes of calls (n=4) occurred on December 27, 2016 and January 8, 2017.

Table 2: Characteristics of suspected overdose events in rural and northern Manitoba, Medical Transportation Coordination Centre (December 9, 2016-January 29, 2017)

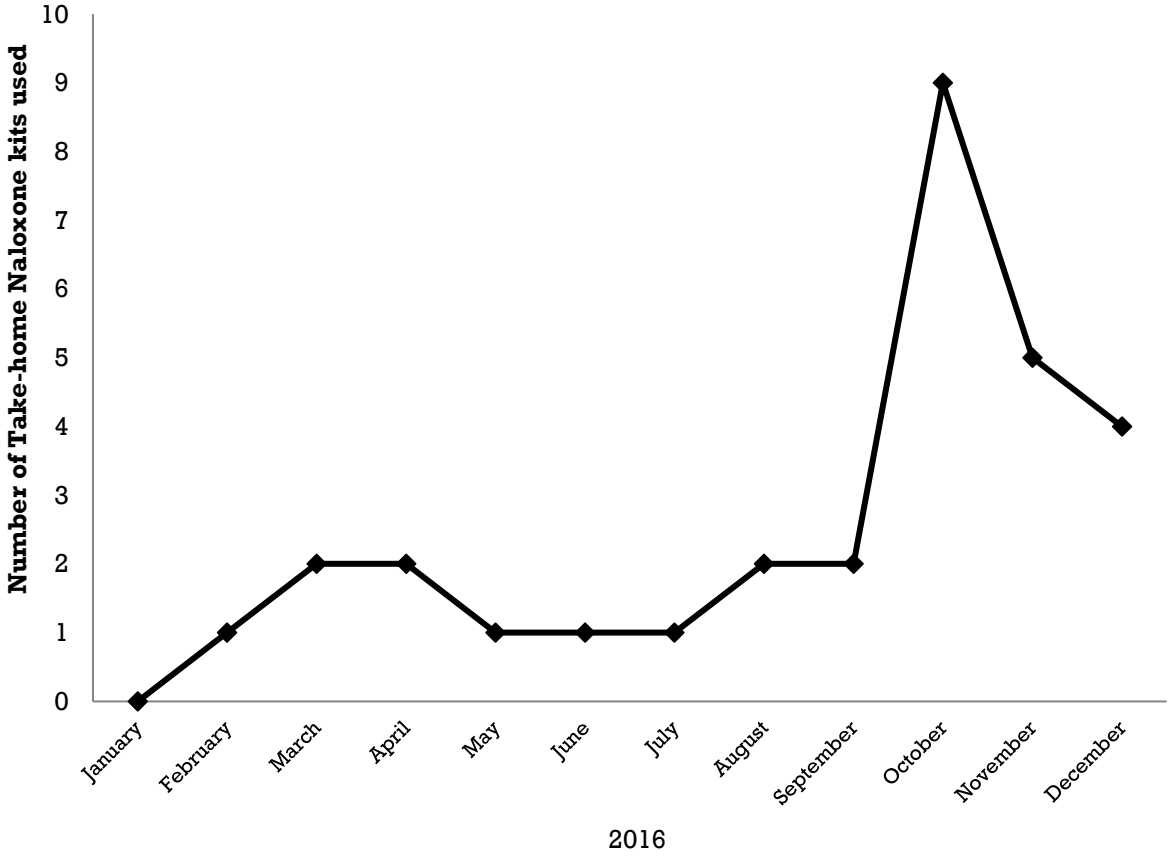
	N	%
Total	*42*	*100.0*
Age groups		
<=19	9	21.5
20-24	12	28.6
25-29	7	16.7
30-39	7	16.7
40-49	2	4.8
50+	2	4.8
Unknown	3	6.3
Sex		
Female	19	45.2
Male	20	47.6
Unknown	3	7.1
RHA		
Interlake-Eastern	11	26.2
Prairie Mountain	11	26.2
Southern Health - Santé Sud	15	35.7
Northern	5	11.9

- Forty-five percent of suspected overdose events reported by MTCC were between the age of 20 and 29 years.
- Approximately one-third of the suspected opioid overdose events reported by MTCC were observed in Southern Health- Santé Sud region.

Take-Home-Naloxone Program

When a Take-Home-Naloxone kit dispensed from Healthy Sexuality and Harm Reduction is used by a lay responder in an overdose event, an overdose response form is to be completed by the staff person replacing the kit. In Winnipeg RHA, 32 kits were replaced in 2016 because they were reportedly used in overdose events; 30 overdose response forms were completed. The data presented below are drawn from the 30 overdose events for which data was collected.

Figure 5: Distribution of overdose events where Take-Home-Naloxone kit was used (Healthy Sexuality and Harm Reduction, Winnipeg RHA, 2016)



- In Winnipeg RHA, more overdose events were reported in the last quarter of 2016, which generally coincided with an increase in naloxone kit distribution (see Figure 1).
- The peak incidence of overdose events occurred in October 2016.

Table 3: Characteristics of overdose events where Take-Home-Naloxone kit was used, Winnipeg RHA (2016)

Characteristics	Categories	Female (%)	Male (%)	Total (%)
Total		*16 (53.3)*	*14 (46.7)*	*30 (100.0)*
Age group (years)	12-18	1 (6.3)	0 (0.0)	1 (3.3)
	19-30	8 (50.0	5 (35.7)	13 (43.3)
	31-60	7 (43.7)	8 (57.1)	15 (50.0)
	Unknown	0 (0.0)	1 (7.1)	1 (3.4)
Location of overdose event	Private residence	10 (62.5)	12 (85.7)	22 (73.3)
	Hotel	2 (12.5)	0 (0.0)	2 (6.7)
	Vehicle	2 (12.5)	0 (0.0)	2 (6.7)
	Outdoor	1 (6.3)	0 (0.0)	1 (3.3)
	Public washroom	1 (6.3)	0 (0.0)	1 (3.3)
	Street	0 (0.0)	1 (7.1)	1 (3.3)
	Refused to answer	0 (0.0)	1 (7.1)	1 (3.3)
Substance type*	Morphine	4 (25.0)	1 (7.1)	5 (16.7)
	Fentanyl patch	1 (6.3)	3 (21.4)	4 (13.3)
	Fentanyl blotter	2 (12.5)	2 (14.3)	4(13.3)
	Fentanyl powder	3 (18.8)	4 (28.6)	7 (23.3)
	Heroin	3 (18.8)	0 (0.0)	3 (10.0)
	Methadone	0 (0.0)	1 (7.1)	1 (3.3)
	Alcohol	2 (12.5)	0 (0.0)	2 (6.7)
	Dilaudid	0 (0.0)	1 (7.1)	1 (3.3)
	Benzodiazepine	1 (6.3)	1 (7.1)	2 (6.7)
	Cocaine/crack	0 (0.0)	1 (7.1)	1 (3.3)
	Crystal meth	0 (0.0)	3 (21.4)	3 (10.0)
	Polysubstances	3 (18.8)	5 (35.7)	8 (26.7)
	Carfentanil	2 (12.5)	3 (21.4)	5 (16.7)

* Results are not mutually exclusive.

- In 2016, half of the overdose events among the female population were in the age group 19-30 years. For the male population, the largest proportion of the overdose events was in those aged 31-60 years.
- The majority of the overdose events (22 out of 32) occurred in a private residence.
- Males had larger proportion of overdose events associated with the fentanyl patch (21%) and fentanyl powder (29%) as compared to female population (6% and 19%, respectively).
- The number of carfentanil-associated overdose events among females and males were 2 and 3, respectively. Carfentanil is 10,000 times more potent than morphine, 100 times more potent than fentanyl, making it among the most potent commercially used opioids.

Table 4: Characteristics of emergency response to overdose events where Take-Home-Naloxone kit was used, Winnipeg RHA (2016)

Characteristics	Categories	Female (%)	Male (%)	Total (%)
Total		*16 (53.3)*	*14 (46.7)*	*30 (100.0)*
Was 911 called?	No	4 (25.0)	7 (50.0)	11 (36.7)
	Yes	12 (75.0)	7 (50.0)	19 (63.3)
Reason(s) for NOT calling 911*	Concerned police would come	2 (16.7)	2 (28.6)	4 (21.0)
	Thought the person would get better on their own	4 (33.3)	2(28.6)	6 (31.6)
Actions taken during overdose	Stayed with the person until (s)he came around	13 (81.3)	12 (85.7)	25 (83.3)
	Yelled at the person and/or gave sternal rub (*recommended*)	8 (50.0)	8 (57.1)	16 (53.3)
	Checked the person's breathing	10 (62.5)	12 (85.7)	22 (73.3)
	Slapped or shook the person (*not recommended*)	6 (37.5)	10 (71.4)	16 (53.3)
	Checked the person's airway for obstruction	5 (31.3)	8 (57.1)	13 (43.3)
	Checked the person's pulse	6 (37.5)	6 (42.9)	12 (40.0)
	Provided artificial respirations (*with barrier/mask*)	2 (12.5)	6 (42.9)	8 (26.7)
	Provided artificial respirations (*without barrier*)	3 (18.8)	3 (21.4)	6 (20.0)
	Provided chest compressions	4 (25.0)	6 (42.9)	10 (33.3)
	Stayed with the person until first responders arrived	5 (31.3)	6 (42.9)	11 (36.7)
Number of naloxone given	One	10 (62.5)	5 (35.7)	15 (50.0)
	Two	4 (25.0)	9 (64.3)	13 (43.3)
	Three	0 (0.0)	0 (0.0)	0 (0.0)
	Four	1 (6.3)	0 (0.0)	1 (3.3)
	Unknown	1 (6.3)	0 (0.0)	1 (3.3)

*Results are not mutually exclusive.

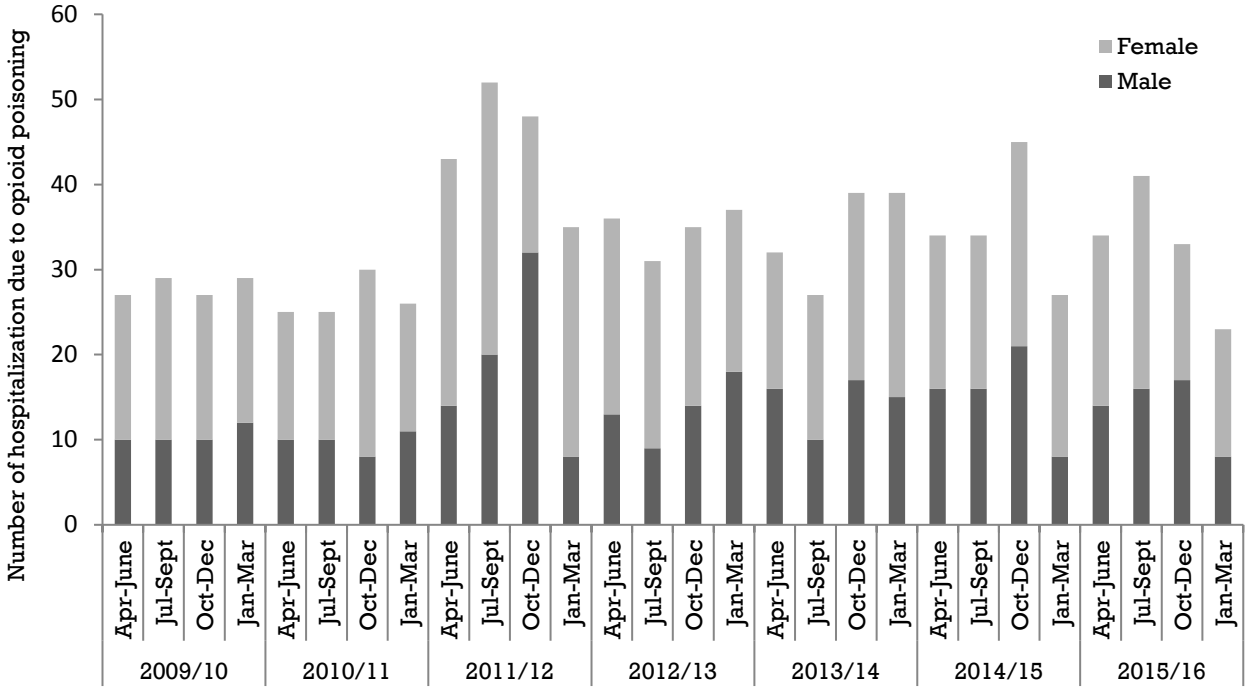
- Notably, 911 was called in the majority (n=19, 63%) of the overdose events.
- Largest proportion of females received one naloxone dose only (63%) while the largest proportion of males received two naloxone doses (64%).

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 2009/2010 - 2015/2016. We used the following ICD-10 (International Classification of Diseases) codes to identify hospitalization due to opioid poisoning[6]: *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 6: Epidemic curve of hospitalization due to opioid poisoning in Manitoba by fiscal year (2009/10 - 2015/16)

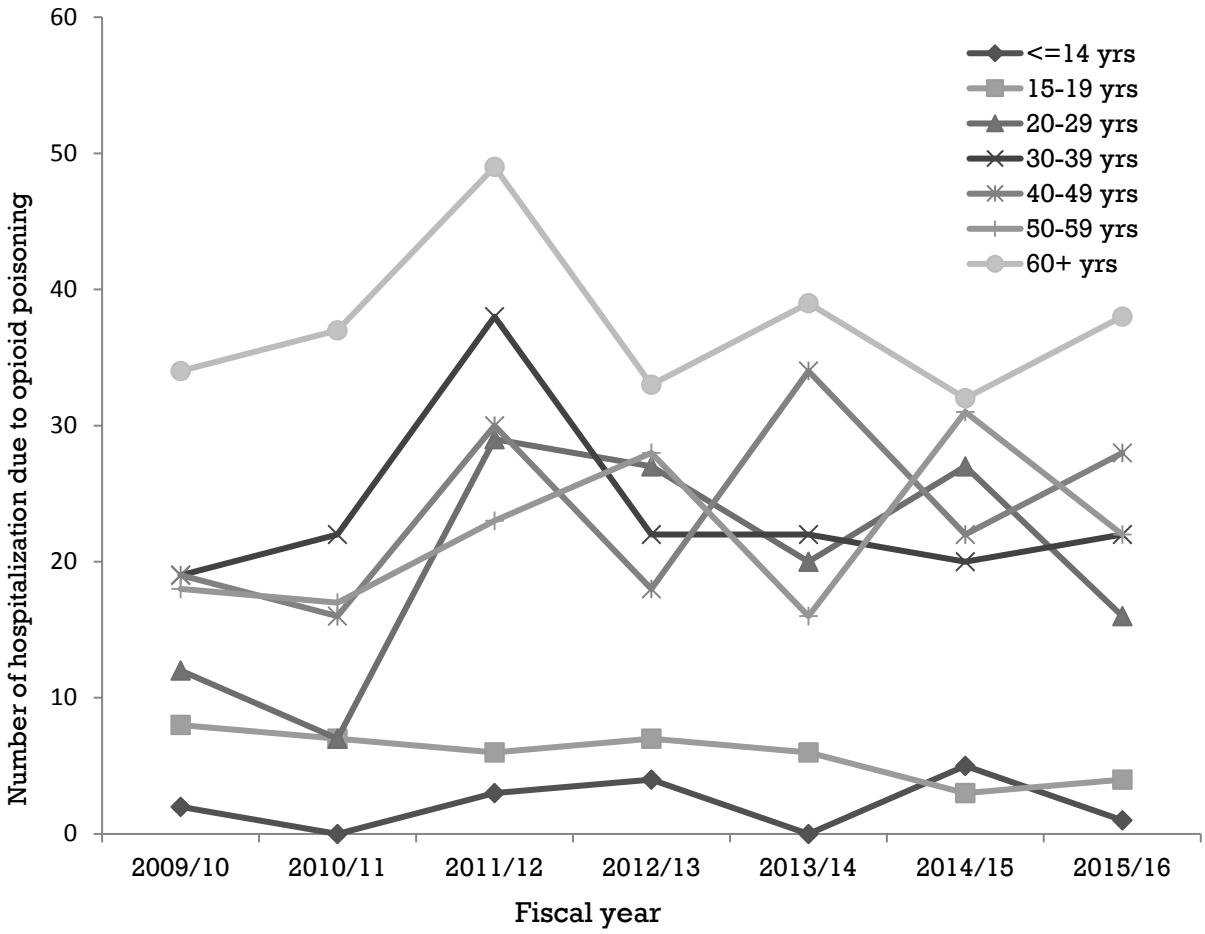


- The largest proportion of events occurred in the 2011/12 fiscal year (n=178). In 2015/16 alone, there were 131 hospitalizations due to opioid poisoning.

[6] 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.

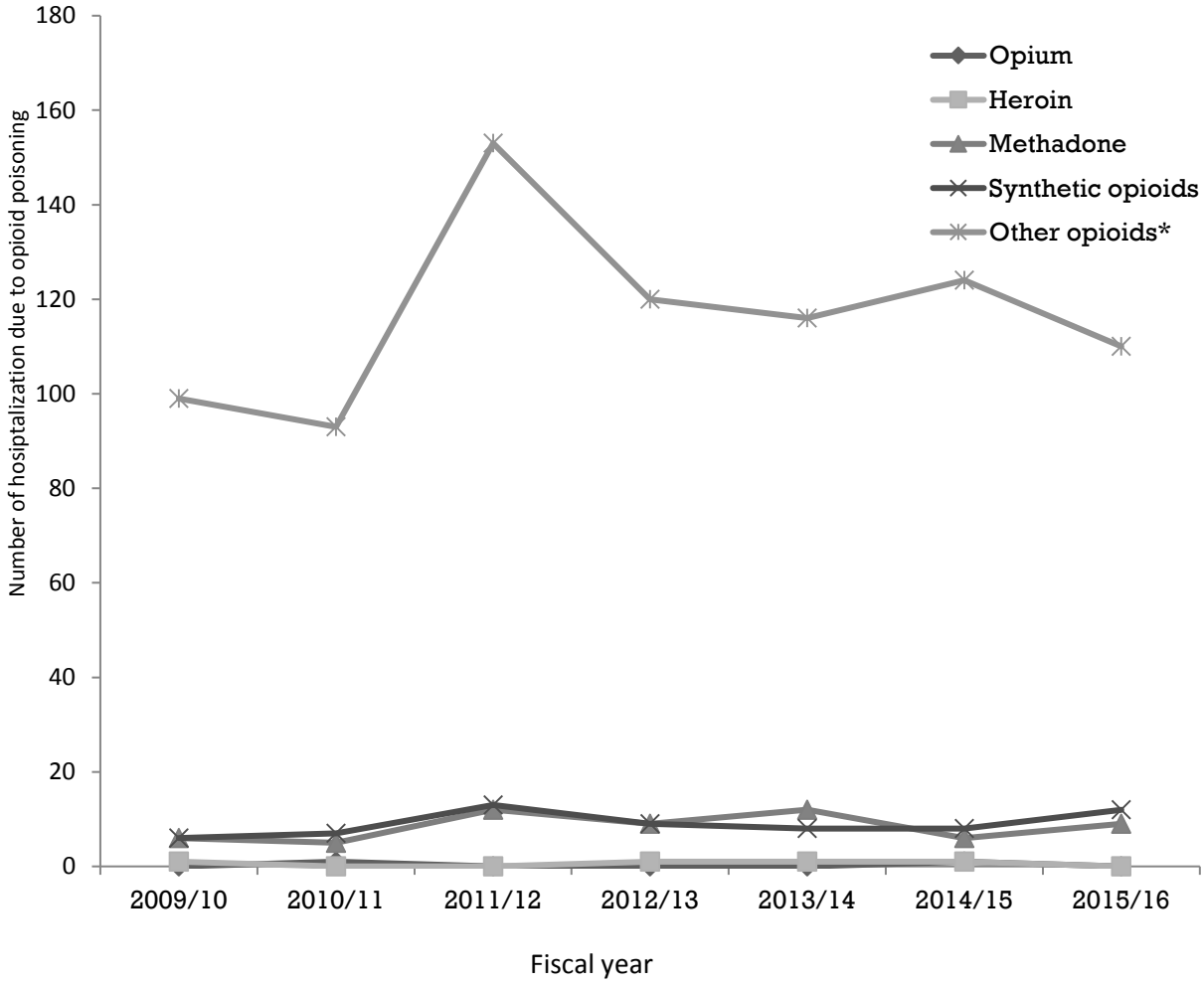
- Overall, the female population had a higher number of hospitalizations due to opioid poisoning as compared to males, with the exception of Oct-Dec 2011/12.

Figure 7: Number of hospitalization due to opioid poisoning in Manitoba by age group (fiscal years 2009/10-2015/16)



- Between fiscal years of 2009/10 and 2015/16, those older than 60 years had the highest proportion of hospitalization due to opioid poisoning while those aged 19 years or younger had the lowest proportion of events during the same time period.

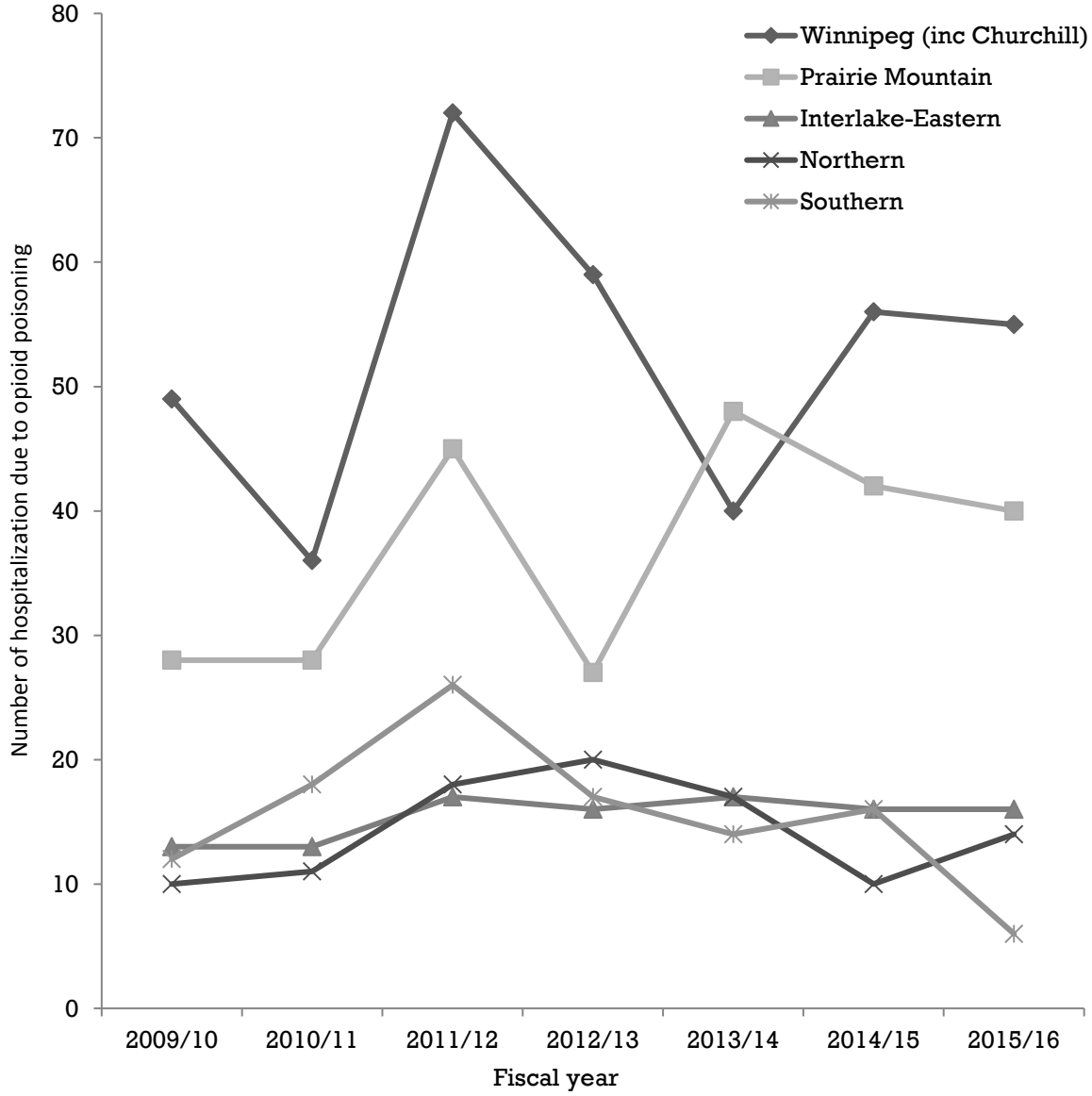
Figure 8: Number of hospitalizations due to opioid poisoning in Manitoba by opioid type (fiscal years 2009/10-2015/16)



* other opioids include oxcycodone, morphine, and hydromorphone, unspecified opioids

- With the exception of 2013/14 fiscal year, the number of synthetic opioids (including fentanyl) related hospitalizations were higher than methadone, heroin, and opium related hospitalizations.
- There was a decrease in number hospitalization due to other opioids (includes oxcycodone, morphine, and hydromorphone, unspecified opioids) poisoning in 2015/16 fiscal year (n=110) as compared to 2014/15 fiscal year (n=124).

Figure 9: Number of hospitalizations due to opioid poisoning in Manitoba by RHA (fiscal years 2009/10-2015/16)

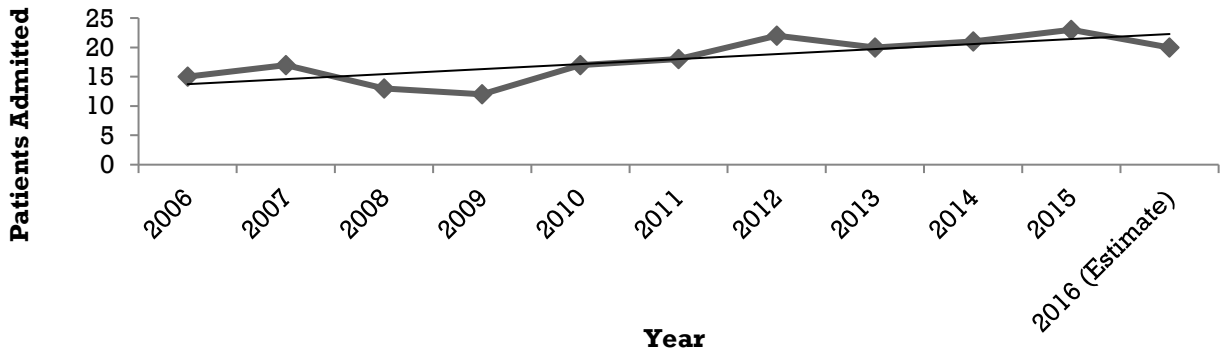


- With the exception of 2014/15 fiscal year, Winnipeg RHA had the highest number of hospitalizations due to opioid poisoning, followed by Prairie Mountain Health.

Intensive Care Unit Admissions

We have described the Intensive Care Unit (ICU) admissions due to narcotic overdose in Winnipeg RHA during January 2006-June 2016 using the critical care & medicine data.

Figure 10: Annual number of intensive care unit admissions due narcotic overdose in Winnipeg RHA (January 2006-June 2016)



- There were total of 188 ICU admissions in Winnipeg RHA during January 2006-June 2016.
- Number of persons admitted to an ICU due to narcotic overdose gradually increased from 12 cases in 2009 to 23 cases in 2015.

Table 5: Annual number of intensive care unit admissions with narcotics overdose by hospital/unit in Winnipeg RHA (January 2006-June 2016)

Hospital/Unit	**Year**											**Total**
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016*	N
Total	*15*	*17*	*13*	*12*	*17*	*18*	*22*	*20*	*21*	*23*	*10*	*188*
Health Sciences	4	1	1	3	4	3	6	3	3	2	0	30
St. Boniface	3	0	1	1	4	3	4	5	10	8	2	41
Grace	3	6	2	3	1	0	1	4	5	1	2	28
Victoria	3	1	1	0	3	1	1	0	1	4	1	16
Concordia	0	3	7	1	0	8	9	8	1	5	3	45
Seven Oaks	2	6	1	4	5	3	1	0	1	3	2	28

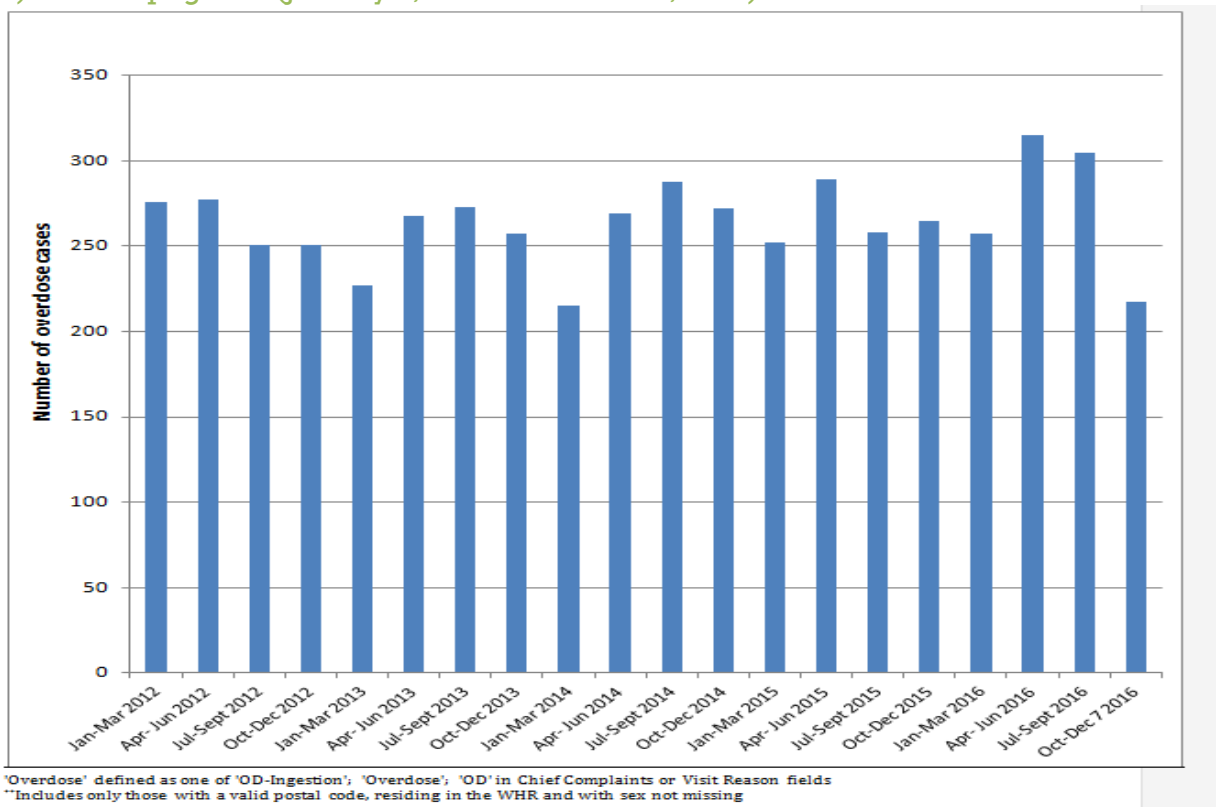
*Captures data until June 2016

- From 2006 to 2016, distribution of ICU admissions with narcotics overdose varied by hospital. The hospital with the highest number of ICU admissions was Concordia (n=45), followed by St. Boniface (n=41), Health Sciences Centre (n=30), Grace (n=28), Seven Oaks (n=28), and Victoria (n=16).

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 1, 2012 - December 7, 2016. *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.*

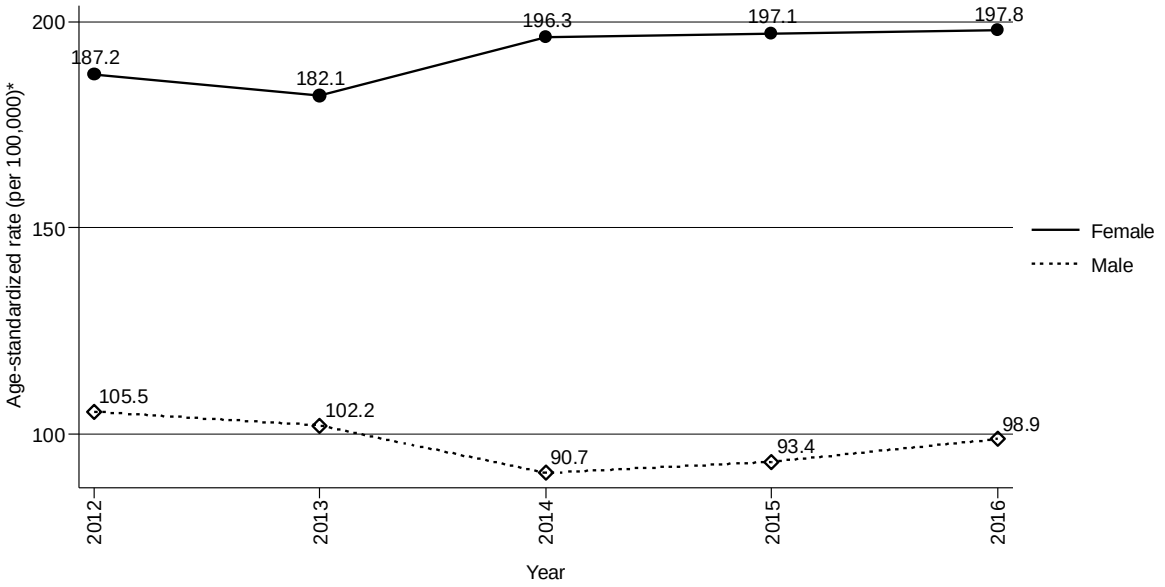
Figure 11: Epidemic curve of emergency department admissions due to overdose (CTAS 1&2) in Winnipeg RHA (January 1, 2012-December 7, 2016) *



'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in the WHR and with sex not missing

- Number of emergency department admissions due to overdose in Winnipeg RHA increased during April-September 2016.

Figure 12: Age-standardized rate** of emergency department admissions due to overdose (CTAS 1&2) in Winnipeg RHA by sex (January 1, 2012- December 7, 2016)*



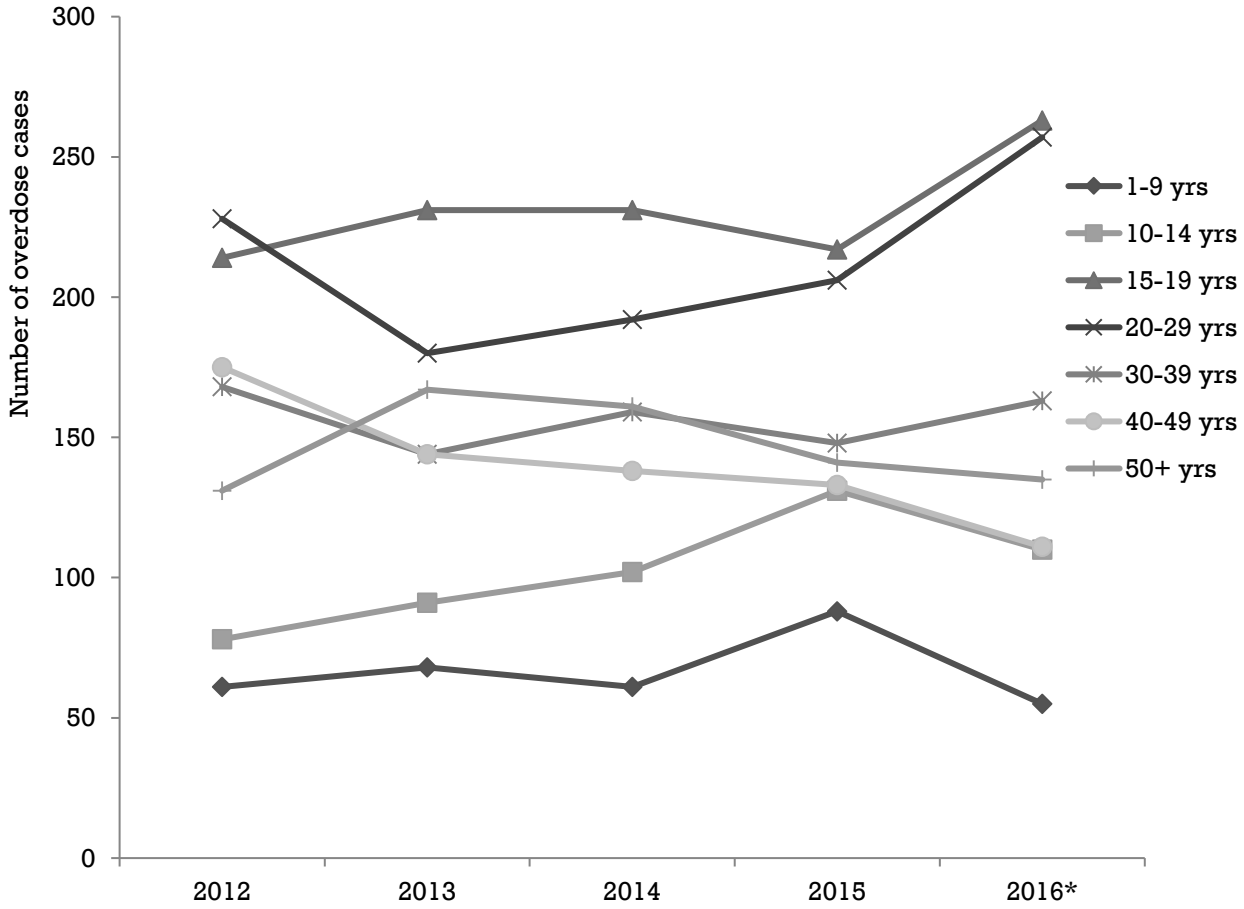
*CTAS 1 & 2 only, standardized to the 2006 Canadian population. 2016 population pro-rated to month graph produced

**Age-standardized rates are crude rate values that are statistically adjusted to control for different age distributions among groups to ensure that the rates for all groups (and over time) can be fairly compared.[7]

- Age-standardized rates of emergency department admissions due to overdose was higher among females.
- Among females, overdose rate increased from 187.2 in 2013 to 196.3 in 2014 and continued to slightly increase in 2015 and 2016 (per 100,000 persons).
- Among males, the overdose rate decreased from 105.5 in 2013 to 90.7 in 2014 but started to increase in 2015 and 2016 (per 100,000 persons).

[7] Manitoba Centre for Health Policy, Adjusted rates glossary definition. http://mchp-appserv.cpe.umanitoba.ca/viewDefinition.php?definitionID=102207 (Accessed online on Feb 23, 2017)

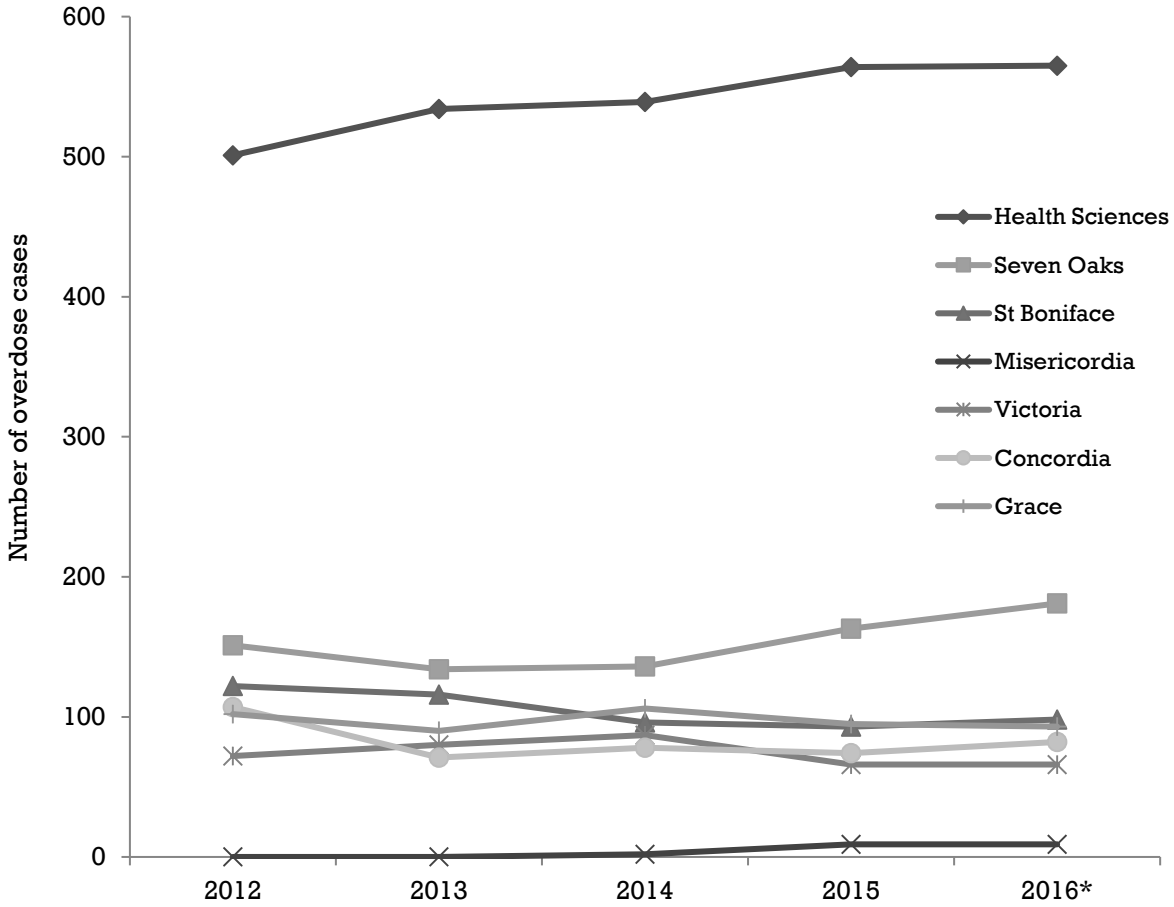
Figure 13: Number of emergency department admissions due to overdose (CTAS 1&2) in Winnipeg RHA by age groups (January 1, 2012- December 7, 2016)*



'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields.
*Includes only those with a valid postal code, residing in the WHR and with sex not missing; Includes data up to Dec 7, 2016

- From 2013 to 2016, those aged 15-19 years had the largest proportion of emergency department admissions due to overdose, followed by the 20 to 29 years old age group.
- Over time, the 20 to 29 years old age group had the greatest increase among all age groups.

Figure 14: Number of emergency department admissions due to overdose (CTAS 1&2) by health facility, Winnipeg RHA (January 1, 2012- December 7, 2016)*



'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
*Includes only those with a valid postal code, residing in the Winnipeg RHA and with sex not missing

- Health Sciences Centre had the largest number of emergency room admissions due to overdose over the time period (2012-2016), followed by Seven Oaks hospital.
- For additional information, maps of overdose cases (CTAS 1&2) in Winnipeg RHA (2012-2016) overall, by facility, and by place of residency is presented in Appendix A.

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 are likely to be undercounted in this report.

Mortality

Office of the Chief Medical Examiner's mortality data from January 2013 to June 2016 was used to describe the deaths due to substance overdose in Manitoba. Causes of death are listed as either primary (the main cause of death) or contributing (the toxin contributed significantly to the death but was not determined to be the primary cause).

Overall substance overdose deaths*:

- 2013: 162 deaths
- 2014: 175 deaths
- 2015: 182 deaths
- 2016 (January-June): 124 deaths.

Opioid (including fentanyl) overdose deaths (primary and contributing):

- 2013: 87 deaths
- 2014: 94 deaths
- 2015: 85 deaths
- 2016 (January-June): 63 deaths
- Based on this trend, it appears that opioid-related deaths are showing an increasing trend.

Fentanyl overdose deaths (primary and contributing):

- 2013: 11 deaths
- 2014: 13 deaths
- 2015: 20 deaths
- 2016 (January-June): 15 deaths
- Based on this trend, it appears that fentanyl-related deaths are showing an increasing trend.

Summary:

The significant rise in harms associated with opioid overdose in Manitoba and in other Canadian provinces is a growing public health concern.

Overall overdose deaths for 2016 in Manitoba are expected to remain stable or somewhat increased as compared to previous years. However the contribution of opiates, including fentanyl, appears to be increasing.

*These numbers represent deaths from ALL drugs, including medications in the "other" category. At least 80% of the total overall overdose are due to ethanol, opiates, and stimulants. Antihistamines such as diphenhydramine (gravol) are also a significant contributor. Ethanol includes alcohol. Opiates includes codeine, oxycodone, methadone, morphine, hydromorphone, and fentanyl and its derivatives e.g., carfentanyl. Stimulants includes cocaine and methamphetamine.

Note(s): For a single overdose, there may be more than one toxin noted as a contributing cause, in addition to the cause of death. Finalized reports from the Office of the Chief Medical Examiner can take months from the time of death; data is collected from a range of sources to determine cause of death. This data is only based on "closed or finalized" investigations. Complete data for 2016 will be available in spring of 2017 at the earliest. Therefore, the data from the Office of the Chief Medical Examiner is valuable for understanding trends over time; it is not valuable for real-time surveillance that is relied on for immediate public health action.

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 24-hour, 7-days a week telephone information service. It is staffed by registered nurses with the knowledge to provide answers to health care questions and guidance to appropriate care over the phone. Registered nurses use two different resources (titles) to assist a caller which are named: 1) Health Information Advisory Title and 2) Guideline Title. Some call interactions require the use of both resources and some only one. The Health Information Advisor Title is a resource that provides a summary on a health topic. It is used by registered nurses to provide additional information to callers. The Guideline Title is an approved clinical protocol, with questions, in acuity order, to assist a nurse to triage a caller.

Table 6: Calls by Health Information Advisor Title, Health Links – Info Santé (January 2013-November 2016)

Health Information Advisor Title	2013	2014	2015	2016*
Substance abuse	14	13	16	13
Recognizing drug abuse in kids	2	1	2	1
Prescription drug abuse	8	6	8	9
Drugs - what you should know and drug testing	26	30	17	11
Street drugs and their slang names	0	0	0	3
Street connections launches a take-home naloxone program	0	0	0	0
Detoxification	34	33	52	57
Treating teens for substance abuse	0	1	0	3
Talking with your child about drinking and drugs	1	0	1	1

*2016 includes data from January to November.

- There was an increase in detoxification related calls received by Health Links–Info Santé using health information advisor title, from 34 calls in 2013 to 57 calls in 2016*.
- There was no call related to "Street Connections Launches a Take-Home Naloxone Program" in this category.

Table 7: Calls to Health Links – Info Santé by guideline title (January 2013-November 2016)

Guideline Title	2013	2014	2015	2016*
Substance abuse	91	73	98	81
Withdrawal symptoms (adult)	158	170	194	176
Stress response	33	34	33	21
Alcoholism (known / suspected)	59	45	42	45

*2016 includes data from January to November

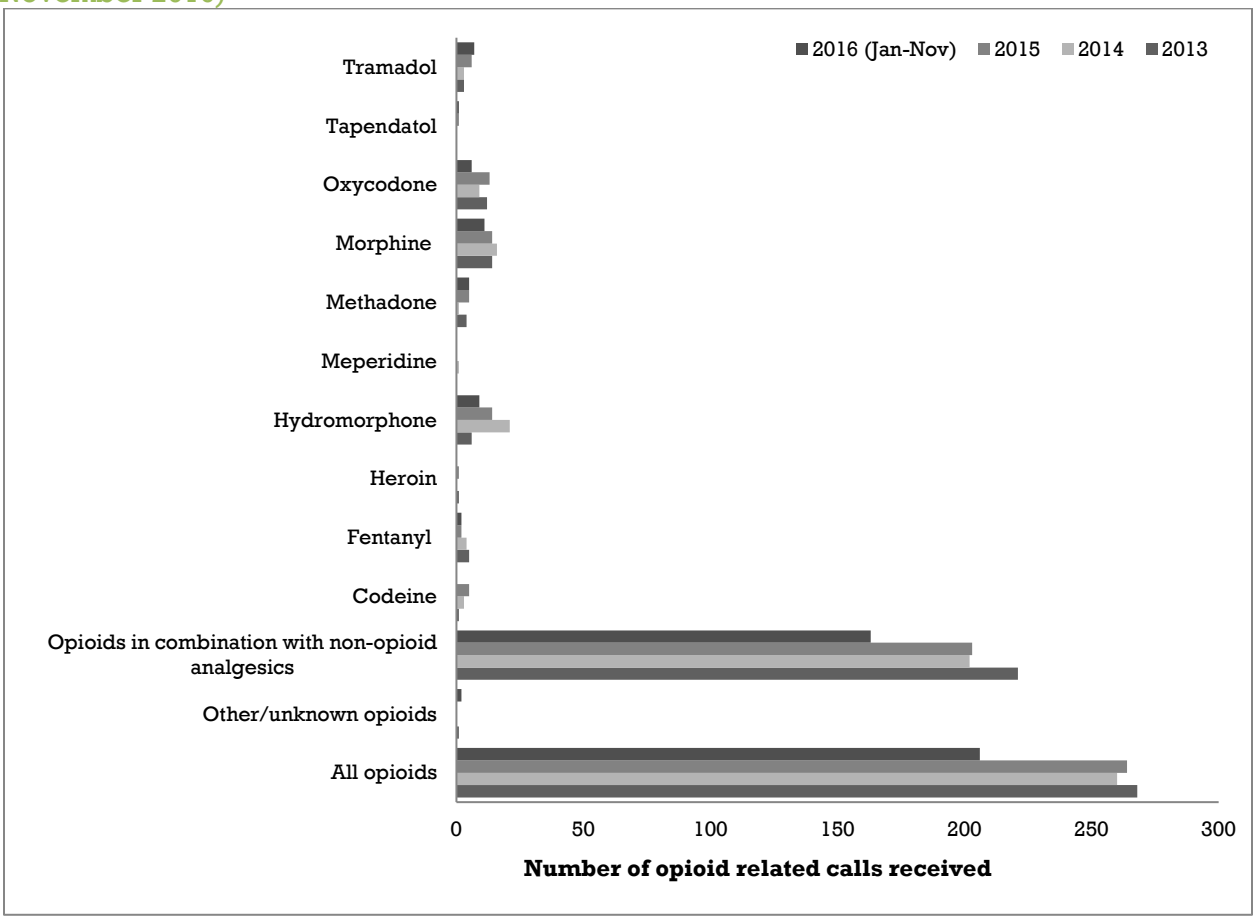
- Over time, number of calls related to substance abuse and withdrawal symptoms (adult) using guideline title resource increased from 2014 to 2016*.

Note: All of the data presented in this section needs to be considered with caution; a large amount of labor intensive investigation is still required to determine if the cases were related directly to opioid overdoses or for some other inquiry on the subject.

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 during January 2013-November 2016.

Figure 15: Number opioid-related calls received by Manitoba Poison Centre (January 2013-November 2016)



- Overall, number of opioid-related calls received by MPC was relatively stable during 2013-2015 but dropped during January-November 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.

[8] Manitoba Poison Centre 2013 & 2014 Annual Report

Note: It is important to note that the MPC receives very few calls related opioids as the emergency room doctors are generally more comfortable with management and the use of naloxone. Further consultation with on-site toxicologists is available if additional expertise is needed. Because there are so few calls from Winnipeg, the MPC numbers may be an undercount and should not be relied on to provide a complete picture of the extent of the problem.

Others

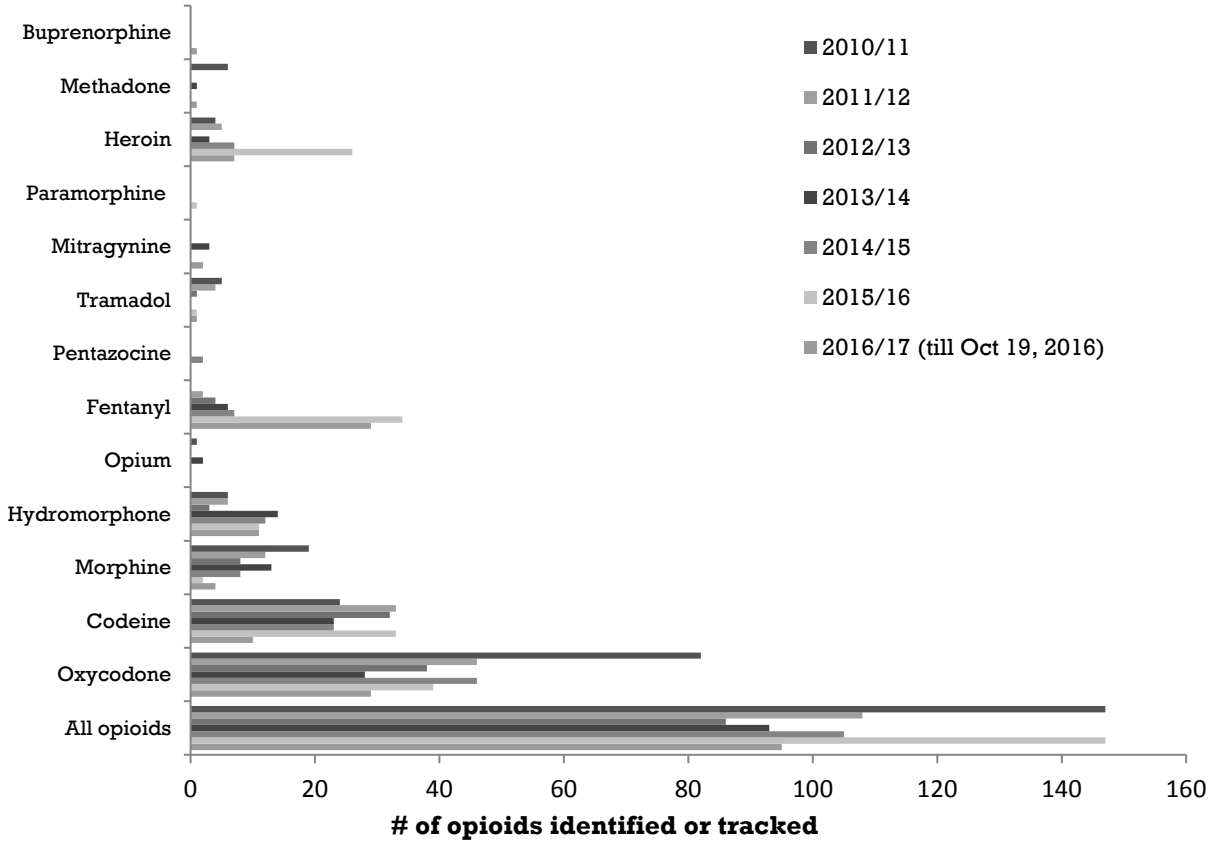
Opioids identified or tracked by Drug Analysis Service of Health Canada

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 Fiscal Year (FY) (April 1 – March 31) to summarize the opioids identified or tracked in Manitoba. A single sample may contain more than one substance.

[9]Health Canada, Drug Analysis Service. Available at: http://www.hc-sc.gc.ca/hc-ps/substancontrol/analys-drugs-drogues/index-eng.php (Accessed Jan 13, 2017).

Figure 16: Number of illegal opioids identified or tracked by Drug Analysis Service of Health Canada, Manitoba (April 1, 2010 to October 19, 2016)



- In Manitoba, overall, number of illegal opioids identified or tracked by Drug Analysis Service, Health Canada, steadily increased from 86 in 2012/13 FY to 147 in 2015/16 FY. The corresponding estimate was 95 in 2016/17 FY (until October 19, 2016).
- In Manitoba, number of illegal fentanyl identified or tracked sharply increased in 2015/16 FY (n=34) and 2016/17 FY (until October 19, 2016) (n=29) while the corresponding estimate ranged from 0-7 during 2010/11–2014/15 FYs.
- Of the 29 fentanyl in 2016/17 FY (until October 19, 2017) identified or tracked by Drug Analysis Service, Health Canada, in Manitoba, there was 2 carfentanil.

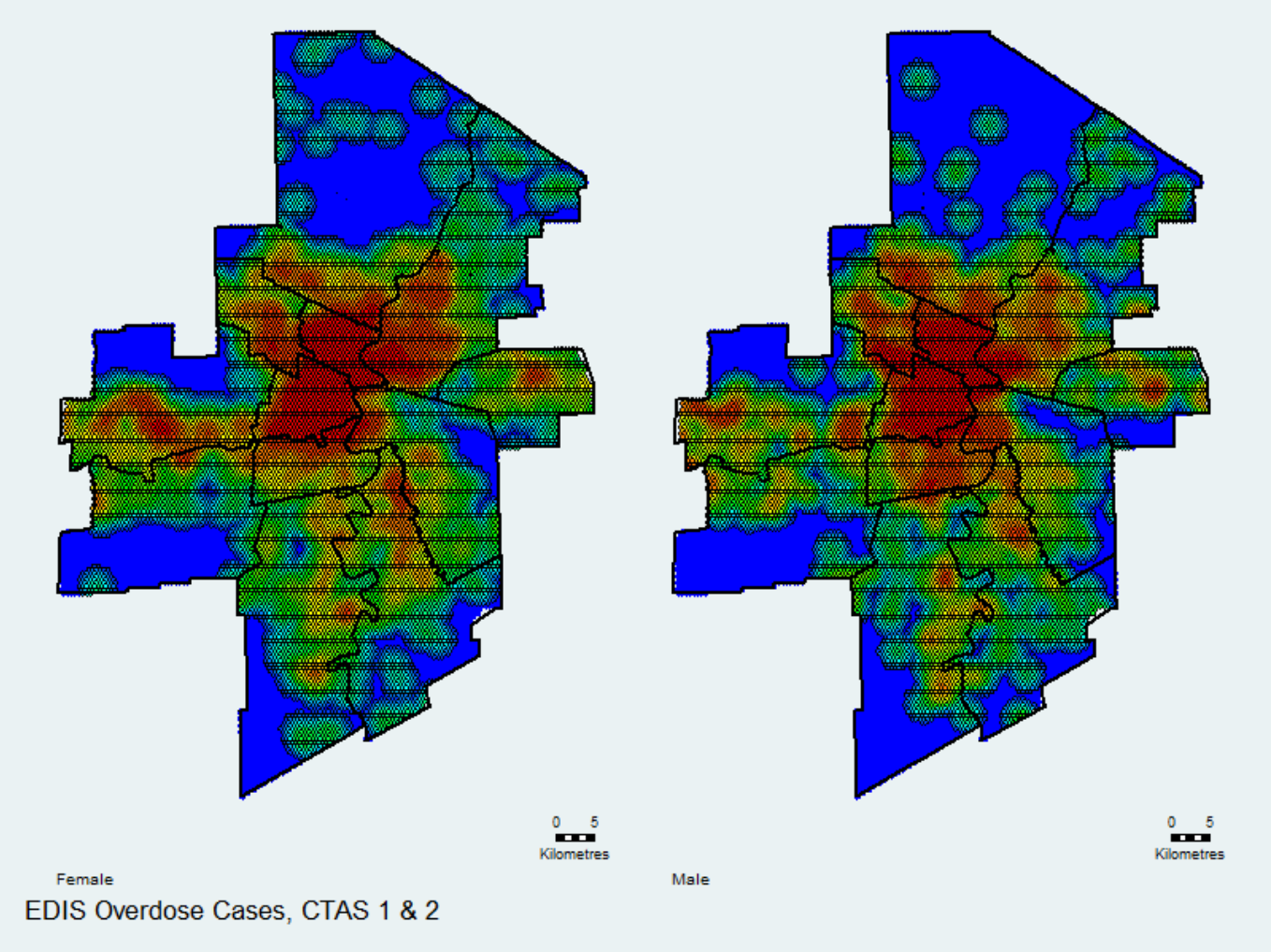
Summary

This report aims to provide surveillance data needed to inform prevention programming and management of opioid misuse and overdoses in Manitoba. Overall, overdose-associated deaths for January-June 2016 remained stable or somewhat increased as compared to previous years. However, the contribution of opiates, including fentanyl, appears to be increasing. In addition, in 2016, there was an increase noted in following areas as compared to previous years: overdose events where naloxone was administered by Winnipeg Fire and Paramedic Service and emergency department admissions due to overdose.

Appendices

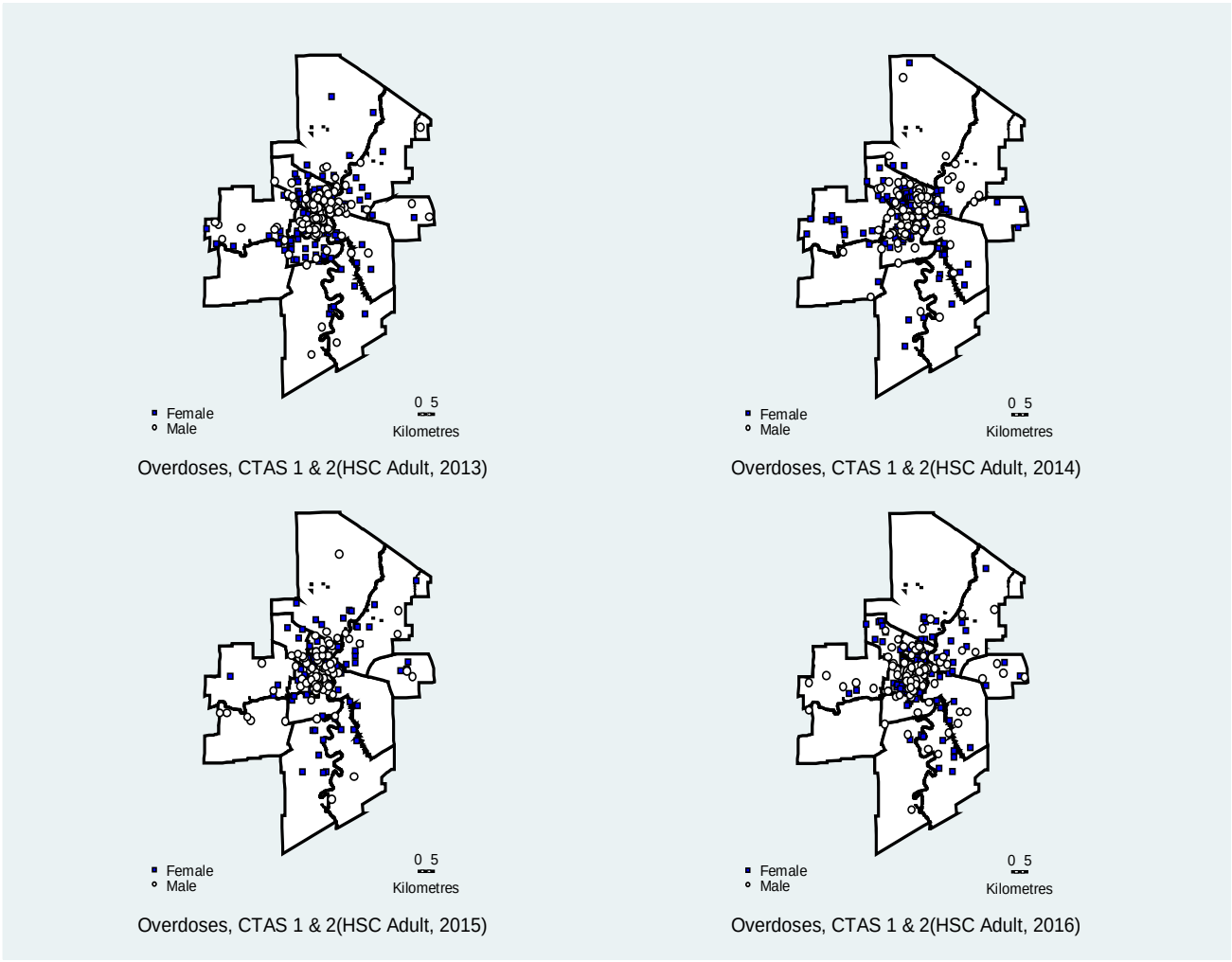
Appendix A

Figure A.1: Heat map of emergency department admissions due to overdose (CTAS 1&2)*, Winnipeg RHA residents (January 1 – December 7, 2016)**



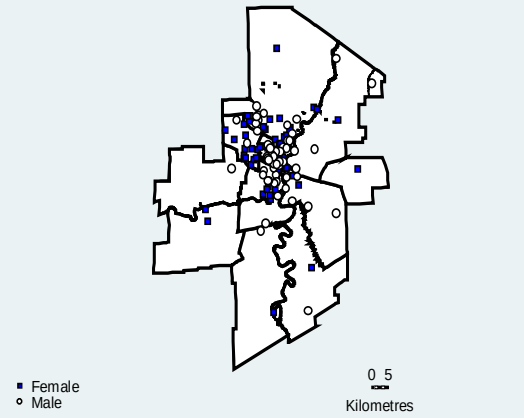
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing

Figure A.2a: Maps of emergency department admissions to overdose (CTAS 1 & 2)* by place of residency, Health Sciences Centre (2012-2016)**

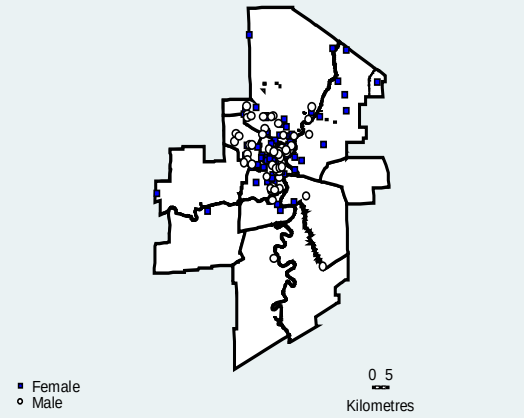


*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

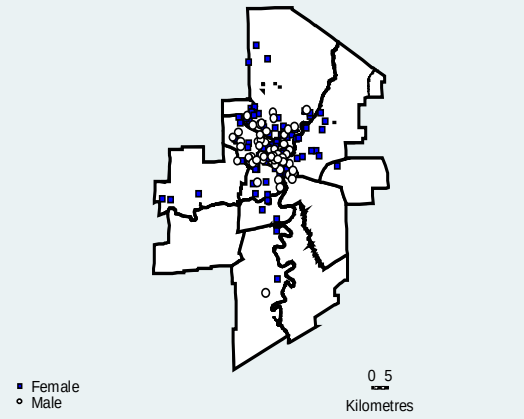
Figure A.2b: Maps of emergency department admissions to overdose (CTAS 1 & 2)* by place of residency, Seven Oaks General Hospital (2012-2016)**



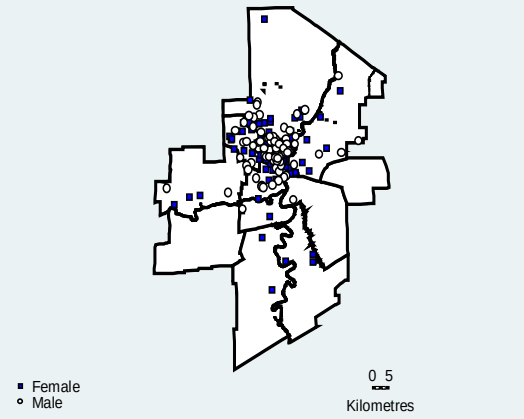
Overdoses, CTAS 1 & 2(Seven Oaks General Hospital, 2013)



Overdoses, CTAS 1 & 2(Seven Oaks General Hospital, 2014)



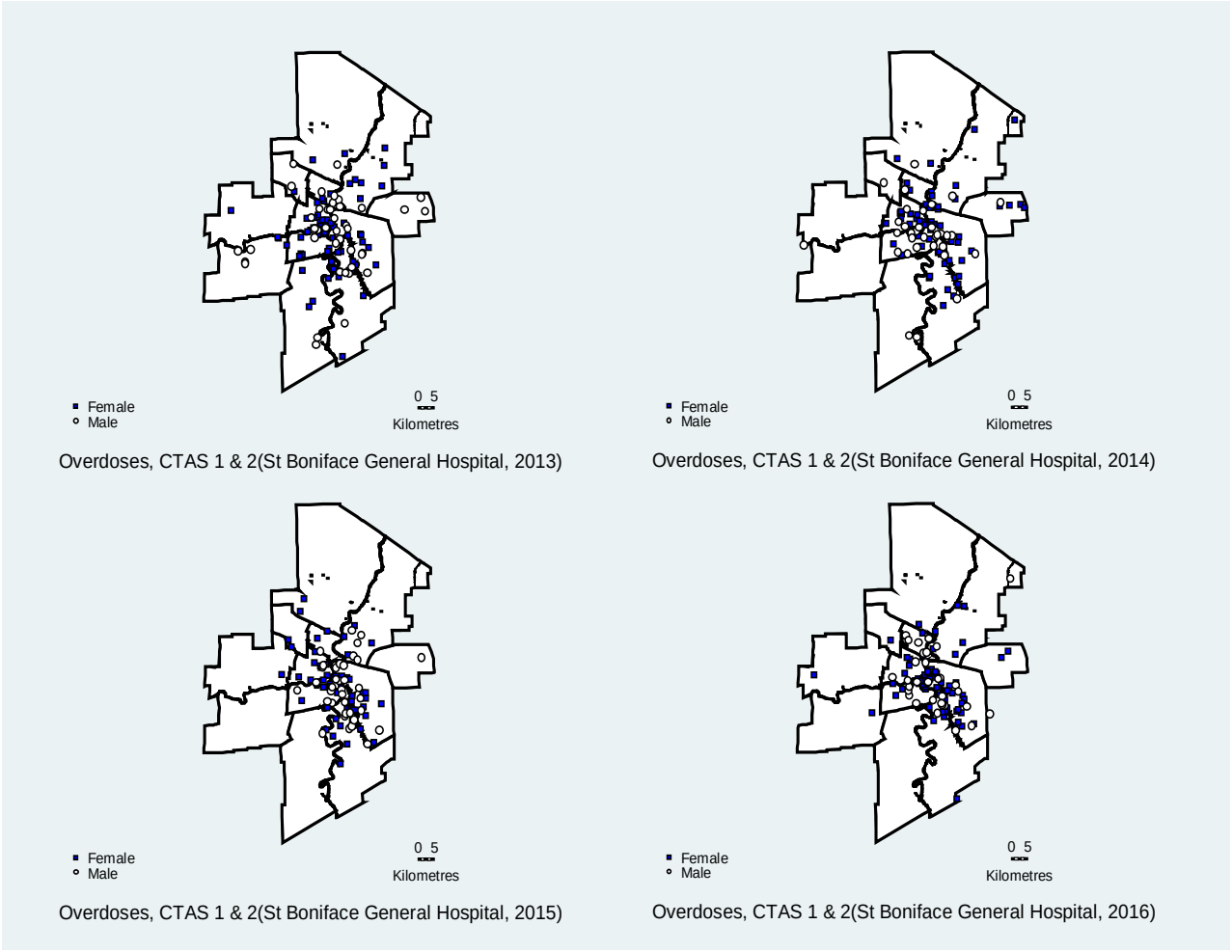
Overdoses, CTAS 1 & 2(Seven Oaks General Hospital, 2015)



Overdoses, CTAS 1 & 2(Seven Oaks General Hospital, 2016)

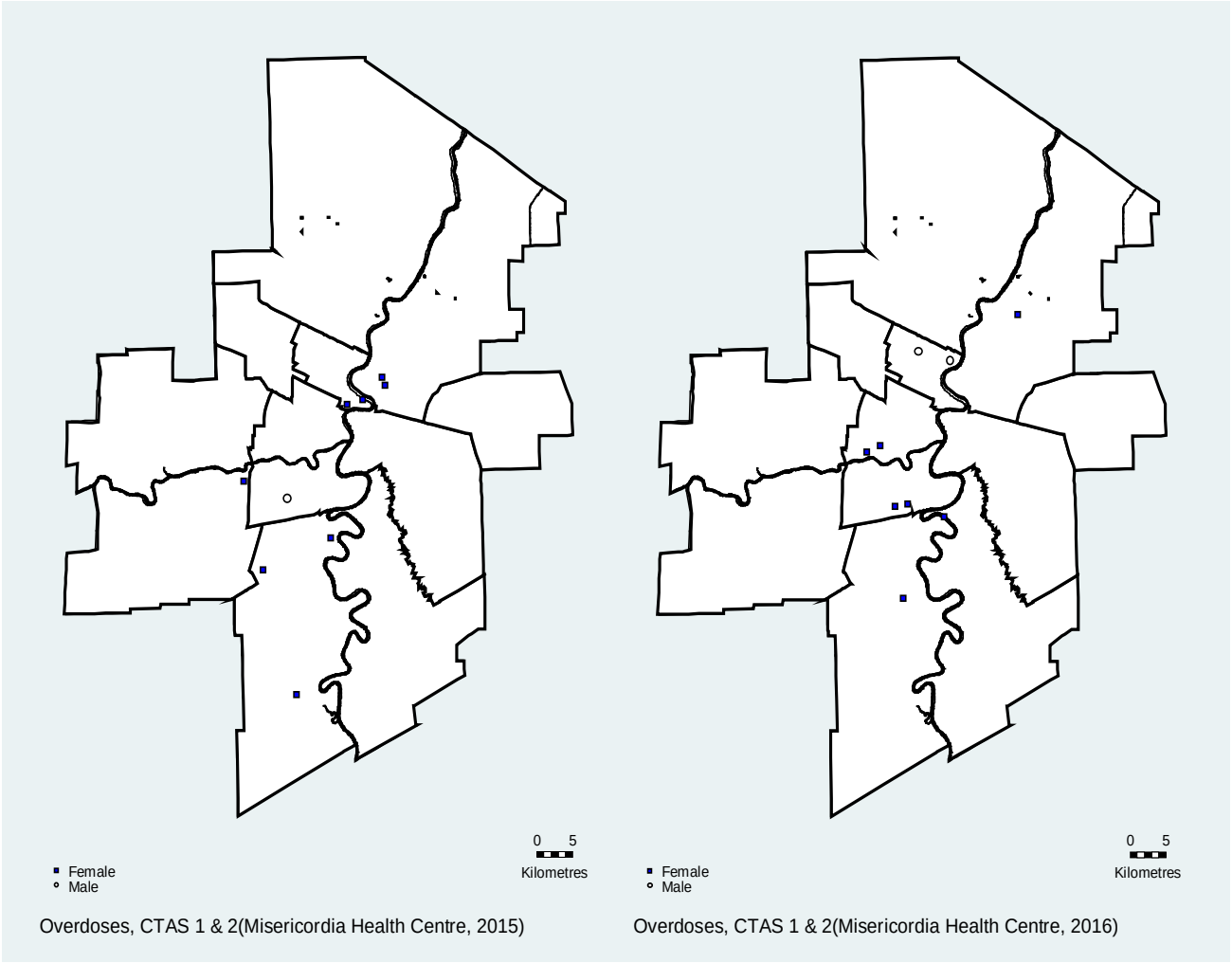
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

Figure A.2c: Maps of emergency department admissions to overdose (CTAS 1 & 2)* by place of residency, St Boniface General Hospital (2012-2016)**



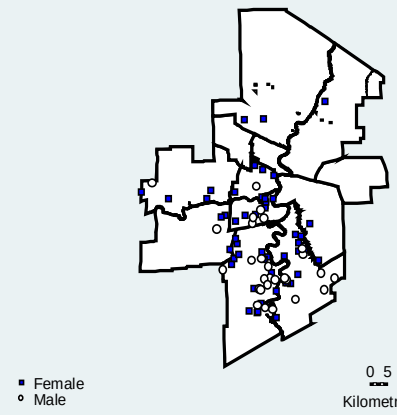
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

Figure A.2d: Maps of emergency department admissions to overdose (CTAS 1 & 2)* by place of residency, Misericordia Health Centre (2012-2016)**

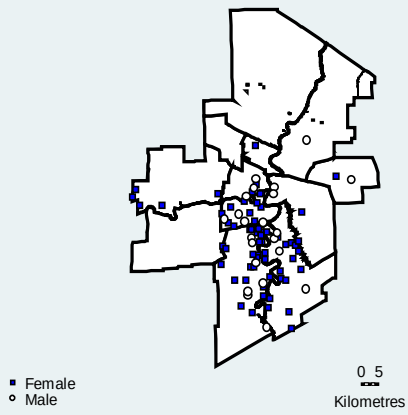


*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

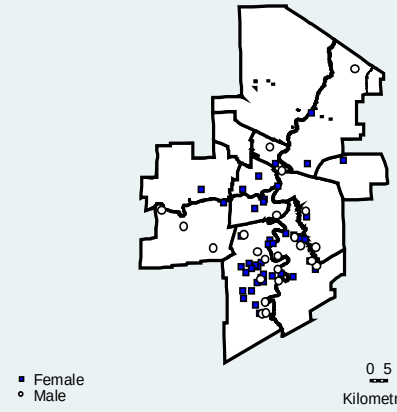
Figure A.2e: Maps of emergency department admissions to overdose (CTAS 1 & 2)* by place of residency, Victoria General Hospital (2012-2016)**



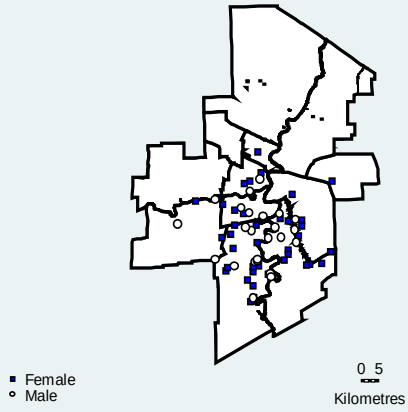
Overdoses, CTAS 1 & 2(Victoria General Hospital, 2013)



Overdoses, CTAS 1 & 2(Victoria General Hospital, 2014)



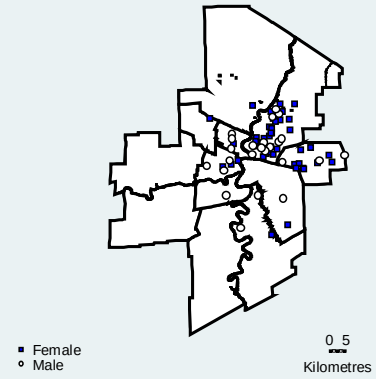
Overdoses, CTAS 1 & 2(Victoria General Hospital, 2015)



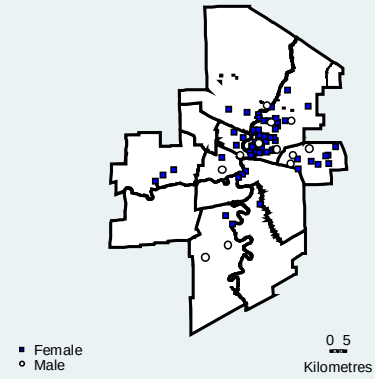
Overdoses, CTAS 1 & 2(Victoria General Hospital, 2016)

*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

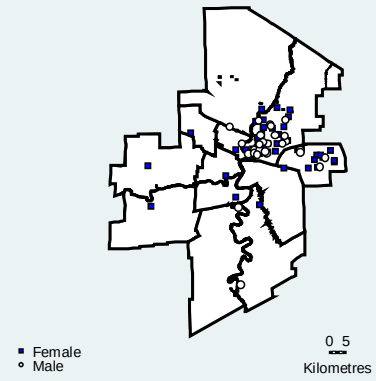
Figure A.2f: Maps of emergency department admissions to overdose (CTAS 1 & 2)* by place of residency, Concordia Hospital (2012-2016)**



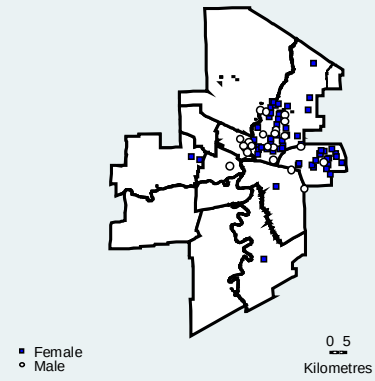
Overdoses, CTAS 1 & 2(Concordia Hospital, 2013)



Overdoses, CTAS 1 & 2(Concordia Hospital, 2014)



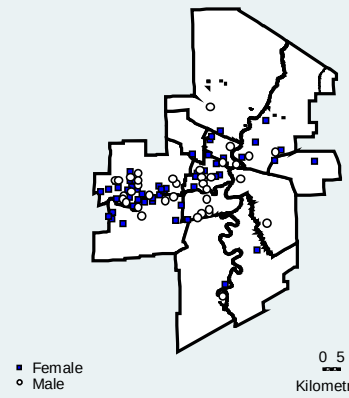
Overdoses, CTAS 1 & 2(Concordia Hospital, 2015)



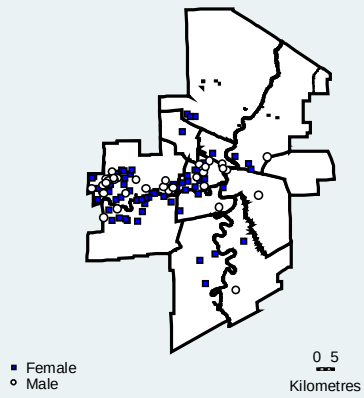
Overdoses, CTAS 1 & 2(Concordia Hospital, 2016)

*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

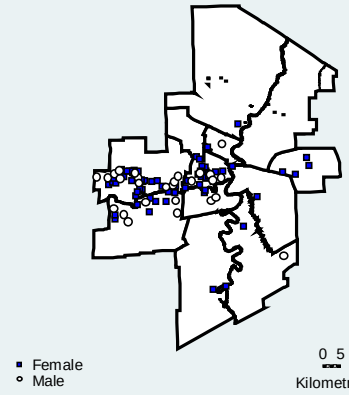
Figure A.2g: Maps of emergency department admissions to overdose (CTAS 1 & 2)* by place of residency, Grace Hospital (2012-2016)**



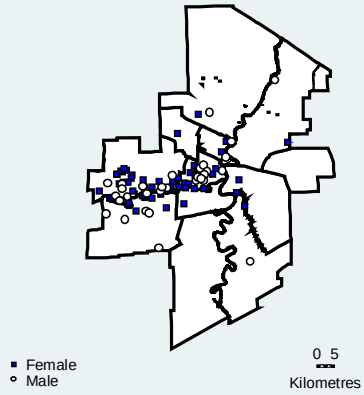
Overdoses, CTAS 1 & 2(Grace Hospital, 2013)



Overdoses, CTAS 1 & 2(Grace Hospital, 2014)



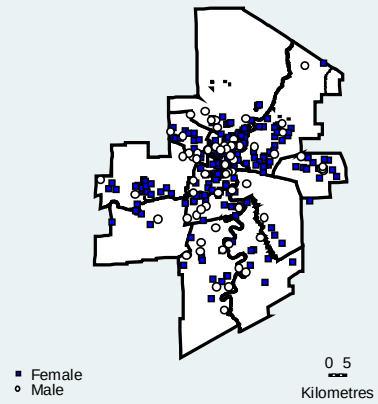
Overdoses, CTAS 1 & 2(Grace Hospital, 2015)



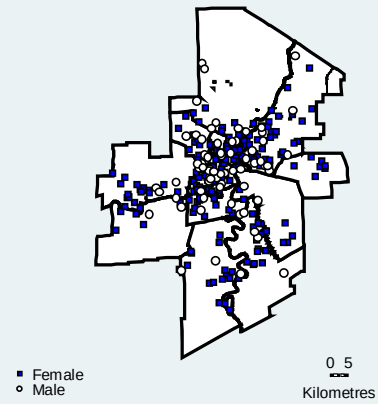
Overdoses, CTAS 1 & 2(Grace Hospital, 2016)

*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

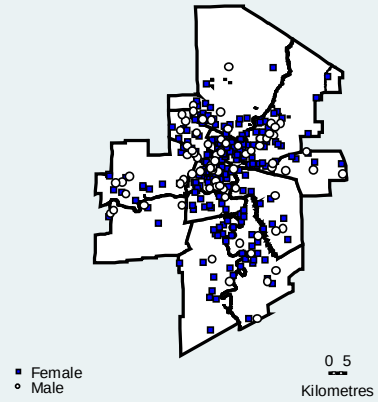
Figure A.2h: Maps of emergency department admissions to overdose (CTAS 1 & 2)* by place of residency, Health Sciences Centre Children's Hospital (2012-2016)**



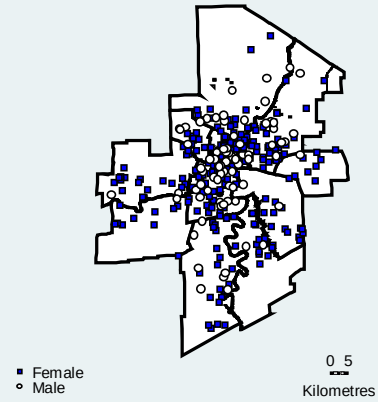
Overdoses, CTAS 1 & 2(HSC Children's, 2013)



Overdoses, CTAS 1 & 2(HSC Children's, 2014)



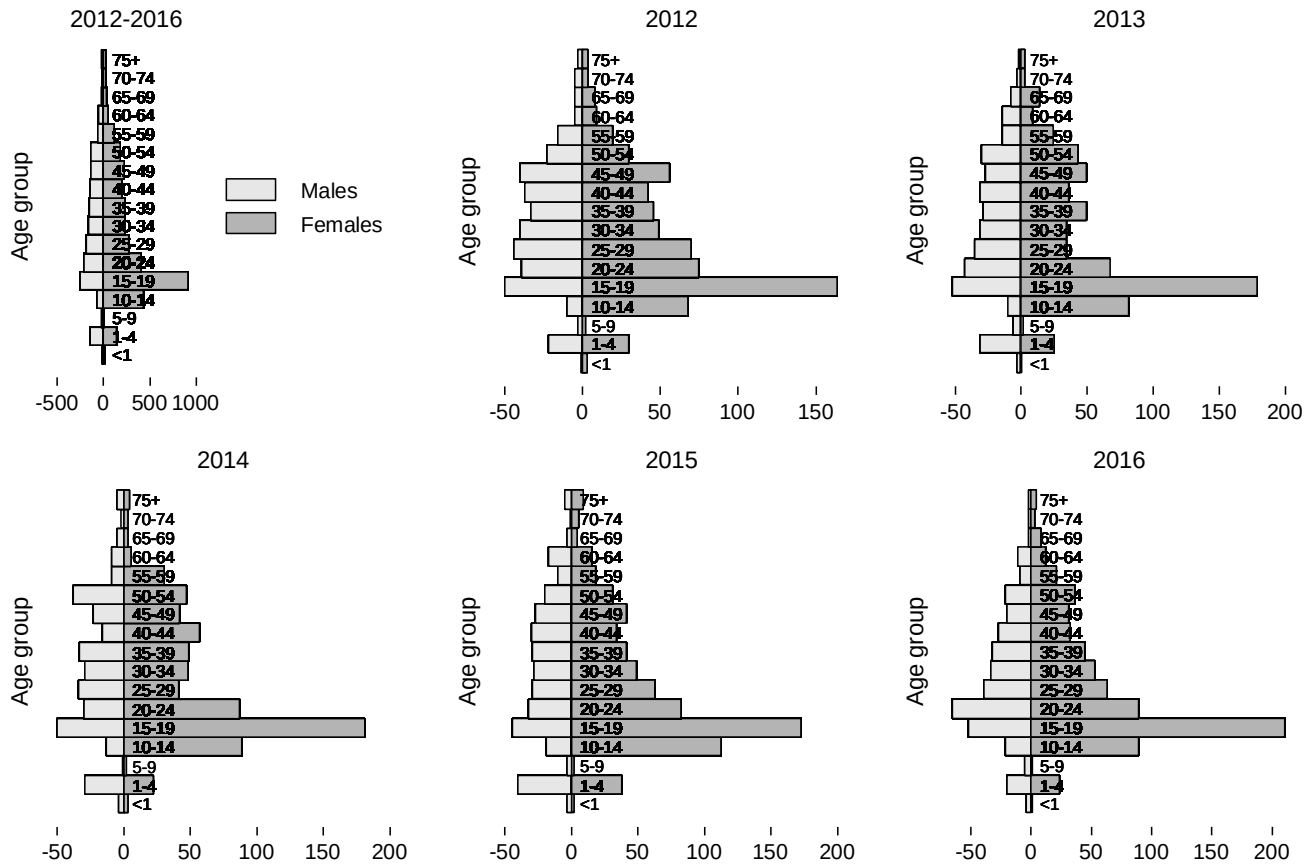
Overdoses, CTAS 1 & 2(HSC Children's, 2015)



Overdoses, CTAS 1 & 2(HSC Children's, 2016)

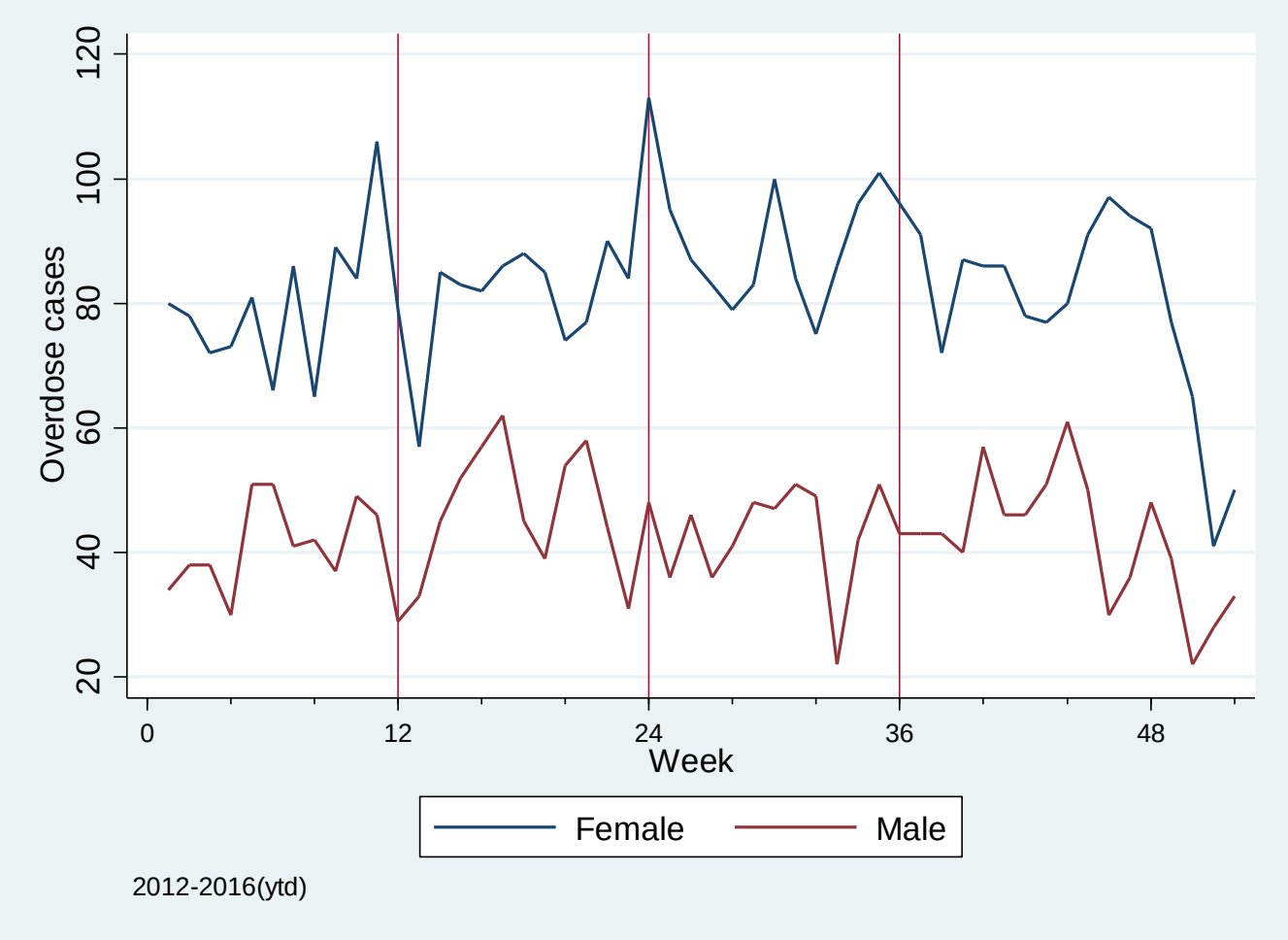
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

Figure A.3: Age distribution of emergency department admissions to overdose (CTAS 1&2)* by year and sex (2012-2016)**



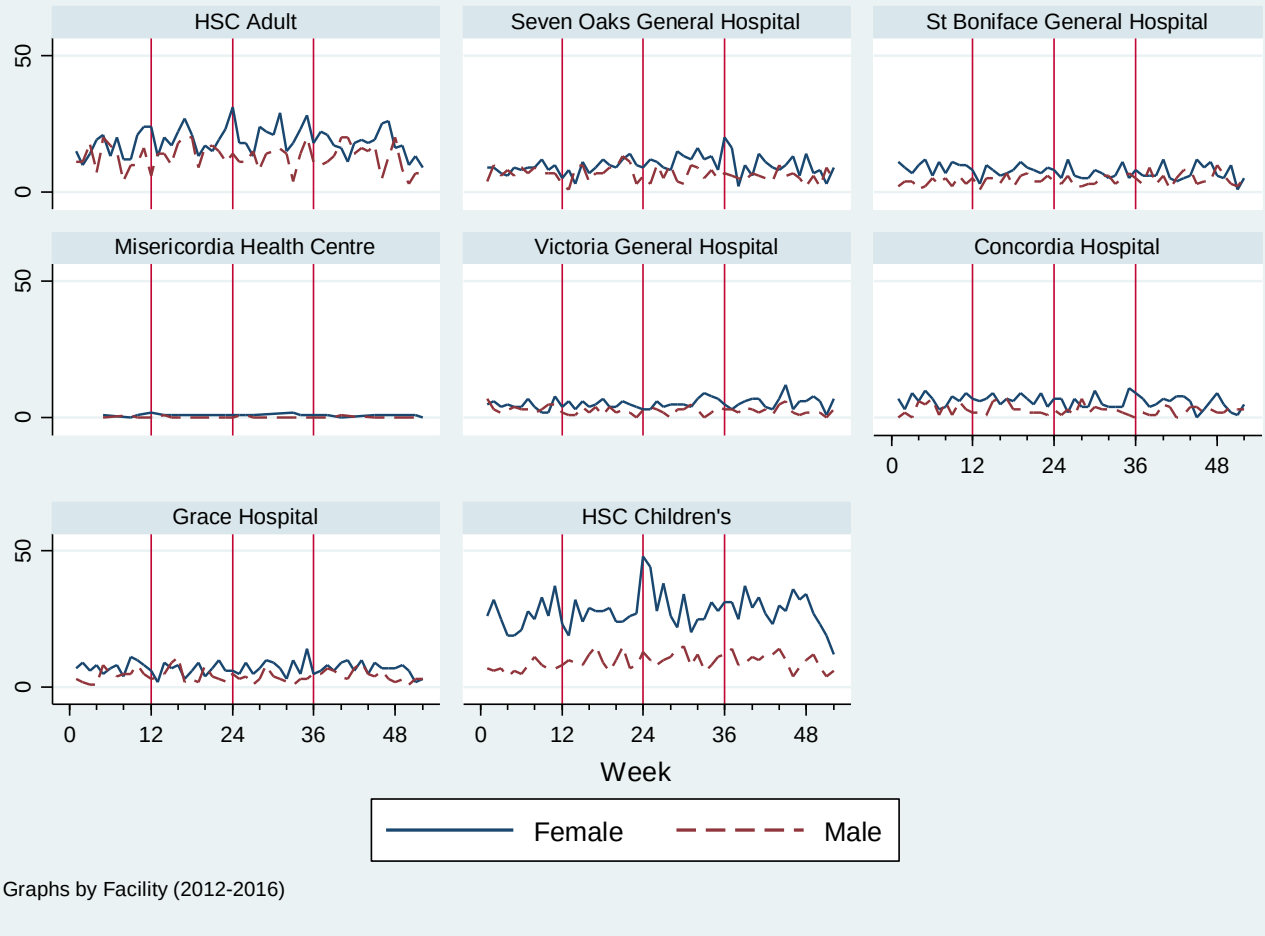
*"Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

Figure A.4: Emergency department admissions to overdose (CTAS 1&2)* by week and sex (2012-2016, cumulative)**



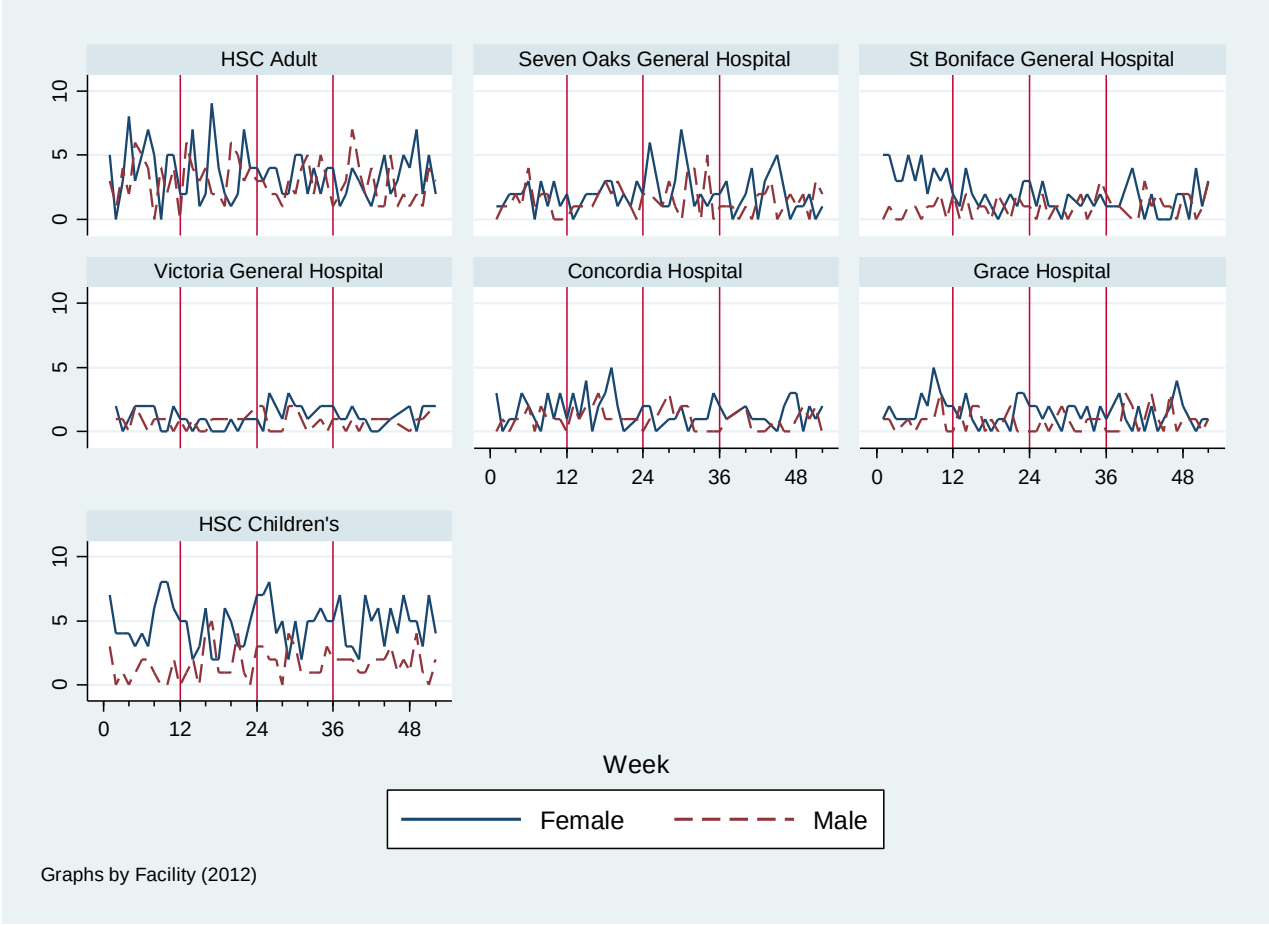
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

Figure A.5: Emergency department admissions to overdose (CTAS 1&2)* by week, sex and facility (2012-2016, cumulative)**



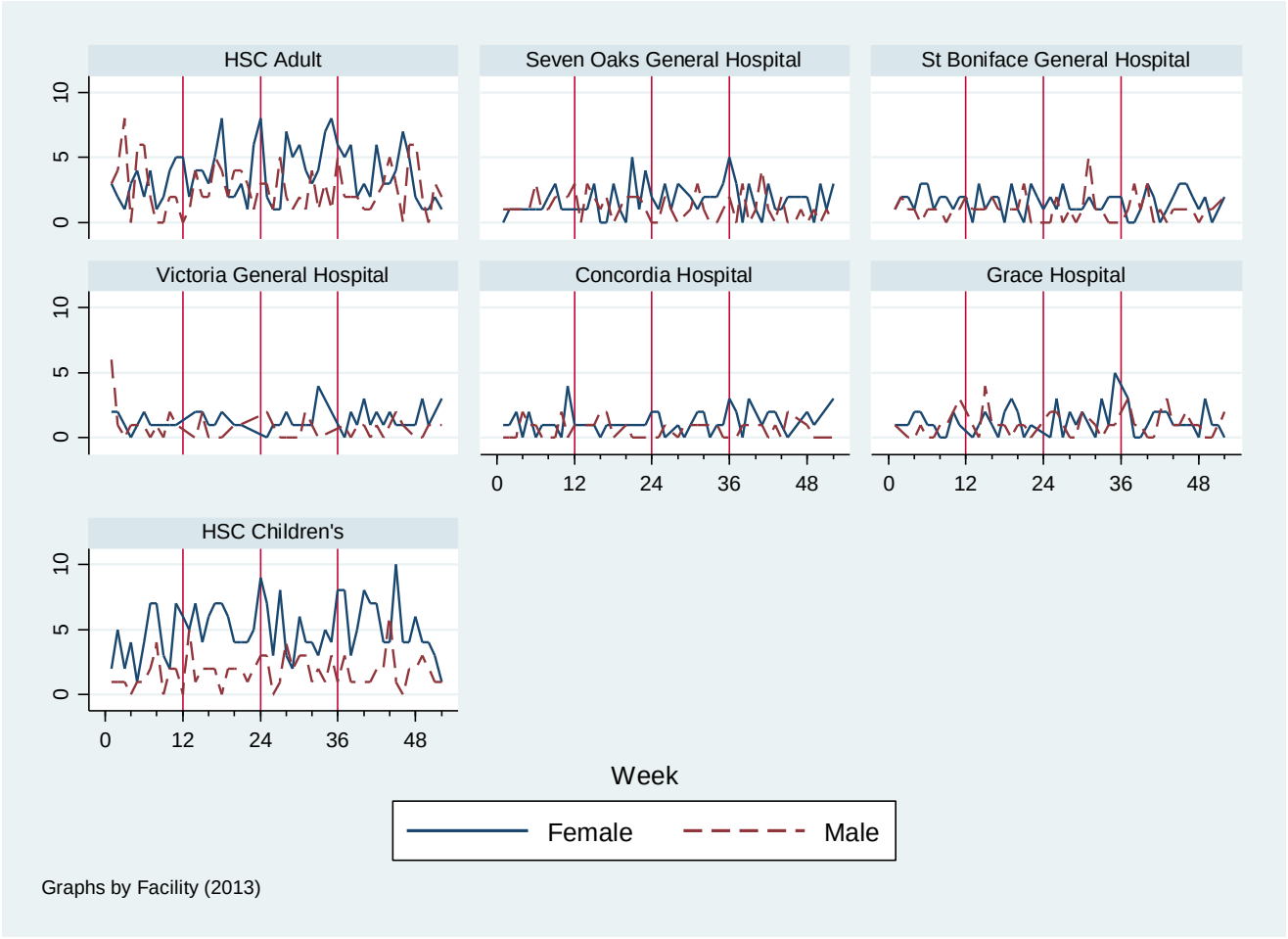
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing; Includes data up to Dec 7, 2016

Figure A6a: Emergency department admissions due to overdose (CTAS 1&2)* by week, sex, and facility (2012)**



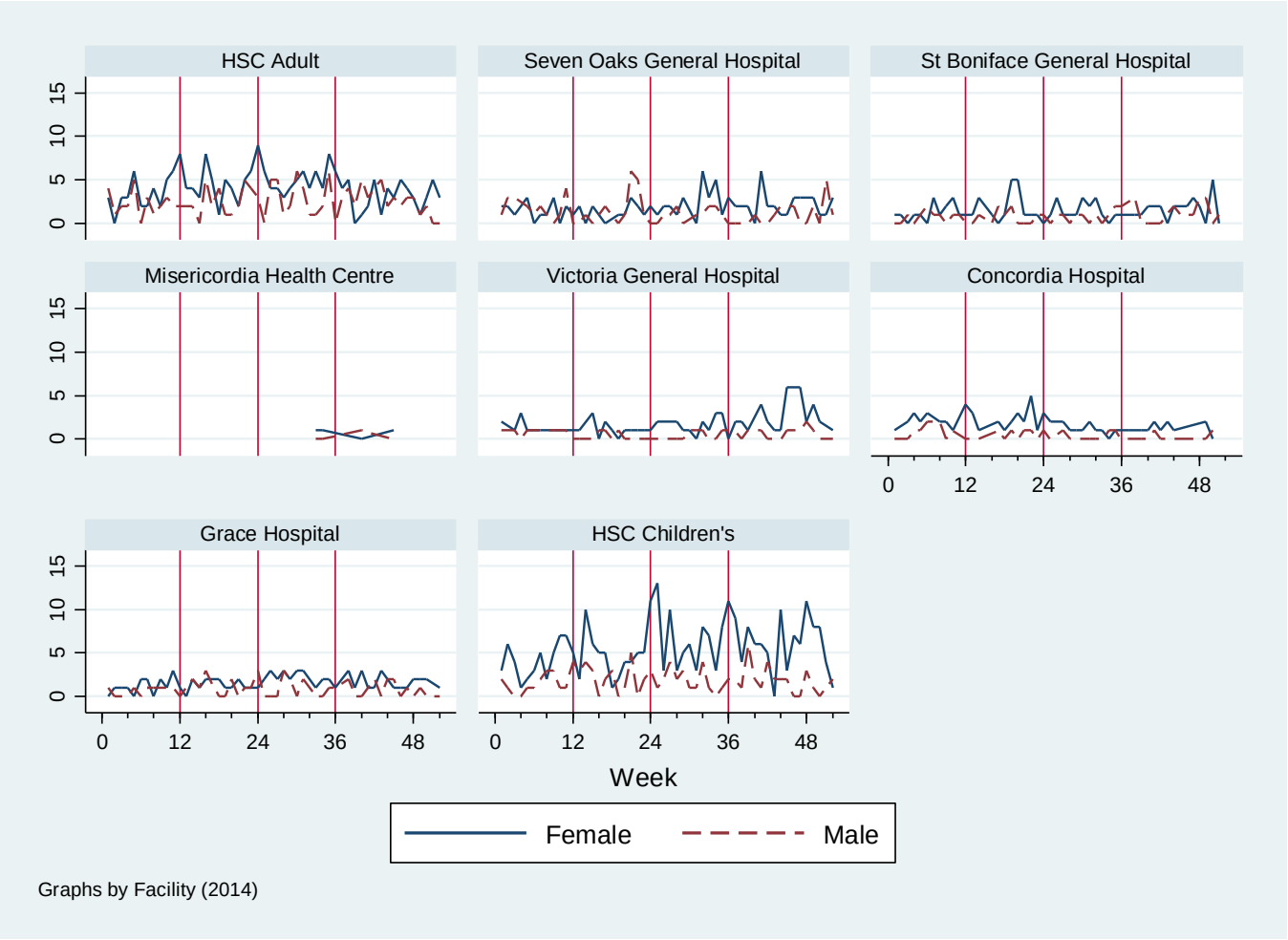
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing

Figure A6b: Emergency department admissions due to overdose (CTAS 1&2)* by week, sex, and facility (2013)**



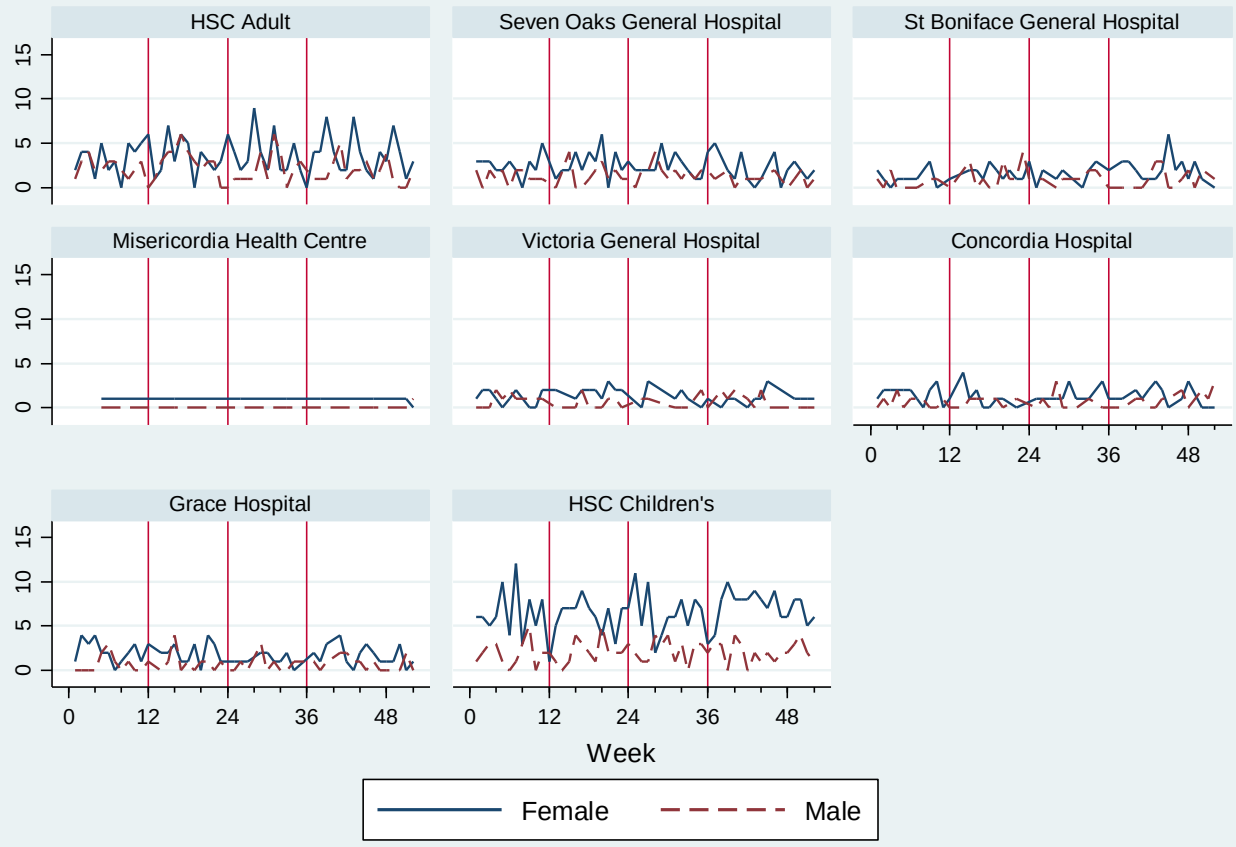
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing

Figure A6c: Emergency department admissions due to overdose (CTAS 1&2)* by week, sex, and facility (2014)**



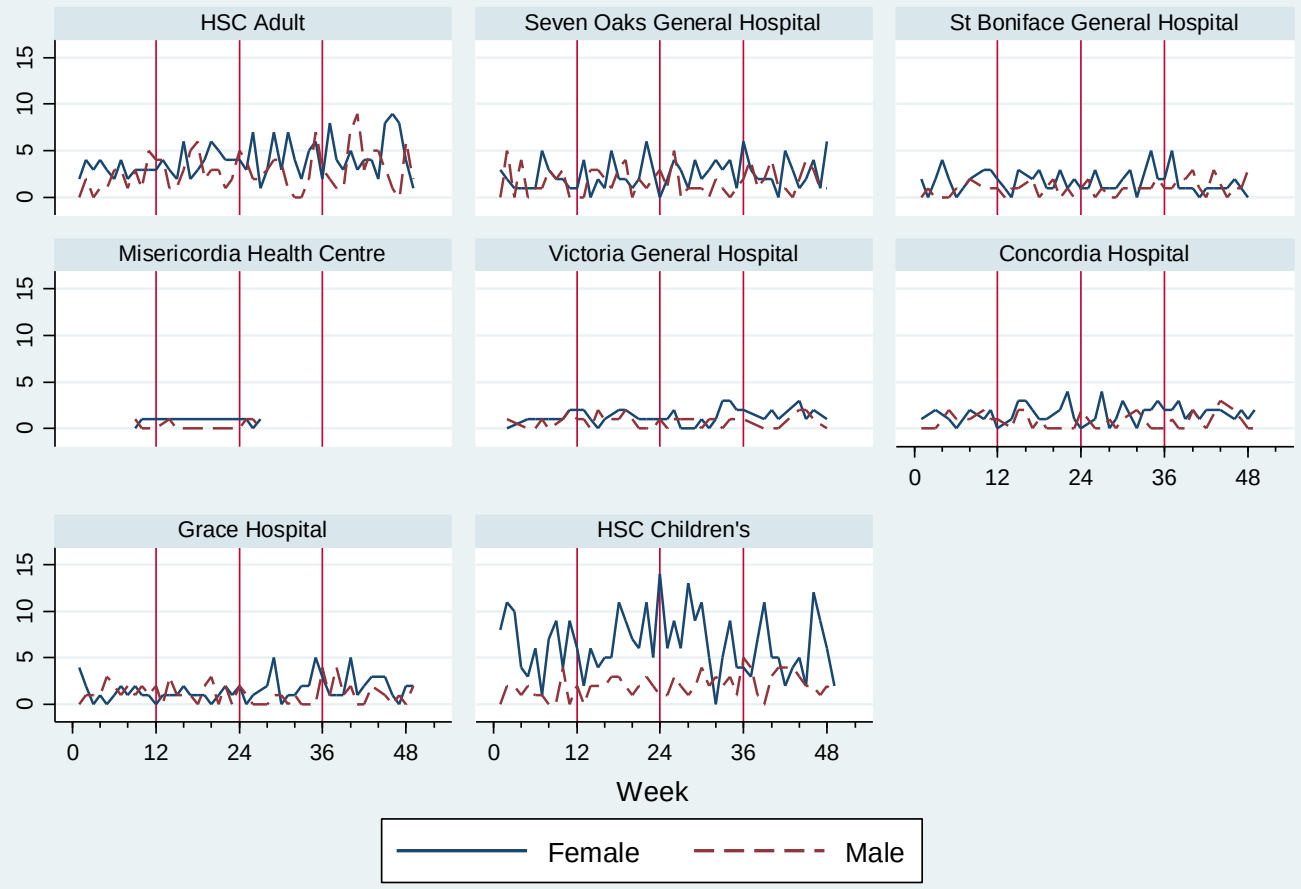
*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing

Figure A6d: Emergency department admissions due to overdose (CTAS 1&2)* by week, sex, and facility (2015)**



*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing

Figure A6e: Emergency department admissions due to overdose (CTAS 1&2)* by week, sex, and facility (January 1 – December 7, 2016)**



*'Overdose' defined as one of 'OD-Ingestion'; 'Overdose'; 'OD' in Chief Complaints or Visit Reason fields
**Includes only those with a valid postal code, residing in Winnipeg RHA and with sex not missing

Appendix B

Table B.1. Annual age-specific counts of naloxone administration events in males, Winnipeg Fire and Paramedic Service (2012-2016)*

	2012		2013		2014		2015		2016		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	*186*	*100.0*	*163*	*100.0*	*192*	*100.0*	*221*	*100.0*	*402*	*100.0*	*1,164*	*100.0*
Age group (years)												
10-14	2	1.1	2	1.2	0	0.0	1	0.5	2	0.5	7	0.6
15-19	14	7.5	8	4.9	6	3.1	11	5.0	25	6.2	64	5.5
20-24	17	9.1	21	12.9	23	12.0	27	12.2	66	16.4	154	13.2
25-29	26	14.0	11	6.7	18	9.4	31	14.0	65	16.2	151	13.0
30-34	26	14.0	21	12.9	25	13.0	26	11.8	74	18.4	172	14.8
35-39	25	13.4	13	8.0	15	7.8	28	12.7	28	7.0	109	9.4
40-44	23	12.4	33	20.2	22	11.5	25	11.3	41	10.2	144	12.4
45-49	18	9.7	17	10.4	22	11.5	19	8.6	25	6.2	101	8.7
50-54	16	8.6	12	7.4	35	18.2	19	8.6	26	6.5	108	9.3
55-59	5	2.7	8	4.9	10	5.2	10	4.5	16	4.0	49	4.2
60-64	5	2.7	7	4.3	4	2.1	9	4.1	12	3.0	37	3.2
65-69	0	0.0	4	2.5	1	0.5	5	2.3	8	2.0	18	1.5
70-74	1	0.5	0	0.0	2	1.0	1	0.5	6	1.5	10	0.9
75+	8	4.3	6	3.7	9	4.7	9	4.1	8	2.0	40	3.4

*Includes only those greater than 9 years of age.

Table B.2. Annual age-specific counts of naloxone administration events in females, Winnipeg Fire and Paramedic Service (2012-2016)*

	2012		2013		2014		2015		2016		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	*171*	*100.0*	*144*	*100.0*	*153*	*100.0*	*198*	*100.0*	*313*	*100.0*	*979*	*100.0*
Age group (years)												
10-14	2	1.2	2	1.4	4	2.6	1	0.5	3	1.0	12	1.2
15-19	10	5.8	13	9.0	14	9.2	8	4.0	22	7.0	67	6.8
20-24	35	20.5	18	12.5	17	11.1	23	11.6	52	16.6	145	14.8
25-29	19	11.1	19	13.2	19	12.4	29	14.6	52	16.6	138	14.1
30-34	15	8.8	18	12.5	24	15.7	30	15.2	55	17.6	142	14.5
35-39	14	8.2	14	9.7	15	9.8	23	11.6	23	7.3	89	9.1
40-44	12	7.0	11	7.6	12	7.8	18	9.1	31	9.9	84	8.6
45-49	23	13.5	8	5.6	7	4.6	20	10.1	26	8.3	84	8.6
50-54	11	6.4	9	6.3	11	7.2	14	7.1	19	6.1	64	6.5
55-59	4	2.3	11	7.6	10	6.5	11	5.6	10	3.2	46	4.7
60-64	6	3.5	3	2.1	6	3.9	4	2.0	5	1.6	24	2.5
65-69	7	4.1	4	2.8	4	2.6	1	0.5	4	1.3	20	2.0
70-74	2	1.2	4	2.8	1	0.7	4	2.0	2	0.6	13	1.3
75+	11	6.4	10	6.9	9	5.9	12	6.1	9	2.9	51	5.2

*Includes only those greater than 9 years of age.