

Alberta Health

Opioids and Substances of Misuse

Alberta Report, 2017 Q4

March 2, 2018

Alberta  Government

Highlights

- The most up to date data show that 687 people died from an apparent accidental opioid poisoning (overdose) in 2017.
- On average, 1.9 individuals die every day in Alberta as a result of an apparent accidental opioid poisoning (overdose).
- In 2017, 562 people died from an apparent accidental fentanyl poisoning (overdose), compared to 358 people in 2016.
- In the most recent quarter, there were 158 apparent accidental drug poisonings related to fentanyl.

Key points

Apparent accidental poisoning deaths related to fentanyl

- In the fourth quarter of 2017, there were **158** apparent accidental poisoning deaths related to fentanyl in Alberta. By comparison, there were **147** of these deaths in the third quarter of 2017. In 2016, **118** apparent accidental poisoning deaths related to fentanyl occurred in the fourth quarter.
- From Jan. 1, 2017 to Dec. 31, 2017, **81 per cent** of deaths occurred in larger urban cities (Edmonton, Calgary, Red Deer, Grande Prairie, Fort McMurray, Lethbridge, Medicine Hat).
- In the fourth quarter of 2017, the Calgary Zone (**71**) and Edmonton Zone (**46**) had the highest numbers of fentanyl deaths. The Calgary Zone continued to have the highest rate per 100,000 person years at **15.8**, compared to a provincial average of **13.1** per 100,000 person years.
- The number of accidental poisoning deaths related to carfentanil increased by **430 per cent** from 2016 (**30**) to 2017 (**159**). In the fourth quarter of 2017, **74 per cent** of carfentanil deaths occurred in the Calgary Zone.

Apparent accidental poisoning deaths related to non-fentanyl opioids

- In the third quarter of 2017, there were **44** apparent accidental poisoning deaths related to an opioid other than fentanyl in Alberta. By comparison, there were **47** of these deaths in the second quarter of 2017. In 2016, **58** apparent accidental poisoning deaths related to an opioid other than fentanyl occurred in the third quarter.
- From Jan. 1, 2017 to Sep. 30, 2017, **68 per cent** of non-fentanyl opioid-related deaths occurred in larger urban cities (Edmonton, Calgary, Red Deer, Grande Prairie, Fort McMurray, Lethbridge, Medicine Hat).
- In the third quarter of 2017, the Calgary Zone (**11**) and Edmonton Zone (**14**) had the highest number of these deaths. The North Zone had the highest rate at **5.1** per 100,000 person years, compared to a provincial average of **3.9** per 100,000 person years.

Apparent accidental poisoning deaths related to all opioids (including fentanyl)

- Within the cities of Edmonton and Calgary, from Jan. 1, 2017 to Dec. 31, 2017, the local geographic areas with the highest rates of apparent accidental poisoning deaths related to all opioids were Eastwood in Edmonton, and Calgary Central and East in Calgary.
- While the rates were highest in these local geographic areas, **70 per cent** of deaths in Calgary and **76 per cent** of deaths in Edmonton occurred outside these areas.

Confirmed drug poisoning deaths

- From 2016 to 2017, among all confirmed accidental drug & alcohol poisoning deaths (accidental and suicides) opioids and fentanyl were directly involved in **75 per cent** of deaths. **25 per cent** of all confirmed accidental drug & alcohol poisoning deaths (accidental and suicides) did not involve an opioid.
- From 2015 to 2017, the proportion of confirmed poisoning deaths related to fentanyl that involved methamphetamine or heroin, increased **2.3 times**.

Emergency Department visits

- In the third quarter of 2017, there were **2,871** emergency and urgent care visits related to opioids and other substances of misuse. In the third quarter of 2016, there were **2,357** emergency and urgent care visits related to opioids and other substances of misuse.
- In the third quarter of 2017, emergency and urgent care visits related to opioids and other substances of misuse occurred among **2,420** unique individuals, of whom **13 per cent** had more than one visit.

Disclaimer

This surveillance report presents emergency department visits, drug dispensing from community pharmacies, emergency medical services, naloxone kit dispensing, and mortality data associated with opioids and other substances of misuse in Alberta.

Data sources are updated at differing time periods. Results are subject to change based on differences in data submission schedules and updates from the various data systems. Data may change in later reporting as it is submitted by the medical examiner, health facilities, and pharmacies. **Recent data may be less complete due to delays in data submission.**

The number of drug overdose deaths related to fentanyl/opioids may change (including increases/decreases in previous numbers) as certification of deaths can take six months or longer, and certification of cause of death may lead to a change in classification.

Apparent deaths = Preliminary evidence suggests that the death is most likely a drug overdose.

Apparent non-fentanyl opioid poisoning deaths: due to the added complexity of non-fentanyl opioid related poisoning deaths, there is a three month delay in identifying these preliminary cases for surveillance purposes compared to fentanyl related deaths.

For all figures that include total opioid deaths up to Dec 31, 2017 (Figures 5, 6, 7, 8), fentanyl related deaths are reported from Jan 1, 2017 to Dec 31, 2017, while non-fentanyl opioid related deaths are only reported from Jan 1, 2017 to Sep 30, 2017.

Confirmed deaths = A Medical Examiner has determined the cause of death based on all available evidence, and listed the cause of death on a death certificate (including the substances directly involved in the overdose). Confirmed deaths in this report are for *all* drug overdose deaths, not just drug overdoses related to fentanyl and opioids.

Throughout this report:

- Q1 = January to March
- Q2 = April to June
- Q3 = July to September
- Q4 = October to December

Local Geographic Areas (LGAs) refers to 132 geographic areas created by Alberta Health and Alberta Health Services based on census boundaries

For more details on data sources and methods, please see the **Data notes** section at the end of this report.

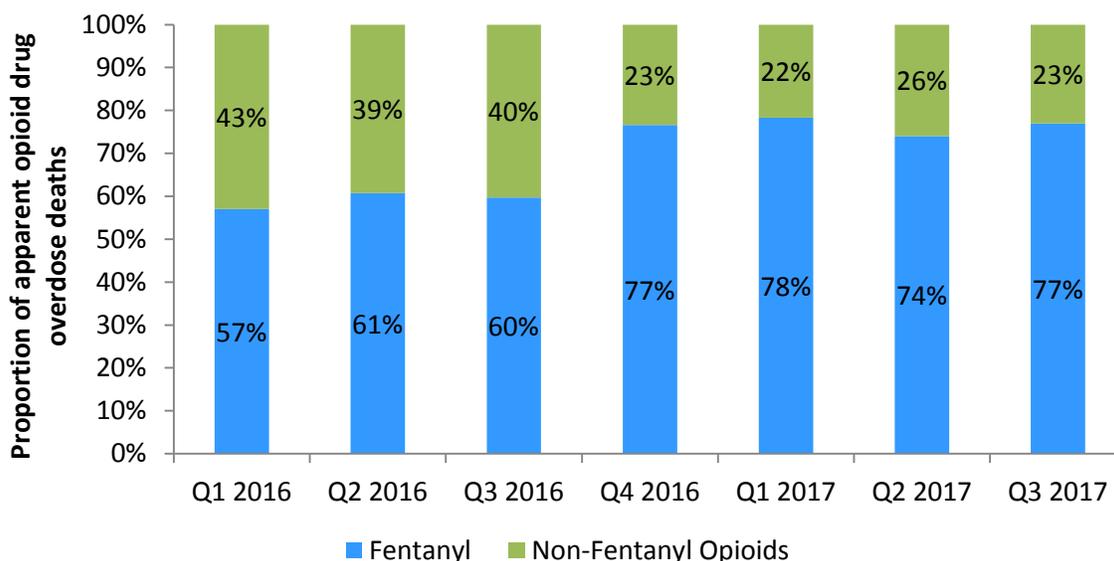
Table of contents

Highlights.....	1
Key points.....	2
Disclaimer.....	3
Table of contents	4
Mortality data: Apparent accidental opioid poisoning deaths (fentanyl and non-fentanyl related)	6
Figure 1: Proportion of fentanyl vs. non-fentanyl related apparent accidental opioid poisoning deaths, by quarter. Jan. 1, 2016 to Sep. 30, 2017.....	6
Table 1: Number of apparent accidental opioid poisoning deaths related to any opioid by quarter. ...	6
Figure 2: Number of apparent accidental fentanyl poisoning deaths, by Zone (based on place of death) and quarter. Jan. 1, 2016 to Dec. 31, 2017.	7
Table 2: Number of apparent accidental fentanyl poisoning deaths by quarter.....	7
Table 3: Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to fentanyl, by Zone (based on place of death). Jan. 1, 2016 to Dec. 31, 2017.	8
Table 4: Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to fentanyl, by city (based on place of death). Jan. 1, 2016 to Dec. 31, 2017.....	8
Figure 3: Number of apparent accidental drug poisoning deaths related to carfentanil, by Zone (based on place of death) and quarter. Jan. 1, 2016 to Dec. 31, 2017. <i>Sub category of fentanyl deaths from Figure 2</i>	9
Table 5: Number of apparent accidental carfentanil poisoning deaths by quarter. <i>Sub category of fentanyl deaths from Table 2</i>	9
Figure 4: Number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl, by Zone (based on place of death) and quarter. Jan. 1, 2016 to Sep. 30, 2017.	10
Table 6: Number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl by quarter.	10
Table 7: Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl, by Zone (based on place of death). Jan. 1, 2016 to Sep. 30, 2017.....	11
Table 8: Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl, by city (based on place of death). Jan. 1, 2016 to Sep. 30, 2017.....	11
Figure 5: Rate (per 100,000 person years) and counts of apparent accidental drug poisoning deaths related to an opioid (including fentanyl), in the City of Edmonton, based on place of overdose, by LGA. Jan. 1, 2017 to Dec. 31, 2017.	12
Figure 6: Rate (per 100,000 person years) and counts of apparent accidental drug poisoning deaths related to an opioid (including fentanyl), in the City of Calgary, based on place of overdose, by LGA. Jan. 1, 2017 to Dec. 31, 2017.	13
Figure 7: Median household income of neighbourhood where individuals who died of apparent accidental opioid poisoning resided, and number of deaths occurring in neighbourhood, in the City of Edmonton. Jan. 1, 2017 to Dec. 31, 2017.	14
Figure 8: Median household income of neighbourhood where individuals who died of apparent accidental opioid poisoning resided, and number of deaths occurring in neighbourhood, in the City of Calgary. Jan. 1, 2017 to Dec. 31, 2017.	15

Figure 9: Apparent accidental poisoning deaths related to fentanyl, by sex and age. Jan. 1, 2017 to Dec. 31, 2017.....	16
Figure 10: Apparent accidental poisoning deaths related to an opioid other than fentanyl, by sex and age, Jan. 1, 2017 to Sep. 30, 2017.....	16
Figure 11: Proportion of apparent accidental poisoning deaths related to fentanyl, by medical history within the 30 days before the date of death. Jan. 1, 2017 to Sep. 30, 2017.....	17
Figure 12: Proportion of apparent accidental poisoning deaths related to an opioid other than fentanyl, by medical history within the 30 days before the date of death, Jan. 1, 2017 to Sep. 30, 2017.....	17
Confirmed drug & alcohol poisoning deaths (accidental and suicide).....	18
Figure 13: Number of confirmed drug & alcohol poisoning deaths in Alberta by drug causing death, manner, and year. 2015 to 2017.	18
Figure 14: Confirmed fentanyl poisoning deaths (suicides and accidental) in Alberta by additional substances causing death, and year. 2015 to 2017.....	19
Emergency department visits.....	20
Figure 15: Rate of emergency department (ED) visits related to opioid use and other substances of misuse, by quarter and Zone, per 100,000 person years. Jan. 1, 2014 to Sep. 30, 2017.	20
Table 9: Top 10 ED facilities utilized for emergency visits related to opioid use and other substances of misuse, Jan. 1, 2014 to Sep. 30, 2017	20
Hospitalizations	21
Figure 16: Rate of hospitalizations related to opioid use and other substances of misuse, by quarter and Zone, per 100,000 person years. Jan. 1, 2014 to Sep. 30, 2017.	21
Table 10: Top 10 facilities utilized for hospitalizations related to opioid use and other substances of misuse, Jan. 1, 2014 to Sep. 30, 2017.	21
Emergency Medical Services data.....	22
Figure 17: Rate (per 100,000 person years) and count of Emergency Medical Services (EMS) responses to opioid related events, by LGA. Jan. 1, 2017 to Dec 31, 2017.....	22
Methadone & buprenorphine/naloxone dispensing from community pharmacies	23
Figure 18: Rate of unique individuals dispensed methadone indicated for opioid dependence from community pharmacies per 100,000, by Zone and year. Jan. 1, 2014 to Dec. 31, 2017.....	23
Figure 19: Rate of unique individuals dispensed buprenorphine/naloxone (generic brands and Suboxone™) indicated for opioid dependence from community pharmacies per 100,000, by Zone and year. Jan. 1, 2014 to Dec. 31, 2017.....	23
Naloxone kit dispensing and distribution through Alberta Health Services' naloxone program	24
Figure 20: Naloxone kits dispensed/distributed by registered site type, Jan. 1, 2016 to Dec. 31, 2017.....	24
Table 11: Number of sites registered to distribute naloxone kits, Jan. 1, 2016 to Dec. 31, 2017. ...	24
Figure 21: Naloxone kits dispensed/distributed by community pharmacies and other registered sites, by Zone. Jan. 1, 2016 to Dec. 31, 2017.	25
Figure 22: Naloxone kits dispensed by community pharmacies, by Zone and month. Jan. 1, 2016 to Dec. 31, 2017.....	25
Data notes	26

Mortality data: Apparent accidental opioid poisoning deaths (fentanyl and non-fentanyl related)

Figure 1: Proportion of fentanyl vs. non-fentanyl related apparent accidental opioid poisoning deaths, by quarter. Jan. 1, 2016 to Sep. 30, 2017.

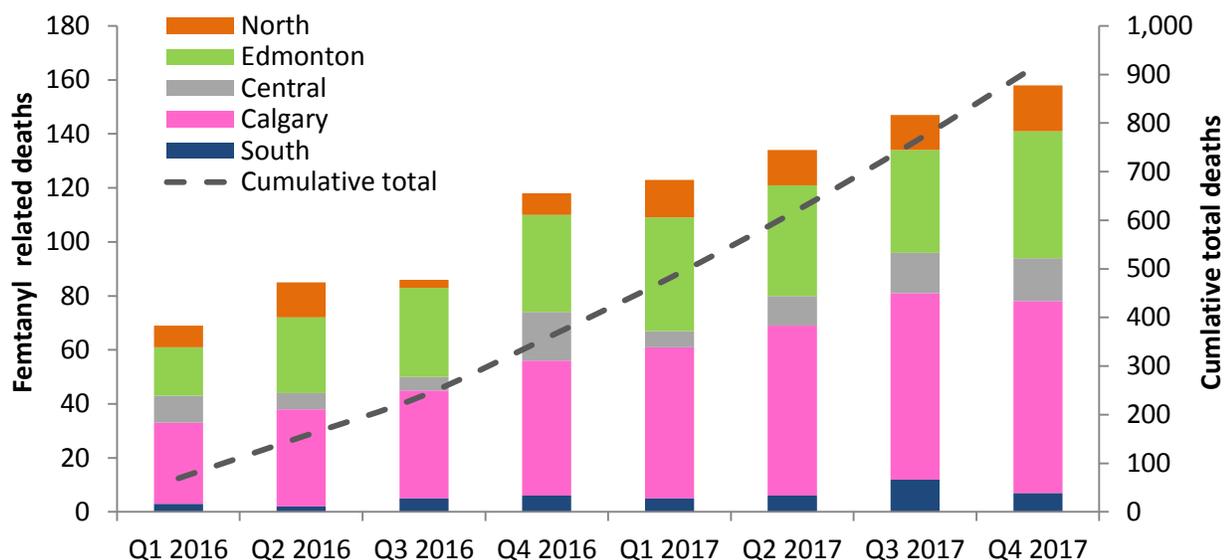


- The majority of apparent accidental opioid poisoning deaths continue to be related to fentanyl. In the third quarter of 2017, 77 per cent of all opioid poisoning deaths were related to fentanyl.

Table 1: Number of apparent accidental opioid poisoning deaths related to any opioid by quarter.

								Total
South Zone	6	5	9	12	6	8	19	65
Calgary Zone	46	54	56	59	71	78	80	444
Central Zone	17	17	13	23	12	16	20	118
Edmonton Zone	40	49	59	50	50	58	52	358
North Zone	12	15	7	10	18	21	20	103
Alberta	121	140	144	154	157	181	191	1,088
	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	

Figure 2: Number of apparent accidental fentanyl poisoning deaths, by Zone (based on place of death) and quarter. Jan. 1, 2016 to Dec. 31, 2017.



- Since Jan. 1, 2016, a total of 920 individuals in Alberta died from an apparent accidental drug poisoning death related to fentanyl (358 in 2016 and 562 in 2017). In 2017, on average, 141 individuals in Alberta died from an apparent accidental drug poisoning death related to fentanyl per quarter.
- From Jan 1, 2016 to Dec 31, 2017, the number of apparent accidental drug poisoning deaths related to fentanyl continues to be significant, with the trend still increasing.

Table 2: Number of apparent accidental fentanyl poisoning deaths by quarter.

	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Total
South Zone	3	2	5	6	5	6	12	7	46
Calgary Zone	30	36	40	50	56	63	69	71	415
Central Zone	10	6	5	18	6	11	15	16	87
Edmonton Zone	18	28	33	36	42	41	38	47	283
North Zone	8	13	3	8	14	13	13	17	89
Alberta	69	85	86	118	123	134	147	158	920

Table 3: Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to fentanyl, by Zone (based on place of death). Jan. 1, 2016 to Dec. 31, 2017.

	2016		2017	
	Count	Rate	Count	Rate
South Zone	16	5.3	30	9.8
Calgary Zone	156	9.7	259	15.8
Central Zone	39	8.1	48	9.9
Edmonton Zone	115	8.5	168	12.3
North Zone	32	6.5	57	11.6
Alberta	358	8.4	562	13.1

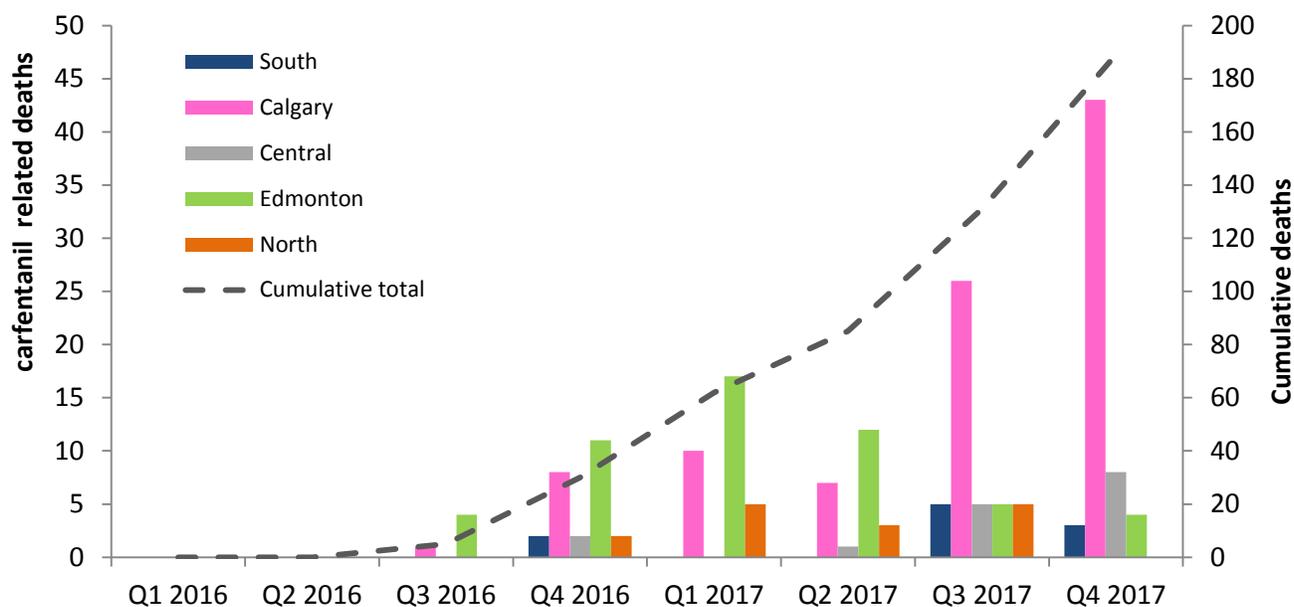
- The Calgary and Edmonton Zones continue to have the highest number of apparent accidental poisoning deaths related to fentanyl. In 2017, the Calgary Zone continued to have the highest rate per 100,000 person years at 15.8, compared to a provincial average of 13.1 per 100,000 person years.

Table 4: Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to fentanyl, by city (based on place of death). Jan. 1, 2016 to Dec. 31, 2017.

	2016		2017	
	Count	Rate	Count	Rate
Lethbridge	10	10.3	18	19.0
Medicine Hat	3	4.4	7	10.2
Calgary	149	11.2	233	17.7
Red Deer	23	21.0	25	22.6
Edmonton	101	10.4	135	13.8
Fort McMurray	9	11.0	14	17.5
Grande Prairie	10	13.4	26	33.8
Total	305	11.2	458	16.8

- The cities of Calgary and Edmonton continue to have the highest number of apparent accidental poisoning deaths related to fentanyl. However, in 2017, the City of Grande Prairie had the highest rate of apparent drug poisoning deaths related to fentanyl per 100,000 person years.

Figure 3: Number of apparent accidental drug poisoning deaths related to carfentanil, by Zone (based on place of death) and quarter. Jan. 1, 2016 to Dec. 31, 2017. *Sub category of fentanyl deaths from Figure 2*

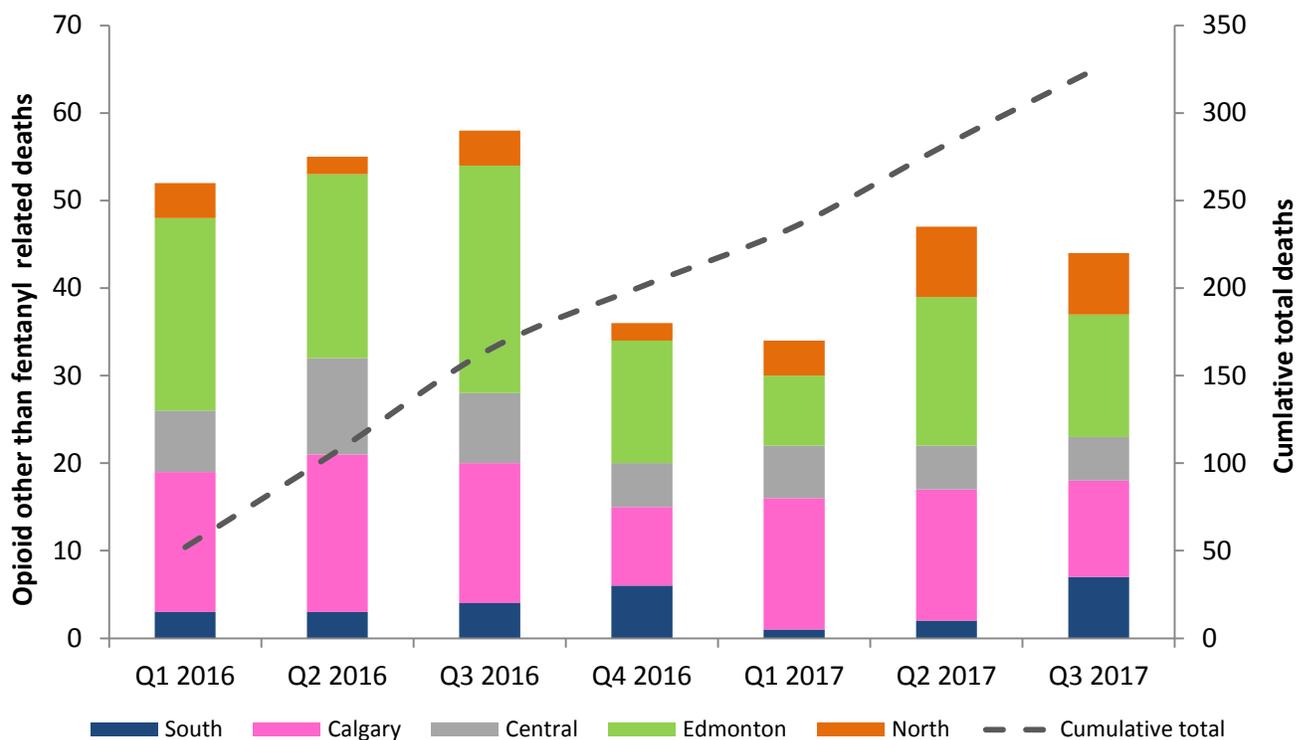


- The first carfentanil cases were detected in the third quarter of 2016, with 30 individuals in Alberta dying from a drug poisoning related to carfentanil in 2016. In 2017, 159 individuals in Alberta died from a drug poisoning related to carfentanil, an increase of 430 per cent.
- 50 per cent of all carfentanil deaths have occurred in the Calgary Zone. In the last quarter of 2017, 74 per cent of these deaths occurred in the Calgary Zone.

Table 5: Number of apparent accidental carfentanil poisoning deaths by quarter. *Sub category of fentanyl deaths from Table 2*

	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Total
South Zone	0	0	0	2	0	0	5	3	10
Calgary Zone	0	0	1	8	10	7	26	43	95
Central Zone	0	0	0	2	0	1	5	8	16
Edmonton Zone	0	0	4	11	17	12	5	4	53
North Zone	0	0	0	2	5	3	5	0	15
Alberta	0	0	5	25	32	23	46	58	189

Figure 4: Number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl, by Zone (based on place of death) and quarter. Jan. 1, 2016 to Sep. 30, 2017.



- Since Jan. 1, 2016, a total of 326 individuals in Alberta died from apparent accidental drug poisoning related to an opioid other than fentanyl, with an average of 47 per quarter.
- The most recent quarter shows that, compared to the first three quarters of 2016, the number of these deaths have been decreasing in occurrence.

Table 6: Number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl by quarter.

	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Total
South Zone	3	3	4	6	1	2	7	26
Calgary Zone	16	18	16	9	15	15	11	100
Central Zone	7	11	8	5	6	5	5	47
Edmonton Zone	22	21	26	14	8	17	14	122
North Zone	4	2	4	2	4	8	7	31
Alberta	52	55	58	36	34	47	44	326

Table 7: Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl, by Zone (based on place of death). Jan. 1, 2016 to Sep. 30, 2017.

	2016		2017 YTD*	
	Count	Rate	Count	Rate
South Zone	16	5.3	10	4.4
Calgary Zone	59	3.7	41	3.3
Central Zone	31	6.4	16	4.4
Edmonton Zone	83	6.1	39	3.8
North Zone	12	2.4	19	5.1
Alberta	201	4.7	125	3.9

- The Calgary and Edmonton Zones continue to have the highest number of these deaths. To date, in 2017, the North Zone has had the highest rate per 100,000 person years at 5.1, compared to a provincial average of 3.9 per 100,000 person years.

Table 8: Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl, by city (based on place of death). Jan. 1, 2016 to Sep. 30, 2017.

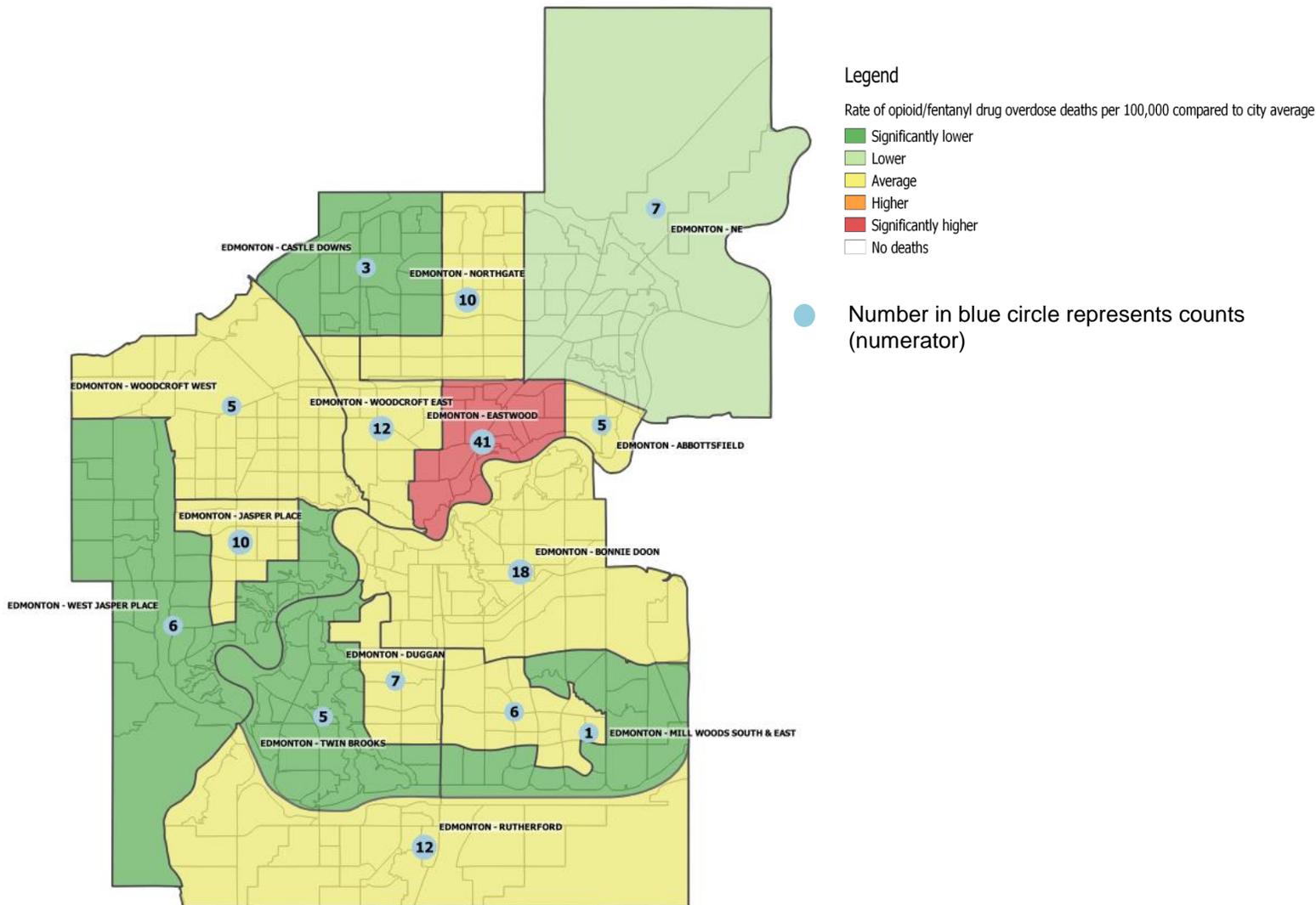
	2016		2017 YTD*	
	Count	Rate	Count	Rate
Lethbridge	4	4.1	4	5.6
Medicine Hat	4	5.8	2	3.9
Calgary	44	3.3	33	3.3
Red Deer	11	10.0	4	4.8
Edmonton	67	6.9	35	4.8
Fort McMurray	1	1.2	2	3.3
Grande Prairie	1	1.3	5	8.7
Total	132	4.8	85	4.2

- The cities of Calgary and Edmonton continue to have the highest number of these deaths. In 2017 YTD, the City of Grande Prairie had the highest rate of apparent accidental drug poisoning deaths related to an opioid other than fentanyl per 100,000 person years.

*YTD = Jan. 1, 2017 to Sep. 30, 2017

Figure 5: Rate (per 100,000 person years) and counts of apparent accidental drug poisoning deaths related to an opioid (including fentanyl), in the City of Edmonton, based on place of overdose, by LGA. Jan. 1, 2017 to Dec. 31, 2017.

Edmonton average: 15.5 per 100,000 person years (n = 148)

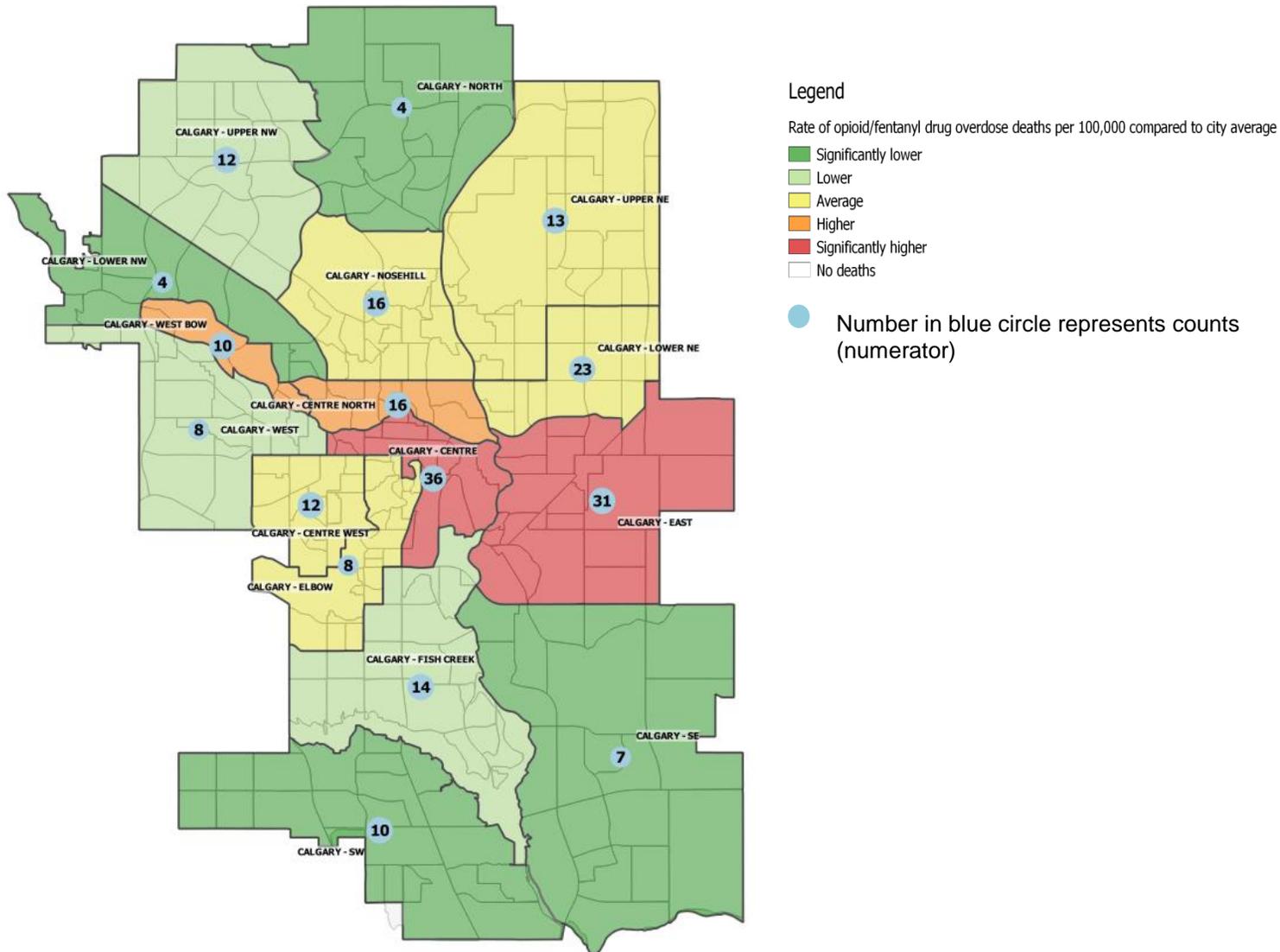


- Within the City of Edmonton, the only LGA with a **significantly higher** rate of apparent accidental drug poisoning deaths related to an opioid (including fentanyl) **compared to the city average** was Eastwood. However, 76 per cent of the total deaths occurred in LGAs outside of this area.
- The place where the accidental drug poisoning death occurred was the same as the individual’s home address for 55 per cent of these deaths in Edmonton.

Note: Place of death was used as the place of the overdose, except in instances where the place of death occurred in a hospital. In instances where the death occurred in a hospital, if EMS had responded to the individual for an opioid related event within 24 hours of the death, the location of the EMS response was used as place of the overdose. If no EMS visit occurred within 24 hours, the hospital death was excluded. In Edmonton, a hospital was the place of death in 14 per cent of deaths.

Figure 6: Rate (per 100,000 person years) and counts of apparent accidental drug poisoning deaths related to an opioid (including fentanyl), in the City of Calgary, based on place of overdose, by LGA. Jan. 1, 2017 to Dec. 31, 2017.

Calgary average: 17.4 per 100,000 person years (n = 224)

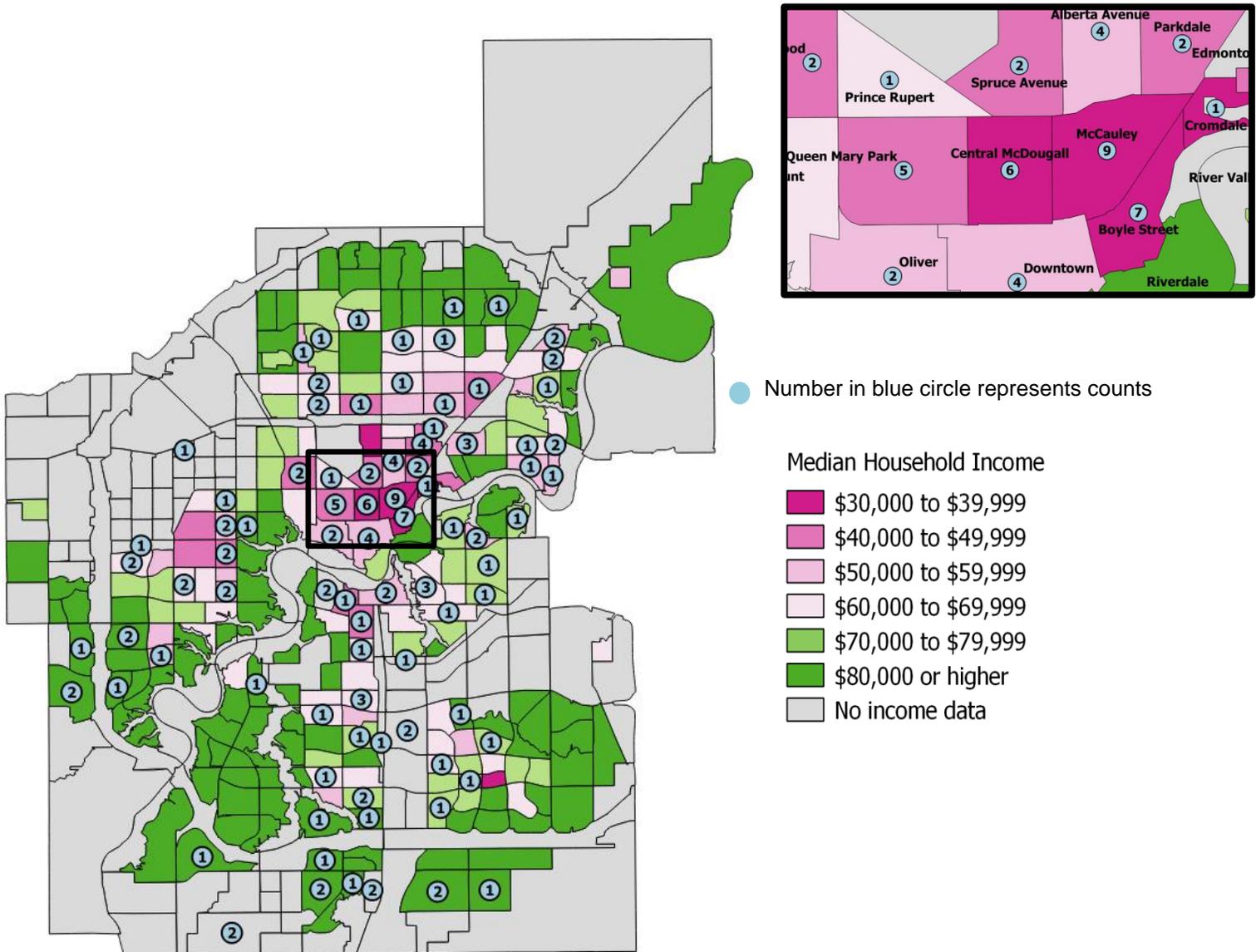


- Within the City of Calgary, the LGAs with **higher** or **significantly higher** rates of apparent accidental drug poisoning deaths related to an opioid (including fentanyl) **compared to the city average** were Centre, Centre-North, East, and West Bow. However, 58 per cent of the total deaths occurred in LGAs outside of these areas.
- The place where the overdose occurred was the same as the individual’s home address for 65 per cent of these deaths in Calgary.

Note: Place of death was used as the place of the overdose, except in instances where the place of death occurred in a hospital. In instances where the death occurred in a hospital, if EMS had responded to the individual for an opioid related event within 24 hours of the death, the location of the EMS response was used as place of the overdose. If no EMS visit occurred within 24 hours, the hospital death was excluded. In Calgary, a hospital was the place of death in 16 per cent of deaths.

Figure 7: Median household income of neighbourhood where individuals who died of apparent accidental opioid poisoning resided, and number of deaths occurring in neighbourhood, in the City of Edmonton. Jan. 1, 2017 to Dec. 31, 2017.

Edmonton average: 15.5 per 100,000 person years (n = 148)

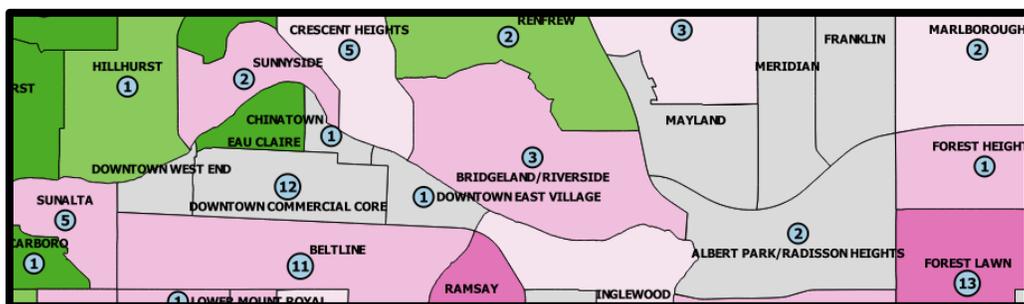
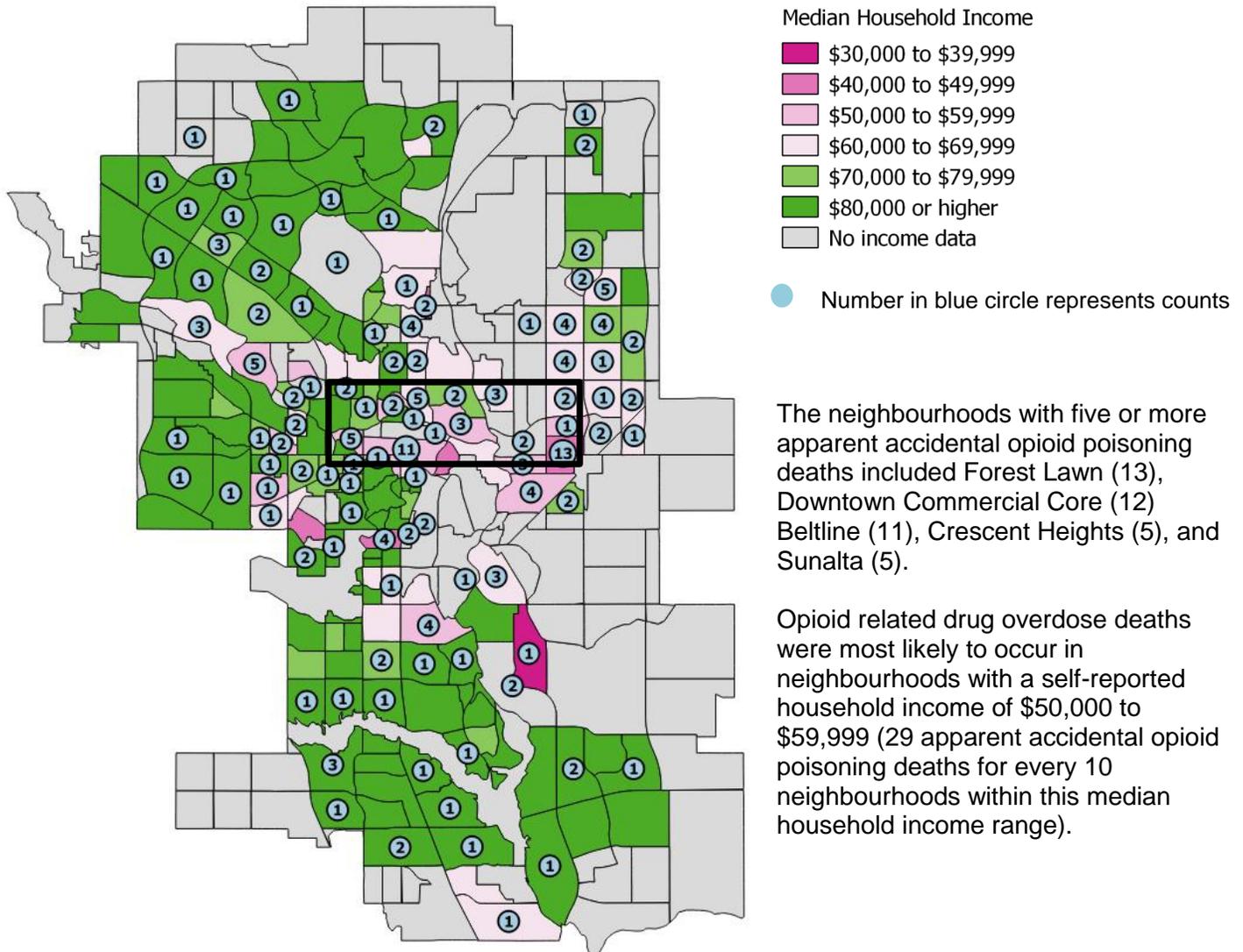


- The neighbourhoods with five or more apparent accidental opioid poisoning deaths included McCauley (9), Boyle Street (7), Central McDougall (6), and Queen Mary Park (5).
- Opioid related drug overdose deaths were most likely to occur in neighbourhoods with a self-reported household median income of \$30,000 to \$39,999 (38 apparent accidental opioid poisoning deaths for every 10 neighbourhoods within this median household income range).

Note: Household income was based on results from the 2011 NHS survey, and adjusted to 2017 dollars.

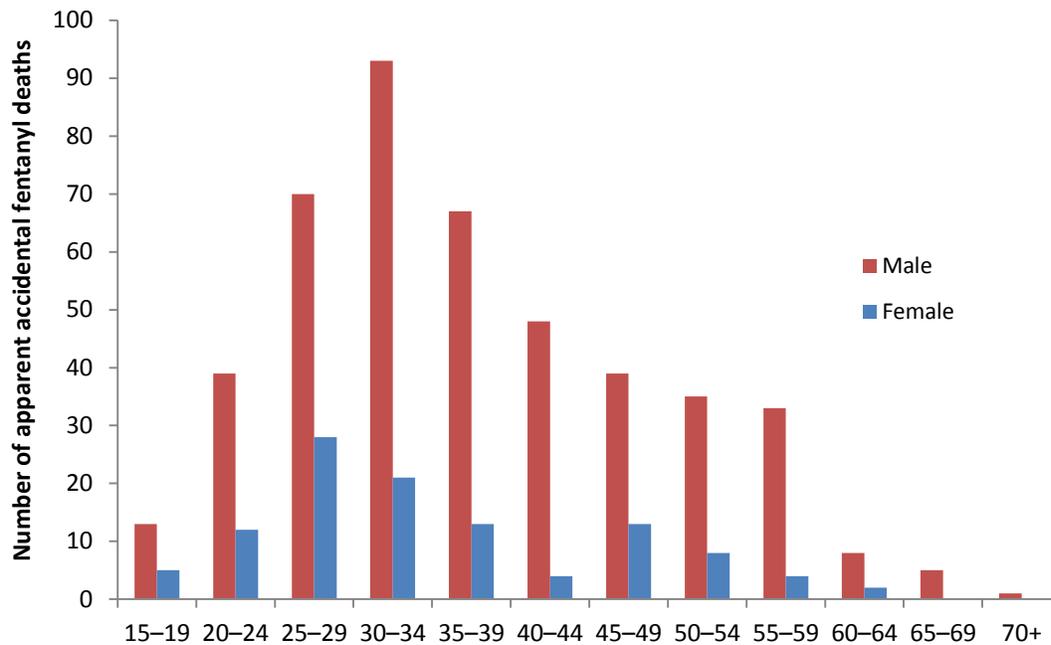
Figure 8: Median household income of neighbourhood where individuals who died of apparent accidental opioid poisoning resided, and number of deaths occurring in neighbourhood, in the City of Calgary. Jan. 1, 2017 to Dec. 31, 2017.

Calgary average: 17.4 per 100,000 person years (n = 224)



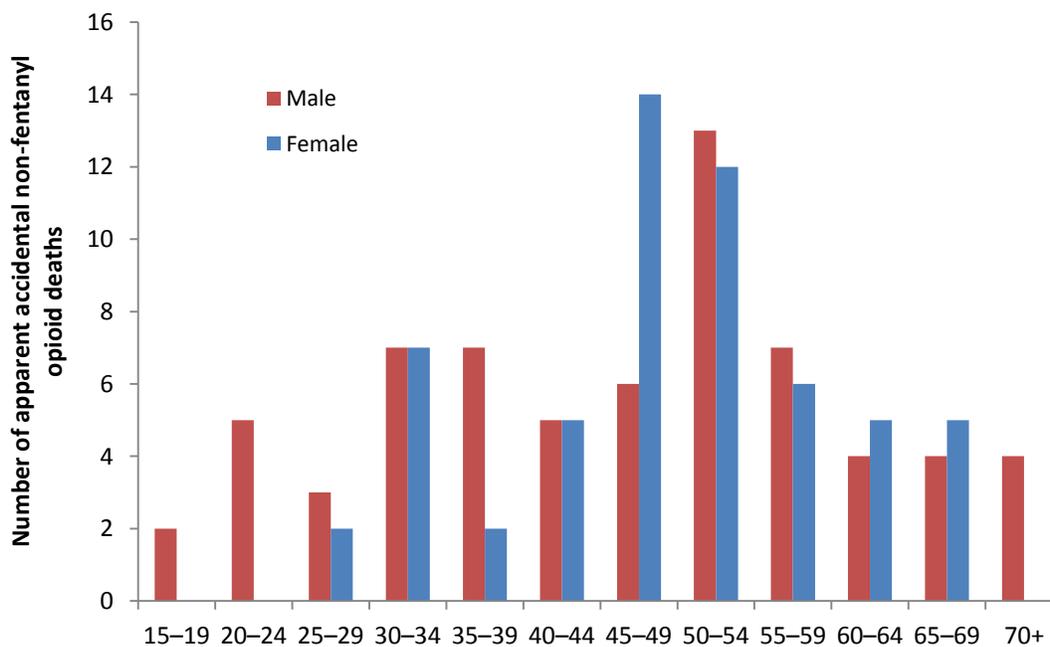
Note: Household income was based on results from the 2011 NHS survey, and adjusted to 2017 dollars.

Figure 9: Apparent accidental poisoning deaths related to fentanyl, by sex and age. Jan. 1, 2017 to Dec. 31, 2017.



- 80 per cent of apparent accidental drug poisoning deaths related to fentanyl were among males. Among males, the highest number of deaths occurred among individuals spanning the ages of 30-34. Among females, the highest number of deaths occurred among individuals spanning the ages of 25-29.

Figure 10: Apparent accidental poisoning deaths related to an opioid other than fentanyl, by sex and age, Jan. 1, 2017 to Sep. 30, 2017.



- 54 per cent of apparent accidental poisoning deaths related to an opioid other than fentanyl were among males. Among males, the age group with the highest number of deaths was 50-54 years, and among females, was 45-49 years.

Figure 11: Proportion of apparent accidental poisoning deaths related to fentanyl, by medical history within the 30 days before the date of death. Jan. 1, 2017 to Sep. 30, 2017.

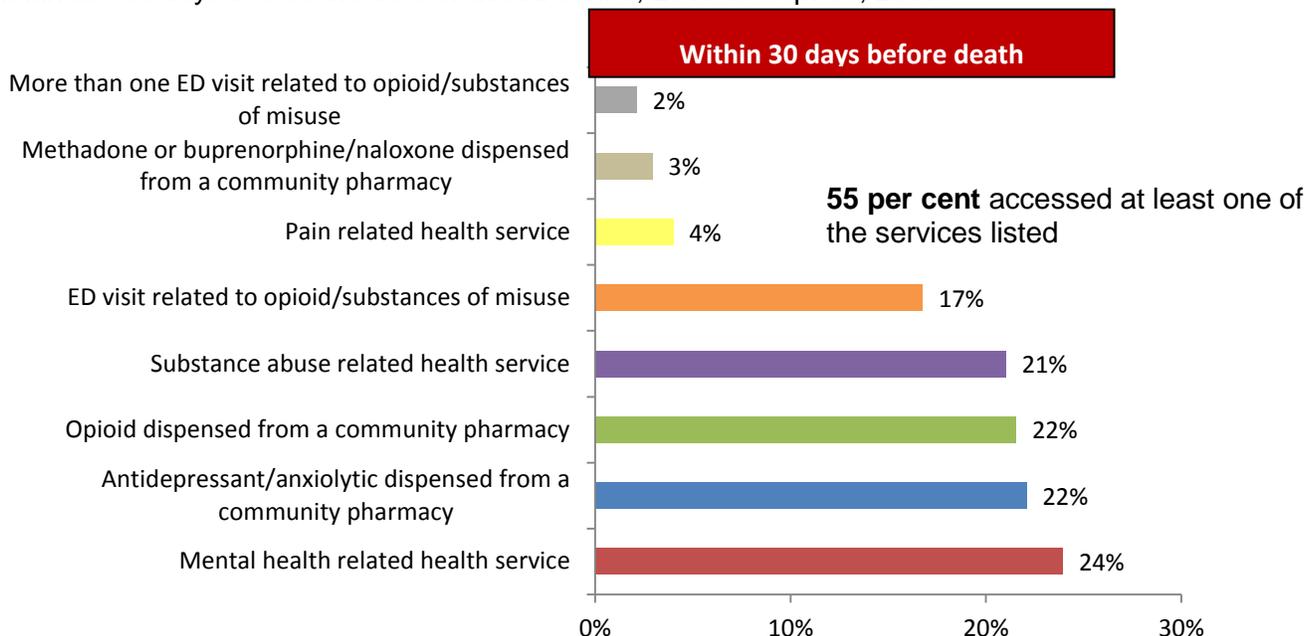
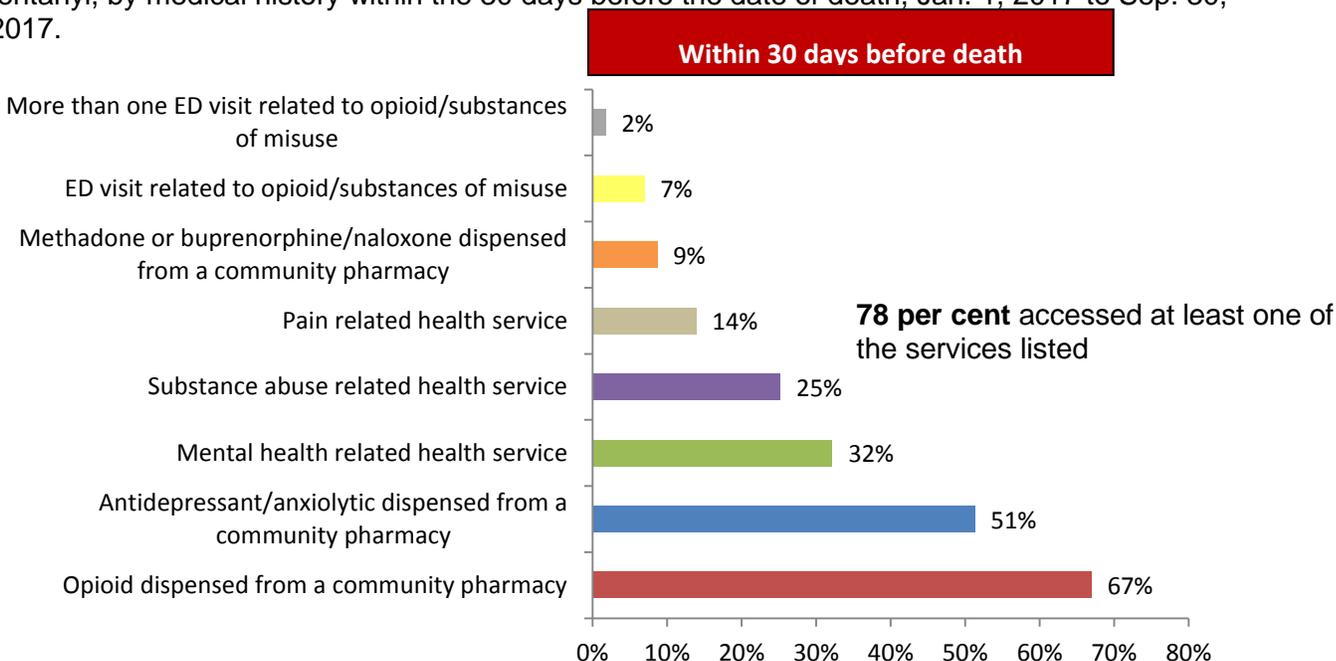


Figure 12: Proportion of apparent accidental poisoning deaths related to an opioid other than fentanyl, by medical history within the 30 days before the date of death, Jan. 1, 2017 to Sep. 30, 2017.



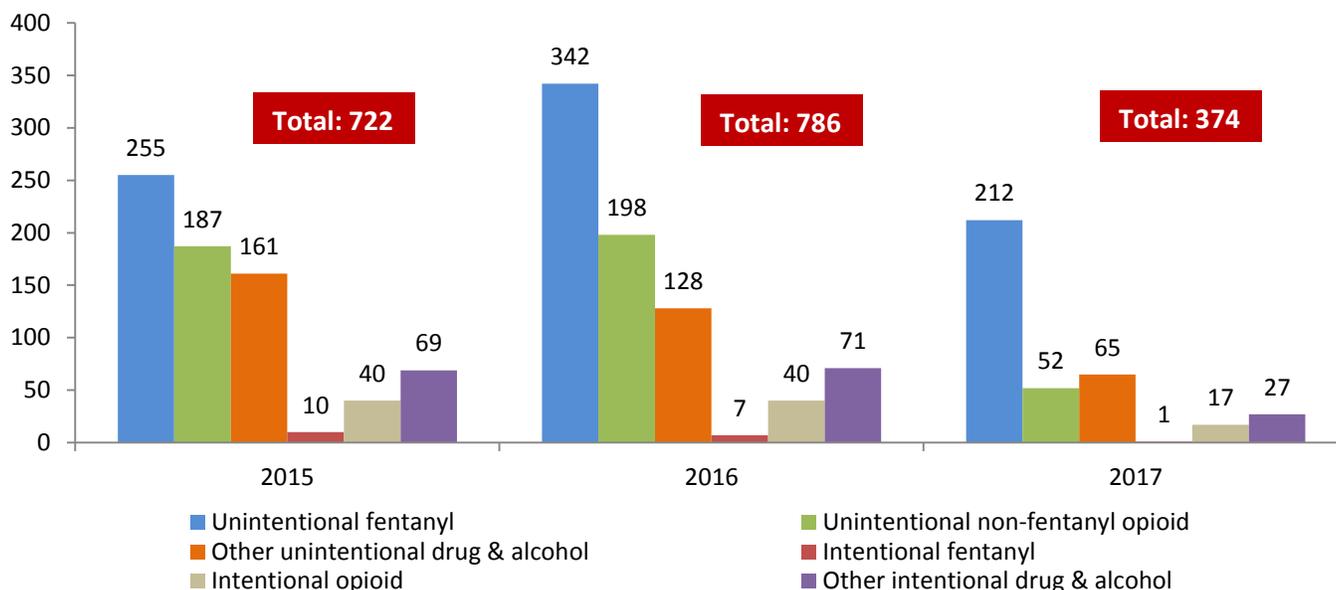
- Among apparent accidental poisoning deaths related to fentanyl, the most frequent health care utilization within 30 days before the individual's date of death was a mental health related visit.
- Among apparent accidental poisoning deaths poisoning related to an opioid other than fentanyl, having an opioid or an antidepressant/anxiolytic dispensed from a community pharmacy was the most frequent health care utilization in the 30 days prior to death.

Note: 95% of individuals had their primary healthcare number (PHN) available and were included in this analysis. The above includes the number of individuals who sought one of the services at least once. Individuals can be counted in more than one category. Health service means a physician, inpatient, or emergency department visit.

Confirmed drug & alcohol poisoning deaths (accidental and suicide)

Figure 13: Number of confirmed drug & alcohol poisoning deaths in Alberta by drug causing death, manner, and year. 2015 to 2017.

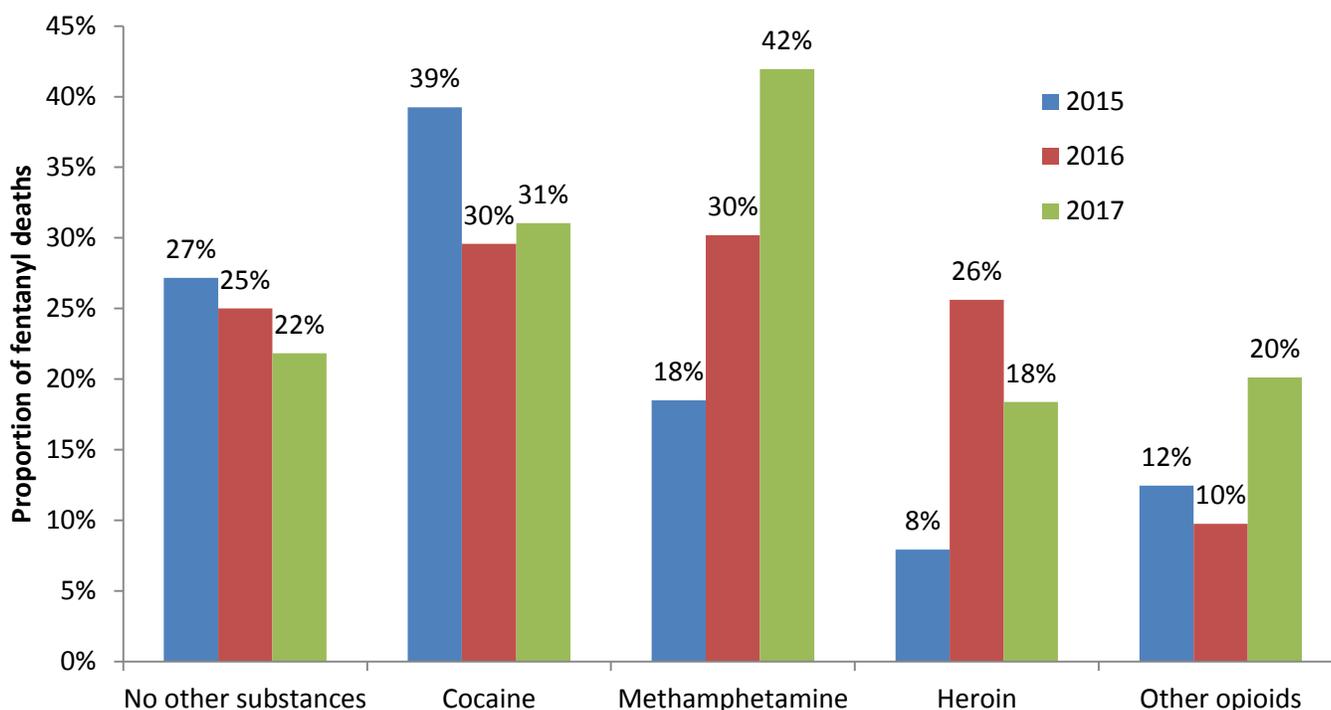
Some drug poisoning deaths in 2016 and many drug poisoning deaths in 2017 are currently under review by the Office of the Chief Medical Examiner and have not been confirmed. Therefore, upon completion of all cases, the final number of total drug poisoning deaths in 2016 and 2017 will be higher than the current number.



- From 2015 to 2017, the proportion of all drug poisoning deaths that were unintentional (accidental) increased from 84 per cent to 88 per cent. By comparison, the proportion of all drug poisoning deaths that were intentional (suicides) decreased from 16 per cent to 12 per cent in the same time period.
- From 2015 to 2017, the proportion of unintentional (accidental) drug poisoning deaths involving an opioid increased from 73 per cent to 80 per cent. By comparison, the proportion of unintentional (accidental) drug poisoning deaths not involving an opioid decreased from 27 per cent to 20 per cent in the same time period.
- From 2015 to 2017, the proportion of intentional (suicide) drug poisoning deaths involving an opioid decreased slightly from 41 per cent to 40 per cent. By comparison, the proportion of intentional (suicide) drug poisoning deaths not involving an opioid increased slightly from 58 per cent to 59 per cent in the same time period.

Note: Certification of more complex drug overdose deaths involving less potent opioids and drugs may take longer than fentanyl related deaths to certify, and therefore, non-fentanyl drug related deaths are potentially underreported in 2016 and 2017. The above includes deaths where the cause was due to acute poisoning or poisoning by an exogenous substance where the manner was intentional (suicide) or unintentional (accidental). Deaths as a result of chronic substance use were excluded. Deaths as a result of poisoning or toxic effects due to carbon monoxide and household chemicals were excluded. "Other drugs" refers to prescription drugs (i.e. antidepressants, benzodiazepines), illicit drugs such as cocaine, methamphetamine and MDMA, and unspecified drugs.

Figure 14: Confirmed fentanyl poisoning deaths (suicides and accidental) in Alberta by additional substances causing death, and year. 2015 to 2017.

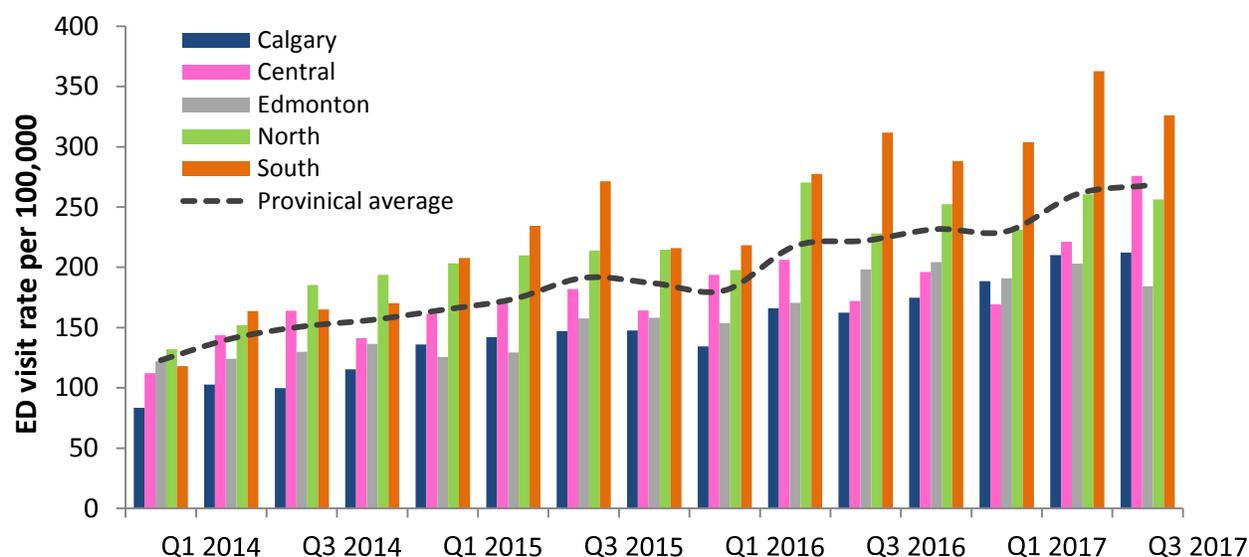


- In 2017, 22 per cent of all fentanyl poisoning deaths had no other substances listed on the death certificate as causing death, while 42 per cent had methamphetamine listed, 31 per cent had cocaine listed, and 18 per cent had heroin listed.
- The proportion of fentanyl poisoning deaths where heroin was also listed as causing death was 2.3 times higher in 2017 compared to 2015 (8 per cent in 2015, 18 per cent 2017).
- Similarly, the proportion of fentanyl poisoning deaths where methamphetamine was also listed as causing death was also 2.3 times higher in 2017 compared to 2015 (18 per cent in 2015, 42 per cent 2017).
- The proportion of fentanyl poisoning deaths where cocaine was also listed as causing death decreased from 39 per cent in 2015 to 31 per cent 2017.

Note: “Other opioids” includes, but not limited to: morphine, oxycodone, codeine, methadone, hydromorphone, tramadol, unspecified opiates, and U47700. Since multiple substances may be listed on one death certificate, deaths can be counted more than once in each category.

Emergency department visits

Figure 15: Rate of emergency department (ED) visits related to opioid use and other substances of misuse, by quarter and Zone, per 100,000 person years. Jan. 1, 2014 to Sep. 30, 2017.



- The *rate* of ED visits related to opioid use and substance misuse increased by 118 per cent from Jan. 1, 2014 to Sep. 30, 2017. From the second quarter in 2017 to the third quarter in 2017, the rate increased by 2.8 per cent.
- In 2017, the average *rate* of ED visits related to opioid use and substance misuse was the highest in the South Zone (331 visits per 100,000 person years); approximately 31 per cent higher than the provincial average over this period (253 visits per 100,000 person years).
- From 2014 to 2017, the Calgary and Edmonton Zones had the highest *number* of ED visits related to opioid use and substance misuse, and on average per quarter made up 29 and 26 per cent of all provincial ED visits related to opioid use and other substances of misuse, respectively.

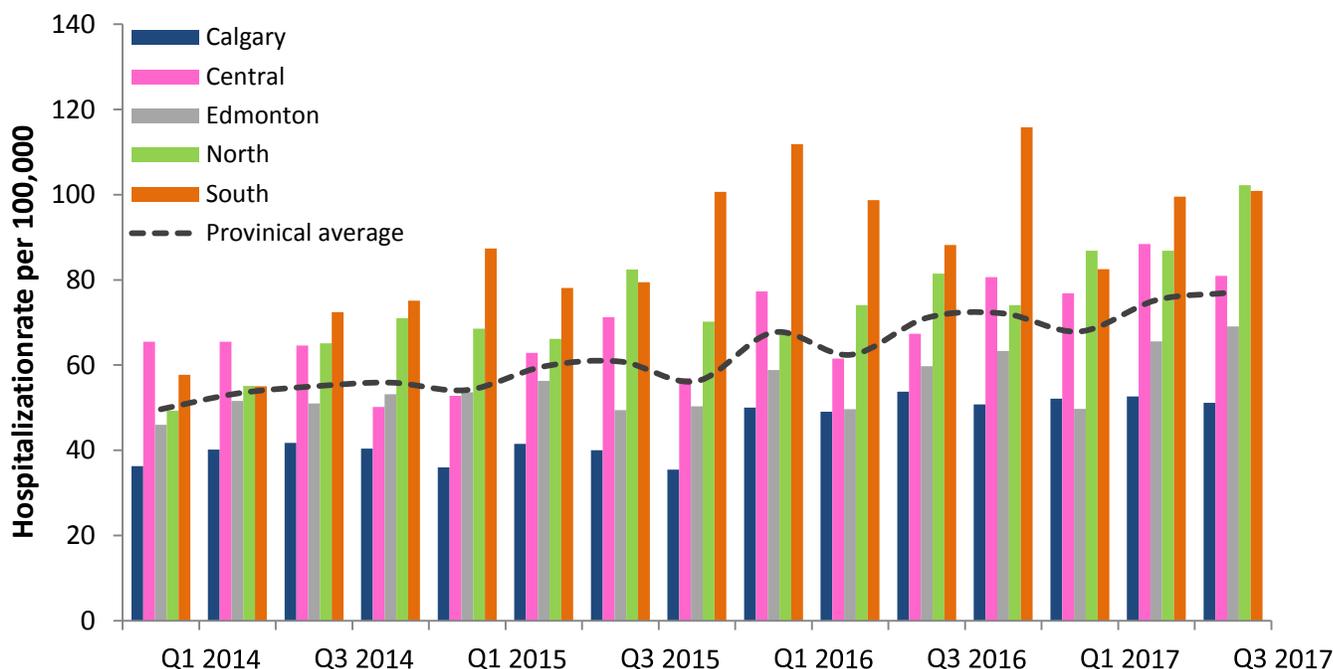
Table 9: Top 10 ED facilities utilized for emergency visits related to opioid use and other substances of misuse, Jan. 1, 2014 to Sep. 30, 2017

Rank	Facility	Count	Percent of all visits	Rank	Facility	Count	Percent of all visits
1	Royal Alexandra Hospital	3,537	12%	6	Red Deer Regional Hospital	1,383	5%
2	Peter Lougheed Centre	3,005	10%	7	Grey Nuns Community Hospital	1,263	4%
3	Foothills Medical Centre	2,406	8%	8	South Health Campus	1,259	4%
4	University Of Alberta Hospital	2,253	7%	9	Chinook Regional Hospital	1,093	4%
5	Rockyview General Hospital	1,931	6%	10	Queen Elizabeth II Hospital	1,005	3%

Note: Includes ED visits for all behavioural and mood disorders due to opioid use, and poisoning by all substances-all causes. (All F11 and T40 ICD-10 codes, any diagnosis field)

Hospitalizations

Figure 16: Rate of hospitalizations related to opioid use and other substances of misuse, by quarter and Zone, per 100,000 person years. Jan. 1, 2014 to Sep. 30, 2017.



- The *rate* of hospitalizations related to opioid use and substance misuse increased by 55.2 per cent from Jan. 1, 2014 to Sep. 30, 2017. From the second quarter in 2017 to the third in 2017, the rate increased by 2.7 per cent.
- From 2014 to 2017, the average *rate* of hospitalizations related to opioid use and substance misuse was the highest in the South Zone (87 hospitalizations per 100,000 person years); approximately 40 per cent higher than the provincial average (63 hospitalizations per 100,000 person years).
- From 2014 to 2017, the Edmonton and Calgary Zones had the highest *number* of hospitalizations related to opioid use and substance misuse, and on average per quarter made up 30 and 27 per cent of all hospitalizations related to opioid use and other substances of misuse, respectively.

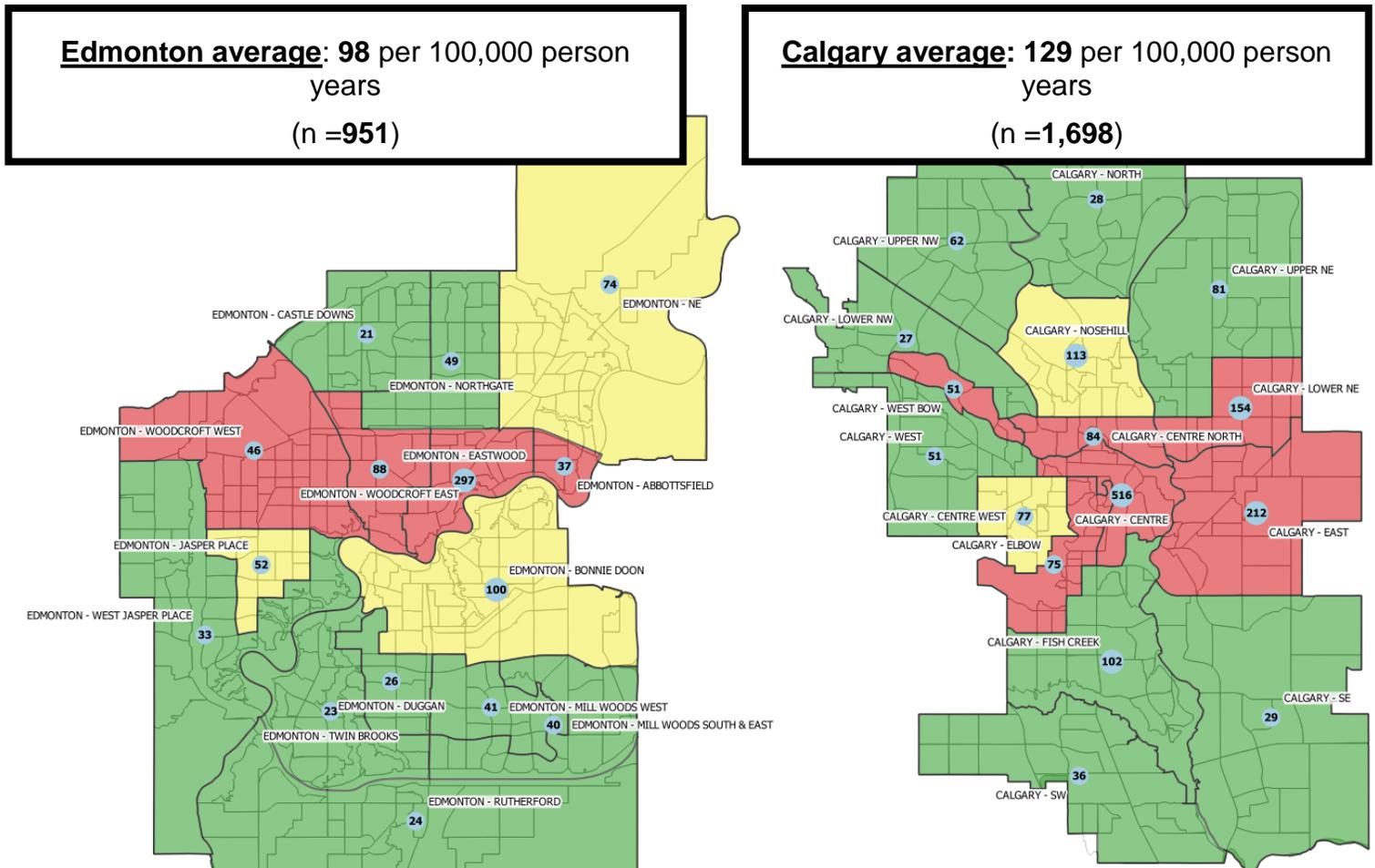
Table 10: Top 10 facilities utilized for hospitalizations related to opioid use and other substances of misuse, Jan. 1, 2014 to Sep. 30, 2017.

Rank	Facility	Count	Percent of all stays	Rank	Facility	Count	Percent of all stays
1	Royal Alexandra Hospital	1,729	16%	6	Red Deer Regional Hospital	470	4%
2	Peter Lougheed Centre	1,182	11%	7	Grey Nuns Community Hospital	393	4%
3	Foothills Medical Centre	1,128	10%	8	Medicine Hat Regional Hospital	390	4%
4	University Of Alberta Hospital	794	7%	9	Queen Elizabeth II Hospital	383	4%
5	Rockyview General Hospital	662	6%	10	South Health Campus	377	3%

Note: Includes hospitalizations for all behavioural and mood disorders due to opioid use, and poisoning by all substances-all causes. (All F11 and T40 ICD-10 codes, any diagnosis field)

Emergency Medical Services data

Figure 17: Rate (per 100,000 person years) and count of Emergency Medical Services (EMS) responses to opioid related events, by LGA. Jan. 1, 2017 to Dec 31, 2017.



Legend

Rate of EMS opioid related responses per 100,000 compared to city average

- Significantly lower
- Lower
- Average
- Higher
- Significantly higher

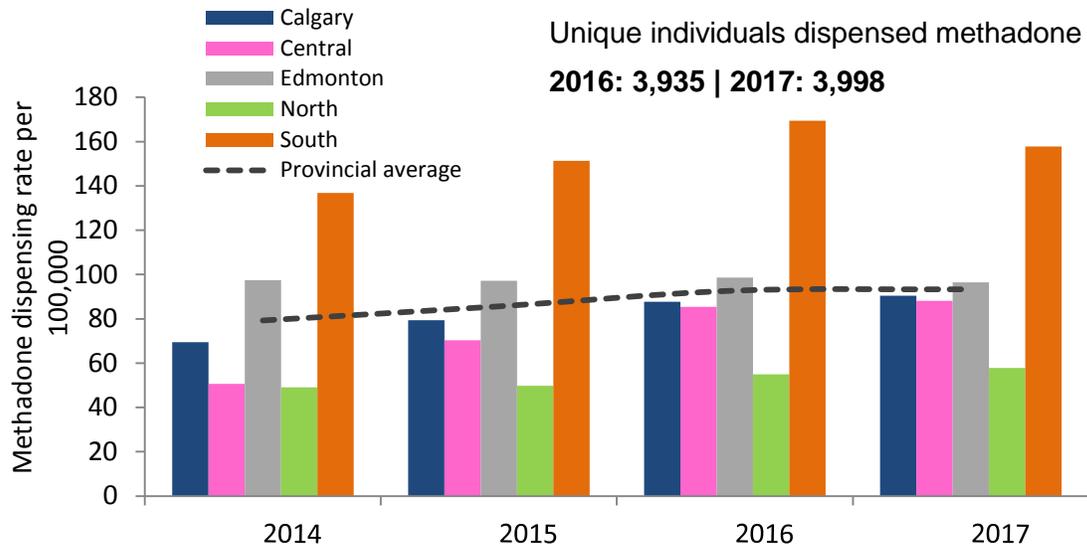
● Number in blue circle represents counts (numerator)

- Of the opioid related EMS events that occurred in Edmonton (951), the highest rate (394 per 100,000 person years) and count (297) was in the Eastwood area. The LGAs with **significantly higher** rates of opioid related EMS events **compared to the city average** were Eastwood, Abbotsfield, and Woodcroft East & West.
- Of the opioid related EMS events that occurred in Calgary (1,698), the highest rate (831 per 100,000 person years) and count (516) was in Calgary Centre. The LGAs with **significantly higher** rates of opioid related EMS events **compared to the city average** were West Bow, Centre, Centre North, Elbow, Lower North East, and East.

Note: This data is from AHS EMS Direct delivery – ground ambulance. Air ambulance and Contractors are not included. EMS opioid related events refer to any EMS response where the Medical Control Protocol of Opiate Overdose was documented and/or naloxone was administered.

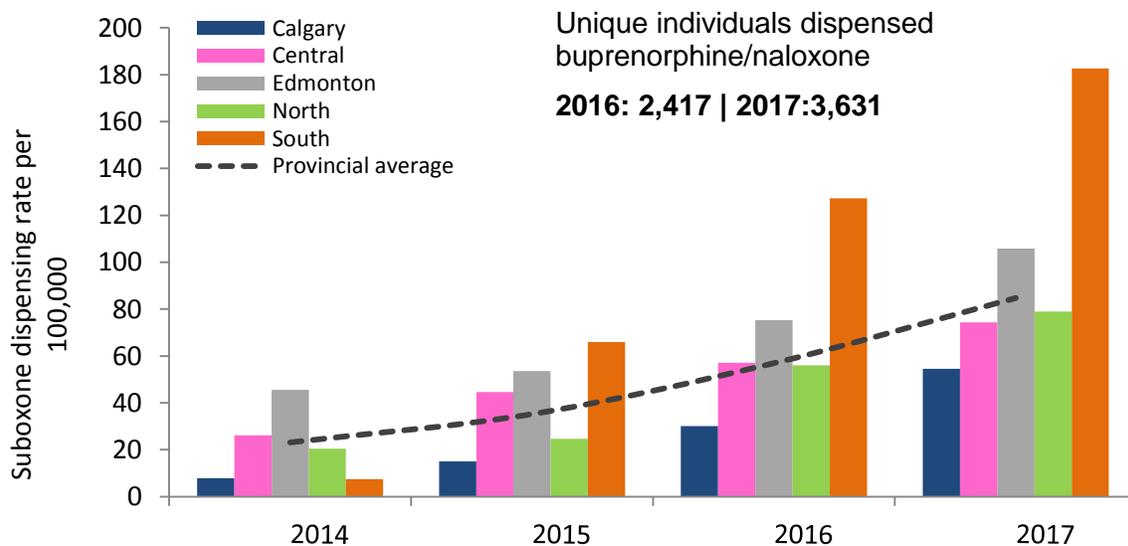
Methadone & buprenorphine/naloxone dispensing from community pharmacies

Figure 18: Rate of unique individuals dispensed methadone indicated for opioid dependence from community pharmacies per 100,000, by Zone and year. Jan. 1, 2014 to Dec. 31, 2017.



- In Alberta, the rate of unique individuals dispensed methadone indicated for opioid dependence from community pharmacies per 100,000 appears to be stable, with only a 1 per cent increase from 2016 to 2017. The South Zone had the highest rate in 2017, 169 per cent higher than the provincial average (158 per 100,000 vs. 93 per 100,000).

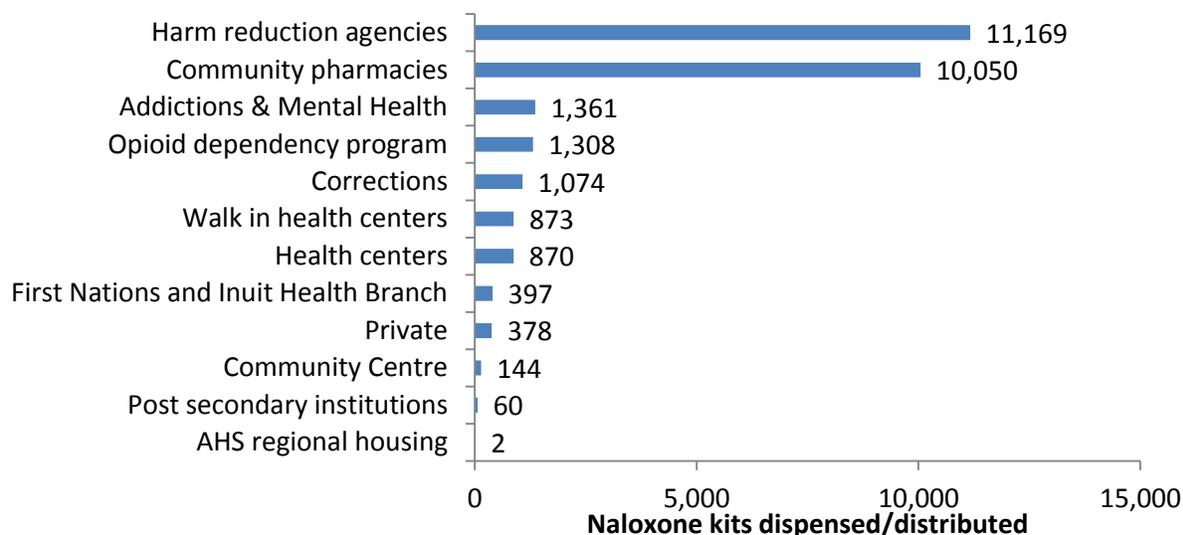
Figure 19: Rate of unique individuals dispensed buprenorphine/naloxone (generic brands and Suboxone™) indicated for opioid dependence from community pharmacies per 100,000, by Zone and year. Jan. 1, 2014 to Dec. 31, 2017.



- In Alberta, the rate of unique individuals dispensed buprenorphine/naloxone indicated for opioid dependence from community pharmacies per 100,000 continues to increase, as seen by the 49 per cent increase from 2016 to 2017. The South Zone had the highest rate in 2017, 216 per cent higher than the provincial average (183 per 100,000 vs. 85 per 100,000).

Naloxone kit dispensing and distribution through Alberta Health Services' naloxone program

Figure 20: Naloxone kits dispensed/distributed by registered site type, Jan. 1, 2016 to Dec. 31, 2017.



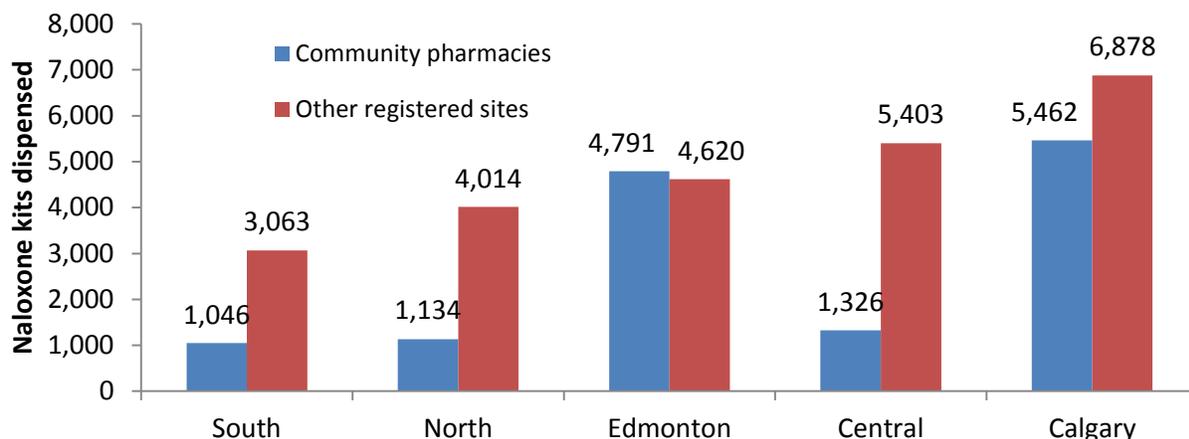
- From Jan. 1, 2016 to Dec. 31, 2017, 37,737 naloxone kits were dispensed in Alberta through Alberta Health Services' (AHS') naloxone program, and 2,855 reversals were self-reported.
- Approximately 3,250 naloxone kits were distributed in Alberta by the Alberta Community Council on HIV between July 2015 and January 2016. In January 2016, AHS began its take-home naloxone program through registered distribution sites.

Table 11: Number of sites registered to distribute naloxone kits, Jan. 1, 2016 to Dec. 31, 2017.

	South	Calgary	Central	Edmonton	North	Total
Community pharmacies	86	352	118	321	104	981
AHS Health Centre	18	35	41	17	52	163
Private	10	17	10	19	1	57
Medical First Response	7	10	12	7	19	55
AHS Mental Health	1	19	10	10	11	51
First Nations sites	2	2	6	3	15	28
AHS Outpatient clinics	0	0	0	7	4	11
Primary Care Network	0	4	3	2	2	11
Corrections	2	3	1	3	1	10
ACCH Harm Reduction	2	1	1	1	3	8
AHS Pharmacy	1	1	1	5	0	8
AHS Regional Housing	0	3	0	2	0	5
Post-Secondary Institutions	0	2	0	2	1	5
Private Opioid Dependency Program	1	0	1	2	1	5
Peace Officers	0	2	0	1	1	4
AHS Opioid Dependency Program	1	1	0	1	0	3
Metis	0	0	0	1	2	3
Private Harm Reduction	0	0	0	1	0	1
Total	131	452	204	405	217	1,409

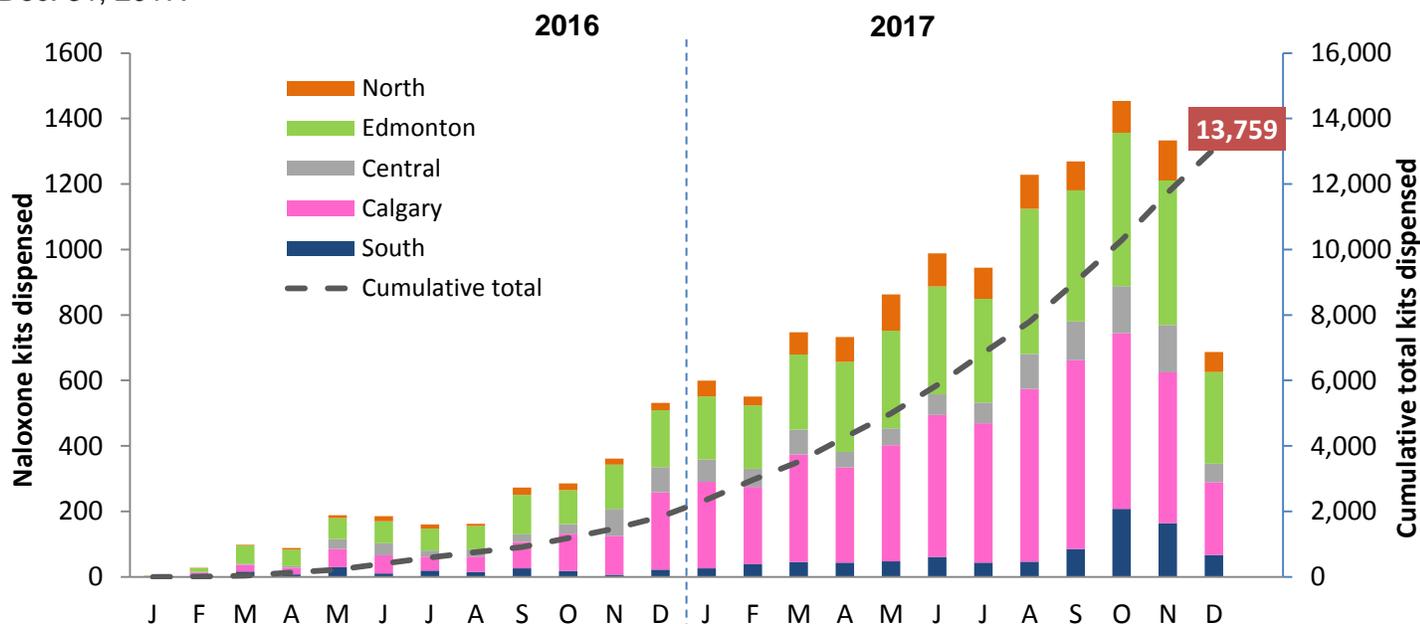
Note: Naloxone kits dispensing data from community pharmacies comes from Alberta Blue Cross. All other kit distribution data comes from the AHS Take Home Naloxone Kit Program.

Figure 21: Naloxone kits dispensed/distributed by community pharmacies and other registered sites, by Zone. Jan. 1, 2016 to Dec. 31, 2017.



- Throughout the province, other registered sites are dispensing more naloxone kits than community pharmacies.
- The Calgary Zone dispensed the highest total volume of kits in the province (33 per cent).

Figure 22: Naloxone kits dispensed by community pharmacies, by Zone and month. Jan. 1, 2016 to Dec. 31, 2017.



- Across Alberta, in 2017, community pharmacies dispensed an average of 950 kits per month. The Calgary Zone has had the largest volume of naloxone kits dispensed from community pharmacies, with an average of 388 kits per month. The Edmonton Zone dispensed the next highest volume with an average of 322 kits per month.
- The median age of an individual receiving a naloxone kit dispensed from a community pharmacy was 31 years, and 57 per cent were male.
- Since Jan. 1, 2016, 13,759 naloxone kits have been dispensed from community pharmacies in Alberta.

Note: Naloxone kit dispensing data from community pharmacies comes from Alberta Blue Cross. All other kit distribution data comes from the AHS Take Home Naloxone Kit Program.

Data notes

Data source(s) for report

1. National Ambulatory Care Reporting System (NACRS)
2. Alberta Health Care Insurance Plan (AHCIP) Quarterly Population Registry Files
3. Alberta Health and Wellness Postal Code Translation File (PCTF)
4. Pharmaceutical Information Network (PIN)
5. OCME MEDIC data
6. AHS EMS Direct delivery-ground ambulance services data
7. AHS Take Home Naloxone Program data
8. Alberta Blue Cross Data

Mortality data

The following substances are included in the drug overdose categories.

- **Fentanyl:** fentanyl, 3-methylfentanyl, acetylfentanyl, furanylfentanyl, or carfentanil
- **Opioids:** non-specified opiate, heroin, oxycodone, hydromorphone, morphine, codeine, tramadol, U-47700, tapentadol, or methadone
- **Other drugs:** includes, but not limited to ethanol (alcohol) in combination with other substances, benzodiazepines, antidepressants, antipsychotics, acetaminophen, cocaine or methamphetamine.

Emergency Medical Services data

Emergency Medical Services (EMS) data comes from AHS EMS Direct delivery – ground ambulance services. Air ambulance and Contractors are not included. AHS direct delivery does 97.7 per cent of the operational responses in the City of Edmonton, 99.9 per cent in the City of Calgary, and approximately 82 per cent in the entire province of Alberta.

EMS opioid related events refer to any EMS response where the Medical Control Protocol of Opiate Overdose was documented and/or naloxone was administered.

Emergency visits

Emergency Department (ED) visits are defined by the Alberta MIS chart of accounts. Specifically, the three Functional Centre Accounts used to define any ACCS (Alberta Care Classification System) visits into an emergency visit could be:

1. 71310 – Ambulatory care services described as emergency
2. 71513 – Community Urgent Care Centre (UCC). As of 2014, the UCCs in Alberta are listed below:
 - Airdrie Regional Health Centre, Cochrane Community Health Centre, North East Edmonton Health Centre, Health First Strathcona, Okotoks Health and Wellness Centre, Sheldon M Chumir Centre, South Calgary Health Centre
3. 71514 – Community Advanced Ambulatory Care Centre (AACC). As of 2014, the only AACC in Alberta is La Crete Health Centre

Community pharmacy drug dispensing

1. The Pharmaceutical Information Network (PIN) Database is used to estimate dispensation events for the province between 2014 and 2016 **only from community pharmacies**. Variability can be dependent on the way the drug is prescribed.
2. The PIN database is up-to-date; to date, the PIN database has records up to Jun. 30, 2017. PIN records can change due to data reconciliations, which may affect results. Results are more stable with older data.

Opioid dependency drugs are defined by the ATC code (Anatomical Therapeutic Chemical), as given in the table below.

ATC Code	Drug Name	ATC Grouping
N07BC51	Buprenorphine, combinations	Drugs used in opioid dependence
N07BC02	Methadone	Drugs used in opioid dependence

The following DINs were excluded since they are indicated for pain relief by Health Canada.

02247701, 02247700, 02241377, 02247699, 02247698, 02247694