

# Alberta Health

## Opioids and Substances of Misuse

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### Alberta Report, 2018 Q1

May 29, 2018

*Alberta*  Government

## Highlights

- The most up-to-date data show that 733 people died from an apparent accidental opioid overdose in 2017.
- On average, 2 individuals die every day in Alberta as a result of an apparent accidental opioid overdose.
- In the first three months of 2018, 158 people died from an apparent accidental fentanyl-related opioid overdose, compared to 183 people in the last three months of 2017.

## Key points

### Apparent accidental poisoning deaths related to fentanyl

- In the first quarter of 2018, there were **158** apparent accidental poisoning deaths related to fentanyl in Alberta. By comparison, there were **183** of these deaths in the fourth quarter of 2017.
- From Jan. 1, 2018 to Mar. 31, 2018, **88 per cent** of deaths occurred in larger urban municipalities (Edmonton, Calgary, Red Deer, Grande Prairie, Fort McMurray, Lethbridge, Medicine Hat).
- In the first quarter of 2018, the Calgary Zone (**75**) 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 **18.1**, compared to the provincial average of **14.6** per 100,000 person years.
- In the first quarter of 2018 there were **46** apparent accidental poisoning deaths related to carfentanil in Alberta. By comparison, there were **72** of these deaths in the fourth quarter of 2017.
- In the first quarter of 2018, **63 per cent** of carfentanil deaths occurred in the Calgary Zone.
- Within the municipalities of Edmonton and Calgary, from Jan. 1, 2018 to Mar. 31, 2018, the local geographic area with the highest rate of apparent accidental poisoning deaths related to all opioids was Eastwood in Edmonton, and Calgary Centre in Calgary.
- While the rate was highest in these local geographic areas, **76 per cent** of deaths in Calgary occurred outside Calgary Centre and **76 per cent** of deaths in Edmonton occurred outside Eastwood.

### Apparent accidental poisoning deaths related to non-fentanyl opioids

- In the fourth quarter of 2017, there were **30** apparent accidental poisoning deaths related to an opioid other than fentanyl in Alberta. By comparison, there were **44** of these deaths in the third quarter of 2017. In 2016, **38** apparent accidental poisoning deaths related to an opioid other than fentanyl occurred in the fourth quarter.
- From Oct. 1, 2017 to Dec. 31, 2017, **57 per cent** of non-fentanyl opioid-related deaths occurred in larger urban municipalities (Edmonton, Calgary, Red Deer, Grande Prairie, Fort McMurray, Lethbridge, Medicine Hat).
- In the fourth quarter of 2017, the Calgary Zone (**6**) and Edmonton Zone (**14**) had the highest number of these deaths. The North Zone had the highest rate at **4.3** per 100,000 person years, compared to a provincial average of **3.6** per 100,000 person years.

### Confirmed drug poisoning deaths

- Among all confirmed drug & alcohol poisoning deaths (accidental and suicide) in 2016 and 2017, opioids (fentanyl or non-fentanyl) were directly involved in **76 per cent** of deaths. **24 per cent** of all confirmed drug & alcohol poisoning deaths (accidental and suicide) did not involve any 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 fourth quarter of 2017, there were **2,605** emergency and urgent care visits related to opioids and other substances of misuse. In the fourth quarter of 2016, there were **1,959** emergency and urgent care visits related to opioids and other substances of misuse.
- In the fourth quarter of 2017, emergency and urgent care visits related to opioids and other substances of misuse occurred among **2,180** unique individuals, of whom **13 per cent** had more than one visit.

## Disclaimer

This surveillance report presents emergency department visits, hospitalizations, 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 was most likely a drug overdose.

**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).

**Fentanyl related poisoning deaths:** Deaths in which fentanyl or a fentanyl analogue was identified as a cause of death (these may also have involved non-fentanyl opioids).

**Non-fentanyl opioid related poisoning deaths:** Deaths in which an opioid (not fentanyl or a fentanyl analogue) was identified as a cause of death. *Due to the added complexity of non-fentanyl opioid related poisoning deaths, there is a three-month delay in identifying these preliminary (apparent) cases for surveillance purposes compared to fentanyl related deaths.*

**Manner of death** is determined by Alberta's Office of the Chief Medical Examiner. Manner of death may be either accidental (i.e., unintentional), suicide (i.e., intentional), homicide, or undetermined. This report presents accidental and undetermined deaths grouped together as "accidental deaths". Suicide/intentional deaths are only reported for confirmed deaths. Homicide deaths are not included in this report.

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.

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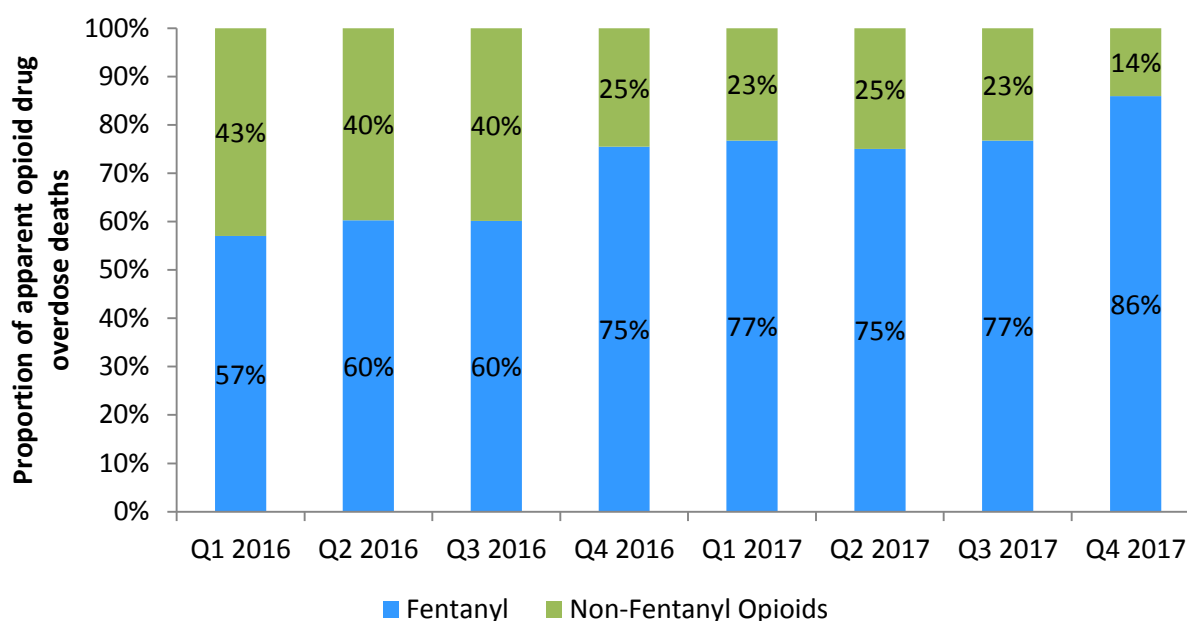
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## Mortality data: Apparent accidental opioid poisoning deaths

### Fentanyl and non-fentanyl related deaths

**Figure 1:** Proportion of fentanyl vs. non-fentanyl related apparent accidental opioid poisoning deaths, by quarter. Jan. 1, 2016 to Dec. 31, 2017.



- The majority of apparent accidental opioid poisoning deaths continue to be related to fentanyl. In the fourth quarter of 2017, 86 per cent of all opioid poisoning deaths were related to fentanyl.

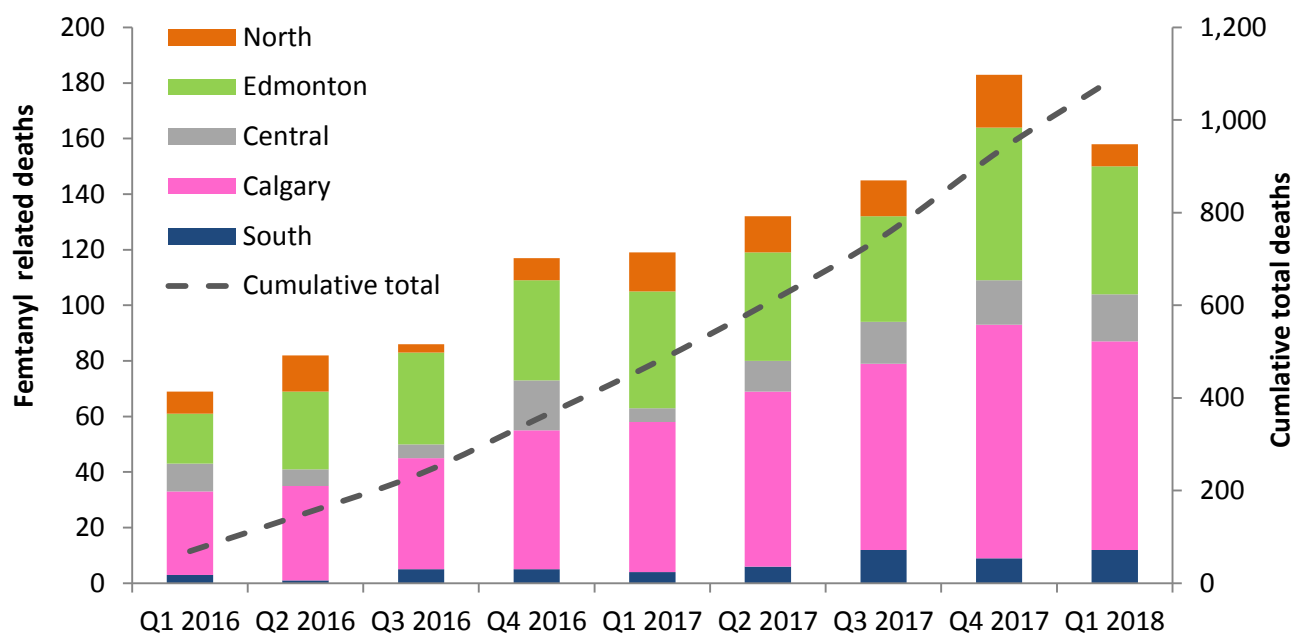
**Table 1:** Number of apparent accidental opioid poisoning deaths related to any opioid, by quarter.

									Total
South Zone	6	4	9	11	5	8	19	11	<b>73</b>
Calgary Zone	46	51	56	59	69	78	79	90	<b>528</b>
Central Zone	17	17	13	24	12	14	21	20	<b>138</b>
Edmonton Zone	40	49	58	51	51	56	51	69	<b>425</b>
North Zone	12	15	7	10	18	20	19	23	<b>124</b>
<b>Alberta</b>	<b>121</b>	<b>136</b>	<b>143</b>	<b>155</b>	<b>155</b>	<b>176</b>	<b>189</b>	<b>213</b>	<b>1,288</b>
	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	



## Fentanyl related deaths

**Figure 2:** Number of apparent accidental fentanyl poisoning deaths, by Zone (based on place of death) and quarter. Jan. 1, 2016 to Mar. 31, 2018.



- Since Jan. 1, 2016, a total of 1,091 individuals in Alberta died from an apparent accidental drug poisoning death related to fentanyl (354 in 2016, 579 in 2017, and 158 in 2018).
- In 2017, on average, 145 individuals in Alberta died from an apparent accidental drug poisoning death related to fentanyl per quarter, while in the first quarter of 2018, 158 individuals died from an apparent accidental drug poisoning death related to fentanyl.

**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	Q1 2018	Total
South Zone	3	1	5	5	4	6	12	9	12	<b>57</b>
Calgary Zone	30	34	40	50	54	63	67	84	75	<b>497</b>
Central Zone	10	6	5	18	5	11	15	16	17	<b>103</b>
Edmonton Zone	18	28	33	36	42	39	38	55	46	<b>335</b>
North Zone	8	13	3	8	14	13	13	19	8	<b>99</b>
<b>Alberta</b>	<b>69</b>	<b>82</b>	<b>86</b>	<b>117</b>	<b>119</b>	<b>132</b>	<b>145</b>	<b>183</b>	<b>158</b>	<b>1,091</b>

**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 Mar. 31, 2018.

	2016		2017		2018 YTD*	
	Count	Rate	Count	Rate	Count	Rate
<b>South Zone</b>	14	4.6	31	10.2	12	15.6
<b>Calgary Zone</b>	154	9.5	268	16.4	75	18.1
<b>Central Zone</b>	39	8.1	47	9.7	17	13.9
<b>Edmonton Zone</b>	115	8.5	174	12.7	46	13.3
<b>North Zone</b>	32	6.5	59	12.0	8	6.4
<b>Alberta</b>	<b>354</b>	<b>8.3</b>	<b>579</b>	<b>13.5</b>	<b>158</b>	<b>14.6</b>

- The Calgary and Edmonton Zones continue to have the highest number of apparent accidental poisoning deaths related to fentanyl. In 2018, the Calgary Zone continued to have the highest rate per 100,000 person years at 18.1, compared to a provincial average of 14.6 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 municipality (based on place of death). Jan. 1, 2016 to Mar. 31, 2018.

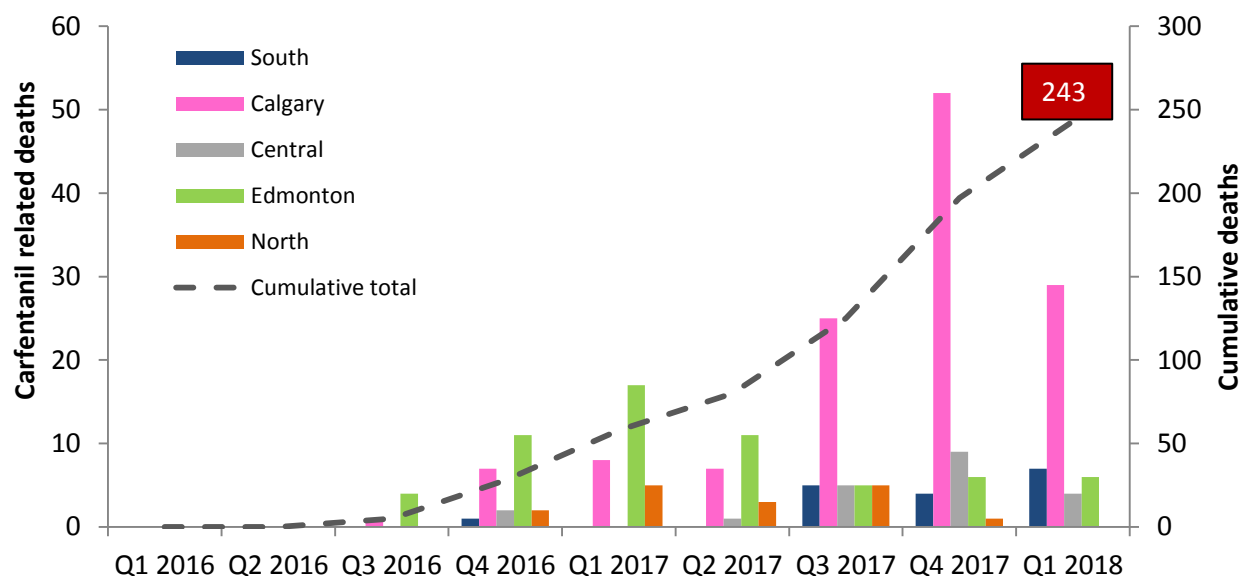
	2016		2017		2018 YTD*	
	Count	Rate	Count	Rate	Count	Rate
<b>Lethbridge</b>	9	9.3	18	18.3	8	32.1
<b>Medicine Hat</b>	2	2.9	7	10.2	1	5.8
<b>Calgary</b>	147	11.1	242	18.1	72	21.6
<b>Red Deer</b>	23	21.1	24	22.4	10	37.3
<b>Edmonton</b>	101	10.4	140	14.1	43	17.4
<b>Fort McMurray</b>	9	11.1	14	17.6	2	10.1
<b>Grande Prairie</b>	10	13.5	27	36.4	3	16.2
<b>Total</b>	<b>301</b>	<b>11.1</b>	<b>472</b>	<b>17.1</b>	<b>139</b>	<b>20.2</b>

- The municipalities of Calgary and Edmonton continue to have the highest number of apparent accidental poisoning deaths related to fentanyl. However, in 2018 YTD, the Municipality of Red Deer had the highest rate of apparent drug poisoning deaths related to fentanyl per 100,000 person years.

\*YTD = January 1, 2018 to March 31, 2018

**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 Mar. 31, 2018.

*Subcategory of fentanyl deaths from Figure 2*



- The first carfentanil cases were detected in the third quarter of 2016, with 28 cases occurring in all of 2016. In 2017, 169 individuals in Alberta died from a drug poisoning related to carfentanil. In the first quarter of 2018, 46 individuals died from a drug poisoning related to carfentanil.
- 53 per cent of all carfentanil deaths have occurred in the Calgary Zone. In the first quarter of 2018, 63 per cent of carfentanil deaths occurred in the Calgary Zone.

**Table 5:** Number of apparent accidental carfentanil poisoning deaths, by quarter.

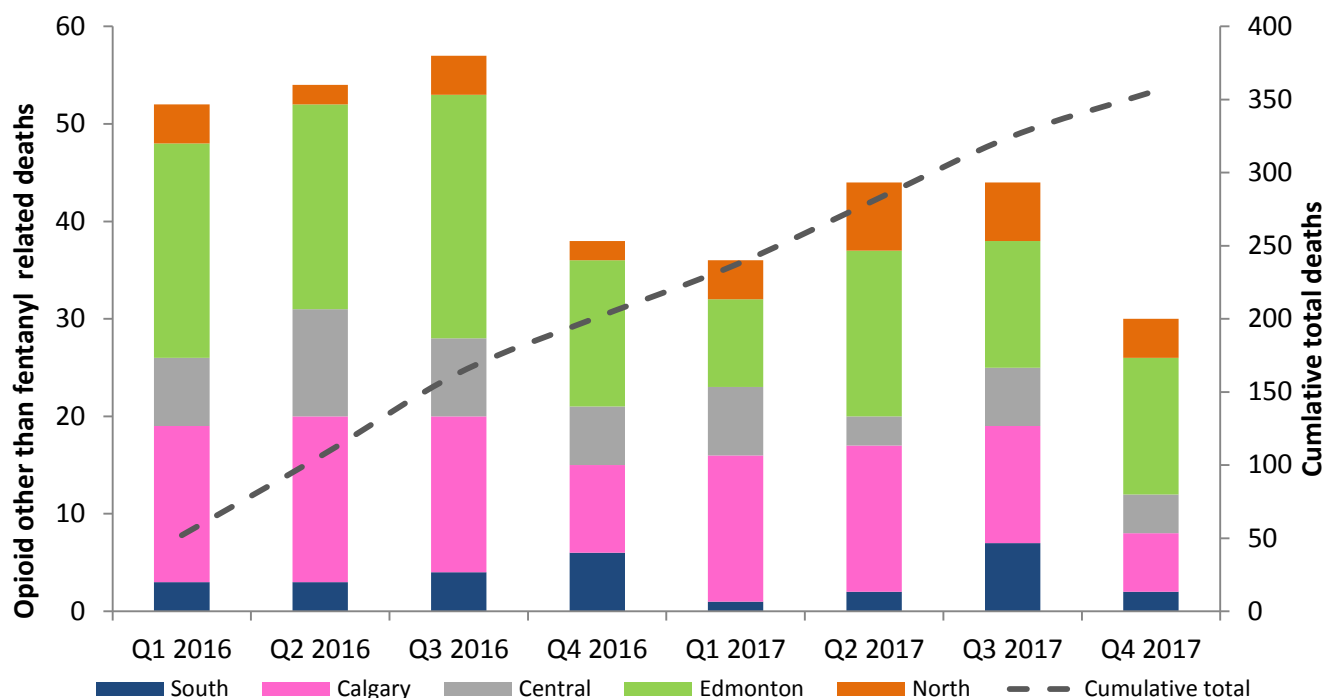
*Subcategory of fentanyl deaths from Table 2*

	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Total
South Zone	0	0	0	1	0	0	5	4	7	17
Calgary Zone	0	0	1	7	8	7	25	52	29	129
Central Zone	0	0	0	2	0	1	5	9	4	21
Edmonton Zone	0	0	4	11	17	11	5	6	6	60
North Zone	0	0	0	2	5	3	5	1	0	16
<b>Alberta</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>23</b>	<b>30</b>	<b>22</b>	<b>45</b>	<b>72</b>	<b>46</b>	<b>243</b>

YTD = January 1, 2018 to March 31, 2018

## Non-fentanyl related deaths

**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 Dec. 31, 2017.



- Since Jan. 1, 2016, a total of 355 individuals in Alberta have died from apparent accidental drug poisoning related to an opioid other than fentanyl (201 in 2016 and 154 in 2017). In 2017, on average, 39 individuals died from apparent accidental drug poisoning related to an opioid other than fentanyl every quarter.
- The decrease in number of apparent accidental drug poisoning deaths related to non-fentanyl opioids observed from Q4 2016 onwards, compared to the first three quarters of 2016, is likely related to the concurrent increase in fentanyl-related apparent accidental drug poisoning deaths.

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

									Total
South Zone	3	3	4	6	1	2	7	2	<b>28</b>
Calgary Zone	16	17	16	9	15	15	12	6	<b>106</b>
Central Zone	7	11	8	6	7	3	6	4	<b>52</b>
Edmonton Zone	22	21	25	15	9	17	13	14	<b>136</b>
North Zone	4	2	4	2	4	7	6	4	<b>33</b>
<b>Alberta</b>	<b>52</b>	<b>54</b>	<b>57</b>	<b>38</b>	<b>36</b>	<b>44</b>	<b>44</b>	<b>30</b>	<b>355</b>
	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	

**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 Dec. 31, 2017.

	2016		2017	
	Count	Rate	Count	Rate
<b>South Zone</b>	16	5.3	12	3.9
<b>Calgary Zone</b>	58	3.6	48	2.9
<b>Central Zone</b>	32	6.7	20	4.1
<b>Edmonton Zone</b>	83	6.1	53	3.9
<b>North Zone</b>	12	2.4	21	4.3
<b>Alberta</b>	<b>201</b>	<b>4.7</b>	<b>154</b>	<b>3.6</b>

- The Calgary and Edmonton Zones continue to have the highest number of these deaths. In 2017, the North Zone had the highest rate per 100,000 person years at 4.3, compared to the provincial average of 3.6 per 100,000 person years.

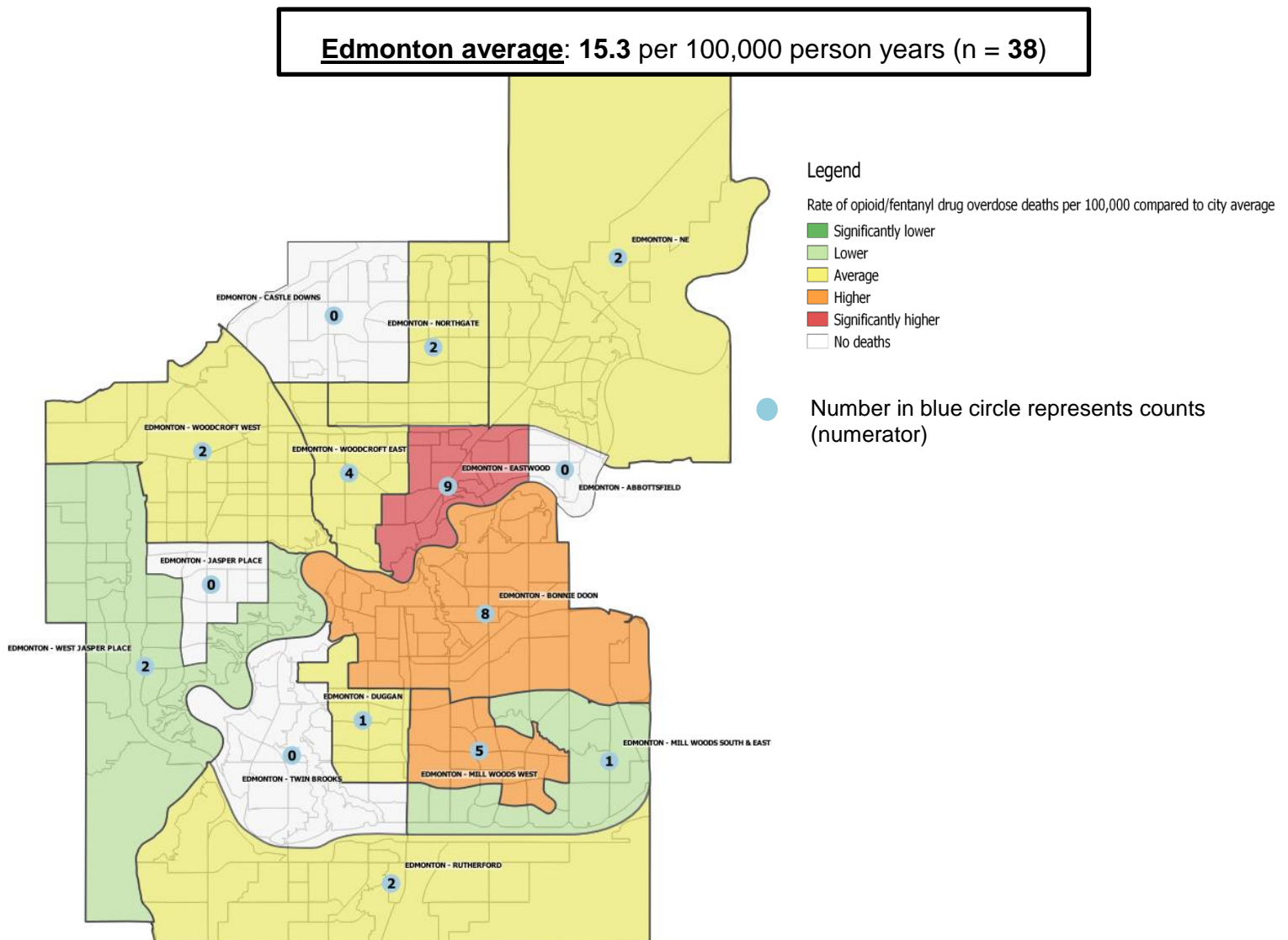
**Table 8:** Rate (per 100,000 person years) and number of apparent accidental drug poisoning deaths related to an opioid other than fentanyl, by municipality (based on place of death). Jan. 1, 2016 to Dec. 31, 2017.

	2016		2017	
	Count	Rate	Count	Rate
<b>Lethbridge</b>	4	4.1	4	4.1
<b>Medicine Hat</b>	4	5.9	2	2.9
<b>Calgary</b>	43	3.3	37	2.8
<b>Red Deer</b>	11	10.1	6	5.6
<b>Edmonton</b>	67	6.9	47	4.7
<b>Fort McMurray</b>	1	1.2	3	3.8
<b>Grande Prairie</b>	1	1.4	4	5.4
<b>Total</b>	<b>131</b>	<b>4.8</b>	<b>103</b>	<b>3.7</b>

- The municipalities of Calgary and Edmonton continue to have the highest number of these deaths. In 2017, the Municipality of Red Deer had the highest rate of apparent accidental drug poisoning deaths related to an opioid other than fentanyl per 100,000 person years.

## Municipalities of Edmonton and Calgary (fentanyl related deaths)

**Figure 5:** Rate (per 100,000 person years) and counts of apparent accidental drug poisoning deaths related to fentanyl, in the Municipality of Edmonton, based on place of overdose, by LGA. Jan. 1, 2018 to Mar. 31, 2018.

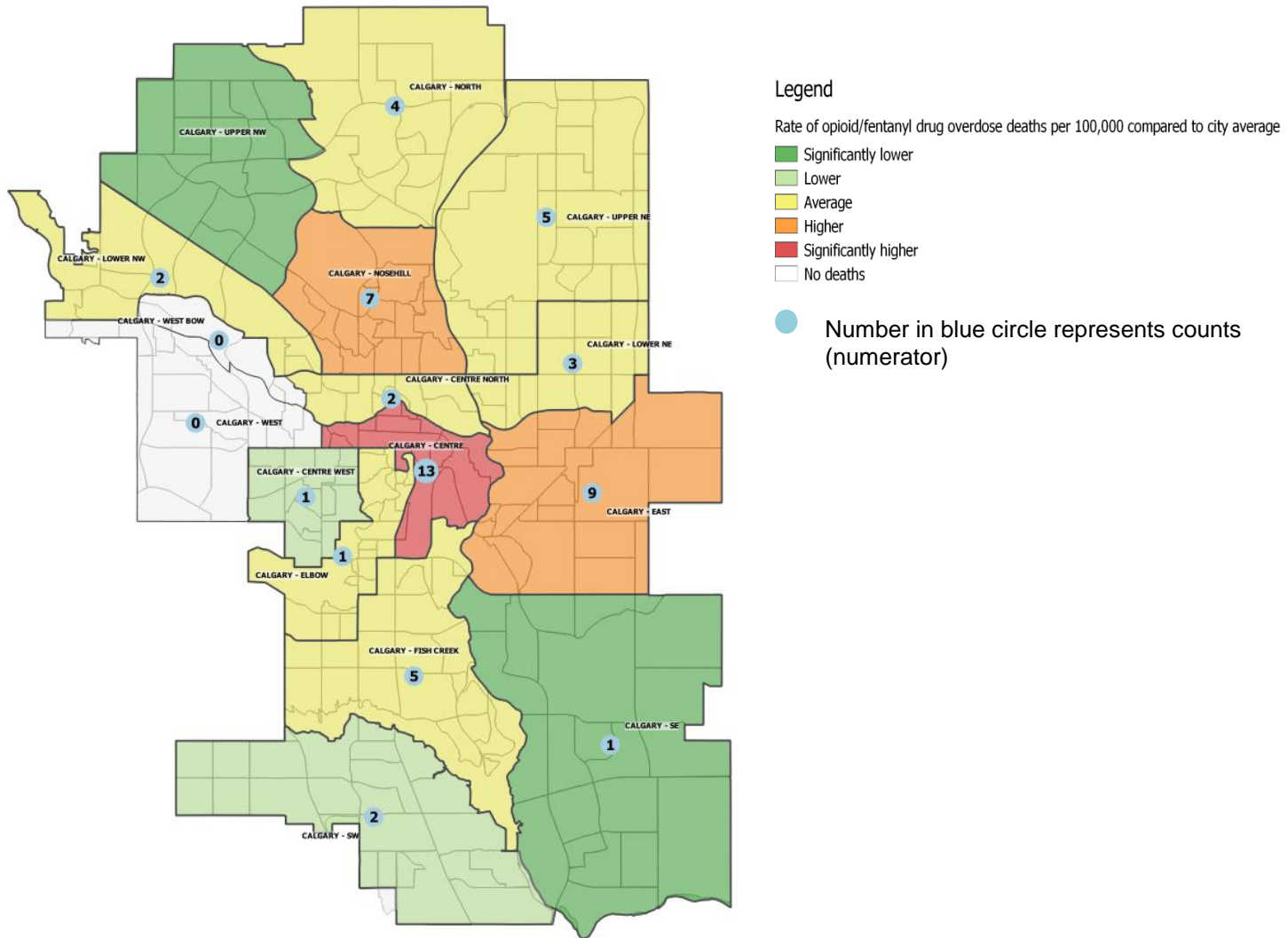


- Within the Municipality of Edmonton, the LGAs with a **higher** or **significantly higher** rate of apparent accidental drug poisoning deaths related to fentanyl **compared to the municipality average** were Eastwood, Bonnie Doon, and Millwoods West. However, 42 per cent of the total deaths occurred in LGAs outside of these areas.
- The place where the overdose occurred was the same as the individual's home address for 55 per cent of fentanyl-related 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 16 per cent of deaths.

**Figure 6:** Rate (per 100,000 person years) and counts of apparent accidental drug poisoning deaths related to fentanyl, in the Municipality of Calgary, based on place of overdose, by LGA. Jan. 1, 2018 to Mar. 31, 2018.

**Calgary average: 16.4 per 100,000 person years (n = 55)**

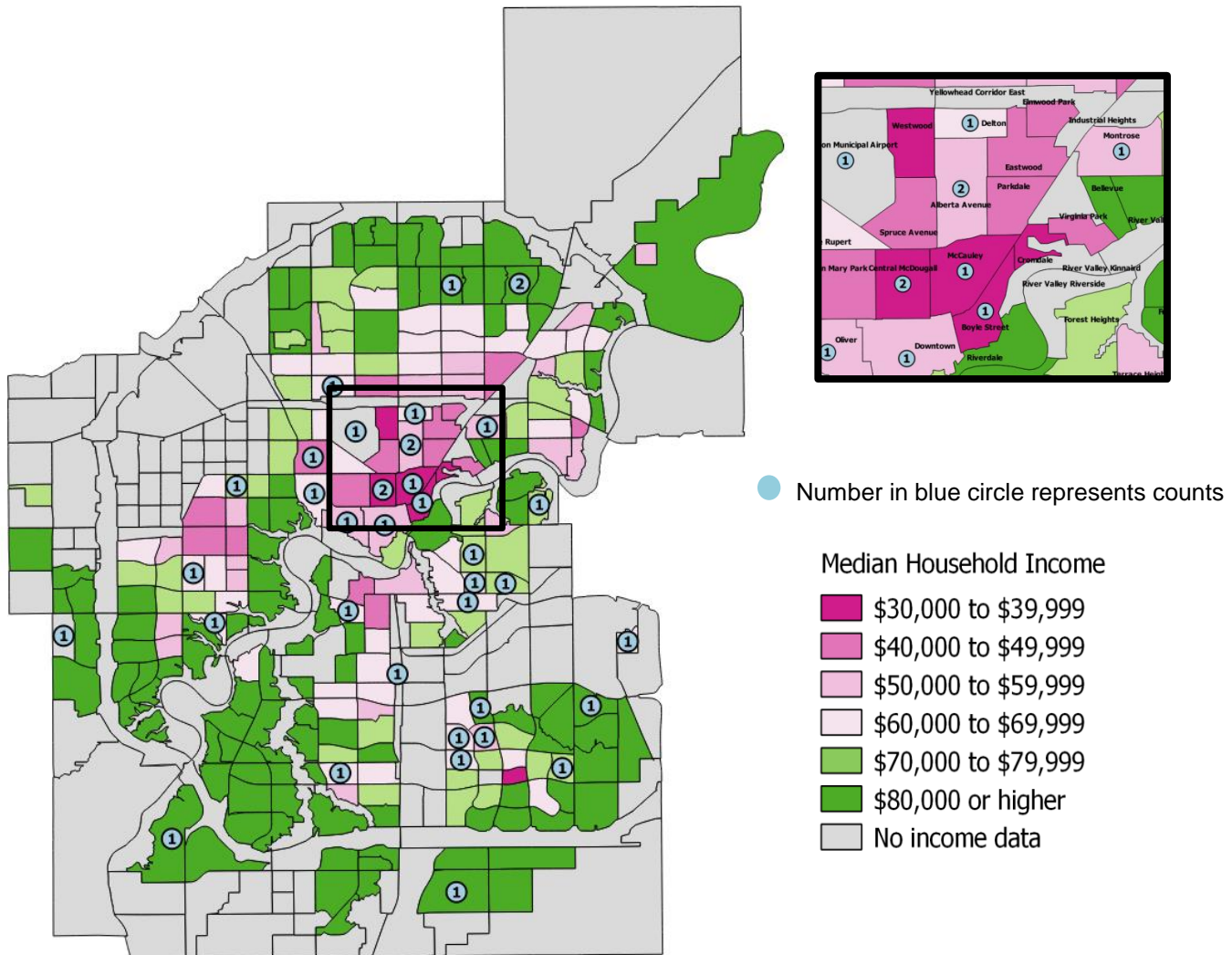


- Within the Municipality of Calgary, the LGAs with **higher** or **significantly higher** rates of apparent accidental drug poisoning deaths related to fentanyl **compared to the municipality average** were Centre, East, and Nosehill. However, 47 per cent of the total deaths occurred in LGAs outside of these areas.
- The place where the overdose occurred was the same as the individual’s home address for 62 per cent of fentanyl-related 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 22per cent of deaths.



**Figure 7:** Median household income and number of apparent accidental deaths related to fentanyl occurring in each neighbourhood, in the Municipality of Edmonton. Jan. 1, 2018 to Mar. 31, 2018.

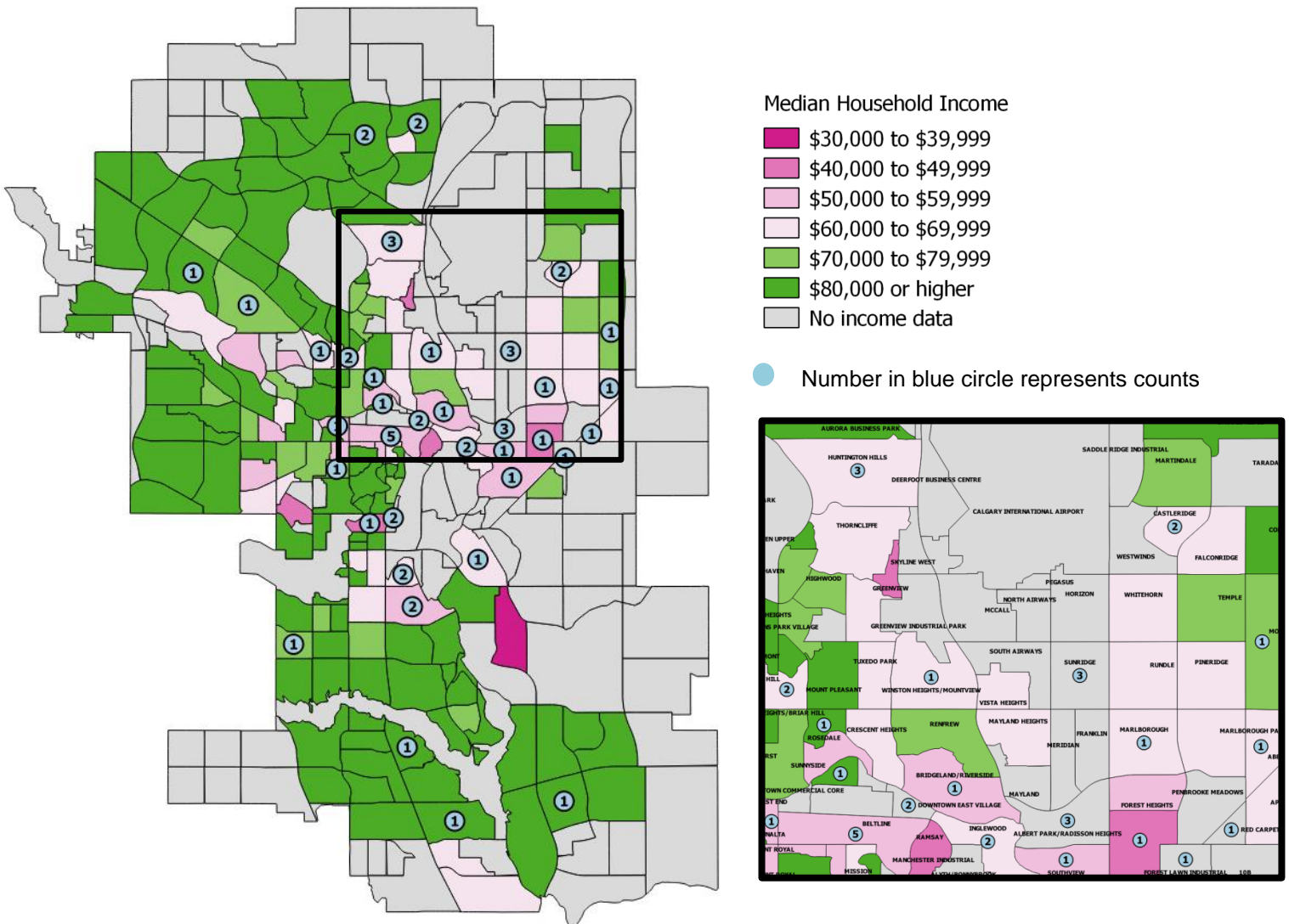


- In the first quarter of 2018, the neighbourhoods with more than one apparent accidental fentanyl poisoning deaths were Alberta Avenue, Central McDougall, and Hollick-Kenyon.
- Fentanyl related drug overdose deaths were most likely to occur in neighbourhoods with a self-reported household median income of \$60,000 to \$69,999 (2.6 apparent accidental fentanyl 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 and number of apparent accidental deaths related to fentanyl occurring in each neighbourhood, in the Municipality of Calgary. Jan. 1, 2018 to Mar. 31, 2018.

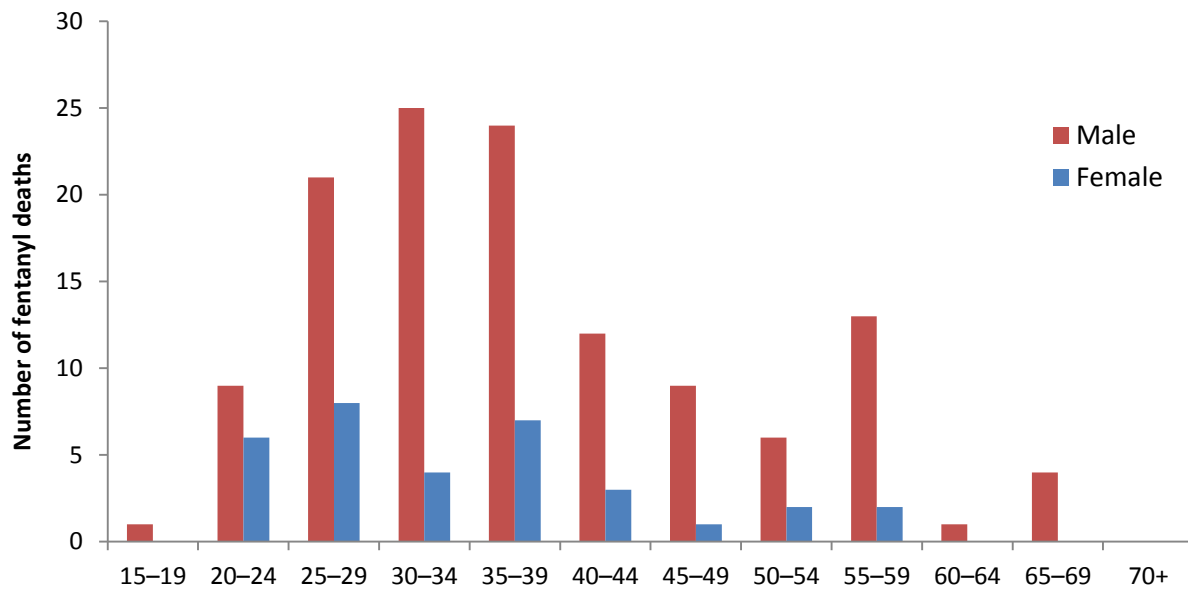


- In the first quarter of 2018, the neighbourhoods with three or more apparent accidental fentanyl poisoning deaths were Beltline (5), Sunridge (3), and Huntington Hills (3).
- Fentanyl related drug overdose deaths were most likely to occur in neighbourhoods with a self-reported household income of \$50,000 to \$59,999 (7.3 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.

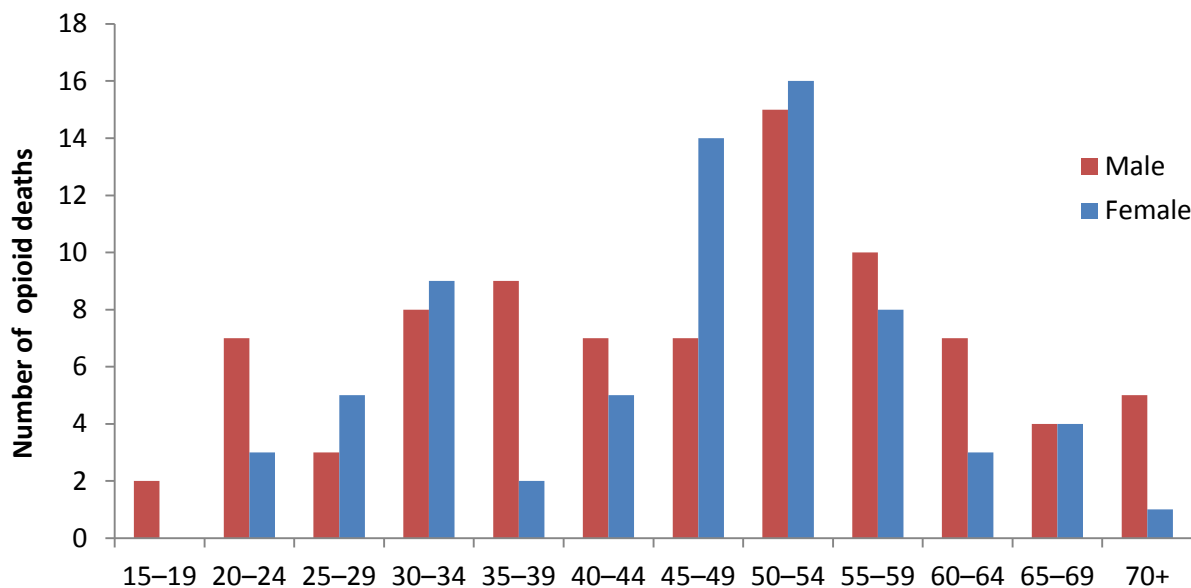
## Demographics and recent medical history of apparent accidental opioid poisoning decedents

**Figure 9:** Apparent accidental poisoning deaths related to fentanyl, by sex and age. Jan. 1, 2018 to Mar. 31, 2018.



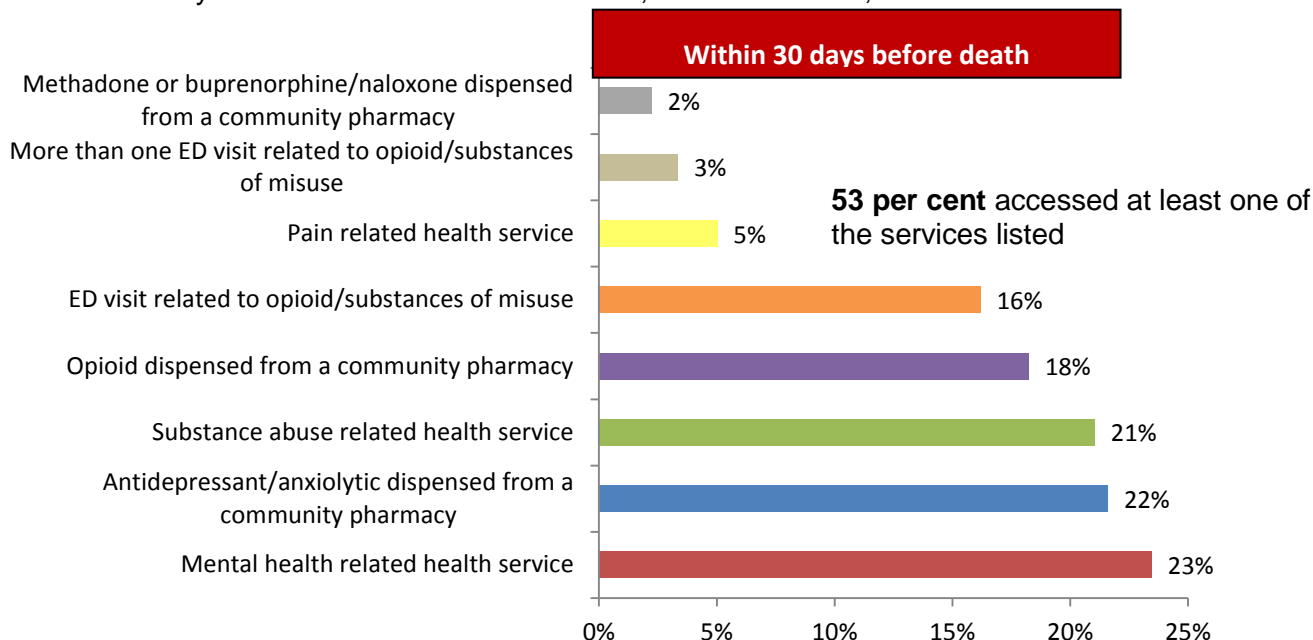
- 79 per cent of apparent accidental drug poisoning deaths related to fentanyl were among males. Among males, the highest number of deaths occurred among individuals spanning the ages of 30 to 34 years. Among females, the highest number of deaths occurred among individuals spanning the ages of 25 to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

**Figure 10:** Apparent accidental poisoning deaths related to an opioid other than fentanyl, by sex and age, Jan. 1, 2017 to Dec. 31, 2017.

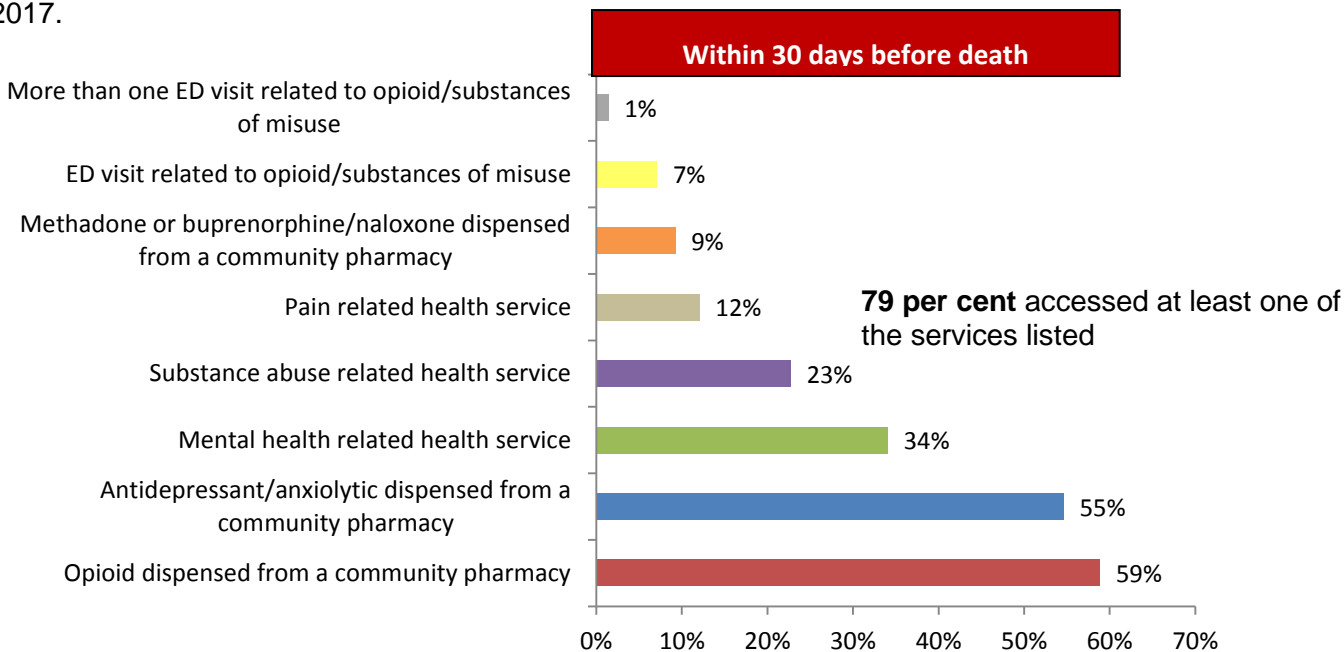


- 55 per cent of apparent accidental poisoning deaths related to an opioid other than fentanyl were among males. Among males and females, the age group with the highest number of deaths was 50-54 years.

**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 Dec. 31, 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 Dec. 31, 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 dispensed from a community pharmacy was the most frequent health care utilization in the 30 days prior to death.

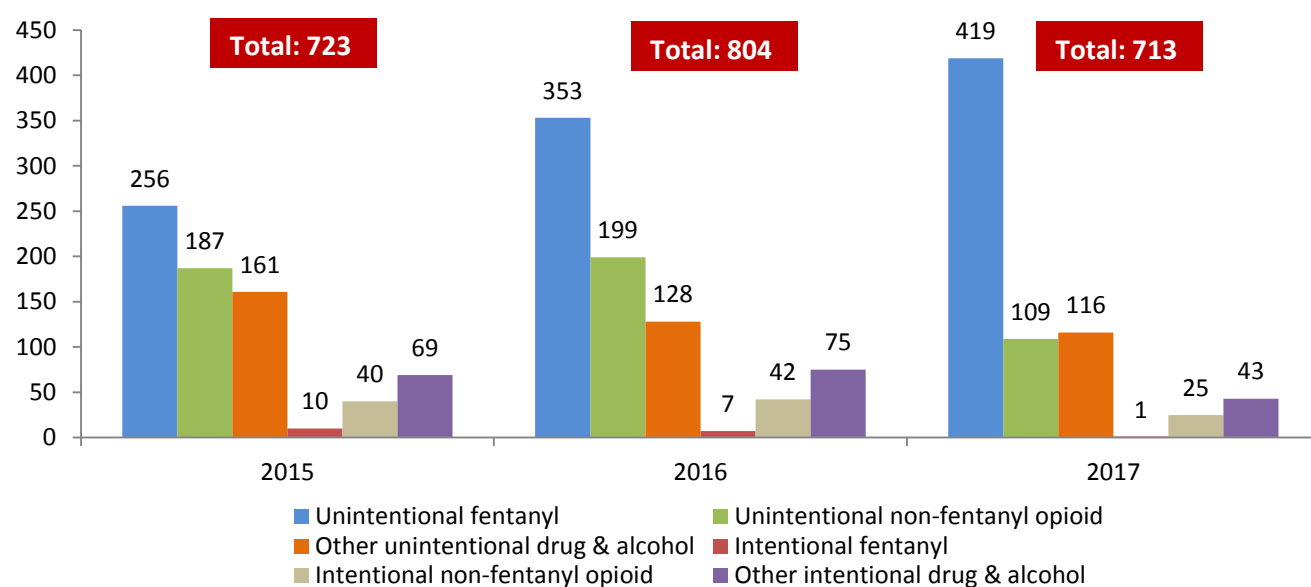
**Note:** 92% of individuals had their primary healthcare number (PHN) available and were included in this analysis. The above includes the number of individuals who sought one of the services at least once. Individuals can be counted in more than one category. Health service means a physician, inpatient, or emergency department visit.

## Confirmed drug & alcohol poisoning deaths (accidental and suicide)

- For 2018 Q1, there were 30 confirmed drug and alcohol toxicity deaths, with 84% of unintentional (accidental) drug poisoning deaths involving an opioid. *Further breakdown of counts for 2018 Q1 are not reported due to low numbers.*

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

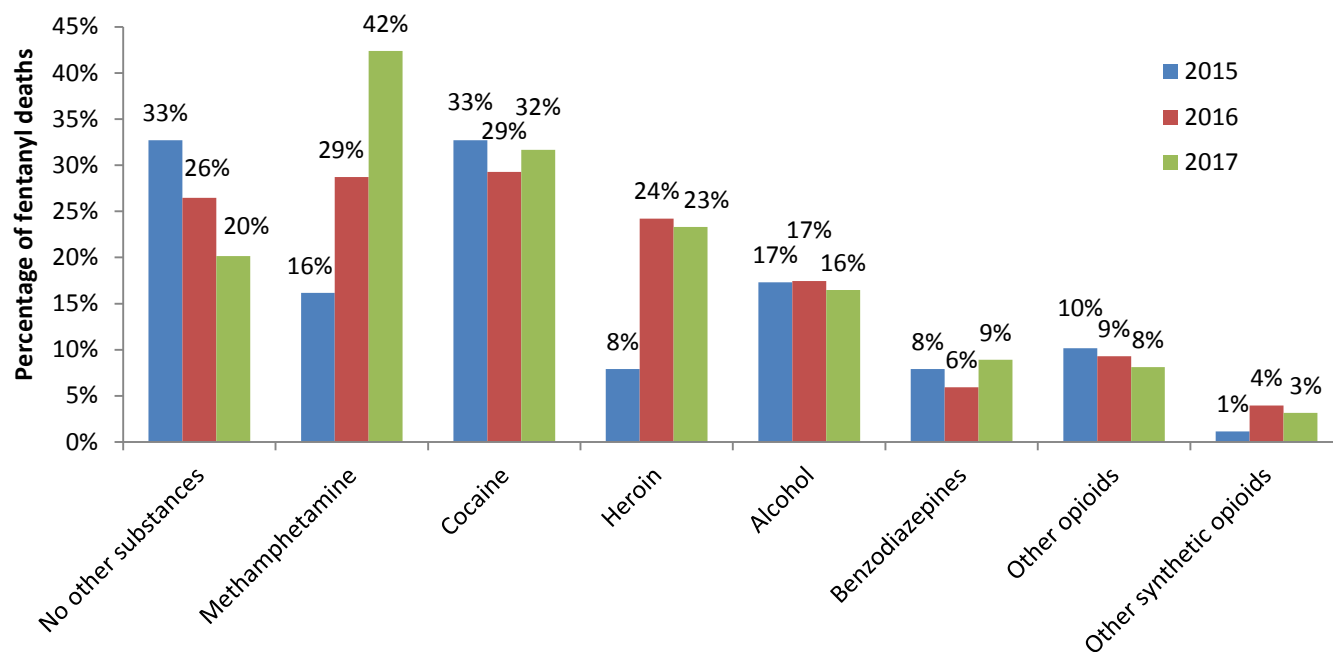
*Some drug poisoning deaths in 2016 and many drug poisoning deaths in 2017 are currently under review by the Office of the Chief Medical Examiner and have not been confirmed. Therefore, upon completion of all cases, the final number of total drug poisoning deaths in 2016 and 2017 will be higher than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



- From 2015 to 2017, the proportion of all drug poisoning deaths that were unintentional (accidental) increased from 84 per cent to 90 per cent, while the proportion of all drug poisoning deaths that were intentional (suicide) decreased from 16 per cent to 10 per cent.
- From 2015 to 2017, the proportion of unintentional (accidental) drug poisoning deaths involving any opioid (non-fentanyl or fentanyl) increased from 73 per cent to 82 per cent, while the proportion of unintentional (accidental) drug poisoning deaths not involving any opioid decreased from 27 per cent to 18 per cent.
- From 2015 to 2017, the proportion of intentional (suicide) drug poisoning deaths involving any opioid (non-fentanyl or fentanyl) decreased from 42 per cent to 38 per cent, while the proportion of intentional (suicide) drug poisoning deaths not involving any opioid increased from 58 per cent to 62 per cent.

**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. 2015 counts may be underestimates as the listing of drugs causing death on the death certificate was less common historically. These numbers are estimates for surveillance purposes only.

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

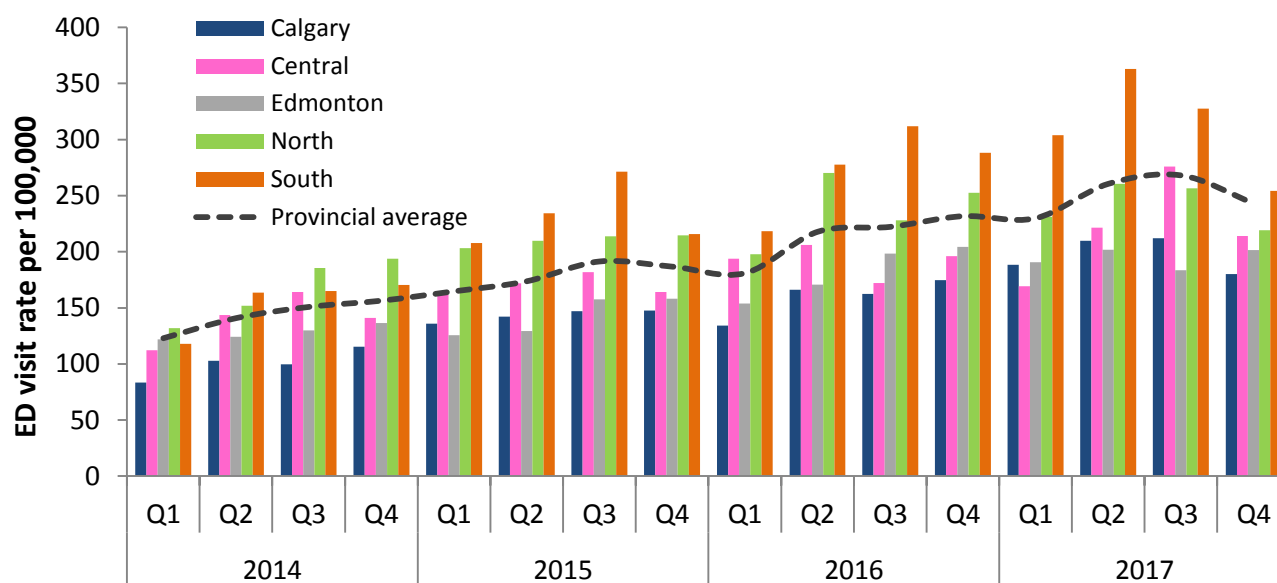


- In 2017, approximately 20 per cent of all fentanyl poisoning deaths had no other substances listed on the death certificate as causing death, while 42 per cent had methamphetamine listed, 32 per cent had cocaine listed, and 23 per cent had heroin listed.
- The proportion of fentanyl poisoning deaths where methamphetamine was also listed as causing death was 2.6 times higher in 2017 compared to 2015 (42 per cent in 2017, 16 per cent in 2015).
- The proportion of fentanyl poisoning deaths where cocaine was also listed as causing death was similar in 2015 and 2017 (32 per cent in 2017, 33 per cent in 2015).
- The proportion of fentanyl poisoning deaths where heroin was also listed as causing death in 2017 was almost triple (2.9 times) the proportion in 2015 (23 per cent in 2017, 8 per cent in 2015).
- In 2017, the next most common substances (after methamphetamine, cocaine and heroin) also listed as causing death in fentanyl poisoning deaths were alcohol and benzodiazepines. The proportions of fentanyl poisoning deaths also listing alcohol and benzodiazepines were similar in 2015 and 2017.

**Note:** “Other opioids” includes: morphine, oxycodone, codeine, and hydromorphone (ICD-10 T40.2). “Other synthetic opioids” includes: tramadol, buprenorphine, and illicit synthetic opioids such as U47700 (ICD-10 T40.4). Since multiple substances may be listed on one death certificate, deaths can be counted more than once in each category. Other substances contributing to death are taken from Part 1 of the medical certificate of death. This has changed from previous quarterly reporting, where substances contributing to death were taken from both Parts 1 and 2 of the medical certificate of death. In addition to changes resulting from more completed reviews of deaths, this change in methodology may have resulted in differences from previously reported proportions.

## 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 Dec. 31, 2017.



- The *rate* of ED visits related to opioid use and substance misuse increased by 97.9 per cent from Jan. 1, 2014 to Dec. 31, 2017. From the third quarter of 2017 to the fourth quarter of 2017, the rate decreased by 9.3 per cent.
- In 2017, the average *rate* of ED visits related to opioid use and substance misuse was the highest in the South Zone (312 visits per 100,000 person years); approximately 25 per cent higher than the provincial average over this period (250 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, made up 29 and 26 per cent of all provincial ED visits related to opioid use and other substances of misuse per quarter, respectively.

**Table 9:** Top 10 ED facilities utilized for emergency visits related to opioid use and other substances of misuse, Jan. 1, 2014 to Dec. 31, 2017

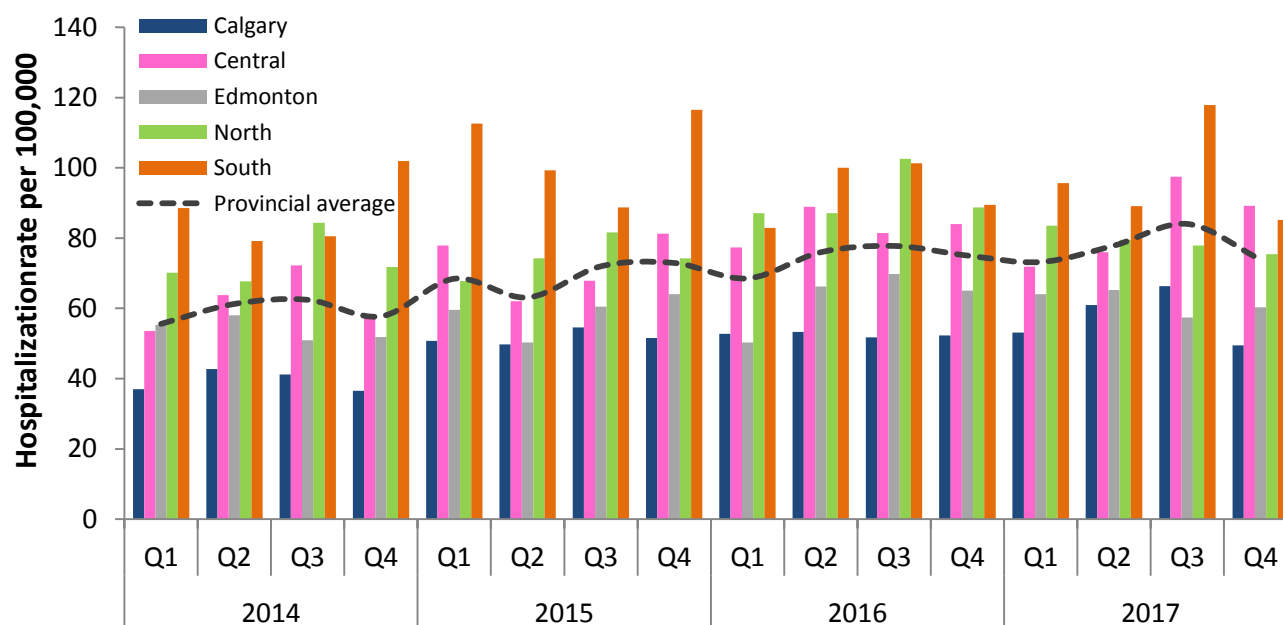
Rank	Facility	Count	Percent of all visits*	Rank	Facility	Count	Percent of all visits*
1	Royal Alexandra Hospital	3,912	12%	6	Red Deer Regional Hospital	1,513	5%
2	Peter Lougheed Centre	3,288	10%	7	South Health Campus	1,372	4%
3	Foothills Medical Centre	2,603	8%	8	Grey Nuns Community Hospital	1,361	4%
4	Rockyview General Hospital	2,461	7%	9	Chinook Regional Hospital	1,193	4%
5	University Of Alberta Hospital	2,086	6%	10	Queen Elizabeth II Hospital	1,086	3%

\*Percentage of the total 33,122 ED visits related to opioids and other substances of misuse that occurred at the specified facility.

**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 Dec. 31, 2017.



- The *rate* of hospitalizations related to opioid use and substance misuse increased by 32.9 per cent from Jan. 1, 2014 to Dec. 31, 2017. From the third quarter of 2017 to the fourth quarter of 2017, the rate decreased by 12.1 per cent.
- In 2017, the average *rate* of hospitalizations related to opioid use and substance misuse was the highest in the South Zone (97 hospitalizations per 100,000 person years); approximately 26 per cent higher than the provincial average (77 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, made up 27 and 27 per cent of all hospitalizations related to opioid use and other substances of misuse per quarter, respectively.

**Table 10:** Top 10 facilities utilized for hospitalizations related to opioid use and other substances of misuse, Jan. 1, 2014 to Dec. 31, 2017.

Rank	Facility	Count	Percent of all stays*	Rank	Facility	Count	Percent of all stays*
1	Royal Alexandra Hospital	1,929	16%	6	Red Deer Regional Hospital	517	4%
2	Peter Lougheed Centre	1,271	11%	7	Grey Nuns Community Hospital	422	4%
3	Foothills Medical Centre	1,245	11%	8	Medicine Hat Regional Hospital	419	4%
4	University Of Alberta Hospital	844	7%	9	Queen Elizabeth II Hospital	410	3%
5	Rockyview General Hospital	735	6%	10	South Health Campus	408	3%

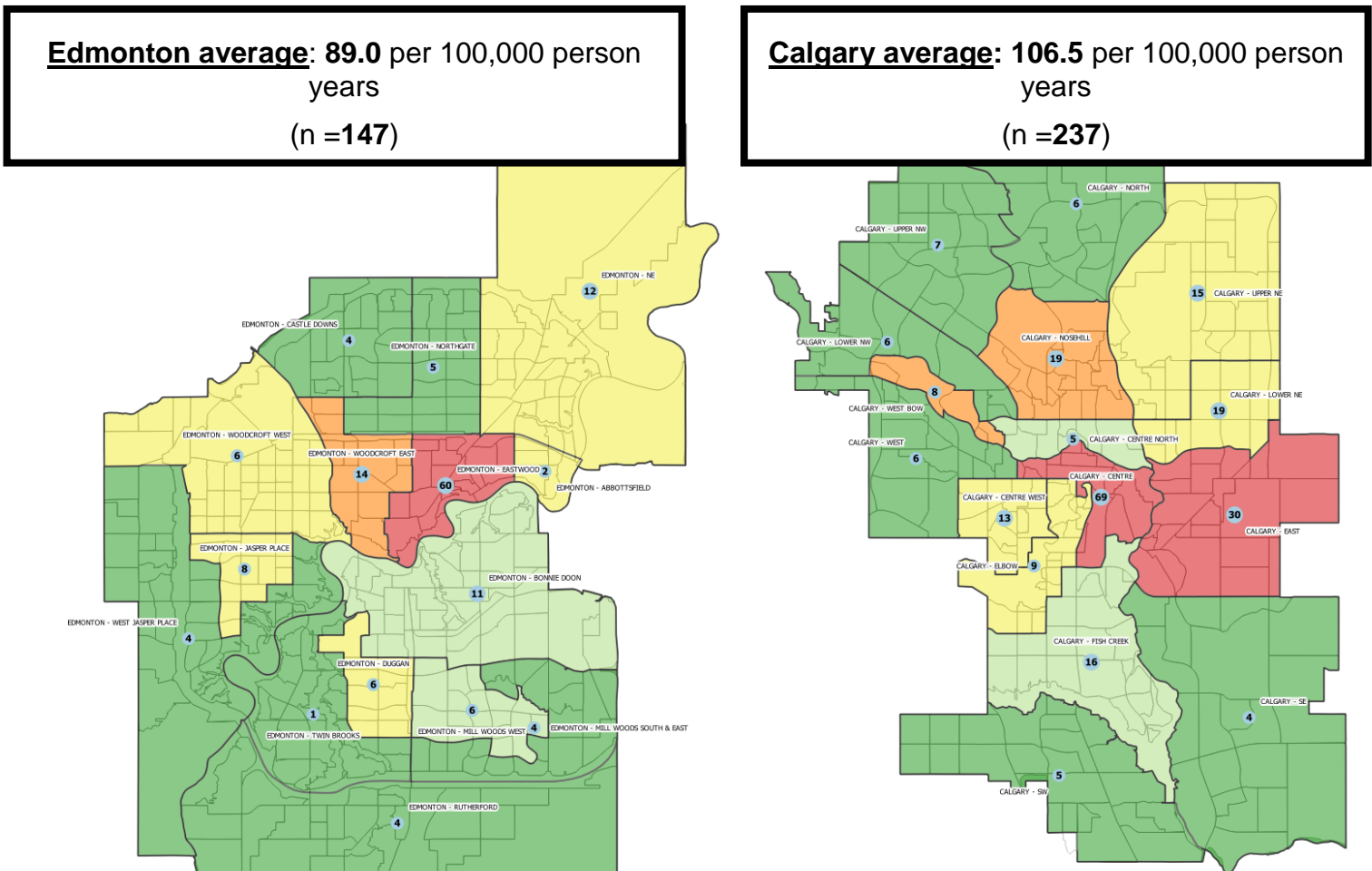
\*Percentage of the total 11,785 inpatient stays related to opioids and other substances of misuse that occurred at the specified facility.

**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, 2018 to Feb. 28, 2018.



**Legend**

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

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

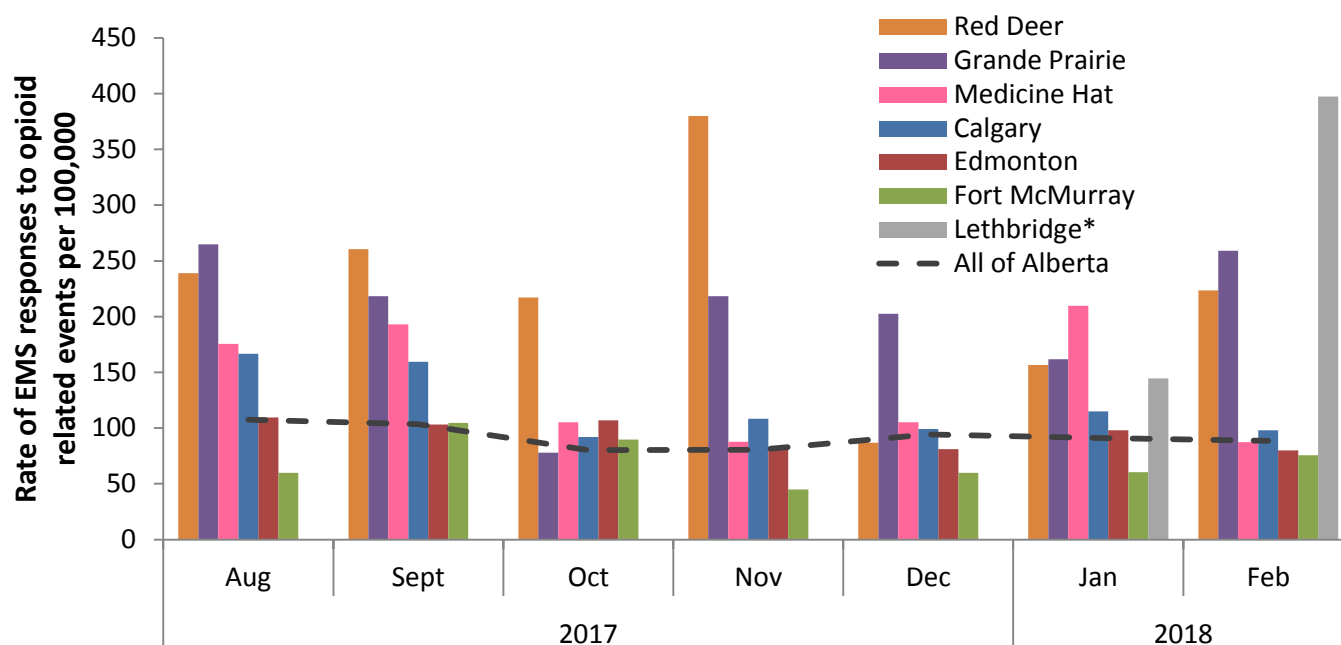
● Number in blue circle represents counts (numerator)

- Of the opioid related EMS events that occurred in Edmonton (147), the highest rate (474 per 100,000 person years) and count (60) was in the Eastwood area. The LGAs with **significantly higher** or **higher** rates of opioid related EMS events compared to the municipality average were Eastwood, and Woodcroft East.
- Of the opioid related EMS events that occurred in Calgary (237), the highest rate (666 per 100,000 person years) and count (69) was in Calgary Centre. The LGAs with **significantly higher** or **higher** rates of opioid related EMS events compared to the municipality average were West Bow, Nosehill, Centre, and East.

**Note:** These data includes AHS EMS Direct delivery and most AHS Contractor-ground ambulance. Air ambulance and Interfacility Transfers are not included. EMS opioid related events refer to any EMS responses where the Medical Control Protocol of Opiate Overdose was documented and/or naloxone was administered. EMS data was only available up to Feb 28, 2018 for this reporting period.



**Figure 18:** Rate (per 100,000 person years) of Emergency Medical Services (EMS) responses to opioid related events, by month and municipality. Aug. 1, 2017 to Feb. 28, 2018.



\*Lethbridge EMS data only became available Jan 10, 2018

- The rate of EMS responses to opioid related events per 100,000 has decreased moderately throughout the province from August 2017 to the end of February 2018. The rate in February 2018 (88.5 per 100,000) was noticeably lower than the rate in August 2017 (107.6 per 100,000).
- On a monthly basis, most of the major municipalities in Alberta had a higher rate of EMS responses to opioid related events per 100,000 than the provincial monthly average. Grande Prairie, Red Deer, and Lethbridge have had the highest rates on average.

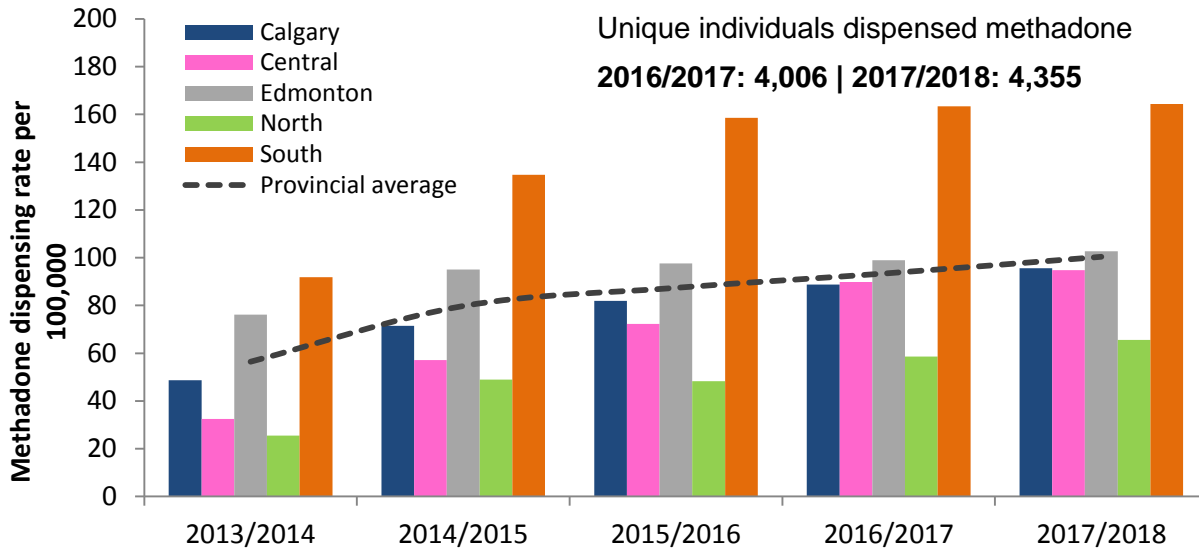
**Table 11:** Rate (per 100,000 person years) and count of Emergency Medical Services (EMS) responses to opioid related events, by year and municipality. Aug. 1, 2017 to Feb 28, 2018.

	Aug-Dec, 2017		Jan-Feb, 2018	
	Count	Rate	Count	Rate
Calgary	687	123.5	237	106.5
Edmonton	392	95.0	147	89.0
Fort McMurray	24	72.6	9	68.0
Grande Prairie	63	203.9	26	210.4
Medicine Hat	38	132.8	17	148.5
Red Deer	109	243.7	34	190.0
Lethbridge	--	--	45	270.9
<b>AB</b>	<b>1,665</b>	<b>93.3</b>	<b>645</b>	<b>89.2</b>

**Note:** These data includes AHS EMS Direct delivery and most AHS Contractor-ground ambulance. Air ambulance and Interfacility Transfers are not included. EMS opioid related events refer to any EMS responses where the Medical Control Protocol of Opiate Overdose was documented and/or naloxone was administered. EMS data for the entire province only became available August, 2017 (except Lethbridge which was only made available Jan. 10, 2018), and was only available up to Feb 28, 2018 for this reporting period.

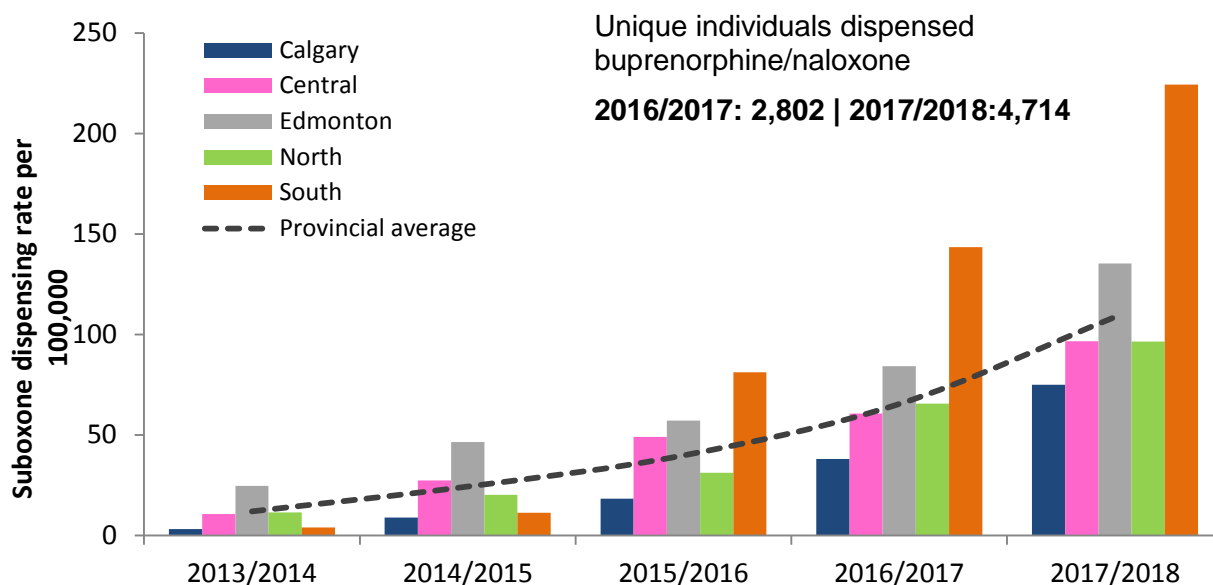
## Methadone & buprenorphine/naloxone dispensing from community pharmacies

**Figure 19:** Rate of unique individuals dispensed methadone indicated for opioid dependence from community pharmacies per 100,000, by Zone and fiscal year. Jan. 1, 2014 to Mar. 31, 2018.



- In Alberta, the rate of unique individuals dispensed methadone indicated for opioid dependence from community pharmacies per 100,000 increased slightly from 2016/2017 to 2017/2018 by 7 per cent. The South Zone had the highest rate in 2017/2018 – 74 per cent higher than the provincial average (174 per 100,000 vs. 100 per 100,000).

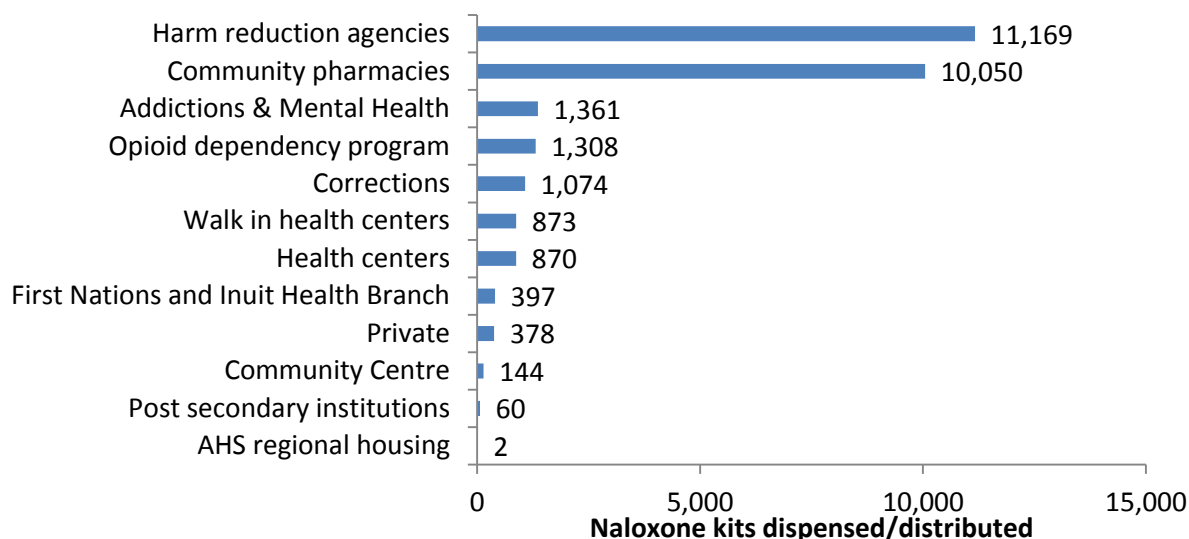
**Figure 20:** Rate of unique individuals dispensed buprenorphine/naloxone (generic brands and Suboxone™) indicated for opioid dependence from community pharmacies per 100,000, by Zone and fiscal year. Jan. 1, 2014 to Mar. 31, 2018.



- 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 66 per cent increase from 2016/2017 to 2017/2018. The South Zone had the highest rate in 2017/2018 – 106 per cent higher than the provincial average (224 per 100,000 vs. 109 per 100,000).

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

**Figure 21:** Naloxone kits dispensed/distributed by registered site type, Jan. 1, 2016 to Mar. 31, 2018.



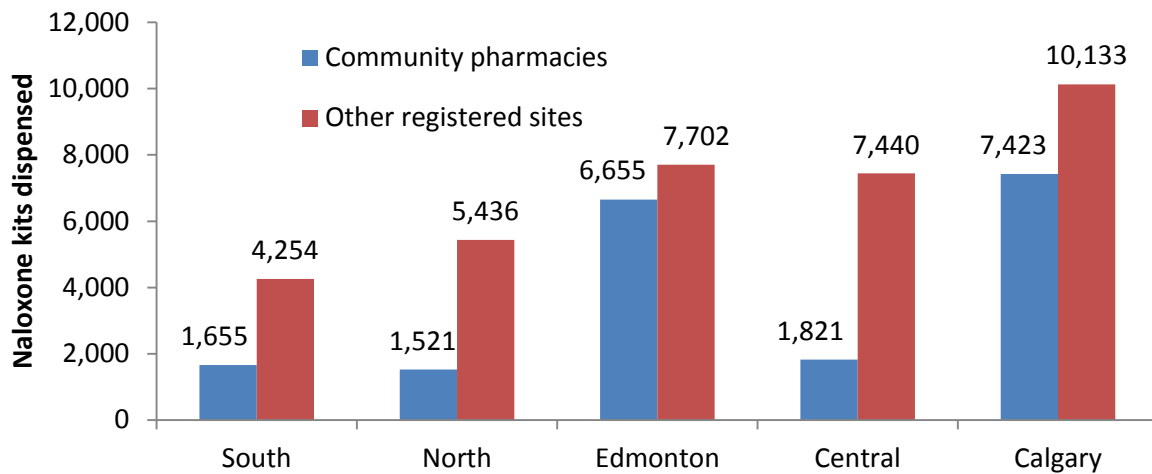
- From Jan. 1, 2016 to Mar. 31, 2018, 54,040 naloxone kits were dispensed in Alberta through Alberta Health Services' (AHS') naloxone program, and 3,607 reversals were self-reported.
- Approximately 3,250 naloxone kits were distributed in Alberta by the Alberta Community Council on HIV between July 2015 and January 2016. In January 2016, AHS began its take-home naloxone program through registered distribution sites.

**Table 12:** Number of sites registered to distribute naloxone kits, Jan. 1, 2016 to Mar. 31, 2018.

	South	Calgary	Central	Edmonton	North	Unknown	Total
Community pharmacies	86	362	117	341	107	2	<b>1,015</b>
AHS Health Centre	30	57	44	35	61		<b>227</b>
Private	10	16	10	19	1		<b>56</b>
Medical First Response	10	11	15	8	23		<b>67</b>
AHS Mental Health	1	18	10	11	12		<b>52</b>
First Nations sites	2	2	6	3	15		<b>28</b>
Primary Care Network	0	4	3	2	2		<b>11</b>
Corrections	2	3	1	3	1		<b>10</b>
ACCH Harm Reduction	2	1	1	1	3		<b>8</b>
AHS Regional Housing	0	3	0	2	0		<b>5</b>
Post-Secondary Institutions	0	2	0	2	1		<b>5</b>
Private Opioid Dependency Program	1	0	1	2	1		<b>5</b>
Peace Officers	0	2	0	1	1		<b>4</b>
AHS Opioid Dependency Program	1	2	0	1	0		<b>4</b>
Metis	0	0	0	1	2		<b>3</b>
Private Harm Reduction	0	0	0	1	0		<b>1</b>
<b>Total</b>	<b>145</b>	<b>483</b>	<b>208</b>	<b>433</b>	<b>230</b>	<b>2</b>	<b>1,501</b>

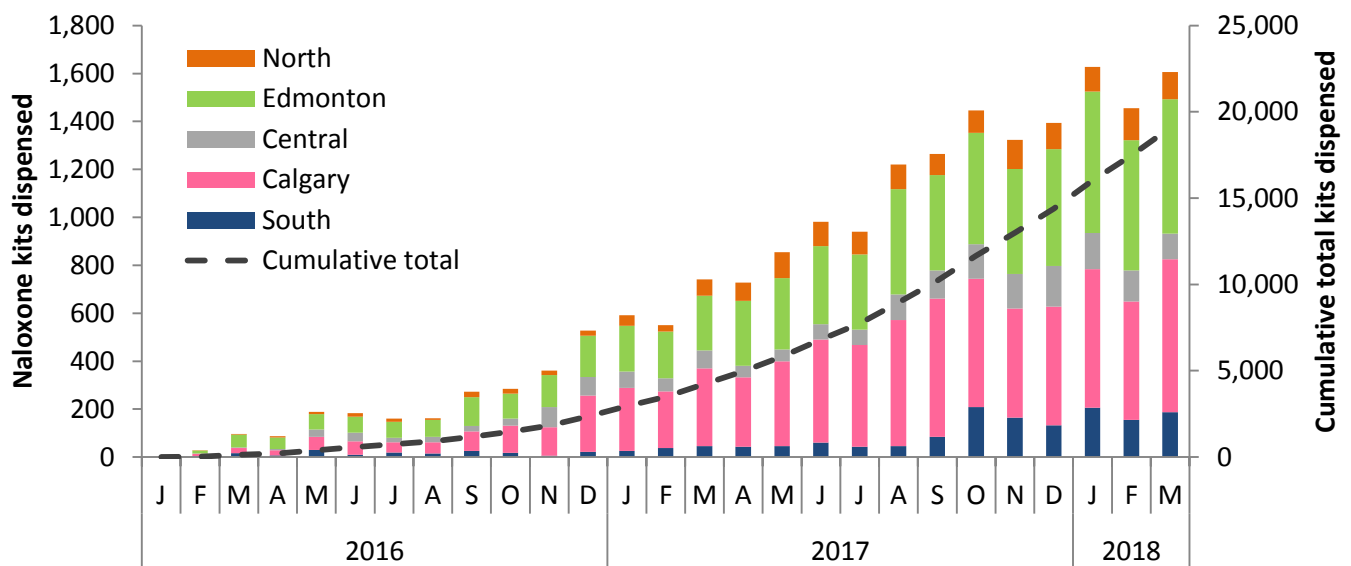
**Note:** Naloxone kits dispensing data from community pharmacies comes from Alberta Blue Cross. All other kit distribution data comes from the AHS Take Home Naloxone Kit Program.

**Figure 22:** Naloxone kits dispensed/distributed by community pharmacies and other registered sites, by Zone. Jan. 1, 2016 to Mar. 31, 2018.



- Throughout the province, other registered sites are dispensing more naloxone kits than community pharmacies (65 per cent of all kits given out).
- The Calgary Zone dispensed the highest total volume of kits in the province (33 per cent).

**Figure 23:** Naloxone kits dispensed by community pharmacies, by Zone and month. Jan. 1, 2016 to Mar. 31, 2018.



- Across Alberta, in 2018, community pharmacies dispensed an average of 1,563 kits per month. The Calgary Zone has had the largest volume of naloxone kits dispensed from community pharmacies, with an average of 570 kits per month. The Edmonton Zone dispensed the next highest volume with an average of 564 kits per month.
- The median age of an individual receiving a naloxone kit dispensed from a community pharmacy was 31 years, and 58 per cent were male.
- Since Jan. 1, 2016, 19,075 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 and AHS contractors-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, illicit synthetic opioids (e.g., U-47700), buprenorphine, or methadone

Fentanyl-related deaths are any deaths in which fentanyl or a fentanyl analogue was identified as a cause of death (these may also have involved non-fentanyl opioids). Non-fentanyl related deaths are deaths in which an opioid other than fentanyl or a fentanyl analogue was identified as a cause of death.

### Emergency Medical Services data

Emergency Medical Services (EMS) data comes from AHS EMS Direct delivery and most AHS Contractor – ground ambulance services. Air ambulance and Interfacility Transfers are not included. AHS direct delivery does 97 per cent of the operational responses in the Municipality of Edmonton, 99 per cent in the Municipality 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