

October 27, 2016

This surveillance report presents emergency department, prescription, and mortality data associated with opioid and other substances of misuse in Alberta. Results are subject to change based on differences in reporting schedules and updates from the various data systems.

Key Points

- From January – September 2016, **338** Albertans died from an apparent drug overdose related to fentanyl or another opioid. **193** of these deaths (**57%**) were related to fentanyl and **145** (**43%**) were related to an opioid other than fentanyl.
- In 2016, of the deaths related to fentanyl, **65** deaths occurred in the first quarter, **81** in the second, and **47** in the third. The majority of deaths (**89%**) occurred in larger urban centers. By comparison, in 2015 there were **205** deaths related to fentanyl, with **73** occurring in the first quarter, **66** in the second, and **66** in the third. **83 per cent** of the deaths in 2015 occurred in larger urban centers.
- From Jan-Sept 2016, there were more drug overdose deaths related to **fentanyl** in Calgary (**82**), compared to Edmonton (**52**), and more drug overdose deaths related to an **opioid other than fentanyl** in Edmonton (**63**), compared to Calgary (**37**).
- The majority of drug overdose deaths related to opioids that occurred in Edmonton and Calgary were among individuals with a home address outside of the central urban core (**65 per cent**). **26 per cent** of deaths occurred in individuals with no fixed address or an unknown home address.
- From January 1, 2014 to June 30, 2016 there were approximately **17,690** emergency and urgent care visits related to opioid and other substances of misuse, averaging **1,769** visits per quarter.
- These visits represent approximately **12,560** unique individuals, of whom, **22 per cent** had more than one visit.
- There has been an increase in the number of visits over time, with **60%** more in the second quarter of 2016 compared to the second quarter of 2014.
- From January 1, 2014 to September 30, 2016, there was a quarterly average of approximately **529,000** opioid dispensations through community pharmacies.
- Among individuals identifying as First Nations, the emergency visit rate related to opioid and narcotic use was approximately **5.5** times higher than non-First Nation identifying individuals, and the rate of opioid dispensing was approximately **two** times higher.

Disclaimer

The majority of data is presented on a quarterly basis from **January 1, 2014 (unless specified otherwise) and includes the most recent quarterly data available at the time the report is created**. Data sources are updated at differing time periods. Data may change in later reporting as it is submitted by facilities, and pharmacies. Recent data may be less complete due to delays in data submission. Emergency department data can have up to a three month lag and therefore, the most recent quarter is not included for this data.

Mortality data is subject to change as certification of deaths can take up to six months. Deaths in this report includes Albertans who died from an apparent drug overdose related to fentanyl and apparent drug overdose deaths related to an opioid other than fentanyl.

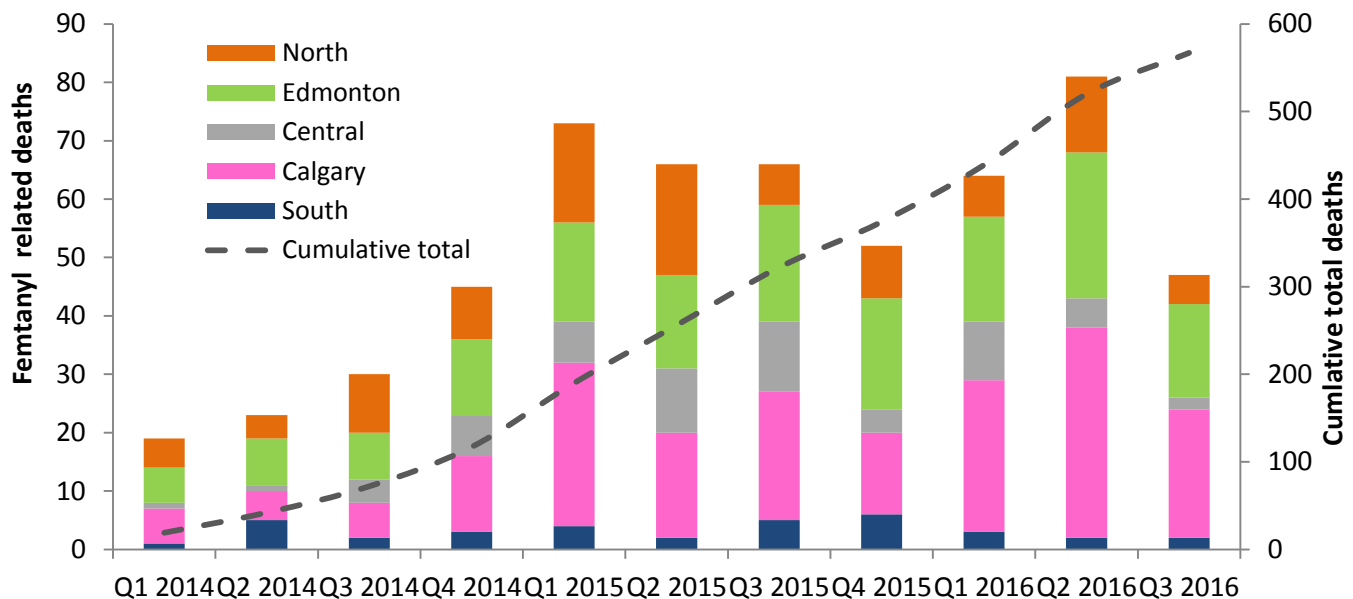
As a result, the number of apparent drug overdose deaths related to fentanyl/opioids may change (including increases/decreases in previous numbers) as certification of cause of death may lead to a change in classification in some instances.

Throughout this report, Q1 =Jan-Mar, Q2 = Apr-Jun, Q3 = Jul-Sept, Q4 = Oct-Dec

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

Mortality data

Figure 1: Number of Albertans who died from an apparent drug overdose related to fentanyl, by zone (based on place of death) and quarter. January 1, 2014-September 30, 2016.



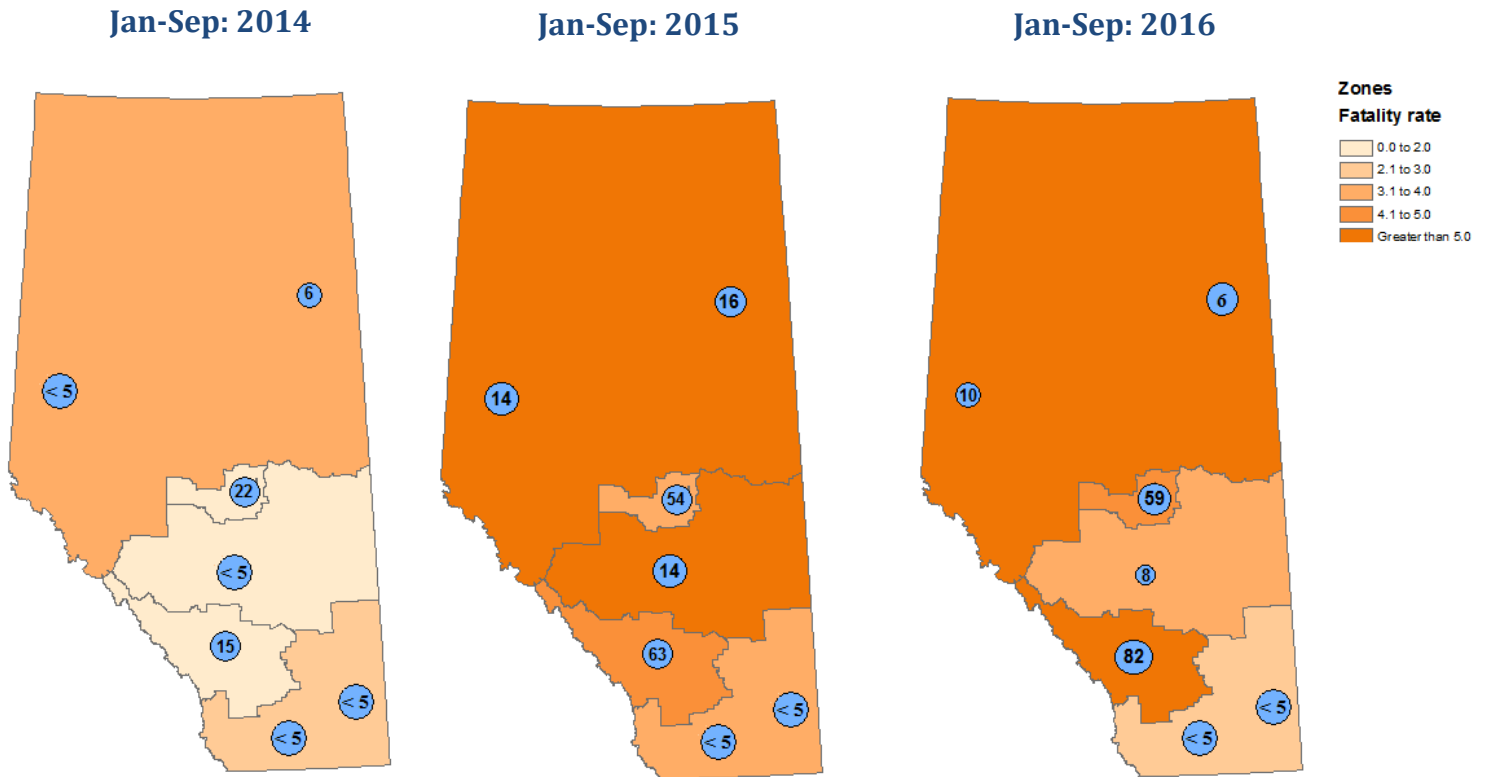
- Since January 1, 2014, a total of 567 Albertans died from an apparent drug overdose related to fentanyl, with an average of 52 per quarter.
- Based on place of death, the Calgary Zone had the most deaths (198), followed by the Edmonton Zone (167), North Zone (103), Central Zone (64), and South Zone (37).
- 83 per cent (472) of these deaths occurred in larger urban centers. Fort McMurray (32), Grand Prairie (37), Red Deer (25), Medicine Hat (9), Lethbridge (16), Edmonton (168), Calgary (185) (municipalities within the census metropolitan area of Edmonton and Calgary are included).

Calgary	6	5	6	13	28	18	22	14	26	36	22
Central	1	1	4	7	7	11	12	4	10	5	2
Edmonton	6	8	8	13	17	16	20	19	18	25	16
North	5	4	10	9	17	19	7	9	7	13	5
South	1	5	2	3	4	2	5	6	3	2	2
Total	19	23	30	45	73	66	66	52	64	81	47
	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016	Q2 2016	Q3 2016

Note: There are some instances where the individual did not have a place of death/home address identified, or resided out of province. Therefore, some deaths were not assigned to an Alberta location.

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Figure 2: Rate of deaths per 100,000 due to an apparent drug overdose related to fentanyl, by place of death, by Zone & number of deaths in major urban centers* Jan-Sept combined 2014-2016



Total AB deaths: 72 | AB rate: 1.8
Deaths in urban centers: 52

Total AB deaths: 205 | AB rate: 4.9
Deaths in urban centers: 169

Total AB deaths: 193 | AB rate: 4.6
Deaths in urban centers: 171

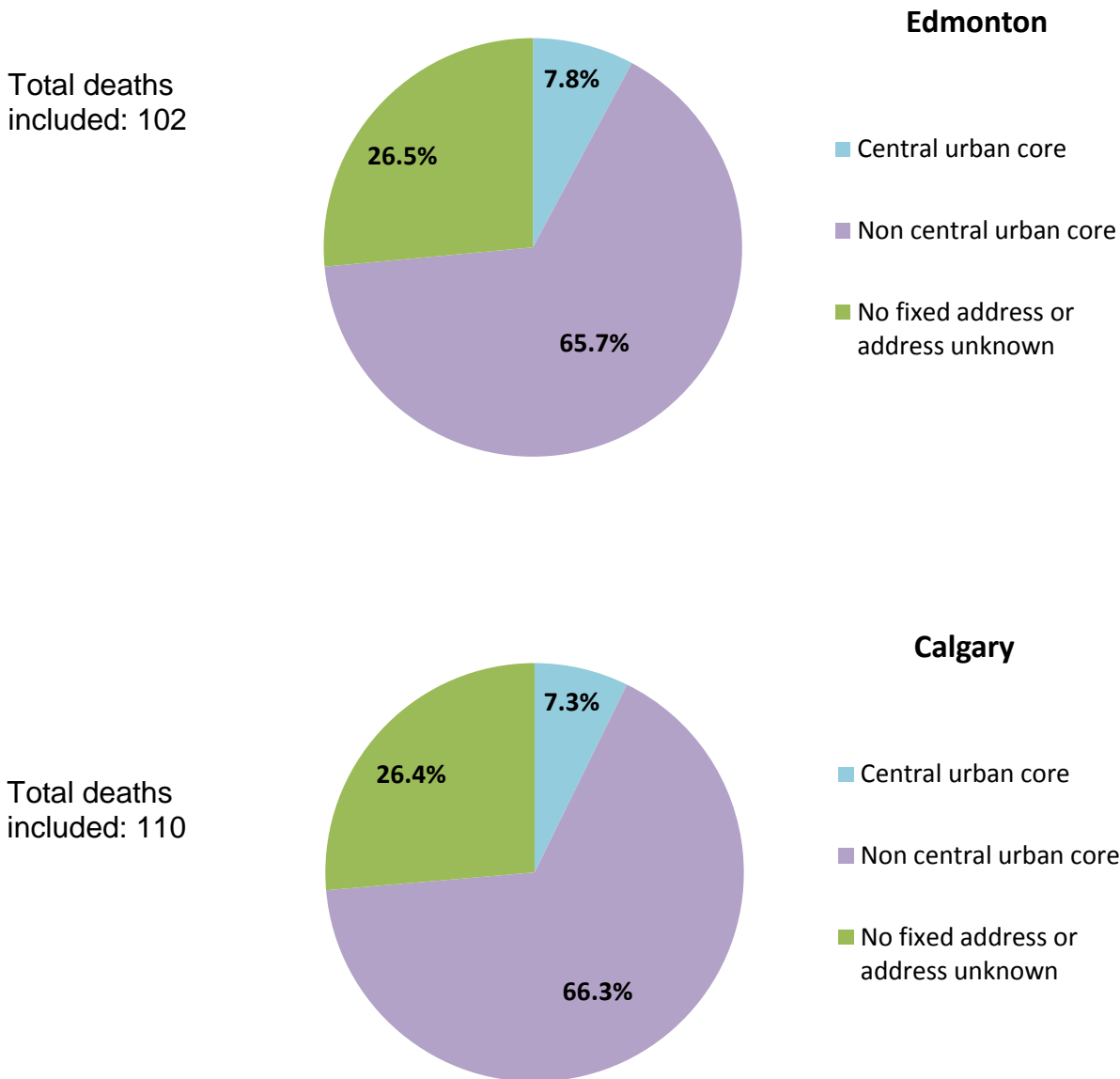
Total deaths to date since Jan 1, 2014: **567**

- The rate of deaths per 100,000 due to an apparent drug overdose related to fentanyl seems to have increased significantly in 2015 and 2016 compared to 2014.
- Compared to Edmonton, Calgary has had more apparent drug overdose deaths related to fentanyl.

Note: Coloured (orange) Zones represent fatality rate per 100,000 and blue circles represent number of deaths in major urban centers.

* Fort McMurray, Grand Prairie, Red Deer, Medicine Hat, Lethbridge, Edmonton, Calgary, and municipalities within the census metropolitan area of Edmonton and Calgary.

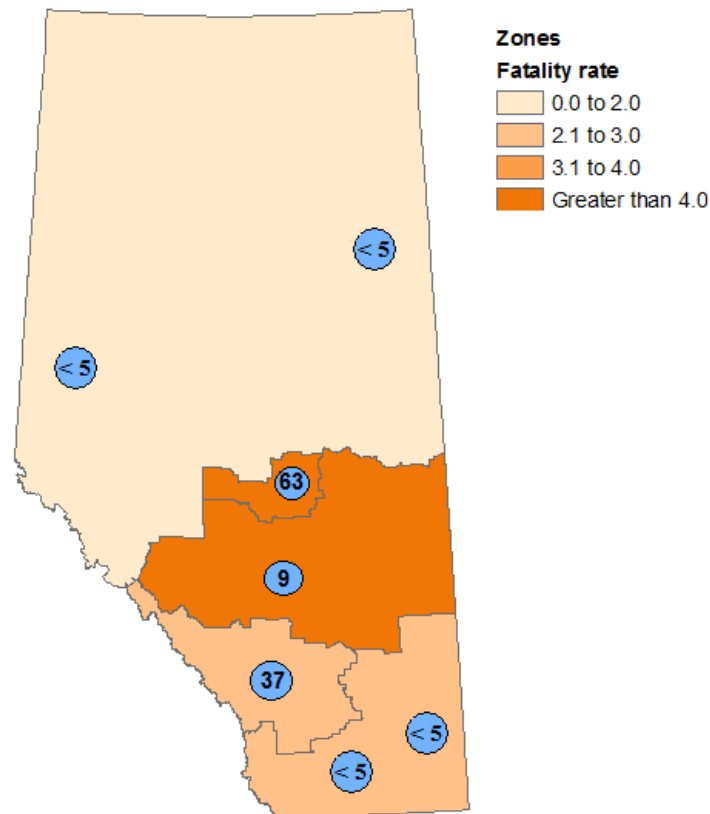
Figure 3: Proportion of apparent drug overdose deaths related to opioids, by central urban core/non-central core in Edmonton and Calgary (base on the individual’s place of home address), January 1, 2016-September 30, 2016.



Edmonton central urban core: Boyle Street, Central McDougall, McCauley, Oliver, Queen Mary Park, Riverdale, Rosedale Cloverdale, Garneau, Strathcona, University of Alberta.

Calgary central urban core: Downtown (including the Downtown West End and Downtown East Village), Eau Claire, Chinatown, Beltline, Connaught/Cliff Bungalow, and Victoria Park.

Figure 4: Rate of deaths per 100,000 due to an apparent drug overdose related to an opioid other than fentanyl, by place of death, by Zone & number of deaths in major urban centers* January 1, 2016-September 30, 2016.



Total AB deaths: **145** | AB rate: **3.4**
Deaths in urban centers: **112**

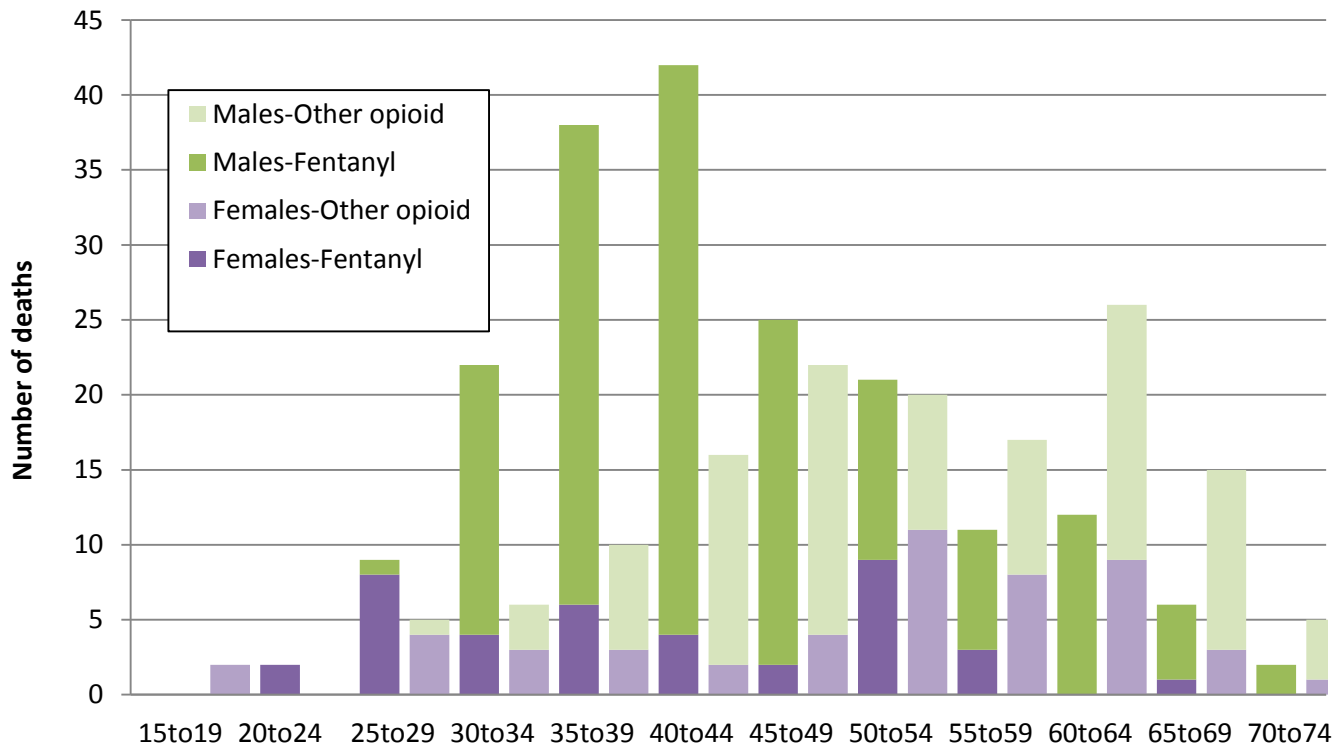
Total deaths to date since Jan 1, 2016: **145**

- Compared to Calgary, Edmonton has had more apparent drug overdose deaths related to an opioid other than fentanyl.

Note: Coloured (orange) Zones represent fatality rate per 100,000 and blue circles represent number of deaths in major urban centers.

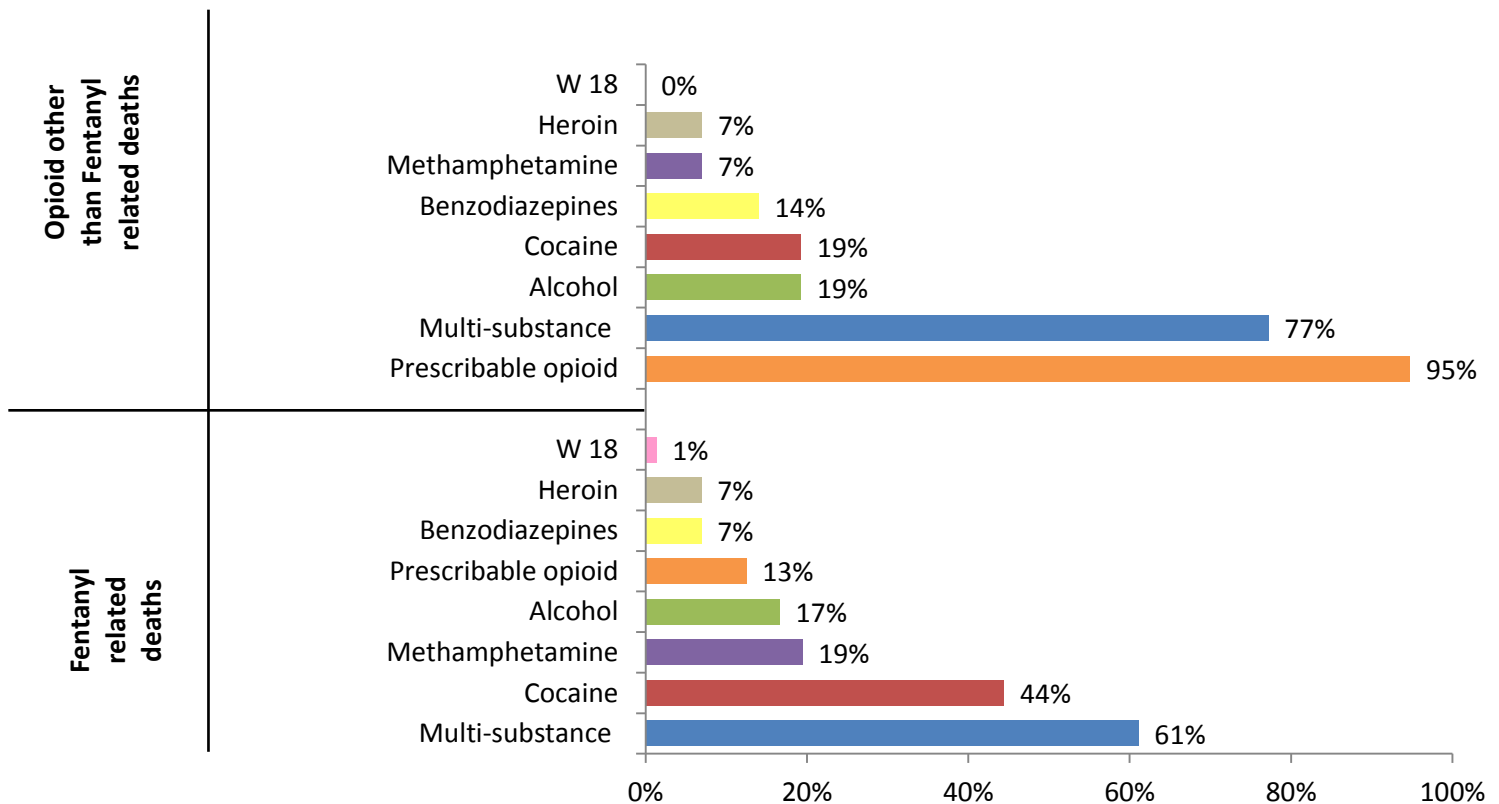
* Fort McMurray, Grand Prairie, Red Deer, Medicine Hat, Lethbridge, Edmonton, Calgary, and municipalities within the census metropolitan area of Edmonton and Calgary

Figure 5: Deaths due to an apparent drug overdose related to fentanyl and deaths due to an apparent drug overdose related to an opioid other than fentanyl, by sex and age. January 1, 2016 - September 30, 2016.



- 80 per cent of deaths due to an apparent drug overdose related to fentanyl were among males. The majority (37 per cent) of these deaths occurred among males spanning the age of 35 to 44
- In contrast, only 65 per cent of deaths due to an apparent drug overdose related to an opioid other than fentanyl were among males.
- Deaths due to an apparent drug overdose related to fentanyl were concentrated in younger aged individuals. Among deaths due to an apparent drug overdose related to an opioid other than fentanyl, these deaths were more evenly distributed across age, and a higher number occurred among older individuals.

Figure 6: Deaths due to an apparent drug overdose related to fentanyl and deaths due to an apparent drug overdose related to an opioid other than fentanyl, by additional substances contributing to cause of death. January 1, 2016 - September 30, 2016.



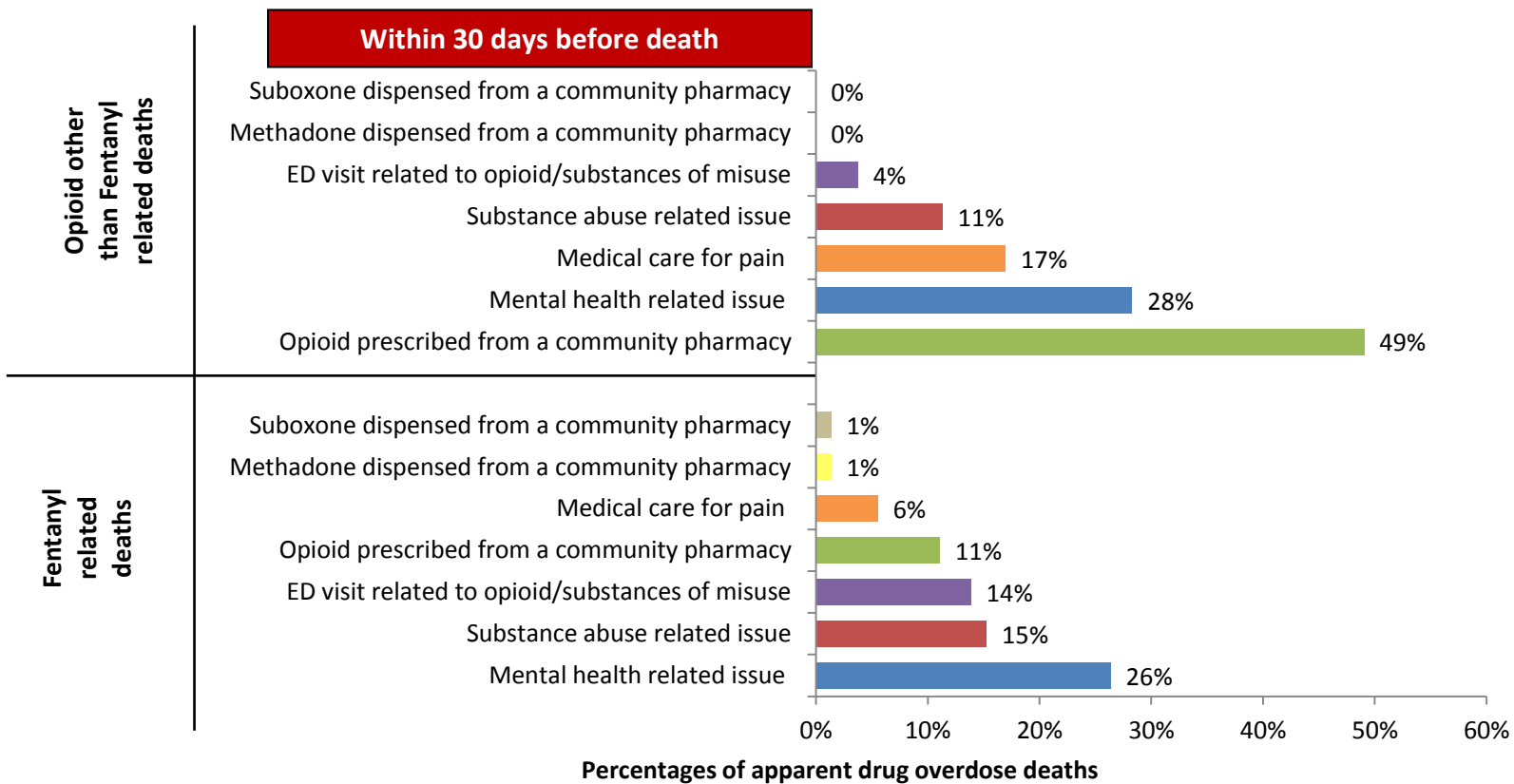
Percentages of apparent drug overdose deaths where cause of death identified

- Among deaths due to an apparent drug overdose related to an opioid other than fentanyl, opioids such as codeine and oxycodone, in addition to multiple substances (including primarily cocaine and alcohol) are involved in the majority of deaths.
- Among deaths due to an apparent drug overdose related to fentanyl, multiple substances are involved in the majority of deaths. The most frequent being cocaine and methamphetamine.

Note: Out of all reported apparent drug overdose related to fentanyl/opioids (338), 72 deaths due to an apparent drug overdose related to fentanyl, and 57 deaths due to an apparent drug overdose related an opioid other than fentanyl, had the substances contributing to the cause of death confirmed.

Prescribable opioid includes: codeine, oxycodone, hydromorphone, tramadol, morphine, and methadone

Figure 7: Deaths due to an apparent drug overdose related to fentanyl and deaths due to an apparent drug overdose related to an opioid other than fentanyl, by medical history within the 30 days before the date of death. January 1, 2016 - September 30, 2016.

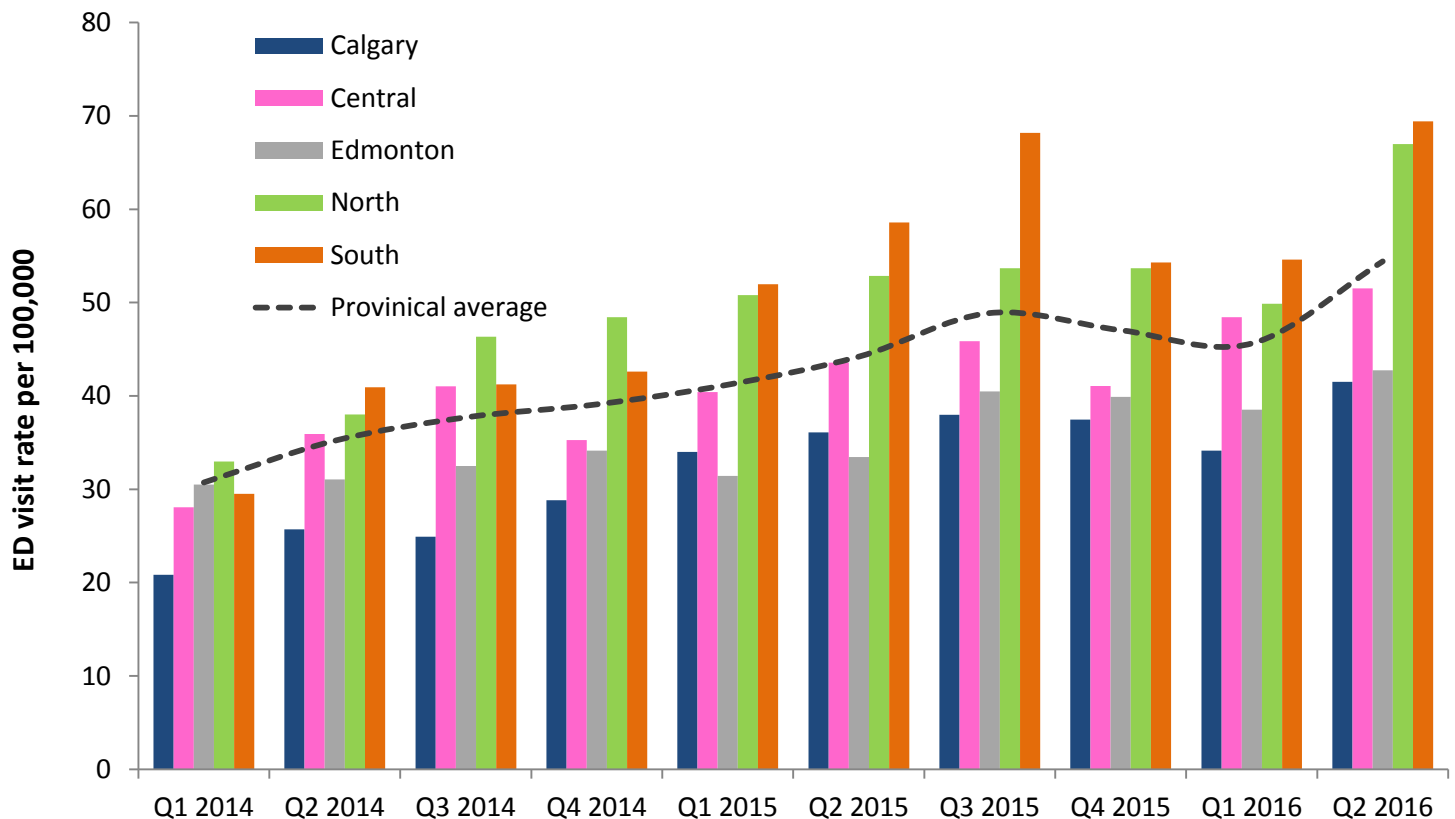


- Among deaths due to an apparent drug overdose related to an opioid other than fentanyl, the majority of health utilization within the 30 days before the individual's date of death was a dispensing of an opioid from a community pharmacy, or for a mental health related issue.
- Among deaths due to an apparent drug overdose related to fentanyl, the majority of health utilization within the 30 days before the individual's date of death was for a mental health or substance abuse related issue.

Note: 72 deaths due to an apparent drug overdose related to fentanyl, and 53 deaths due to an apparent drug overdose related to an opioid other than fentanyl, had their primary healthcare (PHN) number available and are therefore included in this analysis. The above includes the number of individuals who sought one of the services at least once. Individual can be counted in more than one category.

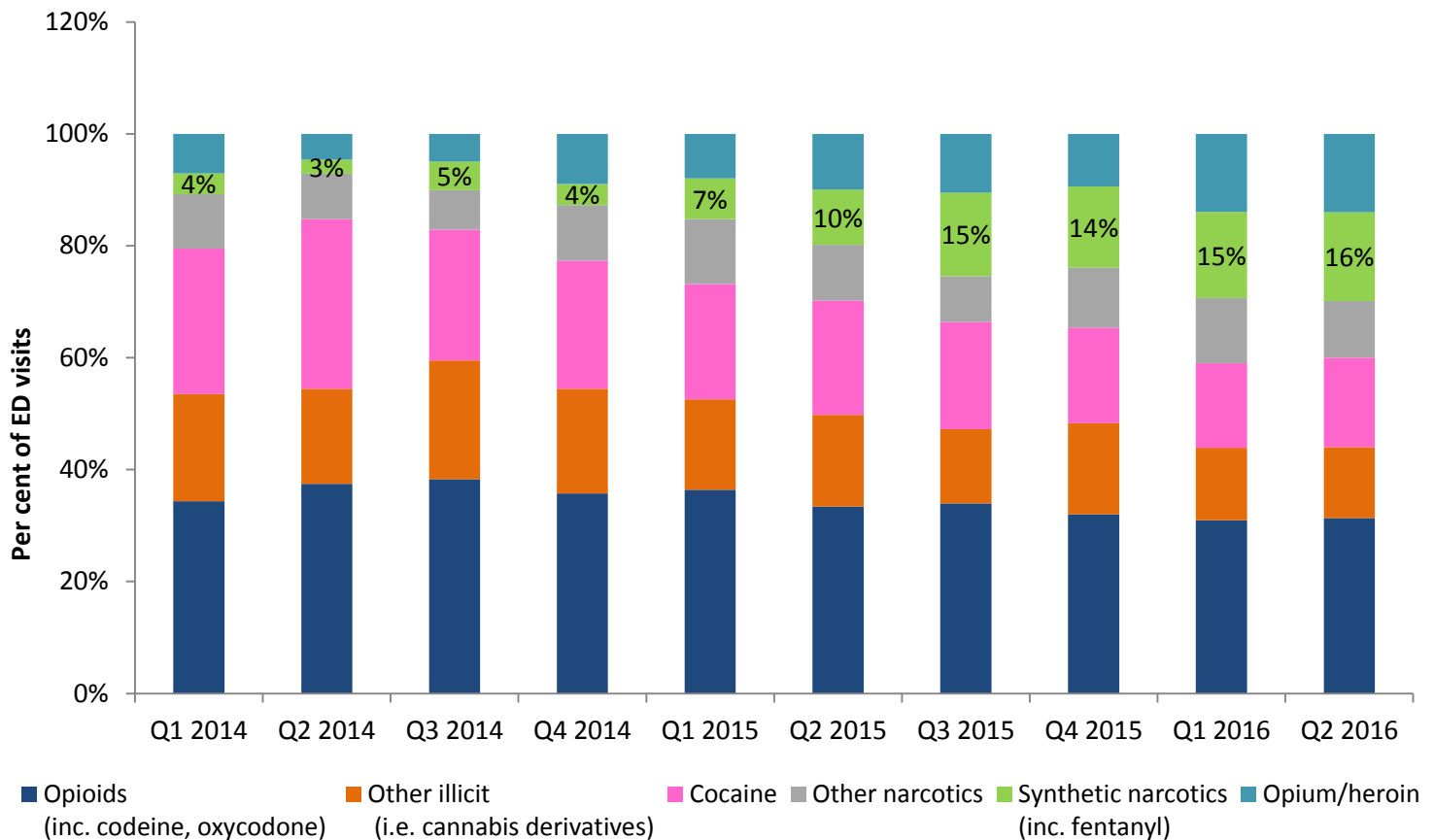
Emergency Department Visits

Figure 8: Rate of emergency department visits related to opioid use and other substances of misuse, by quarter and zone, per 100,000 population. January 1, 2014 - June 30, 2016.



- The *rate* of emergency department visits related to opioid use and substance misuse increased by an average of 7 per cent on a quarterly basis from 2014-2016, and increased by 84 per cent from the first quarter in 2014 to the second quarter in 2016.
- The Edmonton and Calgary zones had the highest *number* of emergency department visits related to opioid use and substance misuse, and on average made up 27 and 29 per cent of visits, respectively.
- The *rate* of emergency department visits related to opioid use and substance misuse in the South Zone was the highest on average; approximately 20 per cent higher than the provincial average.

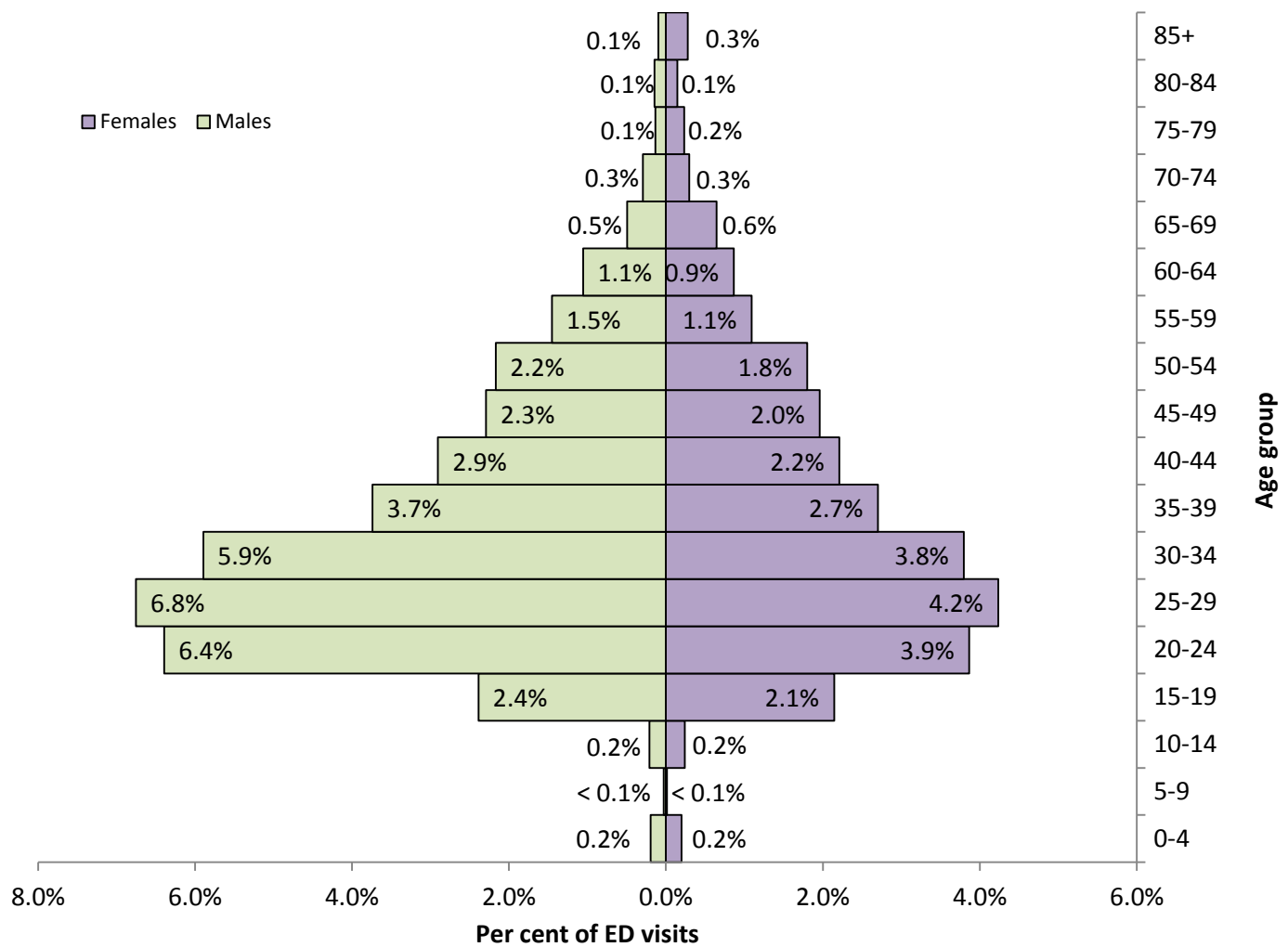
Figure 9: Proportion of emergency department visits related to accidental poisoning by opioids and other substances of misuse, by substance and quarter. January 1, 2014 - June 30, 2016.



- Opioids are consistently involved in a significant number of ED visits for accidental poisoning by opioids and other substances of misuse, on average since January 1, 2014, 35 per cent.
- The number of ED visits for accidental poisoning by opioids and other substances of misuse where fentanyl was involved has increased from four per cent in 2014, to 12 per cent in 2015, and 16 per cent in 2016.

Note: Multiple drugs may be involved in the same ED visit; therefore, visits may be counted more than once. The drug category used to capture the cause may not include all other drug categories involved in the drug poisoning event.

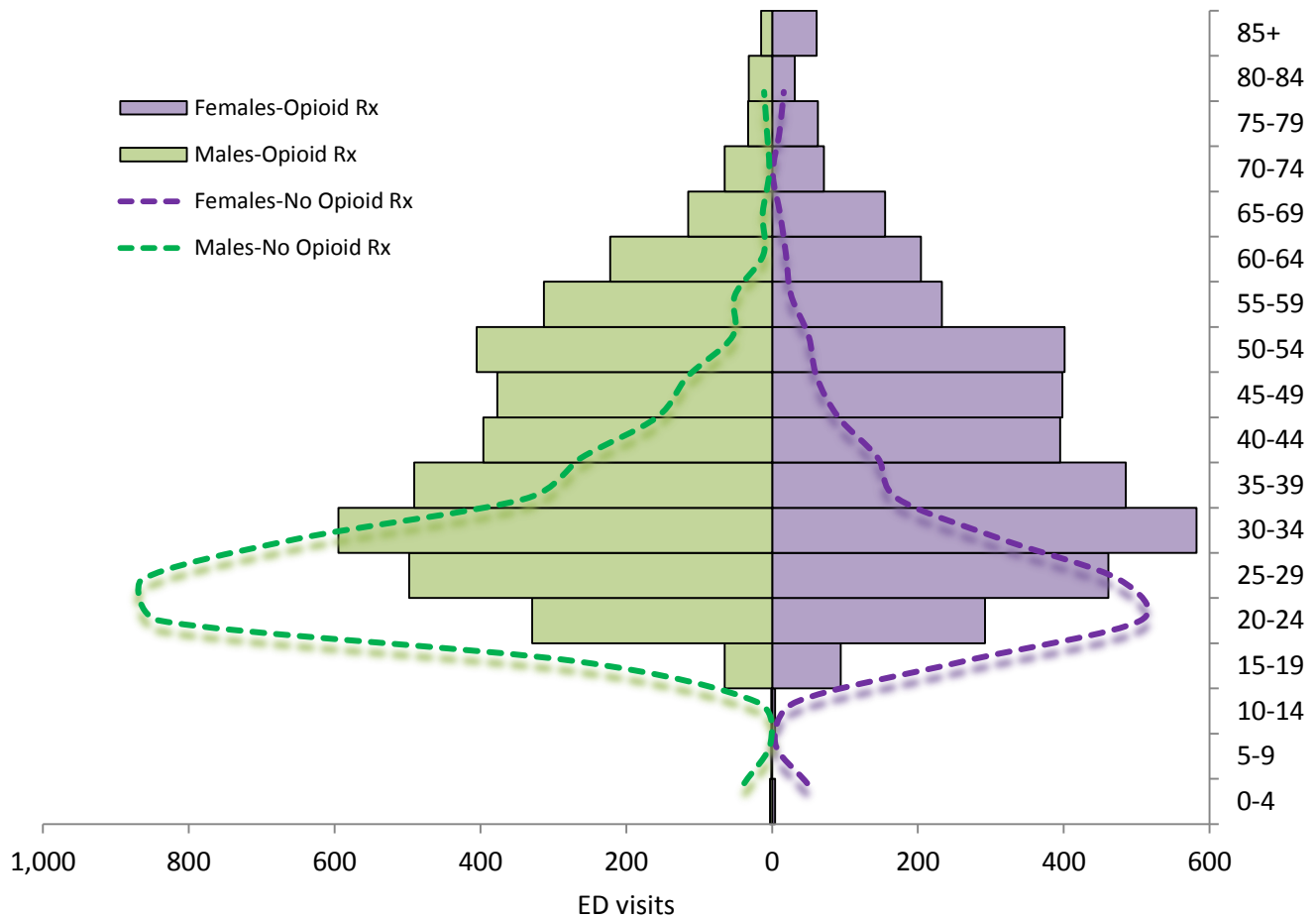
Figure 10: Proportion of emergency department visits related to opioid use and other substances of misuse, by age and sex. January 1, 2014 - June 30, 2016.



- Males had significantly more visits than females across most age groups, most notably in the age groups spanning 20 to 44 years of age.
- For both sexes, persons between 25 and 29 years of age had the most emergency department visits.

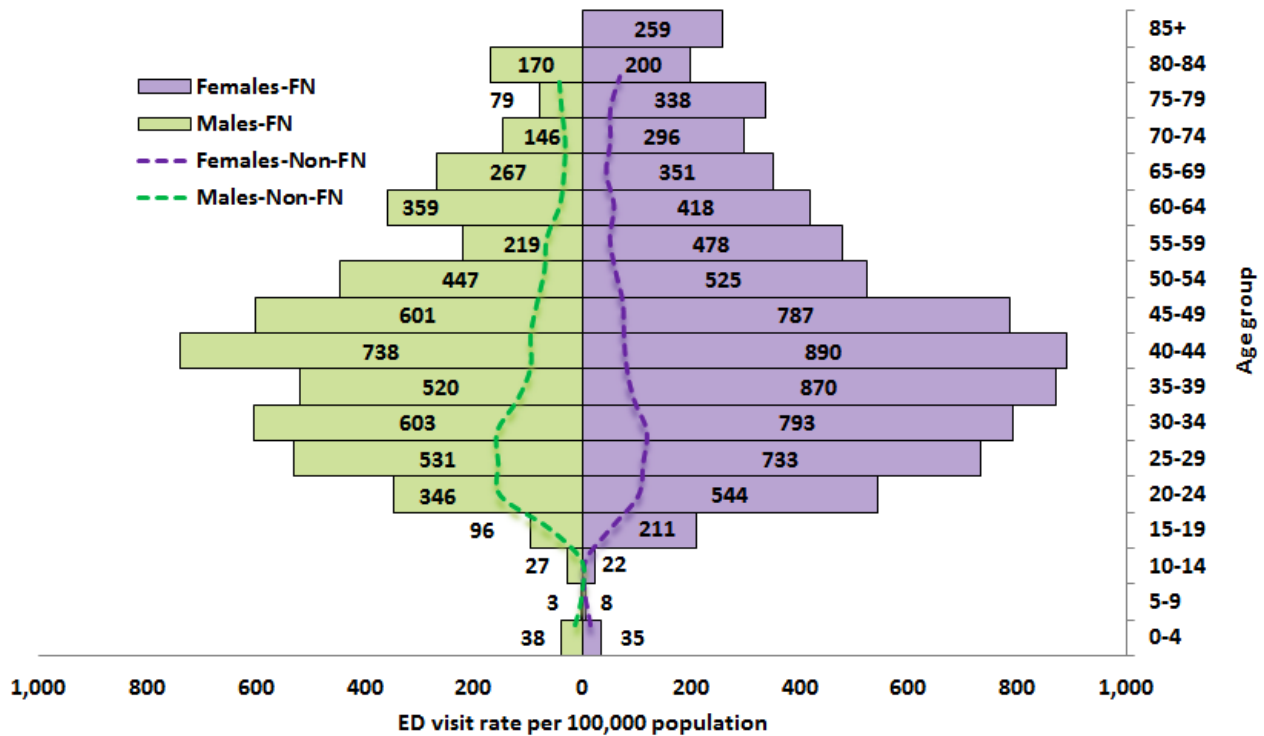
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Figure 11: Emergency department visits related to opioid and narcotic use, by individual's opioid prescription status in the last 12 months, by sex and age. January 1, 2014 - June 30, 2016.



- Males were 1.7 times more likely than females to not have had an opioid prescription within the 12 months before their ED visit. This association is emphasized among those aged 25-29.
- As age increases, individuals presenting to the ED for opioid and narcotic use were more likely to have an opioid prescriptions the year before their ED visit.

Figure 12: Emergency department (ED) visits related to opioids & narcotics among First Nations people in Alberta. ED visit rates by age group, sex, and First Nations status, Alberta, 2011-2015

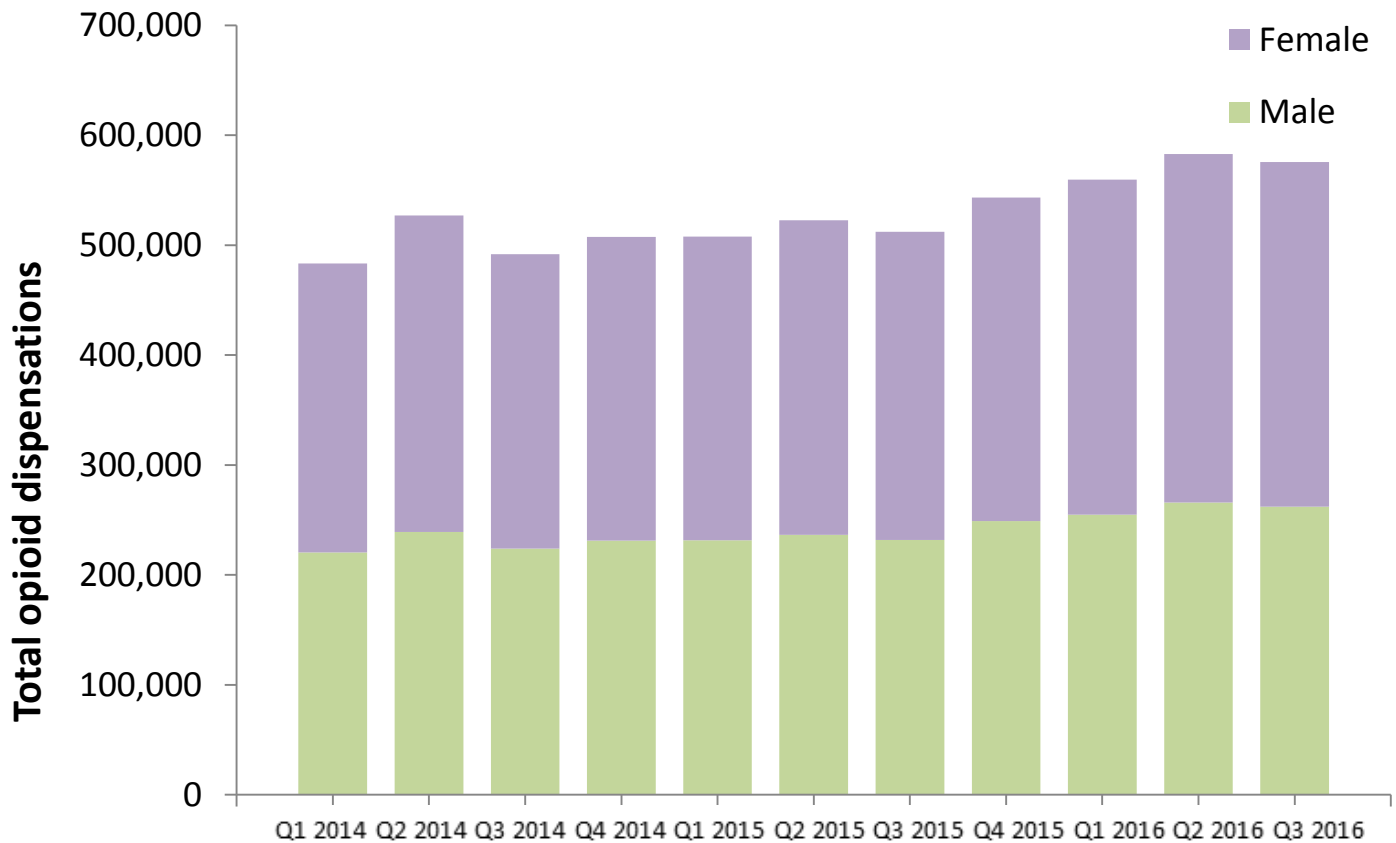


- The overall rate of ED visits related to opioids & narcotics among First Nations persons (380 per 100,000) was approximately five times higher than the rate among Non-First Nations persons (75 per 100,000).
- First Nation females had the highest 5 year averaged ED visit rates across both groups (446 per 100,000), with the highest rates occurring among First Nation females aged 40-44 years. This contrasted with Non-First Nations persons, where males aged 30-34 among this group had the highest rates.
- Since 2011, ED visit rates have increased by 124 per cent among First Nation persons, and by 79 per cent among Non-First Nations persons. The largest increase was among younger aged individuals in both groups, in particular individuals aged 20-29 years.

The above is part of a series of First Nations-specific Health Trends compiled in collaboration by Alberta Health and the Alberta First Nations Information Governance Centre (AFNIGC).

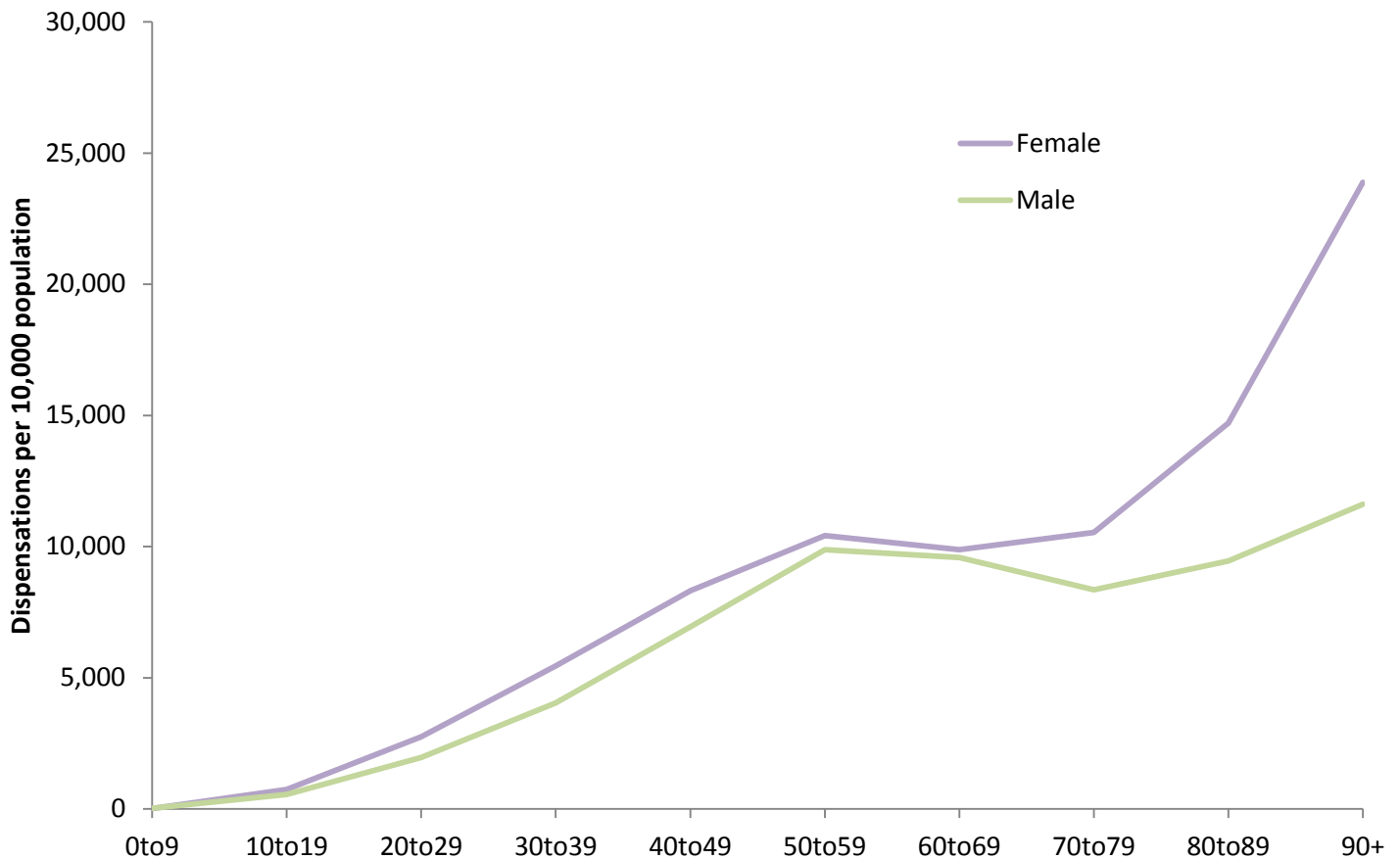
Opioid Dispensing

Figure 13: Total opioid dispensations, by sex. January 1, 2014 - September 30, 2016.



- From January 1, 2014 to September 30, 2016, there was a quarterly average of approximately 529,000 opioid dispensations
- Females were dispensed opioids 1.20 times more than males.

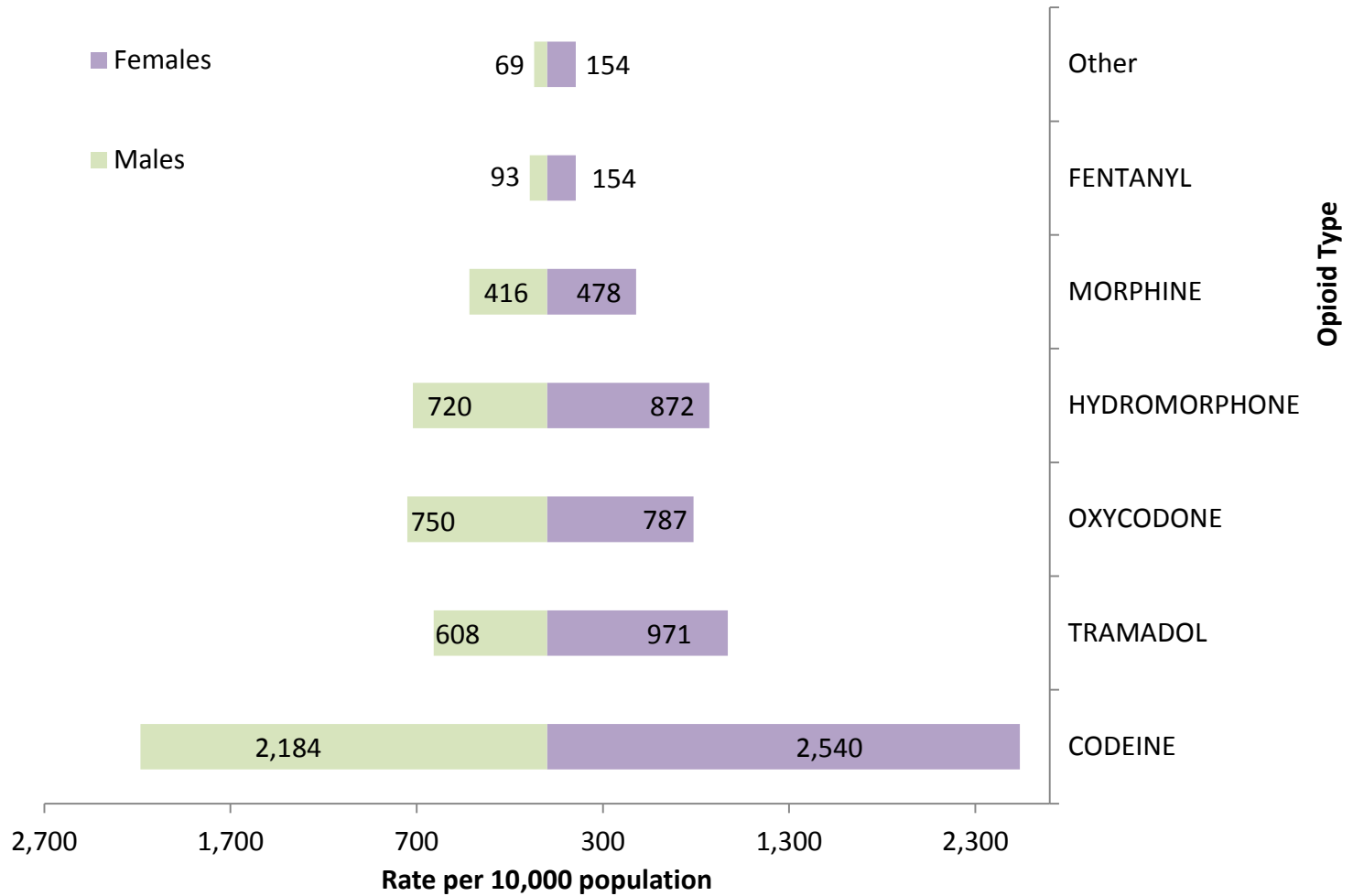
Figure 14: Rate of opioid dispensations, by sex and age. October 1, 2015 - September 30, 2016.



- From October 1, 2015 to September 30, 2016 the dispensation rate for opioids was higher in females than males across all age groups.
- The dispensation rate for opioids was two times higher in females than males among those aged 90 years and older.

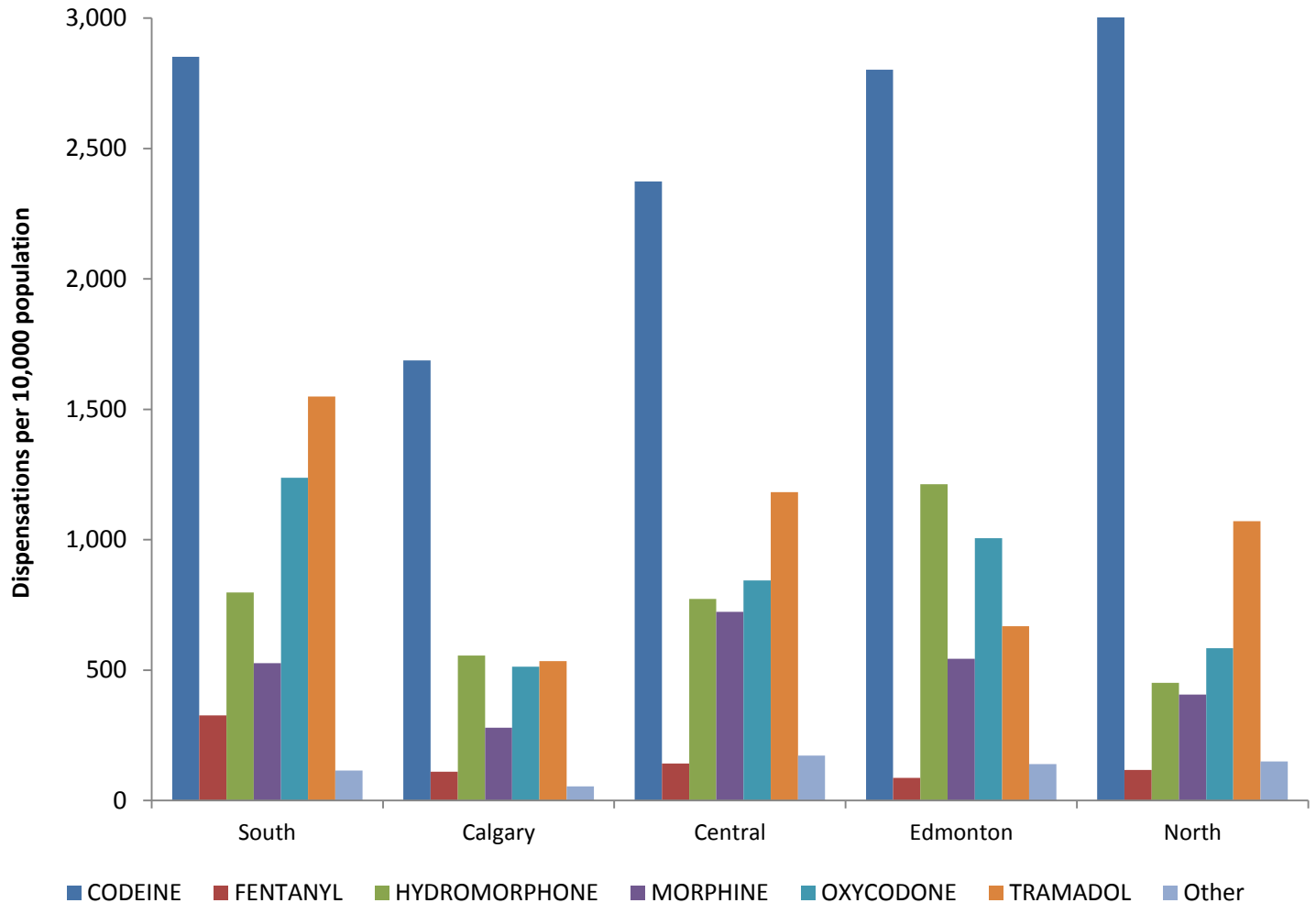
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Figure 15: Opioid dispensation rate, by type and sex. October 1, 2015 - September 30, 2016.



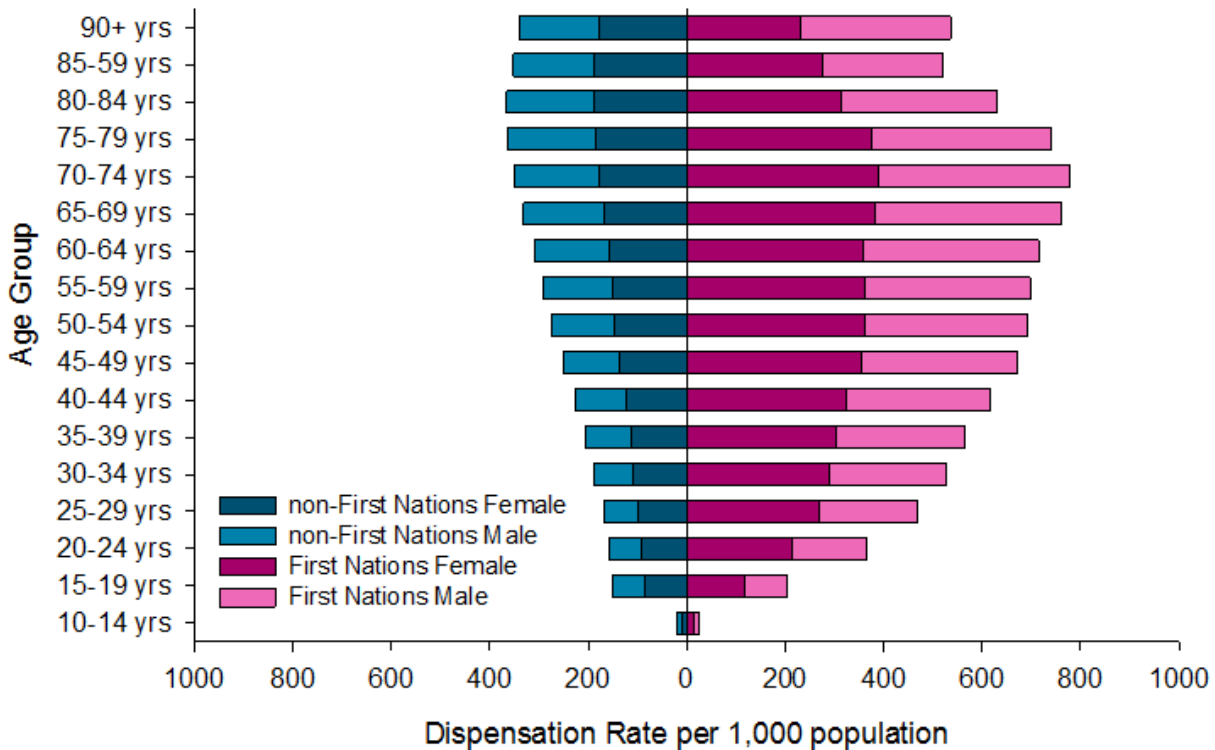
- The rates of fentanyl and tramadol dispensations were 1.7 and 1.6 times higher in females than males in 2015-2016.
- Overall, the rate of opioid dispensations for products containing Codeine (i.e. Tylenol 3 and 4) was the highest across both sexes.

Figure 16: Opioid dispensation rate, by zone and type. October 1, 2015 - September 30, 2016.



- The dispensing rate for codeine was by far the highest throughout the province.
- The South Zone had the overall highest dispensing rates for opioids, on average, 40 per cent higher than the provincial average.

Figure 17: Opioid Dispensations to First Nations people in Alberta: Age-specific opioid drug dispensation rates by age group, sex, and First Nations status, Alberta, 2011-2015

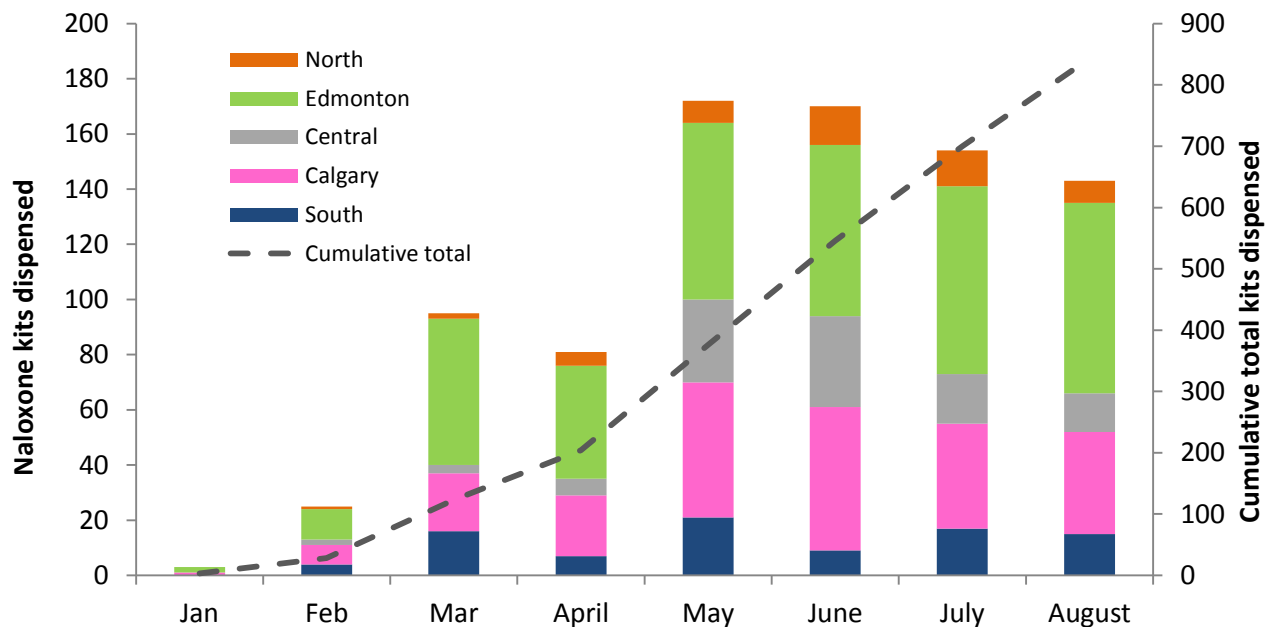


- The overall opioid dispensation rate from 2011-2015 was two times higher for First Nations (187 per 1000 population) compared to non-First Nations peoples (98 per 1000 population).
- Dispensation rates were most different between First Nations and non-First Nations for those between the ages of 25 to 49 years (three times higher for First Nations).
- Females had generally higher opioid dispensation rates than males across all ages; specifically, dispensation rates in First Nations females aged 15 to 59 years were significantly higher than their male First Nations counterparts.

The above is part of a series of First Nations-specific Health Trends compiled in collaboration by Alberta Health and the Alberta First Nations Information Governance Centre (AFNIGC).

Naloxone kit dispensing from community pharmacies

Figure 18: Naloxone kits dispensed through community pharmacies, by zone and month. January 1, 2016-August 30, 2016.



- The Edmonton zone has had the largest volume of Naloxone kits dispensed, with an average of 46 kits per month. The Calgary zone dispensed the next highest volume with an average of 28 kits per month. Across Alberta, 105 kits were dispensed by community pharmacies a month on average.
- The median age of an individual receiving a Naloxone kit was 35 years, and 58 per cent were male.
- There were 735 unique individuals (of the individuals that submitted a primary healthcare number). Of those, 82 had more than one claim.

Note: Only naloxone kits dispensed from community pharmacies are included in this graph. Naloxone kit distribution occurring from non-pharmacy sites is not captured here.

Data Notes

Data Source(s) for Report:

- 1) Alberta Ambulatory Care database (ACCS)
- 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) Alberta Consolidated Laboratory Database
- 6) Scheduled monthly release of OMCE fentanyl & opioid fatality data

Mortality data

Mortality statistics are subject to change as certification of deaths can take up to six months due to the inherent complexity of testing and interpretation of results, which requires specialized knowledge and must be done by medical examiners and the Chief Toxicologist and Deputy Chief Toxicologist. The deaths in this report includes Albertans who died from an apparent drug overdose related to fentanyl.

Emergency Visits:

Emergency visits are defined by the Alberta MIS chart of accounts. Specifically, the 3 Functional Centre Accounts used to define any ACCS 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

Figure 8 & 10: Includes ED visits for all behavioural and mood disorders due to opioid use, and poisoning by all substances-all causes.

Figure 9: Includes ED visits for acute intoxication due to opioid use, and poisoning by all substances-by accidental cause.

Figure 11 & 12: Includes ED visits for all behavioural and mood disorders due to opioid use, poisoning by opioids (including methadone), synthetic narcotics (including fentanyl), and other narcotics-all causes.

All substances include: opium, heroine, methadone, other opioids, synthetic narcotics (including fentanyl), cocaine, other narcotics, cannabis derivatives, LSD, hallucinogens.

All behavioural and mood disorders due to opioid use includes: acute intoxication, harmful use, dependence syndrome, withdrawal state, psychotic disorder, amnesic state, other and unspecified disorders.

Opioid Dispensing:

- 1) The Pharmaceutical Information Network (PIN) Database is used to estimate dispensation rates for the province in 2015 and 2016. The dispensation rates presented are not unique and it is possible that one person could have more than one dispensation of the same drug within a week, month, and/or year. Much of this variability is 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 August 21, 2016.
- 3) Dispensation rates are calculated using the mid-year population size in 2015 and PIN data for the current calendar year. To date, the current calendar year is from August 23, 2015 to August 21, 2016.

Opioids types are defined by ATC Code, as given in the table below.

ATC CODE	DRUG NAME	ATC NAME
N02AA59	CODEINE	CODEINE
N02AA79	CODEINE	CODEINE
N02AB03	FENTANYL	FENTANYL
N02AA03	HYDROMORPHONE	HYDROMORPHONE
N02AA01	MORPHINE	MORPHINE
N02AA05	OXYCODONE	OXYCODONE
N02AA55	OXYCODONE	OXYCODONE
N02AX02	TRAMADOL	TRAMADOL
N02AX52	TRAMADOL	TRAMADOL
N02AA	NATURAL OPIUM ALKALOIDS	OTHER
N02AA02	OPIUM	OTHER
N02AB02	PETHIDINE	OTHER
N02AC04,N02AC54	DEXTROPROPOXYPHENE	OTHER
N02AD01	PENTAZOCINE	OTHER
N02AE01	BUPRENORPHINE	OTHER
N02AF01	BUTORPHANOL	OTHER
N02AF02	NALBUFINE	OTHER
N02AX06	TAPENTADOL	OTHER