



TPP
ALberta

2018 TPP
ALBERTA
ATLAS

TPP Alberta

TPP Alberta (Triplicate Prescription Program) was established in 1986 to monitor the use of certain medications prone to misuse.

The mandate of TPP Alberta is:

- To monitor prescribing, dispensing and utilization practices regarding targeted medications;
- To provide timely and relevant information on targeted medications to prescribers, dispensers, consumers, regulatory bodies and stakeholders;
- To work with stakeholders to enable system level change to ensure appropriate use of targeted medications;
- To ensure efficient and effective functioning of TPP Alberta.

Funded primarily by the province of Alberta, TPP Alberta represents a partnership with program administration by the College of Physicians & Surgeons of Alberta (CPSA). The list of partners includes:

Alberta College of Pharmacy

Alberta Dental Association and College

Alberta Health

Alberta Health Services

Alberta Medical Association

Alberta Pharmacists' Association

Alberta Veterinary Medical Association

College and Association of Registered Nurses of Alberta

College of Physicians & Surgeons of Alberta

College of Podiatric Physicians of Alberta

Yukon Medical Council

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This work was produced by OKAKI™ for TPP Alberta.

Suggested Citation:

Ellehoj E, Eurich D, McDermott C, Samanani S. 2018 TPP Alberta Atlas.
Edmonton, Alberta: The College of Physicians & Surgeons of Alberta; 2019. 44 p.



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About the Atlas

The purpose of this TPP Alberta (Triplicate Prescription Program) Atlas is to provide an overview of provincial TPP Alberta medication utilization for the year 2018. As with the 2017 Atlas, provincial utilization will be summarized for two classes of medications: opioids (including codeine-containing and tramadol-containing medications) and benzodiazepines (including zopiclone and zolpidem). The source of information on medication utilization continues to be community pharmacy dispenses extracted from Alberta's Pharmaceutical Information Network (PIN).

Data used in the Atlas analyses were extracted on June 4, 2019. Tramadol was added to the TPP in 2018 as a monitored drug. Included in the 2018 Atlas analyses are tramadol dispenses from November 30, 2018 onward. Tramadol contributed 24,615 prescriptions, 14,133 patients, 151 prescribers and 2 pharmacies to the 2018 totals for each category. This would cause a small increase in opioid consumption rates for 2018 compared to previous years. Historical tramadol data were not available at the time of analysis but will be included in future editions of the Atlas.

New to the 2018 Atlas are five year trends for each of the top five Pharmacy Local Aggregate Geographies (PhLAGs) for each measure. Age and sex standardized population rates are used throughout the Atlas. PhLAGs now show, and are sorted by, their populations in the graphs.

TPP Alberta Data Source

2018 PIN data were used for the analyses. On January 1, 2013, TPP Alberta officially switched from physical triplicate prescriptions to PIN as the primary data source for prescription monitoring. Compounded opioid medications and prescriptions for 'office use' are not reliably captured in PIN. The primary source of methadone information switched from secure prescriptions to PIN data in August 2015, when it was found that virtually all methadone, which was previously prescribed and dispensed as a compound, switched to Methadose™, a commercially made liquid, and Metadol, with Drug Identification Numbers (DINs) captured in PIN. Other gaps within PIN data include dispensing information from hospital pharmacies and facilities such as hospices.

All prescriber types authorized to prescribe controlled drugs in Alberta and monitored via TPP Alberta are included in the analyses. In 2018, physicians prescribed 84.7% of all opioid prescriptions (including codeine and tramadol) and 96.6% of all benzodiazepine prescriptions (including z-drugs). As PIN records consist of dispenses (not prescriptions), the number of prescriptions were measured using the unique combination of pharmacy license and prescription numbers. PIN prescription numbers were used for missing pharmacy numbers. PIN data

do not discriminate between medications actually dispensed from those awaiting release to the patient. As pharmacy records may be modified or reversed before the actual dispense, PIN data are dynamic. In an effort to capture actual dispensing as closely as possible, data were used from June 4, 2019, by which time most modifications and reversals would have occurred.

Pharmacy Local Aggregated Geography

Pharmacy local aggregated geographies (PhLAGs) merge local geographies with neighboring geographies where their residents are dispensed medications, eliminating previous issues with utilization rates in local geographies being artificially low or high. In this Atlas, drug utilization rates count patients in the numerator in each PhLAG where they received prescription dispenses. The merging of geographies has primarily occurred in smaller cities such as Red Deer, Lethbridge, Medicine Hat, Grande Prairie, Fort McMurray, Spruce Grove, etc. The total number of geographic units has been reduced from 132 local geographies to 106 PhLAGs. The method used to develop PhLAGs is consistent with those used to develop other Alberta geographic aggregations used in the health system, like subzones. Appendix A summarizes the PhLAGs. Rural PhLAG names include various municipality types, such as County, Planning and Special Area, and Municipal District.

Analytic Drug Class

Analyses of medication utilization were carried out by analytic drug classes, based on the main ingredient of interest within each drug. In the case where a drug had two ingredients of interest, one was chosen as the main ingredient. The two analytic drug classes included in the Atlas are opioids and benzodiazepines. Opioids consist of all opioids and some non-opioid drugs (with a potential for misuse or harm) currently requiring a secure prescription. Consistent with the 2015-17 Atlases, codeine-containing medications which were dispensed from a regular prescription or available over the counter (8 mg codeine per solid dosage form and 20mg/30 ml for liquid formulations) were included in the opioid analytic class. Benzodiazepines consist of all benzodiazepines and z-drugs currently monitored by TPP Alberta. Appendix B shows 2018 TPP prescriptions for opioids by main ingredient and route of administration. Appendix C shows 2018 TPP prescriptions for benzodiazepines by main ingredient and route of administration.

Atlas Measures

TPP utilization is presented in this Atlas using population counts and rates. Age and sex standardized rates were calculated using 2017 Alberta PhLAG population estimates. Patient age was calculated at July 1, 2018.

Opioids

For the opioid analytic class, oral morphine equivalents (OME) were used as the standard measure of dose. Drug OME values were obtained primarily from the Centers for Disease Control¹, the previous Canadian Guideline for Safe and Effective Use of Opioids for Chronic Non-Cancer Pain² and the Compendium of Pharmaceuticals and Specialties³. Some drug products within the opioid analytic class have an OME of zero (i.e., they do not contribute towards a patient's total measured dose of opioids). These include compound products (because dose and route were unknown), methadone (used for treatment of opioid dependence and pain), buprenorphine (used for treatment of opioid dependence), naloxone (used for treatment of opioid overdose), and other drugs for which the OME was unknown. Drugs with an OME of zero still contribute to measures examining use of multiple ingredients.

The OME for a specific drug dispense was calculated as follows:

$$\text{Dispense OME} = \text{strength} \times \text{quantity} \times \text{drug OME}$$

A patient's total OME per day was calculated as follows:

$$\text{Patient OME/day} = \frac{\text{the sum of the OME for all drug dispenses to the patient in the time period analyzed}}{\text{days in the time period analyzed}}^4$$

Population utilization of opioids was presented using the three measures below.

$$\text{Opioid consumption} = \frac{\text{the sum of all patient OME/day in the time period analyzed}}{1000 \text{ population}}$$

$$\text{Opioid patients} = \frac{\text{the number of patients who received at least one opioid prescription in the time period analyzed}}{1000 \text{ population}}$$

$$\text{High dose opioid patients} = \frac{\text{the number of patients who received 90 OME/day or greater in the time period analyzed}}{1000 \text{ population}}$$

The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain set a watchful opioid dose of 90 OME/day⁵. This threshold is congruent with CDC Guidelines published in 2016⁶.

Benzodiazepines

The defined daily dose (DDD), as defined by the World Health Organization (WHO), is the assumed average daily maintenance dose for a drug used for its main indication in adults⁷. Drug DDD values were obtained primarily from the WHO DDD/ATC Index⁸. The number of DDDs (i.e., the dose in multiples of the DDD) was used as the standard measure of dosing across all drugs and routes of administration within the benzodiazepines (BDZ) analytic class.

The DDDs for a specific drug dispense were calculated as follows:

$$\text{Dispense DDDs} = \frac{\text{strength} \times \text{quantity}}{\text{drug DDD}}$$

A patient's total DDDs was calculated as follows:

$$\text{Patient DDDs} = \frac{\text{the sum of the DDDs for all drug dispenses to the patient in the time period analyzed}}{\text{days in the time period analyzed}}^4$$

Population utilization of BDZ was presented using the four measures below. Population rates were age and sex standardized for comparison between pharmacy local aggregate geographies.

$$\text{BDZ consumption} = \frac{\text{the sum of all patient DDDs received in the time period analyzed}}{1000 \text{ population}}$$

$$\text{BDZ patients} = \frac{\text{the number of patients who received at least one BDZ prescription in the time period analyzed}}{1000 \text{ population}}$$

$$\text{High dose BDZ patients} = \frac{\text{the number of patients who received 2 DDDs}^9 \text{ or greater in the time period analyzed}}{1000 \text{ population}}$$

$$\text{Elderly BDZ patients} = \frac{\text{the number of patients 65 years and older who received at least one BDZ prescription in the time period analyzed}}{1000 \text{ elderly population}}$$

¹ National Center for Injury Prevention and Control. CDC compilation of benzodiazepines, muscle relaxants, stimulants, zolpidem, and opioid analgesics with oral morphine milligram equivalent conversion factors, 2016 version. Atlanta, GA: Centers for Disease Control and Prevention; 2016. Available at: http://www.pdmpassist.org/pdf/BJA_performance_measure_aid_MME_conversion.pdf.

² http://nationalpaincentre.mcmaster.ca/opioid/cgop_b_app_b08.html

³ <https://222.e-therapeutics.ca/login.action?language=en>

⁴ "Days in time period analyzed" is used because the "days of supply" information in the dispense record is often inaccurate within PIN data

⁵ 2017 Canadian Guideline for Opioids for Chronic Pain. Available at: <https://nationalpaincentre.mcmaster.ca/guidelines.html>

⁶ Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016. MMWR Recomm Rep 2016;65(No. RR-1):1-49. DOI: <http://dx.doi.org/10.15585/mmwr.rr6501e1>

⁷ Norwegian Institute of Public Health. WHOCC – Definition and General Considerations [Internet]. WHO Collaborating Centre for Drug Statistics Methodology. 2009 [cited 2014 Oct 7]. Available from: http://www.whooc.no/ddd/definition_and_general_considera/

⁸ http://www.whooc.no/atc_ddd_index/

⁹ For the purpose of this Atlas, 2 DDDs was used as the watchful dose of BDZ

Medication Use – Opioids

Table 1. Utilization of Prescription Opioids in Alberta, 2014-2018

Year	Prescriptions	Patients	Prescribers	Pharmacies	Population	OME per day per 1000 Population	Patients per 1000 Population	Patients ≥90 OME per 1000 Population
2014	1,746,249	562,639	12,625	1,366	4,121,532	1,567	137.7	3.5
2015	1,753,219	563,555	13,311	1,370	4,196,192	1,532	135.3	3.5
2016	1,814,765	577,905	14,170	1,413	4,252,720	1,488	136.6	3.5
2017	1,702,190	547,862	14,570	1,376	4,285,997	1,277	127.8	3.0
2018	1,554,024*	516,670*	14,337*	1,464*	4,306,822	1,119	120.0	2.6

5 year trend

* Tramadol data contribute 24,615 prescriptions, 14,133 patients, 151 prescribers, and 2 pharmacies to the 2018 totals for each category.

Table 2. Opioid Patients by Age and Sex, 2018*

Age Group	Females	Percent	Males	Percent	Total Patients	Percent	Unknown Sex
0-9	288	0.1	404	0.2	692	0.1	
10-19	9,036	3.3	7,922	3.3	16,958	3.3	
20-29	31,768	11.5	25,674	10.7	57,442	11.1	1
30-39	46,355	16.7	37,184	15.5	83,539	16.2	13
40-49	46,856	16.9	40,681	17.0	87,537	16.9	19
50-59	51,097	18.4	47,190	19.7	98,287	19.0	4
60-69	45,207	16.3	43,963	18.4	89,170	17.3	3
70-79	27,279	9.8	24,052	10.0	51,331	9.9	
80-89	14,121	5.1	10,222	4.3	24,343	4.7	
90+	5,134	1.9	2,176	0.9	7,310	1.4	
Total	277,152	100.0	239,502	100.0	516,694	100.0	

*11 female patients of unknown age, 34 male patients of unknown age

Figure 1. Opioid Patients by Age and Sex, 2018

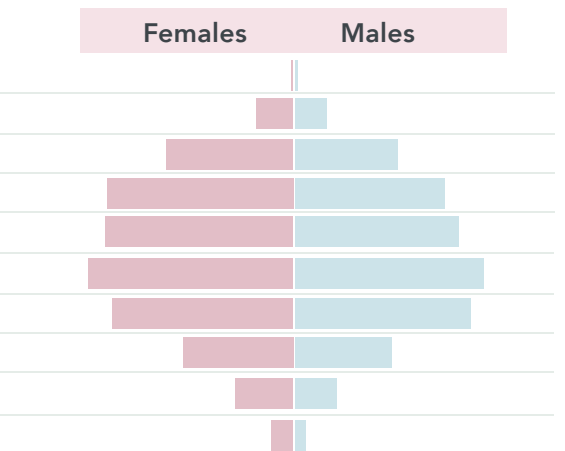
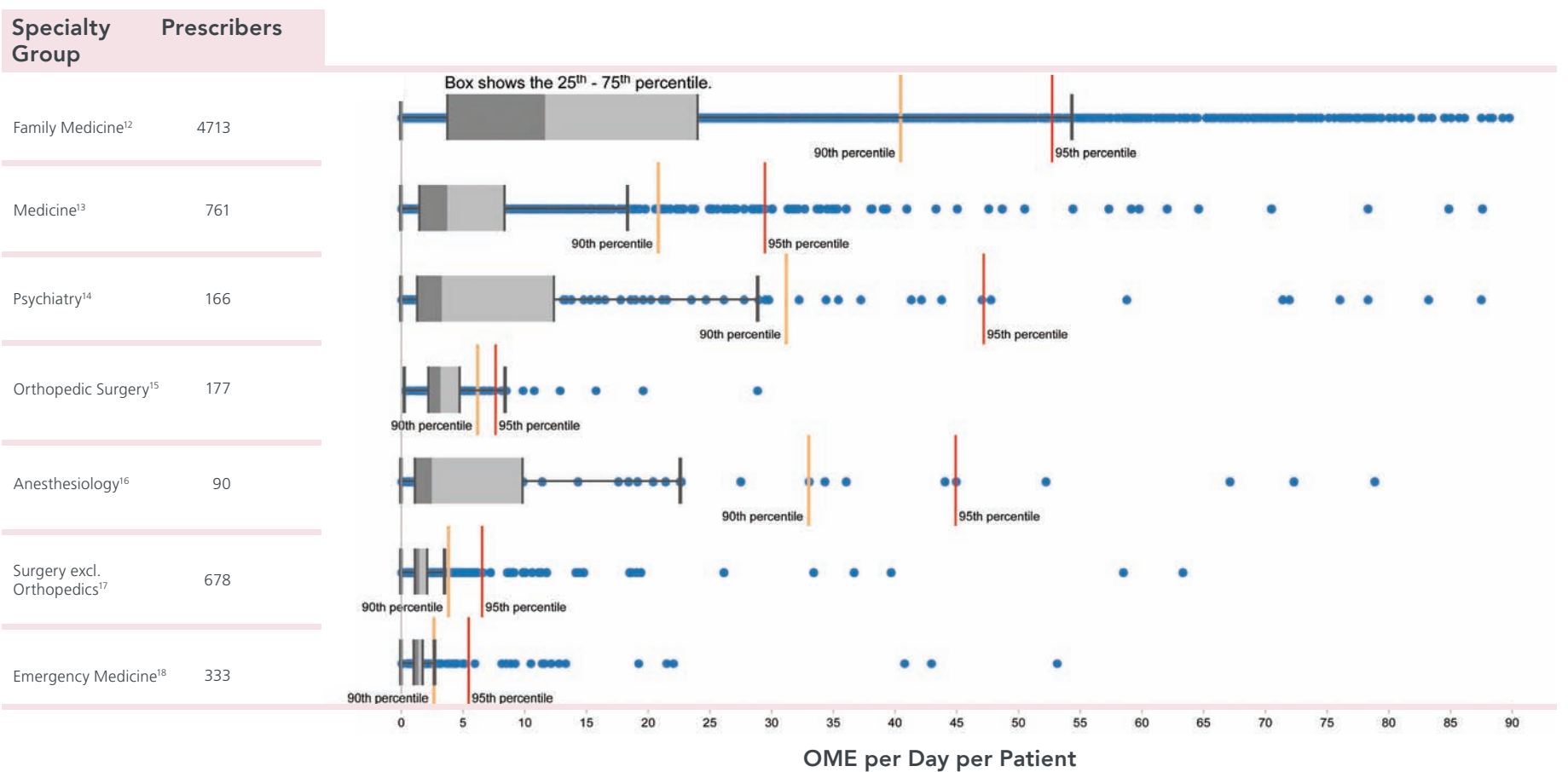


Table 3. Opioid Prescriptions, Patients, Prescribers and Pharmacies by Prescriber Type, 2018

Prescriber Type	Prescriptions	Patients	Prescribers	Pharmacies
Physician	1,305,823	412,794	10,423	1,464
Pharmacist	123,700	54,252	3,147	1,251
Dentist	96,569	81,875	397	1,408
Nurse Practitioner	15,807	6,483	369	861

Figure 2. OME per Day per Patient by Specialty Group¹¹, 4th Quarter, 2018



¹¹ Not all clinical specialties were assigned to a comparison group.

¹² Family Medicine specialty group includes family medicine, family medicine (sport and exercise medicine) and general practice.

¹³ Medicine specialty group includes cardiology, endocrinology & metabolism, gastroenterology, general internal medicine, hematology, nephrology, neurology, physical medicine & rehabilitation, respirology and rheumatology.

¹⁴ Psychiatry specialty group includes psychiatry.

¹⁵ Orthopedic Surgery specialty group includes orthopedic surgery.

¹⁶ Anesthesiology specialty group includes anesthesiology and family medicine (family practice anesthesia).

¹⁷ Surgery excluding Orthopedics specialty group includes cardiovascular & thoracic surgery, general surgery, neurosurgery, obstetrics & gynecology, ophthalmology, otolaryngology - head and neck surgery, plastic surgery, thoracic surgery, urology and vascular surgery.

¹⁸ Emergency Medicine specialty group includes emergency medicine and family medicine (emergency medicine).

Table 4. Opioid Prescriptions by Main Ingredient, 2014-2018

Main Ingredient	2014	2015	2016	2017	2018	2018	5 Year Trend
Codeine	1,228,749	1,195,366	1,202,615	1,099,237	940,426		
Oxycodone	274,327	286,196	302,914	273,839	241,184		
Hydromorphone	85,476	100,246	120,615	123,087	117,822		
Buprenorphine	16,231	23,375	36,762	54,382	73,299		
Methadone Hydrochloride	40,815	48,194	53,289	60,565	70,264		
Morphine	65,350	65,215	65,744	61,054	59,772		
Tramadol*					24,614		
Fentanyl	21,235	22,115	21,505	19,824	17,606		
Tapentadol	5,347	4,666	4,017	3,638	3,368		
Butalbital	2,990	2,805	2,726	2,491	2,274		
Meperidine	3,741	3,172	2,835	2,361	1,989		
Hydrocodone	1,082	1,007	943	728	580		
Butorphanol	484	480	438	385	326		
Opium		1		294	261		
Pentazocine	313	296	272	225	176		
Ketamine	46	34	53	34	46		
Normethadone Hydrochloride	35	28	32	23	14		
Sufentanil	32	11	9	3	5		
Remifentanil		1	1	2	1		

Table 5. Opioid Patients by Main Ingredient, 2014-2018

Main Ingredient	2014	2015	2016	2017	2018	2018	5 Year Trend
Codeine	499,748	495,388	503,472	474,210	428,080		
Oxycodone	69,664	71,759	74,041	63,357	54,440		
Hydromorphone	20,116	24,280	29,662	31,267	33,005		
Tramadol*					22,147**		
Morphine	15,809	16,263	16,464	15,273	14,535		
Buprenorphine	4,419	5,587	6,673	7,760	9,618		
Methadone Hydrochloride	4,693	5,028	5,363	5,702	6,241		
Fentanyl	5,121	5,164	4,743	4,351	4,027		
Tapentadol	1,563	1,278	1,001	886	805		
Butalbital	1,078	992	908	831	753		
Meperidine	1,092	986	863	691	552		
Hydrocodone	823	744	704	518	400		
Opium		1		193	173		
Butorphanol	121	115	99	92	73		
Pentazocine	75	63	65	51	40		
Ketamine	10	13	18	12	19		
Normethadone Hydrochloride	34	26	28	21	14		
Sufentanil	6	3	3	2	3		
Remifentanil		1	1	2	1		

Table 6. Opioid Prescribers by Main Ingredient, 2014-2018

Main Ingredient	2014	2015	2016	2017	2018	2018	5 Year Trend
Codeine	12,218	12,803	13,544	13,803	13,365		
Oxycodone	5,077	5,425	5,941	5,931	5,927		
Hydromorphone	4,054	4,556	5,143	5,492	5,665		
Tramadol*					5,009†		
Morphine	3,792	3,949	4,231	4,234	4,269		
Buprenorphine	1,310	1,518	1,727	1,796	2,091		
Fentanyl	2,095	2,126	2,181	2,057	1,944		
Methadone Hydrochloride	433	456	522	592	742		
Butalbital	759	739	698	661	626		
Tapentadol	622	619	574	517	470		
Meperidine	770	701	618	508	449		
Hydrocodone	423	415	383	329	255		
Opium		1		182	166		
Butorphanol	134	133	122	111	87		
Pentazocine	63	57	70	58	47		
Ketamine	11	13	19	15	13		
Normethadone Hydrochloride	19	16	18	16	11		
Sufentanil	8	3	5	2	4		
Remifentanil		1	1	1	1		

* Tramadol data available from Nov 30, 2018 only.

** 22,147 patients received Tramadol plus at least one other opioid. See Table 1. 14,133 patients received Tramadol only

† 5009 Prescribers prescribed Tramadol plus at least one other opioid. See Table 1. 151 prescribers prescribed Tramadol only.

Medication Use – Opioids

Table 7. Opioid Patients and Associated Prescribers by Dose, 2014-2018

Patients

Patient Dose*	2014		2015		2016		2017		2018†	
	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent
Total Patients	562,639		563,555		577,905		547,862		516,670	
≥ 50 OME/day	23,311	4.1	24,095	4.3	24,693	4.3	22,325	4.1	20,213	3.9
≥ 90 OME/day	14,365	2.6	14,497	2.6	14,680	2.5	12,962	2.4	11,215	2.2
≥ 200 OME/day	6,663	1.2	6,625	1.2	6,500	1.1	5,451	1.0	4,565	0.9
≥ 400 OME/day	2,621	0.5	2,527	0.4	2,382	0.4	1,898	0.3	1,529	0.3
≥ 600 OME/day	1,296	0.2	1,227	0.2	1,144	0.2	863	0.2	695	0.1
≥ 800 OME/day	759	0.1	681	0.1	602	0.1	448	0.1	379	0.1
≥ 1,000 OME/day	499	0.1	430	0.1	373	0.1	277	0.1	235	0.0
≥ 2,000 OME/day	75	0.0	67	0.0	48	0.0	40	0.0	26	0.0

Prescribers

Patient Dose*	2014		2015		2016		2017		2018†	
	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent
Total Prescribers	12,625		13,311		14,170		14,570		14,337	
≥ 50 OME/day	7,401	58.6	7,582	57.0	7,916	55.9	7,535	51.7	6,658	46.4
≥ 90 OME/day	6,210	49.2	6,218	46.7	6,499	45.9	5,973	41.0	5,077	35.4
≥ 200 OME/day	4,344	34.4	4,256	32.0	4,327	30.5	3,682	25.3	3,170	22.1
≥ 400 OME/day	2,439	19.3	2,343	17.6	2,256	15.9	1,743	12.0	1,416	9.9
≥ 600 OME/day	1,474	11.7	1,388	10.4	1,323	9.3	918	6.3	739	5.2
≥ 800 OME/day	939	7.4	812	6.1	735	5.2	516	3.5	447	3.1
≥ 1,000 OME/day	663	5.3	513	3.9	485	3.4	317	2.2	306	2.1
≥ 2,000 OME/day	98	0.8	74	0.6	53	0.4	52	0.4	37	0.3

* can include prescriptions from multiple prescribers

† Tramadol data are included in 2018 data. See Table 1.

Figure 3. Opioid Patients by Dose, 2014-2018

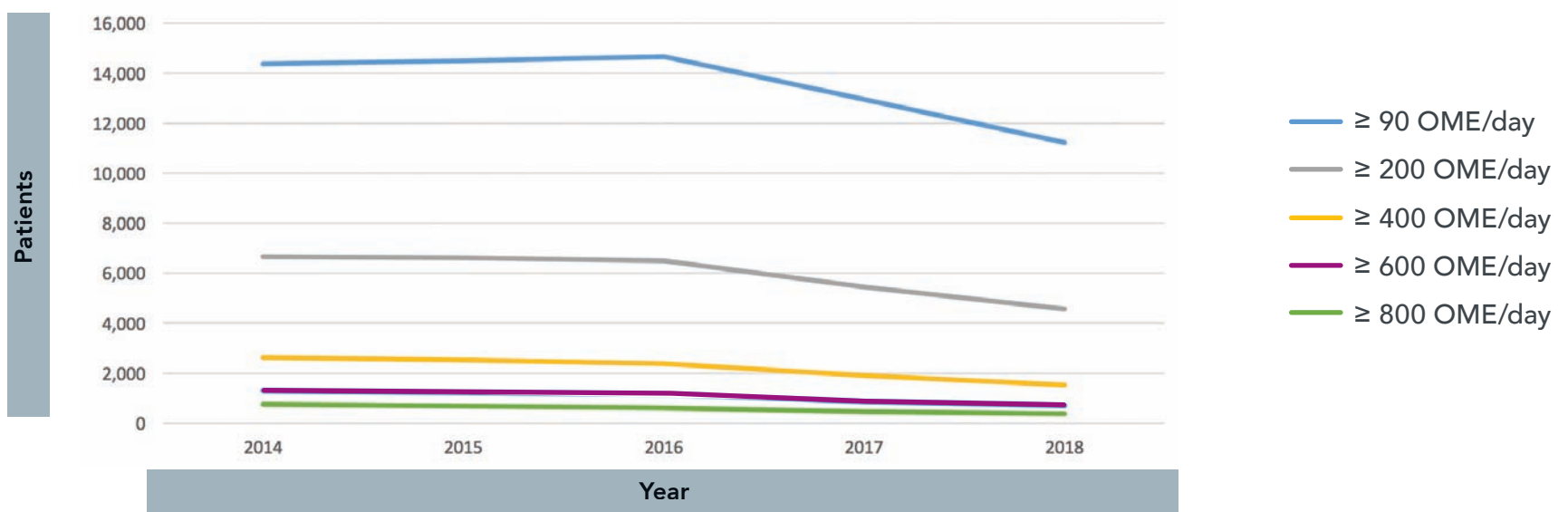


Figure 4. Opioid Prescribers by Dose, 2014-2018

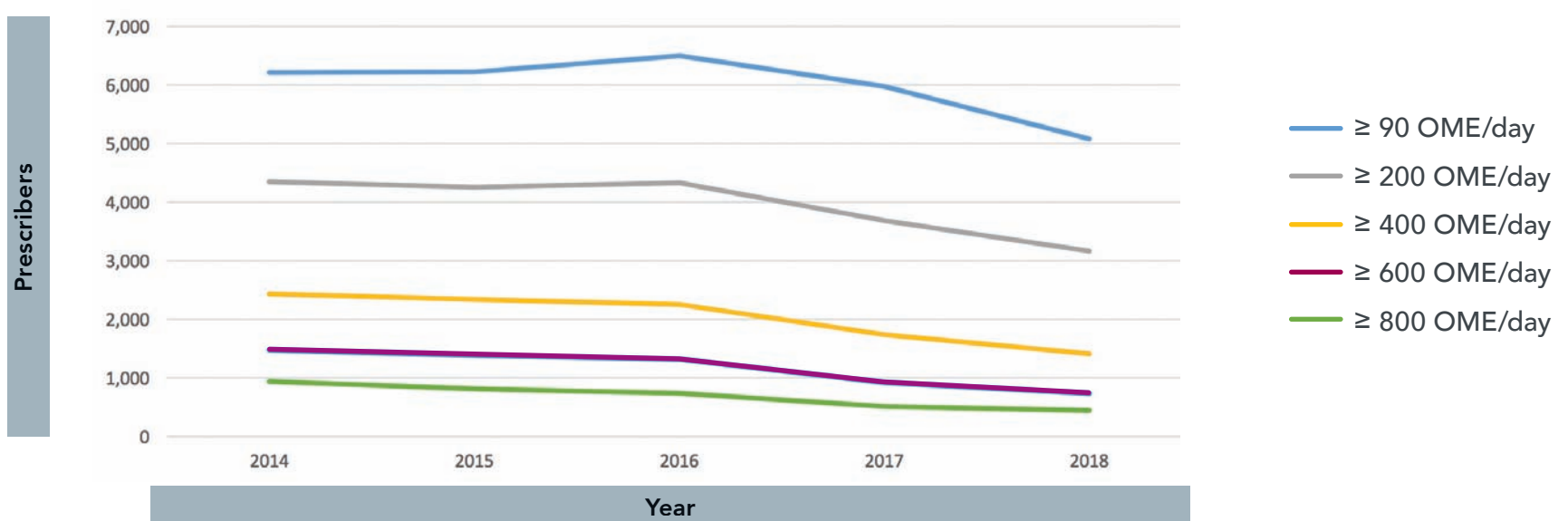


Table 8. Opioid Patients and Associated Prescribers by Number of Ingredients, 2014-2018

Patients

Number of Ingredients	2014		2015		2016		2017		2018*		2018	5 Year Trend
	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent		
Total Patients	562,639		563,555		577,905		547,862		516,670			
2+	52,305	9.3	54,386	9.7	56,458	9.8	49,194	9.0	49,712	9.6		
3+	7,779	1.4	8,115	1.4	8,164	1.4	6,941	1.3	7,298	1.4		
4+	1,367	0.2	1,401	0.2	1,351	0.2	1,076	0.2	1,085	0.2		
5+	240	0.0	220	0.0	215	0.0	138	0.0	146	0.0		
6+	37	0.0	20	0.0	23	0.0	20	0.0	15	0.0		

Prescribers

Number of Ingredients	2014		2015		2016		2017		2018*		2018	5 Year Trend
	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent		
Total Prescribers	12,625		13,311		14,170		14,570		14,337			
2+	9,587	75.9	10,122	76.0	10,734	75.8	10,704	73.5	10,444	72.8		
3+	6,372	50.5	6,753	50.7	6,952	49.1	6,610	45.4	6,438	44.9		
4+	2,894	22.9	2,904	21.8	3,063	21.6	2,538	17.4	2,467	17.2		
5+	699	5.5	777	5.8	779	5.5	564	3.9	514	3.6		
6+	127	1.0	90	0.7	99	0.7	85	0.6	68	0.5		

* Tramadol data are included in 2018 data. See Table 1.

Table 9. Opioid Patients by Number of Prescribers, 2014-2018

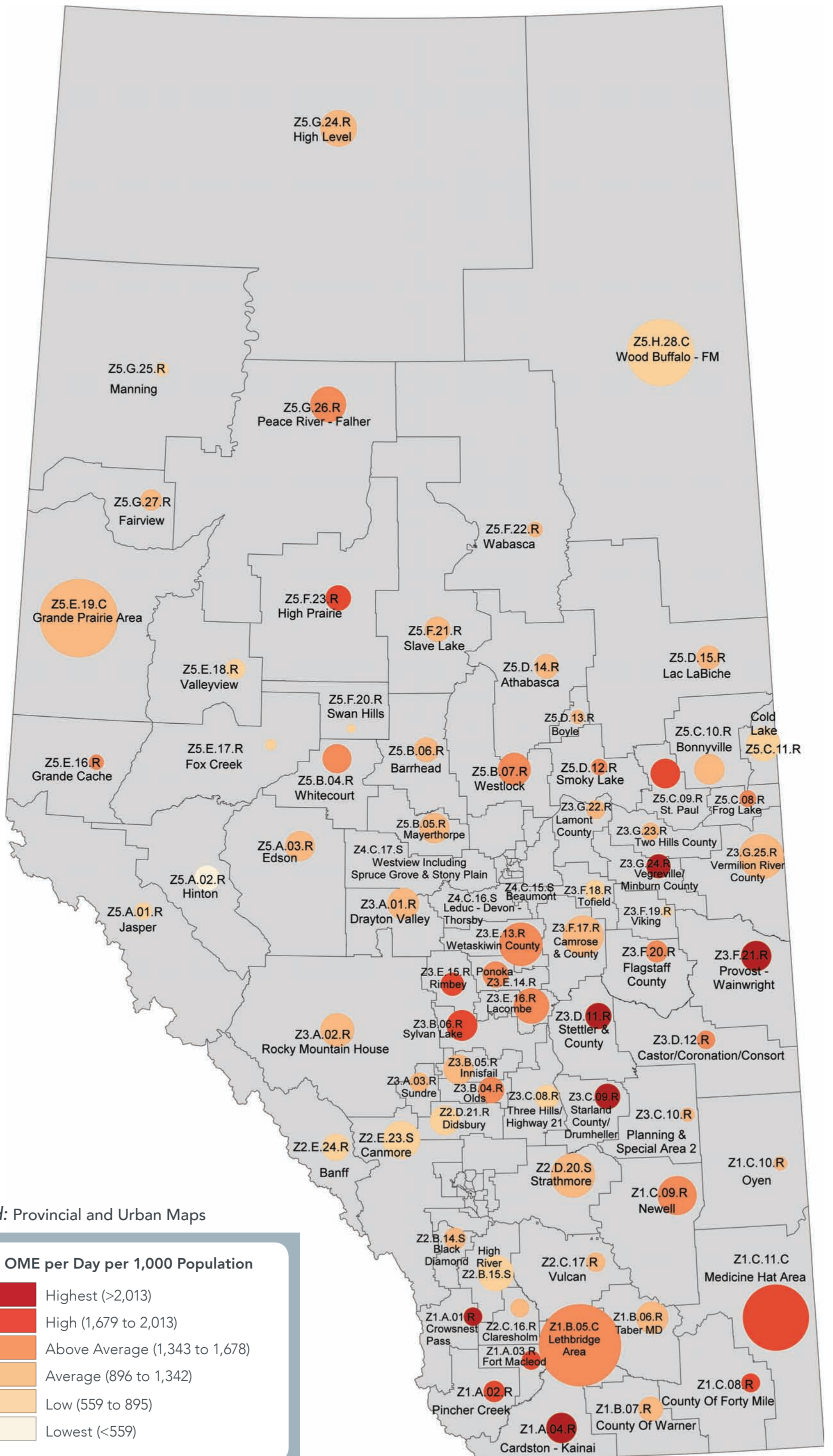
Number of Prescribers	2014		2015		2016		2017		2018*		2018	5 Year Trend
	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent		
Total Patients	562,639		563,555		577,905		547,862		516,670			
2+	163,368	29.0	163,651	29.0	168,080	29.1	151,260	27.6	130,109	25.2		
3+	72,707	12.9	72,432	12.9	72,882	12.6	62,633	11.4	49,417	9.6		
4+	40,357	7.2	39,519	7.0	38,586	6.7	31,500	5.7	23,073	4.5		
5+	25,203	4.5	24,082	4.3	22,740	3.9	17,253	3.1	11,820	2.3		
6+	16,783	3.0	15,370	2.7	14,036	2.4	9,979	1.8	6,428	1.2		
7+	11,620	2.1	10,164	1.8	8,903	1.5	6,010	1.1	3,600	0.7		
8+	8,187	1.5	6,844	1.2	5,806	1.0	3,737	0.7	2,035	0.4		

* Tramadol data are included in 2018 data. See Table 1.

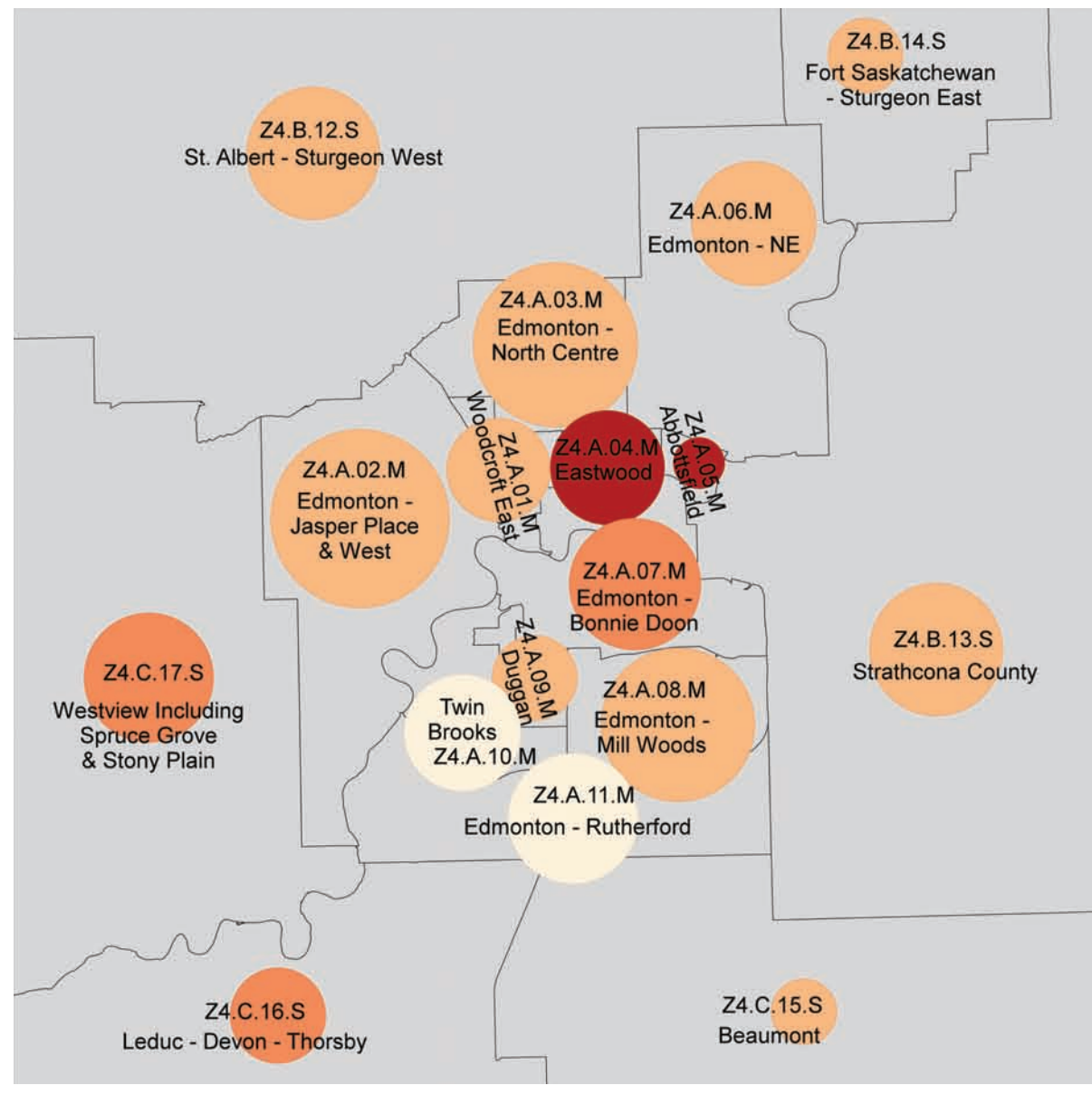
Table 10. Methadone and Buprenorphine Patients by Ingredient and Year, 2014-2018

Ingredient(s)	2014	2015	2016	2017	2018	2018	5 Year Trend
Buprenorphine	3,550	4,182	4,337	3,764	3,493		
Buprenorphine, Naloxone	947	1,472	2,418	4,150	6,429		
Methadone Hydrochloride	4,693	5,028	5,363	5,702	6,241		

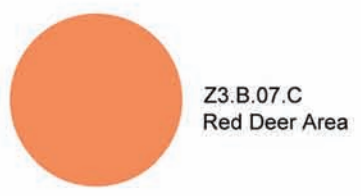
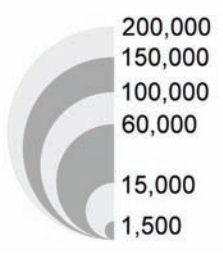
Figure 5. Age and Sex Standardized, Total OME per Day per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*



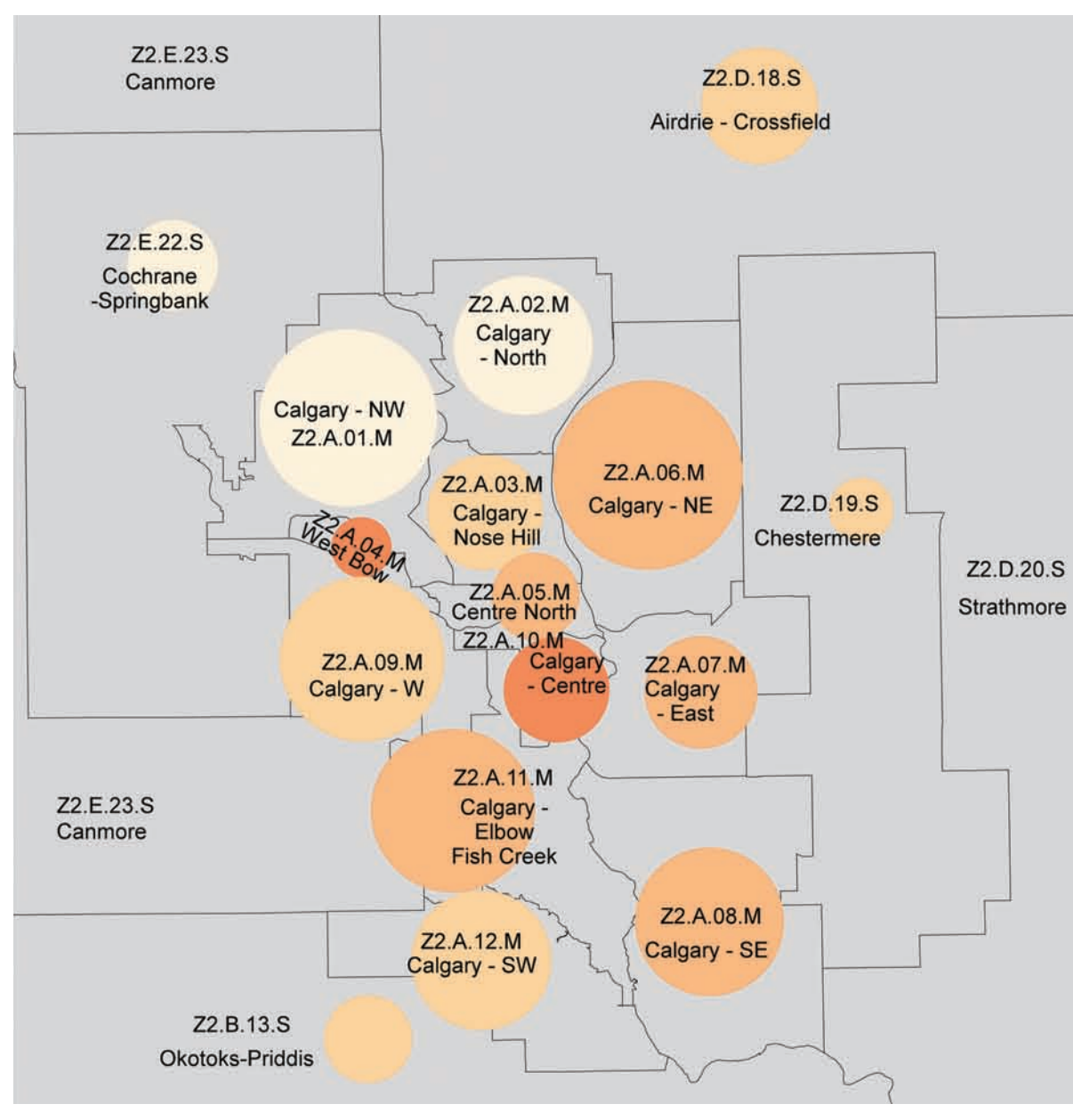
Edmonton



Population

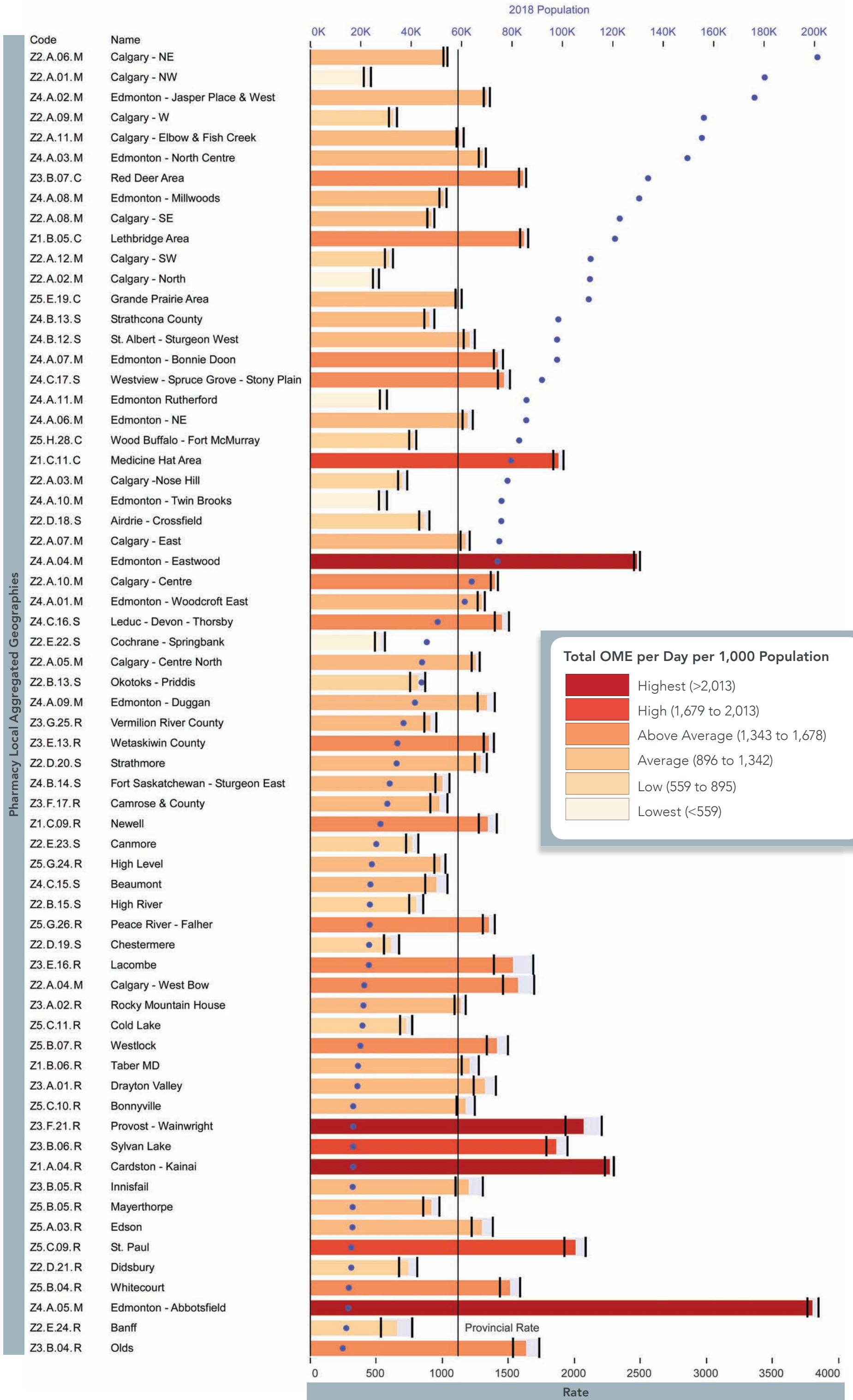


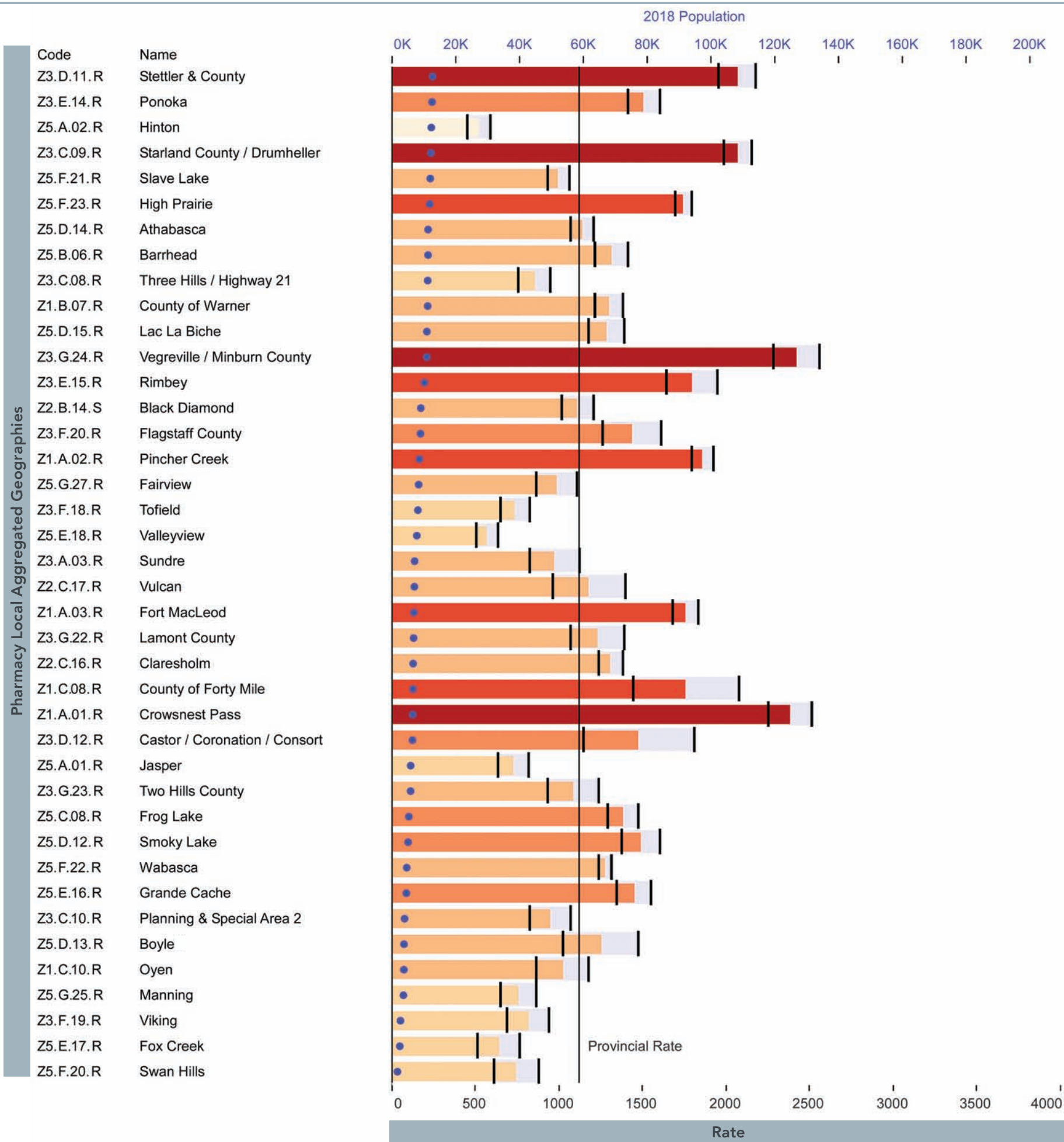
Calgary



* See Appendix A for a description of the map symbols.

Figure 6a. Age and Sex Standardized, Total OME per Day per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*





* See Appendix A for a description of the graph symbols.

Figure 6b. Five Year Trends for Five PhLAGs with the Highest Rates of Total OME per Day

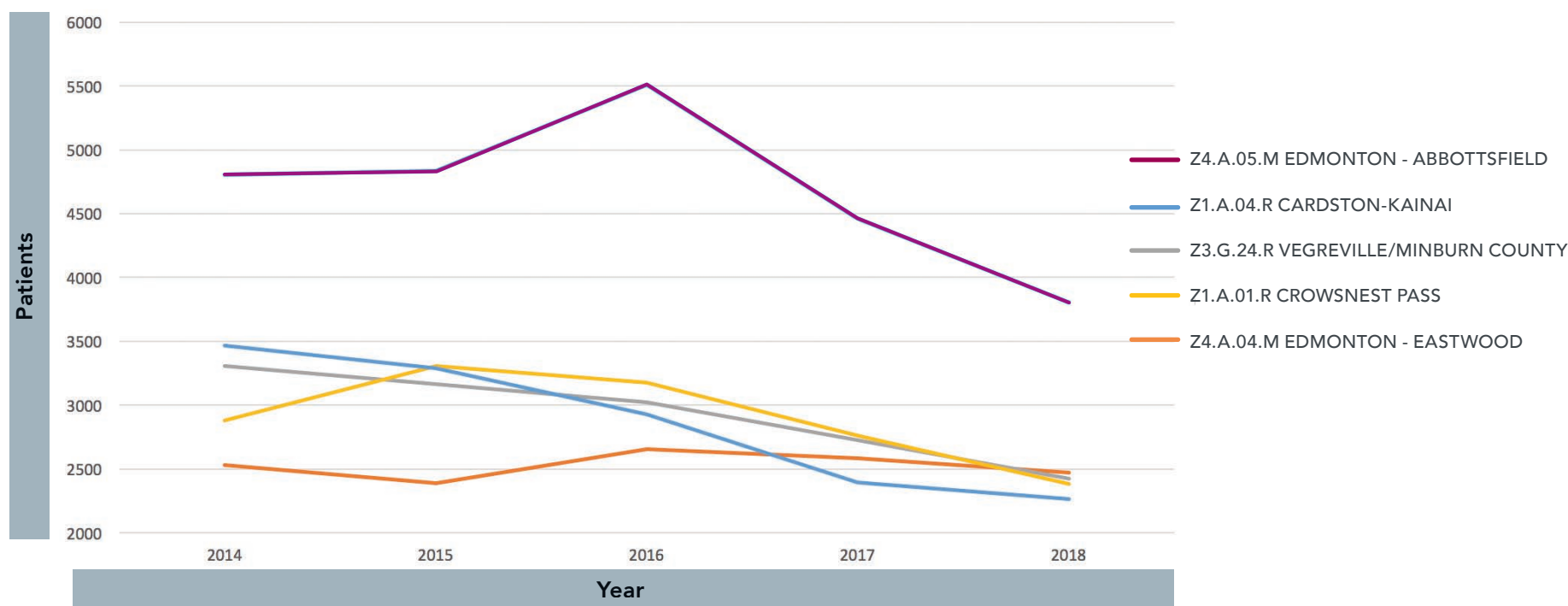
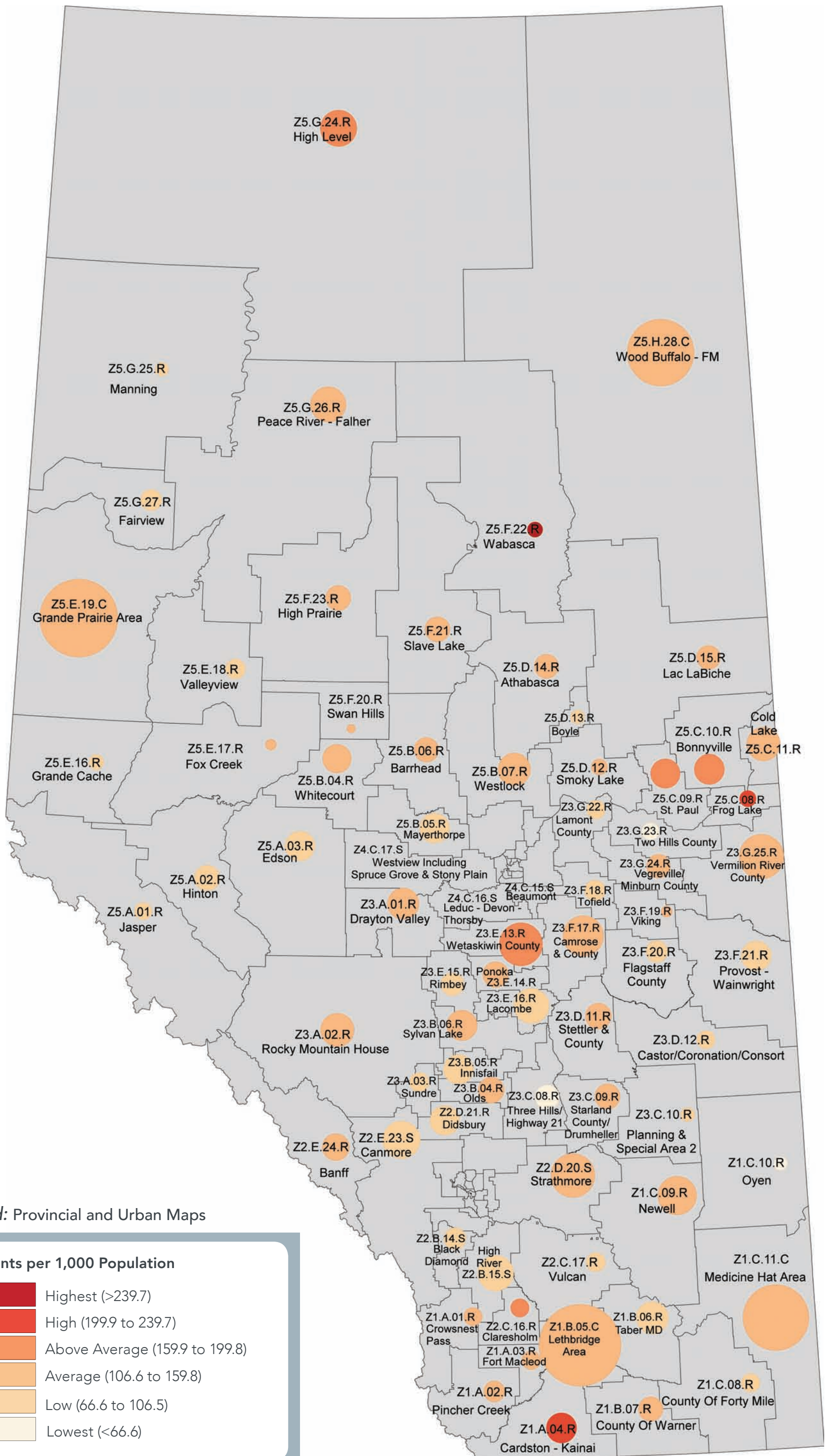


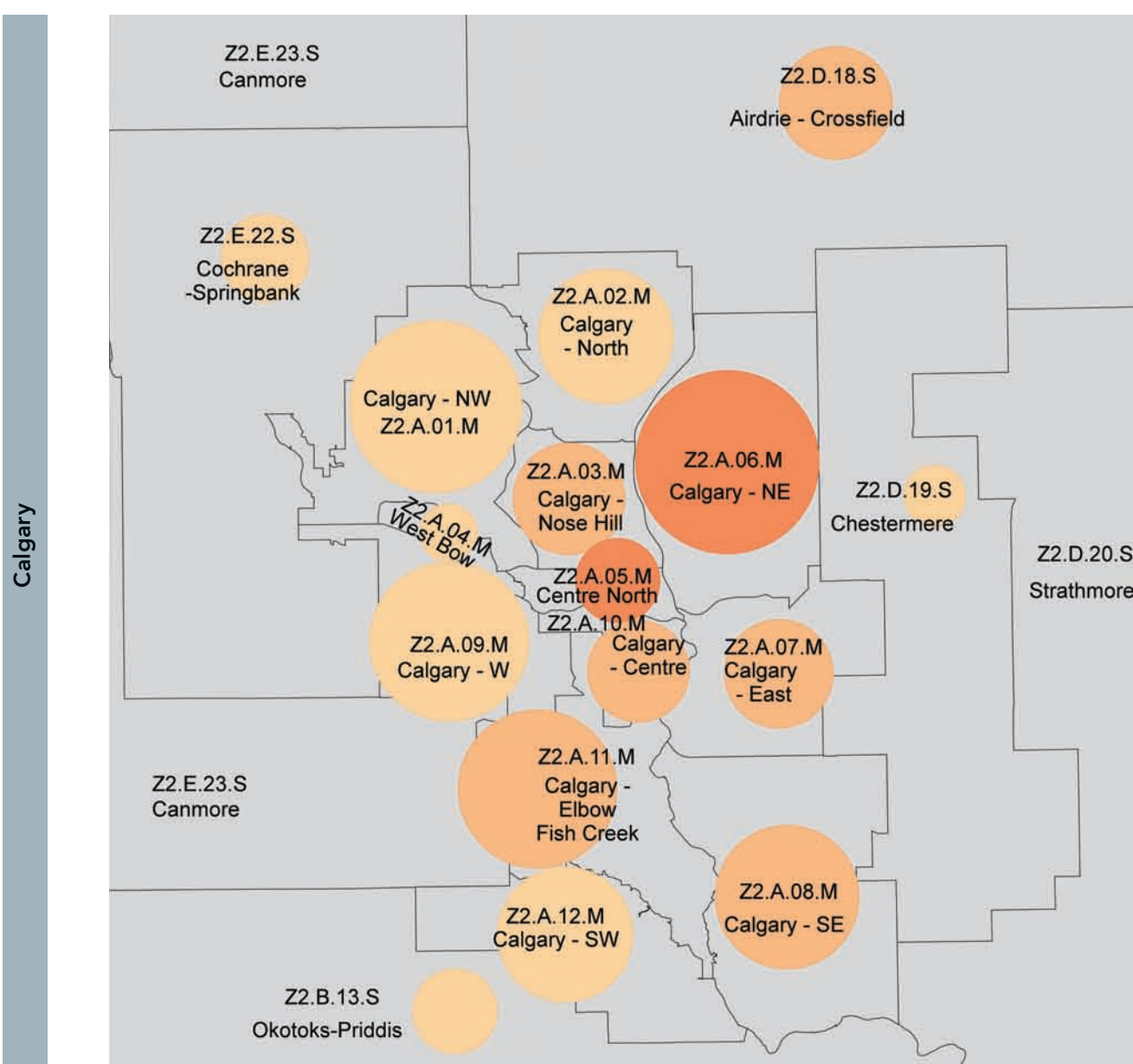
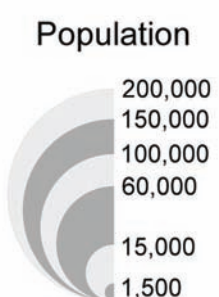
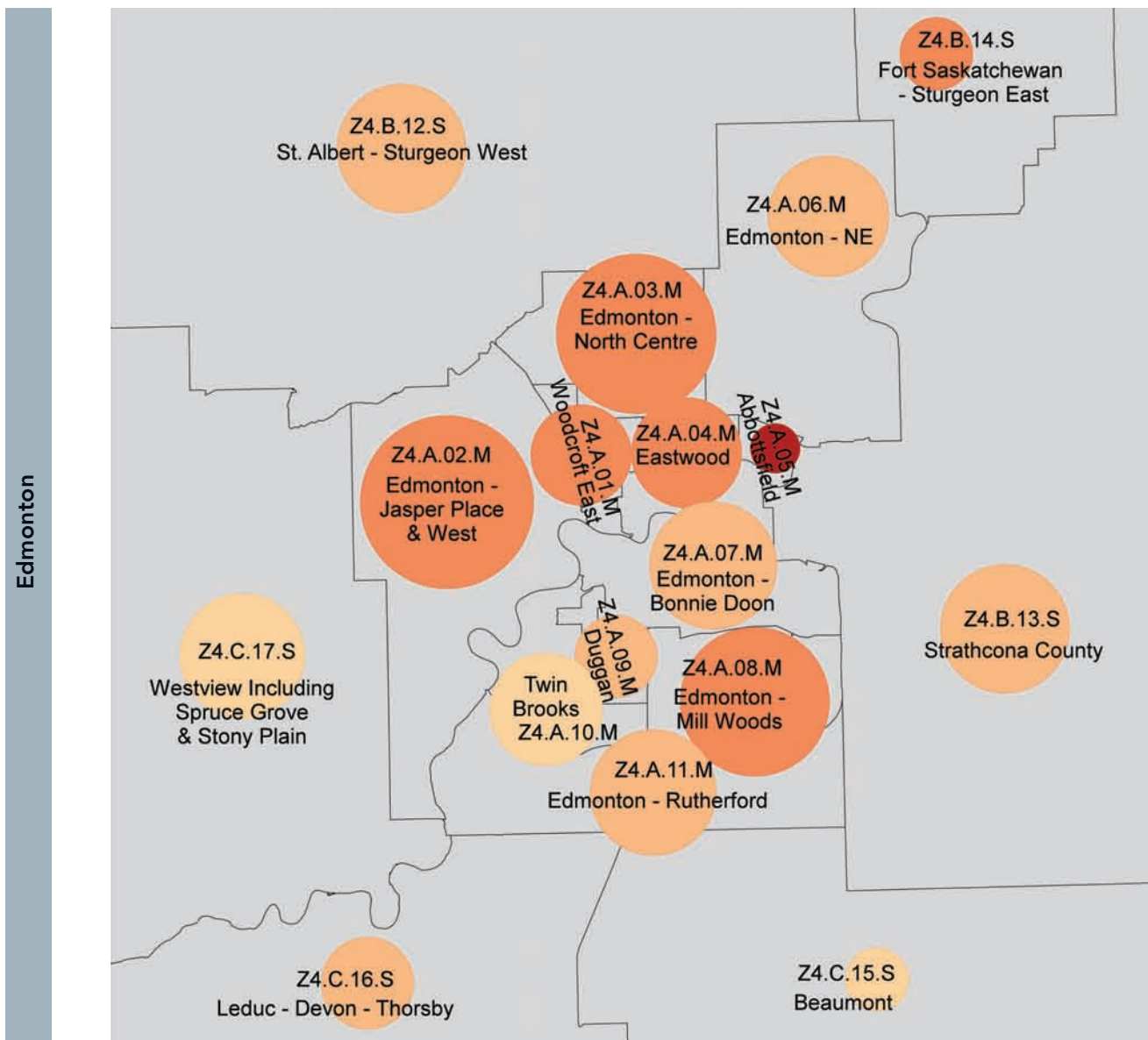
Figure 7. Age and Sex Standardized, Opioid Patients per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*



Legend: Provincial and Urban Maps

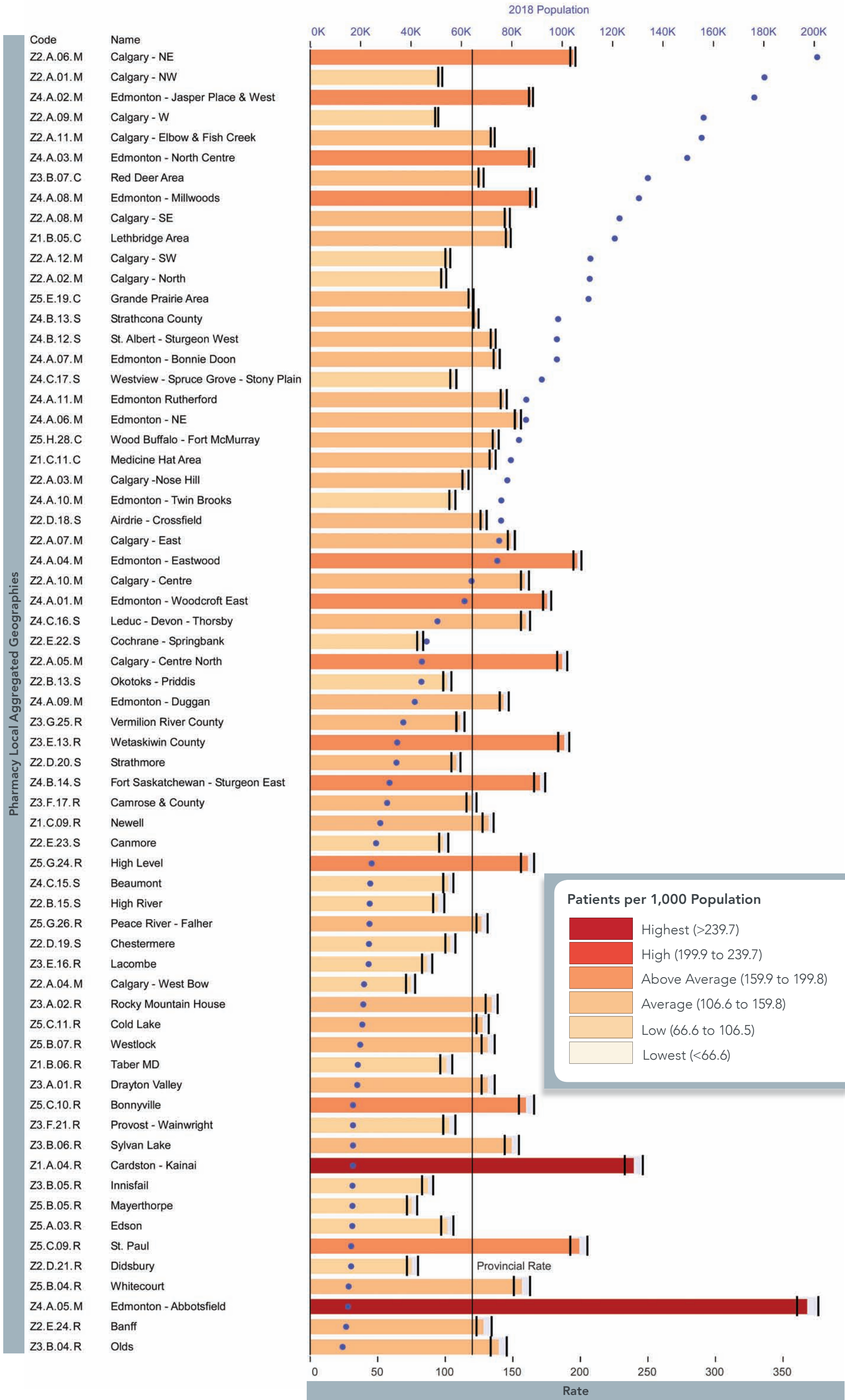
Patients per 1,000 Population

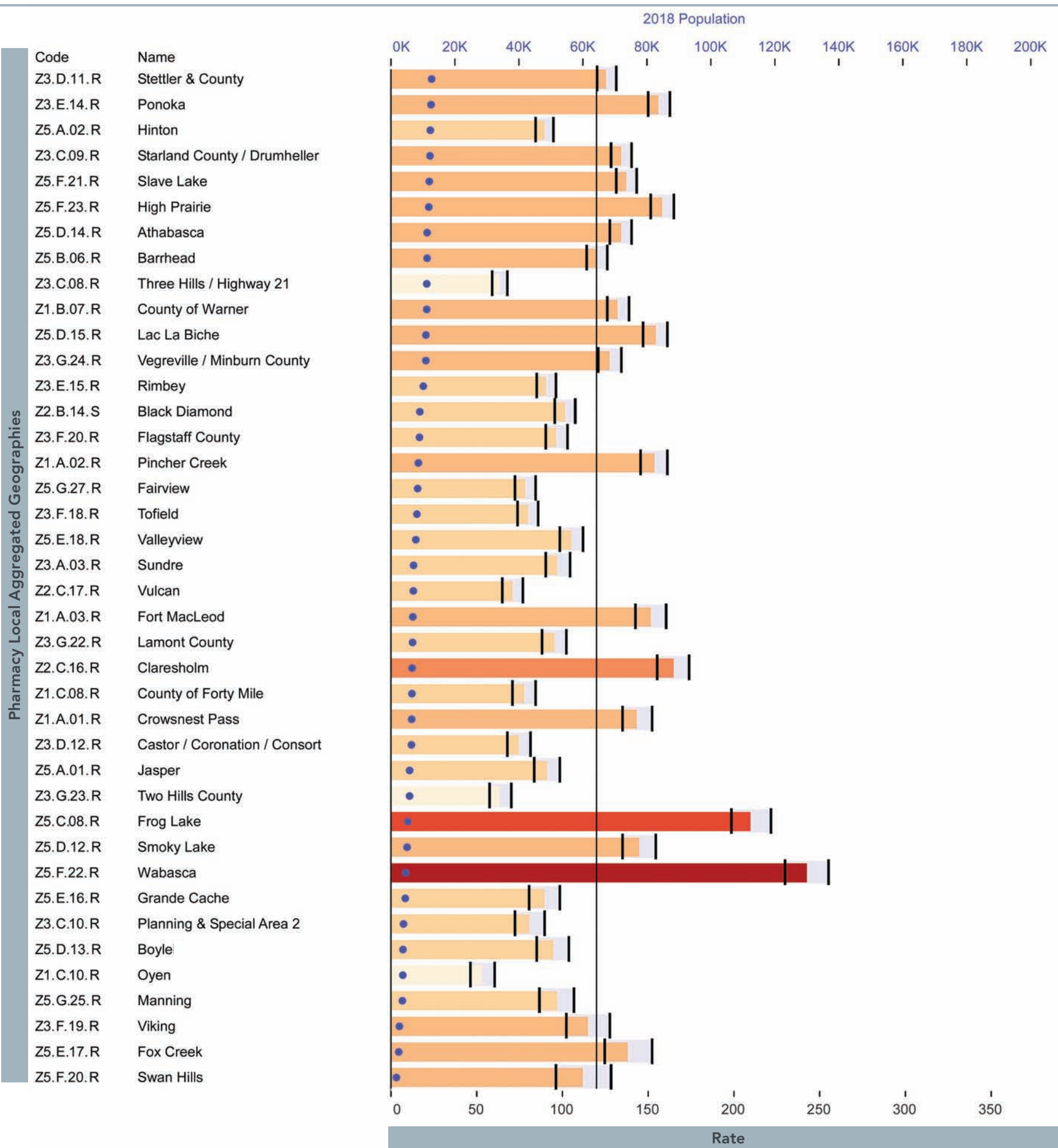
- Highest (>239.7)
- High (199.9 to 239.7)
- Above Average (159.9 to 199.8)
- Average (106.6 to 159.8)
- Low (66.6 to 106.5)
- Lowest (<66.6)



* See Appendix A for a description of the map symbols.

Figure 8a. Age and Sex Standardized, Opioid Patients per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*



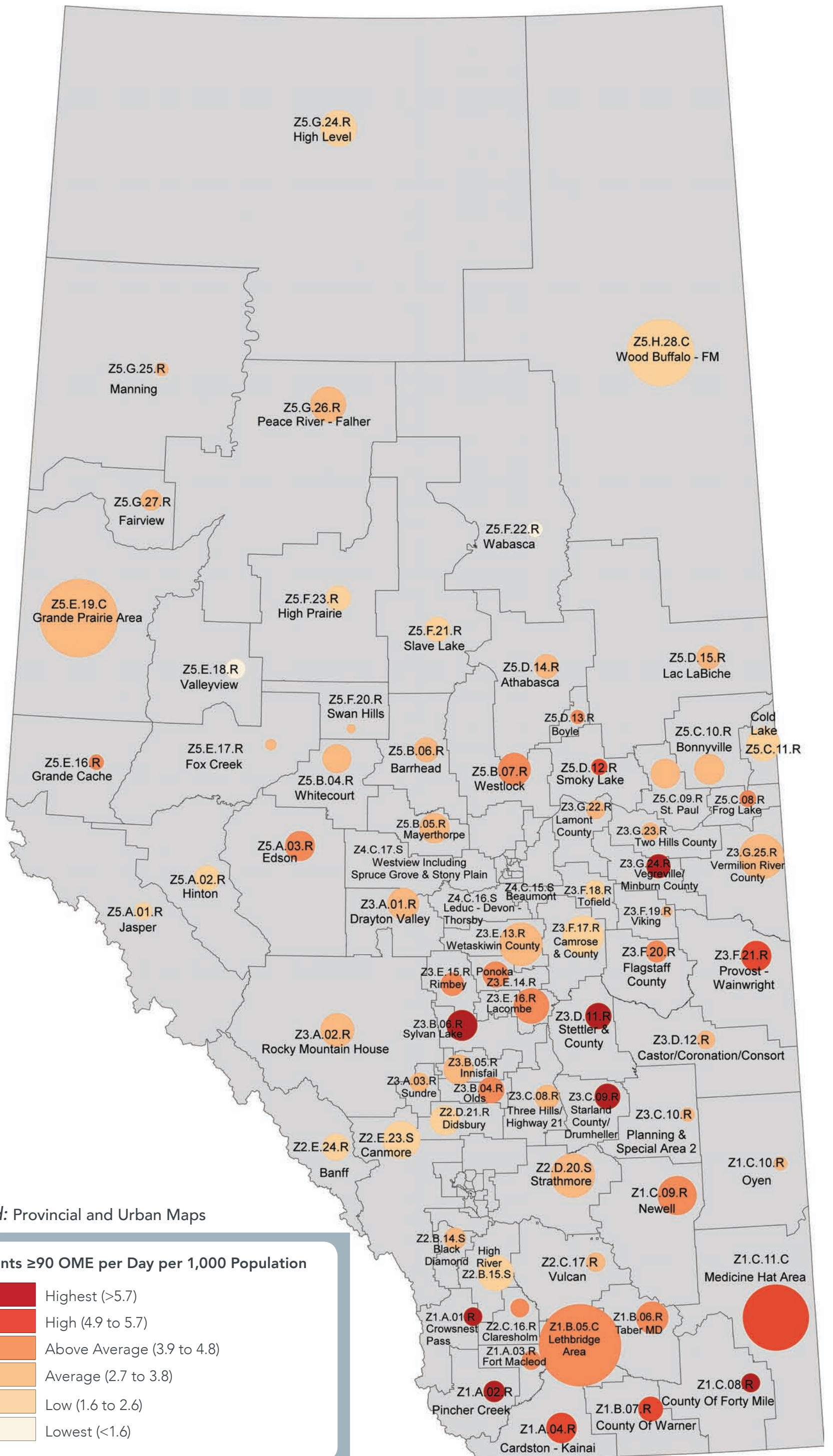


* See Appendix A for a description of the graph symbols.

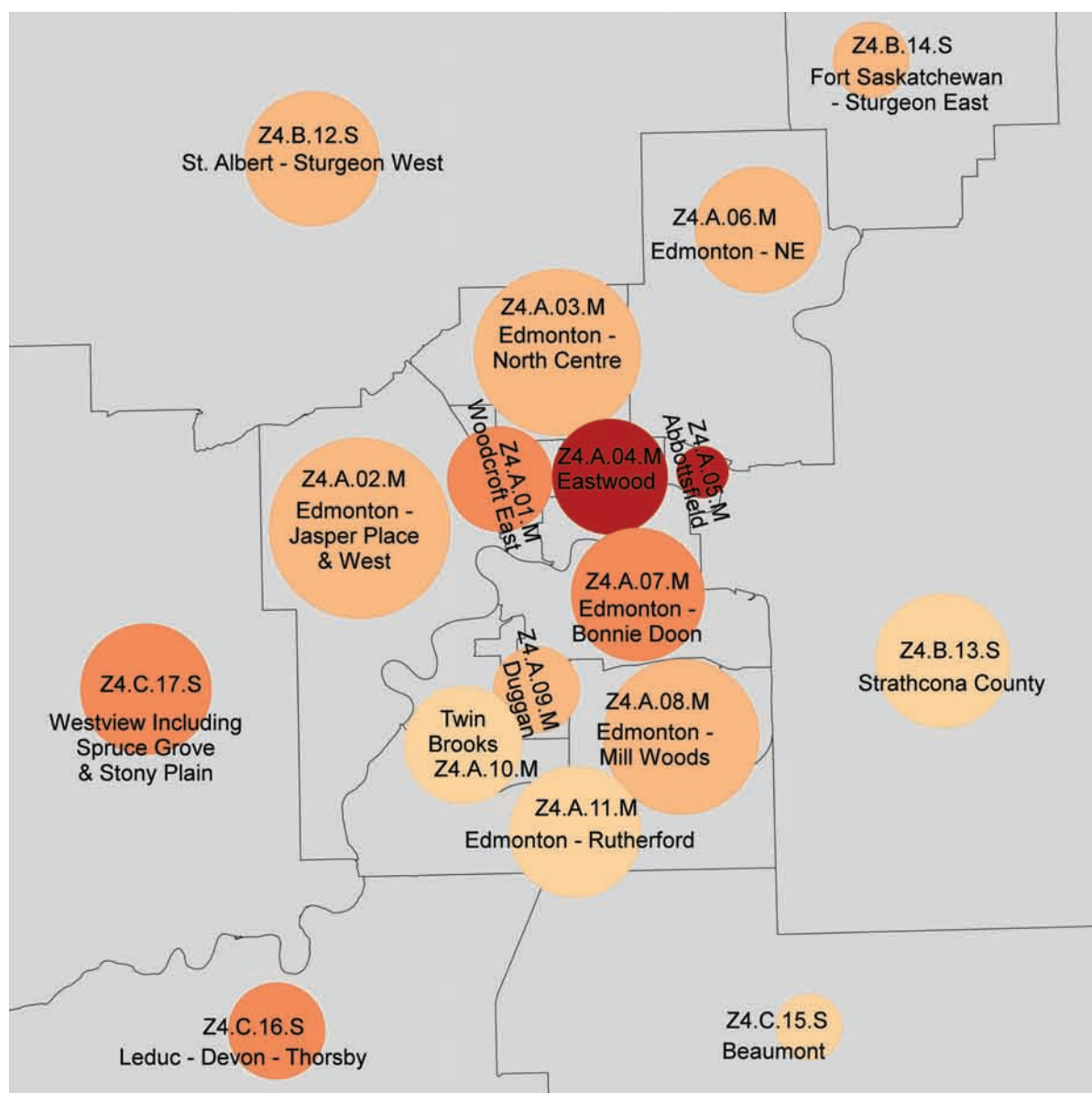
Figure 8b. Five Year Trends for Five PhLAGs with the Highest Rates of Opioid Patients



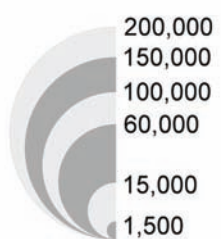
Figure 9. Age and Sex Standardized, Opioid Patients Who Received 90 OME per Day or Greater per 1,000 population, by Pharmacy Local Aggregated Geographies, 2018*



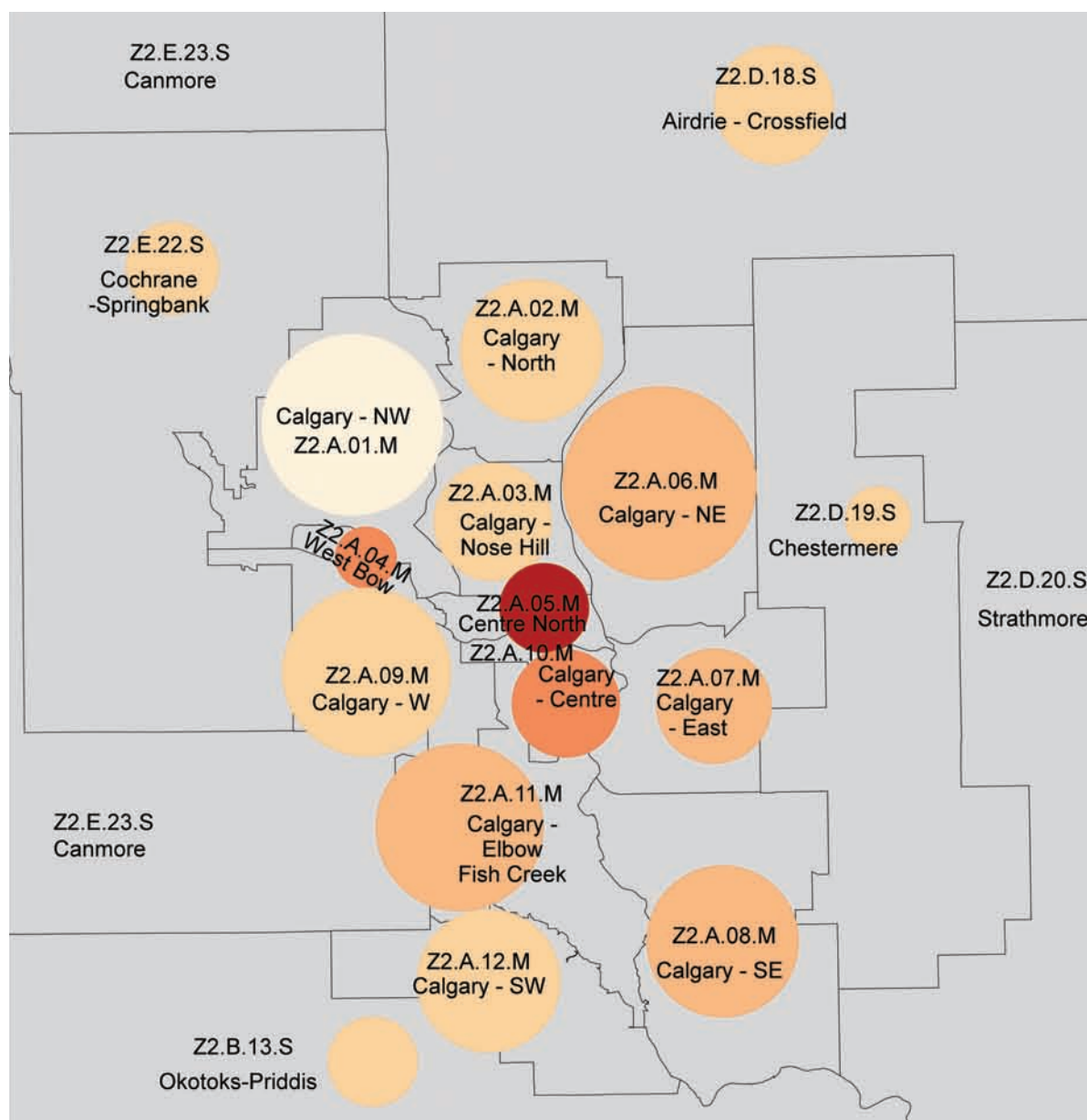
Edmonton



Population

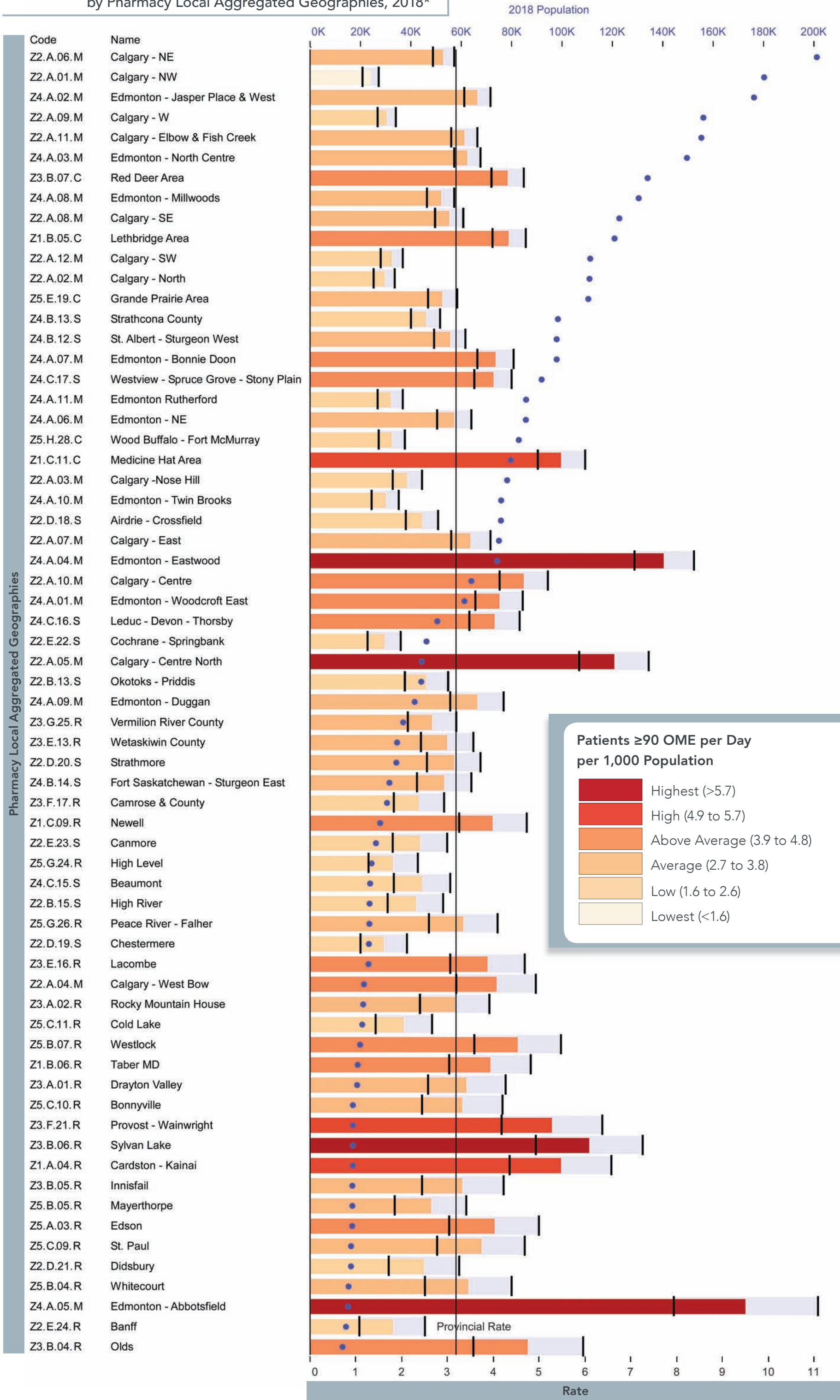


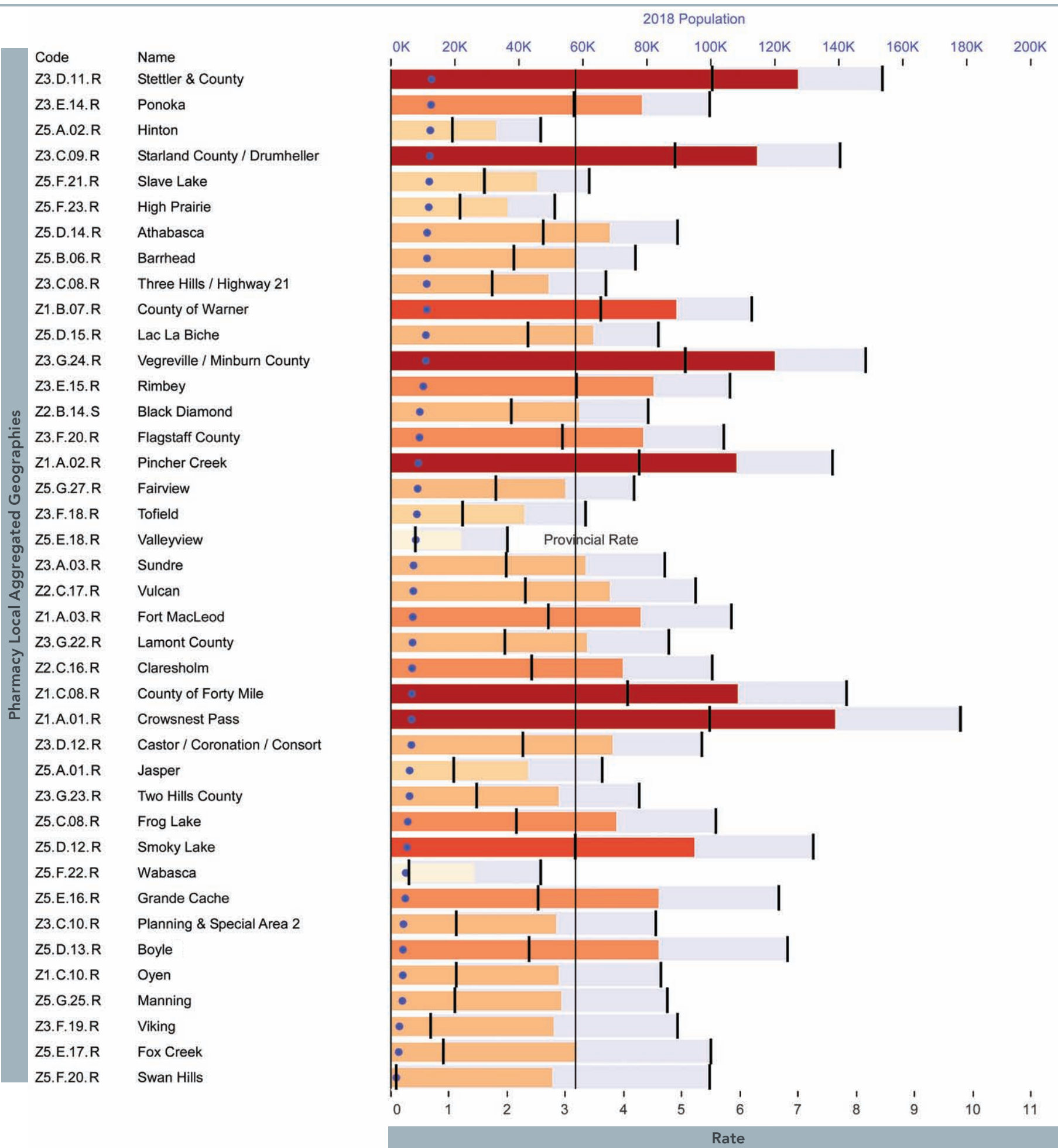
Calgary



* See Appendix A for a description of the map symbols.

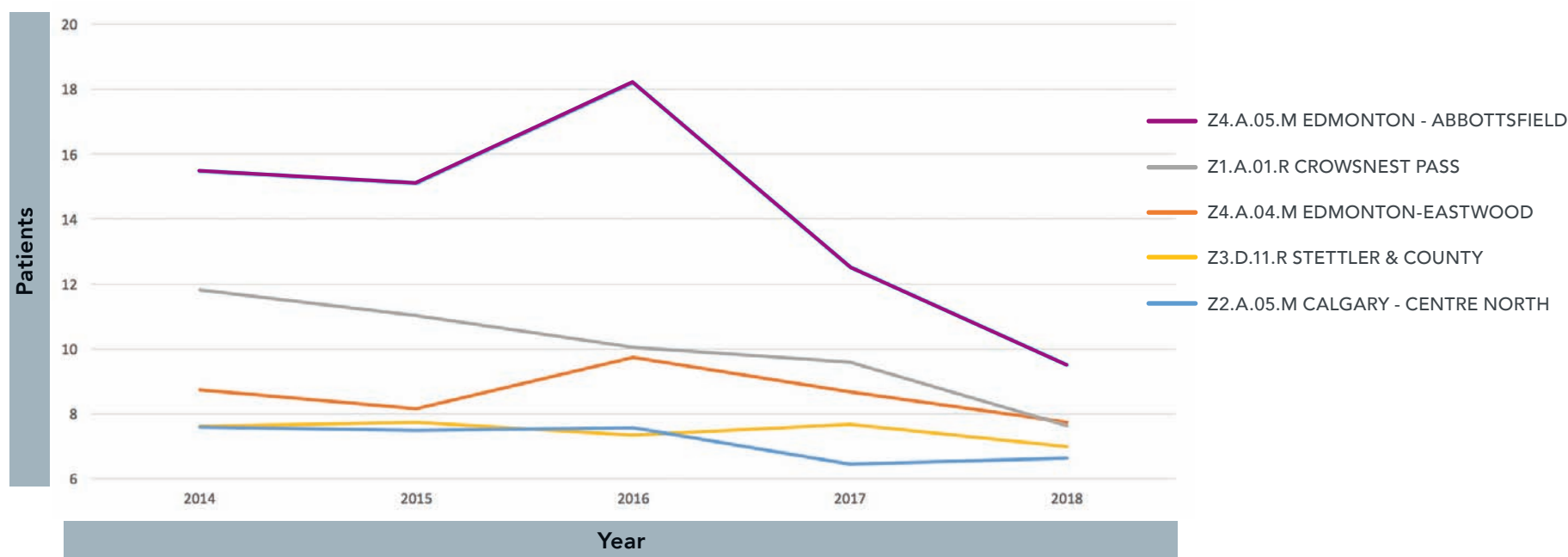
Figure 10a. Age and Sex Standardized, Opioid Patients Who Received 90 OME per Day or Greater per 1,000 population, by Pharmacy Local Aggregated Geographies, 2018*





* See Appendix A for a description of the graph symbols.

Figure 10b. Five Year Trends for Five PhLAGs with the Highest Rates of Opioid Patients who Received 90 OME per Day or Greater



Medication Use – Benzodiazepines

Table 11. Utilization of Prescription Benzodiazepines in Alberta, 2014-2018

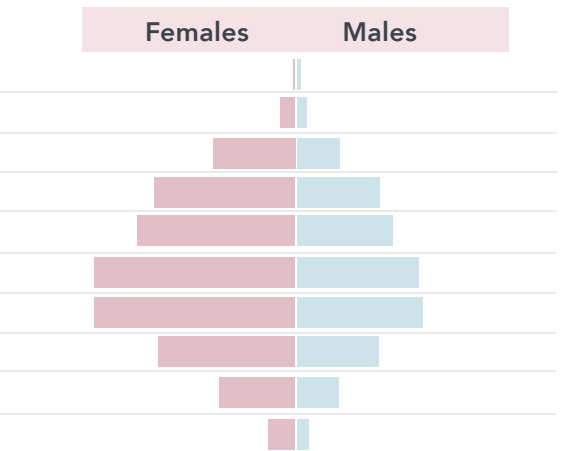
Year	Prescriptions	Patients	Prescribers	Pharmacies	Population	DDDs per 1000 Population	Patients per 1000 Population	Elderly Patients per 1000 Elderly Population	Patients ≥ 2 DDDs per 1000 Population
2014	1,178,216	358,752	11,369	1,332	4,121,532	43.6	88.9	232.8	3.9
2015	1,220,746	373,690	12,035	1,344	4,196,192	42.6	90.4	231.0	3.7
2016	1,284,634	386,888	12,738	1,415	4,252,720	41.6	91.9	230.2	3.5
2017	1,204,353	369,834	13,150	1,381	4,285,997	36.6	86.3	215.6	2.9
2018	1,128,700	356,023	13,394	1,464	4,306,822	33.3	82.3	203.9	2.5

5 year trend

Table 12. Benzodiazepine Patients by Age and Sex, 2018*

Age Group	Females	Percent	Males	Percent	Total Patients	Percent	Unknown Sex
0-9	359	0.2	437	0.3	796	0.2	
10-19	2,976	1.3	1,826	1.4	4,802	1.3	
20-29	17,766	7.9	9,052	6.8	26,818	7.5	
30-39	30,306	13.5	17,759	13.4	48,067	13.5	2
40-49	33,887	15.1	20,811	15.7	54,702	15.4	4
50-59	43,499	19.4	26,250	19.8	69,752	19.6	3
60-69	43,435	19.4	27,246	20.6	70,681	19.9	
70-79	29,354	13.1	17,534	13.3	46,888	13.2	
80-89	16,425	7.3	9,117	6.9	25,542	7.2	
90+	5,732	2.6	2,211	1.7	7,943	2.2	
Total	223,751	100.0	132,262	100.0	356,023	100.0	

Figure 11. Benzodiazepine Patients by Age and Sex, 2018

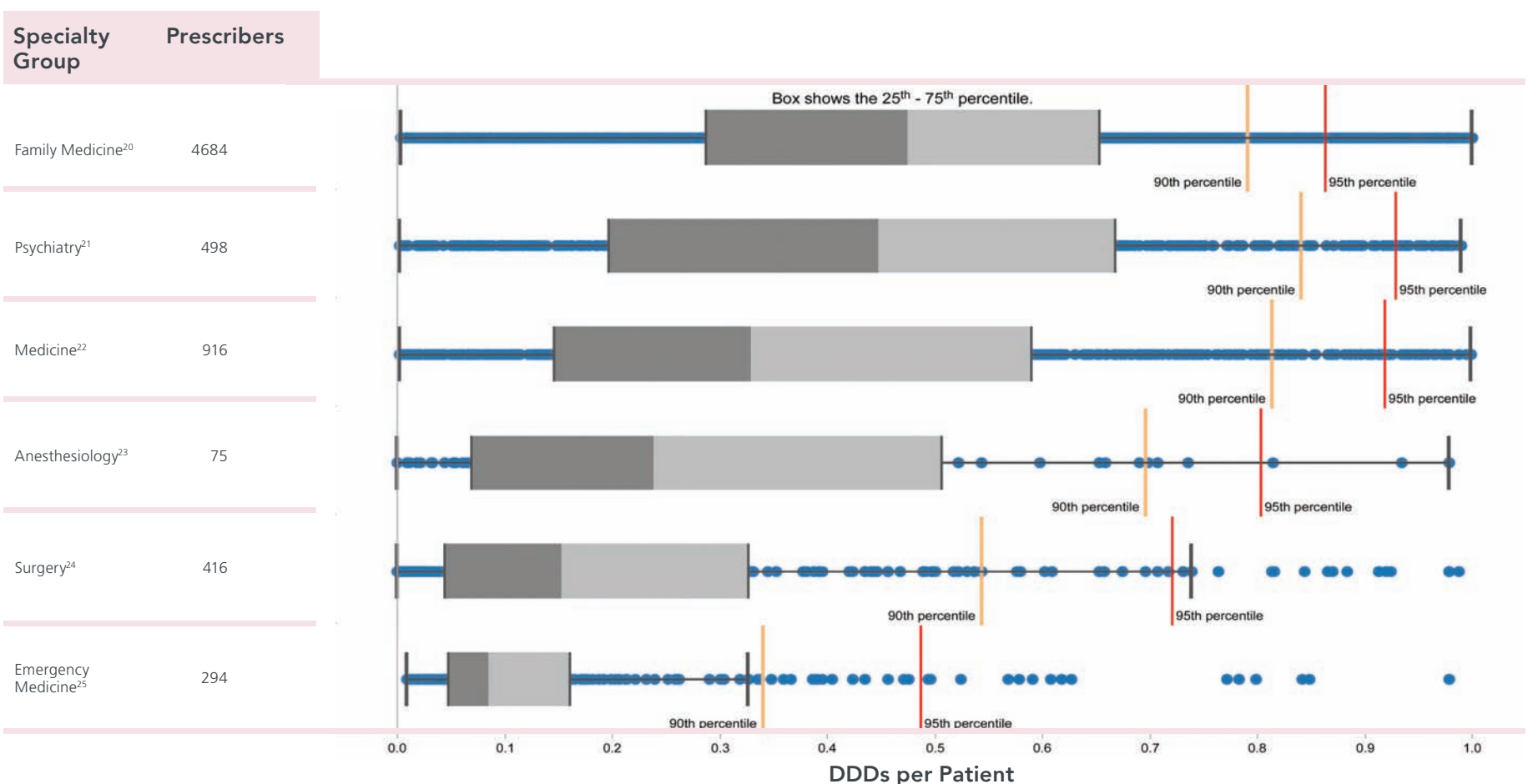


*12 female patients of unknown age, 19 male patients of unknown age, 1 patient of unknown age or sex

Table 13. Benzodiazepine Prescriptions, Patients, Prescribers and Pharmacies by Prescriber Type, 2018

Prescriber Type	Prescriptions	Patients	Prescribers	Pharmacies
Physician	1,081,605	346,888	10,019	1,462
Pharmacist	24,494	15,006	2,940	1,280
Dentist	7,348	5,864	86	1,030
Nurse Practitioner	8,327	3,973	348	743

Figure 12. DDDs per Patient by Specialty Group¹⁹, 4th Quarter, 2018



¹⁹ Not all clinical specialties were assigned to a comparison group.

²⁰ Family Medicine specialty group includes family medicine, family medicine (care of the elderly), family medicine (sport and exercise medicine) and general practice.

²¹ Psychiatry specialty group includes psychiatry.

²² Medicine specialty group includes cardiology, clinical immunology & allergy, dermatology, endocrinology & metabolism, gastroenterology, general internal medicine, hematology, infectious diseases, nephrology, neurology, physical medicine & rehabilitation, respirology and rheumatology.

²³ Anesthesiology specialty group includes anesthesiology and family medicine (family practice anesthesia).

²⁴ Surgery specialty group includes cardiac surgery, cardiovascular & thoracic surgery, colorectal surgery, general surgery, neurosurgery, obstetrics & gynecology, ophthalmology, orthopedic surgery, otolaryngology - head and neck surgery, plastic surgery and urology.

²⁵ Emergency Medicine specialty group includes emergency medicine and family medicine (emergency medicine).

Table 14. Benzodiazepine Prescriptions by Main Ingredient, 2014-2018

Main Ingredient	2014	2015	2016	2017	2018	2018	5 Year Trend
Zopiclone	467,329	483,674	510,097	490,350	462,901		
Lorazepam	293,247	308,631	330,213	308,313	294,061		
Clonazepam	159,637	164,844	172,167	169,375	158,299		
Temazepam	95,353	91,812	86,440	68,673	57,722		
Zolpidem	28,923	35,047	40,274	42,111	42,305		
Diazepam	42,619	43,258	48,234	40,839	36,463		
Alprazolam	28,164	28,445	28,934	26,766	25,047		
Nitrazepam	15,625	16,322	18,065	14,809	13,447		
Bromazepam	21,972	22,355	21,872	16,667	13,203		
Clobazam	9,022	8,891	10,110	10,068	10,020		
Triazolam	3,422	4,896	5,507	5,000	4,906		
Oxazepam	7,117	6,641	6,629	5,464	4,744		
Chlordiazepoxide	2,956	2,849	2,885	2,639	2,373		
Midazolam	1,406	1,817	1,825	1,976	2,122		
Flurazepam	1,423	1,264	1,264	1,044	877		
Clorazepate Dipotassium			124	258	209		
Zaleplon	1	1		1	1		

Table 15. Benzodiazepine Patients by Main Ingredient, 2014-2018

Main Ingredient	2014	2015	2016	2017	2018	2018	5 Year Trend
Zopiclone	181,878	186,651	192,228	180,567	169,710		
Lorazepam	134,577	143,250	151,543	144,676	141,686		
Clonazepam	51,030	52,255	53,687	50,209	47,845		
Zolpidem	14,603	16,673	17,645	17,473	17,110		
Temazepam	26,136	25,429	24,094	19,553	16,478		
Diazepam	14,493	15,190	15,965	14,097	12,790		
Alprazolam	10,114	10,117	10,066	9,120	8,286		
Clobazam	3,097	3,233	3,400	3,380	3,474		
Triazolam	2,260	3,038	3,400	3,136	3,150		
Bromazepam	4,524	4,350	4,146	3,253	2,704		
Nitrazepam	3,565	3,647	3,801	2,973	2,481		
Oxazepam	2,610	2,413	2,493	1,925	1,634		
Midazolam	1,041	1,313	1,305	1,517	1,583		
Chlordiazepoxide	1,480	1,418	1,403	1,302	1,151		
Flurazepam	553	512	508	394	312		
Clorazepate Dipotassium			78	89	72		
Zaleplon	1	1		1	1		

Table 16. Benzodiazepine Prescribers by Main Ingredient, 2014-2018

Main Ingredient	2014	2015	2016	2017	2018	2018	5 Year Trend
Zopiclone	9,763	10,296	10,855	11,196	11,338		
Lorazepam	7,220	7,646	8,128	8,369	8,584		
Clonazepam	5,365	5,687	5,984	6,156	6,260		
Diazepam	3,557	3,767	4,074	4,094	4,063		
Zolpidem	2,869	3,389	3,774	3,904	4,024		
Temazepam	3,696	3,809	3,949	3,888	3,662		
Alprazolam	3,000	3,118	3,265	3,240	3,199		
Clobazam	1,800	1,859	1,997	2,122	2,201		
Bromazepam	1,609	1,596	1,639	1,530	1,419		
Oxazepam	1,503	1,508	1,501	1,340	1,229		
Nitrazepam	1,272	1,273	1,381	1,255	1,100		
Chlordiazepoxide	918	848	887	825	747		
Triazolam	679	678	690	681	636		
Midazolam	205	230	266	340	334		
Flurazepam	420	414	418	338	283		
Clorazepate Dipotassium			82	106	84		
Zaleplon	1	1		1	1		

Medication Use – Benzodiazepines

Table 17. Benzodiazepine Patients and Associated Prescribers by Dose, 2014-2018

Patients

Patient Dose*	2014		2015		2016		2017		2018	
	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent
Total Patients	358,752		373,690		386,888		369,834		356,023	
≥ 1 DDDs	56,354	15.7	56,262	15.1	55,944	14.5	49,864	13.5	46,192	13.0
≥ 2 DDDs	15,810	4.4	15,226	4.1	14,728	3.8	12,256	3.3	10,813	3.0
≥ 4 DDDs	2,258	0.6	2,104	0.6	1,862	0.5	1,327	0.4	1,111	0.3
≥ 6 DDDs	591	0.2	516	0.1	449	0.1	301	0.1	231	0.1
≥ 8 DDDs	207	0.1	154	0.0	122	0.0	75	0.0	68	0.0
≥ 10 DDDs	79	0.0	64	0.0	49	0.0	34	0.0	29	0.0

Prescribers

Patient Dose*	2014		2015		2016		2017		2018	
	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent
Total Prescribers	11,369		12,035		12,738		13,150		13,394	
≥ 1 DDDs	8,107	71.3	8,456	70.3	8,888	69.8	8,896	67.7	9,007	67.2
≥ 2 DDDs	5,697	50.1	5,702	47.4	5,929	46.5	5,615	42.7	5,477	40.9
≥ 4 DDDs	2,332	20.5	2,254	18.7	2,127	16.7	1,557	11.8	1,302	9.7
≥ 6 DDDs	1,054	9.3	832	6.9	752	5.9	434	3.3	327	2.4
≥ 8 DDDs	500	4.4	327	2.7	266	2.1	85	0.6	89	0.7
≥ 10 DDDs	243	2.1	129	1.1	134	1.1	37	0.3	40	0.3

* can include prescriptions from multiple prescribers

Figure 13. Benzodiazepine Patients by Dose, 2014-2018

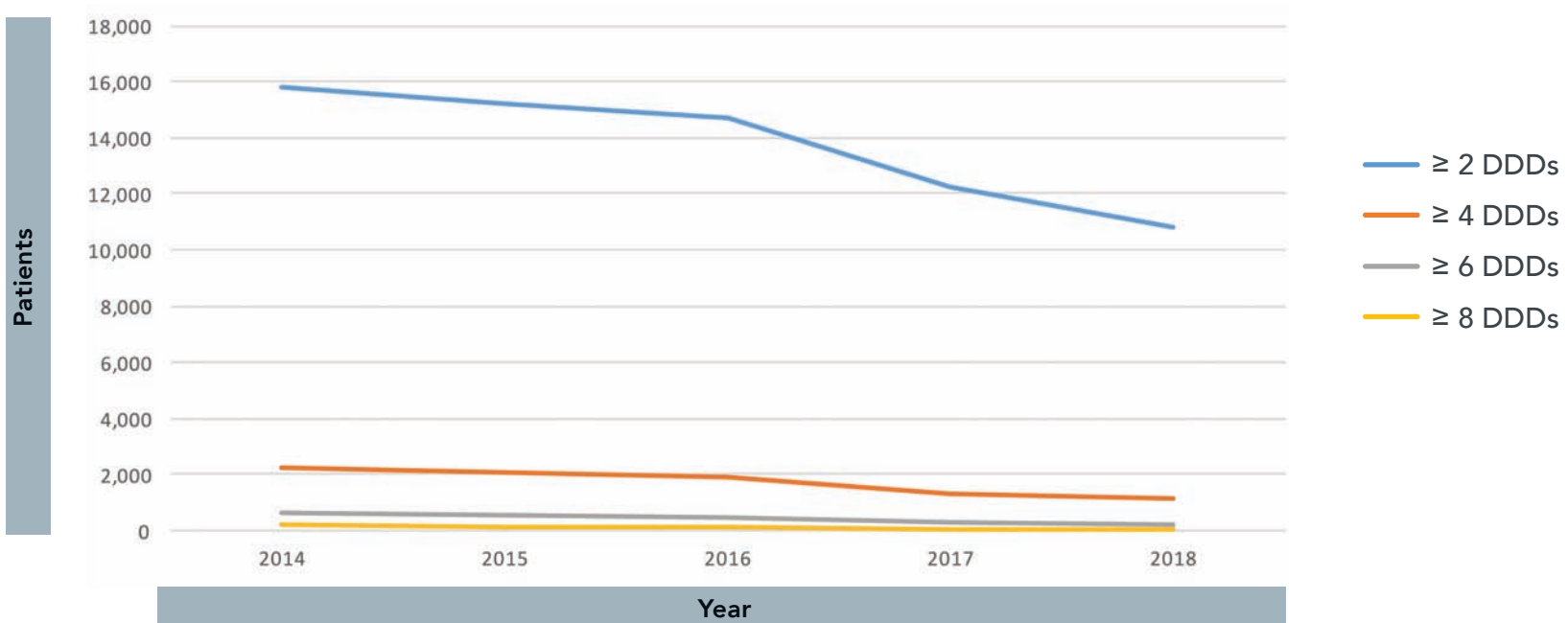


Figure 14. Benzodiazepine Prescribers by Dose, 2014-2018

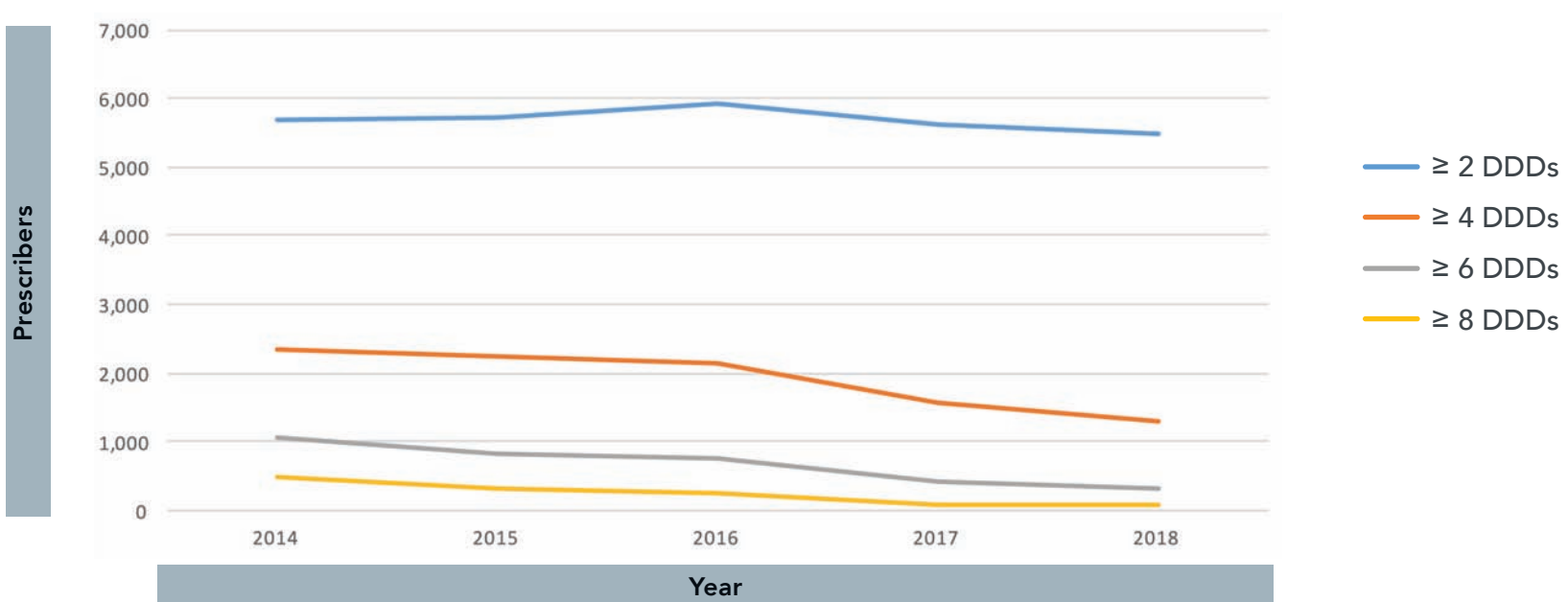


Table 18. Benzodiazepine Patients and Associated Prescribers by Number of Ingredients, 2014-2018

Patients

Number of Ingredients	2014		2015		2016		2017		2018		2018	5 Year Trend
	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent		
Total Patients	358,752		373,690		386,888		369,834		356,023			
2+	75,098	20.9	77,788	20.8	80,269	20.7	70,271	19.0	63,294	17.8		
3+	14,442	4.0	14,540	3.9	15,051	3.9	11,440	3.1	9,517	2.7		
4+	2,919	0.8	2,774	0.7	2,854	0.7	1,785	0.5	1,384	0.4		
5+	594	0.2	550	0.1	552	0.1	274	0.1	207	0.1		
6+	115	0.0	116	0.0	119	0.0	50	0.0	37	0.0		

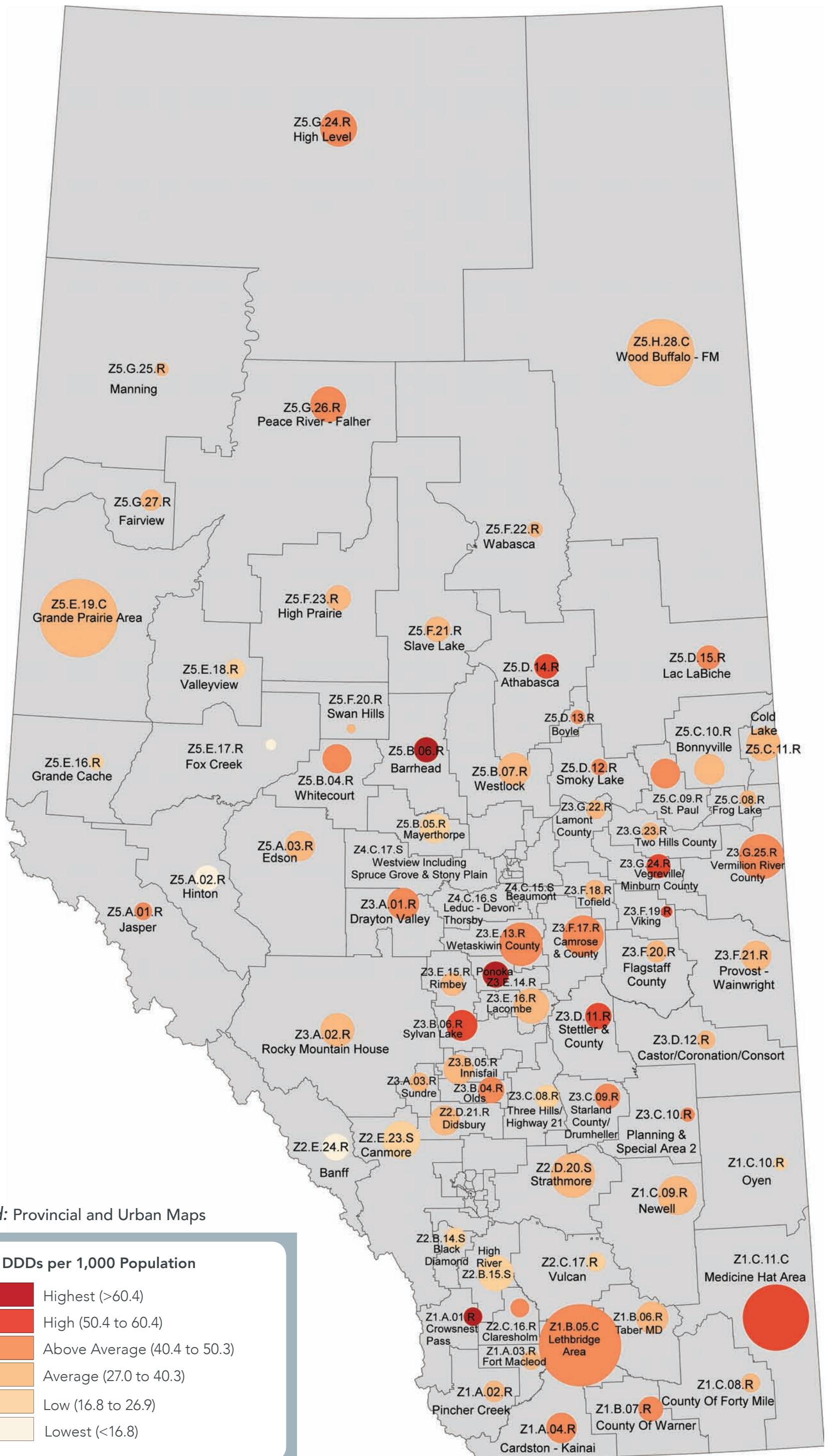
Prescribers

Number of Ingredients	2014		2015		2016		2017		2018		2018	5 Year Trend
	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent	Prescribers	Percent		
Total Prescribers	11,369		12,035		12,738		13,150		13,394			
2+	8,883	78.1	9,360	77.8	9,911	77.8	9,977	75.9	10,136	75.7		
3+	5,955	52.4	6,181	51.4	6,584	51.7	6,339	48.2	6,140	45.8		
4+	3,208	28.2	3,231	26.8	3,440	27.0	2,943	22.4	2,497	18.6		
5+	1,462	12.9	1,333	11.1	1,419	11.1	879	6.7	755	5.6		
6+	501	4.4	497	4.1	478	3.8	206	1.6	209	1.6		

Table 19. Benzodiazepine Patients by Number of Prescribers, 2014-2018

Number of Prescribers	2014		2015		2016		2017		2018		2018	5 Year Trend
	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent	Patients	Percent		
Total Patients	358,752		373,690		386,888		369,834		356,023			
2+	89,104	24.8	94,267	25.2	100,837	26.1	95,134	25.7	89,475	25.1		
3+	28,556	8.0	30,925	8.3	33,512	8.7	30,586	8.3	27,826	7.8		
4+	10,943	3.1	11,912	3.2	13,159	3.4	11,193	3.0	9,787	2.7		
5+	4,896	1.4	5,298	1.4	5,754	1.5	4,571	1.2	3,899	1.1		
6+	2,531	0.7	2,688	0.7	2,779	0.7	2,093	0.6	1,694	0.5		
7+	1,407	0.4	1,538	0.4	1,508	0.4	1,049	0.3	852	0.2		
8+	865	0.2	924	0.2	862	0.2	548	0.1	481	0.1		

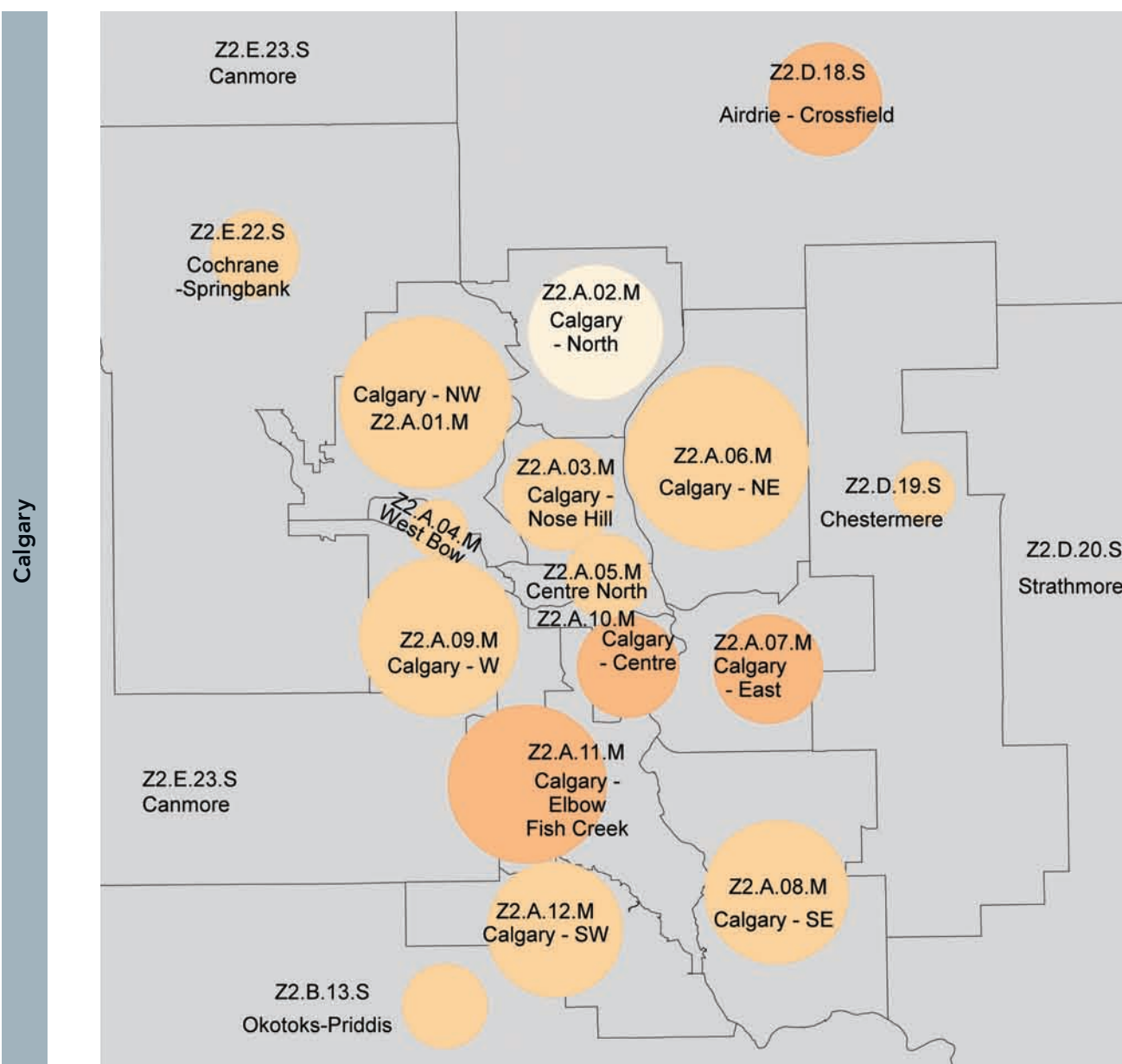
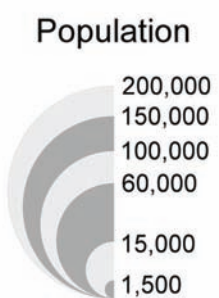
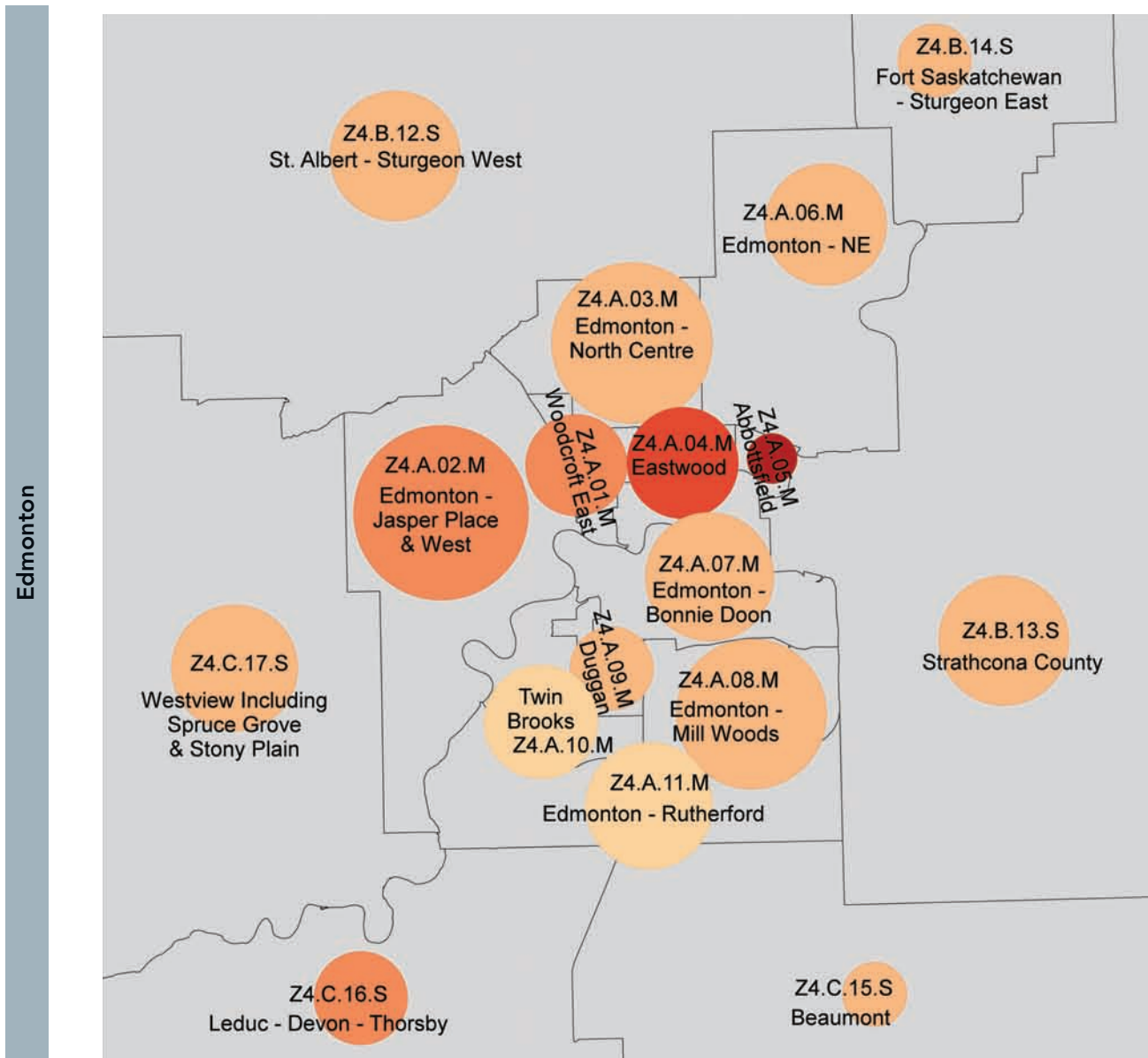
Figure 15. Age and Sex Standardized, Total DDDs per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*



Legend: Provincial and Urban Maps

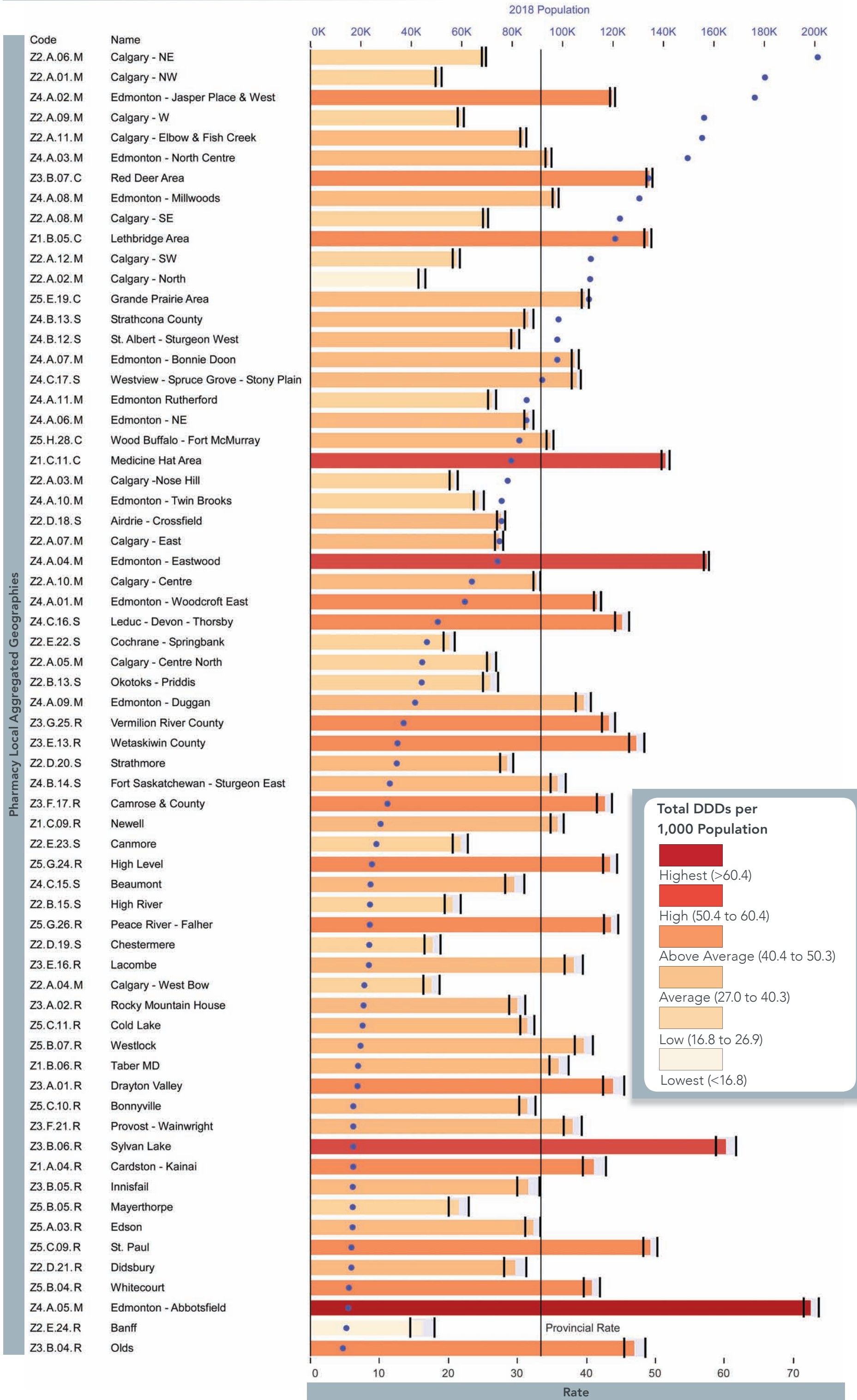
Total DDDs per 1,000 Population

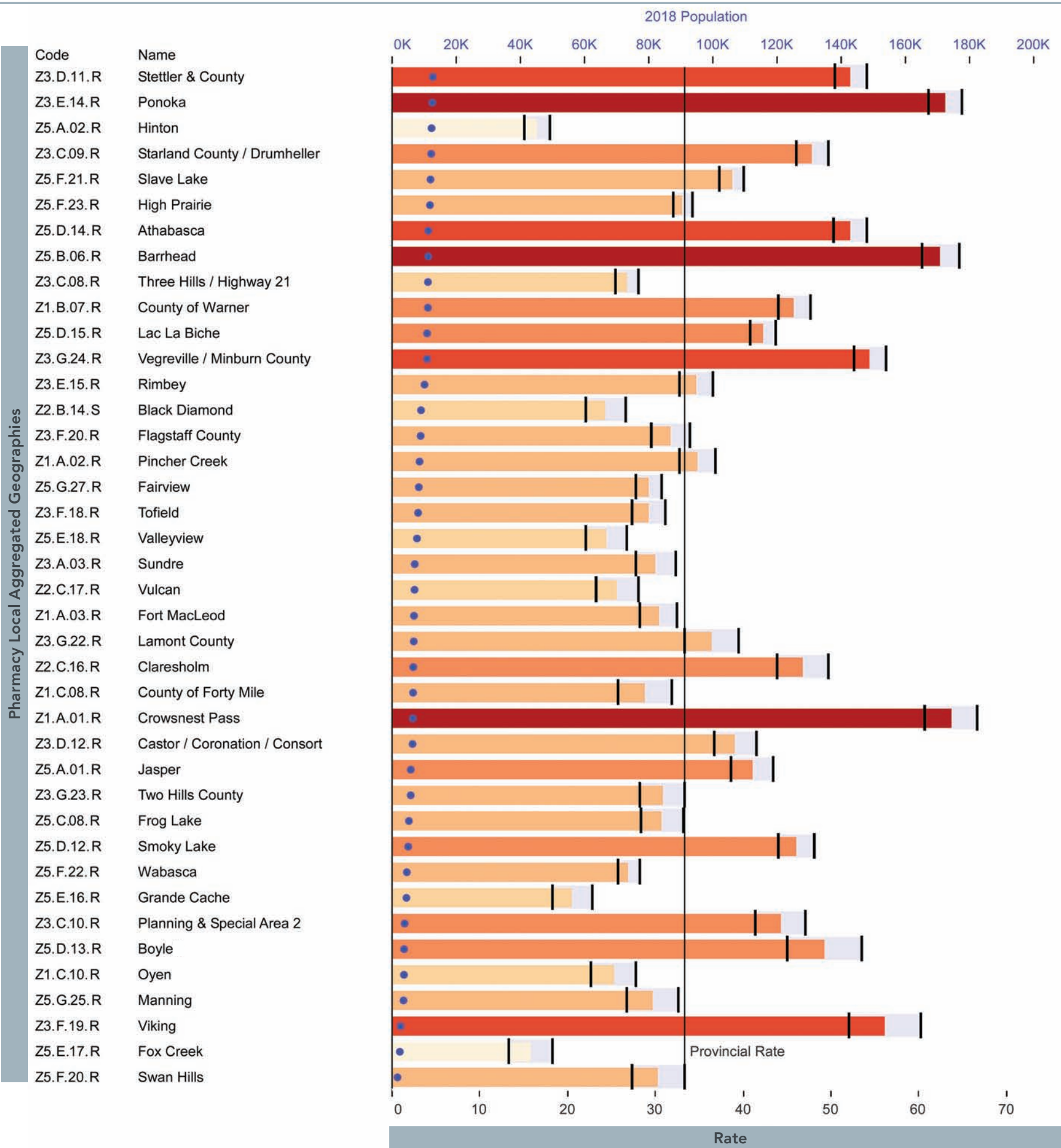
- Highest (>60.4)
- High (50.4 to 60.4)
- Above Average (40.4 to 50.3)
- Average (27.0 to 40.3)
- Low (16.8 to 26.9)
- Lowest (<16.8)



* See Appendix A for a description of the map symbols.

Figure 16a. Age and Sex Standardized, Total DDDs per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*





* See Appendix A for a description of the graph symbols.

Figure 16b. Five Year Trends for Five PhLAGs with the Highest Rates of Benzodiazepine DDDs

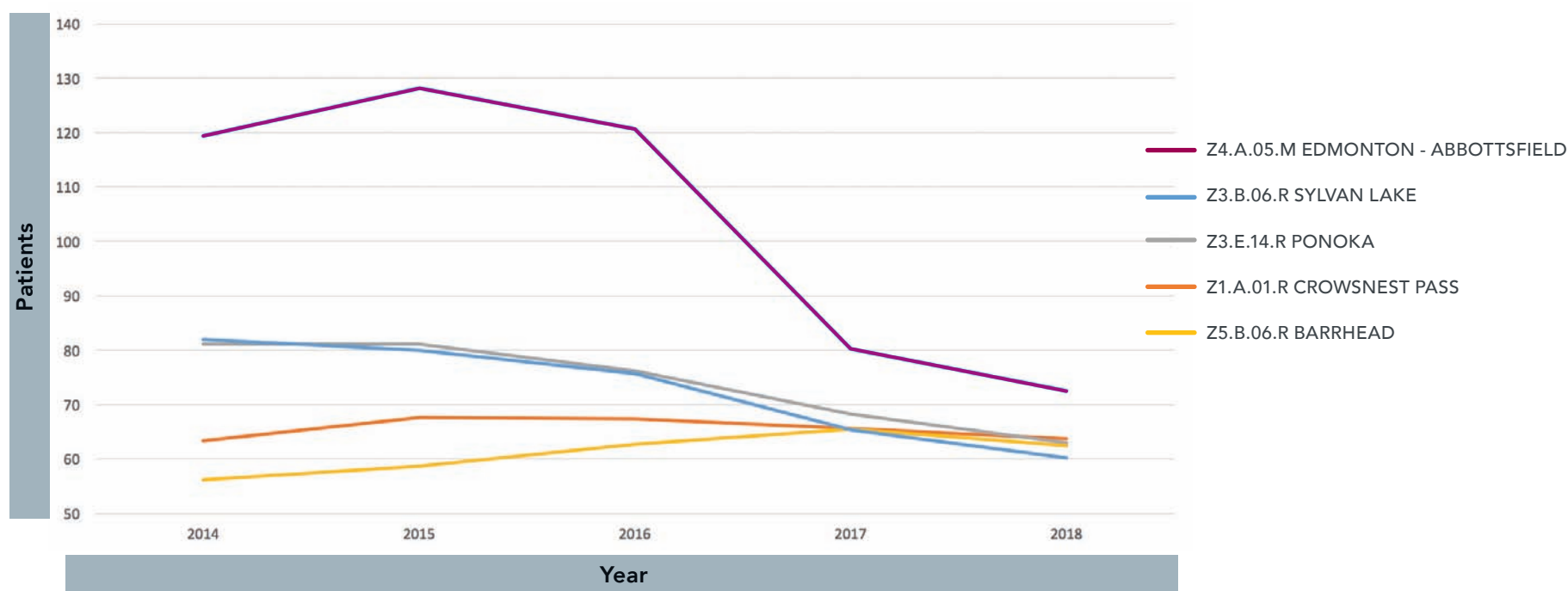
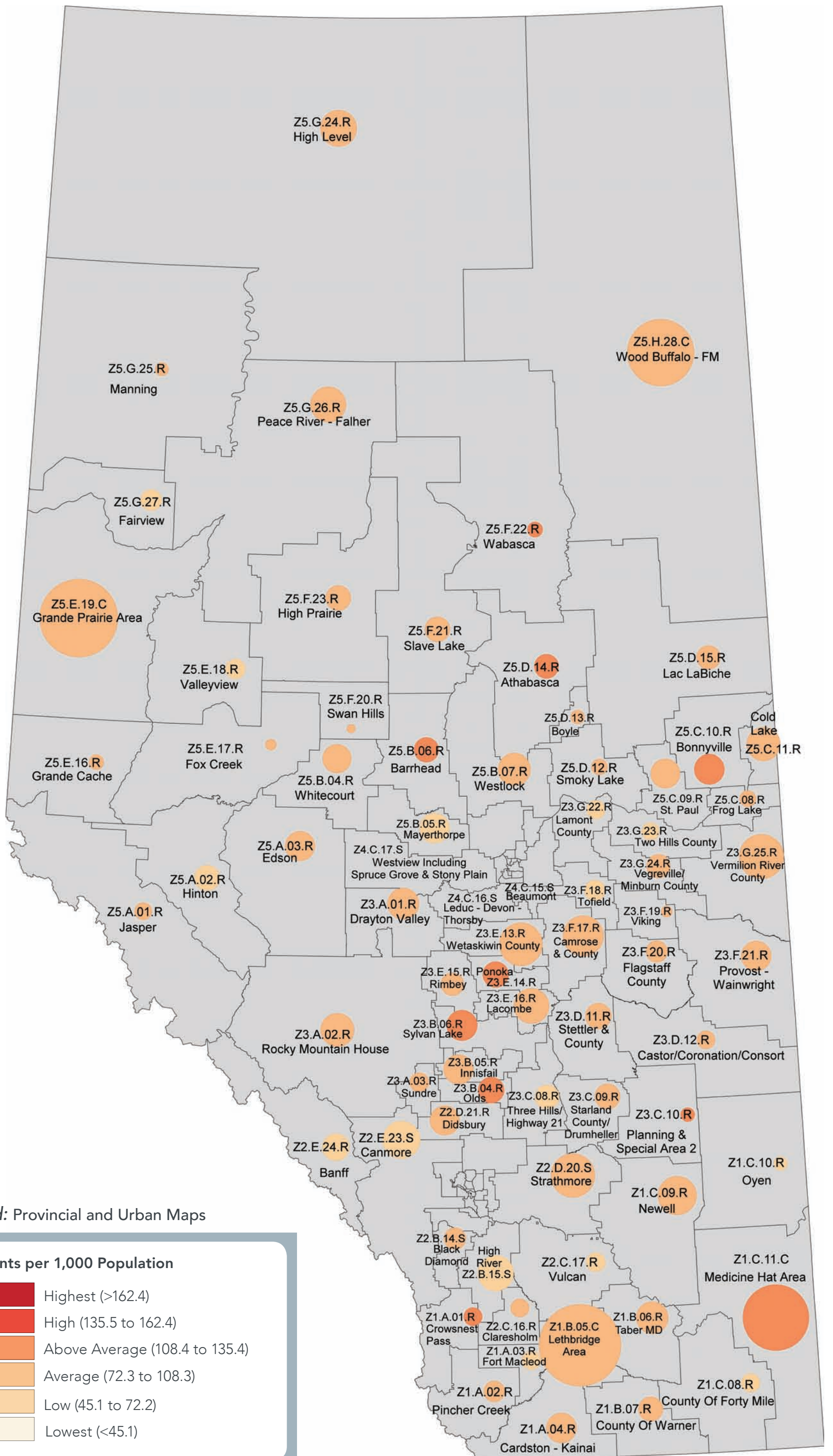


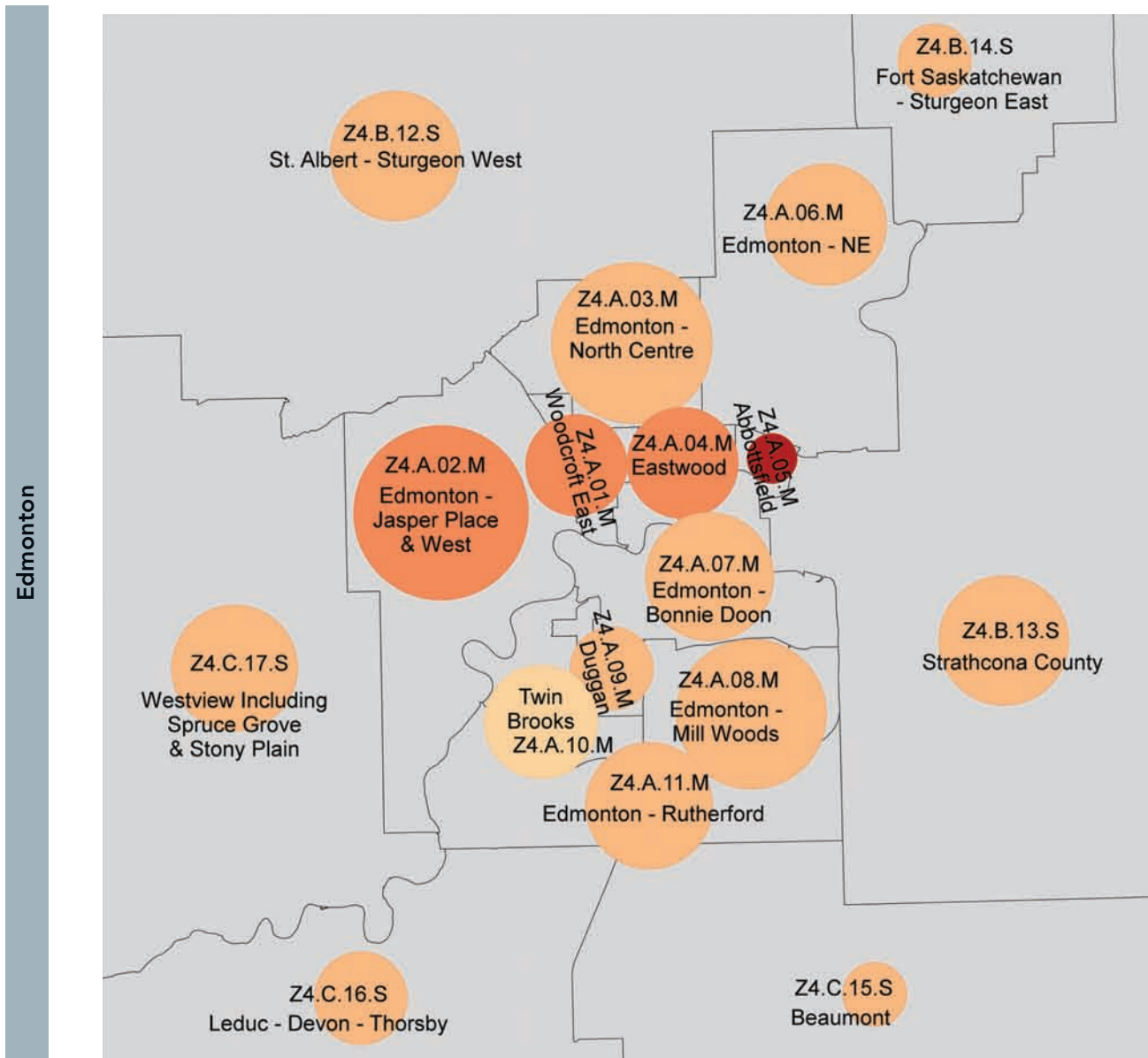
Figure 17. Age and Sex Standardized, Benzodiazepine Patients per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*



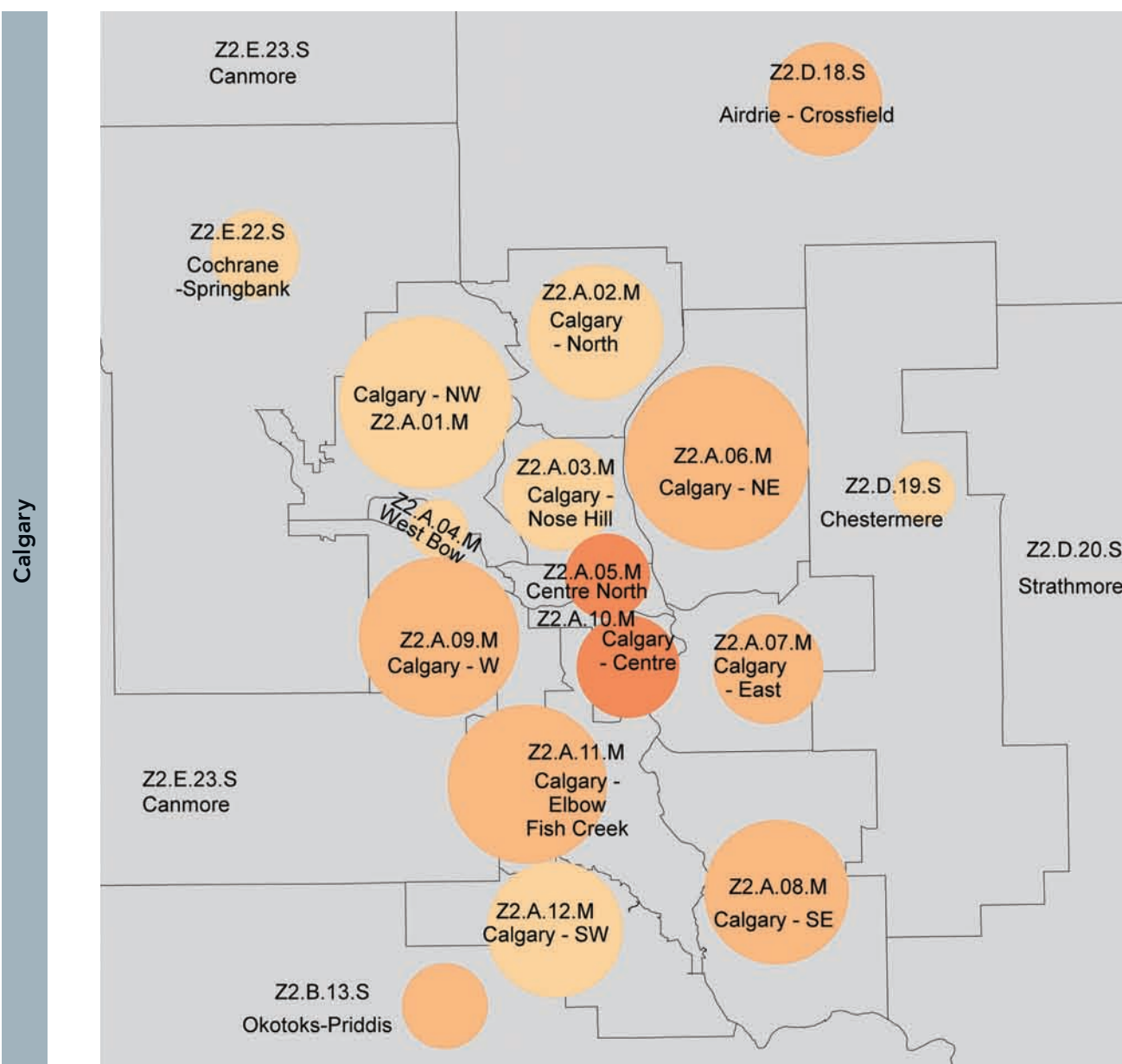
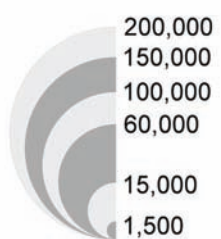
Legend: Provincial and Urban Maps

Patients per 1,000 Population

- Highest (>162.4)
- High (135.5 to 162.4)
- Above Average (108.4 to 135.4)
- Average (72.3 to 108.3)
- Low (45.1 to 72.2)
- Lowest (<45.1)

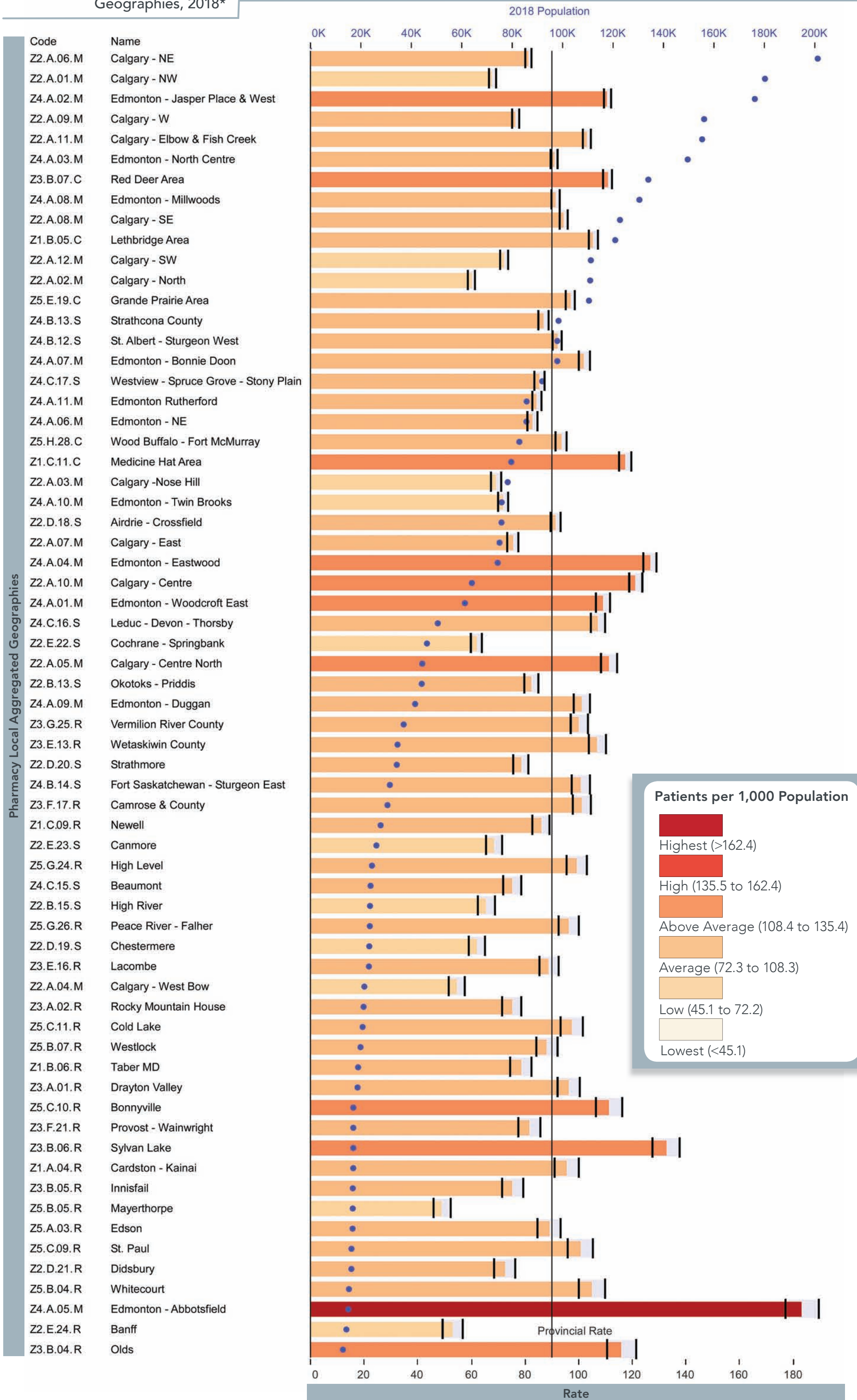


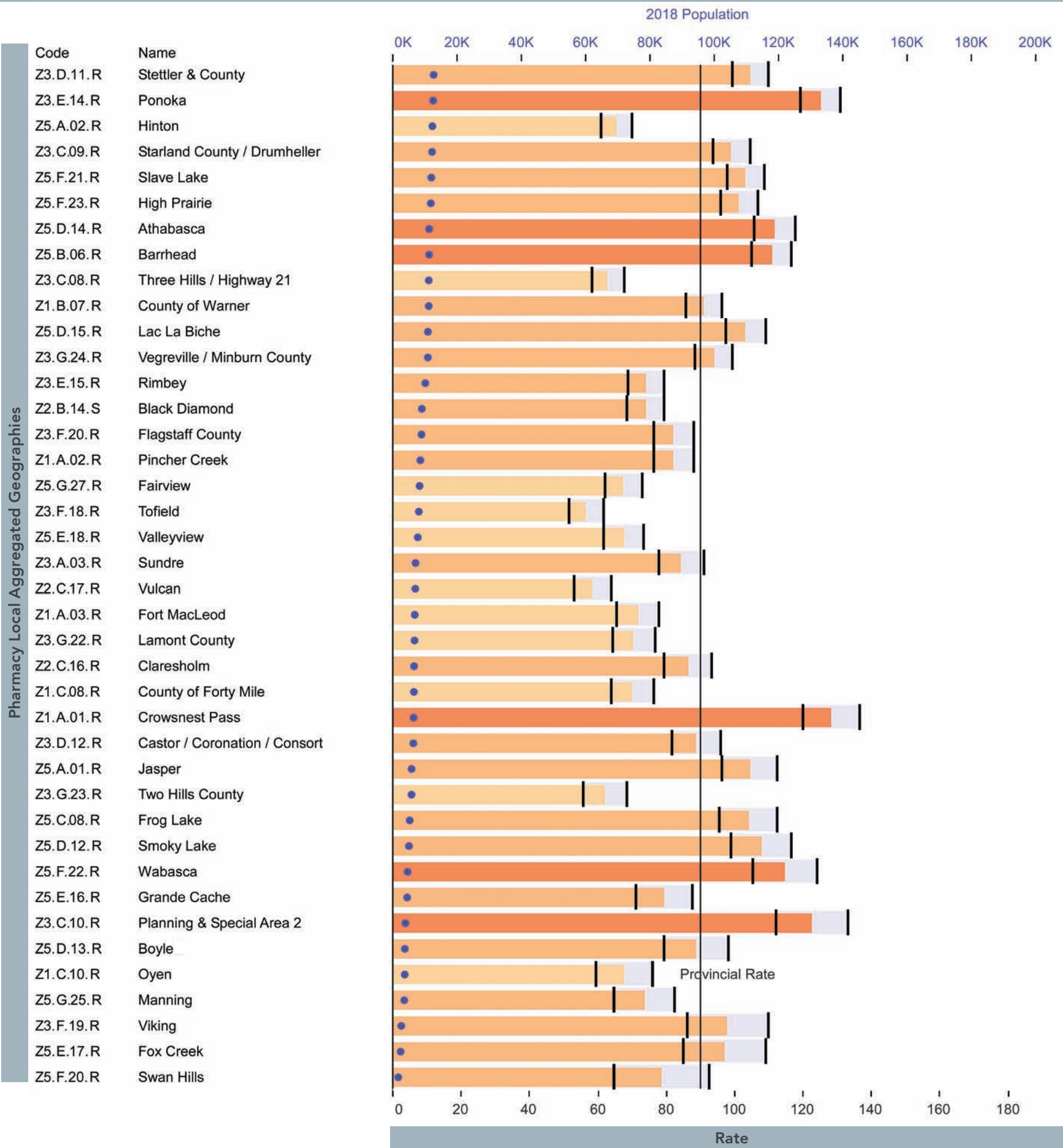
Population



* See Appendix A for a description of the map symbols.

Figure 18a. Age and Sex Standardized, Benzodiazepine Patients per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*





* See Appendix A for a description of the graph symbols.

Figure 18b. Five Year Trends for Five PhLAGs with the Highest Rates of Benzodiazepine Patients

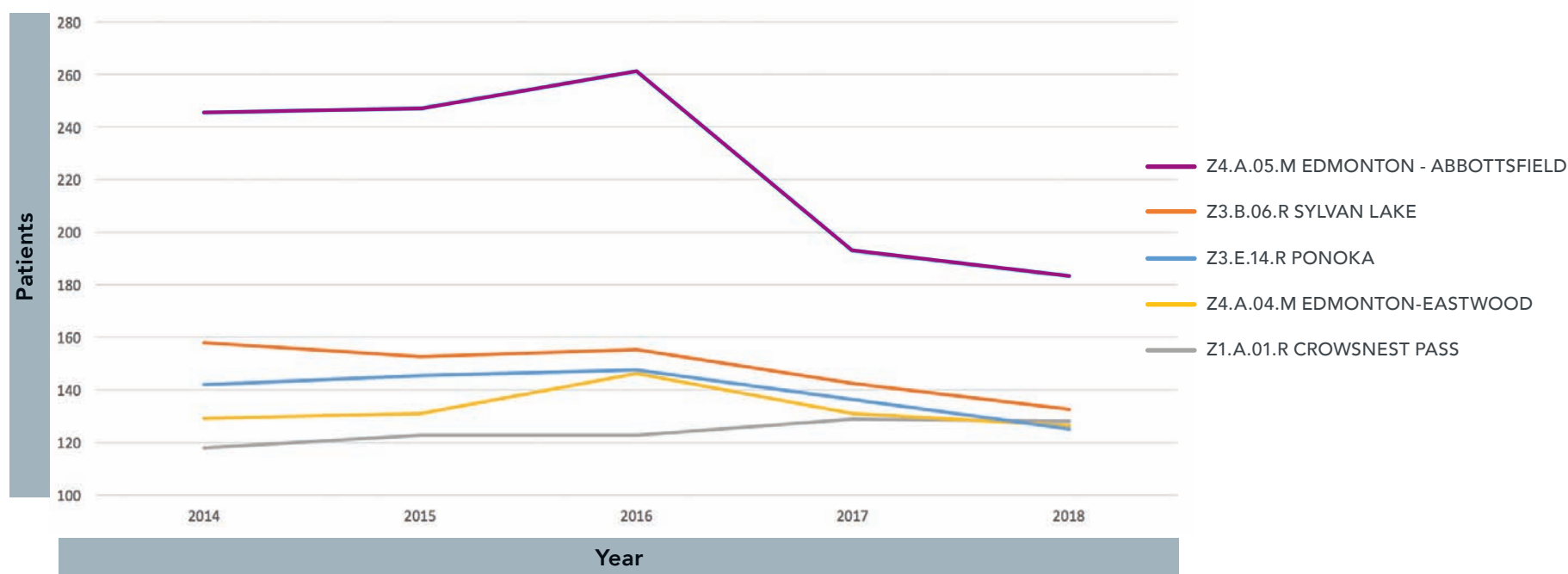
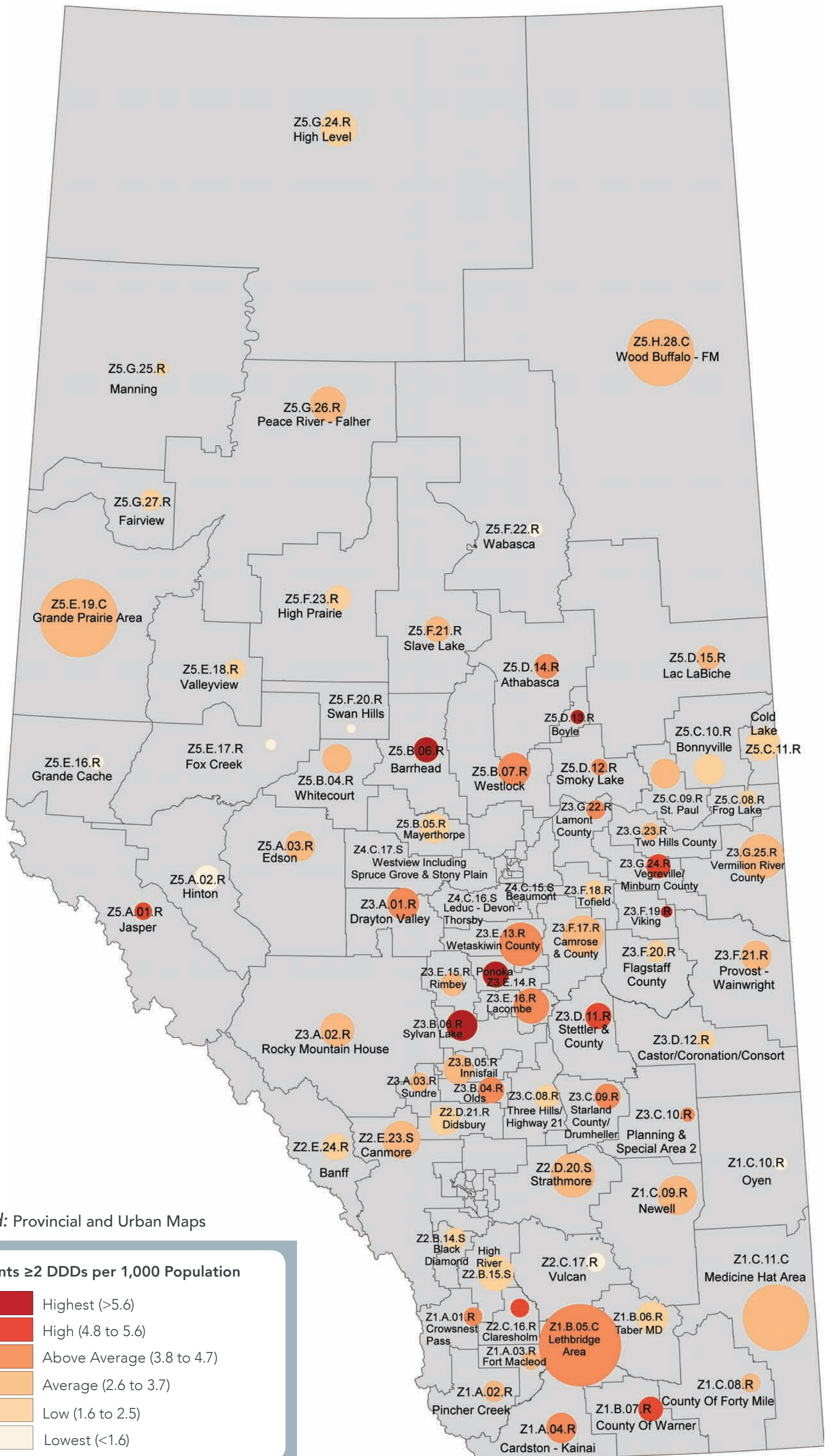


Figure 19. Age and Sex Standardized, Benzodiazepine Patients Who Received 2 DDDs or Greater per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*

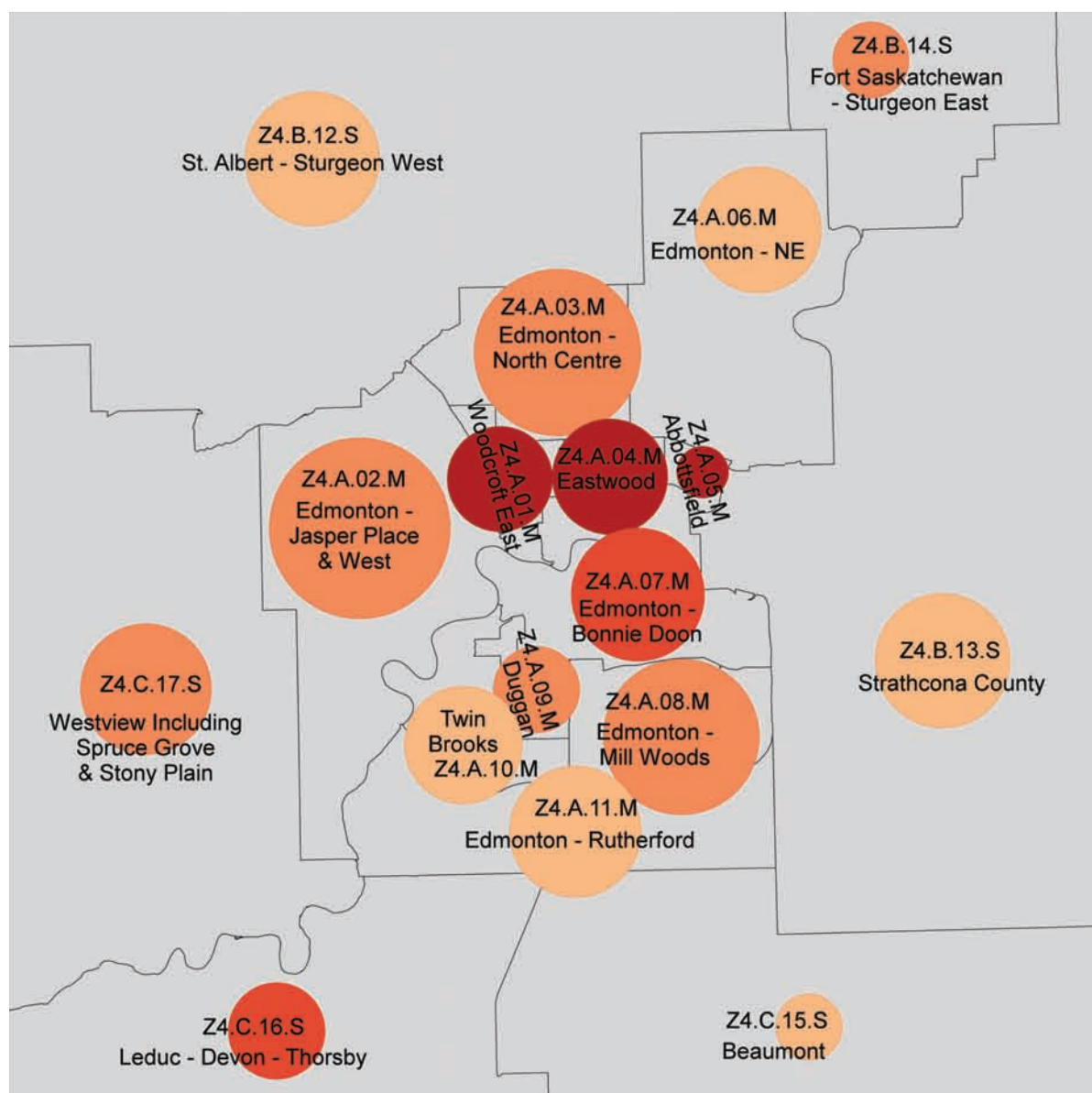


Legend: Provincial and Urban Maps

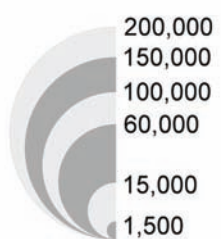
Patients ≥ 2 DDDs per 1,000 Population

- Highest (>5.6)
- High (4.8 to 5.6)
- Above Average (3.8 to 4.7)
- Average (2.6 to 3.7)
- Low (1.6 to 2.5)
- Lowest (<1.6)

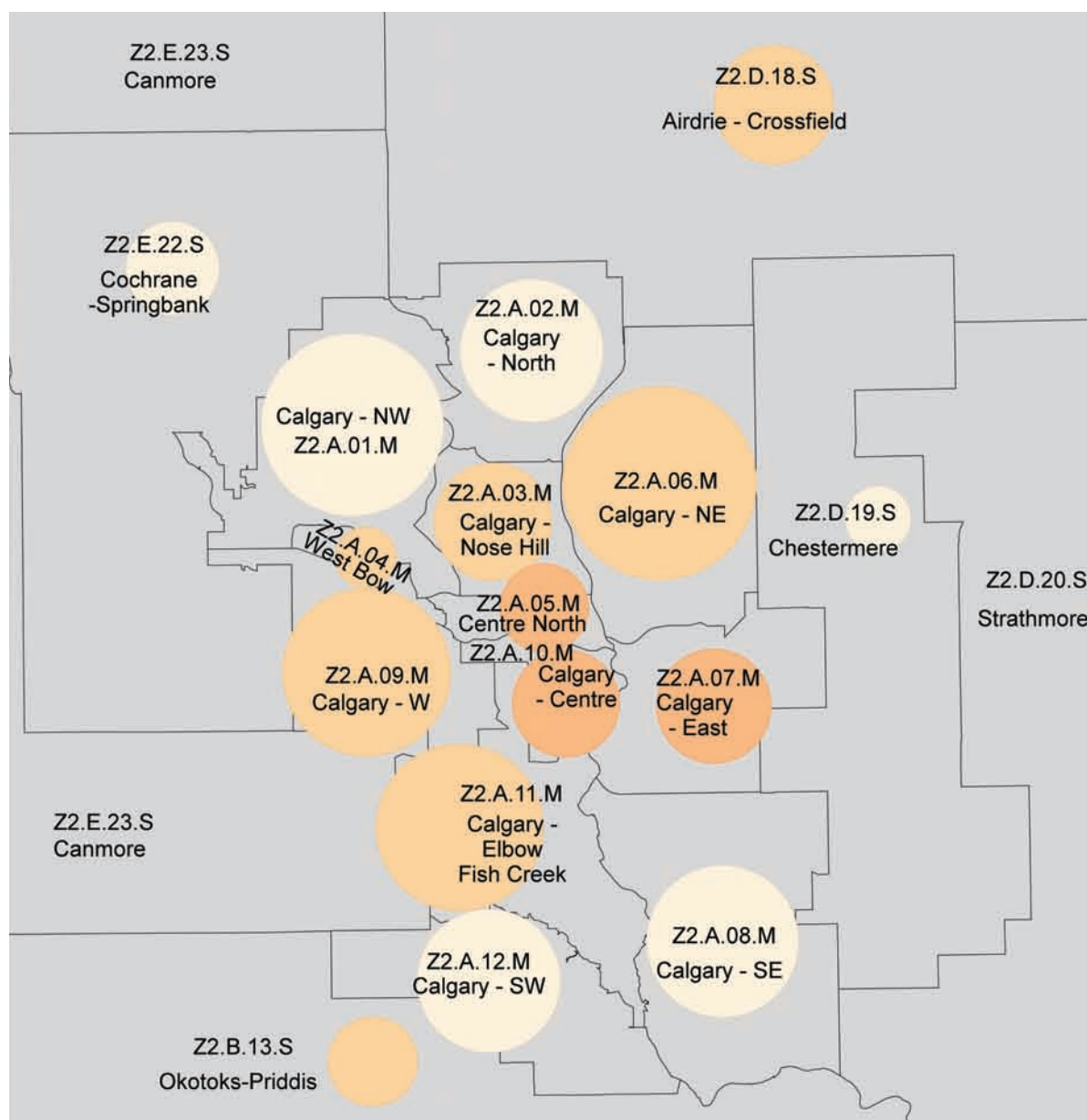
Edmonton



Population

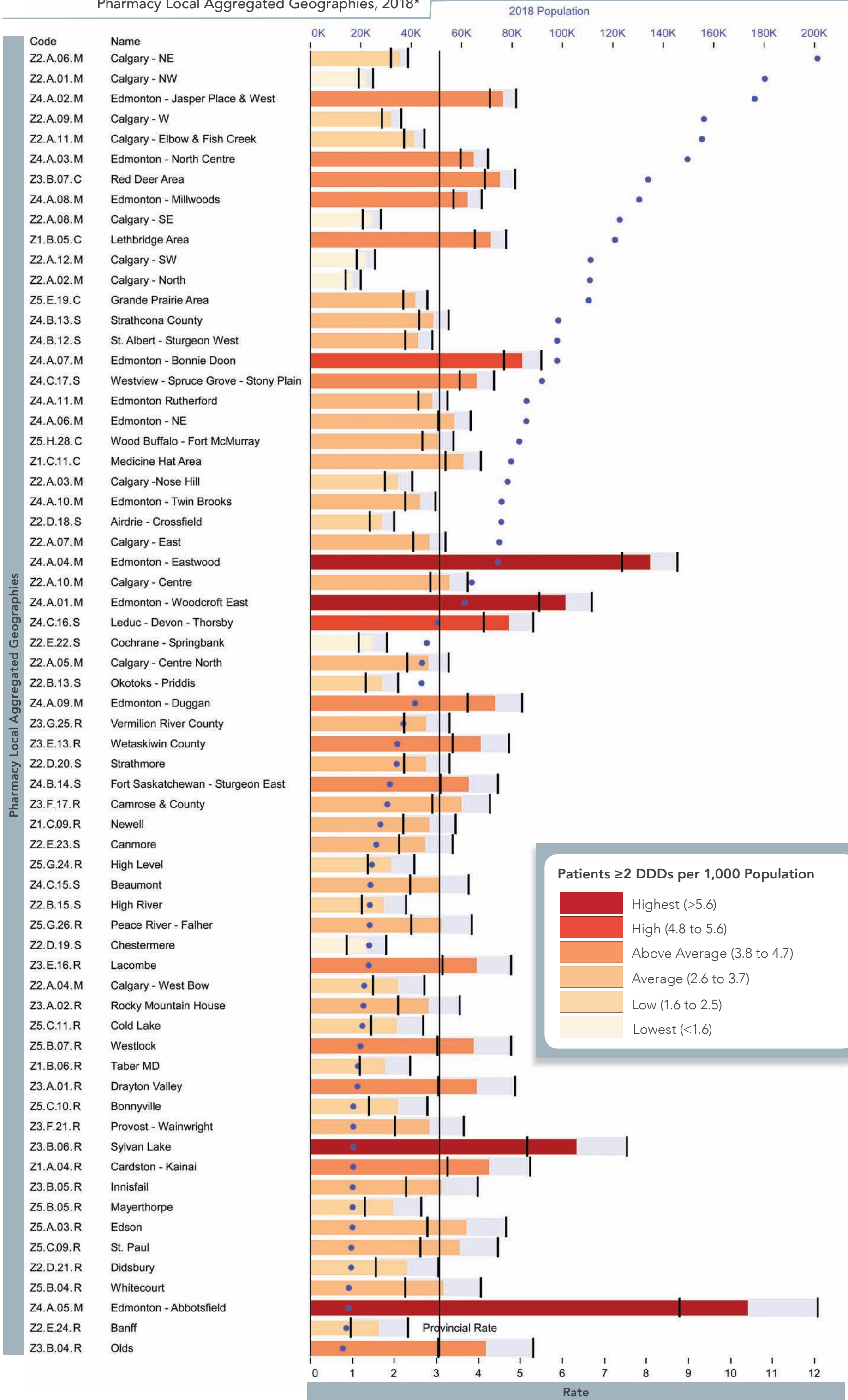


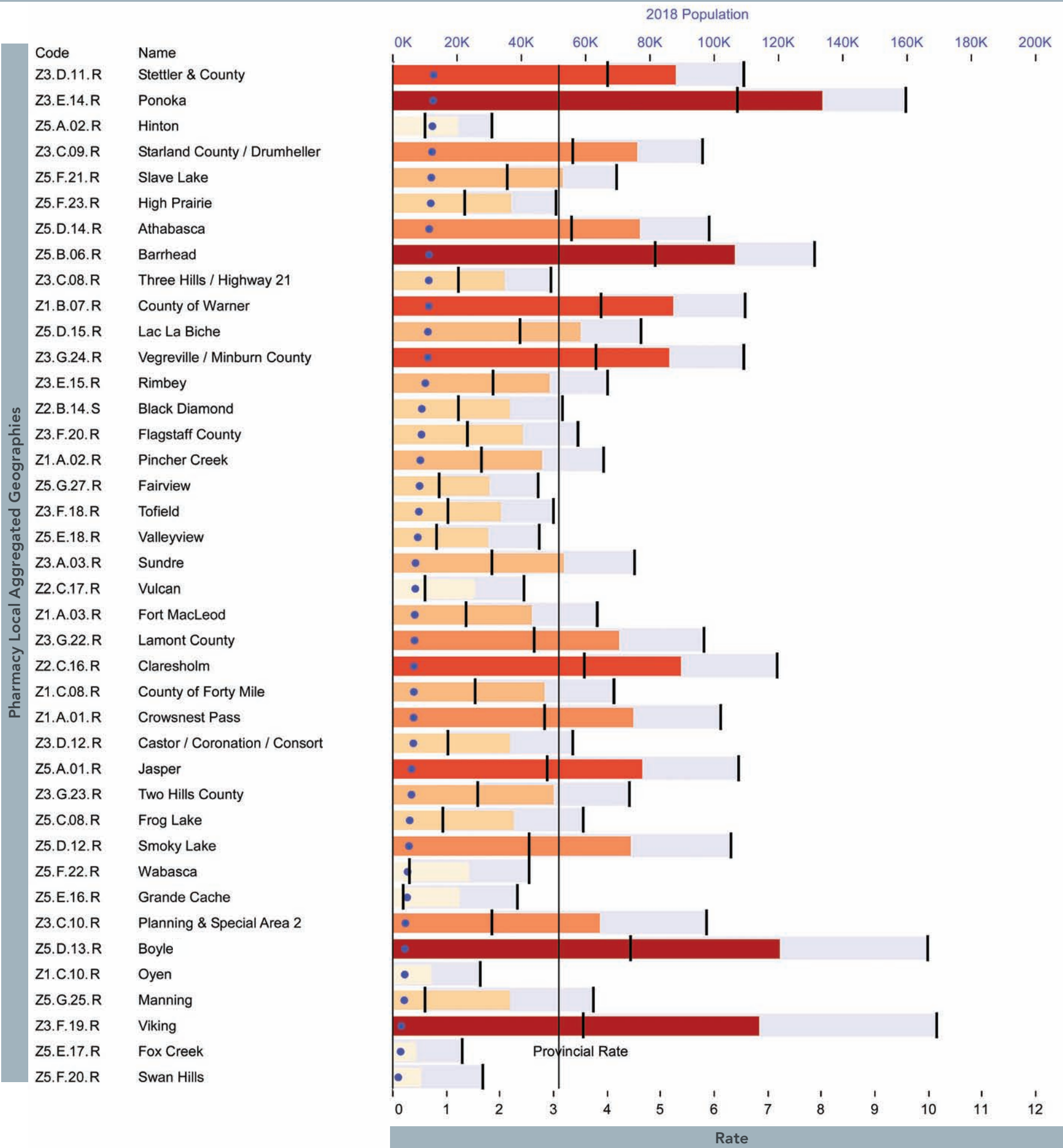
Calgary



* See Appendix A for a description of the map symbols.

Figure 20a. Age and Sex Standardized, Benzodiazepine Patients Who Received 2 DDDs or Greater per 1,000 Population, by Pharmacy Local Aggregated Geographies, 2018*





* See Appendix A for a description of the graph symbols.

Figure 20b. Five Year Trends for Five PhLAGs with the Highest Rates of 2 DDDs or Greater Benzodiazepine Patients

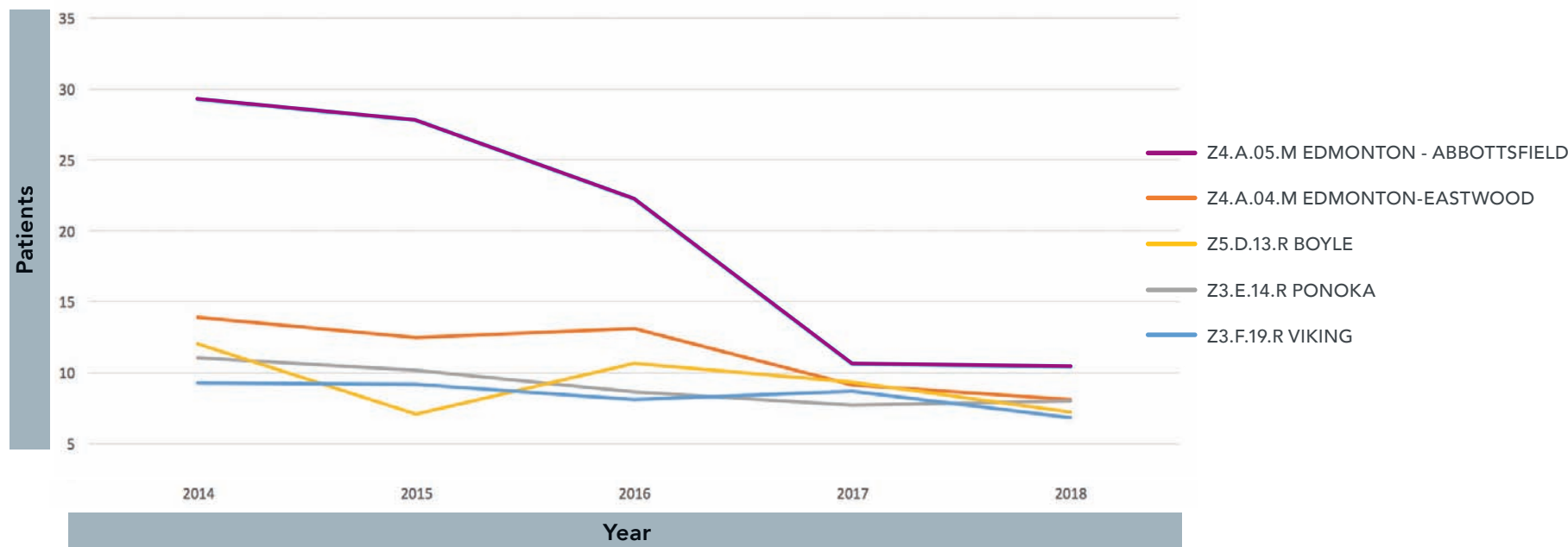
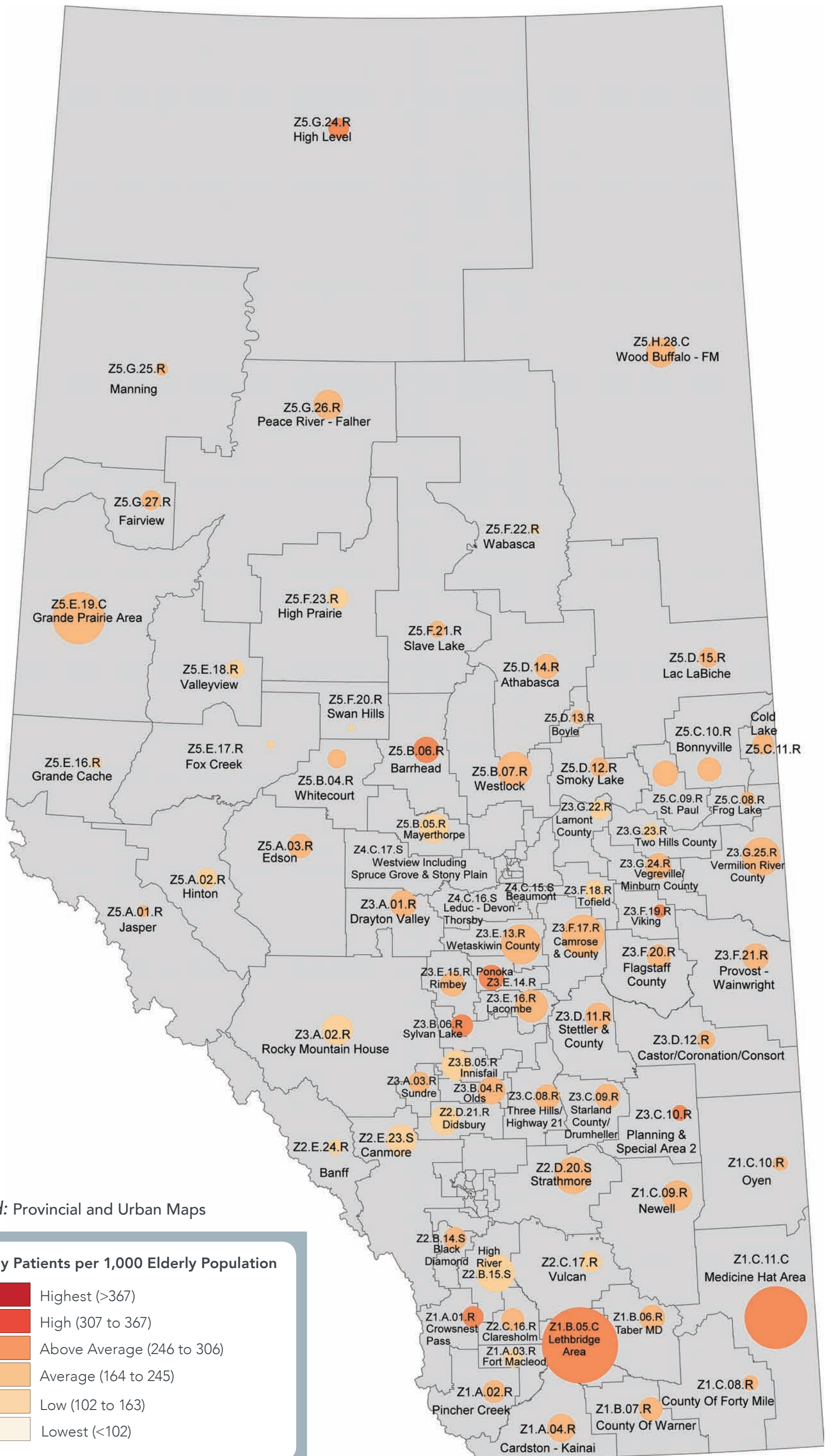
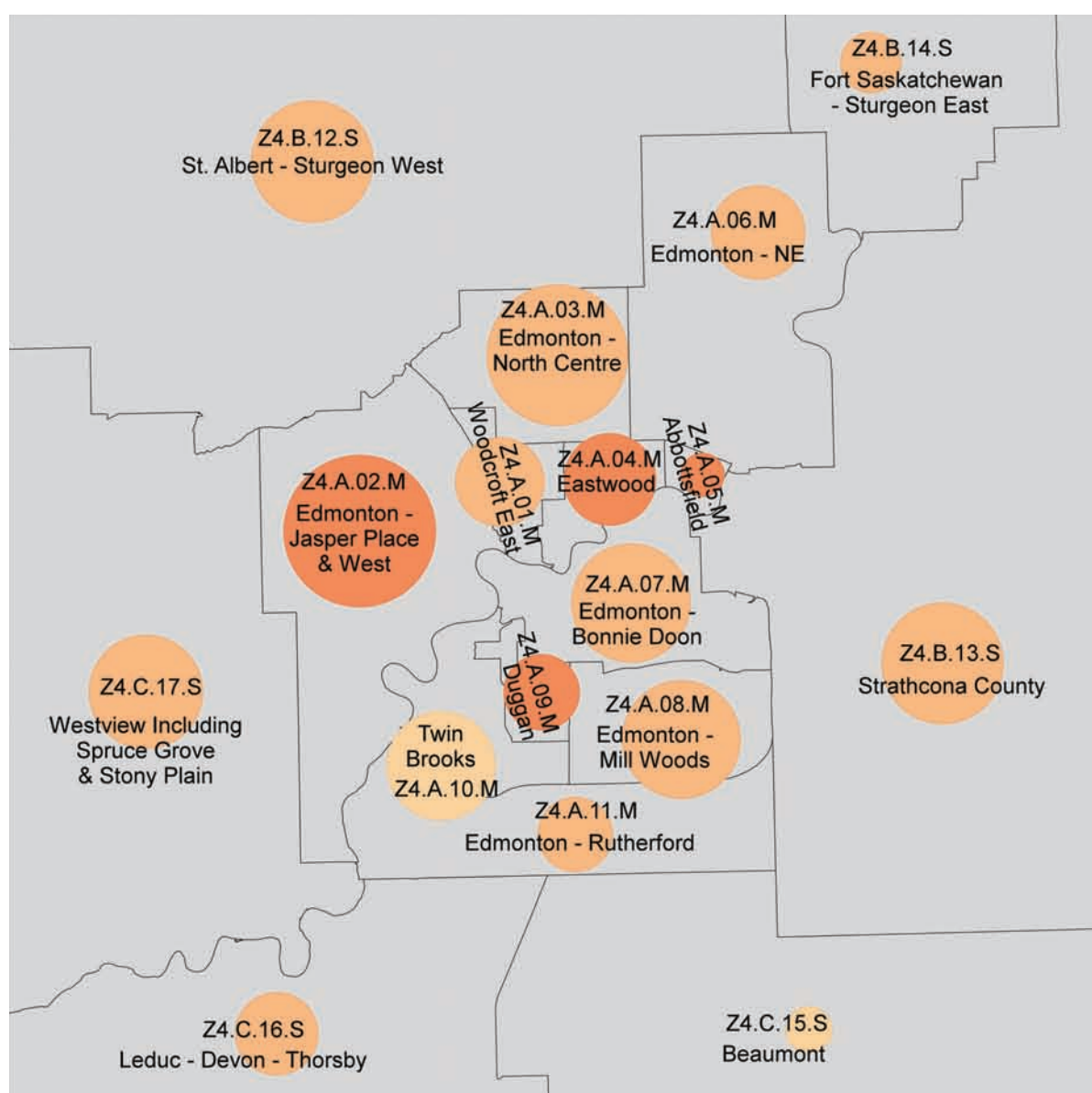


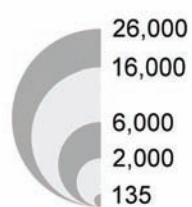
Figure 21. Benzodiazepine Patients 65 Years and Over per 1,000 Elderly Population, by Pharmacy Local Aggregated Geographies, 2018*



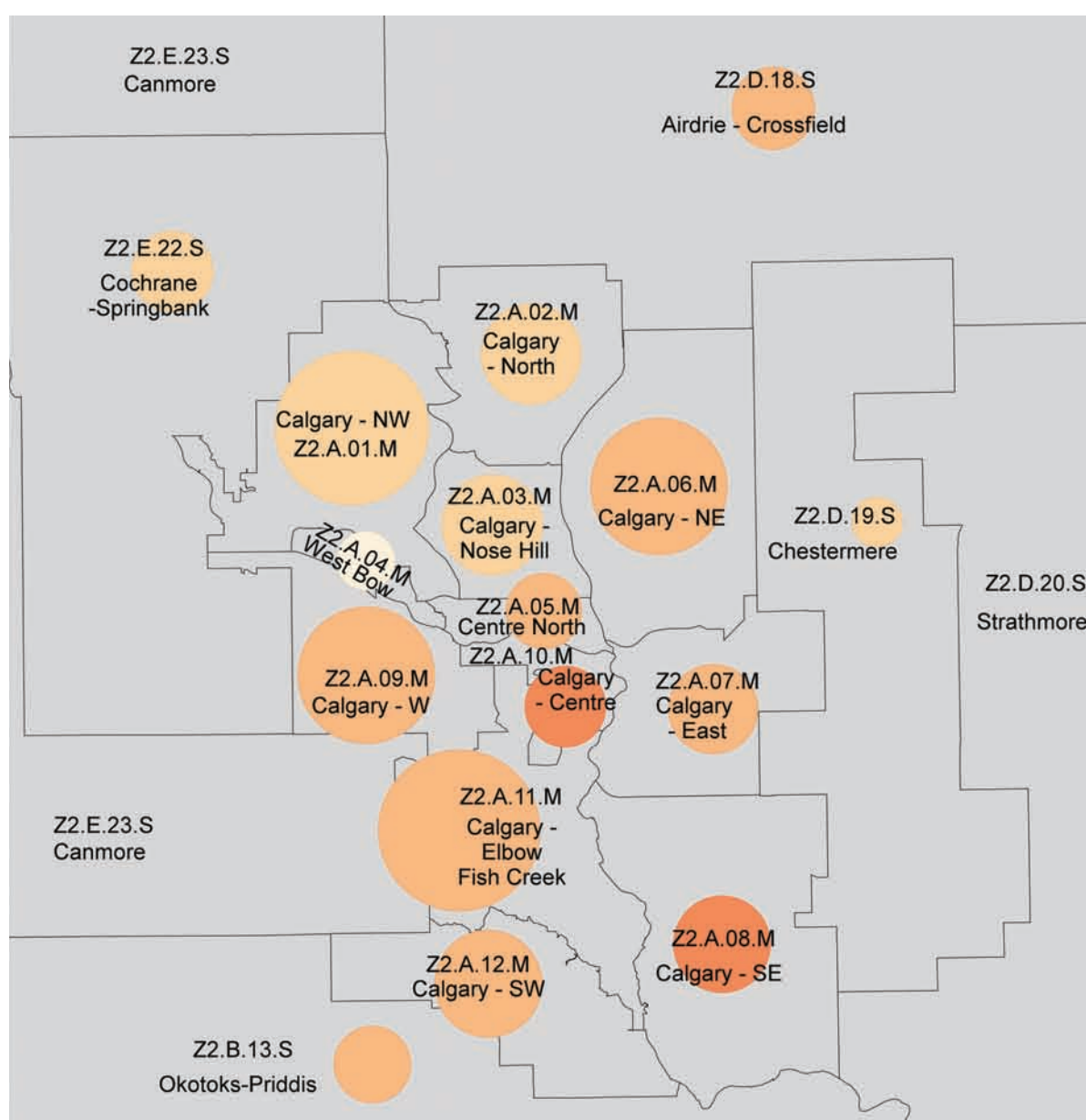
Edmonton



Elderly (65+) Population

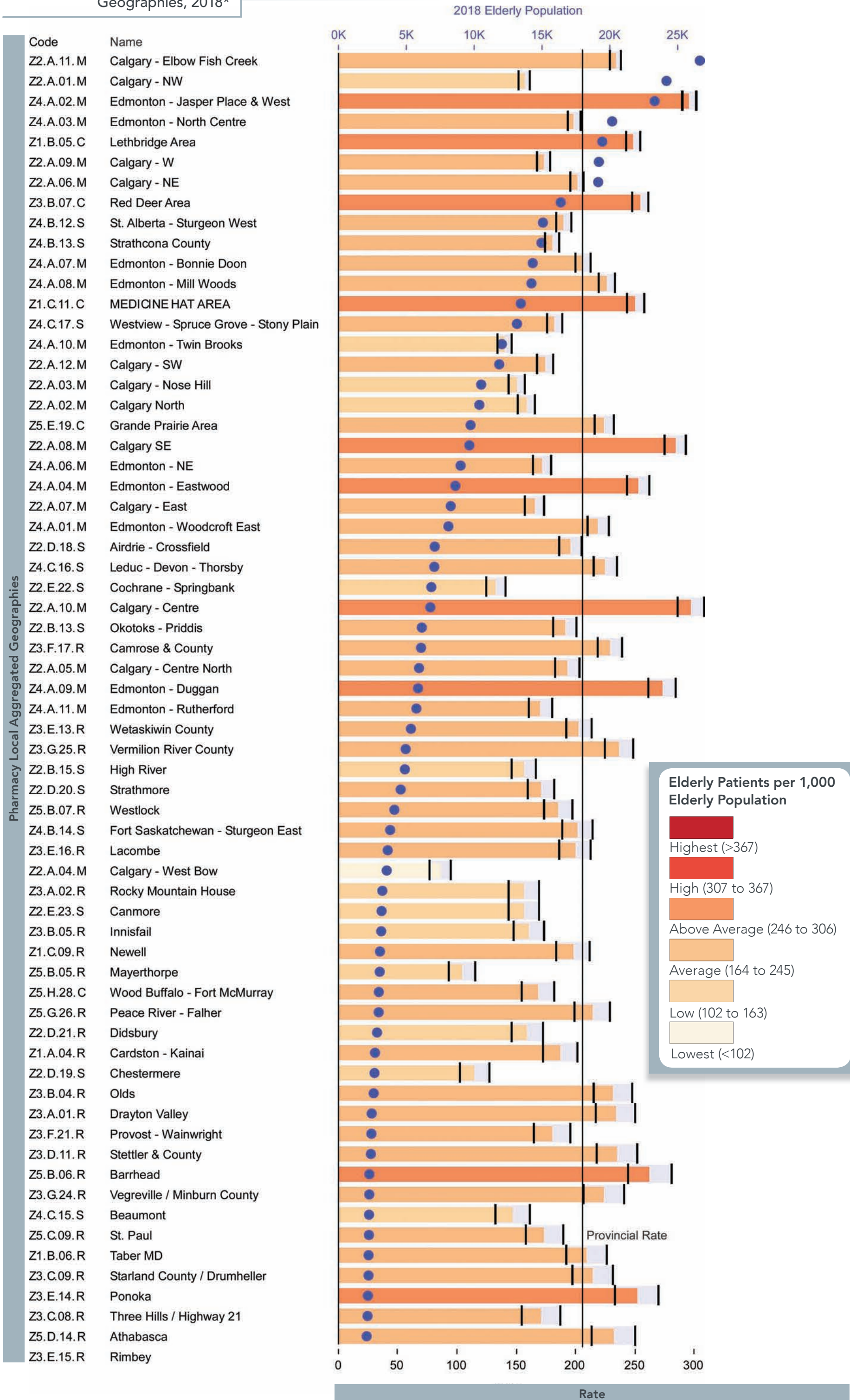


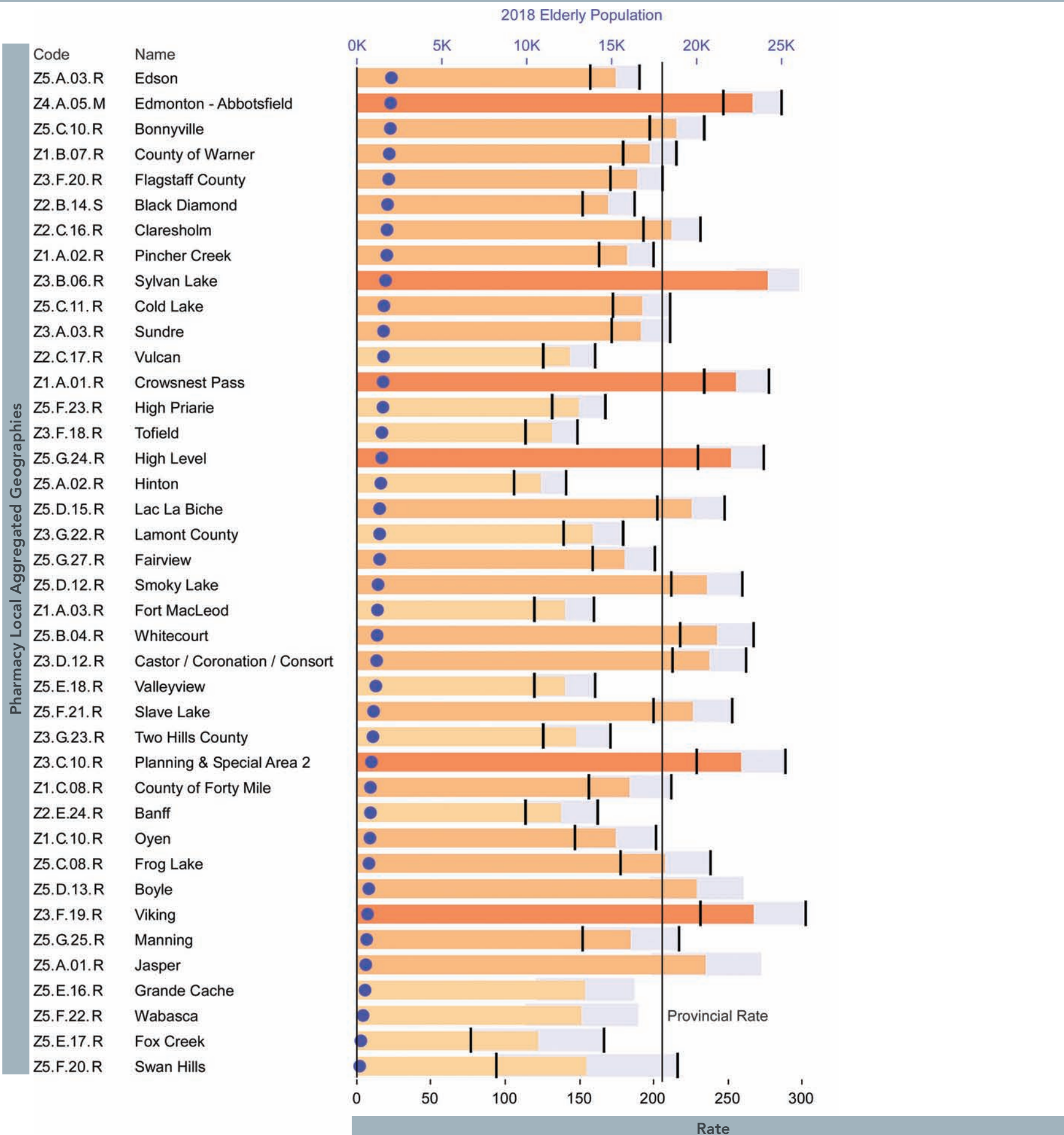
Calgary



* See Appendix A for a description of the map symbols.

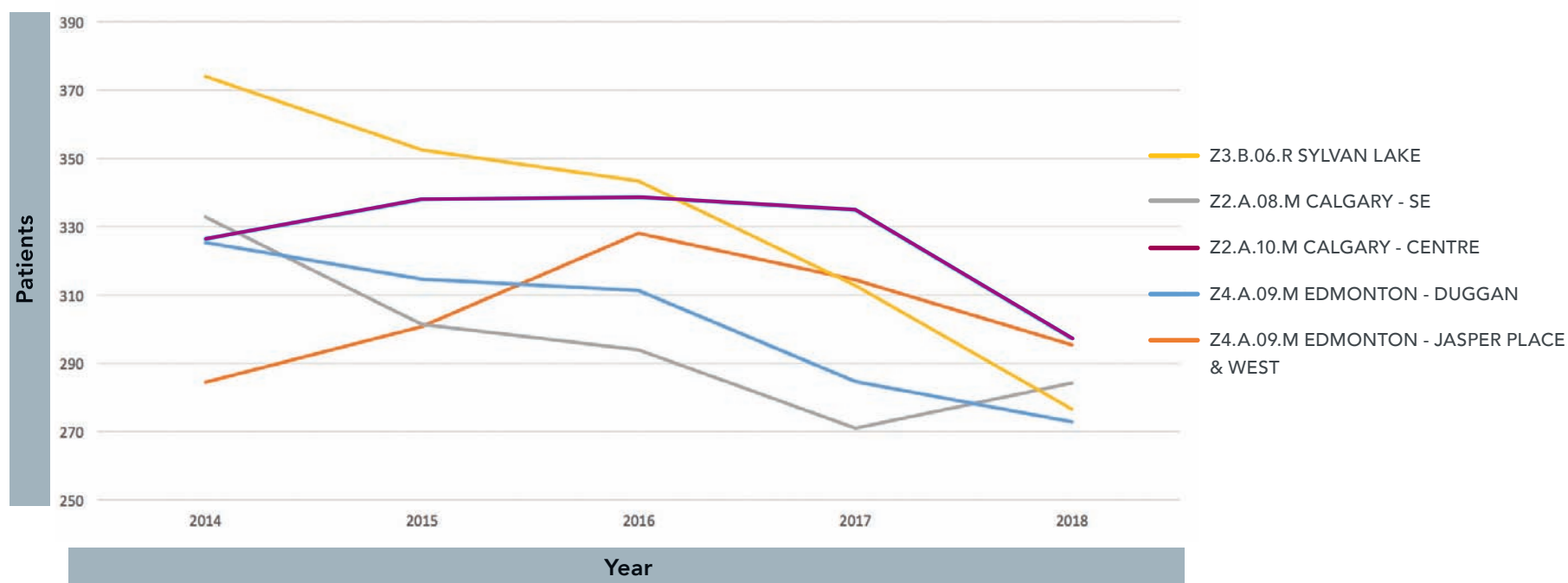
Figure 22a. Benzodiazepine Patients 65 Years and Over per 1,000 Elderly Population, by Pharmacy Local Aggregated Geographies, 2018*





* See Appendix A for a description of the graph symbols.

Figure 22b. Five Year Trends for Five PhLAGs with the Highest Rates of Elderly Benzodiazepine Patients



Appendix A – Alberta Pharmacy Local Aggregated Geography

Figure 23. Map Showing Provincial Pharmacy Local Aggregated Geography Boundaries.

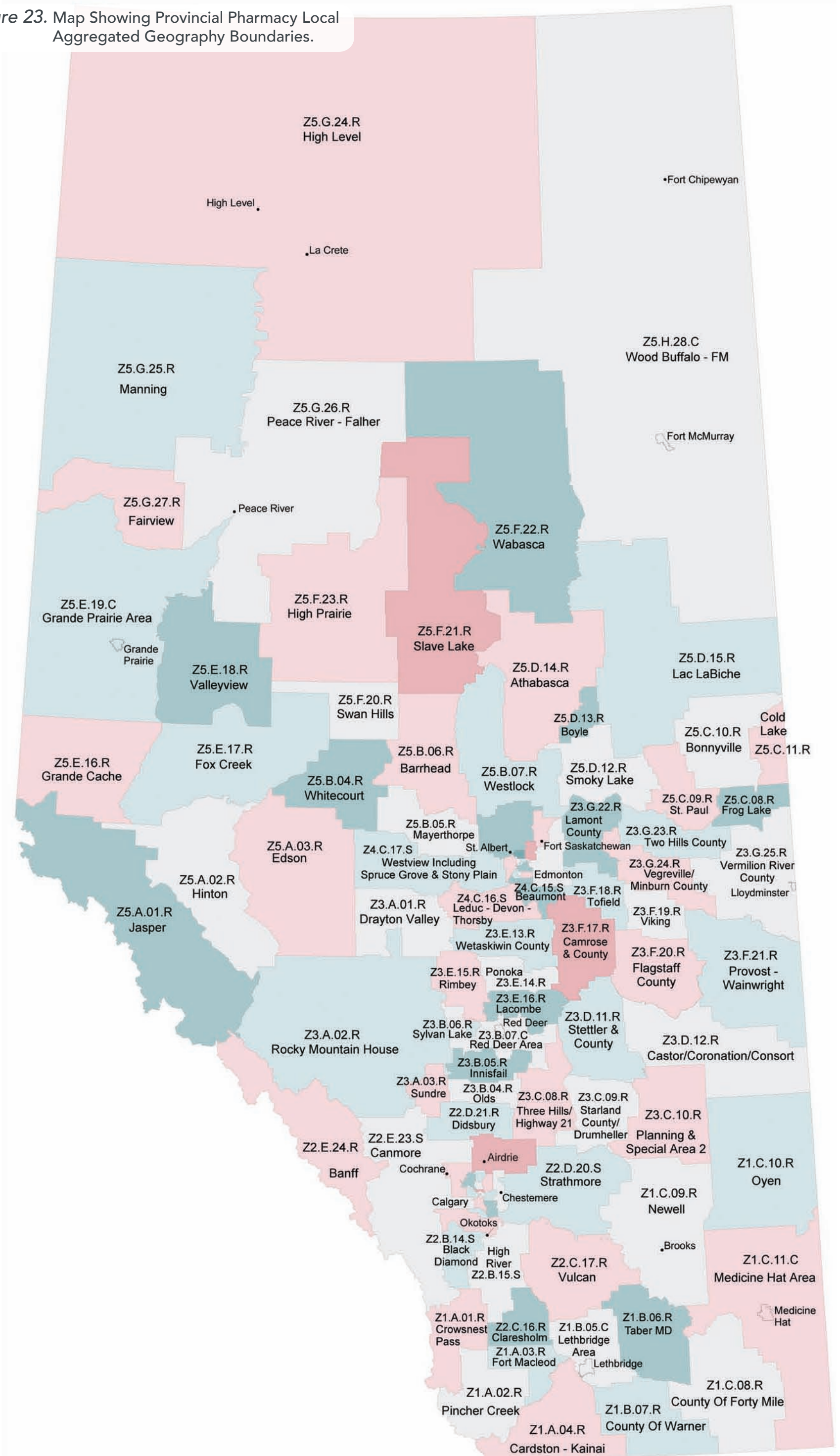
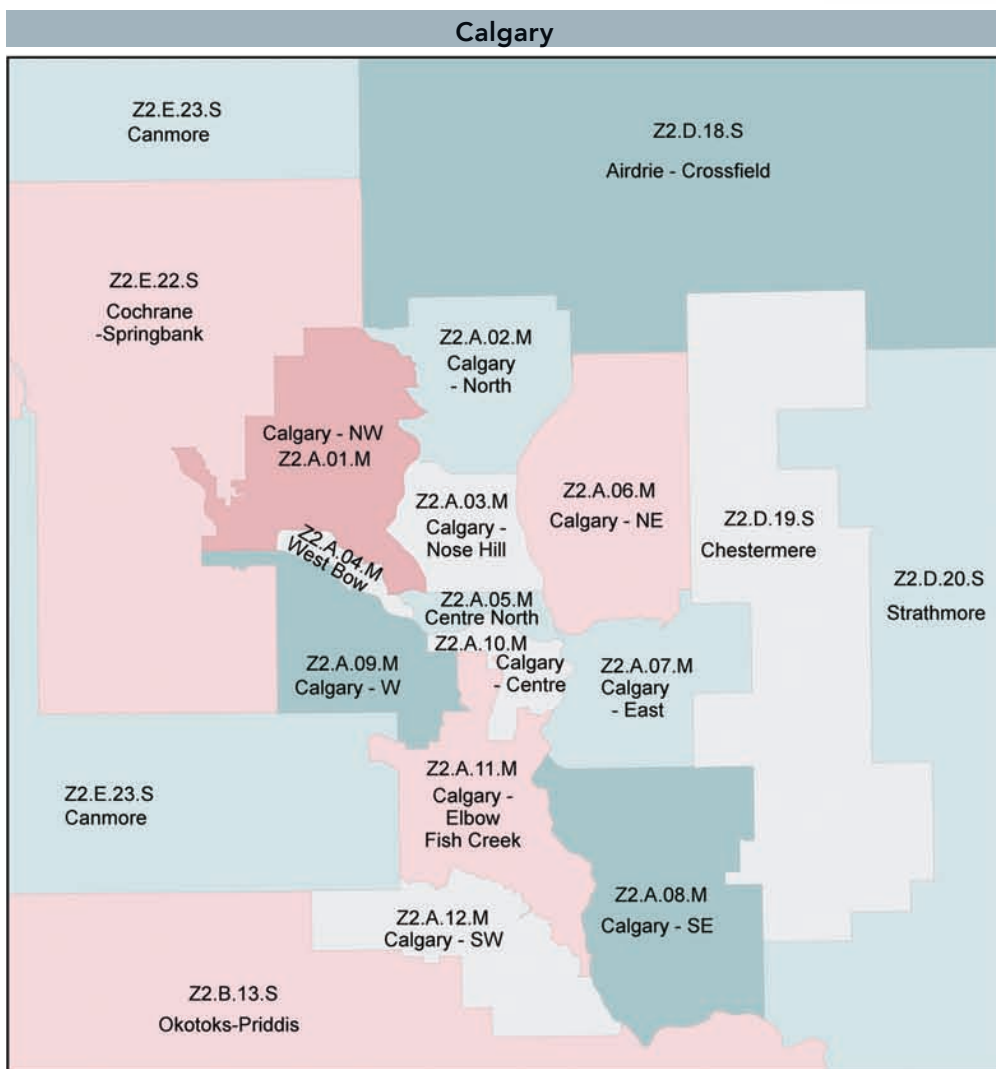
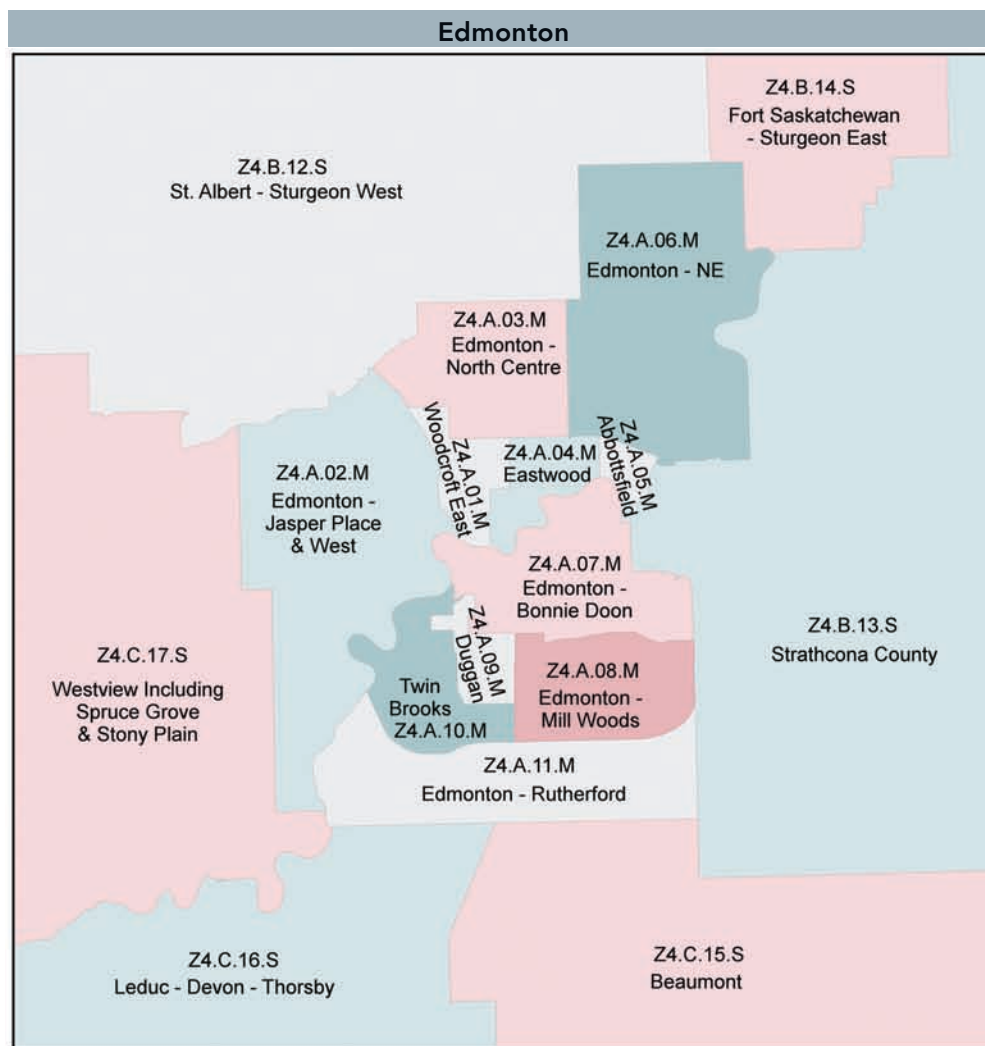
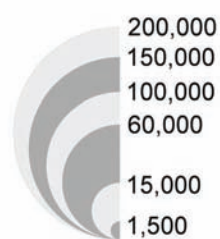


Figure 24. Maps Showing Urban Pharmacy Local Aggregated Geography Boundaries.

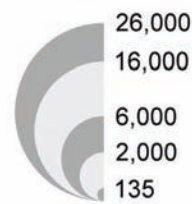


Circles showing total provincial and urban populations for 2018.

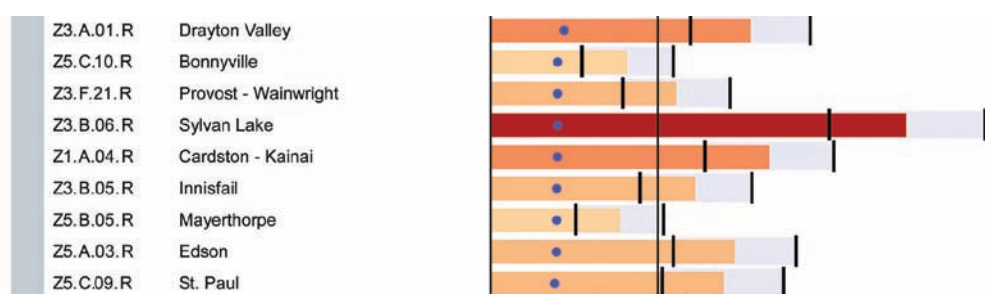
Population



Elderly (65+) Population



Example section of the graph showing individual pharmacy local aggregated geography rates with 95% confidence intervals.



- Mauve bar represents the 95% confidence limits
- Black line represents average provincial rate.
- Blue dots represent the population.

Colour of bar in graph corresponds to rate ratio category.

Appendix B – Opioid Analytic Class, 2018

Table 20. Opioid Analytic Class Prescriptions, Patients, Prescribers and Pharmacies by Main Ingredient, ATC Code and Route of Administration, 2018

Main Ingredient	ATC Code Description	Route	Prescriptions	Patients	Prescribers	Pharmacies
Buprenorphine	N02AE01-BUPRENORPHINE	Buccal	394	163	72	126
Buprenorphine	N02AE01-BUPRENORPHINE	Transdermal	10,679	3,321	1,489	931
Buprenorphine	N07BC51-BUPRENORPHINE, COMBINATIONS	Sublingual	61,635	6,395	1,020	987
Butalbital	N02AA79-CODEINE, COMBINATIONS WITH PSYCHOLEPTICS	Oral	1,971	644	540	444
Butalbital	N02BA71-ACETYLSALICYLIC ACID, COMB WITH PSYCHOLEPTICS	Oral	296	121	126	115
Butorphanol	N02AF01-BUTORPHANOL	Nasal	326	73	87	82
Codeine	M03BB53-CHLORZOXAZONE, COMBINATIONS EXCL PSYCHOLEPTICS	Oral	25	14	12	11
Codeine	N02AA59-CODEINE, COMBINATIONS	Oral	5,010	2,610	1,472	723
Codeine	N02AJ06	Oral	713,549	303,536	12,639	1,454
Codeine	N02AJ07	Oral	1,601	1,134	665	372
Codeine	N02BE51-ACETAMINOPHEN, COMB EXCL PSYCHOLEPTICS	Oral	6,208	3,246	1,425	648
Codeine	R05DA04-CODEINE	Intramuscular	15	6	6	5
Codeine	R05DA04-CODEINE	Oral	65,004	29,769	5,506	1,379
Codeine	R05DA04-CODEINE	Unknown	102	89	18	19
Codeine	R05DA20-COMBINATIONS	Oral	104,709	85,924	3,396	1,373
Codeine	R05FA02-OPIUM DERIVATIVES AND EXPECTORANTS	Oral	36,393	31,425	3,868	1,247
Fentanyl	N01AH01-FENTANYL	Intramuscular	1,614	1,064	300	139
Fentanyl	N02AB03-FENTANYL	Buccal	31	11	8	12
Fentanyl	N02AB03-FENTANYL	Transdermal	15,821	3,175	1,860	913
Fentanyl	N02AB03-FENTANYL	Unknown	36	16	8	2
Hydrocodone	R05DA03-HYDROCODONE	Oral	56	30	29	30
Hydrocodone	R05DA20-COMBINATIONS	Oral	523	372	229	241
Hydromorphone	N02AA03-HYDROMORPHONE	Intramuscular	4,395	2,279	764	233
Hydromorphone	N02AA03-HYDROMORPHONE	Oral	112,309	31,589	5,631	1,377
Hydromorphone	N02AA03-HYDROMORPHONE	Unknown	12	8	6	7
Ketamine	N01AX03-KETAMINE	Intramuscular	38	14	9	13
Ketamine	N01AX03-KETAMINE	Unknown	7	4	4	4
Meperidine	N02AB02-PETHIDINE	Intramuscular	406	98	90	84
Meperidine	N02AB02-PETHIDINE	Oral	1,573	461	383	372
Methadone	N07BC02-METHADONE	Oral	69,366	6,066	675	915
Methadone	N07BC02-METHADONE	Unknown	320	168	106	67
Morphine	N02AA01-MORPHINE	Intramuscular	2,234	1,192	604	215
Morphine	N02AA01-MORPHINE	Intravenous	14	10	10	6
Morphine	N02AA01-MORPHINE	Oral	56,916	13,509	4,188	1,300
Morphine	N02AA01-MORPHINE	Parenteral	123	90	61	11
Morphine	N02AA01-MORPHINE	Rectal	106	31	34	33
Morphine	N02AA01-MORPHINE	Unknown	47	38	17	12
Normethadone	R05DA20-COMBINATIONS	Oral	14	14	11	13
Opium	N02AA02-OPIUM	Rectal	260	172	166	123
Oxycodone	N02AA05-OXYCODONE	Oral	107,148	19,400	4,444	1,365
Oxycodone	N02AA05-OXYCODONE	Rectal	75	11	14	11
Oxycodone	N02AA05-OXYCODONE	Unknown	5	3	3	3
Oxycodone	N02AA55-OXYCODONE, COMBINATIONS	Oral	1,563	417	305	294
Oxycodone	N02AJ17	Oral	130,912	39,292	5,208	1,414
Oxycodone	N02AJ18	Oral	120	35	37	37
Pentazocine	N02AD01-PENTAZOCINE	Oral	175	39	47	45
Remifentanil	N01AH06-REMIFENTANIL	Intravenous	1	1	1	1
Sufentanil	N01AH03-SUFENTANIL	Intravenous	5	3	4	2
Tapentadol	N02AX06-TAPENTADOL	Oral	3,353	803	470	471
Tramadol	N02AJ13	Oral	18,567	17,155	4,390	1,216
Tramadol	N02AX02-TRAMADOL	Oral	5,846	5,256	2,419	1,085
Tramadol	N02AX02-TRAMADOL	Unknown	4	4	4	4

“Unknown” route indicates that the medication format and route for the prescription is not available.

Appendix C – Benzodiazepine Analytic Class, 2018

Table 21. Benzodiazepine Analytical Class Prescriptions, Patients, Prescribers and Pharmacies by Main Ingredient, ATC code and Route of Administration, 2018

Main Ingredient	ATC Code Description	Route	Route	Prescriptions	Patients	Prescribers	Pharmacies
Alprazolam	N05BA12-ALPRAZOLAM		Oral	24,906	8,245	3,199	1,269
Alprazolam	N05BA12-ALPRAZOLAM		Unknown	1	1	1	1
Bromazepam	N05BA08-BROMAZEPAM		Oral	13,085	2,690	1,419	891
Chlordiazepoxide	N05BA02-CHLORDIAZEPOXIDE		Oral	2,365	1,149	747	588
Clobazam	N05BA09-CLOBAZAM		Oral	9,717	3,384	2,165	1,033
Clobazam	N05BA09-CLOBAZAM		Unknown	245	95	97	64
Clonazepam	N03AE01-CLONAZEPAM		Oral	157,270	47,570	6,250	1,436
Clonazepam	N03AE01-CLONAZEPAM		Unknown	136	52	47	37
Clorazepate Dipotassium	N05BA05-CLORAZEPATE POTASSIUM		Oral	204	71	84	73
Diazepam	N05BA01-DIAZEPAM		Intramuscular	27	15	13	15
Diazepam	N05BA01-DIAZEPAM		Oral	36,052	12,592	4,022	1,347
Diazepam	N05BA01-DIAZEPAM		Rectal	141	100	59	88
Diazepam	N05BA01-DIAZEPAM		Unknown	33	16	13	18
Flurazepam	N05CD01-FLURAZEPAM		Oral	869	309	283	278
Lorazepam	N05BA06-LORAZEPAM		Intramuscular	147	123	105	38
Lorazepam	N05BA06-LORAZEPAM		Oral	99,514	46,020	6,241	1,423
Lorazepam	N05BA06-LORAZEPAM		Sublingual	192,676	103,791	7,852	1,444
Lorazepam	N05BA06-LORAZEPAM		Unknown	40	29	25	12
Midazolam	N05CD08-MIDAZOLAM		Intramuscular	2,055	1,549	329	187
Midazolam	N05CD08-MIDAZOLAM		Unknown	56	41	14	12
Nitrazepam	N05CD02-NITRAZEPAM		Oral	13,366	2,466	1,091	782
Nitrazepam	N05CD02-NITRAZEPAM		Unknown	36	14	13	13
Oxazepam	N05BA04-OXAZEPAM		Oral	4,709	1,622	1,229	767
Temazepam	N05CD07-TEMAZEPAM		Oral	57,436	16,418	3,661	1,336
Temazepam	N05CD07-TEMAZEPAM		Unknown	28	10	10	9
Triazolam	N05CD05-TRIAZOLAM		Oral	4,875	3,125	636	822
Zaleplon	N05CF03-ZALEPLON		Oral	1	1	1	1
Zolpidem	N05CF02-ZOLPIDEM		Sublingual	42,113	17,040	4,024	1,279
Zopiclone	N05CF01-ZOPICLONE		Oral	459,678	168,871	11,337	1,454
Zopiclone	N05CF01-ZOPICLONE		Unknown	16	8	9	6

"Unknown" route indicates that the medication format and route for the prescription is not available.

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