

Washington State's Physician Workforce in 2016

KEY FINDINGS

- In 2016 there were 229.4 physicians per 100,000 population providing direct patient care in Washington State, comparable to national per capita rates.
- Washington had 81.2 primary care physicians (family medicine, general pediatrics and general internal medicine specialties) per 100,000 population statewide, higher than the national rate of 73.1 per 100,000 population.
- Most rural areas had fewer physicians per capita and higher percentages age 55 or older than in the rest of the state.
- The mean age of Washington's practicing physicians was 51 years, slightly younger than reported in 2014.
- Women comprised 38.1% of the state's overall physicians and 48.9% of primary care physicians.
- 17.7% of Washington's primary care physicians graduated from the University of Washington School of Medicine (14.0% of physicians overall), much higher percentages than from any other school.
- 39.7% of the state's primary care physicians completed a residency in Washington, as did nearly a third (32.5%) of the state's physicians, overall.
- Since 2014, Washington's physician workforce grew in size, the percent of female physicians increased, and average ages stayed about the same or decreased slightly.

INTRODUCTION

The population of Washington State is estimated to grow by nearly 2.5 million people between 2010 and 2040¹. At the same time, the state's population is aging. Between 2016 and 2040 the number of persons ages 65 and older, is expected to increase from 15% to 22% of the population. These demographic factors will have significant effects on the state's health care delivery and payment systems. Important questions for healthcare policy and planning include whether there will be enough physicians in the right places and with the needed specialties to meet growing and changing demand. This Brief offers data on the size, distribution, and education history of Washington's physician workforce, addressing the questions:

- *How many physicians practice in Washington? (overall and by specialty group)*
- *How are physicians distributed by county, and by eastern compared with western Washington?*
- *How many physicians practice in the state, and how are they distributed relative to the size of the population?*
- *What proportion of the physician workforce graduated from medical school in the state, or completed an in-state residency?*

To estimate the physician workforce providing direct patient care in Washington, analyses for this report were based on data from the American Medical Association (AMA) Physician Masterfile (see Methods, Appendix A).

Washington's per capita physician supply in 2016 was comparable to the national per capita supply.

NUMBER, DEMOGRAPHIC CHARACTERISTICS, AND DISTRIBUTION OF PHYSICIANS IN WASHINGTON

OVERALL SUPPLY AND DEMOGRAPHICS

Washington State's per capita physician supply is comparable to the national per capita supply (Figure 1). In 2016, there were 16,481 physicians, or 229.4 per 100,000 population, providing direct patient care in the state. Nationally, in 2016 there were 228.6 per 100,000 providing direct patient care.

Washington State in 2016 had 5,836 practicing primary care physicians (defined as family medicine, general internal medicine and general pediatrics specialties) or 81.2 per 100,000 population. Washington's primary care physician supply was higher in 2016 than the 74.5 per 100,000 primary care physicians nationally.

Table 1 shows the number of physicians providing patient care in Washington in 2016, total and by specialty group, as well

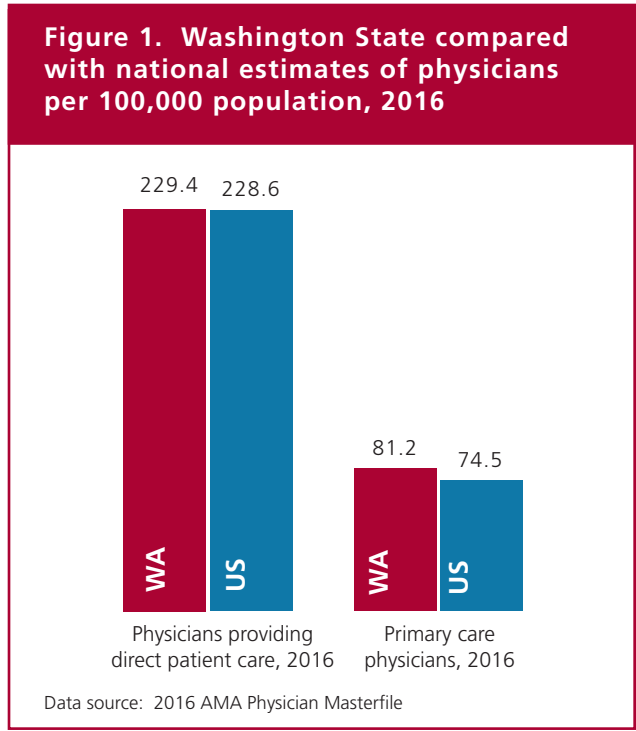


Table 1. Number, gender and age of Washington physicians in 2016

Physicians providing direct patient care*	2016					Percent change between 2014 and 2016				
	#	#/100,000 population**	% female	Mean age (years)	% age 55 or older	Change in #	Change in #/100,000 population	Change in % female	Change in mean age (years)	Change in % age 55 or older
Total	16,481	229.4	38.1%	51.1	40.0%	6.9%	4.2%	6.3%	-0.7%	-3.1%
Primary care	5,836	81.2	48.9%	50.3	36.9%	6.0%	3.4%	5.0%	-0.1%	-1.5%
Family medicine	3,046	42.4	45.3%	51.2	41.1%	6.7%	4.2%	5.8%	-0.6%	-2.5%
General internal medicine	1,825	25.4	46.5%	49.4	32.8%	5.7%	2.9%	4.0%	0.8%	2.2%
General pediatrics	965	13.4	65.1%	49.4	31.4%	4.6%	1.8%	5.0%	-0.6%	-5.7%
Surgeons	1,777	24.7	41.8%	51.7	42.0%	4.3%	1.8%	8.5%	-0.7%	-2.0%
General surgery	388	5.4	30.2%	50.8	35.6%	6.0%	3.9%	7.3%	-0.8%	-4.4%
Obstetrics-gynecology	843	11.7	61.9%	51.6	42.8%	3.6%	1.2%	8.3%	-0.9%	0.1%
Other surgery	546	7.6	18.9%	52.6	45.4%	4.4%	1.3%	13.6%	-0.4%	-3.4%
Psychiatrists	727	10.1	40.7%	54.8	55.6%	7.7%	5.4%	3.6%	-0.7%	-0.1%
Other Specialists	8,141	113.3	29.2%	51.2	40.4%	8.0%	5.3%	8.6%	-1.1%	-4.5%

*Not federally employed, age <75 years, in Washington State

**Statewide 2016 statewide population numbers were obtained from Washington's Office of Financial Management <http://www.ofm.wa.gov/pop/april1/>

as the number per capita, sex, age, and percent change between 2014 and 2016. Detailed findings from 2014 analyses are available in the report “Washington State’s Physician Workforce in 2014”.² Across the years the mean age overall and by specialty for most Washington physicians remained similar, between 49 and 53 years with the exception of psychiatrists whose average age remained 55 years (Table 1). Women made up less than half of Washington’s physician workforce in each specialty except general pediatrics and obstetrics/gynecology in both years. In general, between 2014 and 2016 the size of the state’s physician workforce grew, the percent of female increased and average ages stayed about the same or decreased slightly.

DISTRIBUTION

In 2016, fewer physicians provided direct patient care per 100,000 population in rural compared with urban areas of Washington, and similar results were found for practicing primary care

Figure 2. Washington physicians* in urban and rural areas per 100,000 population in 2016

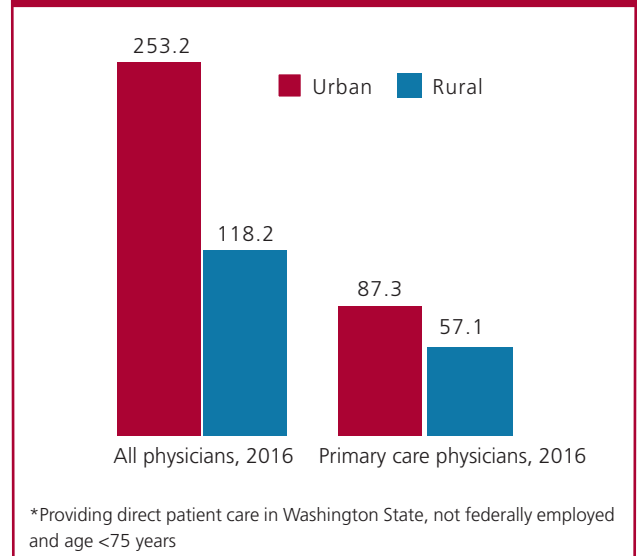


Table 2. Washington physicians in 2016: Eastern compared with western Washington counties

Physicians providing direct patient care*	2016				Percent change between 2014 and 2016			
	Eastern WA counties**		Western WA counties***		Eastern WA counties**		Western WA counties***	
	#	#/100,000 population	#	#/100,000 population	Change in #	Change in #/100,000 population	Change in #	Change in #/100,000 population
Total	2,917	185.5	13,563	241.7	3.7%	2.4%	7.6%	4.5%
Primary care	1,101	70.0	4,734	84.4	1.1%	-0.1%	7.2%	4.2%
Family medicine	654	41.6	2,392	42.6	2.2%	0.9%	8.0%	5.0%
General internal medicine	296	18.8	1,529	27.3	-1.3%	-2.5%	7.1%	4.0%
General pediatrics	151	9.6	813	14.5	1.3%	0.0%	5.0%	2.0%
Surgeons	322	20.5	1,455	25.9	2.9%	1.9%	4.7%	1.7%
General surgery	71	4.5	317	5.6	6.0%	5.0%	6.0%	2.7%
Obstetrics-gynecology	161	10.2	682	12.2	5.2%	3.4%	3.2%	0.5%
Other surgery	90	5.7	456	8.1	-3.2%	-4.6%	6.0%	2.9%
Psychiatrists	77	4.9	650	11.6	-2.5%	-4.0%	9.1%	6.3%
Other Specialists	1,417	90.1	6,724	119.8	6.3%	5.0%	8.3%	5.3%

*Not federally employed, age <75 years, providing direct patient care in Washington State

**20 counties east of the Cascade mountains (total population 1,572,860)

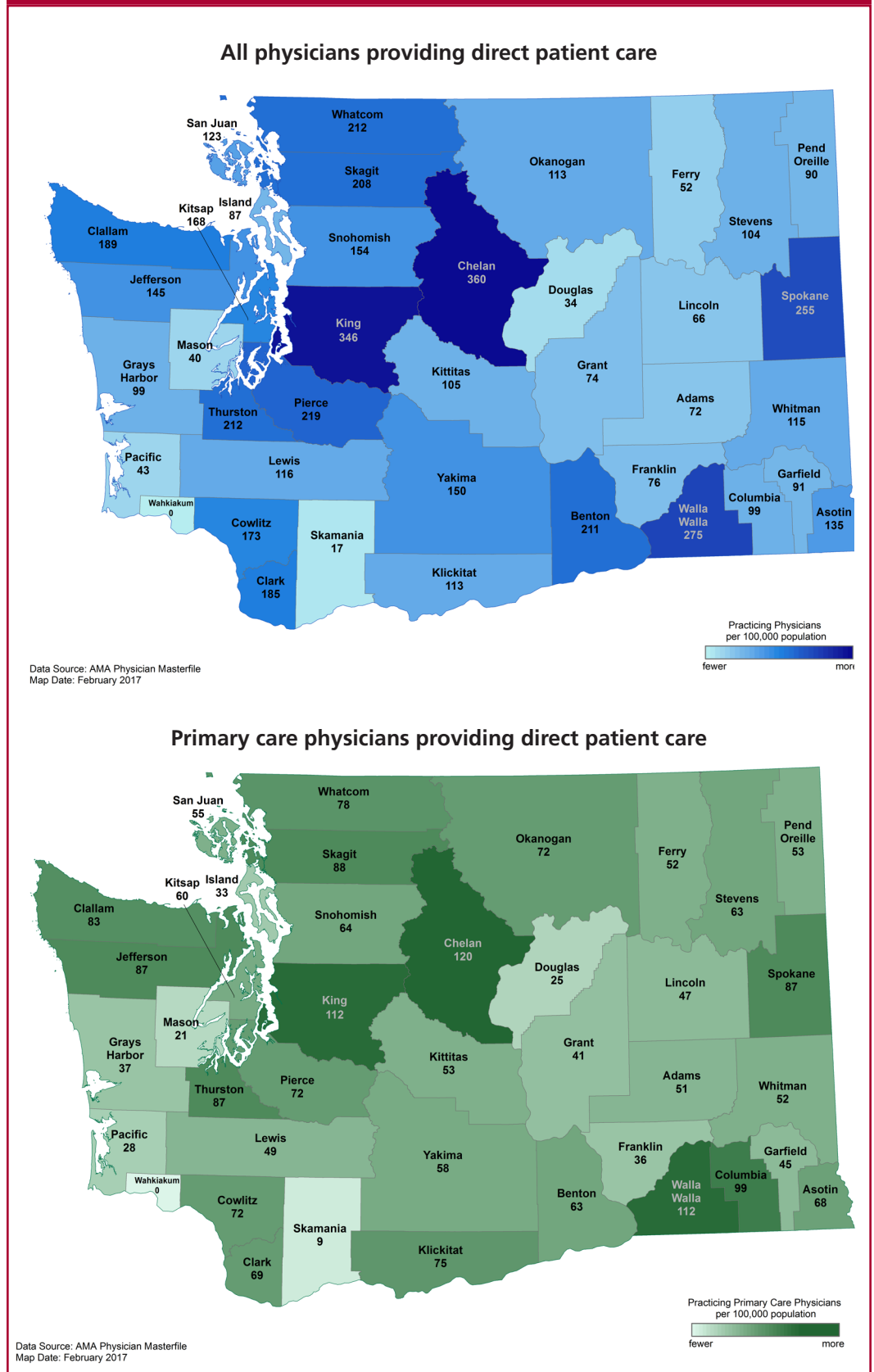
***19 counties west of the Cascade mountains (total population 5,610,840)

Per capita primary care physician supply stayed essentially the same in eastern Washington [between 2014 and 2016] while it grew by 4% on the west side.

physicians (Figure 2). Greater concentrations of practicing physicians, overall, were found in the more urban counties compared with rural, and in western compared with eastern Washington counties, as shown in Table 2 and in Figure 3. The primary care physician workforce was larger, per capita, on the west side of the state compared with the east (84 vs. 70, per 100,000 respectively) although the rates for family medicine physicians were similar on west and east sides of the state (43 and 42, per 100,000 respectively).

Since 2014, the overall physician workforce has grown on both sides of the state (by 2.4% in eastern Washington and by 4.5% in western Washington), as have the numbers per capita. Per capita primary care physician supply stayed essentially the same in eastern Washington over the two years, while it grew by 4% on the west side.

Figure 3. Washington physicians per 100,000 population in 2016, by county



As shown in Figure 4 many of Washington's most rural counties have the highest percentages of physicians age 55 and older. Two thirds or more of all physicians providing direct patient care in Garfield, Ferry, Columbia, Clallam, Pacific, San Juan, and Skamania counties were age 55 or older in 2016. The percentages of primary care physicians age 55 or older are generally lower than for overall physicians, but still remain high among the more rural counties.

Two thirds or more of all physicians providing direct patient care in Garfield, Ferry, Columbia, Clallam, Pacific, San Juan, and Skamania counties were age 55 or older in 2016.

Figure 4. Washington physicians age 55 or older in 2016, by county

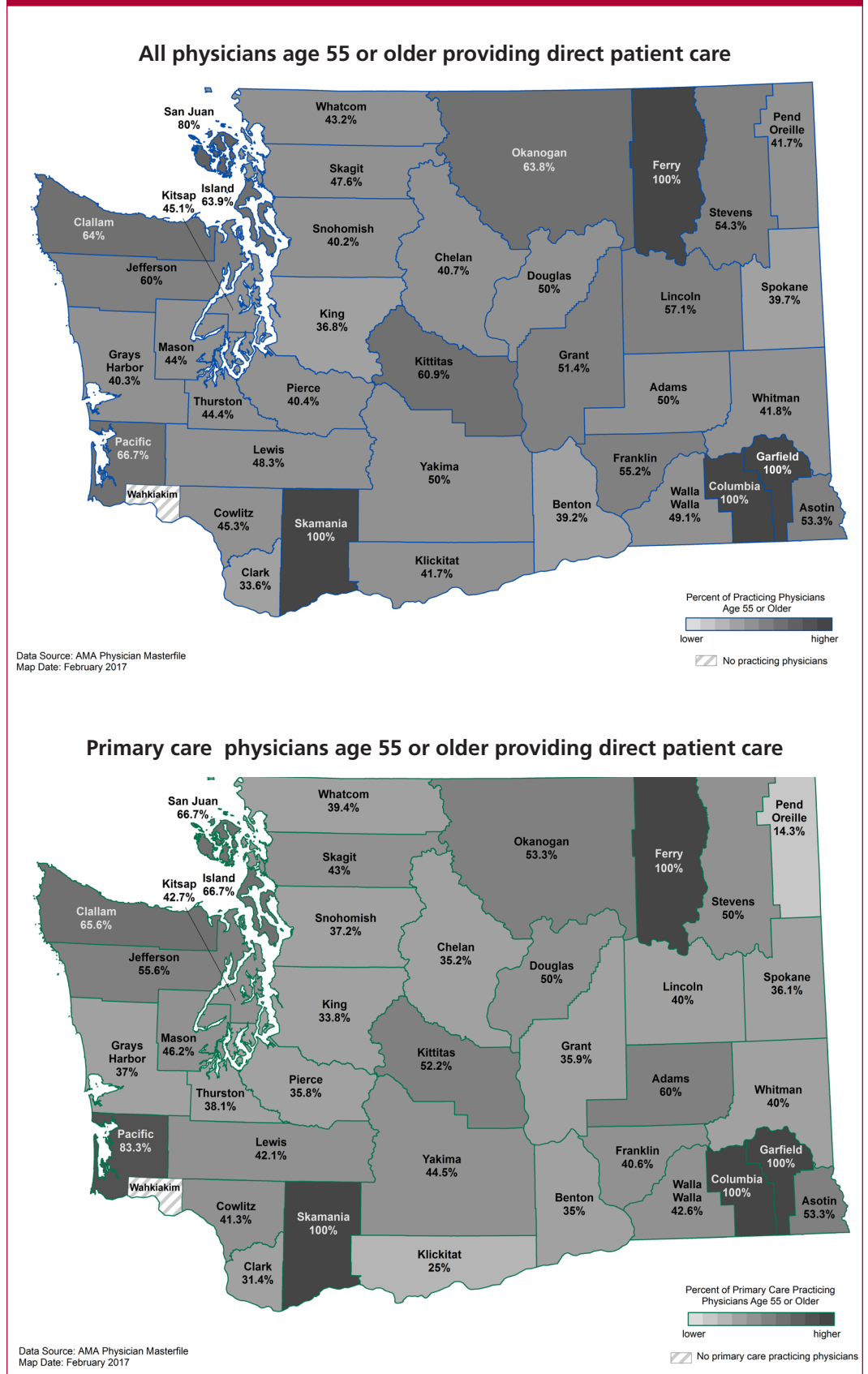


Table 3 details the rural-urban distribution of the state's physicians, overall and by specialty, and shows their distribution among three sub-rural area types: large rural, small rural and isolated small rural. Figure 5 shows where rural and urban areas are located in Washington. As expected, specialists congregate in urban areas where more specialty care services and larger hospitals are located.

Figure 5. Location of urban and rural areas in Washington

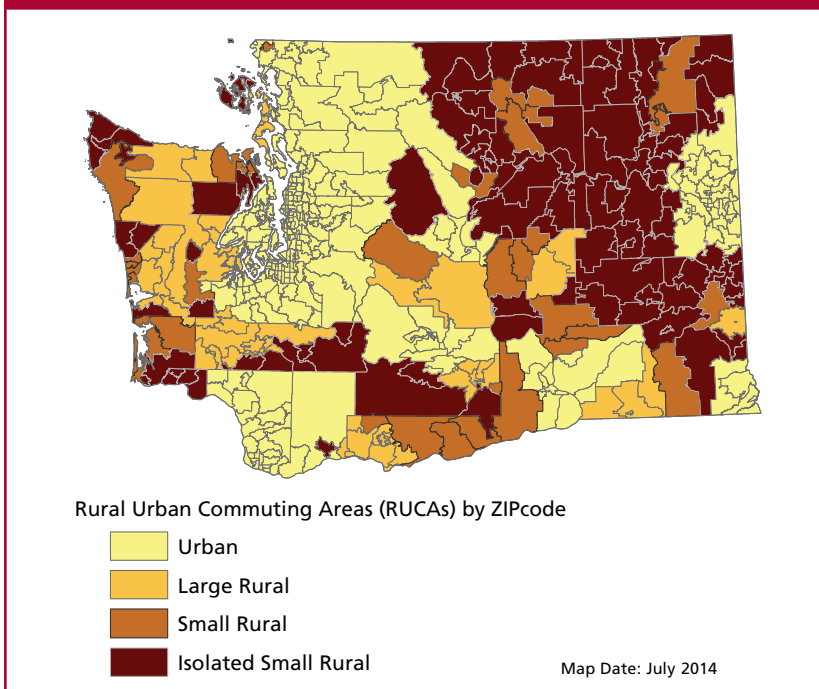


Table 3. Washington physicians in urban, rural and sub-rural areas in 2016**

Physicians providing direct patient care*	Urban		Overall rural		Large rural		Small rural		Isolated small rural	
	#	#/100,000 population	#	#/100,000 population	#	#/100,000 population	#	#/100,000 population	#	#/100,000 population
Total	15,379	253.2	1,102	118.2	740	147.2	256	106.7	106	56.0
Primary care	5,304	87.3	532	57.1	314	62.5	154	64.2	64	33.8
Family medicine	2,675	44.0	371	39.8	193	38.4	121	50.4	57	30.1
General internal medicine	1,719	28.3	106	11.4	75	14.9	27	11.3	4	2.1
General pediatrics	910	15.0	55	5.9	46	9.2	6	2.5	3	1.6
Surgeons	1,662	27.4	115	12.3	90	17.9	21	8.8	4	2.1
General surgery	346	5.7	42	4.5	33	6.6	6	2.5	3	1.6
Obstetrics-gynecology	778	12.8	65	7.0	50	9.9	14	5.8	1	0.5
Other surgery	538	8.9	8	0.9	7	1.4	1	0.4	0	0.0
Psychiatrists	703	11.6	24	2.6	18	3.6	6	2.5	0	0.0
Other Specialists	7,710	126.9	431	46.2	318	63.3	75	31.3	38	20.1

*Not federally employed, age <75 years, providing direct patient care in Washington State

**Rural-urban determined using ZIP code RUCA taxonomy. Overall rural is a combination of the three rural subcategories

EDUCATION AND TRAINING

While 14.0% of Washington’s overall practicing physician supply in 2016 graduated from a medical school in Washington, nearly a third (32.5%) completed a residency in-state (Table 4). Until 2008 the University of Washington provided the state’s only medical school. A second medical school, the Pacific Northwest University of Health Sciences College of Osteopathic Medicine, began enrolling students in 2008. The first class graduated in 2012, and in 2016, 23 graduates from that program appeared among the Washington state physician workforce identified by this study.

As Table 4 shows, among primary care physicians these percentages are higher: 45.0% of family medicine physicians completed an in-state residency and about a fifth graduated from medical school in Washington. Psychiatrists also had high percentages of in-state education and training: 41.4% completed a residency in Washington and 15.3% graduated from medical school in-state. Somewhat higher percentages of Washington’s family medicine physicians completed a residency in any WWAMI state (Washington, Wyoming, Alaska, Montana or Idaho) compared with the number completing a residency in Washington (47.2% vs. 45.0%). Across Washington’s overall physician workforce in 2016, 8.0% both graduated from medical school in Washington and completed a residency in the state.

14.0% of Washington’s overall practicing physician supply in 2016 graduated from a medical school in Washington, nearly a third (32.5%) completed a residency in-state.

Table 4. Washington physicians who graduated from medical school in Washington and/or completed a residency in Washington or in any WWAMI* state, 2016

Physicians providing direct patient care**	Graduated from a medical school in WA		Completed a residency in WA***		Completed a residency in a WWAMI state		Graduated from a medical school in WA and completed a residency in WA	
	#	%	#	%	#	%	#	%
Total	2,302	14.0%	5,057	32.1%	5,123	32.5%	1,263	8.0%
Primary care	1,034	17.7%	2,164	38.5%	2,228	39.7%	659	11.7%
Family medicine/general practice	606	19.9%	1,289	45.0%	1,353	47.2%	408	14.2%
General internal medicine	273	15.0%	607	33.8%	607	33.8%	174	9.7%
General pediatrics	155	16.1%	268	28.0%	268	28.0%	77	8.0%
Surgeons	215	12.1%	359	20.8%	360	20.9%	95	5.5%
General surgery	41	10.6%	113	29.8%	113	29.8%	19	5.0%
Obstetrics-gynecology	121	14.4%	102	12.4%	102	12.4%	56	6.8%
Other surgery	53	9.7%	144	27.4%	145	27.6%	20	3.8%
Psychiatrists	111	15.3%	300	41.4%	300	41.4%	75	10.4%
Other Specialists	942	11.6%	2,234	29.0%	2,235	29.0%	434	5.6%

*WWAMI = Washington, Wyoming, Alaska, Montana, and Idaho

**Not federally employed, age <75 years, providing direct patient care in Washington State

***Percentages are calculated based on physicians for whom residency state data were available. 717 (4%) were missing residency state and 0 were missing medical school information

Washington's residencies contributed to a much larger proportion of the state's physicians than did residencies in any other state.

Table 5 shows the top five medical schools from which Washington's physicians graduated. The University of Washington educated by far the largest number of physicians practicing in the state. The top five states where Washington physicians completed a residency are shown in Table 6. Again, Washington's residencies contributed to a much larger proportion of the state's physicians than residencies in any other state.

Figure 6 illustrates that a higher percentage of physicians practicing in Washington who graduated from medical school since 2000 completed residencies in Washington compared with the overall physician workforce. It is not clear if this indicates a trend toward higher rates of post-residency retention by the more recent physician cohorts compared with older cohorts, or if there is a pattern for some physicians to remain in the state for a few years after completing residencies before migrating to other locations.

Table 5. Top 5 medical schools from which Washington physicians graduated*

School	State	#	% of WA physicians who graduated from school
University of Washington School of Medicine	WA	2,279	13.8%
Oregon Health and Sciences University School of Medicine	OR	457	2.7%
Loma Linda University School of Medicine	CA	381	2.3%
Medical College of Wisconsin	WI	237	1.4%
University of Michigan Medical School	MI	215	1.3%

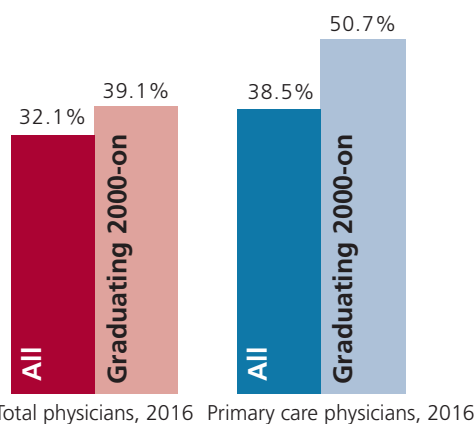
*Among Washington physicians in 2016 providing direct patient care, not federally employed, age <75 years

Table 6. Top 5 states where Washington physicians completed a residency*

State	#	% of WA physicians who completed a residency in the state
WA	5,057	32.1%
CA	1,710	10.9%
NY	817	5.2%
TX	587	3.7%
OR	584	3.7%

*Among Washington physicians in 2016 providing direct patient care, not federally employed, age <75 years

Figure 6. Washington physicians* in 2016 who completed a residency in Washington State



*Not federally employed, age <75 years, providing direct patient care in Washington State

Overall, similar percentages of physicians in eastern and western Washington graduated from medical school in Washington (Table 7). Western Washington physicians were much more likely than eastern Washington physicians to have completed a residency in-state (35.0% vs. 18.4%, respectively). More primary care physicians and psychiatrists completed in-state residencies than other specialties, and among these specialties, percentages among physicians in western Washington were higher than among physicians in eastern Washington (40.6% vs. 39.7% for primary care and 43.0% vs. 28.6% for psychiatrists).

Table 7. Washington physicians who attended medical school in Washington or completed a residency in-state: eastern compared with western Washington*, 2016

Physicians providing direct patient care*	Attended medical school in WA				Completed residency in WA***			
	Among eastern WA physicians		Among western WA physicians		Among eastern WA physicians		Among western WA physicians	
	#	%	#	%	#	%	#	%
Total	392	14.2%	1,910	14.7%	508	18.4%	4,549	35.0%
Primary care	200	19.1%	834	18.2%	310	29.7%	1,854	40.6%
Family medicine	135	22.3%	471	20.8%	217	35.9%	1,072	47.5%
General internal medicine	49	16.9%	224	14.9%	84	29.0%	523	34.8%
General pediatrics	16	10.7%	139	17.2%	9	6.0%	259	32.1%
Surgeons	30	9.6%	185	13.1%	35	11.2%	324	23.0%
General surgery	6	8.6%	35	11.3%	11	15.7%	102	33.0%
Obstetrics-gynecology	20	13.0%	101	15.2%	15	9.7%	129	19.4%
Other surgery	4	4.5%	49	11.2%	9	10.1%	93	21.3%
Psychiatrists	8	10.4%	103	15.9%	22	28.6%	278	43.0%
Other Specialists	154	11.6%	788	12.4%	141	10.6%	2,093	32.8%

*20 counties east of the Cascade mountains and 19 counties west of the Cascade mountains

**Practicing, non-federal, age <75 years, in Washington State, providing direct patient care

***Percentages are calculated based on physicians for whom residency state data were available. 717 (4%) were missing residency state and 0 were missing medical school information

SUMMARY AND POLICY IMPLICATIONS

Washington’s physician supply, on a per capita basis, is generally comparable to national averages. Differences in distribution are apparent between urban and rural areas of the state, with fewer total physicians and primary care physicians in rural areas. There are also some differences in distribution between the eastern and western counties of the state, with generally lower per capita supply in the east.

While about 14% of Washington’s total physician supply graduated from medical school in Washington (most from the University of Washington), nearly a third of all the physicians in the state and almost half of those in family medicine completed a residency in-state. The University of Washington School of Medicine reports that 55% of its graduates return to the state to practice.³ Despite this relatively high medical school retention rate, even more physicians from other schools are needed to meet the state’s need for physicians.

As shown in these findings, residency can be highly associated with the location where a physician eventually chooses to practice and of the population he or she prefers to serve, and is therefore a useful recruitment tool. While not an easy task, creating more residencies in locations and for specialties that serve the populations where shortages are greatest could be an effective tool to reduce disparities in the distribution of Washington’s physicians. As was found in the 2014 study of Washington’s physician

workforce,² this study again showed that higher percentages of physicians who were more recent medical school graduates completed a residency in-state (39.1% of primary care physicians overall compared with 50.7% of primary care physicians graduating since 2000). Retention efforts targeted to younger physicians could help stabilize the workforce, particularly in the many rural communities where more than half the physicians are age 55 or older.

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APPENDIX A: METHODS

The Washington State physician supply data for this study came from the American Medical Association (AMA) Physician Masterfile, accessed in November, 2016. Changes in physician supply and characteristics for 2014-2016 were assessed using a prior study that used data from 2014 AMA Physician Masterfile.² There were 26,258 total allopathic and osteopathic physicians with Washington license records in the dataset. Those selected for these analyses were 16,481 with 1) an in-state practice address (or mail address, when practice was not available), 2) who were age 74 or younger, 3) provided direct patient care, and 4) were not a federal employee. Physicians were assigned specialties using the AMA dataset's "primary" and "secondary" specialty fields. The primary specialty was reassigned to the secondary specialty for about 6% of physicians when there was indication from the listed secondary specialty that the physician was likely to practice more specialized medicine than the primary specialty indicated. Physician specialties were grouped into "Primary care" (family medicine, general internal medicine and general pediatrics specialties), "Surgeons" (general surgery, obstetrics-gynecology and other surgery), and "Other Specialists". Data for psychiatrists were analyzed and reported separately. State population data came from the Washington Office of Financial Management, and are based off of April 1, 2016 data.⁴ Rural-urban status was determined using Rural Urban Commuting Area (RUCA) taxonomy.⁵

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