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Washington State's Physician Workforce in 2014

KEY FINDINGS

- **In 2014 there were 220 physicians per 100,000 population, including 79 generalist physicians per 100,000 population, providing direct patient care in Washington State (comparable to available national per capita rates).**
- **The mean age of Washington's practicing physicians was 52 years.**
- **Women comprised 36% of the state's physician workforce but 47% of the generalists and 62% of general pediatricians.**
- **Most rural areas had fewer physicians per capita and higher percentages age 55 or older than in the rest of the state.**
- **Nearly a third (32%) of the state's physician workforce completed a residency in Washington.**
- **15% of Washington's physicians graduated from the University of Washington School of Medicine.**

INTRODUCTION

The population of Washington State is growing and aging, and health care delivery and payment systems are undergoing major transformations. 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 statewide and by county relative to the size of the population?*
- *What proportion of the physician workforce graduated from the University of Washington School of Medicine or completed an in-state residency?*

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

NUMBER, DEMOGRAPHIC CHARACTERISTICS, AND DISTRIBUTION OF PHYSICIANS IN WASHINGTON

OVERALL SUPPLY AND DEMOGRAPHICS

Washington State's per capita physician supply is roughly comparable to the national supply (Figure 1). In 2014, there were 19,260 physicians (275 per 100,000 population) with Washington licenses and 15,421 (220 per 100,000 population) providing direct patient care in the state. Nationally, in 2012 there were 261 overall physicians per 100,000 population and 226 per 100,000 providing direct patient care[1]. HRSA estimated that in 2010 there were

Of 19,260 physicians with Washington licenses in 2014, 15,421 provide direct patient care in the state.

approximately 66 primary care physicians per 100,000 U.S. population[2]; in 2014, Washington State had 79 generalist physicians per 100,000 population. Taking into account some growth in the national number since 2010, and the assumption that the generalist physician grouping includes primary care providers plus other generalist physicians, these state and national per capita supply numbers are similar. Table 1 shows the number of physicians in Washington in 2014, total and by specialty group, as well as the number per capita.

The mean age overall and by specialty for most Washington physicians is similar, between 49 and 53 years (Table 1). Psychiatrists have the oldest average age, 55 years, and more than half are age 55 or older. Women make up less than half of Washington's physician work force in each specialty except general pediatrics and obstetrics-gynecology.

Figure 1. Washington State compared with national estimates of physicians per 100,000 population

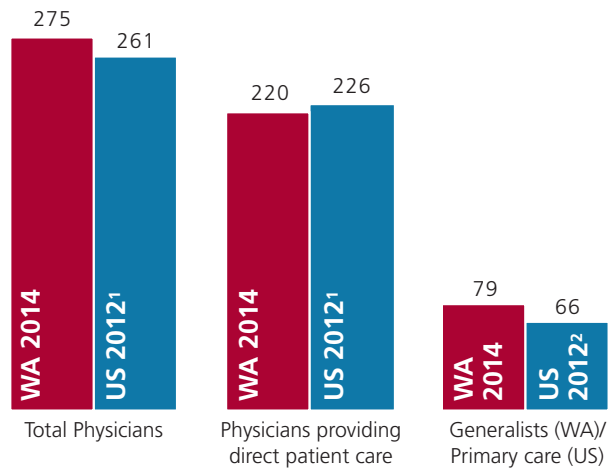


Table 1. Number, gender and age of Washington physicians in 2014

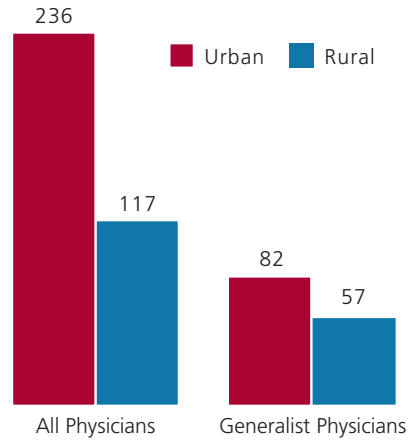
Physicians providing direct patient care*	#	#/100,000 population	% Female	Mean Age (Years)	% Age 55 or Older
Total	15,421	220.1	35.8%	51.5	41.3%
Generalists	5,504	78.6	46.6%	50.4	37.5%
Family medicine/general practice	2,854	40.7	42.8%	51.5	42.2%
General internal medicine	1,727	24.7	44.7%	49.0	32.1%
General pediatrics	923	13.2	62.0%	49.7	33.3%
Surgeons	1,703	24.3	38.5%	52.1	42.9%
General surgery	366	5.2	28.1%	51.2	37.2%
Obstetrics-gynecology	814	11.6	57.2%	52.1	42.8%
Other surgery	523	7.5	16.6%	52.8	47.0%
Psychiatrists	675	9.6	39.3%	55.2	55.6%
Other Specialists	7,539	107.6	26.9%	51.8	42.3%

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

DISTRIBUTION

Fewer physicians provide direct patient care per 100,000 population in rural compared with urban areas of Washington, and similar results are found for practicing generalist physicians (Figure 2). Greater concentrations of physicians are found in the more urban counties and in western Washington counties, as shown in Table 2 and in Figure 3. The results change, however, for family medicine/general practice specialties, where per capita numbers are the same in both sides of the state (41 per 100,000 population).

Figure 2. Washington physicians* in urban and rural areas (total and generalist specialties) per 100,000 population in 2014



*Providing direct patient care, not federally employed, age <75 years, and in Washington State

Table 2. Washington physicians in 2014: Eastern compared with western Washington counties

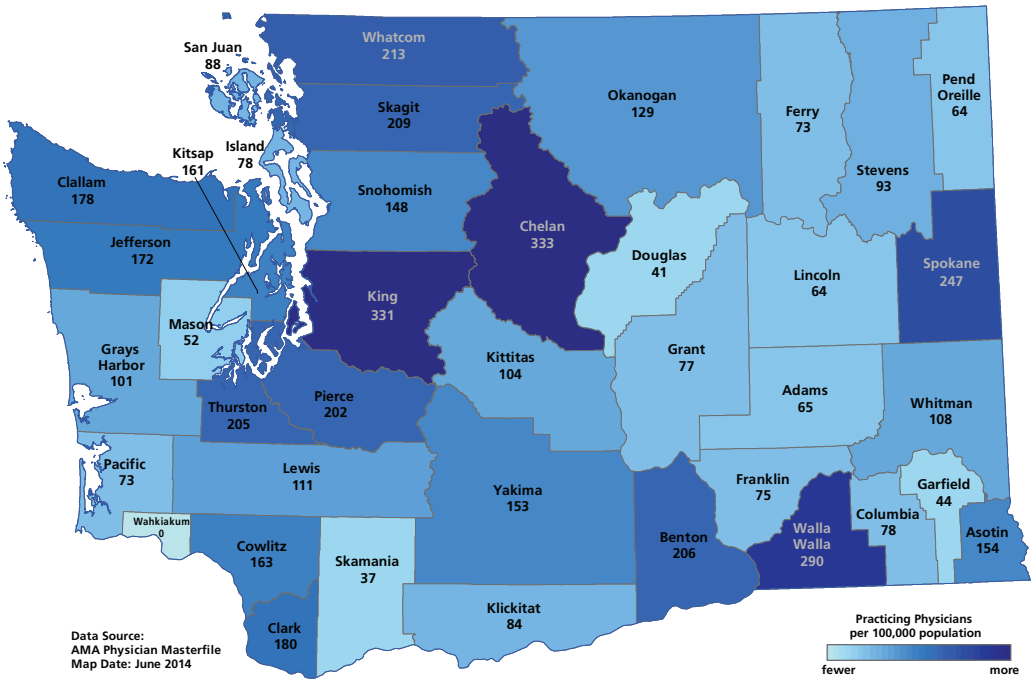
Physicians providing direct patient care*	Eastern WA counties**		Western WA counties***	
	#	#/100,000 population	#	#/100,000 population
Total	2,814	181.1	12,607	231.3
Generalists	1,089	70.1	4,415	81.0
Family medicine/general practice	640	41.2	2,214	40.6
General internal medicine	300	19.3	1,427	26.2
General pediatrics	149	9.6	774	14.2
Surgeons	313	20.1	1,390	25.5
General surgery	67	4.3	299	5.5
Obstetrics-gynecology	153	9.9	661	12.1
Other surgery	93	6.0	430	7.9
Psychiatrists	79	5.1	596	10.9
Other Specialists	1,333	85.8	6,206	113.8

*not federally employed, age <75 years, in Washington State
**20 counties east of the Cascade mountains (total population 1,554,070)
***19 counties west of the Cascade mountains (total population 5,451,709)

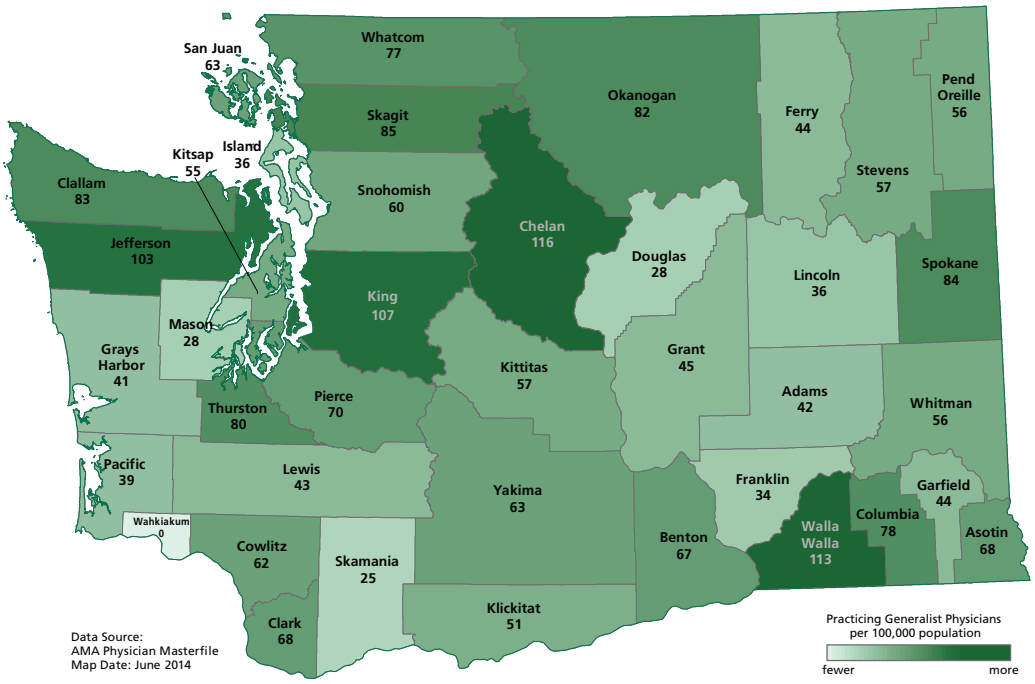
Greater concentrations of physicians are found in the more urban counties and in the western Washington counties.

Figure 3. Washington physicians per 100,000 population in 2014, by county

All physicians providing direct patient care



Generalist physicians providing direct patient care

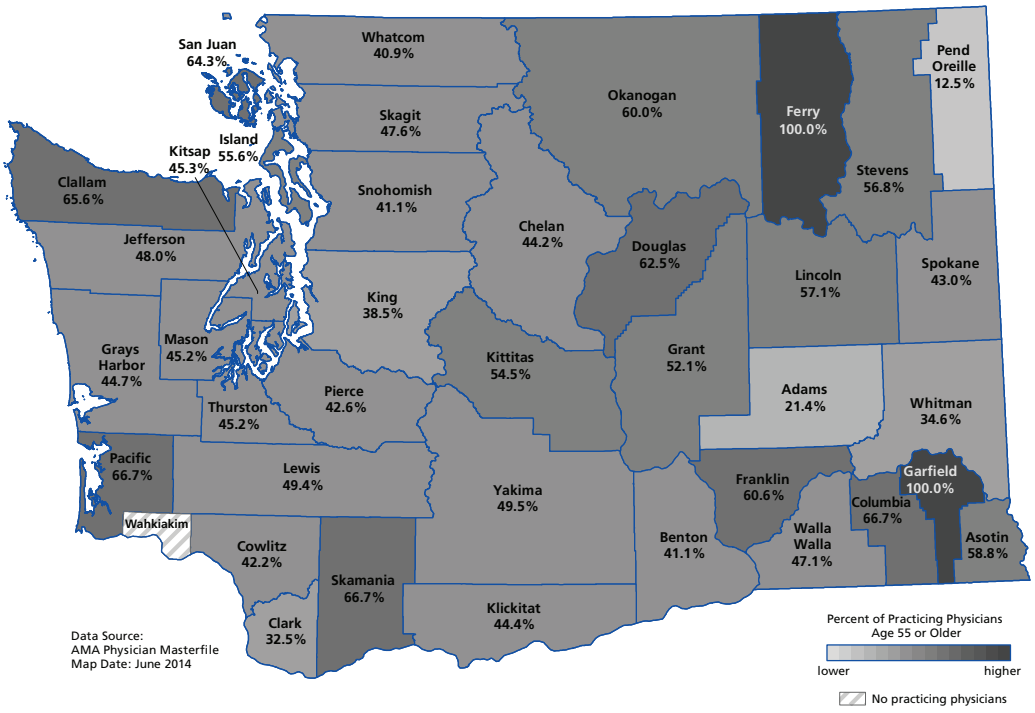


As shown in Figure 4 many of Washington's most rural counties have the highest percentages of physicians age 55 and older. Two thirds or more of all physicians providing direct patient care in Garfield, Ferry, Columbia, Clallam, Pacific and Skamania counties were age 55 or older in 2014. The percentages of generalist physicians age 55 or older are generally lower than for overall physicians, but still remain high among the more rural counties.

Washington's most rural counties have the highest percentages of physicians age 55 and older.

Figure 4. Washington physicians age 55 or older in 2014, by county

All physicians age 55 or older providing direct patient care



Generalist physicians age 55 or older providing direct patient care

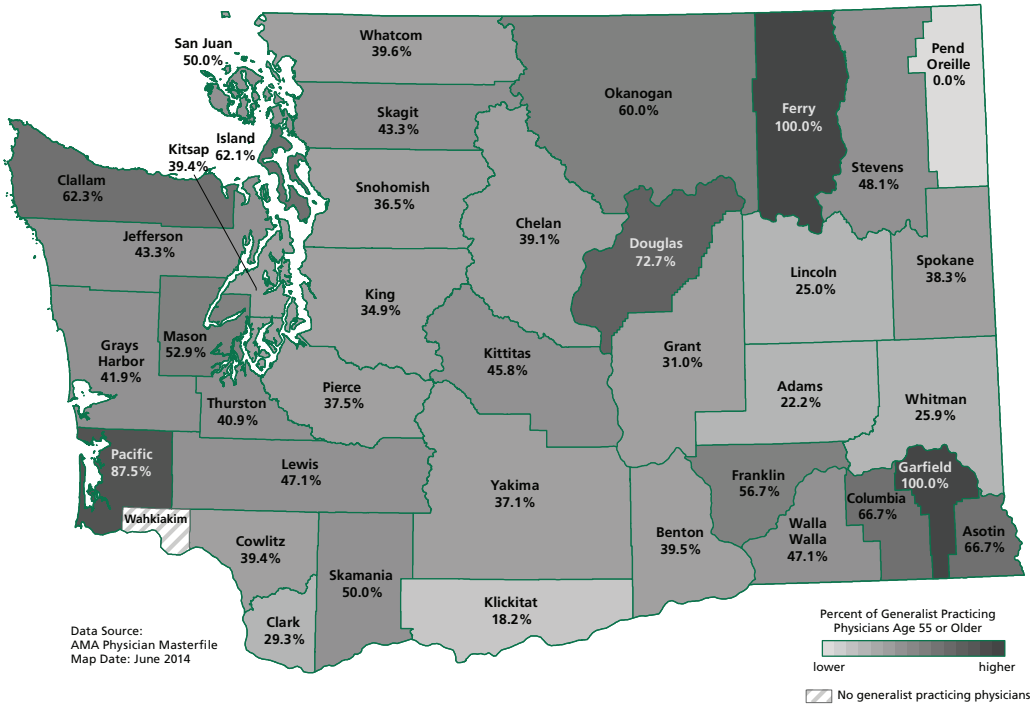
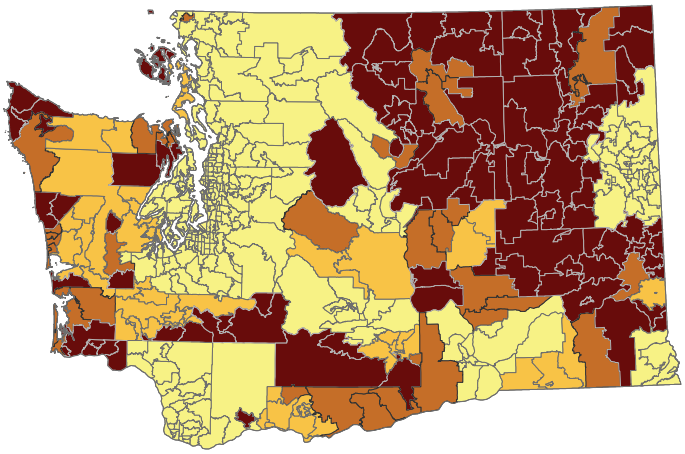


Table 3 details the rural-urban distribution of the state's physicians, overall and by specialty, and in addition shows their distribution among three sub-rural area types: large rural, small rural and isolated small rural. Figure 5 shows where rural and urban areas are located in Washington. As expected,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

Figure 5. Location of urban and rural areas in Washington



Rural Urban Commuting Areas (RUCAs) by ZIPcode

- Urban
- Large Rural
- Small Rural
- Isolated Small Rural

Map Date: July 2014

Table 3. Washington physicians in urban, rural and sub-rural areas in 2014**

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	14,331	236.0	1,090	116.8	722	143.6	268	111.7	100	52.8
Generalists	4,973	81.9	531	57.0	313	62.3	154	64.2	64	33.8
Family medicine/ general practice	2,490	41.0	364	39.1	183	36.4	123	51.3	58	30.6
General internal medicine	1,616	26.6	111	11.9	84	16.7	24	10.0	3	1.6
General pediatrics	867	14.3	56	6.0	46	9.2	7	2.9	3	1.6
Surgeons	1,593	26.2	110	11.8	80	15.9	25	10.4	5	2.6
General surgery	324	5.3	42	4.5	29	5.8	9	3.8	4	2.1
Obstetrics-gynecology	758	12.5	56	6.0	41	8.2	14	5.8	1	0.5
Other surgery	511	8.4	12	1.3	10	2.0	2	0.8	0	0
Psychiatrists	653	10.8	22	2.4	17	3.4	5	2.1	0	0
Other Specialists	7,112	117.1	427	45.8	312	62.1	84	35.0	31	16.4

*not federally employed, age <75 years, 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 15% of Washington's overall practicing physician supply in 2014 graduated from the state's only medical school (until 2008) at the University of Washington[3], nearly a third completed a residency in-state. As Table 4 shows, among generalist physicians these percentages are higher: 45% of family medicine/general practice physicians completed an in-state residency and more than a fifth graduated from the University of Washington School of Medicine (UW SOM). Psychiatrists also had high percentages of in-state education and training: 43% completed a residency in Washington and 16% graduated from medical school in-state. It is clear that the majority of Washington's current physician supply who completed a residency in-state did not graduate from medical school in-state: overall, only 8.3% both graduated from medical school in Washington and completed an in-state residency. Only slightly more completed a residency in any WWAMI state (Washington, Wyoming, Alaska, Montana or Idaho) compared with the number completing a residency in Washington.

15% of Washington's physicians graduated from medical school in-state and nearly a third completed a residency in Washington.

Table 4. Washington physicians in 2014 who graduated from the University of Washington School of Medicine (UW SOM) and/or completed a residency in Washington or in any WWAMI* state

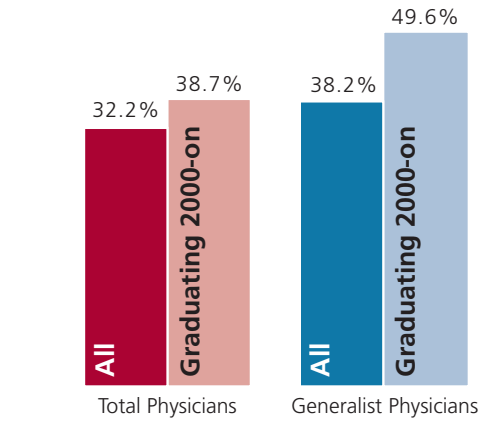
Physicians providing direct patient care**	Graduated from UW SOM		Completed a residency in WA***		Completed a residency in a WWAMI state		Graduated from UW SOM and completed a residency in WA	
	#	%	#	%	#	%	#	%
Total	2,262	14.7%	4,756	32.2%	4,814	32.5%	1,232	8.3%
Generalists	1,014	18.4%	2,024	38.2%	2,081	39.3%	631	11.9%
Family medicine/general practice	605	21.2%	1,195	44.7%	1,252	46.8%	391	14.6%
General internal medicine	261	15.1%	580	34.0%	580	34.0%	167	9.8%
General pediatrics	148	16.0%	249	27.2%	249	27.2%	73	8.0%
Surgeons	217	12.7%	348	21.1%	349	21.2%	97	5.9%
General surgery	37	10.1%	106	29.7%	106	29.7%	18	5.0%
Obstetrics-gynecology	126	15.5%	145	18.4%	146	18.5%	59	7.5%
Other surgery	54	10.3%	97	19.3%	97	19.3%	20	4.0%
Psychiatrists	109	16.2%	289	43.1%	289	43.1%	74	11.0%
Other Specialists	922	12.2%	2,095	29.2%	2,095	29.2%	430	6.0%

*WWAMI = Washington, Wyoming, Alaska, Montana and Idaho
**not federally employed, age <75 years, in Washington State
***Percentages are calculated based on physicians for whom residency state data were available. 626 records (4%) were missing residency state and 0 were missing medical school.

Figure 6 illustrates that a higher percentage of physicians who graduated from medical school since 2000 completed residencies in Washington. 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.

While overall, a similar percentage of physicians in eastern and western Washington graduated from medical school in Washington, western Washington physicians were much more likely to have completed a residency in-state (Table 5). More than a third of physicians in western Washington completed a residency in-state compared with 20% of those in eastern Washington. More generalists and psychiatrists completed in-state residencies than other specialties, among physicians in both eastern and in western Washington.

Figure 6. Washington physicians* in 2014 who completed a residency in Washington State



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

Table 5. Washington's physicians who attended University of Washington School of Medicine (UW SOM) or completed a residency in-state: eastern compared with western Washington*, 2014

Physicians providing direct patient care**	Attended UW SOM				Completed residency in WA***			
	Among E. WA physicians		Among W. WA physicians		Among E. WA physicians		Among W. WA physicians	
	#	%	#	%	#	%	#	%
Total	382	13.6%	1,880	14.9%	523	19.6%	4,223	34.9%
Generalists	190	17.5%	824	18.7%	308	29.9%	1,716	40.2%
Family medicine/general practice	130	20.3%	475	21.5%	217	37.0%	978	46.8%
General internal medicine	48	16.0%	213	14.9%	84	28.4%	496	35.2%
General pediatrics	12	8.1%	136	17.6%	7	4.7%	242	31.6%
Surgeons	34	10.9%	183	13.2%	36	11.9%	312	23.2%
General surgery	5	7.5%	32	10.7%	12	18.2%	94	32.3%
Obstetrics-gynecology	22	14.4%	104	15.7%	15	10.3%	130	20.2%
Other surgery	7	7.5%	47	10.9%	9	9.9%	88	21.4%
Psychiatrists	8	10.1%	101	17.0%	22	27.9%	267	45.1%
Other Specialists	150	11.3%	772	12.4%	157	12.4%	1,938	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. 626 records (4%) were missing residency state and 0 were missing medical school.

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 many fewer total physicians and generalist physicians (those most likely to be providing primary care) 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 15% of Washington's total physician supply graduated from the state's medical school at the University of Washington, a third or more (higher for generalists and psychiatrists) completed a residency in the state. The University of Washington School of Medicine reports that 55% of its graduates return to the state to practice.[4] Despite this relatively high retention rate, even more physicians are required to meet the state population's needs.

Residency is known to 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.[5] Washington, however, ranks below the median of overall residencies and fellowships per capita and the number of primary care residencies and fellowships per capita by state.[1] 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. This study also showed that higher percentages of physicians who were more recent medical school graduates (since 2000) completed a residency in-state (50% of the total). Efforts specifically designed to retain these young 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 April, 2014. There were 19,260 total allopathic and osteopathic physicians with Washington license records in the dataset. Those selected for these analyses were the 15,421 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 "Generalists" (family medicine/general practice, general internal medicine and general pediatrics specialties), "Specialists" (general surgery, obstetrics-gynecology and other surgery), and "Other Specialists". Data for psychiatrists were analyzed and reported separately. State population data came from a custom-prepared file of selected 2014 population data with ZIP codes cross-referenced to counties.[6] Rural-urban status was determined using Rural Urban Commuting Area (RUCA) taxonomy.[7]

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