

July 2022

Washington State's Physician Workforce in 2021

Arati Dahal, PhD, Susan M. Skillman, MS

KEY FINDINGS

- In 2021 the estimated number of physicians providing direct patient care in Washington was 17,736, approximately 15% higher than the estimated number practicing in 2014.
- There were an estimated 228 physicians per 100,000 population providing direct patient care in Washington State in 2021, including 81 primary care physicians per 100,000 population.
- The mean age of Washington's practicing physicians was 52 years. Women comprised 41% of the state's physician workforce and 52% of the primary care, including 68% of general pediatricians.
- Compared with urban areas, most rural areas of Washington had fewer physicians per 100,000 population and many rural counties had high percentages of physicians age 55 or older.
- Around 13% of Washington's physicians, including 17% of primary care physicians, graduated from medical schools in Washington.
- Approximately 32% of the state's physicians, including 39% of primary care physicians, completed a residency in Washington.

INTRODUCTION

The population of Washington grew by 15% between 2010 and 2021.¹ At the same time, the state has an increasingly older population. In 2010, the population 65 years and older represented about 14% of population, while in 2021 that figure grew to about 16%.¹ These demographic factors will likely have significant effects on the state's healthcare delivery and payment systems. Important questions for healthcare policy and planning include whether

Contents

Key Findings	1
Introduction	1
Number, Demographic, Characteristics, and Distribution of Physicians in Washington.....	2
Comparison of Workforce Supply with Population Health Measures.....	10
Summary and Policy Implications.....	11
References	12
Authors	13
Funding.....	13
Acknowledgments	13
Suggested Citation	13
Appendix A: Methods.....	14

Washington State's Physician Workforce in 2021

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. It updates similar reports from 2016² and 2014³ and addresses the following questions:

- How many physicians practice in Washington overall and by specialty group?
- How are physicians distributed by county, and by urban versus rural areas?
- How many physicians practice in the state relative to the size of the population?
- Where did Washington's physicians graduate from medical school and complete residency?

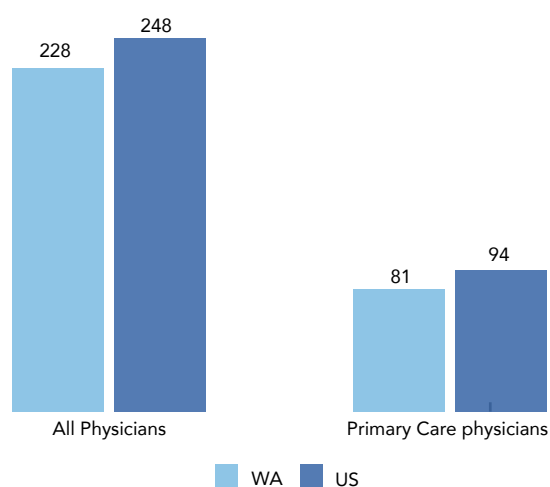
To estimate the physician workforce providing direct patient care in Washington, analyses used data from the American Medical Association (AMA) Physician Masterfile (see **Methods, Appendix A**).

NUMBER, DEMOGRAPHIC CHARACTERISTICS, AND DISTRIBUTION OF PHYSICIANS IN WASHINGTON

The estimated supply of physicians providing direct patient care in Washington grew approximately 21% from 15,421 in 2014 to 18,607 in 2021.³ Washington's estimated per 100,000 population supply of physicians providing direct patient care is slightly smaller than the national physicians per 100,000 population supply (**Figure 1**). In 2021, there were 228 physicians per 100,000 population providing direct patient care in the state and 81 primary care physicians per 100,000 population. Nationally, in 2021 there were 248 physicians per 100,000 providing direct patient care, and 94 primary care physicians per 100,000 population.⁴

Table 1 shows the number of physicians providing direct patient care in Washington state in 2021, total and by specialty group, as well as the number per 100,000 population, percent female, and mean age. The mean age overall and by specialty for most Washington physicians was between 51 and 54 years and 41% of physicians overall were age 55 or older. Approximately 41% of Washington's overall physician workforce was female, and women comprised half of the primary care specialties, including 68% of general pediatricians and 68% of obstetrician-gynecologists.

Figure 1. Washington Compared with National Estimates[†] of Physicians* per 100,000 Population in 2021



[†]National estimates obtained from the American Association of Medical Colleges' 2021 Physician Workforce Data Book

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

Table 1: Number, Gender and Age of Washington Physicians* in 2021

	#	#/100,000 Population	% Female	Mean Age (years)	% Age 55 or Older
Total	17,736	228.4	41.3	52.0	41.2
Primary care	6,254	80.5	52.2	51.6	40.2
Family medicine	3,228	41.6	49.3	52.2	42.8
General internal medicine	1,982	25.5	48.5	51.1	37.8
General pediatrics	1,044	13.4	68.2	50.9	37.0
Surgeons	1,855	23.9	45.9	52.7	44.0
General surgery	425	5.5	32.9	51.9	41.6
Obstetrics-gynecology	849	10.9	67.7	52.6	45.0
Other surgery	581	7.5	23.4	53.4	44.4
Psychiatrists	747	9.6	45.6	54.3	50.1
Other specialists	8,880	114.4	32.4	52.0	40.5

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

From 2014 to 2016, the estimated size of the Washington’s physician workforce grew from 220 to 229 physicians per 100,000 population (Figure 2). From 2016 to 2021, the estimated number of overall physicians and primary care physicians per 100,000 population did not see any significant changes.

DISTRIBUTION

Fewer physicians provided direct patient care per 100,000 population in eastern Washington, which is more rural, compared with the western region of the state (Figure 3). Similar results were found for practicing primary care physicians in 2014, 2016, and 2021 in the regions. In 2021, there were 236 physicians and 83 primary care physicians per 100,000 population in western Washington

Figure 2. Washington Physicians* per 100,000 Population in 2014, 2016, and 2021

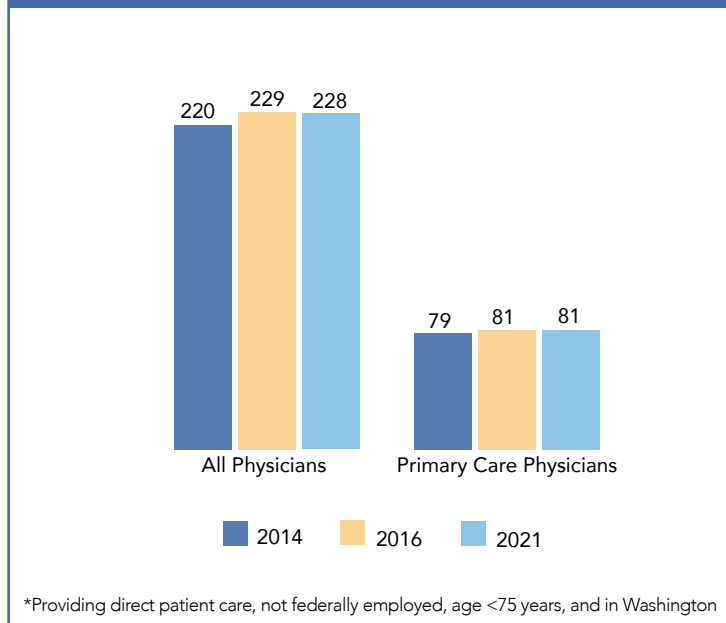
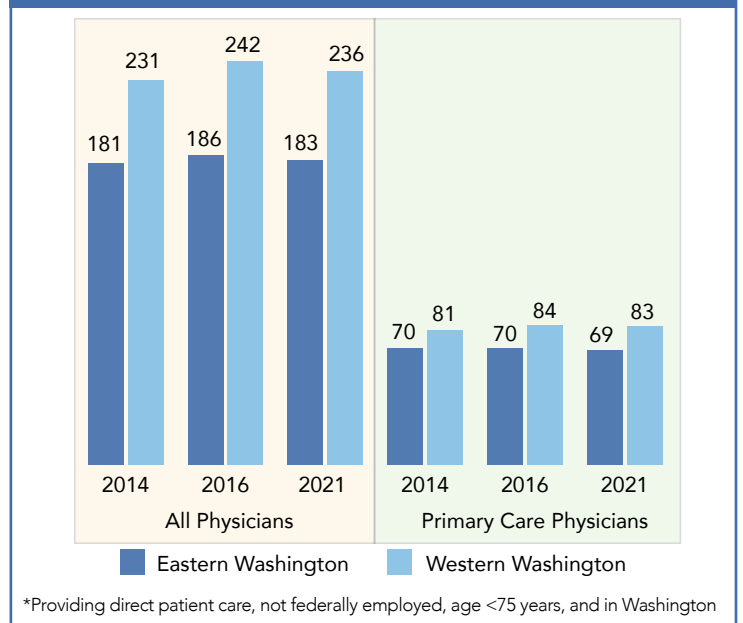


Figure 3. Washington Physicians* per 100,000 Population in Eastern vs. Western Counties in 2014, 2016, and 2021



compared with 183 physicians and 69 primary care physicians per 100,000 population in eastern Washington (Table 2). Although the overall physicians supply was higher on the west side of the state compared with east, the rates for family medicine physicians were similar on west and east sides of the state (41 and 40, per 100,000 population, respectively).

In 2021, fewer physicians provided direct patient care per 100,000 population in rural compared with urban areas of Washington. In comparison, there was more rural-urban parity among practicing primary care physicians (Figure 4). Between 2016 to 2021, the estimated number of overall physicians per 100,000 population remained comparable for urban and rural areas. The estimated supply of primary care physicians per 100,000 population in 2021 also remained comparable with 2016 and 2014 for both rural and urban areas of the state.

The estimated number of all physicians and primary care physicians per 100,000 population in each Washington county is shown in Figure 5. In 2021, one county (Wahkiakum) had no practicing physicians and Skamania county had no practicing primary care physicians. Three counties (Chelan, King, and Spokane) had higher numbers of physicians overall per 100,000 population than the national average of 248, and five counties (Columbia, Chelan, King, Ferry, and Jefferson) had higher numbers of primary care physicians per 100,000 population than the national average of 94. Counties in western Washington tended to have higher physician density than counties in eastern Washington, which generally follows the distribution of the state's population.

As shown in Figure 6 many of Washington's most rural counties have the highest percentages of physicians age 55 and older. More than 70% of all physicians providing direct patient care in Garfield, Ferry, Columbia, Pacific, Klickitat, and Skamania counties were age 55 or older in 2021. 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.

Table 2: Washington Physicians* in 2021, Eastern Washington Compared with Western Washington Counties

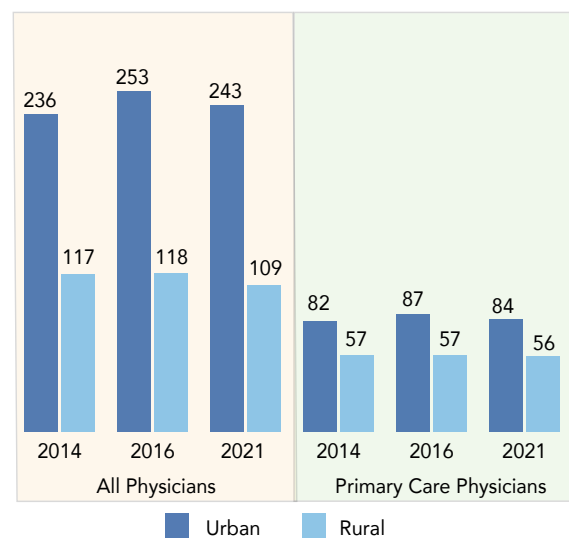
	Eastern WA Counties**		Western WA Counties***	
	#	#/100,000 population	#	#/100,000 population
Total	3,057	182.7	14,384	236.1
Primary care	1,148	68.6	5,024	82.5
Family medicine	665	39.7	2,521	41.4
General internal medicine	325	19.4	1,633	26.8
General pediatrics	158	9.4	870	14.3
Surgeons	328	19.6	1,501	24.6
General surgery	92	5.5	329	5.4
Obstetrics-gynecology	144	8.6	694	11.4
Other surgery	92	5.5	478	7.8
Psychiatrists	96	5.7	639	10.5
Other specialists	1,485	88.7	7,220	118.5

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

**20 counties east of the Cascade mountains (total population 1,673,619)

***19 counties west of the Cascade mountains (total population 6,091,527)

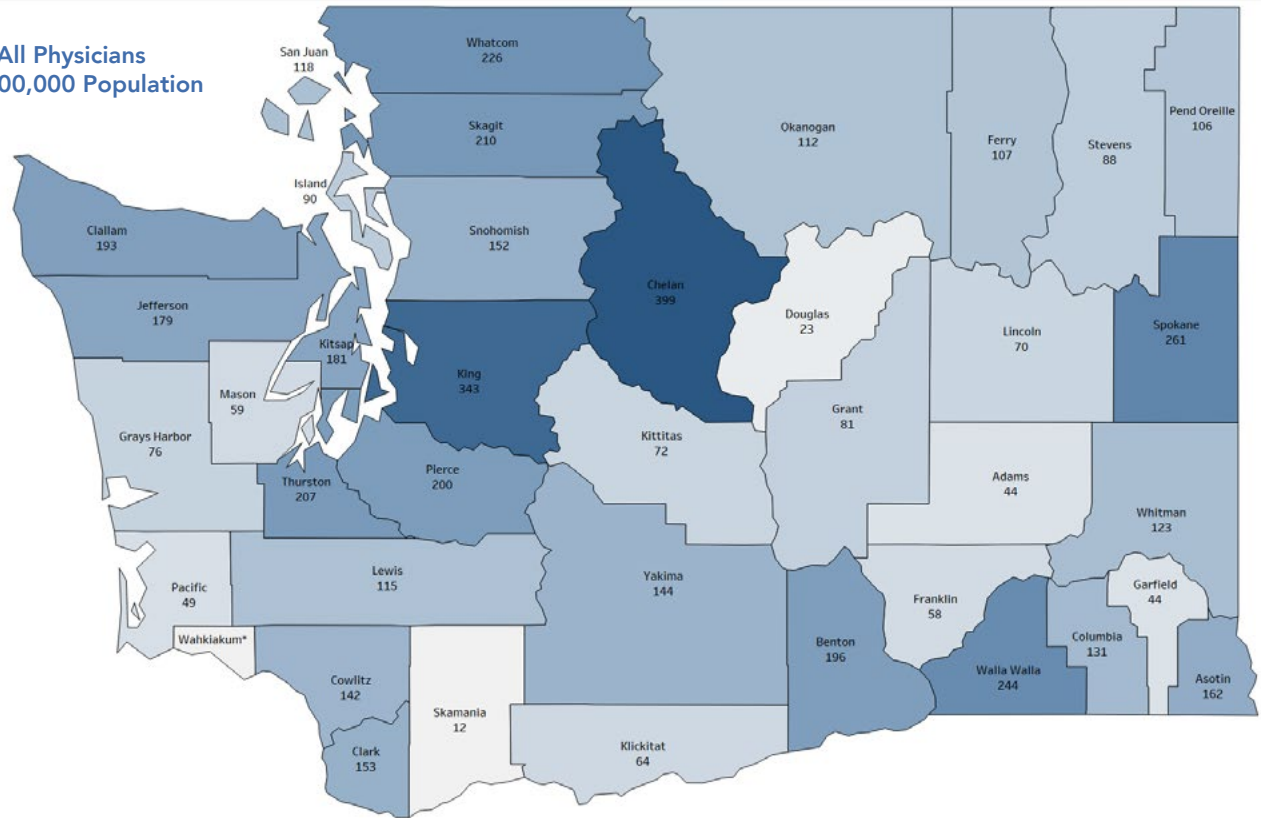
Figure 4. Washington Physicians* in Urban & Rural Areas per 100,000 Population in 2014, 2016, and 2021



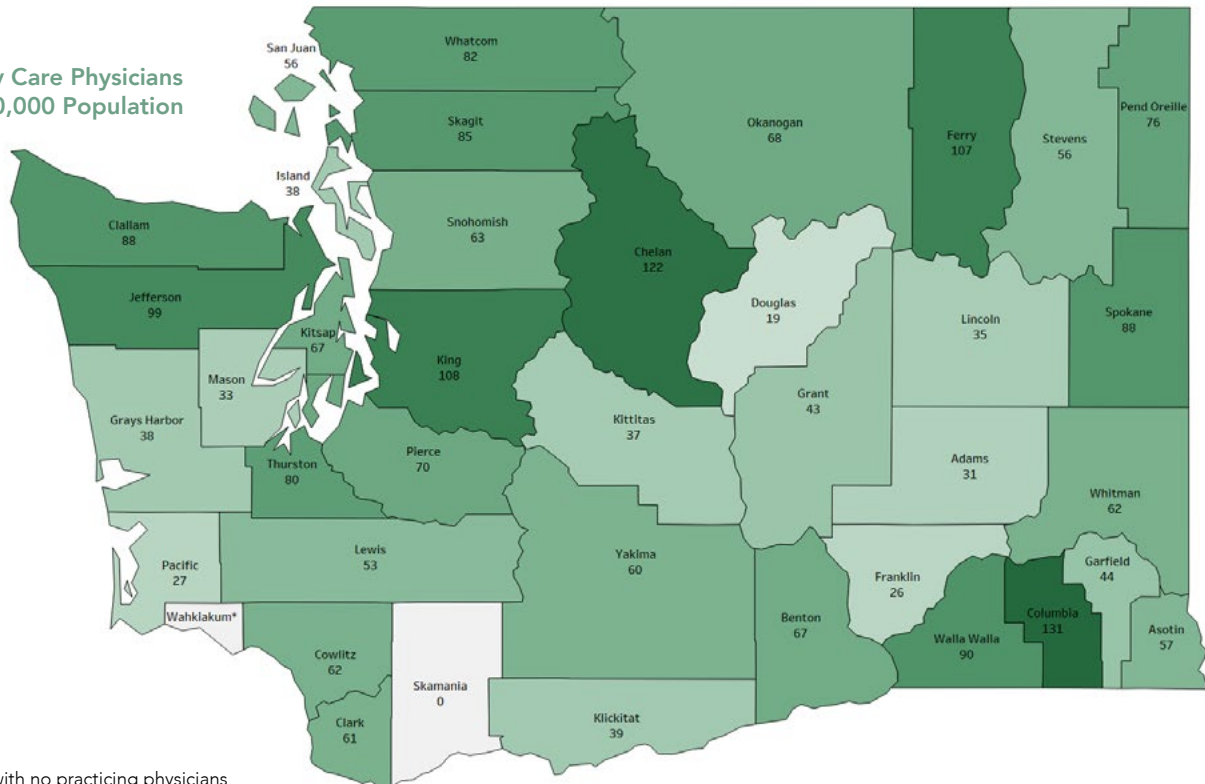
*Providing direct patient care, not federally employed, age <75 years, and in Washington

Figure 5: Washington Physicians** per 100,000 Population in 2021, by County

All Physicians
per 100,000 Population



Primary Care Physicians
per 100,000 Population

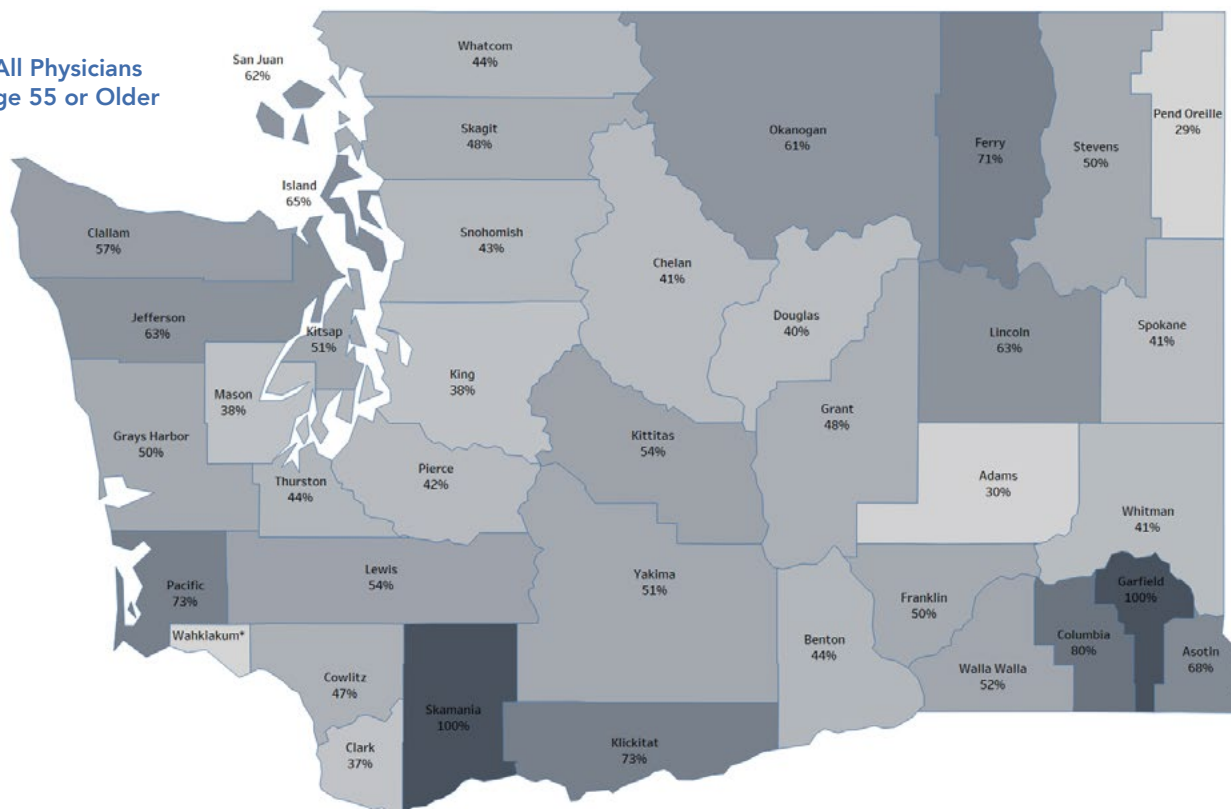


*Counties with no practicing physicians

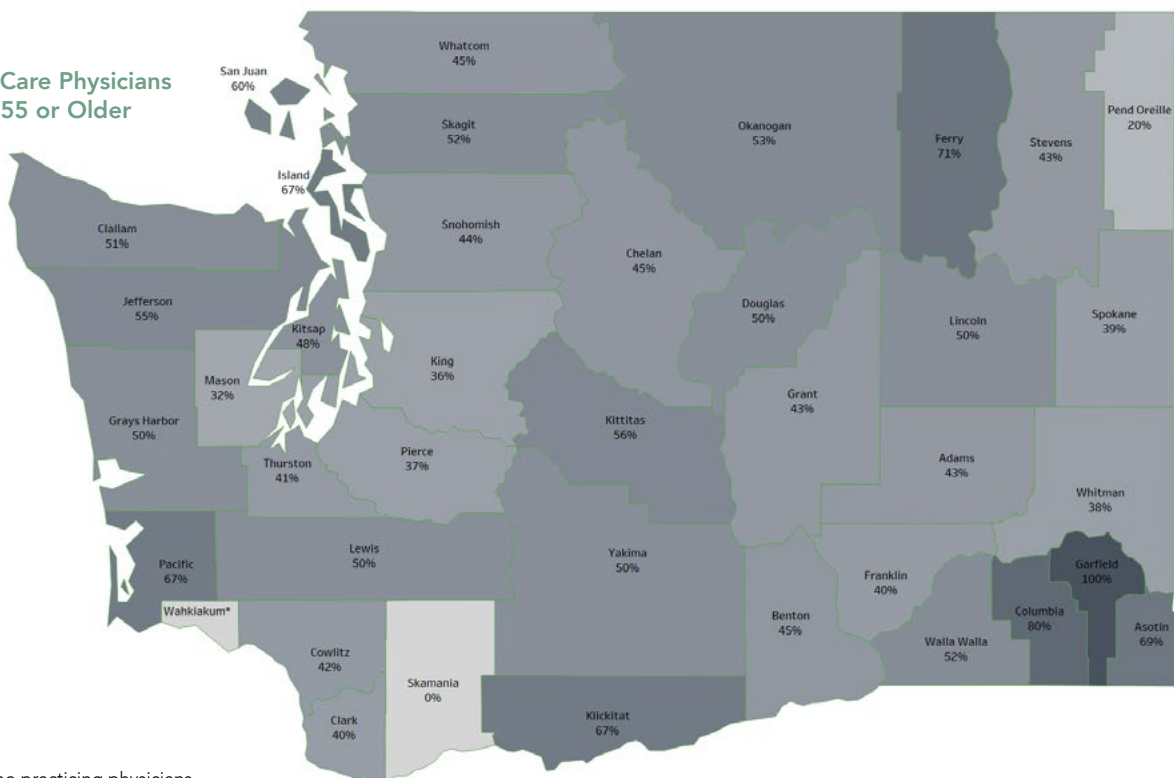
**Providing direct patient care, not federally employed, age <75 years, and in Washington

Figure 6: Washington Physicians** Age 55 or Older in 2021, by County

All Physicians
Age 55 or Older



Primary Care Physicians
Age 55 or Older



*Counties with no practicing physicians

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

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. On a per 100,000 population basis there were comparable densities of primary care physicians, especially family physicians, in rural areas of Washington than were found in urban areas. Small and Isolated small rural areas, however, had smaller supplies of physicians than were found in other areas of the state. Specialists congregated in urban areas where more specialty care services and larger hospitals are provided, and were (not unexpectedly) relatively absent from isolated small rural areas.

Table 3: Washington Physicians* in Urban, Rural and Sub-Rural Areas in 2021**

	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	16,790	243.3	946	109.3	644	126.3	201	95.3	101	70.0
Primary care	5,766	83.6	488	56.4	302	59.2	123	58.3	63	43.6
Family medicine	2,888	41.9	340	39.3	190	37.3	97	46.0	53	36.7
General internal medicine	1,887	27.3	95	11.0	67	13.1	21	10.0	7	4.8
General pediatrics	991	14.4	53	6.1	45	8.8	5	2.4	3	2.1
Surgeons	1,752	25.4	103	11.9	81	15.9	16	7.6	6	4.2
General surgery	374	5.4	51	5.9	36	7.1	10	4.7	5	3.5
Obstetrics-gynecology	801	11.6	48	5.5	42	8.2	5	2.4	1	0.7
Other surgery	577	8.4	4	0.5	3	0.6	1	0.5	0	0.0
Psychiatrists	719	10.4	28	3.2	21	4.1	5	2.4	2	1.4
Other specialists	8,553	124.0	327	37.8	240	47.1	57	27.0	30	20.8

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

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

EDUCATION AND TRAINING

While 13% of Washington’s overall practicing physician supply in 2021 graduated from a medical school in Washington, nearly a third (32%) 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 2021, 74 graduates from that program appeared among the Washington state physician workforce identified by this study. Another school, the Elson S. Floyd College of Medicine at Washington State University, enrolled its first class of medical students in Fall 2017 and these students would not have completed their training by 2021.

As **Table 4** shows, among primary care physicians these percentages are higher: 45% 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% completed a residency in Washington and 14% graduated from medical school in-state. Higher percentages of Washington’s family medicine physicians completed a residency in any WWAMI state compared with the overall number completing a residency in Washington (48% vs. 32%). Across Washington’s overall physician workforce in 2021, about 8% both graduated from medical school in Washington and completed a residency in the state.

Table 4: Washington Physicians* in 2021 Who Graduated from a Medical School in Washington, and/or Completed a Residency in Washington or in any WWAMI State**

	Graduated from a Medical School in Washington***		Completed a Residency in Washington****		Completed a Residency in a WWAMI State****		Graduated from a Medical School in Washington and Completed a Residency in Washington****	
	#	%	#	%	#	%	#	%
Total	2,379	13.4%	5,366	31.8%	5,446	32.3%	1,274	7.6%
Primary care	1,076	17.2%	2,316	38.7%	2,393	40.0%	683	11.4%
Family medicine	598	18.5%	1,378	45.4%	1,454	48.0%	410	13.5%
General internal medicine	306	15.4%	626	32.4%	627	32.5%	190	9.8%
General pediatrics	172	16.5%	312	30.4%	312	30.4%	83	8.1%
Surgeons	218	11.8%	355	19.9%	356	20.0%	83	4.7%
General surgery	45	10.6%	109	26.9%	109	26.9%	19	4.7%
Obstetrics-gynecology	120	14.1%	143	17.4%	144	17.5%	46	5.6%
Other surgery	53	9.1%	103	18.6%	103	18.6%	18	3.2%
Psychiatrists	105	14.1%	303	41.1%	303	41.1%	73	9.9%
Other specialists	980	11.0%	2,392	28.6%	2,394	28.7%	435	5.2%

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

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

***Includes 74 graduates from Pacific Northwest University of Health Sciences and 2,305 from the University of Washington School of Medicine

**** Percentages are calculated based on physicians for whom residency state data were available. There were 875 records (4.9%) that were missing residency state and 0 were missing medical school information

Table 5 shows the top five medical schools from which Washington’s physicians graduated. The University of Washington educated 13% of physicians practicing in the state. The top five states where Washington physicians completed a residency are shown in **Table 6**. Washington’s residencies (32%) contributed to a much larger proportion of the state’s physicians than residencies in any other state.

Table 5: Top 5 Medical Schools from Which Washington Physicians* Graduated

Medical Schools	State	#	Percent
University of Washington School of Medicine	WA	2,305	13.0
Oregon Health and Sciences University School of Medicine	OR	434	2.5
Loma Linda University School of Medicine	CA	388	2.2
Medical College of Wisconsin	WI	244	1.4
St. Louis University School of Medicine	MO	226	1.3

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

Table 6: Top 5 States Where Washington Physicians* Completed a Residency

State	#	% of Washington Physicians who Completed a Residency in the State
WA	5,366	31.8
CA	1,734	10.3
NY	931	5.5
TX	684	4.1
PA	603	3.6

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

Among physicians who graduated from medical school since 2000, the percentage of Washington's physicians who completed a residency in Washington was higher than for the overall physician workforce (including those who graduated prior to 2000) and continued to remain comparable in each of 2014, 2016, and 2021 (Figure 7).

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% vs. 19%, 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% vs. 32% for primary care and 46% vs. 27% for psychiatrists).

Figure 7. Percentages of Washington Physicians* in 2014, 2016, and 2021 who Completed a Residency in Washington

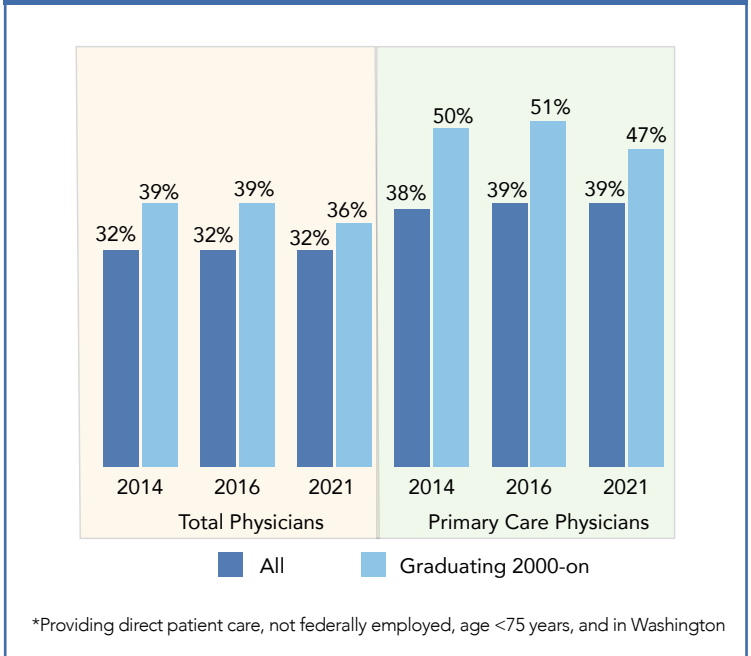


Table 7: Washington Physicians* Who Attended Medical School in Washington or Completed a Residency in State, Eastern compared with Western Washington, 2021

	Attended Medical Schools in Washington				Completed Residency in Washington			
	Among Eastern Washington Physicians**		Among Western Washington Physicians***		Among Eastern Washington Physicians**		Among Western Washington Physicians***	
	#	%	#	%	#	%	#	%
Total	432	14.1%	1,974	13.7%	547	19.0%	4,761	34.7%
Primary care	219	19.1%	862	17.2%	347	31.7%	1,941	40.3%
Family medicine	144	21.7%	458	18.2%	241	38.9%	1,121	47.2%
General internal medicine	55	16.9%	251	15.4%	95	29.9%	526	33.1%
General pediatrics	20	12.7%	153	17.6%	11	7.1%	294	34.4%
Surgeons	34	10.4%	191	12.7%	41	13.1%	310	21.5%
General surgery	9	9.8%	36	10.9%	16	18.4%	91	29.0%
Obstetrics-gynecology	21	14.6%	105	15.1%	16	11.6%	124	18.4%
Other surgery	4	4.3%	50	10.5%	9	10.2%	95	20.8%
Psychiatrists	12	12.5%	100	15.6%	26	27.4%	289	45.9%
Other specialists	167	11.2%	821	11.4%	133	9.7%	2,221	32.6%

*Providing direct patient care, not federally employed, age <75 years, and in Washington
 **20 counties east of the Cascade mountains (total population 1,673,619)
 ***19 counties west of the Cascade mountains (total population 6,091,527)

COMPARISON OF WORKFORCE SUPPLY WITH POPULATION HEALTH MEASURES

The Robert Wood Johnson Foundation (RWJF) County Health Rankings use available data on population health factors and health outcomes to create county rankings within each state.⁵ These rankings are derived from data from a variety of national sources and include overall health outcomes which is comprised of length of life and quality of life measures. We compared Washington's physician workforce supply findings with the RWJF county health rankings for the combined overall health outcomes measure and listed the top ranked 15 Washington counties in three categories (**Table 8**).

Table 8 shows that 9 out of 15 counties that have higher number of physicians per 100,000 population and only 6 out of 15 counties with higher number of primary care physicians per 100,000 population appeared among the 15 counties ranked the highest for health outcomes. Additionally, counties that had lower health outcomes ranks did not necessarily have lower number of physicians per 100,000 population, thus implying no clear overall relationship between the number of physicians per 100,000 population and the overall health outcomes based on county ranking.

The availability of physicians is one of multiple factors that contribute to population health. For example, having more providers, including non-physician medical providers such as physician assistants and nurse practitioners, and public health officials, may be associated with delivering more of the healthcare services needed by a population, and/or more providers may be attracted to counties with healthier populations, and providers may be less easily recruited to counties with less healthy populations. While the data for the RWJF county rankings is the most recent available to the developers, some of the data components contributing to the measures may be several years old and therefore these findings should be interpreted as suggestive and not conclusive. In addition, rankings are simply relational measures and a ranking of 1 doesn't necessarily indicate "great" status, nor does a

Table 8: Top 15 Counties in Washington Ranked by Health Outcomes and Supply of Physicians* per 100,000 Population

County Rank**	Overall Health Outcomes***	Number of Overall Physicians*	Number of Primary Care Physicians*
1	San Juan	Chelan	Columbia
2	King	King	Chelan
3	Island	Spokane	King
4	Douglas	Walla Walla	Ferry
5	Snohomish	Whatcom	Jefferson
6	Whitman	Skagit	Walla Walla
7	Whatcom	Thurston	Clallam
8	Thurston	Pierce	Spokane
9	Kitsap	Benton	Skagit
10	Skagit	Clallam	Whatcom
11	Clark	Kitsap	Thurston
12	Jefferson	Jefferson	Pend Oreille
13	Chelan	Asotin	Pierce
14	Kittitas	Clark	Okanogan
15	Benton	Snohomish	Benton

* Number of physicians per 100,000 population, providing direct patient care, not federally employed, age <75 years, and in Washington

**Lower number reflects higher rank, i.e., better health measures, more physicians

***Overall health outcomes ranking obtained from the Robert Wood Johnson Foundation, which combines length and quality of life measures

high number indicate “bad” status. Nonetheless, while there is not necessarily a direct correlation between population health rankings and physician supply, these comparisons may suggest areas where further study and possible action is needed.

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.

The physician supply numbers in this report should be viewed with the understanding that the source data from the AMA Physician Masterfile has limitations. Locum tenens physicians, newly recruited physicians, and physicians with addresses in other locations may not be reflected in the supply of some counties, for example. This analysis also excluded physicians that are 75 years or older, which could imply undercounting of effective physician supply in some areas. In addition, recent expansions of the use of telehealth and virtual visits reduced the need for providers and patients to be in close proximity, improving satisfaction and reducing costs for some patients.⁶ While many providers adopted hybrid approaches to patient visits (with some in-person and some virtual) requiring that they remain near their practice sites, attention should be paid to how future telehealth use may be affecting the need for providers and patients to be located in the same geographic areas.

Additionally, early in the pandemic, COVID-19 was shown to adversely affect medical students’ preparation effort and application to residency programs by causing significant disruptions in the education system.⁷ As a response, some organizations started making adjustments to the residency application process such as by relaxing the requirement of standardized letters of evaluation and limiting the maximum number of away rotations,⁸ which alleviated some of the challenges faced by medical graduates. Some medical schools also accelerated graduation of medical students and deployed them to care for patients to help ease the workforce shortage during the pandemic.⁹

While about 13% 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. In 2020 Washington ranked 14th among states for retaining physicians who complete a residency in-state, with a 50% retention rate in 2020.⁴ In 2021, the retention rate for Washington graduates practicing in the WWAMI region was 59%.¹⁰ 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, as well as in the 2016 and 2014 analyses, 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.^{11,12} 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 previous analyses of Washington’s physician workforce,^{2,3} this study again showed that high percentages of physicians who were more recent medical school graduates completed a residency in-state (36% of overall physicians and 47% 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.

REFERENCES

1. U.S. Census Bureau. Quick Facts: Washington. <https://www.census.gov/quickfacts/fact/table/WA/POP010210>
2. Skillman SM, Dahal A. Washington State's physician workforce in 2016. Center for Health Workforce Studies, University of Washington, Mar 2017. <https://familymedicine.uw.edu/chws/wp-content/uploads/sites/5/2017/04/washington-physicianworkforce-in-2016.pdf>
3. Skillman SM, Stover B. Washington State's physician workforce in 2014. Center for Health Workforce Studies, University of Washington, Nov 2014. [http://depts.washington.edu/uwrhrc/uploads/WA_Phys_Workforce_11-7-14\(rev\).pdf](http://depts.washington.edu/uwrhrc/uploads/WA_Phys_Workforce_11-7-14(rev).pdf)
4. Center for Workforce Studies, Association of American Medical Colleges. 2021 state physician workforce data book. Physician Databook. Washington, DC: Association of American Medical Colleges; 2021. Retrieved from https://store.aamc.org/downloadable/download/sample/sample_id/506/
5. Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. County Health Rankings & Roadmaps. 2021. <http://www.countyhealthrankings.org/explore-health-rankings>. Accessed May 04, 2022.
6. Charters E, Khom MJ, Baker J, Lindsay T. Patient satisfaction and cost analysis of telehealth delivered by allied health oncology clinicians. *Contemp Oncol*. 2022; 26 (1): 44-48. DOI: <https://doi.org/10.5114/wo.2022.115047>
7. Akers A, Blough C, Iyer M S (April 23, 2020) COVID-19 Implications on Clinical Clerkships and the Residency Application Process for Medical Students. *Cureus* 12(4): e7800. doi:10.7759/cureus.7800
8. Katirji L, Smith L, Pelletier-Bui A, et al.: Addressing challenges in obtaining emergency medicine away rotations and standardized letters of evaluation due to COVID-19 pandemic. *West J Emerg Med*. 2020, 21:10.5811/westjem.2020.3.47444
9. Flotte TR, Larkin AC, Fischer MA, Chimienti SN, DeMarco DM, Fan PY, Collins MF. Accelerated Graduation and the Deployment of New Physicians During the COVID-19 Pandemic. *Acad Med*. 2020 Oct;95(10):1492-1494. doi: 1097/ ACM.0000000000003540. PMID: 32520751; PMCID: PMC7302071.
10. Douglas C Schaad. (Personal communication, July 12, 2022).
11. Patterson DG, Andrilla CHA, Garberson LA. Preparing Physicians for Rural Practice: Availability of Rural Training in Rural Centric Residency Programs. *J Grad Med Educ*. 2019 Oct;11(5):550-557. doi: 10.4300/JGME-D-18-01079.1. PMID: 31636825; PMCID: PMC6795329.
12. Ballance D, Kornegay D, Evans P. Factors that influence physicians to practice in rural locations: A review and commentary. *J Rural Health*. 2009;25:276-281.
13. U.S. Department of Agriculture. Rural-urban commuting area codes. <http://www.ers.usda.gov/data-products/ruralurbancommuting-area-codes.aspx#.U6xpL0Ca-2N>. Accessed March, 2021.
14. Claritas. 2021 Selected Population Facts Data for All ZIP Codes and Boroughs Nationwide; Selected Data Items for All Tracts Nationwide. ZIP Code Cross-reference File Included. Custom-prepared data CD. San Diego, CA: Claritas; 2021.
15. StataCorp. 2019. *Stata Statistical Software: Release 16*. College Station, TX: StataCorp LLC

AUTHORS

Arati Dahal, PhD, Research Scientist, UW CHWS

Susan M. Skillman, MS, Senior Deputy Director, UW CHWS

FUNDING

This project is supported through Grant # U77HP03022 by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling \$740,000 with 0% financed with non-governmental sources. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS, or the U.S. Government. For more information, please visit [HRSA.gov](https://www.hrsa.gov).

ACKNOWLEDGMENTS

Grace A. Guenther, MPA, produced this report's maps, and Bev Marshall, BA, helped with the document design.

SUGGESTED CITATION

Dahal A, Skillman SM. *Washington State's Physician Workforce in 2021*. Center for Health Workforce Studies, University of Washington, July 2022

University of Washington • School of Medicine
Box 354982 • Seattle WA 98195-4982
phone: (206) 685-0402 • fax: (206) 616-4768
<https://familymedicine.uw.edu/chws/>

APPENDIX A: METHODS

The Washington state physician supply data for this study came from the American Medical Association (AMA) Physician Masterfile, accessed in February, 2022. Changes in physician supply and characteristics for 2014 and 2016 were assessed using prior studies that used data from 2014 and 2016 AMA Physician Masterfile.^{2,3} There were 29,496 total allopathic and osteopathic physicians with Washington license records in the dataset. Those selected for these analyses were the 17,736 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. Rural-urban status was determined using Rural Urban Commuting Area (RUCA) taxonomy¹³ and the population data came from a custom-prepared file of selected 2021 population data with ZIP codes cross-referenced to counties.¹⁴ All analyses were done using STATA version 16¹⁵ and maps were generated using Tableau data visualization tool.