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Alaska's Physician Workforce in 2021

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KEY FINDINGS

- In 2021 the estimated number of physicians providing direct patient care in Alaska was 1,751, 19% higher than the estimated number practicing in 2014.
- There were an estimated 240 physicians per 100,000 population providing direct patient care in Alaska, including 95 primary care physicians per 100,000 population in 2021.
- The mean age of Alaska's practicing physicians was 52 years. Women comprised 41% of the state's physician workforce with 54% of the primary care, including 65% of general pediatricians.
- Compared with urban areas, most rural areas of Alaska had fewer physicians and many rural counties had high percentages of physicians age 55 or older.
- Around 27% of Alaska's family medicine physician workforce completed a residency in Alaska and 41% completed a residency in one of the WWAMI states: Washington, Wyoming, Alaska, Montana or Idaho.

INTRODUCTION

The population of Alaska grew by 3% 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 8% of population, while in 2021 that figure grew to about 13%.[1] These demographic factors will likely 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 Alaska's physician workforce. It updates similar reports from 2016[2] and 2014[3] and addresses the following questions:

- How many physicians practice in Alaska 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 Alaska's physicians graduate from medical school and complete residency?

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

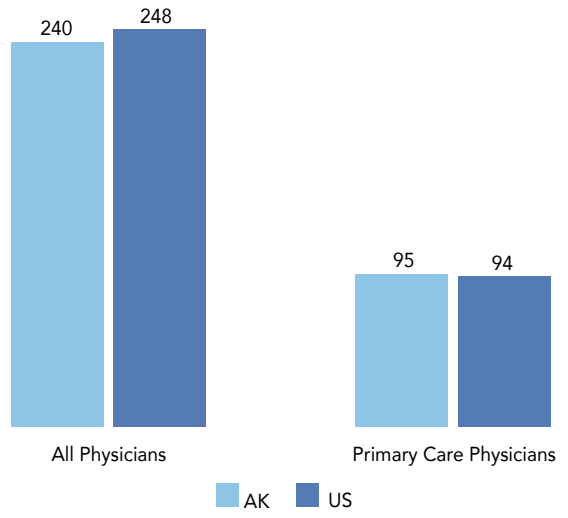
NUMBER, DEMOGRAPHIC CHARACTERISTICS, AND DISTRIBUTION OF PHYSICIANS IN ALASKA

The estimated supply of physicians providing direct patient care in Alaska grew 19% from 1,474 in 2014 to 1,751 in 2021.[3] Alaska's estimated per 100,000 population supply of physicians providing direct patient care is smaller than the national per 100,000 population supply (**Figure 1**). In 2021, there were 240 physicians per 100,000 population providing direct patient care in the state, and 95 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 Alaska 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 Alaska physicians was between 50 and 55 years and 43% of physicians overall were age 55 or older. Approximately 41% of Alaska's overall physician workforce was female, and women comprised more than half of the primary care specialties, including 65% of general pediatricians and 66% of obstetrician-gynecologists.

From 2014 to 2016, the estimated size of the Alaska's physician workforce grew from 198 to 221 physicians per 100,000 population (**Figure 2**). And from 2016 to 2021, the estimated number of physicians per 100,000 population providing direct patient care increased from 221 to 240. Primary care physicians per 100,000 population also rose between 2016 and 2021, from 88 to 95 per 100,000 population.

Figure 1: Alaska 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 Alaska

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

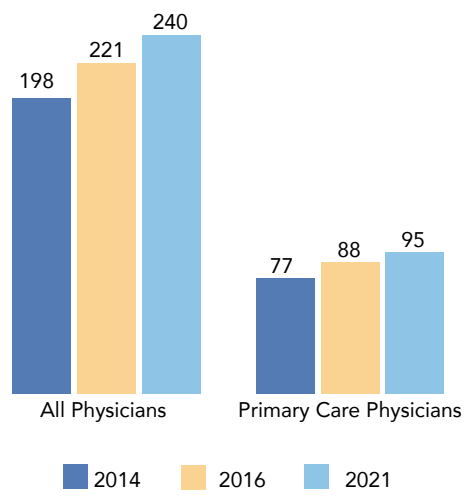
	#	#/100,000 Population	% Female	Mean Age (years)	% Age 55 or Older
Total	1,751	240.1	41.3	52.0	43.3
Primary care	695	95.3	53.8	50.9	39.6
Family medicine	452	62.0	52.9	51.2	39.2
General internal medicine	128	17.5	46.9	51.1	44.5
General pediatrics	115	15.8	65.2	49.8	35.7
Surgeons	201	27.6	47.3	53.2	49.3
General surgery	51	7.0	33.3	52.8	54.9
Obstetrics-gynecology	104	14.3	66.3	52.9	45.2
Other surgery	46	6.3	19.6	54.3	52.2
Psychiatrists	96	13.2	43.8	55.0	57.3
Other specialists	759	104.1	28.1	52.3	43.3

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

DISTRIBUTION

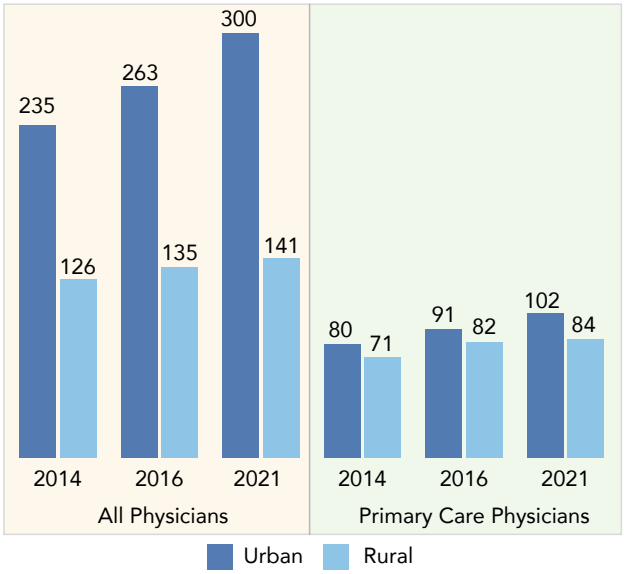
In 2021, fewer physicians provided direct patient care per 100,000 population in rural compared with urban areas of Alaska. In comparison, there was more rural-urban parity among practicing primary care physicians (**Figure 3**). Between 2016 to 2021, the estimated number of overall physicians per 100,000 population increased more for urban compared to rural areas. The supply of primary care physicians per 100,000 population in 2021 remained comparable with 2016 and 2014 in rural areas, but increased for urban areas in 2021 compared to previous years.

Figure 2. Alaska Physicians* per 100K Population in 2014, 2016, and 2021



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

Figure 3. Alaska 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 Alaska

Table 2 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 higher densities of primary care physicians, especially family physicians, in small rural areas of Alaska than were found in urban areas. Isolated small rural areas, however, had smaller supplies of physicians than were found in other areas of the state.

Alaska is not organized into counties but instead has 19 boroughs and 10 census areas. The estimated number of all physicians and primary care physicians per 100,000 population in each Alaska borough/census area is shown in **Figure 4**. In 2021, 7 of the 29 Alaskan boroughs/census areas had no practicing physicians and another 9 boroughs/census areas had physician supply rates of fewer than 100 physicians per 100,000 population.

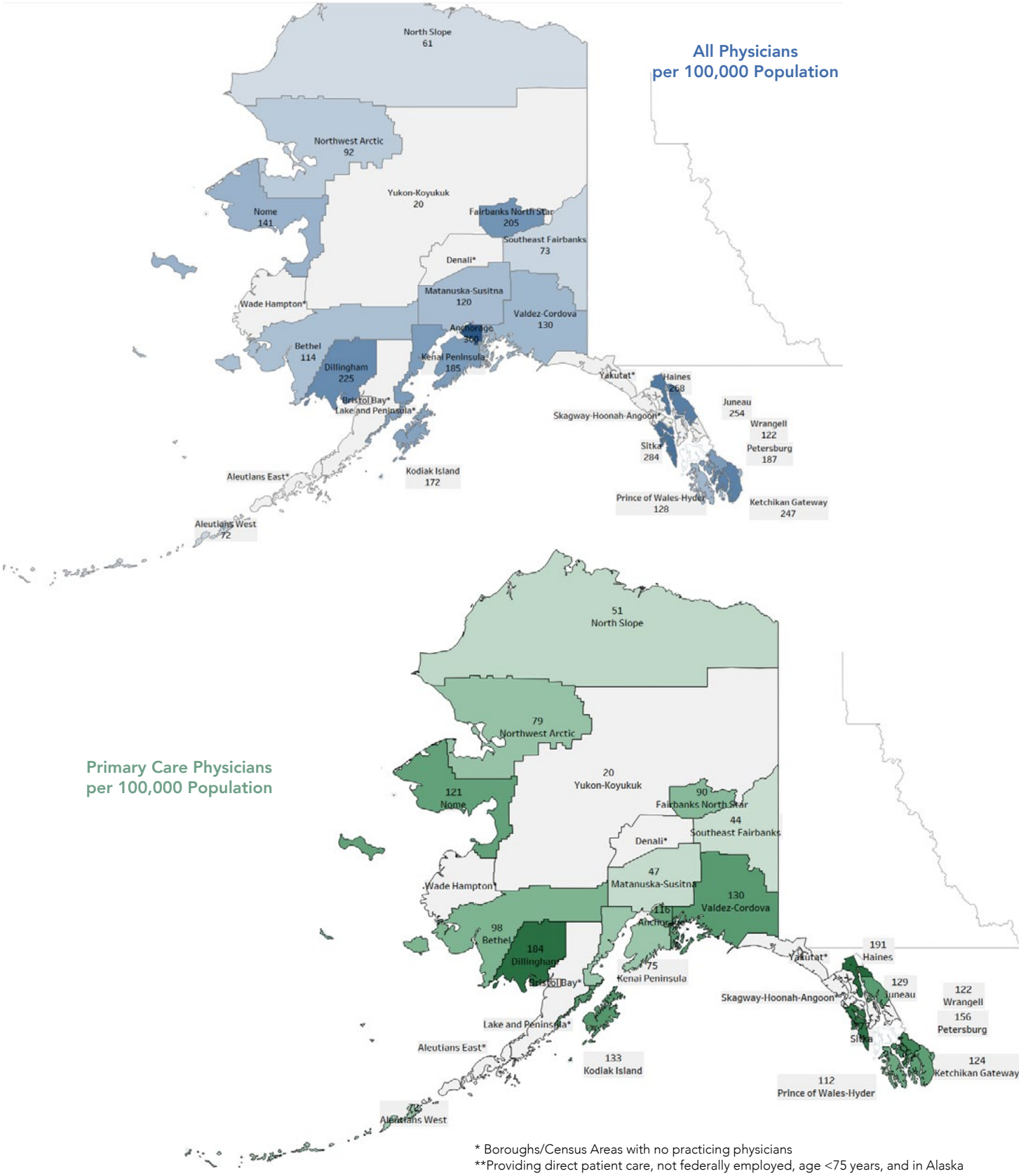
As shown in **Figure 5**, some of Alaska's boroughs/census areas have high percentages of physicians age 55 and older. In particular, in Southeast Fairbanks, Dillingham, Kenai Peninsula, Sitka, Wrangell, Ketchikan Gateway, and Prince of Wales-Hyderand Haines, more than 50% of all physicians providing direct care were age 55 and older. More than 50% of all primary care physicians providing direct patient care in eight of 29 Alaska boroughs/census areas were age 55 or older in 2021. Those boroughs/census areas were North Slope, Southeast Fairbanks, Dillingham, Kenai Peninsula, Haines, Wrangell, Ketchikan Gateway, and Prince of Wales-Hyder. The percentage of primary care physicians age 55 or older (40%) was similar to the percentage of this age group among overall physicians (43%).

Table 2: Alaska 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	1,362	300.4	389	140.9	118	152.6	176	199.7	95	85.9
Primary care	463	102.1	232	84.0	58	75.0	104	118.0	70	63.3
Family medicine	266	58.7	186	67.4	42	54.3	76	86.2	68	61.5
General internal medicine	102	22.5	26	9.4	8	10.3	17	19.3	1	0.9
General pediatrics	95	21.0	20	7.2	8	10.3	11	12.5	1	0.9
Surgeons	164	36.2	37	13.4	13	16.8	17	19.3	7	6.3
General surgery	36	7.9	15	5.4	6	7.8	5	5.7	4	3.6
Obstetrics-gynecology	85	18.7	19	6.9	6	7.8	11	12.5	2	1.8
Other surgery	43	9.5	3	1.1	1	1.3	1	1.1	1	0.9
Psychiatrists	82	18.1	14	5.1	10	12.9	4	4.5	0	0.0
Other specialists	653	144.0	106	38.4	37	47.8	51	57.9	18	16.3

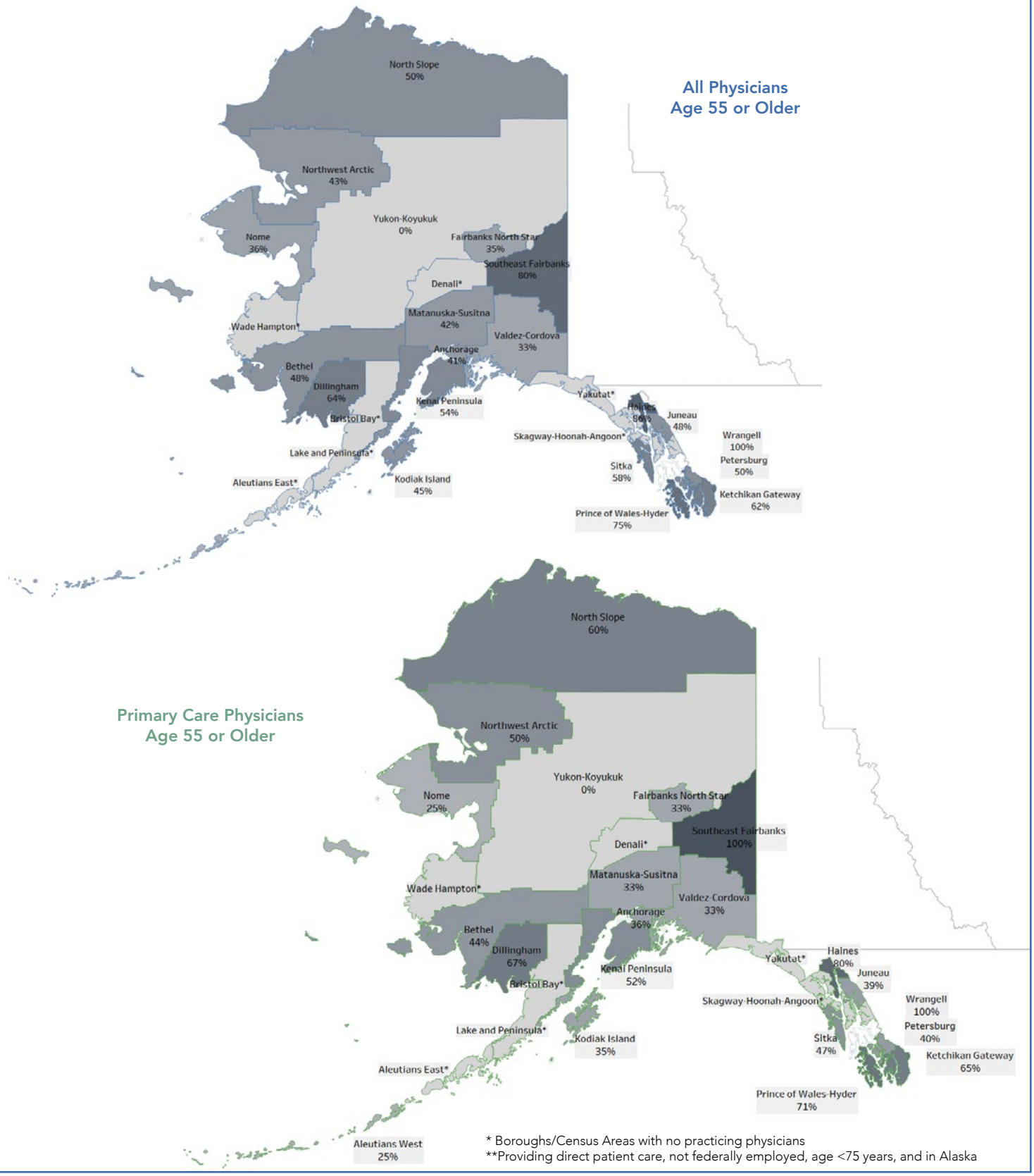
*Providing direct patient care, not federally employed, age <75 years, and in Alaska
**Rural-urban determined using ZIP code and RUCA taxonomy. Overall rural is a combination of the three rural subcategories

Figure 4. Alaska Physicians** per 100,000 Population in 2021, by Borough/Census Area



* Boroughs/Census Areas with no practicing physicians
**Providing direct patient care, not federally employed, age <75 years, and in Alaska

Figure 5. Alaska Physicians** Age 55 or Older in 2021, by Borough/Census Area



* Boroughs/Census Areas with no practicing physicians
**Providing direct patient care, not federally employed, age <75 years, and in Alaska

Table 3: Top 5 Medical Schools from Which Alaska Physicians* Graduated

Medical Schools	State	#	Percent
University of Washington School of Medicine	WA	219	12.5
Uniformed Services University of the Health Sciences F. Edward Hebert School of Medicine	MD	49	2.8
University of Minnesota Medical School	MN	45	2.6
University of Colorado School of Medicine	CO	42	2.4
Oregon Health and Sciences University School of Medicine	OR	40	2.3

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

Table 4: Top 5 States Where Alaska Physicians* Completed a Residency

State	#	% of Alaska Physicians who Completed a Residency in the State
CA	165	10.0
WA	148	9.0
AK	121	7.3
TX	110	6.7
NY	69	4.2

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

EDUCATION AND TRAINING

The highest percentage of Alaska's physicians graduated from the University of Washington School of Medicine (**Table 3**). Around 10% of Alaska's physicians completed a residency in California, followed closely by 9% of physicians who completed their residency in Washington. Smaller percentages completed residencies in Alaska, Texas, and New York (**Table 4**).

As shown in **Table 5**, 13% of Alaska's overall practicing physician supply in 2021 graduated from the two medical schools in Washington and 18% completed a residency in a WWAMI state, including Alaska. Among primary care physicians, 16% graduated from a Washington medical school, 18% completed a residency in Alaska and 31% completed a residency in any WWAMI state. Among physicians specializing in family medicine these percentages were higher: 41% of Alaska's family medicine physicians completed a residency in a WWAMI state, including Alaska.

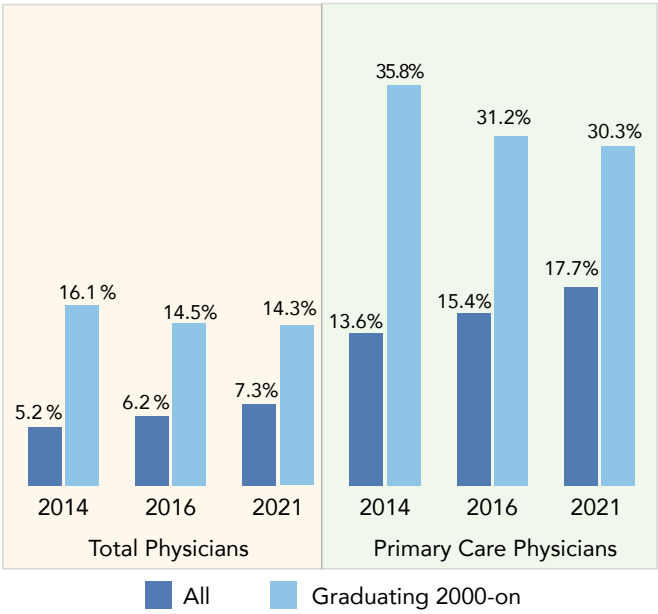
Table 5: Alaska Physicians* in 2021 Who Graduated from a Medical School in Washington, and/or Completed a Residency in Alaska or in any WWAMI State**

	Graduated from a Medical School in Washington***		Completed a Residency in Alaska****		Completed a Residency in a WWAMI State	
	#	%	#	%	#	%
Total	229	13.1%	121	7.3%	293	17.8%
Primary care	113	16.3%	116	17.7%	204	31.1%
Family medicine	83	18.4%	116	27.3%	173	40.7%
General internal medicine	13	10.2%	0	0.0%	15	12.4%
General pediatrics	17	14.8%	0	0.0%	16	14.4%
Surgeons	25	12.4%	0	0.0%	20	10.5%
General surgery	11	21.6%	0	0.0%	9	18.8%
Obstetrics-gynecology	11	10.6%	0	0.0%	4	4.0%
Other surgery	3	6.5%	0	0.0%	7	16.3%
Psychiatrists	9	9.4%	0	0.0%	8	8.5%
Other specialists	82	10.8%	5	0.7%	61	8.6%

*Providing direct patient care, not federally employed, age <75 years, and in Alaska
**WWAMI = Washington, Wyoming, Alaska, Montana, and Idaho
***Includes 14 graduates from Pacific Northwest University of Health Sciences and 215 from the University of Washington School of Medicine
****Percentages are calculated based on physicians for whom residency state data were available. There were 102 records (5.8%) that were missing residency state and 0 were missing medical school information

Among physicians who graduated from medical school since 2000, the percentage of Alaska's physicians who completed a residency in Alaska was higher than for the overall physician workforce (including those who graduated prior to 2000) and continued to fall in each of 2014, 2016, and 2021 (**Figure 6**).

Figure 6. Percentages of Alaska Physicians* in 2014, 2016, and 2021 Who Completed a Residency in Alaska



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

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 (or borough/census area) 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 Alaska's physician workforce supply findings with the RWJF county health rankings for the combined overall health outcomes measure and listed the top ranked 15 Alaska boroughs/census areas in three categories (**Table 6**).

Table 6: Top 15 Boroughs/Census Areas in Alaska Ranked by Health Outcomes and Supply of Physicians* per 100,000 Population

Borough/Census Area Rank**	Overall Health Outcomes***	Number of Overall Physicians*	Number of Primary Care Physicians*
1	Kodiak Island	Anchorage	Haines
2	Juneau	Sitka	Dillingham
3	Sitka	Haines	Sitka
4	Southeast Fairbanks	Juneau	Petersburg
5	Valdez-Cordova	Ketchikan Gateway	Kodiak Island
6	Fairbanks North Star	Dillingham	Valdez-Cordova
7	Kenai Peninsula	Fairbanks North Star	Juneau
8	Matanuska-Susitna	Petersburg	Ketchikan Gateway
9	Anchorage	Kenai Peninsula	Wrangell
10	Ketchikan Gateway	Kodiak Island	Nome
11	Petersburg	Nome Census	Anchorage
12	Haines	Valdez-Cordova	Prince of Wales-Hyder
13	North Slope	Prince of Wales-Hyder	Bethel
14	Wrangell	Wrangell	Fairbanks North Star
15	Aleutians West	Matanuska-Susitna	Northwest Arctic

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

As shown in **Table 6**, 13 out of 15 boroughs/census areas that have higher number of physicians per 100,000 population and 10 out of 15 boroughs/census areas with higher number of primary care physicians per 100,000 population also appeared among the 15 boroughs/census areas ranked the highest for health outcomes. Nonetheless, boroughs/census areas 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 boroughs/census areas 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 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

Alaska's physician supply, on a per 100,000 population basis, is similar to the national number. Differences in distribution are apparent between urban and rural areas of the state. While more physicians practice in urban areas, the numbers of primary care physicians per 100,000 population in Alaska's large rural areas are closer to urban areas. Fewer physicians (86 per 100,000 population) work in isolated small rural areas of Alaska. Attributing a single practice location to Alaska physicians may be somewhat misleading, however, because it is not uncommon for providers to travel to rural sites for short periods of practice, and/or to provide telemedicine to more remote sites while based in urban locations. As a result, these results may over- or under-estimate physician supply in more sparsely populated areas where each physician constitutes a significant percentage of the overall supply.

Additionally, 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 boroughs/census areas, for example. This analysis also excluded physicians that are 75 years or older, which could imply undercounting of effective physician supply in some areas. Also, 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]

About 13% of Alaska's total physician supply graduated from the University of Washington (the highest percentage of any medical school), where Alaska participates in the WWAMI medical education program. Medical students from Alaska have been supported by the state to attend the WWAMI program since 1971. In 2021, the retention rate for Alaska graduates practicing

in the WWAMI region was 63%.[10] 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]

In 2020 Alaska ranked second among states for retaining physicians who complete a residency in-state, with a 65% retention rate in 2020.[4] This high rate of retention contributed to the 27% of all 2021 physicians in family medicine specialties who completed a residency in Alaska. The state has few physician residencies, however, so even with a high residency retention rate only 7% of all practicing Alaska physicians (across all specialties) completed an in-state residency. While not easy to accomplish, the extent to which more residencies can be formed in locations and for specialties that serve the populations where shortages are greatest could help reduce disparities in the distribution of Alaska's physicians. This study also showed that high percentages of physicians who were more recent medical school graduates (since 2000) completed a residency in-state (14% of the total). Efforts specifically designed to retain these young physicians could be a useful health workforce development strategy for Alaska.

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APPENDIX A: METHODS

The Alaska 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 2,538 total allopathic and osteopathic physicians with Alaska license records in the dataset. Those selected for these analyses were the 1,751 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 5% 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) taxonomy[13] 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 16[15] and maps were generated using Tableau data visualization tool.