

Montana's Physician Workforce in 2016

KEY FINDINGS

- In 2016 there were 205 physicians per 100,000 population providing direct patient care in Montana, including 72 primary care physicians per 100,000 population.
- The mean age of Montana's practicing physicians was 53 years.
- Women comprised 29% of the state's physician workforce but 40% of the primary care (including 63% of general pediatricians).
- Most rural areas of Montana had fewer physicians per capita and many rural counties had high percentages of physicians age 55 or older than in urban areas.
- 16% of Montana's family medicine physician workforce completed a residency in Montana and 38% completed a residency in one of the WWAMI states: Washington, Wyoming, Alaska, Montana or Idaho.
- About 12% of Montana's physicians graduated from the University of Washington School of Medicine, a higher percentage than for any other school.
- Since 2014, Montana's physician workforce grew in size, the percent of female physicians increased, and average ages decreased slightly for overall physicians.

INTRODUCTION

The population of Montana grew by 4% between 2010 and 2015.¹ At the same time, the state's population is aging. In 2010, the population 65 years and older represented about 15% of population, while in 2015 that figure grew to about 17%.¹ 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 Montana's physician workforce. It updates a similar report from 2014² and addresses the following questions:

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

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

Montana's per capita supply of primary care physicians providing direct patient care was slightly smaller than the national supply in 2016.

NUMBER, DEMOGRAPHIC, AND DISTRIBUTION OF PHYSICIANS IN MONTANA

OVERALL SUPPLY AND DEMOGRAPHICS

Montana's per capita supply of physicians providing direct care is smaller than the national supply, although the primary care physician supply was closer to the national per capita number (Figure 1). In 2016, there were 2,160 physicians (205 per 100,000 population) providing direct patient care in the state and 72 primary care physicians per 100,000 population. Nationally, in 2016 there were 229 physicians per 100,000 providing direct patient care and 75 primary care providers per 100,000.

Table 1 shows the number of physicians providing direct patient care in Montana in 2016, total and by specialty group,

Figure 1: Montana compared with national estimates of physicians per 100,000 population in 2016

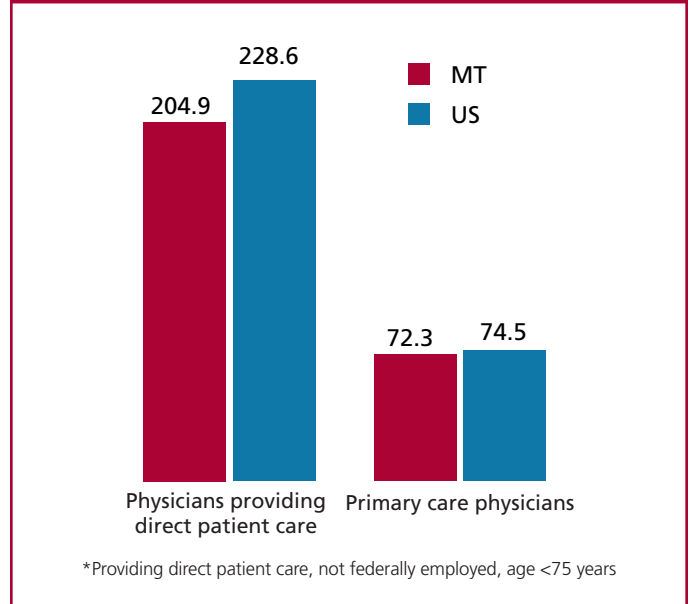


Table 1. Number, gender and age of Montana physicians in 2016

Physicians providing direct patient care*	2016					% Change between 2014-2016				
	#	#/100,000 population	% female	Mean age (years)	% age 55 or older	#	#/100,000 population	% female	Mean age (years)	% age 55 or older
Total	2160	204.9	29.3%	52.6	46.0%	5.6%	1.7%	2.8%	-0.5%	-1.0%
Primary care	762	72.3	40.0%	51.3	40.2%	4.4%	0.5%	4.8%	0.1%	1.7%
Family medicine	475	45.1	37.7%	50.8	37.5%	3.0%	-0.8%	4.1%	0.3%	-0.6%
General internal medicine	194	18.4	34.5%	52.1	45.4%	10.9%	7.0%	0.7%	-0.2%	4.5%
General pediatrics	93	8.8	63.4%	52.1	43.0%	-1.1%	-5.2%	14.7%	0.1%	6.5%
Surgeons	270	25.6	32.6%	53.1	47.8%	10.2%	6.3%	2.5%	-1.0%	1.9%
General surgery	76	7.2	21.1%	52.1	42.1%	22.6%	18.2%	-6.8%	0.0%	13.5%
Obstetrics-gynecology	110	10.4	59.1%	51.7	40.9%	6.8%	3.3%	5.0%	-1.5%	-6.4%
Other surgery	84	8.0	8.3%	55.7	61.9%	5.0%	0.8%	11.1%	-0.6%	5.3%
Psychiatrists	91	8.6	40.7%	57.0	63.7%	5.8%	1.5%	-5.4%	2.4%	5.3%
Other Specialists	1037	98.4	19.6%	53.0	48.3%	5.4%	1.5%	2.5%	-0.9%	-4.0%

*Not federally employed, age <75 years, in Montana

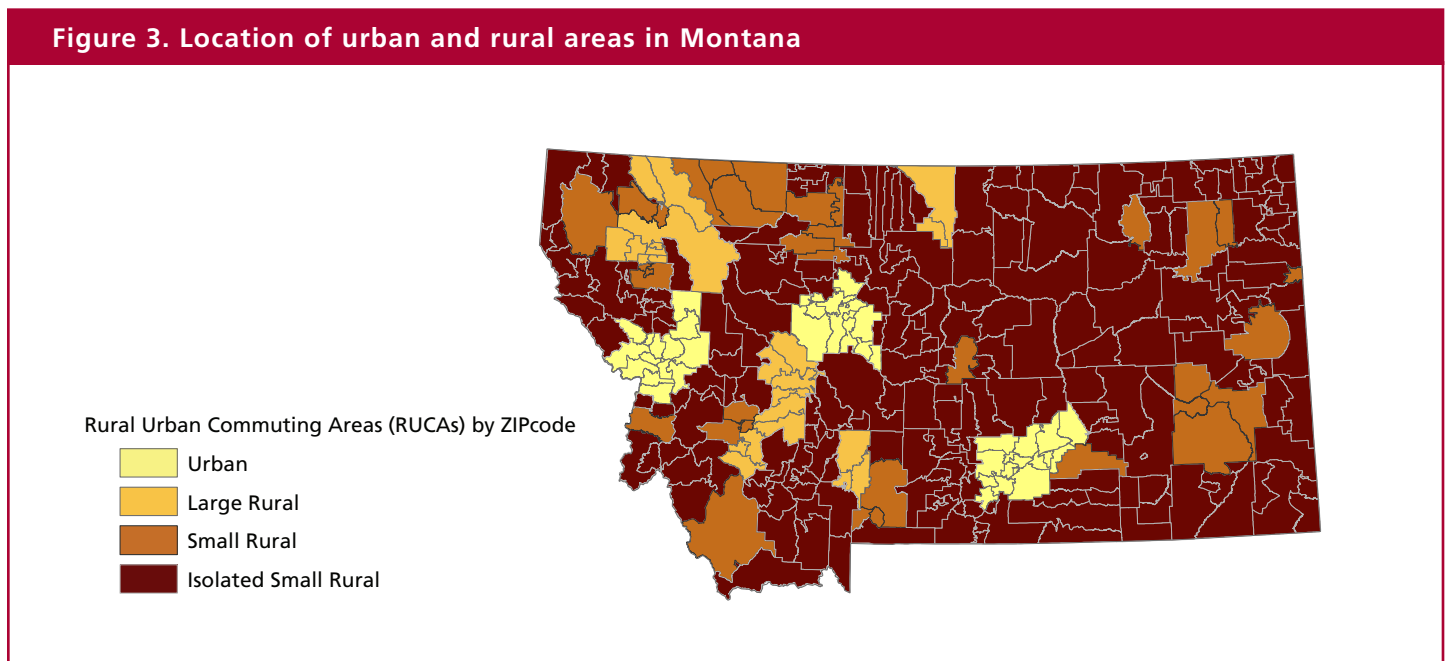
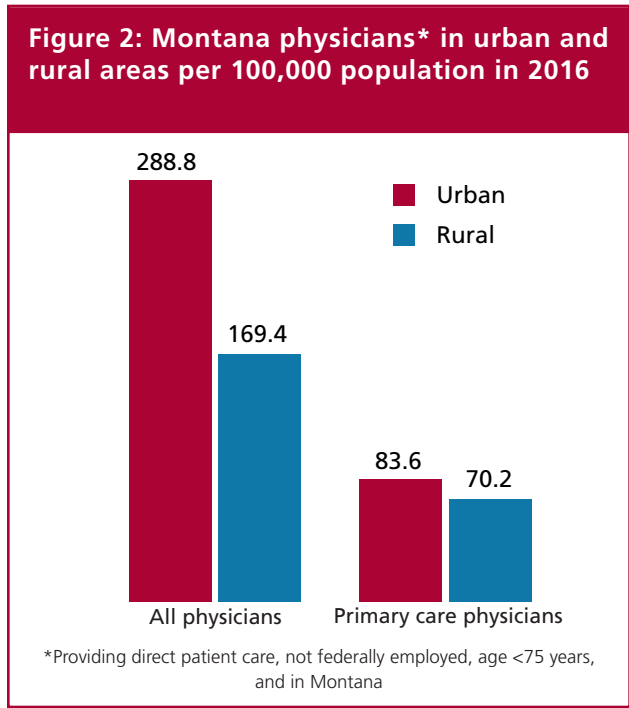
**Population estimates based on 2016 projections, available at http://ceic.mt.gov/Population/PopProjections_StateTotalsPage.aspx

as well as the number per capita, percent female, mean age, and percent change between 2014 and 2016. Detailed findings from 2014 analyses are available in the report “Montana State’s Physician Workforce in 2014”.² The mean age overall and by specialty for most Montana physicians was between 51 and 57 years (Table 1). Forty six percent of Montana’s physicians were age 55 or older, and 29% of Montana’s physician workforce were women, who comprised 40% of the primary care specialties and 59% of obstetrician-gynecologists. Between 2014 and 2016, the size of the state’s overall physician workforce grew. The percent of female physicians in Montana increased overall, but slightly decreased in general surgery and psychiatry. The average ages decreased slightly for physicians overall. By specialty, average ages stayed the same or decreased slightly, with the exception of psychiatrists whose average ages increased by 2.4% in spite of a nearly 6% increase in number.

DISTRIBUTION

In 2016, fewer physicians provided direct patient care per 100,000 population in rural compared with urban areas of Montana, although there was more rural-urban parity among practicing primary care physicians (Figure 2).

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. Figure 3 shows where rural and urban areas are located in Montana. As expected, specialists congregated in urban areas where more specialty care services and larger hospitals



Overall there were nearly as many physicians in rural Montana as in urban areas...

are available. But because much of Montana’s population lives in the many rural areas of the state, overall there were nearly as many physicians in rural Montana as in urban areas, and the number of primary care physicians was greater in rural compared with urban areas. On a per capita basis, however, the urban areas of the state had relatively more practicing physicians than across rural areas. Differences in physician supply were seen between the

Table 2. Montana 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	1,064	288.8	1,096	169.4	695	263.4	300	169.7	101	48.9
Primary care	308	83.6	454	70.2	231	87.5	149	84.3	74	35.9
Family medicine	171	46.4	304	47.0	127	48.1	113	63.9	64	31.0
General internal medicine	96	26.1	98	15.1	65	24.6	26	14.7	7	3.4
General pediatrics	41	11.1	52	8.0	39	14.8	10	5.7	3	1.5
Surgeons	130	35.3	140	21.6	82	31.1	53	30.0	5	2.4
General surgery	26	7.1	50	7.7	24	9.1	24	13.6	2	1.0
Obstetrics-gynecology	43	11.7	67	10.4	39	14.8	25	14.1	3	1.5
Other surgery	61	16.6	23	3.6	19	7.2	4	2.3	0	0.0
Psychiatrists	45	12.2	46	7.1	37	14.0	7	4.0	2	1.0
Other Specialists	581	157.7	456	70.5	345	130.7	91	51.5	20	9.7

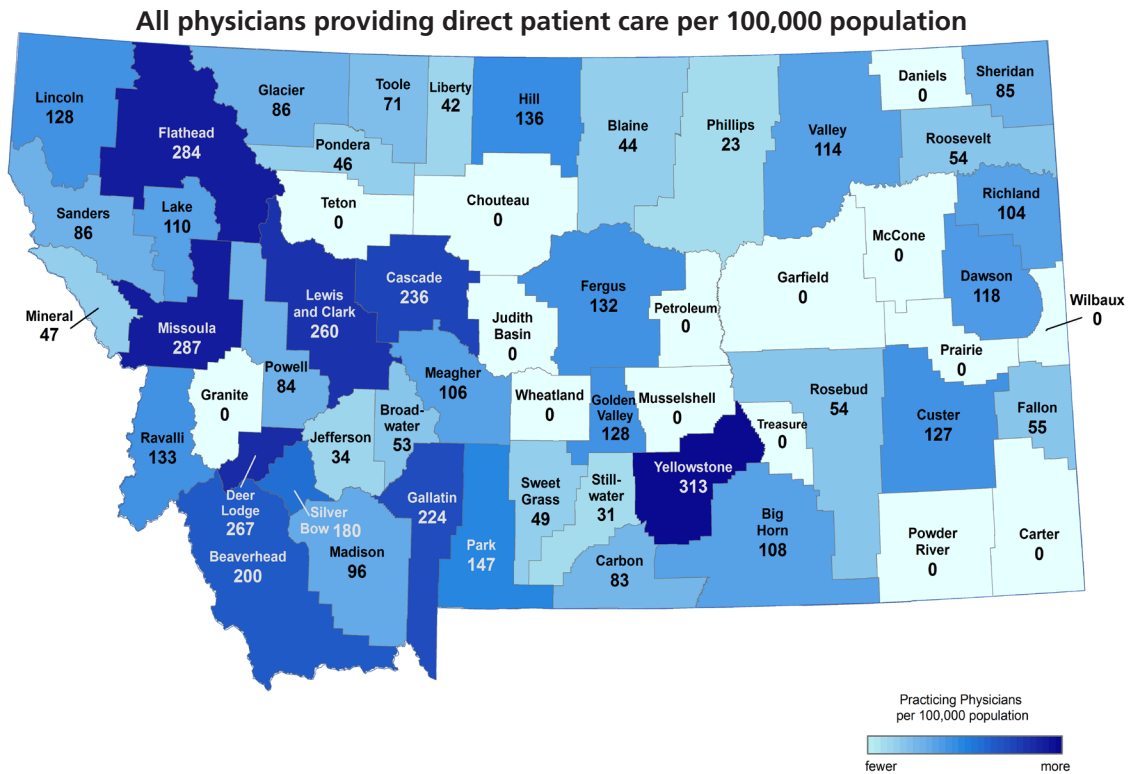
*Not federally employed, age <75 years, in Montana

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

large and small rural areas, where the number of physicians per capita exceeded urban areas for some specialties. This differed from the low physician supply rates seen in isolated small rural areas.

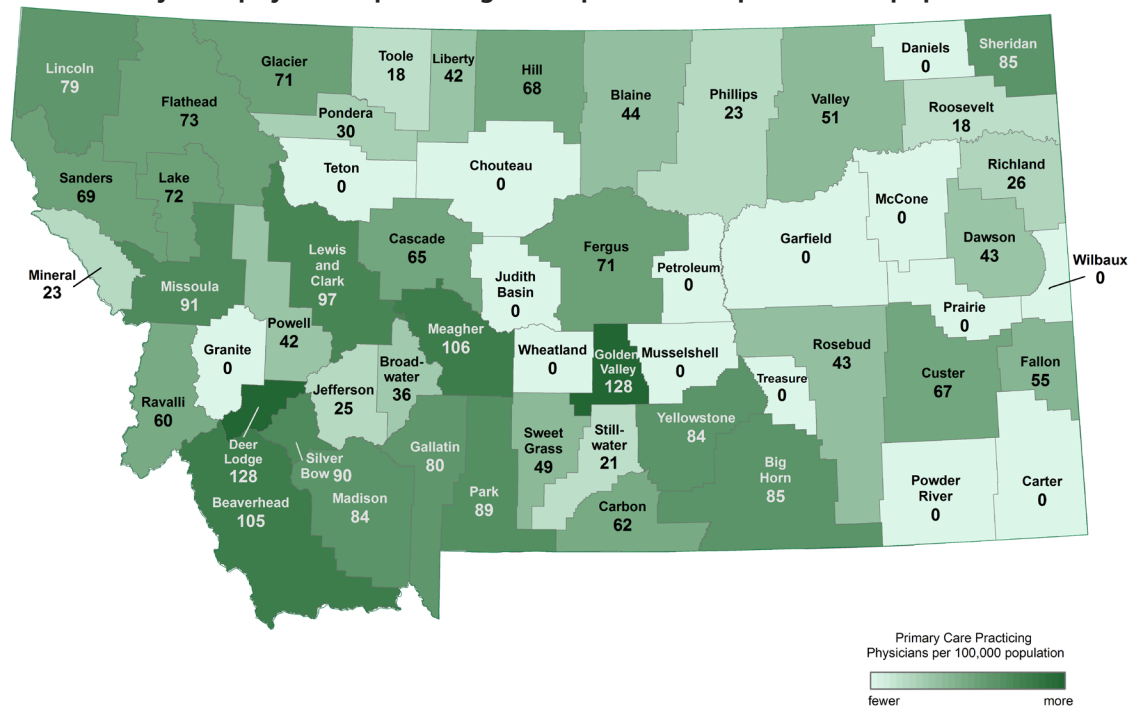
The numbers of all physicians and primary care physicians per 100,000 population in each Montana county are shown in Figure 4. In 2016, the AMA Physician Masterfile showed 15 counties had no practicing physicians and no practicing primary care physicians. Counties in western Montana tended to have higher physician density than counties in eastern Montana, which generally follows the distribution of the state’s population. It should be noted that because Montana is a very rural state with a relatively small population, at the county level most of the numbers of physicians per 100,000 population were larger than the actual number of physicians in the counties. Nonetheless, comparing physician supply on a per capita basis is a useful way to assess the relative supply of physicians across the state.

Figure 4: Montana physicians per 100,000 population in 2014, by county



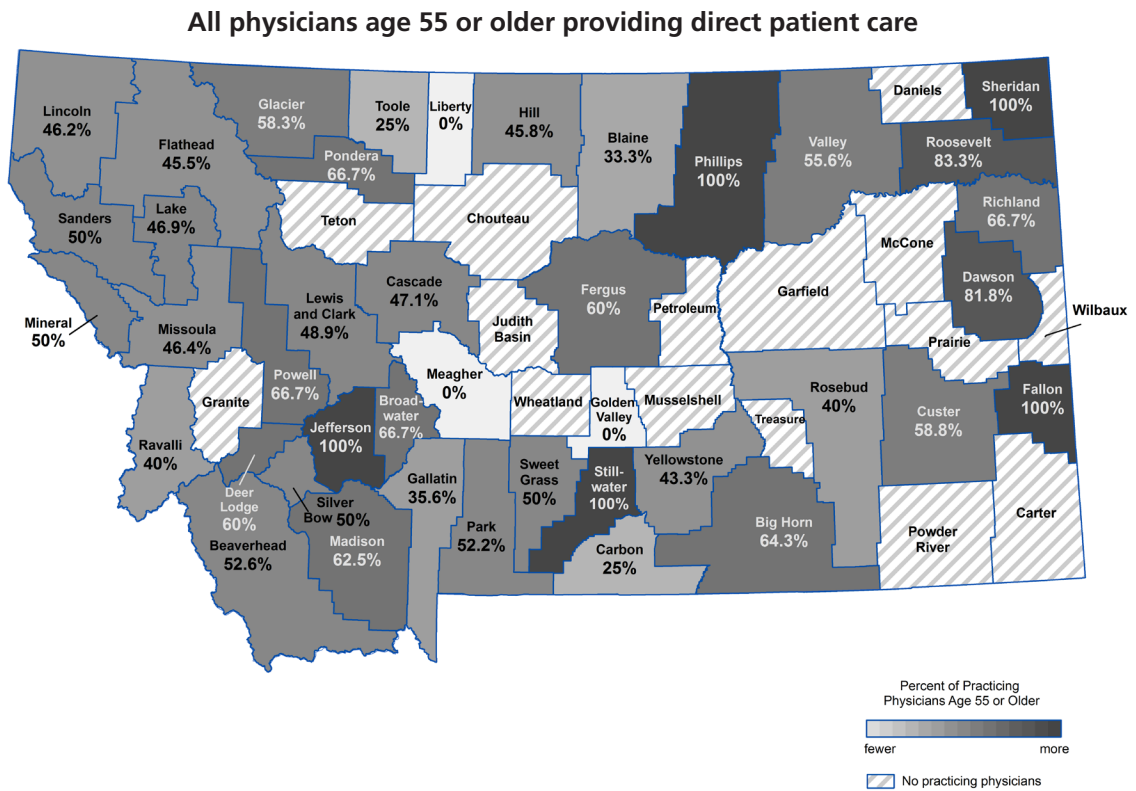
Data Source: AMA Physician Masterfile
Map Date: February 2017

Primary care physicians providing direct patient care per 100,000 population



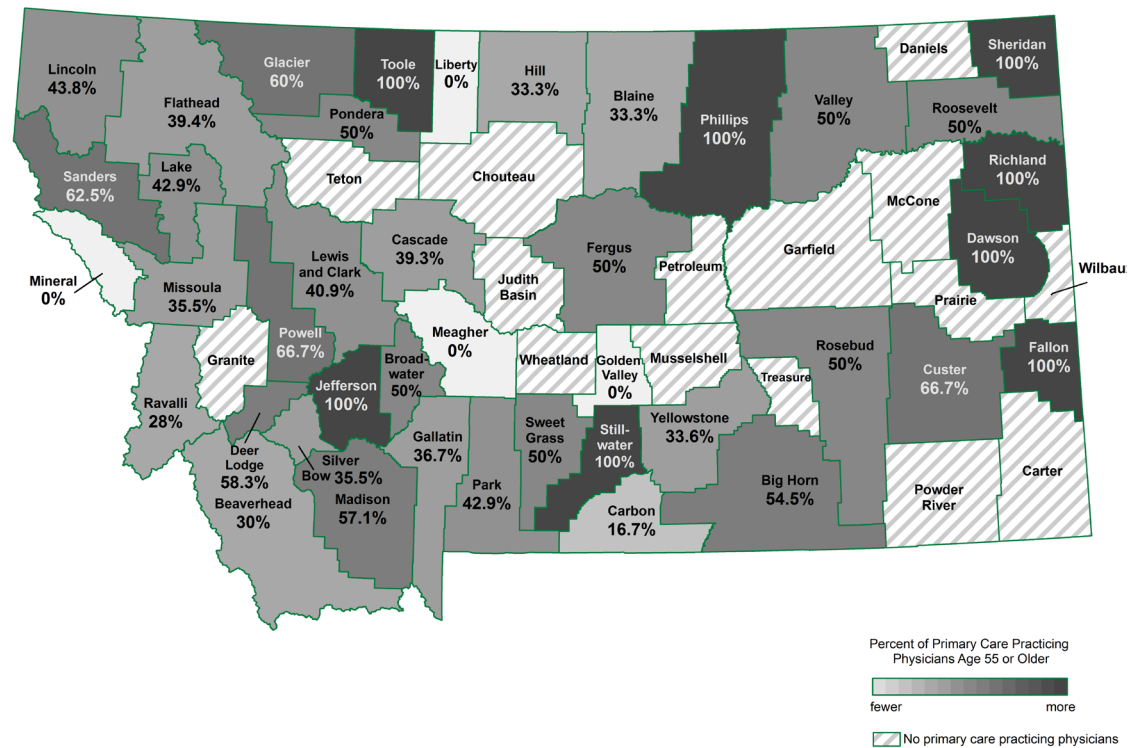
Data Source: AMA Physician Masterfile
Map Date: February 2017

Figure 5: Montana physicians age 55 or older in 2014, by county



Data Source: AMA Physician Masterfile
Map Date: February 2017

Primary care physicians age 55 or older providing direct patient care



Data Source: AMA Physician Masterfile
Map Date: February 2017

... many of Montana's highly rural counties had the highest percentages of physicians age 55 and older.

As shown in Figure 5 many of Montana's highly rural counties had the highest percentages of physicians age 55 and older. More than 50% of all physicians providing direct patient care in 20 Montana counties were age 55 or older in 2016. In 5 counties— Fallon, Jefferson, Phillips, Sheridan, and Stillwater— all physicians were over age 55. While 100% of primary care physicians in 7 counties were over 55 years of age, primary care physicians tended to be younger, although the percentage age 55 or older was still high among the more rural counties.

Table 3: Top 5 medical schools from which Montana physicians graduated*

School	State	#	% of physicians who graduated from school
University of Washington School of Medicine	WA	267	12.4%
University of Colorado School of Medicine	CO	65	3.0%
Creighton University School of Medicine	NE	56	2.6%
University of Utah School of Medicine	UT	56	2.6%
University of North Dakota School of Medicine and Health Sciences	ND	49	2.3%

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

Table 4. Top 5 states where Montana physicians completed a residency*

State	#	% of MT physicians who completed a residency in the state
WA	186	8.6%
CA	175	8.1%
CO	126	5.8%
UT	119	5.5%
MN	96	4.4%

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

EDUCATION AND TRAINING

Among medical schools from which Montana's physicians graduated, the highest percentage (12%) graduated from the University of Washington School of Medicine (Table 3). Sixteen percent of all Montana's primary care physicians graduated from the University of Washington School of Medicine (Table 5). About 9% of Montana's physicians completed a residency in Washington; smaller percentages completed residencies in California, Colorado, Utah, and Minnesota (Table 4). As shown in Table 5, while 15% of the state's overall physicians completed a residency in a WWAMI state, including Montana; just 4% completed a residency in Montana, where few residencies are available. Among primary care physicians these percentages are higher: 38% of family medicine physicians completed a residency in a WWAMI state, including Montana.

Among Montana's physicians who graduated from medical school since 2000, the percentage who completed a residency in Montana was much higher than for the overall physician workforce.

Table 5. Montana physicians in 2016 who graduated from the University of Washington School of Medicine (UW SOM), and/or completed a residency in Montana or in any WWAMI* state

Physicians providing direct patient care**	Graduated from UW SOM		Completed a residency in MT***		Completed a residency in a WWAMI state	
	#	%	#	%	#	%
Total	267	12.4%	72	3.5%	301	14.5%
Primary care	122	16.0%	72	9.8%	207	28.3%
Family medicine	76	16.0%	72	16.0%	171	38.1%
General internal medicine	35	18.0%	0	0.0%	33	17.4%
General pediatrics	11	11.8%	0	0.0%	3	3.2%
Surgeons	28	10.4%	0	0.0%	10	3.8%
General surgery	9	11.8%	0	0.0%	2	2.7%
Obstetrics-gynecology	13	11.8%	0	0.0%	3	2.8%
Other surgery	6	7.1%	0	0.0%	5	6.2%
Psychiatrists	10	11.0%	0	0.0%	10	11.1%
Other Specialists	107	10.3%	0	0.0%	74	7.4%

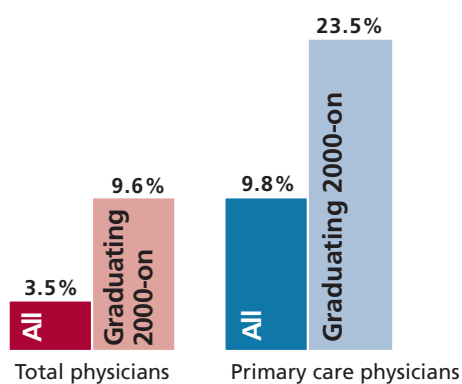
* WWAMI = Washington, Wyoming, Alaska, Montana, and Idaho

** Not federally employed, age <75 years, in Montana

*** Percentages are calculated based on physicians for whom residency state data were available. There were 77 (3.6%) records that were missing residency state and 0 were missing medical school information

Among Montana’s physicians who graduated from medical school since 2000, the percentage who completed a residency in Montana was much higher than for the overall physician workforce (Figure 6). It is not clear if this indicates a trend due to the availability of more residencies in the state, if it 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.

Figure 6. Percentage of Montana physicians* in 2016 who completed a residency in Montana



* Not federally employed, age <75 years, in Montana, and providing direct patient care

SUMMARY AND POLICY IMPLICATIONS

In 2016 Montana's physician supply, on a per capita basis, was generally smaller than national averages. Differences in distribution are apparent between urban and rural areas of the state. While more physicians practiced in urban areas, the numbers of primary care physicians per capita in large and small rural areas were higher compared to urban areas. Very few physicians, however, worked in isolated small rural areas of Montana. These data may overstate the number of Montana counties that lack access to a physician. Some counties are served by locum tenens physicians, and physicians in some counties may not be included in the Masterfile because they were recently recruited, have addresses in other locations, or otherwise were missed in the assembling of the AMA data.

The percent of Montana's physician supply graduating from the University of Washington School of Medicine, where Montana contributes to the WWAMI Medical School program, was 12%. Medical students from Montana have been supported by the state to attend the WWAMI program since 1972. In 2016, there were 638 Montana WWAMI graduates in practice.

As shown in these findings as well as in the 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.³ In 2014, Montana ranked third among states for retaining physicians who complete a residency in-state, with a 62% retention rate.⁴ This high rate of retention contributed to the 24% of all primary care physicians graduating since 2000 who completed a residency in Montana. 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 Montana's physicians. Efforts specifically designed to retain physicians after they complete in-state residencies could be a useful health workforce development strategy for Montana.

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APPENDIX A: METHODS

The Montana 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 2,278 total allopathic and osteopathic physicians with Montana license records in the dataset. Those selected for these analyses were the 2,160 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 7% 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 Census and Economic Information Center, Montana Department of Commerce.⁵ Rural-urban status was determined using Rural Urban Commuting Area (RUCA) taxonomy,⁶ and the population data for the various rural-urban categories came from a custom-prepared file of selected 2014 population data with ZIP codes cross-referenced to counties.⁷

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