

Montana's Physician Workforce in 2014

KEY FINDINGS

- In 2014 there were 201 physicians per 100,000 population providing direct patient care in Montana, including 72 generalist 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 38% of the generalists (including 55% of general pediatricians).
- Most rural areas of Montana had fewer physicians per capita than in urban areas and many rural counties had high percentages of physicians age 55 or older.
- 12% of Montana's family medicine/general practice physician workforce completed a residency in Montana and 36% completed a residency in one of the WWAMI states: Washington, Wyoming, Alaska, Montana and Idaho.
- 13% of Montana's physicians graduated from the University of Washington School of Medicine, a higher percentage than for any other school.

INTRODUCTION

The population of Montana is increasing and getting older, 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 Montana's physician workforce, addressing the 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 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 a residency in Montana or a WWAMI state?*

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).

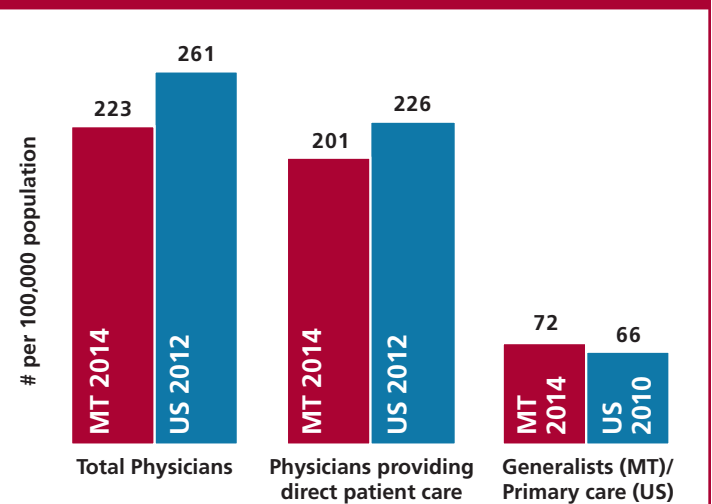
NUMBER, DEMOGRAPHIC CHARACTERISTICS, AND DISTRIBUTION OF PHYSICIANS IN MONTANA

Of 2,261 physicians with Montana licenses in 2014, 2,045 provided direct patient care.

OVERALL SUPPLY AND DEMOGRAPHICS

Montana's total per capita physician supply is smaller than the national supply, although the generalist physician supply was similar to the national per capita number (Figure 1). In 2014, there were 2,261 physicians (223 per 100,000 population) with Montana licenses and 2,045 (201 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 care¹. HRSA estimated that in 2010 there were approximately 66 primary care physicians per 100,000 U.S. population²; four years later, in 2014, Montana had 72 generalist physicians per 100,000 population. Table 1 shows the number of physicians in Montana in 2014, total and by specialty group, as well as the number per capita.

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



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

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

Physicians providing direct patient care*	#	#/100,000 population	% Female	Mean Age (Years)	% Age 55 or Older
Total	2045	201.4	28.5%	52.8	46.5%
Generalists	730	71.9	38.2%	51.2	39.5%
Family medicine/general practice	461	45.4	36.2%	50.6	37.7%
General internal medicine	175	17.2	34.3%	52.2	43.4%
General pediatrics	94	9.3	55.3%	52.0	40.4%
Surgeons	245	24.1	31.8%	53.6	46.9%
General surgery	62	6.1	22.6%	52.1	37.1%
Obstetrics-gynecology	103	10.1	56.3%	52.5	43.7%
Other surgery	80	7.9	7.5%	56.0	58.8%
Psychiatrists	86	8.5	43.0%	55.7	60.5%
Other Specialists	984	96.9	19.1%	53.5	50.3%

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

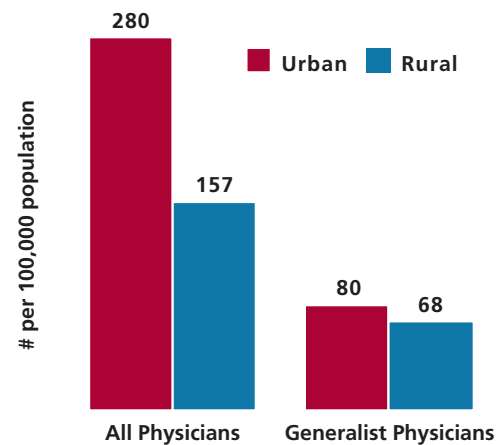
The mean age overall and by specialty for most Montana physicians was similar, between 51 and 56 years (Table 1). Forty-seven percent were age 55 or older. Twenty-nine percent of Montana's physician workforce were women, who comprised 38% of the generalist specialties and 56% of obstetrician-gynecologists.

DISTRIBUTION

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 generalist 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

Figure 2: Montana 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 Montana

Table 2. Montana 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	1,031	279.9	1,014	156.7	628	238.0	297	168.0	89	43.1
Generalists	293	79.5	437	67.5	221	83.8	150	84.9	66	32.0
Family medicine/general practice	161	43.7	300	46.4	131	49.6	112	63.4	57	27.6
General internal medicine	86	23.3	89	13.8	53	20.1	29	16.4	7	3.4
General pediatrics	46	12.5	48	7.4	37	14.0	9	5.1	2	1.0
Surgeons	121	32.8	124	19.2	71	26.9	48	27.2	5	2.4
General surgery	20	5.4	42	6.5	20	7.6	20	11.3	2	1.0
Obstetrics-gynecology	43	11.7	60	9.3	34	12.9	23	13.0	3	1.5
Other surgery	58	15.7	22	3.4	17	6.4	5	2.8	0	0.0
Psychiatrists	44	11.9	42	6.5	34	12.9	7	4.0	1	0.5
Other Specialists	573	155.5	411	63.5	302	114.4	92	52.0	17	8.2

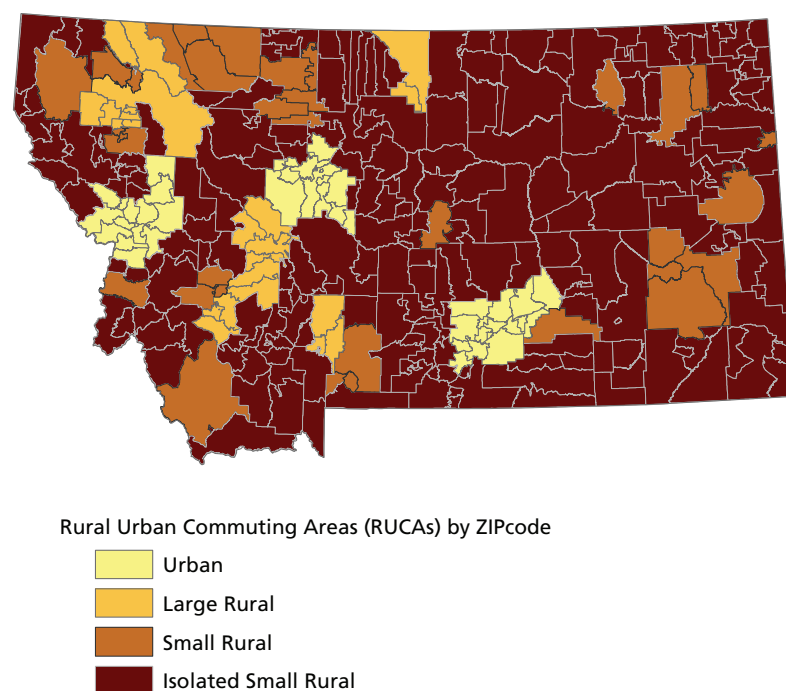
*not federally employed, age <75 years, in Montana

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

The AMA Physician Masterfile showed 15 Montana counties had no practicing physicians and 17 counties had no practicing generalist physicians.

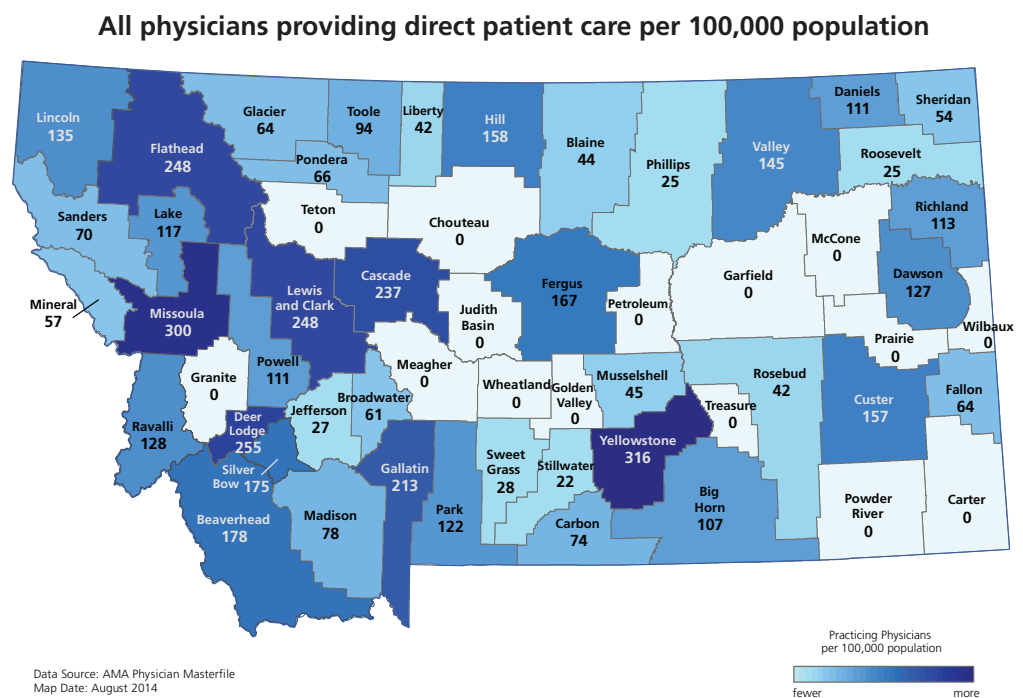
are located in Montana. As expected, specialists congregated in urban areas where more specialty care services and larger hospitals are provided. But because much of Montana's population lives in the many rural areas of the state, overall there were nearly as many physicians in rural Montana as in urban areas, and the number of generalist 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. Major differences in physician supply were seen between the large and small rural areas, where the number of physicians per capita exceeded urban areas for some specialties, compared with the small physician supply rates seen in isolated small rural areas.

Figure 3. Location of urban and rural areas in Montana



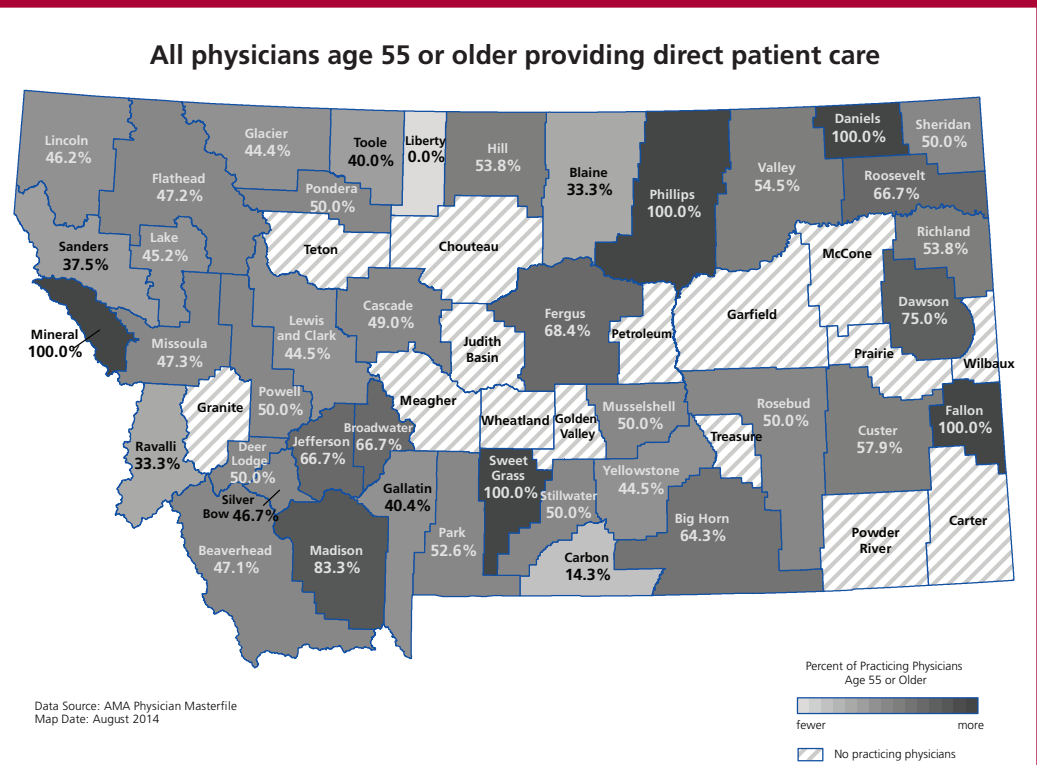
The numbers of all physicians and generalist physicians per 100,000 population in each Montana county are shown in Figure 4. In 2014, the AMA Physician Masterfile showed 15 counties had no practicing physicians and 17 counties had no practicing generalist physicians. This may be an overstatement of the 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. 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

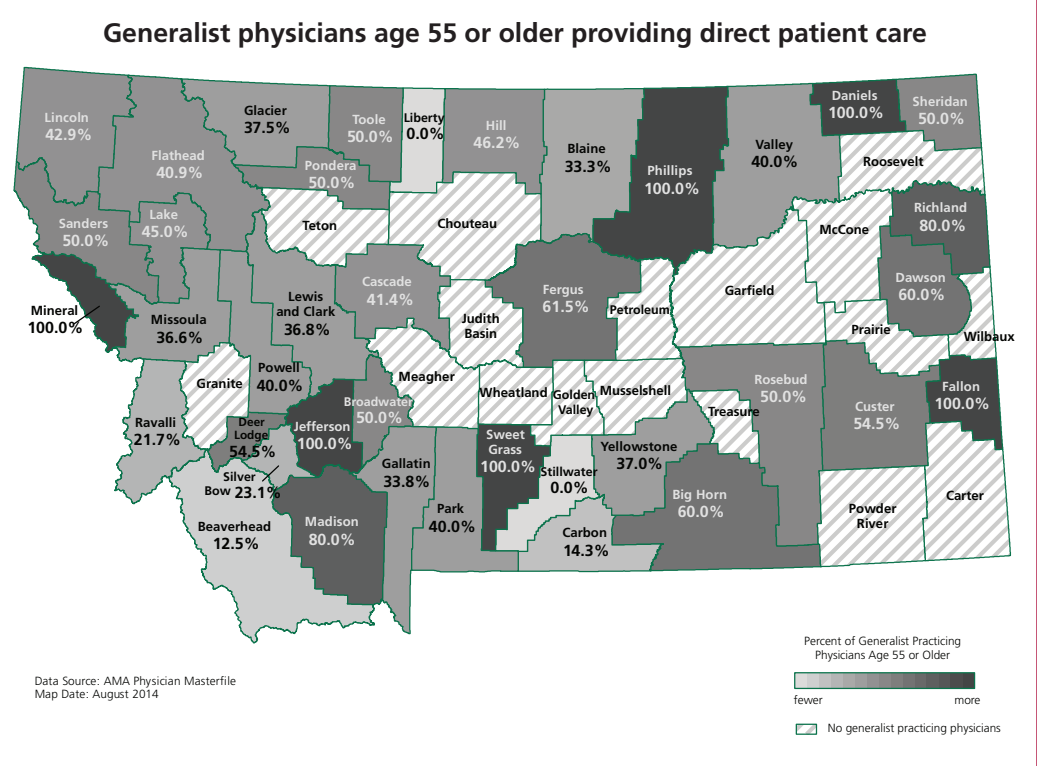


As shown in Figure 5 many of Montana's most rural counties had the highest percentages of physicians age 55 and older. More than 50% of all physicians providing direct patient care in 17 Montana counties were age 55 or older in 2014. In five counties—Daniels, Fallon, Mineral, Phillips, and Sweet Grass—all physicians were over age 55. While 100 percent of generalist physicians in six counties were over 55, the percentages of generalist physicians age 55 or older were generally lower than for overall physicians, but still were high among the more rural counties.

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



In 30% of Montana's counties, more than half of the physicians were age 55 or older.



EDUCATION AND TRAINING

The University of Washington School of Medicine led the list of medical schools from which Montana's physicians graduated (Table 3). Ten percent of Montana's physicians completed a residency in Washington; smaller percentages completed residencies in California, Colorado, Utah, and Minnesota (Table 4).

13% of Montana's physicians graduated from the University of Washington School of Medicine and 3% completed a residency in Montana.

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	256	12.5%
University of Colorado School of Medicine	CO	65	3.2%
Creighton University School of Medicine	NE	58	2.8%
University of Minnesota Medical School	MN	50	2.4%
University of Utah School of Medicine	UT	50	2.4%

*among Montana physicians in 2014 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	192	9.7%
CA	179	9.0%
CO	126	6.4%
UT	109	5.5%
MN	96	4.9%

*among Montana physicians in 2014 providing direct patient care, not federally employed, age <75 years

As shown in Table 5, 13% of Montana's overall practicing physician supply in 2014 graduated from the University of Washington. While 15% completed a residency in a WWAMI state, including Montana, only 2.7% completed a residency in Montana, where few residencies are available. Among generalist physicians these percentages are higher: 36% of family medicine/general practice physicians completed a residency in a WWAMI state, including Montana, and 16% of all Montana's generalist physicians graduated from the University of Washington School of Medicine.

Table 5. Montana physicians in 2014 who graduated from the University of Washington School of Medicine (UW SOM), and who completed a residency in Washington 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	256	12.5%	54	2.7%	290	14.7%
Generalists	119	16.3%	54	7.7%	191	27.3%
Family medicine/general practice	74	16.1%	54	12.4%	158	36.4%
General internal medicine	32	18.3%	0	0.0%	30	17.4%
General pediatrics	13	13.8%	0	0.0%	3	3.2%
Surgeons	27	11.0%	0	0.0%	13	5.5%
General surgery	9	14.5%	0	0.0%	3	5.1%
Obstetrics-gynecology	12	11.7%	0	0.0%	5	4.9%
Other surgery	6	7.5%	0	0.0%	5	6.5%
Psychiatrists	9	10.5%	0	0.0%	10	11.8%
Other Specialists	101	10.3%	0	0.0%	76	7.9%

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

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

*** Percentages are calculated based on physicians for which residency state data were available. There were 105 records (3.9%) that were missing residency state (0 were missing medical school).

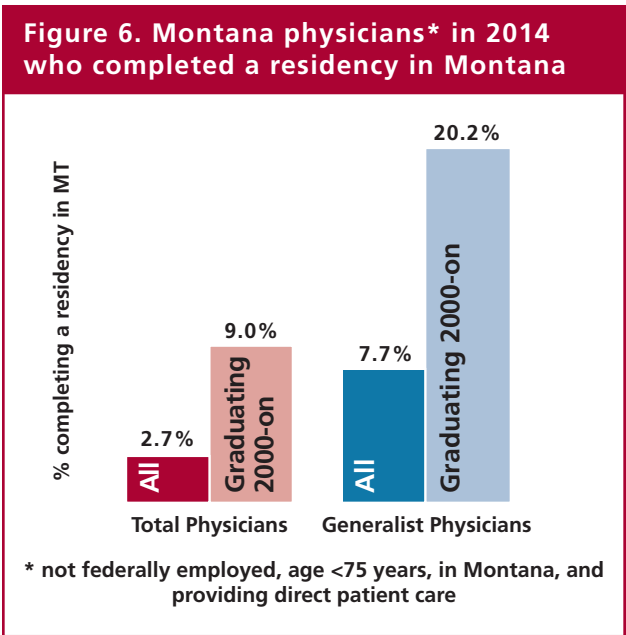
The percentage of physicians who completed a residency in Montana is higher among those who graduated from medical school since 2000 (Figure 6). It is not clear if this indicates a trend toward higher rates of post-residency retention by the more recent physician cohorts compared with older cohorts, 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.

SUMMARY

In 2014 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 generalists per capita in large and small rural areas were surprisingly similar. Very few physicians worked in isolated small rural areas of Montana, however.

About 13% of Montana’s total physician supply graduated from the University of Washington, where Montana contributes to the WWAMI Medical School program. Medical students from Montana have been supported by the state to attend the WWAMI program since 1972. By 2013, 591 Montana students had completed medical school through the WWAMI program.³

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.⁴ In 2012 Montana ranked third among states for retaining physicians who complete a residency in-state, with a 63% retention rate in 2012.¹ This high rate of retention contributed to the 12% of all 2014 physicians in family medicine/general practice specialties who completed a residency in Montana. Since 2012, two new residency programs have opened in Montana - the Family Medicine Residency of Western Montana in 2013 and the Billings Clinic Internal Medicine residency in 2014. 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. This study also showed that higher percentages of physicians who were more recent medical school graduates (since 2000) completed a residency in-state (9% of the total). Efforts specifically designed to retain these young physicians 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 April, 2014. There were 2,261 total allopathic and osteopathic physicians with Montana license records in the dataset. Those selected for these analyses were the 2,045 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 "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.⁵ Rural-urban status was determined using Rural Urban Commuting Area (RUCA) taxonomy.⁶

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