

# Wyoming's Physician Workforce in 2014

## KEY FINDINGS

- In 2014 there were 166 physicians per 100,000 population providing direct patient care in Wyoming, including 59 physicians in generalist specialties per 100,000 population, lower than national per capita rates.
- The mean age of Wyoming's practicing physicians was 52 years.
- Women comprised 24% of the state's overall physician workforce but 33% of the generalist physicians.
- There were large differences in the number of physicians per capita across the state, with the greatest density in urban locations and in the recreation destination counties in northwest Wyoming.
- Counties in Wyoming with some of the lowest per capita supply of physicians had the highest percentages of physicians approaching retirement age.
- 26% of all Wyoming's generalist physicians and 40% of family medicine/general practice physicians completed a residency in-state.
- 10% of Wyoming's physicians graduated from medical school at Creighton University and 7% graduated from the University of Washington.

## INTRODUCTION

The population of Wyoming is growing and aging, and health care delivery and payment systems are undergoing major transformations. Important questions for healthcare policy and planning include whether there will be enough physicians in the right places and with the needed specialties to meet growing and changing demand. This Brief offers data on the size, distribution, and education history of Wyoming's physician workforce, addressing the questions:

- *How many physicians practice in Wyoming? (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 Wyoming or a WWAMI (Washington, Wyoming, Alaska, Montana and Idaho) state?*

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

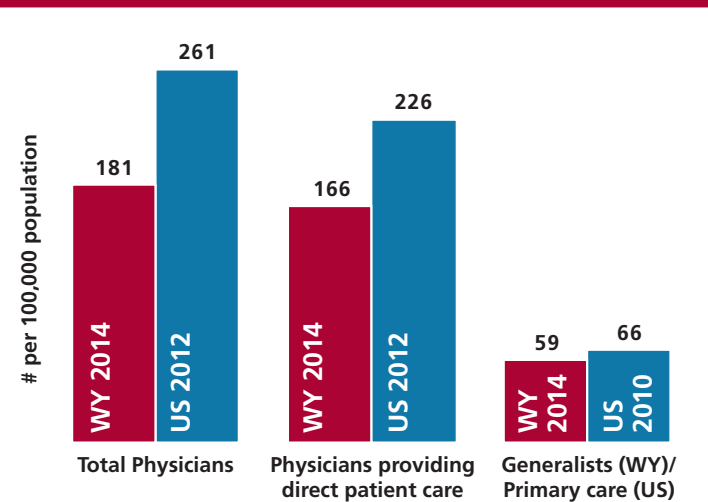
# NUMBER, DEMOGRAPHIC CHARACTERISTICS, AND DISTRIBUTION OF PHYSICIANS IN WYOMING

Of 1,060 physicians with Wyoming licenses in 2014, 974 provided direct patient care.

## OVERALL SUPPLY AND DEMOGRAPHICS

In 2014, Wyoming's per capita physician supply was smaller than the national supply (Figure 1). There were 1,060 physicians (181 per 100,000 population) with Wyoming licenses and 974 (166 per 100,000 population) providing direct patient care in the state. Nationally, in 2012 there were 261 overall physicians per 100,000 population and 226 per 100,000 providing direct patient care<sup>1</sup>. HRSA estimated that in 2010 there were approximately 66 primary care physicians per 100,000 U.S. population<sup>2</sup>; four years later, in 2014, Wyoming had 59 generalist physicians per 100,000 population. Table 1 shows the number of physicians in Wyoming in 2014, total and by specialty group, as well as the number per capita.

**Figure 1. Wyoming 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 Wyoming physicians in 2014**

Physicians providing direct patient care*	#	#/100,000 population	% Female	Mean Age (Years)	% Age 55 or Older
<b>Total</b>	974	165.9	24.3%	51.9	41.2%
<b>Generalists</b>	348	59.3	33.0%	49.9	33.3%
Family medicine/general practice	231	39.3	31.2%	48.9	28.1%
General internal medicine	72	12.3	34.7%	51.4	43.1%
General pediatrics	45	7.7	40.0%	52.2	44.4%
<b>Surgeons</b>	142	24.2	25.4%	53.1	42.3%
General surgery	43	7.3	14.0%	52.3	46.5%
Obstetrics-gynecology	67	11.4	41.8%	52.2	34.3%
Other surgery	32	5.5	6.3%	55.8	53.1%
<b>Psychiatrists</b>	40	6.8	42.5%	54.9	55.0%
<b>Other Specialists</b>	444	75.6	15.5%	52.7	45.7%

\*not federally employed, age <75 years, with Wyoming address

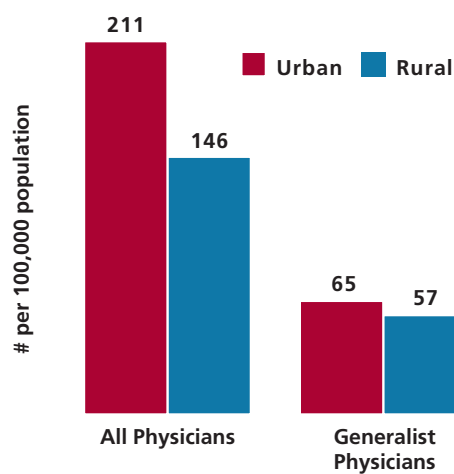
The mean ages across physician specialties in Wyoming varied only by a few years, from 49 years for family medicine/general practice to 56 years for “other” surgeons (Table 1). Overall, 41% of Wyoming’s physicians were age 55 or older, with psychiatrists having the highest percentage (55%). Less than a quarter (24%) of Wyoming’s physicians were women, who comprised nearly a third of the generalist specialties, 42% of obstetrician-gynecologists and 43% of psychiatrists.

## DISTRIBUTION

While overall there were more physicians in rural Wyoming than in urban areas of the state (598 total physicians in rural compared with 376 in urban), fewer physicians provided direct patient care per 100,000 population in rural compared with urban areas (Figure 2). Figure 3 shows where rural and urban areas are located in Wyoming. Overall and for most physician specialties, the number of physicians per capita is greater in urban than rural areas of the state. On a per capita basis, there was more rural-urban parity among practicing generalist physicians than for physicians overall.

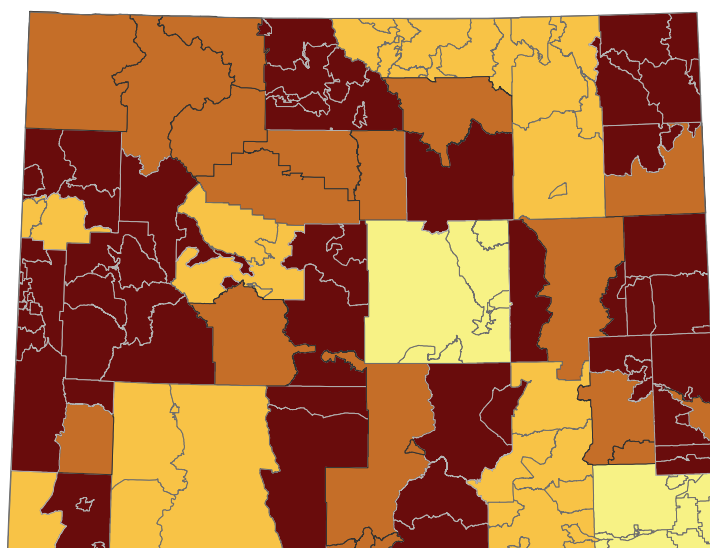
Overall there were more physicians in rural Wyoming than in urban areas of the state.

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

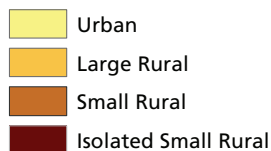


\*Providing direct patient care, not federally employed, age <75 years, and with Wyoming address

**Figure 3. Location of urban and rural areas in Wyoming**



Rural Urban Commuting Areas (RUCAs) by ZIPcode



Map Date: July 2014

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. Wyoming's obstetrician-gynecologists, however, were available statewide on a per capita basis at somewhat higher rates in large and small rural areas compared with urban areas, although there were none identified in isolated small rural areas. Similar results were found for general surgeons, although one was identified in an isolated small rural area. More physicians per capita in family medicine/general practice were located in the small rural areas of the state than in any other rural area type or in urban areas of Wyoming.

**Table 2. Wyoming 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
<b>Total</b>	376	211.0	598	146.2	371	167.9	190	170.6	37	48.2
<b>Generalists</b>	115	64.5	233	57.0	115	52.1	94	84.4	24	31.3
Family medicine/general practice	78	43.8	153	37.4	58	26.3	72	64.7	23	30.0
General internal medicine	23	12.9	49	12.0	34	15.4	14	12.6	1	1.3
General pediatrics	14	7.9	31	7.6	23	10.4	8	7.2	0	0.0
<b>Surgeons</b>	53	29.7	89	21.8	61	27.6	26	23.3	2	2.6
General surgery	13	7.3	30	7.3	19	8.6	10	9.0	1	1.3
Obstetrics-gynecology	20	11.2	47	11.5	34	15.4	13	11.7	0	0.0
Other surgery	20	11.2	12	2.9	8	3.6	3	2.7	1	1.3
<b>Psychiatrists</b>	21	11.8	19	4.6	11	5.0	7	6.3	1	1.3
<b>Other Specialists</b>	187	105.0	257	62.8	184	83.3	63	56.6	10	13.0

\*not federally employed, age <75 years, in Wyoming

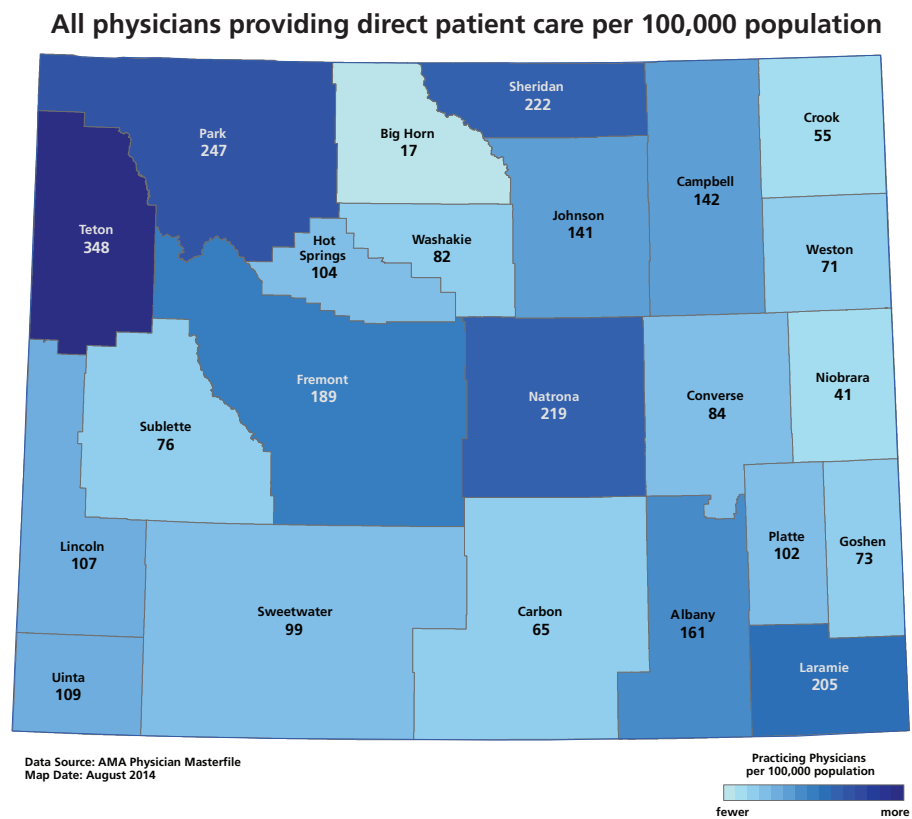
\*\* Rural-urban determined using ZIP code RUCA taxonomy. Overall rural is a combination of the three rural subcategories.

More physicians per capita in family medicine/general practice were located in the small rural areas of the state than in any other rural area type or in urban areas of Wyoming.

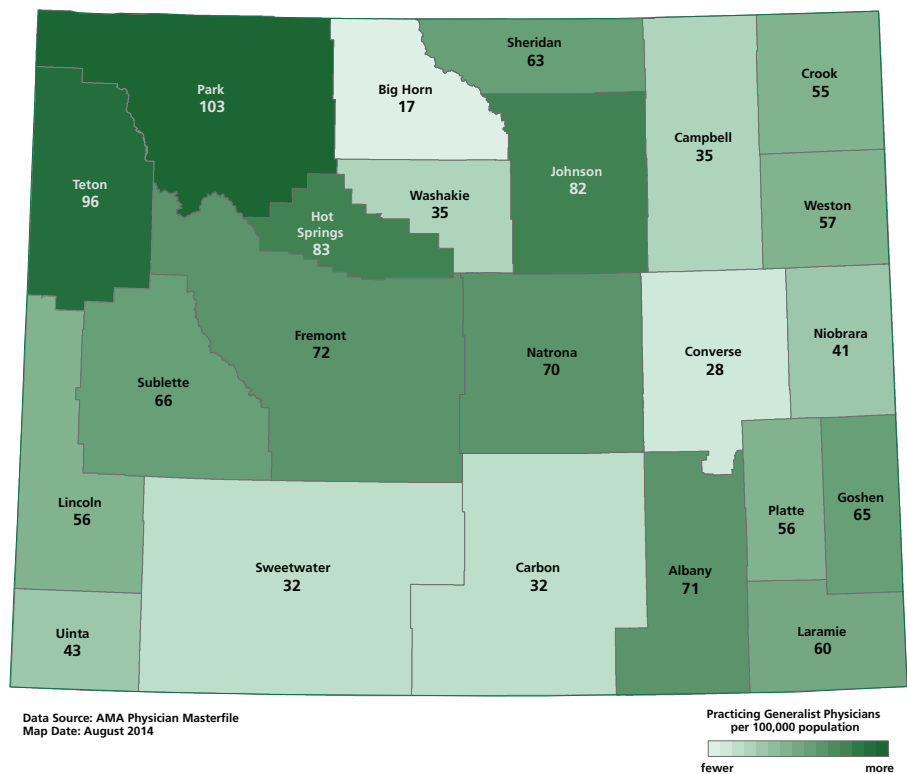
There was large variation among Wyoming's counties in the numbers of overall physicians per capita as well as among the numbers of generalists per capita (Figure 4). It should be noted, however, that because of Wyoming's relatively small population, at the county level the numbers of physicians per 100,000 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.

While still largely rural, the counties in northwest Wyoming (major recreation destination areas) had high densities of total physicians and generalist specialties compared with the rest of the state. The largely rural counties in the east and south of the state had many fewer physicians per capita. For example, in the eastern county of Niobrara the number of total physicians per 100,000 population was 41 (reflecting the 1 generalist physician identified in the dataset for that county) compared with 247 total and 103 generalists per 100,000 population in rural Park county. The southern county of Carbon had 65 total physicians per 100,000 population and 32 generalists per 100,000 population.

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



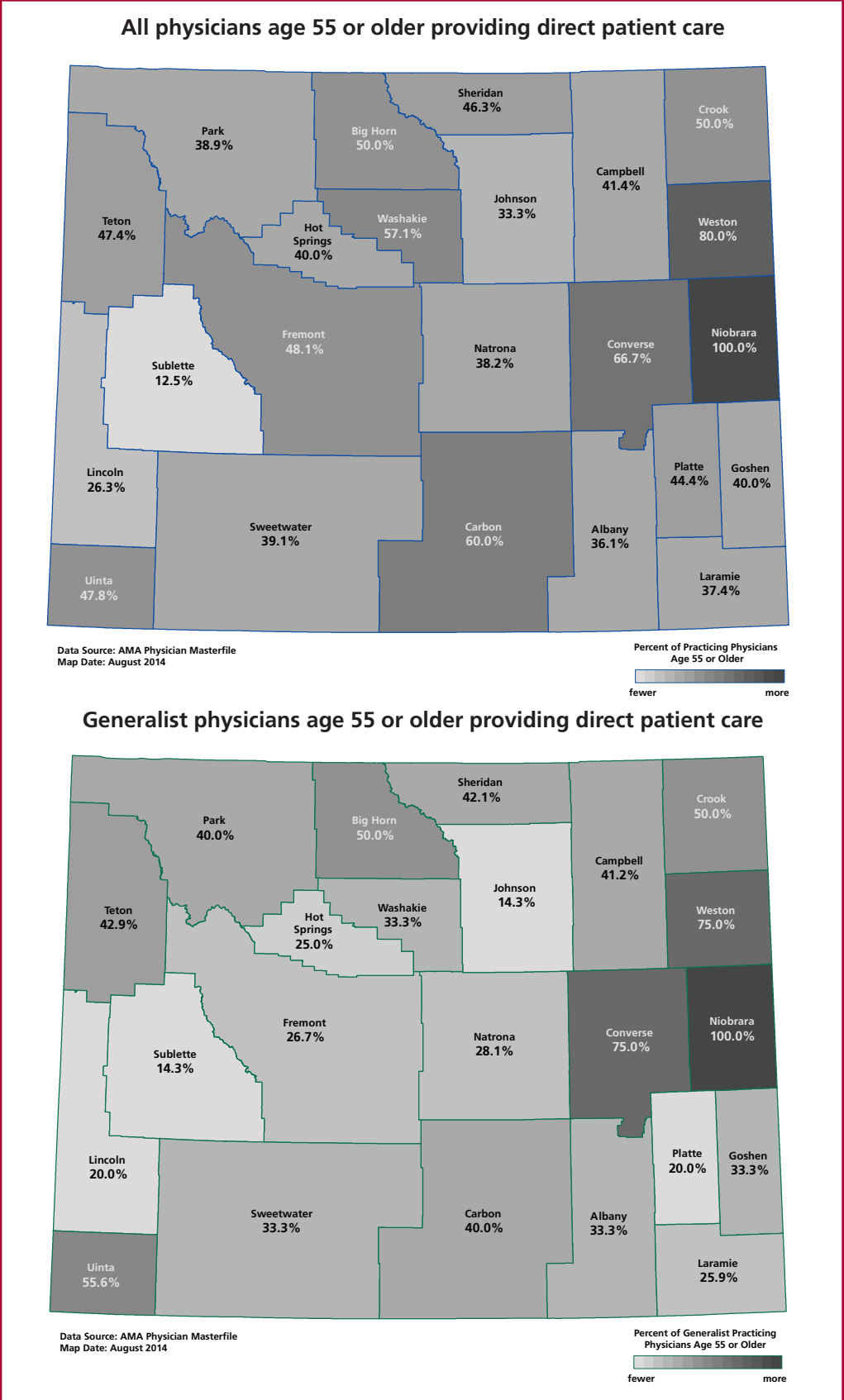
**Generalist physicians providing direct patient care, per 100,000 population**



As shown in Figure 5, three of the counties located in the central eastern area of the state (Niobrara, Weston and Converse) had the highest percentages of physicians age 55 and older. More than two thirds of all physicians providing direct patient care in those three counties (all physicians in Niobrara) were age 55 or older in 2014. The percentages of generalist physicians age 55 or older were generally lower than for overall physicians, but still were high for Niobrara, Weston and Converse counties.

More than two thirds of all physicians in Niobrara, Weston and Converse counties were age 55 or older in 2014.

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



## EDUCATION AND TRAINING

Creighton University School of Medicine, Nebraska, led the list of medical schools from which Wyoming's physicians graduated, followed by the University of Washington, University of Utah and University of Colorado Schools of Medicine (Table 3). Ten percent of Wyoming's physicians completed a residency in Wyoming and smaller percentages completed residencies in Colorado, California, Texas, and New York (Table 4).

10% of Wyoming's physicians graduated from Creighton University School of Medicine and 10% completed a residency in Wyoming.

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

	State	#	% of physicians who graduated from school
Creighton University School of Medicine	NE	101	10.4%
University of Washington School of Medicine	WA	63	6.5%
University of Utah School of Medicine	UT	62	6.4%
University of Colorado School of Medicine	CO	58	6.0%
A.T. Still University of Health Sciences	MO	24	2.5%

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

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

State	#	% of physicians who completed a residency in the state
WY	97	10.2%
CO	62	6.6%
CA	58	6.1%
TX	57	6.0%
NY	44	4.7%

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

As shown in Table 5, while 7% of Wyoming's total practicing physician supply in 2014 graduated from the University of Washington School of Medicine, 14% completed a residency in a WWAMI state, including Wyoming. While 6% of Wyoming's generalist physicians graduated from the University of Washington School of Medicine, 46% of family medicine/general practice physicians completed a residency in a WWAMI state, including Wyoming.

**Table 5. Wyoming 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 WY***		Completed a residency in a WWAMI state	
	#	%	#	%	#	%
<b>Total</b>	63	6.5%	97	10.2%	130	13.7%
<b>Generalists</b>	22	6.3%	89	26.3%	106	31.3%
Family medicine/general practice	12	5.2%	89	39.7%	103	46.0%
General internal medicine	7	9.7%	0	0.0%	2	2.9%
General pediatrics	3	6.7%	0	0.0%	1	2.2%
<b>Surgeons</b>	8	5.6%	1	0.7%	3	2.2%
General surgery	4	9.3%	0	0.0%	0	0.0%
Obstetrics-gynecology	3	4.5%	1	1.5%	2	3.0%
Other surgery	1	3.1%	0	0.0%	1	3.3%
<b>Psychiatrists</b>	1	2.5%	1	2.5%	1	2.5%
<b>Other Specialists</b>	32	7.2%	6	1.4%	20	4.7%

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

\*\* not federally employed, age <75 years, in Wyoming

\*\*\* Percentages are calculated based on physicians for which residency state data were available. There were 27 records (2.8%) that were missing residency state (0 were missing medical school).



The percentage of physicians who completed a residency in Wyoming 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

Wyoming is recognized to be a very rural state, and this was borne out by this examination of the distribution of its physician supply using data from the AMA Physician Masterfile. While the number of physicians per capita found in these analyses was higher in urban areas of Wyoming than in rural areas, because there are relatively few urban areas there were fewer total physicians in urban Wyoming than in the rural areas of the state.

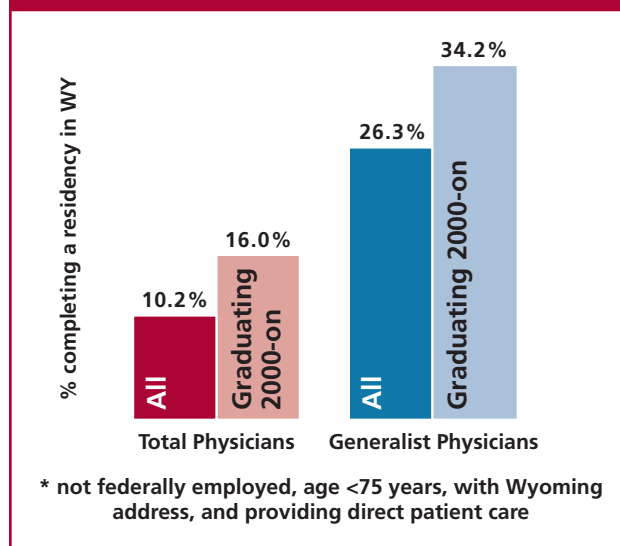
Wyoming's physician supply, on a per capita basis, was generally lower than national averages, although there was wide variation among counties. Large differences were apparent between the destination recreation areas in northwest Wyoming compared with rural counties in the east and south. Teton and Park counties (the locations of Yellowstone and Grand Teton National Parks and the ski destinations near Jackson) had 348 and 247 physicians per 100,000 population, respectively, compared with 41 per 100,000 population in Niobrara county and 65 per 100,000 in Carbon county.

An issue for health workforce planning in Wyoming is the finding that counties with some of the lowest per capita supply of physicians, such as Niobrara, Weston and Converse, were found to have the highest percentages of physicians approaching retirement age (55 years or older).

About 7% of Wyoming's total physician supply (63 total identified by these analyses) graduated from the University of Washington, where Wyoming contributes to the WWAMI Medical School Program. Medical students from Wyoming have been supported by the state to attend the WWAMI program since 1996. By 2013, 223 students had started medical school through WWAMI Wyoming, 142 students had graduated and 52 had returned to Wyoming to practice (the latter representing a 66% return rate of those who had completed residency).<sup>3</sup> Wyoming WWAMI graduates are committed to practice in the state for 3 years after completing a residency. In prior years (from the mid 1970s until the start of the WWAMI Program) Wyoming had a similar relationship with Creighton University School of Medicine in Nebraska, which likely contributed to the large number of Creighton graduates practicing in the state.

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.<sup>4</sup> In 2012 Wyoming ranked 49th among states for retaining physicians who complete a residency in-state, with a 28% retention rate in 2012.<sup>1</sup> The cumulative effect of residency retention found by this study, however, is that 26% of all Wyoming's generalist physicians and 40% of family medicine/general practice physicians in 2014 had completed a residency in-state. An encouraging finding from this study was that a higher percentage of generalist physicians who were more recent medical school graduates (since 2000) completed a residency in-state (34% of the generalists). Efforts specifically designed to retain these young physicians could be a useful health workforce development strategy for Wyoming.

**Figure 6. Wyoming physicians\* in 2014 who completed a residency in Wyoming**



## REFERENCES

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## APPENDIX A: METHODS

The Wyoming state physician supply data for this study came from the American Medical Association (AMA) Physician Masterfile, accessed in April, 2014. There were 1,060 total allopathic and osteopathic physicians with Wyoming license records in the dataset. Those selected for these analyses were the 974 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 9% 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.<sup>5</sup> Rural-urban status was determined using Rural Urban Commuting Area (RUCA) taxonomy.<sup>6</sup>

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