



Impact of Physician Workforce Supply on Health Care Network Adequacy

DATA BRIEF

JULY 2016

KEY TAKEAWAYS



Several U.S. states currently have primary care and specialty physician supply rates that fall well below the national average supply rate. For example, the supply of primary care physicians in Mississippi is 71 percent of the national average. The supply of psychiatrists in Indiana is 58 percent of the national average.



There is a high degree of variability by state in the number of U.S. Department of Health and Human Services-designated health professional shortage areas (HPSAs). Such shortages constrain the ability of health plans to establish high-value provider networks.

urban vs. rural areas



Network adequacy standards should take into account differences in physician supply and distribution across geographic areas, such as differences in the number of providers in urban versus rural areas.

Summary

Health plans are required to meet network adequacy standards established by either the Affordable Care Act (ACA) or accreditation organizations such as the National Committee on Quality Assurance (NCQA) and Utilization Review Accreditation Commission (URAC). Network adequacy standards are intended to ensure that health plan provider networks offer consumers access to sufficient numbers and types of providers. Low provider density can adversely affect a plan's ability to meet state-level standardized cutoffs for the number and types of physicians in a plan's network. A lack of available primary care physicians or specialists in a geographic area also impacts a plan's ability to establish high-value networks.

Our analysis indicates that specialty physician group supply rates fall well below the national averages for one or more specialty physician groups in several states. Fourteen states have physician supply rates that are less than 90 percent of the national rate, with seven of these states having supply rates less than 80 percent of the national physician supply rate. The supply rate of psychiatrists in four states (Indiana, Mississippi, Idaho, and Nevada) was 60 percent (or less) of the national physician supply rate. We also found a high degree of variability by state in the number of health professional shortage areas (HPSAs) per 100,000 individuals (e.g., from less than 1 HPSA to greater than 11 HPSAs for primary care physicians). HPSAs are localized areas in a state that have been identified by the Health Resources and Services Administration (HRSA), an agency of the U.S. Department of Health and Human Services, as possessing a supply of physicians that is below a level deemed necessary to properly service an area. Existing geographic disparities have the potential to become more severe based on estimates of future shortages in physician supply published by the American Association of Medical Colleges (AAMC).¹

There are ways to alleviate the effects of these physician shortages on both the national and regional levels. Key recommendations include:

- Simplifying processes for physicians educated in other countries to obtain the necessary credentials and legal right to work in the United States;
- Increasing the federal financing for residency training slots and the National Health Service Corps (NHSC), which provides scholarship and loan repayment programs for physicians and other primary care providers who agree to practice in underserved rural areas;
- Expanding the use of telemedicine; and,
- Allowing practitioners and physician assistants to work to the full extent of their education and training to ensure a more robust care team for patients.

Background

The United States Department of Health and Human Services (HHS) is currently delaying the enforcement of a proposed standardized national adequacy metric in light of changes to a state-level network adequacy initiative, proposed by the National Association of Insurance Commissioners (NAIC), known as the Network Adequacy Model Act. The updated model act allows states to determine network adequacy through a variety of quantitative criteria such as provider-covered person ratios by specialty, geographic accessibility of providers, and geographic variation and population dispersion. More importantly, the act allows states to determine which of the criteria are most appropriate given the particular geographic and population characteristics of their state, which may allow for a more tailored determination of the adequacy of a health plan's network.

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However, state-specific network adequacy initiatives do not take into account some important physician workforce factors such as provider density (number of physicians in a given geographic area). Low provider density can adversely affect a plan's ability to meet state-level standardized cutoffs for the number and types of physicians in a plan's network. A lack of available primary care physicians or specialists in a geographic area may also prevent a health plan from forming networks that exclude low-quality or high-cost providers. This, in turn, hinders a health plan's capacity to offer higher-quality, lower-cost services to enrollees.

In this brief, we present data on the current geographic distribution of physicians in four specialty groups whose services are in increased demand as a result of the ACA. These groups include primary care, general surgery, obstetrics and gynecology (OBGYN), and psychiatry.² Our goal is to identify states where the ratio of physicians to population falls below the national average for one or more of the physician groups mentioned above and to highlight the existence of geographic shortage areas even within states whose overall physician supply ratio approximates or exceeds the national average.

Methods

We analyzed the geographic distribution of physician-to-population ratios from a variety of sources since standardized data on specific HPSAs across the United States are not available for most types of physicians (see Appendix A for details). For the first analysis in this brief, state-level physician supply rates for each of the four specialties were divided by national physician supply rates to calculate state-level physician supply rates as a percentage of the national supply rate. These physician supply percentage rates were then averaged across the four selected physician specialties (primary care, psychiatry, OBGYN, and general surgery) to calculate the average physician supply rate by state. Figure 1 displays a map showing these overall average percentages of state-level physician supply rates as a percentage of the average national supply rate. State-level physician supply rates as a percentage of the national supply rate are presented for select states in Table 1.

For the second analysis, state-level ratios were calculated to analyze the proportion of primary care HPSAs in a given state relative to the state's estimated population (i.e., per 100,000 population). This ratio was calculated in order to adjust for the relative number of HPSAs in a state to provide a more accurate representation of shortage areas after accounting for the fact that more populous states tend to have more shortage areas than states with a smaller number of residents. These relative ratios are presented in Figure 2. The third analysis followed the same procedure as the second but involved mental health HPSAs. Mental health HPSA results are displayed in Figure 3.

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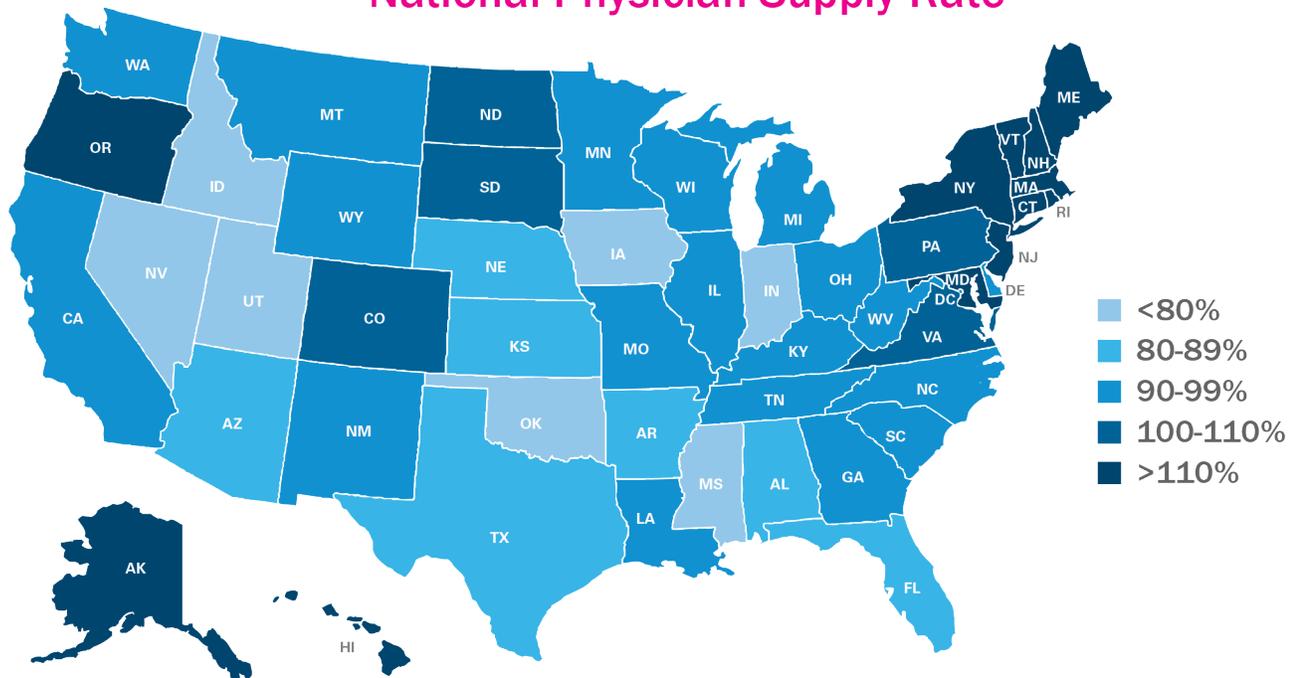
Findings

Our analysis demonstrates that physician supply rates for primary care providers, psychiatrists, OBGYNs, and general surgeons vary by state, with several states having consistently lower physician supply rates for all four specialties. Figure 1 shows that fourteen states have physician supply rates that are less than 90 percent of the national rate, with seven of these states having supply rates less than 80 percent of the national physician supply rate. Supply rate of psychiatrists in four states (Indiana, Mississippi, Idaho, and Nevada) was 60 percent or less than the national physician supply rate (Table 1). Similarly, the population-adjusted distribution of primary care and mental health HPSAs by state demonstrates that shortage areas are especially concentrated

in several adjoining states such as North and South Dakota. Also, professionally active physicians tend to disproportionately reside in urban areas, further decreasing the supply of medical providers for individuals residing in rural areas in the states with below-average physician supply rates.

The low level of physician supply in certain geographic areas has the potential to become more severe in the near future. The AAMC projects that by 2025, the shortfall in supply of physicians will reach 15 percent to 20 percent of the current level of supply for general surgeons and OBGYNs and 13 percent to 15 percent of the current supply of primary care providers, and 1 percent to 8 percent of the current supply of psychiatrists and other specialists.

Figure 1: State-Level Physician Supply Rates* Compared to National Physician Supply Rate



* Average of Primary Care, Psychiatry, OBGYN, & General Surgeons state supply rates

Table 1: 2014 State Physician Supply Rate As a Percentage of National Physician Supply Rate*

		Primary Care Providers	Psychiatrists	OBGYNs	General Surgeons
National Ratio (per 100,000 population)		91.1	8.9	26.5	7.9
Census Region	State	Primary Care Providers Ratio %	Psychiatrists Ratio %	OBGYNs Ratio %	General Surgeons Ratio %
Midwest	Indiana	87	58	85	85
	Iowa	93	63	73	89
	Kansas	93	82	93	92
	Nebraska	94	70	96	97
South	Alabama	81	71	88	97
	Arkansas	85	75	70	91
	Florida	95	73	85	91
	Mississippi	71	60	84	91
	Oklahoma	82	79	69	82
	Texas	78	64	99	80
West	Arizona	86	85	83	90
	Idaho	79	57	80	85
	Nevada	77	57	80	76
	Utah	71	71	90	75

* Only the states with a state-level physician supply rate of <90% of the national physician supply rate (defined as the average of the four specialty physician supply rates) are included in the table.

While the above statistics describe the variations in the state-level physician supply, medical care delivery is mostly local, which makes it necessary to evaluate the potential shortages in the local health care markets. The Health Resources and Services Administration (HRSA) provides data on HPSAs. This localized data allows us to identify physician supply shortages that exist at a more specific level than that of the state in general.

Several states highlighted in Figure 1 and Table 1 also are states with higher levels of HRSA-identified HPSAs relative to the total population of the state.

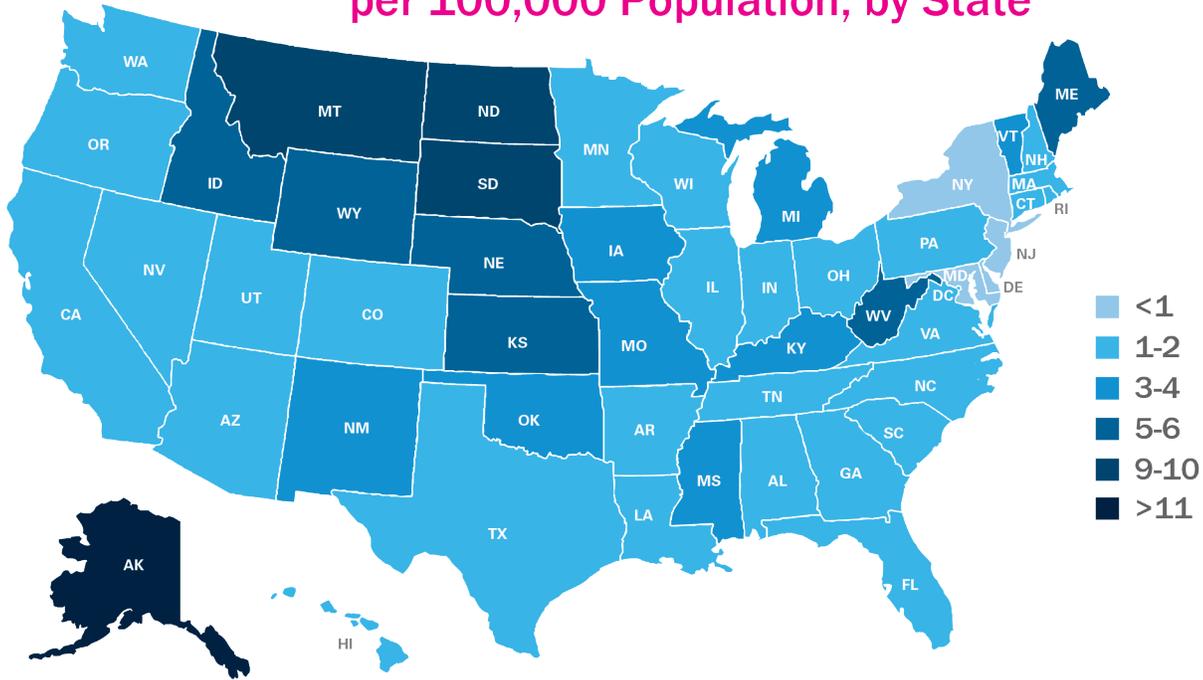
There are three types of shortage areas:

1. geographic areas,
2. specific population groups, and
3. facilities (e.g., correctional institutions).

To be designated by HRSA, a primary care HPSA must have a population to primary care physician ratio of 3500 to 1 or greater.

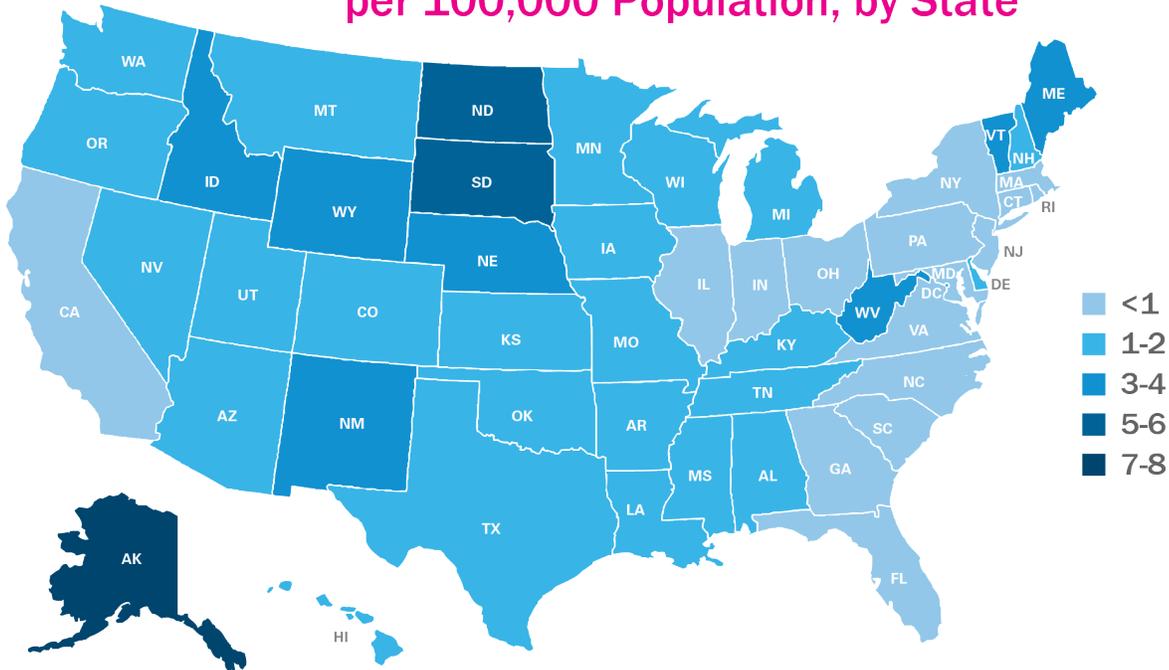
Figure 2 represents the total number of primary care HPSAs by state, as of January 2016, with darker colors representing states with higher primary care HPSA totals.

Figure 2: Number of Primary Care HPSAs per 100,000 Population, by State



Source: Health Resources and Services Administration (HRSA), Bureau of Health Professions (BHPR), January, 2016; US Census Bureau, Annual Estimates of the Resident Population for the United States, July, 2015.

Figure 3: Number of Mental Health Care HPSAs per 100,000 Population, by State



Source: Health Resources and Services Administration (HRSA), Bureau of Health Professions (BHPR) January, 2016. US Census Bureau, Annual Estimates of the Resident Population for the United States, July, 2015.

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HRSA also identifies mental health HPSAs for each state. To be designated by HRSA as a mental health HPSA, an area must have a population to psychiatrist ratio of 30,000 to 1 or greater.

Figure 3 represents the total number of mental health HPSAs by state, as of January 2016, with darker colors representing states with higher mental health HPSA totals.

Close to a quarter of the total U.S. population lives in rural areas, but only 10 percent of physicians practice in those areas.³ As a result, for those states referenced in Table 1, the reported ratio shortfalls may be even more pronounced in rural parts of those states and concentrated in areas designated as HPSAs. The existence of a rural-focused physician shortage is supported by the fact that those states identified as having a higher proportion of both primary care and mental health HPSAs also have rural populations that are among the highest in the United States.⁴ For example:

Midwest Snapshot: Iowa

- The psychiatrist to population ratio in Iowa (5.6 per 100,000) is markedly below the national average (8.9 per 100,000), with 64 percent of Iowa counties having no practicing psychiatrists at all.⁵
- The distribution of OBGYNs is skewed with OBGYNs 1.6 times more likely to practice in an urban Iowa county.⁶

South Snapshot: Texas

- 73 percent of Texas counties have no available psychiatrists at all.⁷
- 58 percent of Texas counties do not have an OBGYN in current practice within those counties.⁷

West Snapshot: Idaho

- The ratio of psychiatrists in rural Idaho (2.7 per 100,000) is disproportionate to urban areas of Idaho (6.6 per 100,000).⁸

- The vast majority of surgeons in Idaho are practicing in urban areas (25 per 100,000 urban population) rather than in rural areas (14 per 100,000 rural population).⁸

Future Physician Supply Projections

The low level of physician supply in certain geographic areas has the potential to become more severe in the near future. As noted above, the AAMC report projects that there will be a shortfall of physicians beyond the current supply for every physician type by 2025. These include:

Surgical specialists & OBGYNs: This category is projected to experience the largest absolute and largest relative (as a percentage of current supply) shortfall of practitioners ranging between 23,100 and 31,600 (15 percent to 20 percent of the current supply).

Primary care physicians: The projected shortfall values for primary care physicians are almost as large, with absolute shortfall of practitioners ranging between 12,500 and 31,100 (5 percent to 13 percent of the current supply).

Psychiatry: In the “other” specialists group, which includes psychiatry, an absolute shortfall of practitioners ranging between 2,400 and 20,200 (1 percent to 8 percent of current supply) is projected.

It is important to point out that the projection model used in the 2015 AAMC report does not take into account the impact of the increasing supply and integration of nurse practitioners and physician assistants into physician supply and demand models. For instance, HRSA’s National Center for Workforce Analysis released a 2013 report on primary care physician supply and demand that predicted a shortage of 20,400 primary care physicians by 2020 if primary care service models remain the same.⁹ However, the authors of the report project that effectively integrating nurse practitioners and physician assistants into the delivery of primary care

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services could substantially decrease that shortage, resulting in a much smaller supply deficit of 6,400 full-time equivalent (FTE) primary care physicians. A similar study that examined projected OBGYN supply and demand

finds that the OBGYN workforce is projected to experience a deficit equal to 2,090 full-time OBGYNs in 2020 and, without increases in the number of OBGYNs, the nation will need to rely more on services by non-physician clinicians.¹⁰

Conclusion

Our analysis indicates that several states currently have specialty physician group supply rates that fall well below the national average supply rate for one or more specialty physician groups. One of the more alarming findings is that none of the states included in Table 1 had a psychiatrist to population rate that was more than 85 percent of the national average psychiatrist supply rate, and four states had a psychiatrist to population rate that was no more than 60 percent of the national average psychiatrist supply rate.

Recently published research confirms the presence of widespread shortages of mental health professionals in the United States and the geographic variation in the supply of these professionals.¹¹

The maps of the distribution of both primary care and mental health HPSAs (Figures 2 & 3) provide a visual reference that contrasts with the state-level physician supply rate trends displayed in Figure 1. There is a recognizable overlap with some states clearly showing both a lower than average supply of physicians and a high number of HPSAs. These results reflect physician availability issues at both the state, and more importantly, at the local level. To more accurately assess the needs of consumers, it may be necessary to consider multiple sources or levels of evidence to determine the adequacy of the supply of physicians in a specific area.

The network adequacy standards mandated by the ACA are meant to protect consumers by ensuring that health insurance networks offer access to sufficient numbers and types of providers. However, relying primarily on measures of network adequacy, such as average minimum provider ratios, does not take into account supply factors like actual physician availability in a given network coverage area.

For national or state-level adequacy standards to be considered reliable in the assessment of specific network coverage areas, differences in physician supply and distribution will have to be taken into consideration. This will require systematic research to determine if an adequate physician supply exists in a given geographic area to support minimum standards. This analysis would prevent situations in which it may be impossible for health plans to meet adequacy standards in specific areas given the inadequate supply of certain types of physicians.

What can be done: Several ideas have been proposed to increase the number of practicing physicians in the United States, including efforts to make it easier for physicians educated in other countries (International Medical Graduates or IMGs) to obtain the necessary credentials and legal right to work in the United States. However, the future supply of IMGs may not be as robust as in the past because of increasing reliance on non-domestically educated physicians by many other developed countries.

Another suggestion to increase physician supply is to modify the existing federal cap (instituted by the 1997 Balanced Budget Act) on funding of residency training slots. It has been argued that by increasing

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the number of residency training slots, the United States would be able to immediately increase the number of licensed physicians overall. Researchers have cautioned that the increase in funding for any residency slots should focus on residency programs that put a greater emphasis on primary care and other specialties that are currently experiencing supply shortages.¹²

Efforts to increase the number of physicians practicing in rural areas could include expansion of funding of the NHSC, which provides scholarship and loan-repayment programs for primary care providers who agree to practice in underserved rural areas.

Telemedicine has been proposed as a potential substitute for in-person visits with health care professionals.^{13,14} The ability to access a health professional remotely could alleviate certain physical barriers such as geographic location that would inhibit someone from otherwise seeking medical treatment. Due to rapid growth in the use of telemedicine in recent years, it may represent a growing opportunity for consumers to increase their access to medical information, especially in underserved areas. The recently issued rules for Medicaid managed care plans, for example, allow Medicaid managed care plans to use telemedicine to meet their state programs' network adequacy standards.

Finally, there is movement at the state level to give nurse practitioners and physician assistants more freedom to provide medical services to consumers. This ability to offer a wider range of services, has been promoted as a potential solution to supplement the supply of practitioners who will be needed to meet the demand for services in the near future and the movement has gained support from the National Governor's Association (NGA) and the Federal Trade Commission (FTC).¹⁵ In fact, in recent comments on a legislative proposal in West Virginia that would expand the prescribing capabilities of advanced practice registered nurses (APRNs) under certain conditions, the FTC noted the potential patient benefits if APRNs were able to engage in independent prescribing and cautioned against placing undue regulatory restrictions on APRN practice.¹⁶ In the same vein, the study commissioned by HHS concluded that nurse practitioners are often not practicing to the full extent of their education and training, and that changing the scope of practice laws, hospital bylaws, and institutional culture may help improve access to primary care, especially in rural areas.¹⁷

The increased use of nurse practitioners and physician assistants in care delivery is also an important characteristic of new payment and delivery models, such as patient-centered medical homes and nurse-managed health centers. Although there is some evidence that implementation of new care models can reduce projected physician shortages,¹⁸ additional research is needed in this area.^{19,20}

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Appendix A. Data Sources by Analysis

Analysis	Data Source
Figure 1: State-Level Physician Supply Rates as a Percentage of the National Supply Rate	Primary Care - Association of American Medical Colleges' (AAMC) 2015 State Physician Workforce Data Book. ²¹
	Psychiatrist - The Silent Shortage, AMN Healthcare. ²²
	OBGYN - Rayburn, Klagholz, Murray-Krezan, Dowell, and Strunk (2012). ²³
	General Surgery - Association of American Medical Colleges' (AAMC) 2015 State Physician Workforce Data Book. ²¹
Figures 2 & 3: Number of Primary Care and Mental Health HPSAs per 100,000 Population, by State	Health Resources and Services Administration (HRSA), Bureau of Health Professions (BHPR), January, 2016. ²⁴
	US Census Bureau, Annual Estimates of the Resident Population for the United States, July, 2015. ²⁵

Related Topic



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