

WHITE PAPER

A Window into Primary Care

An Analysis of Private
Healthcare Claims

A FAIR Health White Paper, March 15, 2023



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Summary

Primary care is at the heart of the healthcare system. Since the early 2000s, however, the nation has been experiencing a primary care shortage, with declining access affecting many Americans. To shed more light on primary care, FAIR Health delved into its database of private healthcare claims—the largest in the nation—as well as other data sources such as US census data and National Plan and Provider Enumeration System (NPPES) data, to provide an analysis of primary care with a focus on geography, physician versus nonphysician care and primary care specialties. The study also examines allowed amounts, telehealth utilization, diagnoses and behavioral health. Among the key findings:

- Nationally, 29 percent of patients who received medical services between 2016 and 2022 did not visit a primary care provider. This ranged from a high of 43 percent in Tennessee to a low of 16 percent in Massachusetts.
- Of the providers who performed primary care services in 2016-2022, 56 percent were physicians, while 44 percent were nonphysicians.
- The core-based statistical area (CBSA) with the lowest number of people per primary care provider in 2022 was Rochester, MN, with a ratio of 114.5, when measured by the provider's primary practice location.¹ The CBSA with the highest number of people per primary care provider was Zapata, TX, with a ratio of 2,759.6, again when measured by the provider's primary practice location. The ratio of population to primary care provider, however, differed if calculated based on the location where patients received care.²
- Nurse practitioners constituted the largest share of primary care providers by specialty (27 percent), followed by family medicine physicians (20 percent), internal medicine physicians (18 percent) and physician assistants (15 percent). Smaller percentages were accounted for by pediatricians, obstetricians/gynecologists and others.
- The five states with the highest percentage of primary care patients receiving care from a nurse practitioner in 2016-2022 were largely states that permitted full scope of practice. Conversely, the states with the lowest percentage were generally those that reduced or restricted practice.
- The five states with the highest percentage of primary care patients receiving care from a family medicine physician in 2016-2022 were more likely to be rural.
- From 2016 to 2022, average allowed amounts for CPT^{®3} 99395 (established patient periodic preventive medicine examination for patients 18 to 39 years old) increased more for physicians than for nonphysicians.
- Telehealth use sharply increased at the start of the COVID-19 pandemic in all primary care specialties studied. Telehealth use then declined by over 30 percent in all primary care specialties studied from 2020 to 2021.
- In the period 2016-2022, nonphysicians treated greater percentages of patients with diagnoses related to mental health or acute respiratory diseases and infections than physicians did.
- From 2016 to 2022, the percentage of patients with a primary mental health diagnosis treated by a primary care provider increased 7.0 percent, while the percentage of patients with a primary

¹ A CBSA is an area, designated by the Office of Management and Budget, containing a large population nucleus, or urban area, and adjacent communities possessing a high degree of integration with that nucleus.

² Telehealth was not included in the analysis for location of services, so the location where patients received care included only in-person services.

³ CPT © 2022 American Medical Association (AMA). All rights reserved.

substance use diagnosis decreased 2.5 percent. Primary care nonphysicians saw increases in patients with both behavioral health diagnoses of over 100 percent during the same period.

Background

Primary care is at the heart of the healthcare system. It is often the first point of contact when patients seek healthcare and is designed to be person-focused, coordinated and comprehensive.⁴ Evidence shows it improves health regardless of age, sex, race, ethnicity, education, employment, income, health insurance and smoking status.⁵ It has also been reported that a gain of 10 additional primary care physicians per 100,000 people is associated with an increase in life expectancy by 51.5 days.⁶ Increasing the density of primary care providers in an area improves the detection and diagnosis of disease⁷ and reduces health disparities.⁸

Since the early 2000s, however, the nation has been experiencing a primary care shortage, with declining access affecting many Americans. From 2002 to 2015, the proportion of adult Americans with an identified source of primary care decreased from 77 percent to 75 percent, a decline that affected patients in every decade of life except those in their 80s, though the biggest drops were found in patients in their 30s, 40s and 50s.⁹ According to a September 2022 report, 97.6 million people in America now live in an area with a designated primary care health professional shortage; to remove that designation would require 16,940 additional practitioners.¹⁰ As the shortage continues to worsen, experts predict that rural areas will be more severely affected than suburban or urban areas, while marginalized and low-income populations will also be heavily affected.¹¹ Although the health professional shortage extends to all medical specialties, primary care is experiencing the largest deficit, especially in the West and South of the United States.¹² By 2034, the Association of American Medical Colleges predicts a primary care physician shortage of 17,800 to 48,000.¹³ Further information about the geographic distribution of the deficiency is needed.

Physicians are not the only source of primary care. Primary care is also offered by nonphysician providers, such as nurse practitioners and physician assistants. These nonphysician providers are cost-

⁴ Barbara Starfield and John Horder, "Interpersonal Continuity: Old and New Perspectives," *British Journal of General Practice* 57, no. 540 (2007): 527-29, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2099634/pdf/bjpg57-527.pdf>.

⁵ Barbara Starfield, Leyu Shi and James Macinko, "Contribution of Primary Care to Health Systems and Health," *Milbank Quarterly* 83, no. 3 (2005): 457-502, <https://doi.org/10.1111/j.1468-0009.2005.00409.x>.

⁶ Sanjay Basu, Seth A. Berkowitz and Robert L. Phillips, "Association of Primary Care Physician Supply with Population Mortality in the United States, 2005-2015," *JAMA Internal Medicine* 179, no. 4 (2019): 506-14, <https://doi.org/10.1001/jamainternmed.2018.7624>.

⁷ Nathaniel H. Fleming, Madeline M. Grade and Eran Bendavid, "Impact of Primary Care Provider Density on Detection and Diagnosis of Cutaneous Melanoma," *PLOS ONE* 13, no. 7 (July 13, 2018): e0200097, <https://doi.org/10.1371/journal.pone.0200097>.

⁸ Starfield, Shi and Macinko, "Contribution of Primary Care to Health Systems and Health."

⁹ David M. Levine, Jeffrey A. Linder and Bruce E. Landon, "Characteristics of Americans with Primary Care and Changes over Time, 2002-2015," *JAMA Internal Medicine* 180, no. 3 (March 2020): 463-66, <https://doi.org/10.1001/jamainternmed.2019.6282>.

¹⁰ "Primary Care Health Professional Shortage Areas (HPSAs)," KFF, September 30, 2022, <https://www.kff.org/other/state-indicator/primary-care-health-professional-shortage-areas-hpsas/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>.

¹¹ Elaine K. Howley, "The U.S. Physician Shortage Is Only Going to Get Worse. Here Are Potential Solutions," *TIME*, July 25, 2022, <https://time.com/6199666/physician-shortage-challenges-solutions/>.

¹² Howley, "The U.S. Physician Shortage Is Only Going to Get Worse."

¹³ Association of American Medical Colleges, *The Complexities of Physician Supply and Demand: Projections from 2019 to 2034*, June 2021, <https://www.aamc.org/media/54681/download?attachment>.

effective,^{14,15,16,17} but not enough is known about how widely they are used for primary care.¹⁸ Restrictions on the practice of nonphysicians vary by state,^{19,20} particularly with respect to nurse practitioners, which affects where they are able to provide comprehensive primary care. Knowing more about how the variable scope-of-practice laws governing nonphysicians in the United States map onto the care provided, and its cost, could therefore be useful in determining the value and accessibility of nonphysicians as resources to expand the primary care system's capacity.²¹

Prior research has highlighted that the number of adults and children receiving any primary care has been declining. This decline has been attributed to factors such as growing alternative options such as urgent care centers and retail clinics, increasing out-of-pocket costs and a shortage of clinicians.^{22,23,24,25}

Other aspects of primary care require more study. The proportion of primary care visits that addressed mental health increased from 10.7 percent in 2006-7 to 15.9 percent by 2016,²⁶ making behavioral health a pertinent element to the study of primary care.

To shed more light on primary care and more recent trends, FAIR Health delved into its database of private healthcare claims—the largest in the nation—as well as other data sources such as US census data and National Plan and Provider Enumeration System (NPPES)²⁷ data, to provide an analysis of

¹⁴ Jennifer Perloff, Catherine M. DesRoches and Peter Buerhaus, “Comparing the Cost of Care Provided to Medicare Beneficiaries Assigned to Primary Care Nurse Practitioners and Physicians 2016,” *Health Services Research* 51, no. 4 (August 2016):1407-23, <https://doi.org/10.1111/1475-6773.12425>.

¹⁵ Suja S. Rajan et al., “Health Care Costs Associated with Primary Care Physicians versus Nurse Practitioners and Physician Assistants,” *Journal of the American Association of Nurse Practitioners* 33, no. 11 (November 2021): 967-74, <https://doi.org/10.1097/JXX.0000000000000555>.

¹⁶ Edward J. Timmons, “The Effects of Expanded Nurse Practitioner and Physician Assistant Scope of Practice on the Cost of Medicaid Patient Care,” *Health Policy* 121, no. 2 (February 2017): 189-96, <https://doi.org/10.1016/j.healthpol.2016.12.002>.

¹⁷ Ellis C. Dillon and Kimberly J. Erlich, “Primary Care Nurse Practitioner Management of Adolescent Behavioral Health,” *American Journal of Managed Care* 26, no. 9 (September 2020): e295-99, <https://doi.org/10.37765/ajmc.2020.88495>.

¹⁸ Association of American Medical Colleges, *The Complexities of Physician Supply and Demand: Projections from 2018 to 2033*, June 2020, <https://www.aamc.org/system/files/2020-06/stratcomm-aamc-physician-workforce-projections-june-2020.pdf>.

¹⁹ “State Practice Environment,” American Association of Nurse Practitioners, updated October 2022, <https://www.aanp.org/advocacy/state/state-practice-environment>.

²⁰ “Physician Assistant Scope of Practice,” American Medical Association, 2018, <https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/arc-public/state-law-physician-assistant-scope-practice.pdf>.

²¹ John A. Graves et al., “Role of Geography and Nurse Practitioner Scope-of-Practice in Efforts to Expand Primary Care System Capacity: Health Reform and the Primary Care Workforce,” *Medical Care* 54, no. 1 (January 2016): 81-89, <https://doi.org/10.1097/MLR.0000000000000454>.

²² Ishani Ganguli et al., “Declining Use of Primary Care among Commercially Insured Adults in the United States, 2008–2016,” *Annals of Internal Medicine* 172, no. 4 (February 18, 2020): 240-47, <https://doi.org/10.7326/M19-1834>.

²³ Kristin N. Ray et al., “Trends in Pediatric Primary Care Visits among Commercially Insured US Children, 2008-2016,” *JAMA Pediatrics* 174, no. 4 (April 1, 2020): 350-57, <https://doi.org/10.1001/jamapediatrics.2019.5509>.

²⁴ Aarti Rao et al., “National Trends in Primary Care Visit Use and Practice Capabilities, 2008-2015,” *Annals of Family Medicine* 17, no. 6 (November 2019): 538-44, <https://doi.org/10.1370/afm.2474>.

²⁵ Ishani Ganguli, Thomas H. Lee and Ateev Mehrotra et al., “Evidence and Implications behind a National Decline in Primary Care Visits,” *Journal of General Internal Medicine* 34, no. 10 (October 2019): 2260-63, <https://doi.org/10.1007/s11606-019-05104-5>.

²⁶ Lisa S. Rotenstein, Samuel T. Edwards and Bruce E. Landon, “Adult Primary Care Physician Visits Increasingly Address Mental Health Concerns,” *Health Affairs* 42, no. 2 (February 2023): 163-71, <https://doi.org/10.1377/hlthaff.2022.00705>.

²⁷ Developed by the Centers for Medicare & Medicaid Services, NPPES is the national system designed to assign unique identifiers to healthcare providers and health plans that apply for the National Provider Identifier (NPI). For more information, see the “US Department of Health and Human Services Privacy Impact Assessment” for the National Plan and Provider Enumeration System, December 22, 2016, <https://www.hhs.gov/sites/default/files/cms-national-plan-and-provider-enumeration-system.pdf>.

primary care with a focus on geography, physician versus nonphysician care and primary care specialties. The study also examines allowed amounts, telehealth utilization, diagnoses and behavioral health.

Methodology

FAIR Health identified all physicians in the December 2022 National Plan and Provider Enumeration System (NPPES) file who had a taxonomy of a primary care physician, such as 207Q00000X, family medicine, or 208000000X, pediatrics. These were automatically categorized as primary care providers (specifically physicians). FAIR Health interrogated all 15 provider taxonomies in the NPPES file for any of the primary care taxonomies, to identify physicians who might have a non-primary care specialty but also practice primary care.

FAIR Health then identified all nonphysician providers, such as physician assistant (taxonomy 363A00000X) and nurse practitioner (taxonomy 363L00000X). Once this list of individuals with these taxonomies was compiled, the FAIR Health dataset of private healthcare claims was evaluated to find those nonphysician providers who performed at least 10 primary care preventive care services (CPT 99381 through CPT 99387—new patient preventive medicine services—or CPT 99391 through CPT 99397—established patient preventive medicine services). Those providers were then designated as primary care nonphysician providers. This was done to substantiate that these providers were focused on primary care and not specialty care.

FAIR Health used US census data for the population of each state and core-based statistical area (CBSA) in question and compared that to the NPPES practice location. US census data were also compared to the location where the patient received care. This was established by using both NPPES data and FAIR Health data to identify providers, and using FAIR Health data to identify the location where the provider rendered care.

Using the list of providers who were identified as being primary care (both physicians and nonphysicians) FAIR Health selected all the patients in its longitudinal dataset who received care from those providers from January 1, 2016, to June 30, 2022. That selection was used for patient-based analyses. To identify the diagnoses treated, FAIR Health evaluated the primary diagnosis on the claim line for which the provider treated the patient.

For analyses of allowed amounts, FAIR Health used the allowed amounts on claim lines in its database and calculated the arithmetic mean for the provider cohort (e.g., nurse practitioners versus family medicine) for the CPT code and year specified.

For analyses of telehealth, FAIR Health applied several methodologies to segregate claims for telehealth services, including using the Centers for Medicare & Medicaid Services (CMS) place of service codes for telehealth (02 or 10), telehealth-only CPT codes such as CPT 99441 (physician or other qualified healthcare professional telephone evaluation, 5-10 minutes) or telehealth modifiers (GT, GQ, FQ, FR, 93 or 95).

Limitations

The data used in this report comprise claims data for privately insured patients who are covered by insurers and third-party administrators who voluntarily participate in FAIR Health's data contribution program. Medicare Advantage (Medicare Part C) enrollees from contributing insurers are included, but not participants in Medicare Parts A, B and D.²⁸ In addition, data from Medicaid, CHIP and other state and local government insurance programs are not included, nor are data collected regarding uninsured patients.

This is an observational report based on the data FAIR Health receives from private payors regarding care rendered to covered patients.

The report was not subject to peer review.

²⁸ FAIR Health also receives the entire collection of claims for traditional Medicare Parts A, B and D under the CMS Qualified Entity Program, but those data are not a source for this report.

Results

Geography of Primary Care Providers

In the heat map below, the US census population for each state is divided by the total number of primary care providers who had their primary practice located in the state in 2022 based on NPPES data (figure 1). The ratio of population to provider ranges from 222.32 individuals per primary care provider (Washington, DC) to 575.30 individuals per primary care provider (Alabama). The areas with relatively fewer primary care providers, especially in the South and West, have largely also been identified as primary care shortage areas by other researchers using different methods.^{29,30}

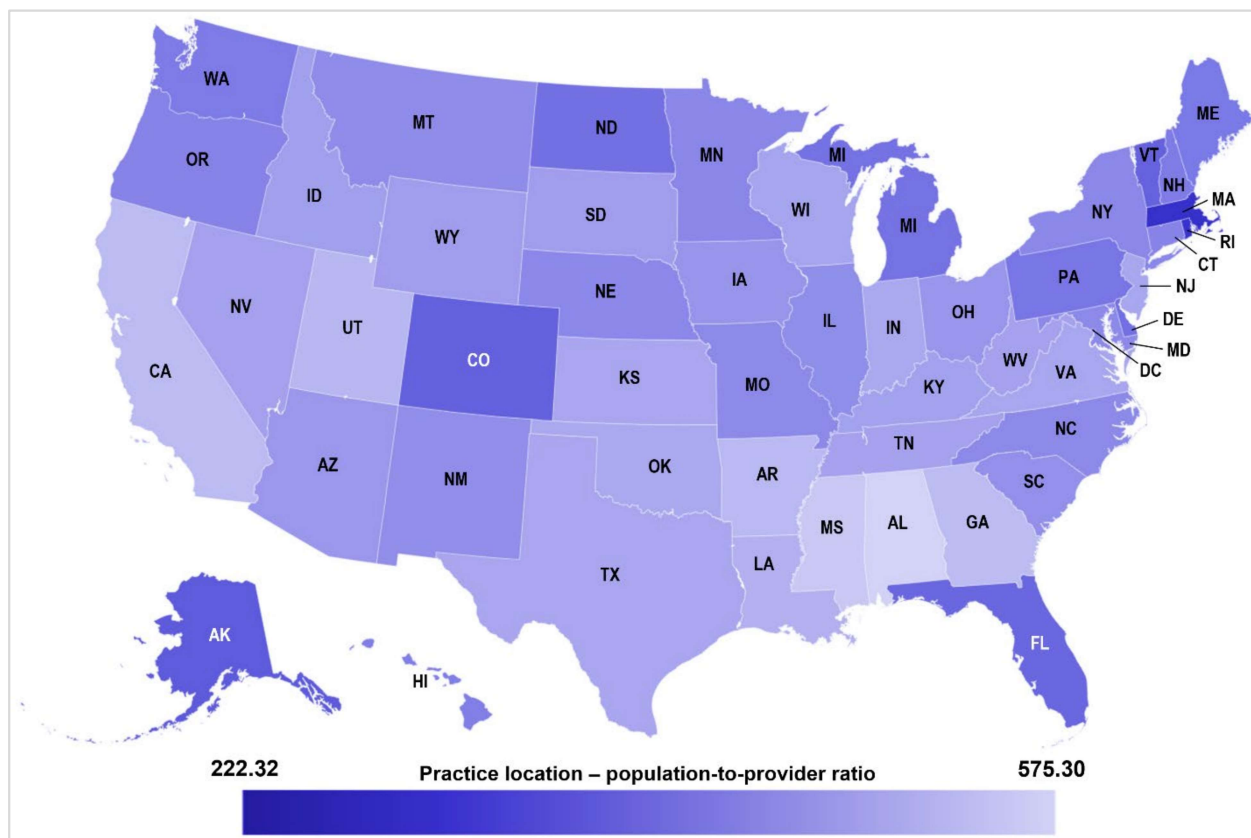


Figure 1. Ratio of population to primary care provider by practice location by state, 2022

²⁹ “Quick Maps – Primary Care Health Professional Shortage Areas (HPSA),” Health Resources & Services Administration (evaluating the level of need in an area as well as population-to-physician ratio [i.e., excluding any nonphysicians in its calculation]), accessed February 27, 2023, <https://data.hrsa.gov/maps/quick-maps?config=mapconfig/HPSAPC.json>.

³⁰ Robin A. Streeter, George A. Zangaro and Arpita Chattopadhyay, “Perspectives: Using Results from HRSA’s Health Workforce Simulation Model to Examine the Geography of Primary Care,” *Health Services Research* 52, no. S1 (January 27, 2017): 481-507, <https://doi.org/10.1111/1475-6773.12663>.

The map is different for the ratio of people to primary care provider if mapped based on the location where the patient received care, using data for the period 2016-2022 (figure 2).³¹ While the range remains similar, measuring by the location where the patient received care reduces the number of individuals per primary care provider at the low end, the high end and the average. Not only are there a lower number of patients per primary care provider, but the exact ordering of the states changes. In figure 2, the ratio ranges from 208.40 individuals per primary care provider (Massachusetts) to 559.18 individuals per primary care provider (California). The overall average for the 50 states plus Washington, DC, is different by almost 100: The national average by primary practice location is 443.22 individuals per primary care provider compared to the national average by where the patient received care of 351.51 individuals per primary care provider. The maps differ because figure 1 is by primary practice location in 2022, as indicated by providers to the government, and figure 2 is by the location where providers have gone to treat patients during the 2016-2022 period. The latter map reflects the travel undertaken by providers to treat patients.³²

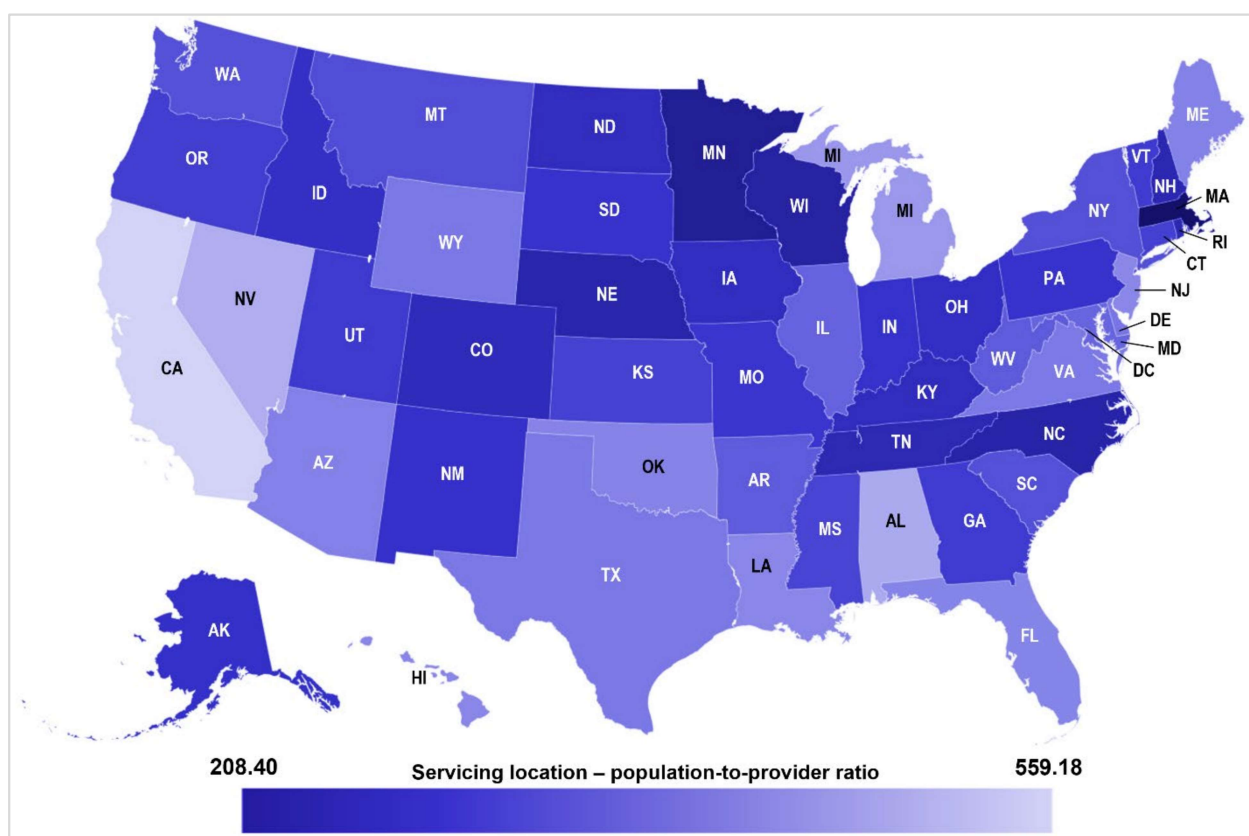


Figure 2. Ratio of population to primary care provider by location where patient received care by state, 2016-2022

³¹ In this paper, the date range 2016-2022 represents data from January 1, 2016, to June 30, 2022.

³² As noted, telehealth has been removed from this part of the analysis.

The five core-based statistical areas (CBSAs) with the lowest ratio of population to primary care provider by practice location (i.e., with the most primary care providers per individual) in 2022 are shown in table 1. Rochester, MN, had the lowest ratio, 114.5.

Table 1. Five CBSAs with the lowest ratio of population to primary care provider by practice location, 2022

CBSA	Population-to-Primary-Care-Provider Ratio
Rochester, MN	114.5
Iowa City, IA	122.0
Ann Arbor, MI	136.5
Bloomsburg-Berwick, PA	200.8
Columbia, MO	218.5

The five CBSAs with the highest ratio of population to primary care provider by practice location (i.e., with the least primary care providers per individual) in 2022 are shown in table 2. Zapata, TX, had the highest ratio, 2,759.6.

Table 2. Five CBSAs with the highest ratio of population to primary care provider by practice location, 2022

CBSA	Population-to-Primary-Care-Provider Ratio
Zapata, TX	2,759.6
Summerville, GA	2,331.4
Winnemucca, NV	1,985.9
Holland, MI	1,873.0
Fernley, NV	1,756.3

Although the CBSAs in table 2 have the highest ratio of population to primary care provider by practice location, there is substantial variation within the states in which those CBSAs are located. Other CBSAs in the same state have a relative abundance of primary care providers. This can be seen by examining three of the states in table 2, Texas, Georgia and Michigan. Other researchers have done a similar study of the states by counties rather than CBSAs, with some variations in findings that are likely due in part to the different geographic units used.³³

In Texas in 2022, FAIR Health found that the ratio of population to primary care provider by practice location by CBSA varied from 2,759.60 to 389.23 (figure 3).

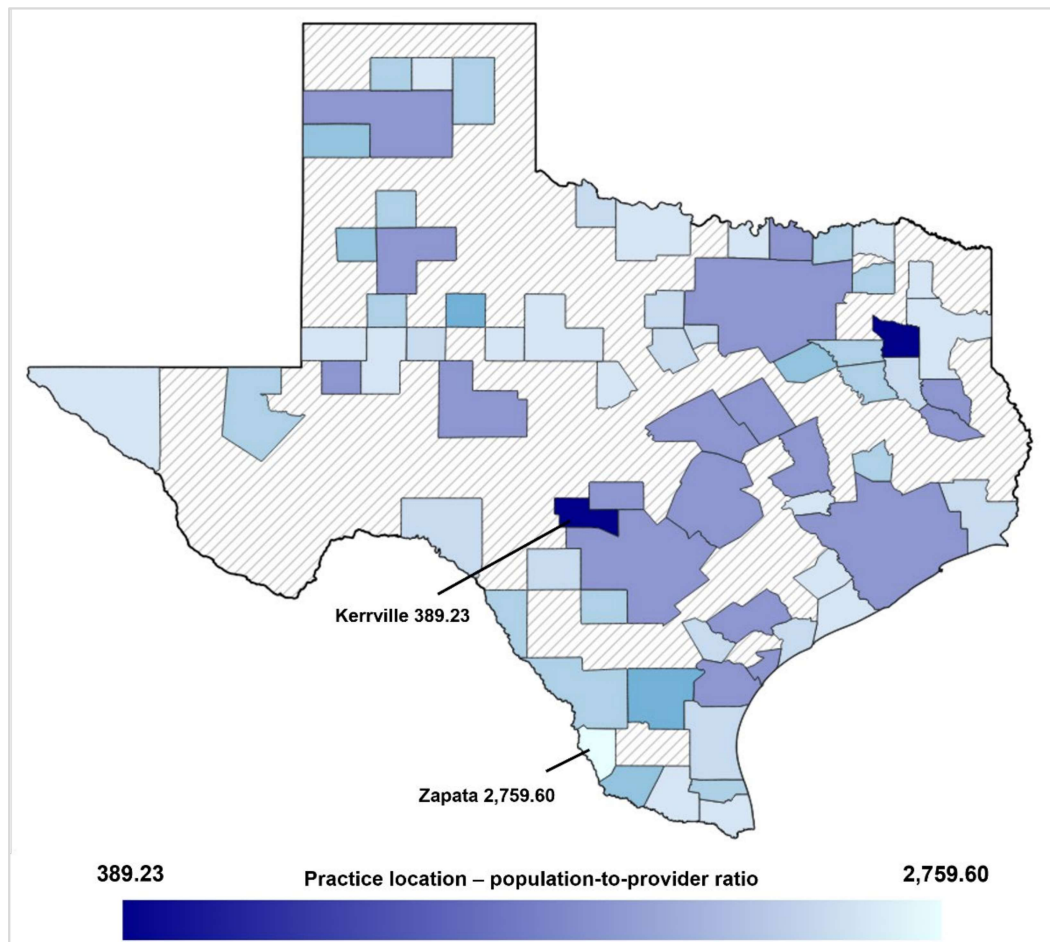


Figure 3. Ratio of population to primary care provider by practice location by CBSA in Texas, 2022; shaded gray areas are areas without a CBSA

³³ Donglan Zhang et al., “Assessment of Changes in Rural and Urban Primary Care Workforce in the United States from 2009 to 2017,” *JAMA Network Open* 3, no. 10 (October 2020): e2022914, <https://doi.org/10.1001/jamanetworkopen.2020.22914>.

In Georgia in 2022, the ratio of population to primary care provider by practice location by CBSA varied from 2,331.42 to 372.66 (figure 4).

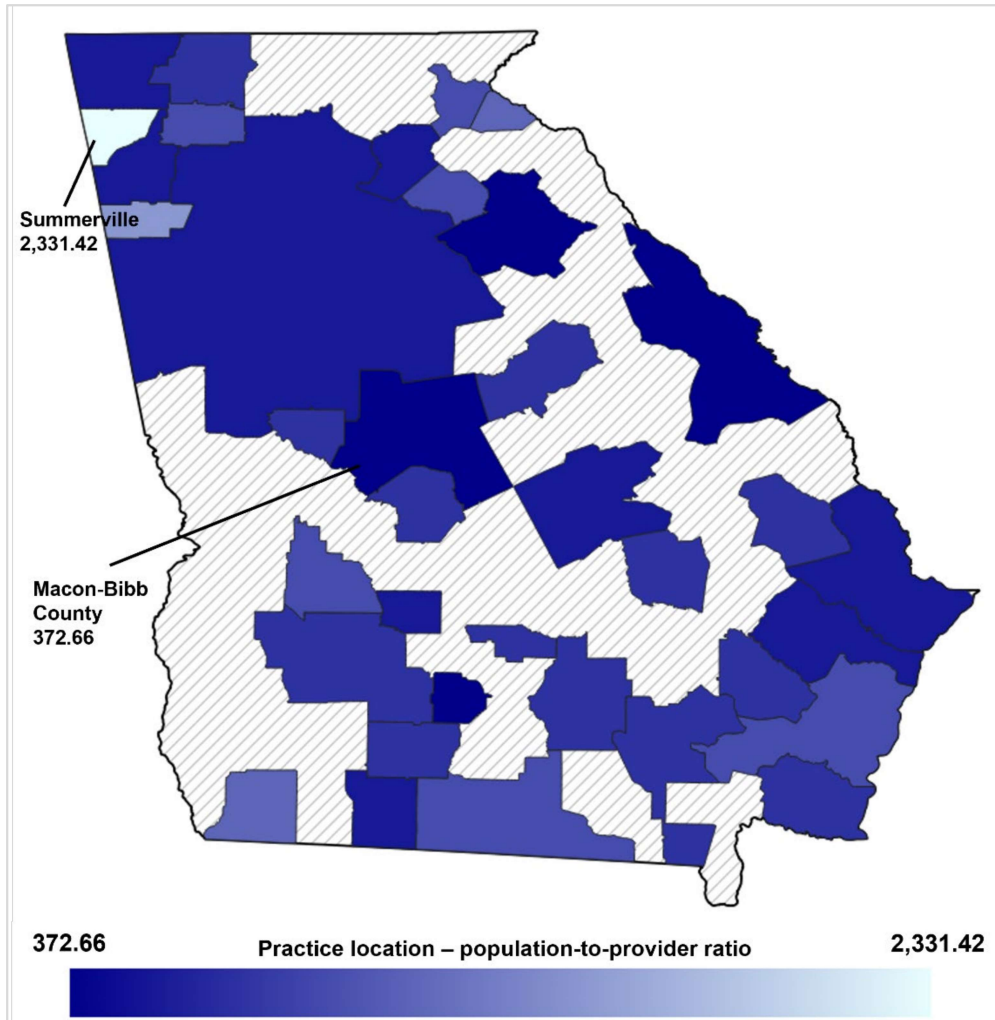


Figure 4. Ratio of population to primary care provider by practice location by CBSA in Georgia, 2022; shaded gray areas are areas without a CBSA

In Michigan in 2022, the ratio of population to primary care provider by practice location by CBSA varied from 1,872.98 to 136.46 (figure 5). Notably, Michigan had both one of the five CBSAs with the lowest ratio of population to primary care provider by practice location (Ann Arbor) and one of the five CBSAs with the highest ratio of population to primary care provider by practice location (Holland).

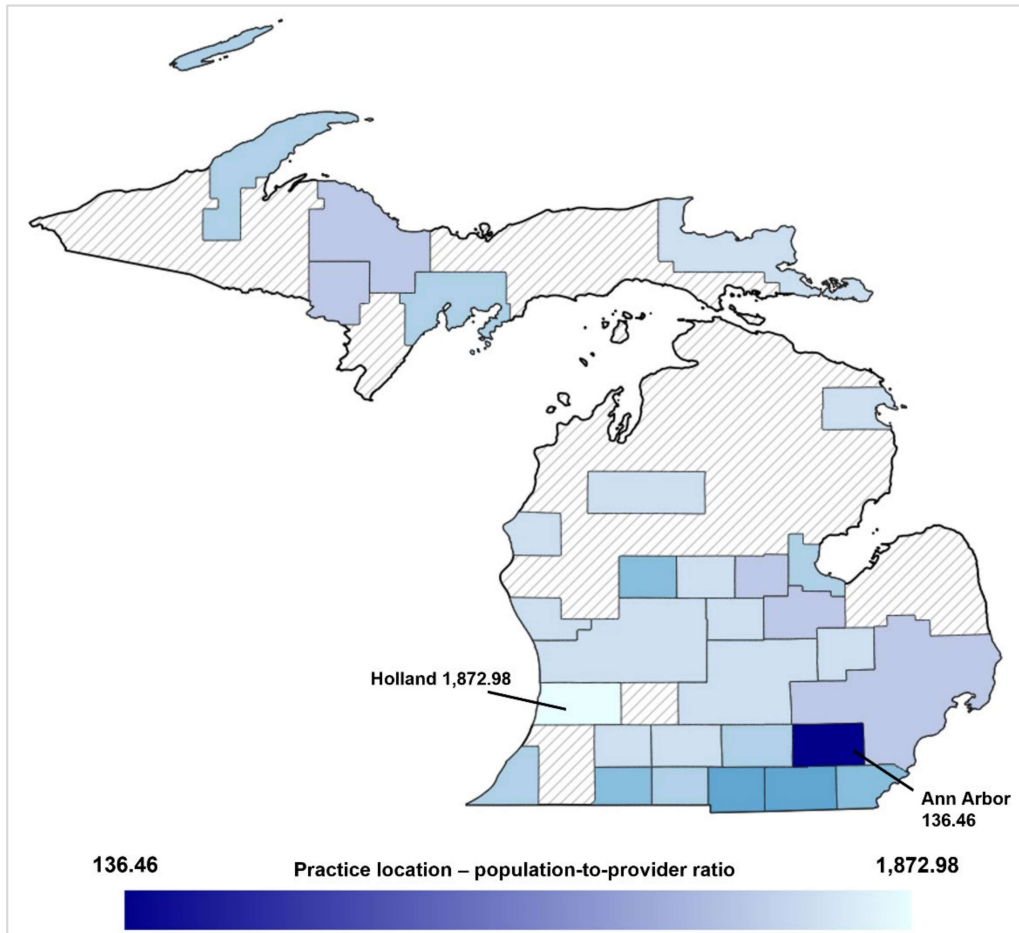


Figure 5. Ratio of population to primary care provider by practice location by CBSA in Michigan, 2022; shaded gray areas are areas without a CBSA

The list of five CBSAs with the lowest ratio of population to primary care provider may be different when analyzed by where the patient received care rather than by practice location. For example, in table 3, showing the five CBSAs with the lowest ratio of population to primary care provider based on where the patient received care from 2016 to 2022, Rochester, MN, is in second place, whereas in table 1, showing such ratios based on the provider location in 2022, it is in first place. Bloomsburg-Berwick, PA, is in first place in table 3 but in fourth place in table 1.

Table 3. Five CBSAs with the lowest ratio of population to primary care provider by where the patient received care, 2016-2022

CBSA	Population-to-Primary-Care-Provider Ratio
Bloomsburg-Berwick, PA	56.0
Rochester, MN	63.5
Austin, MN	71.4
Albert Lea, MN	75.6
Oneonta, NY	83.3

Similarly, the list of five CBSAs with the highest ratio of population to primary care provider may be different when analyzed by where the patient received care rather than by practice location. For example, in table 4, reporting the highest ratios of population to primary care provider based on where the patient received care from 2016 to 2022, Zapata, TX, is not on the list, whereas in table 2 (reporting such ratios based on the practice location in 2022), it is in first place. Instead, four other CBSAs in Texas occupy the first four places in table 4, whereas only one CBSA in Texas (Zapata) is on the list in table 2.

Table 4. Five CBSAs with the highest ratio of population to primary care provider by where the patient received care, 2016-2022

CBSA	Population-to-Primary-Care-Provider Ratio
Pecos, TX	926.4
Vernon, TX	788.8
Laredo, TX	654.9
Eagle Pass, TX	653.7
Forrest City, AR	626.5

Among patients who received some form of medical care in the period 2016-2022, the percentage who did not visit a primary care provider varied by state (figure 6). The percentage ranged from a high of 42.6 percent in Tennessee to a low of 16.0 percent in Massachusetts.

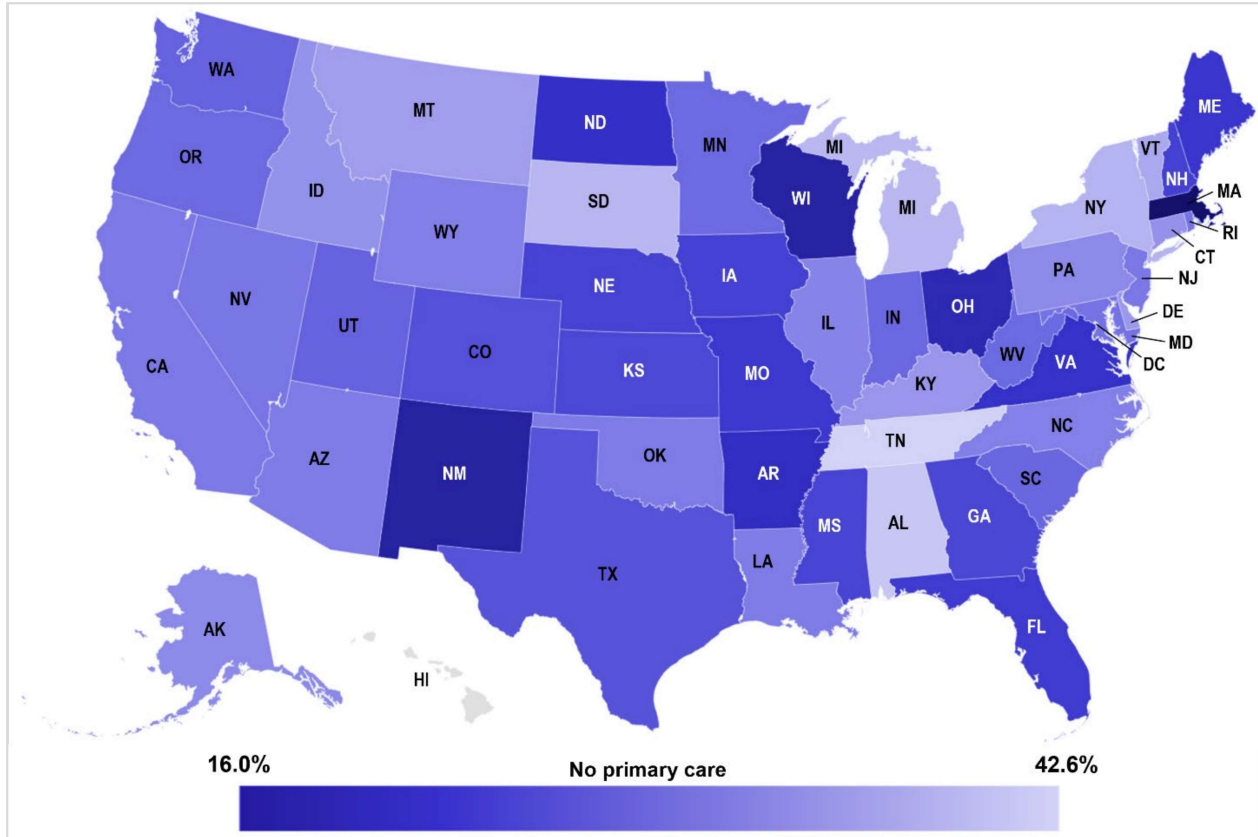


Figure 6. Percent of patients without a primary care provider visit by state, 2016-2022

The five states with the highest percentage of patients not having seen a primary care provider in the period 2016-2022 were Tennessee, Alabama, Michigan, South Dakota and New York (table 5). The five states with the lowest percentage were Massachusetts, New Mexico, Wisconsin, Ohio and Arkansas.

Table 5. Top five and bottom five states by percent of patients not having seen a primary care provider, 2016-2022

Top Five States		Bottom Five States	
State	Percent of Patients Not Having Seen a Primary Care Provider	State	Percent of Patients Not Having Seen a Primary Care Provider
Tennessee	42.6%	Massachusetts	16.0%
Alabama	41.0%	New Mexico	20.1%
Michigan	38.6%	Wisconsin	20.3%
South Dakota	38.4%	Ohio	21.7%
New York	38.1%	Arkansas	22.7%

Primary Care Physicians versus Nonphysicians

Nationally, nonphysicians make up a large fraction of the providers who perform primary care services (figure 7). Of the providers who performed primary care services in 2016-2022, 56 percent were primary care physicians, while 44 percent were nonphysician primary care providers.

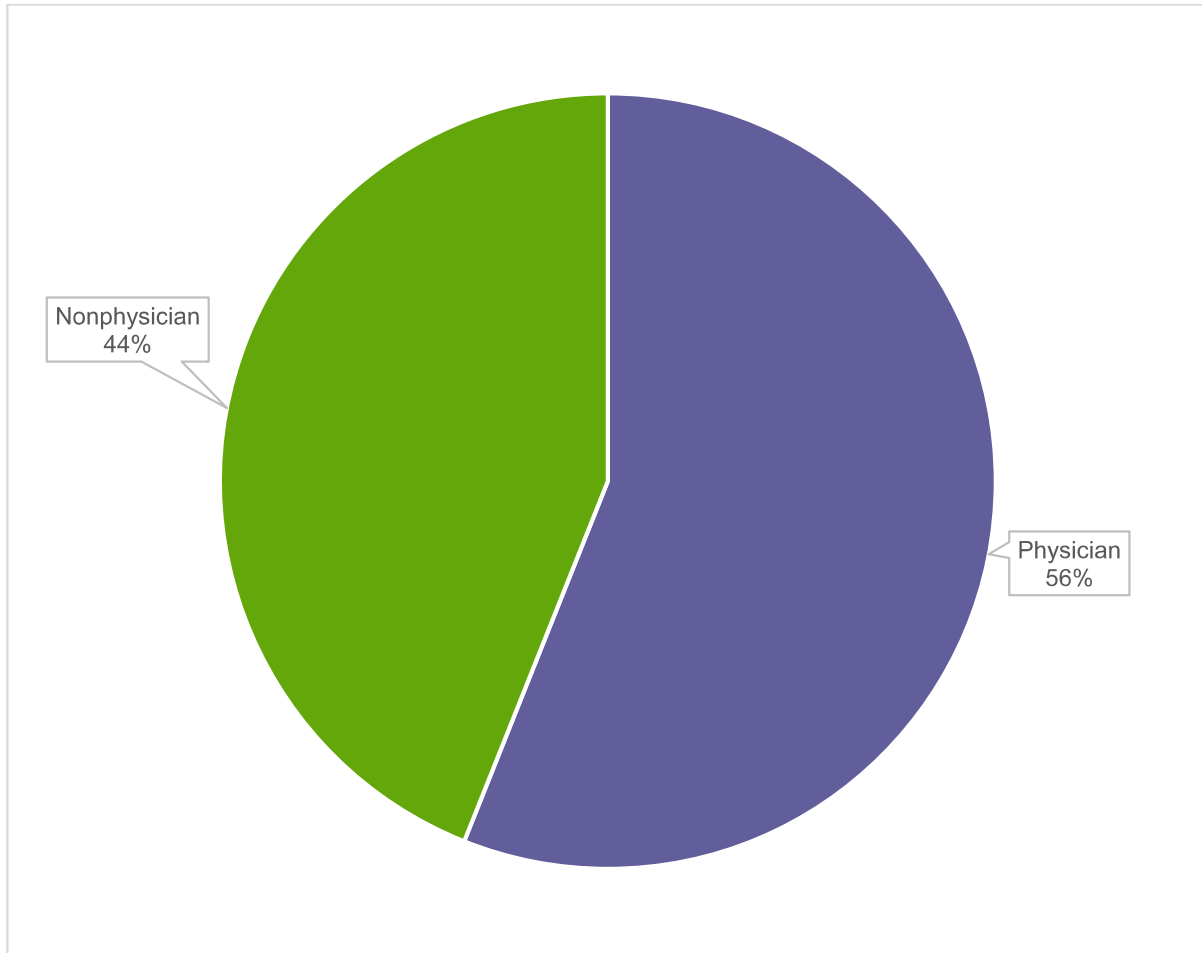


Figure 7. Primary care providers by physician versus nonphysician, 2016-2022

Nationally, 54 percent of patients in the FAIR Health longitudinal dataset in the period 2016-2022 received primary care from a physician only (figure 8). By contrast, 14 percent received primary care from both a physician and a nonphysician and 3 percent from a nonphysician only. Twenty-nine percent had no primary care visit but interacted with the healthcare system in other ways, such as by receiving care from specialists outside primary care or by hospital visits.

It has been reported that up to half of nonphysician visits are billed “incident to” a physician.³⁴ In the data reported to FAIR Health, a visit provided by a nonphysician may then be billed as incident to a physician visit. Therefore, these percentages may understate primary care use provided by nonphysicians and overstate primary care use provided by physicians.

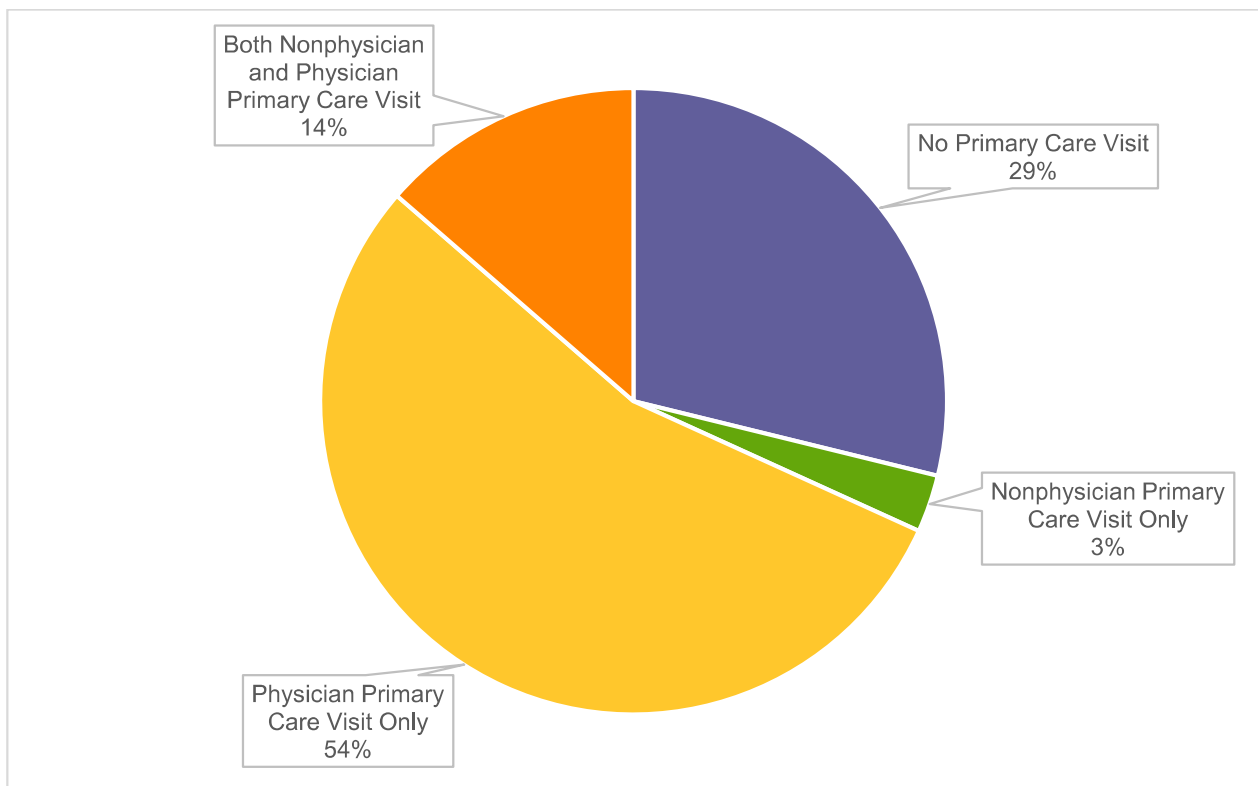


Figure 8. Patients by type of primary care received, 2016-2022

³⁴ Sadiq Y. Patel et al., “Frequency of Indirect Billing to Medicare for Nurse Practitioner and Physician Assistant Office Visits,” *Health Affairs* 41, no. 6 (June 2022): 805-13, <https://doi.org/10.1377/hlthaff.2021.01968>.

Analyzed by where patients received care, the greatest share of primary care providers who were physicians was 74.9 percent, in California, and the smallest share was 41.0 percent, in Mississippi (figure 9).

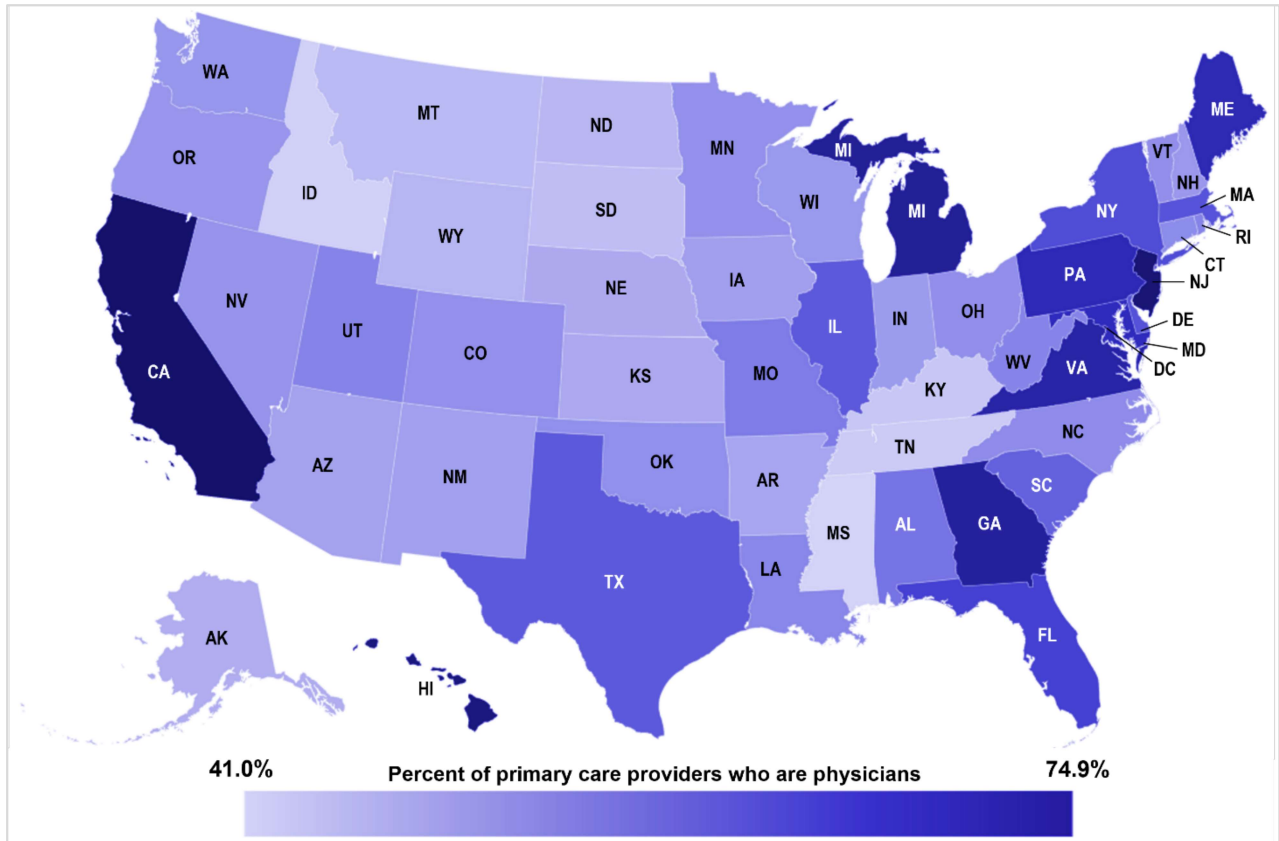


Figure 9. Physicians as a percentage of primary care providers by where patients receive care by state, 2016-2022

The percentage of patients receiving primary care from a physician versus a nonphysician in 2016-2022 varied by state (figure 10). This percentage ranged from 97.4 percent in California to 72.5 percent in Mississippi.

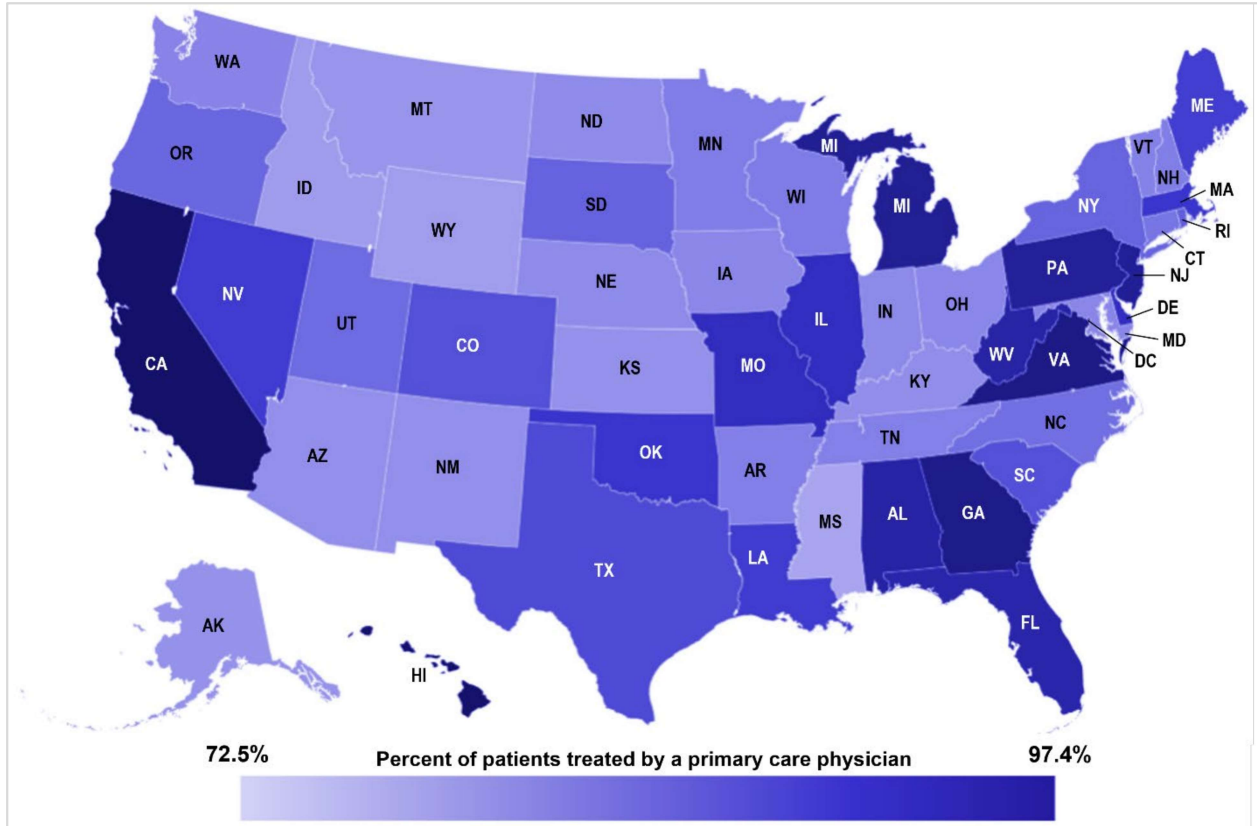


Figure 10. Percent of patients receiving primary care by physician versus nonphysician, 2016-2022

The five jurisdictions with the highest percentage of patients receiving primary care from a physician versus a nonphysician in 2016-2022 were California; Hawaii; Virginia; Georgia; and Washington, DC (table 6). The five states with the lowest percentage were Mississippi, Wyoming, Idaho, Montana and Alaska.

Table 6. Top five and bottom five states by percent of patients receiving primary care by physician versus nonphysician, 2016-2022

Top Five States		Bottom Five States	
State	Percent of Patients Seeing a Primary Care Physician	State	Percent of Patients Seeing a Primary Care Physician
California	97.4%	Mississippi	72.5%
Hawaii	97.3%	Wyoming	74.8%
Virginia	95.5%	Idaho	75.1%
Georgia	95.2%	Montana	77.1%
Washington, DC	94.9%	Alaska	78.1%

Primary Care Specialties

Of primary care providers analyzed by specialty in 2016-2022, the largest share were nurse practitioners (27 percent), followed by family medicine physicians (20 percent), internal medicine physicians (18 percent) and physician assistants (15 percent; figure 11). Smaller percentages were accounted for by pediatricians, obstetricians/gynecologists (OB/GYNs) and others.

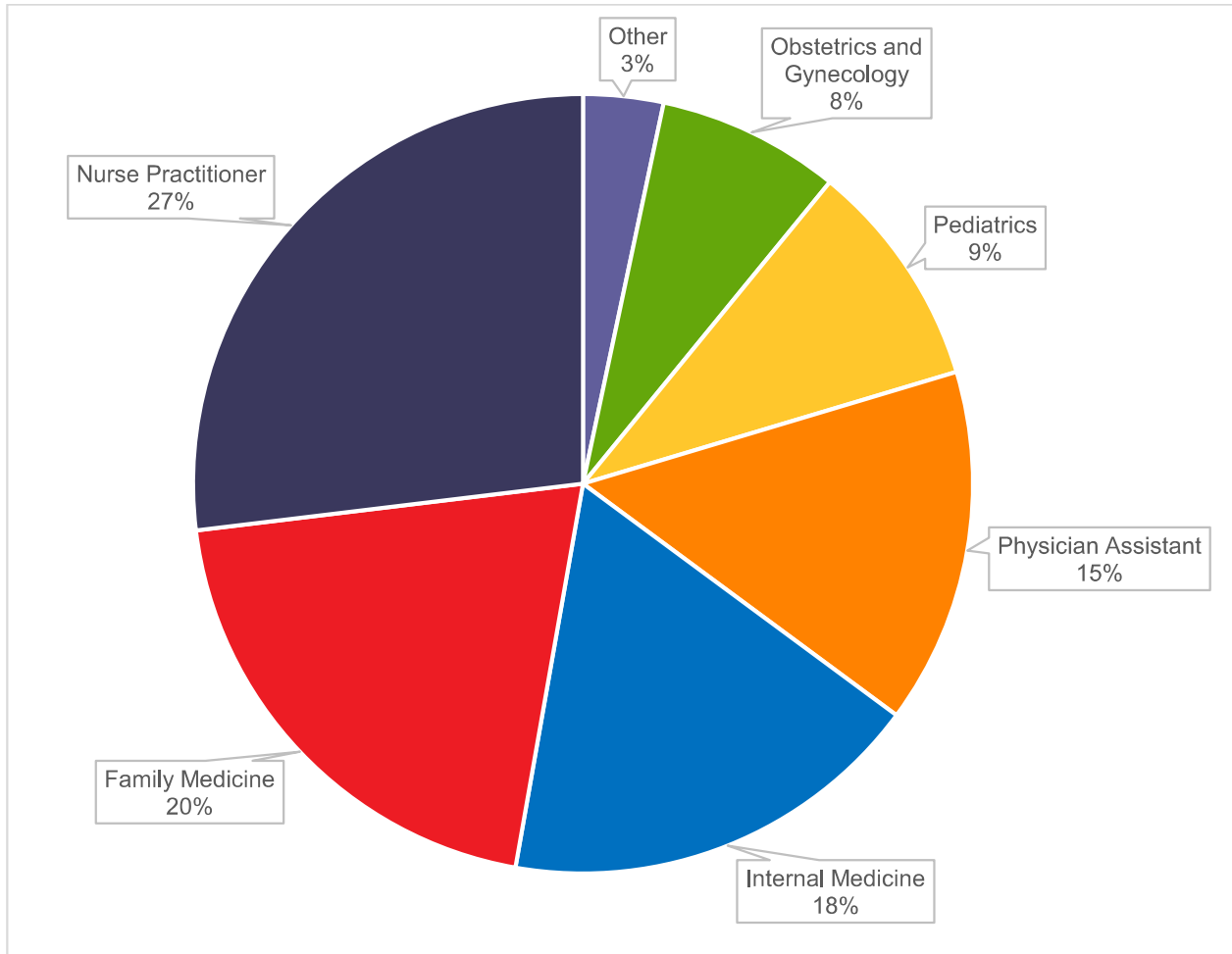


Figure 11. Primary care providers by specialty, 2016-2022

Nurse Practitioners

The percentage of patients who received primary care from a nurse practitioner in 2016-2022 varied by state (figure 12). At one extreme, in Mississippi, 26.4 percent of the patients using primary care were treated by a nurse practitioner; at the other extreme, in Hawaii, 1.7 percent of the patients using primary care were treated by a nurse practitioner.

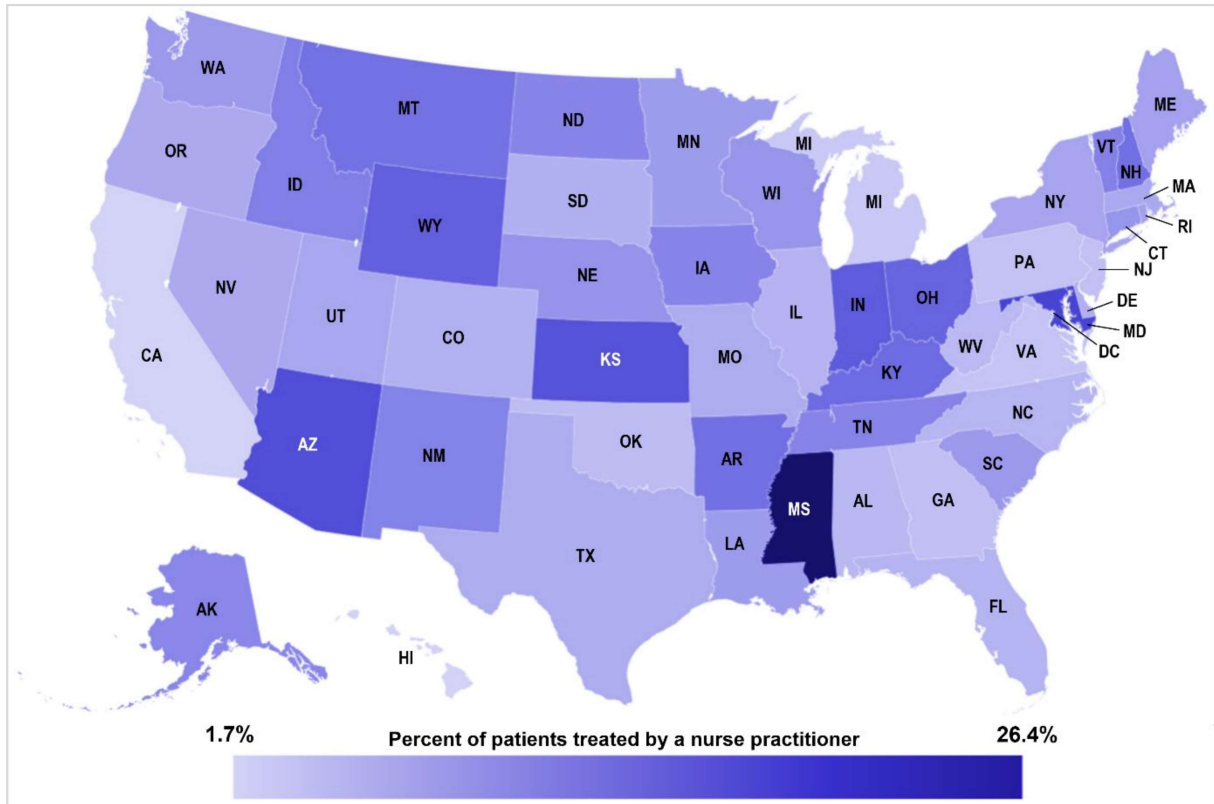


Figure 12. Percent of primary care patients treated by a nurse practitioner, 2016-2022

The five states with the highest percentage of primary care patients receiving care from a nurse practitioner in 2016-2022 were Mississippi, Maryland, Arizona, Kansas and Indiana (table 7). The five states with the lowest percentage were Hawaii, California, Michigan, Virginia and Pennsylvania.

These lists of states correlate in large part with state laws and regulations regarding whether a nurse practitioner has full practice, reduced practice or restricted practice, as documented by the American Association of Nurse Practitioners.³⁵ Of the five states with the highest level of primary care by nurse practitioners, three (Maryland, Arizona and Kansas) permit full practice by nurse practitioners, including initiating and managing treatments and prescribing medications and controlled substances. Mississippi and Indiana restrict nurse practitioners to reduced practice, which means that state practice and licensure laws reduce the ability of nurse practitioners to engage in at least one element of nurse practitioner practice.

Of the five states with the lowest level of primary care by nurse practitioners, California, Michigan and Virginia all have restricted practice, meaning that state practice and licensure laws restrict the ability of nurse practitioners to engage in at least one element of nurse practitioner practice and state law requires career-long supervision, delegation or team management by another healthcare provider for the nurse practitioner to provide care. Hawaii has full practice but has been shown to underutilize nurse practitioners, for reasons that may include low reimbursements, insufficient understanding of their role and lack of team-based care models.³⁶ Pennsylvania has reduced practice.

Table 7. Top five and bottom five states by percent of primary care patients receiving care from a nurse practitioner (NP), 2016-2022

Top Five States		Bottom Five States	
State	Percent of Patients Seeing a Primary Care NP	State	Percent of Patients Seeing a Primary Care NP
Mississippi	26.4%	Hawaii	1.7%
Maryland	17.9%	California	1.7%
Arizona	17.2%	Michigan	3.0%
Kansas	16.9%	Virginia	3.6%
Indiana	16.2%	Pennsylvania	3.9%

³⁵ “State Practice Environment,” American Association of Nurse Practitioners.

³⁶ Laura Reichhardt and Joanne R. Loos, “Spotlight on Nursing: Filling the Gap in the Primary Care Shortage: Issues and Solutions for Hawai‘i’s Healthy Future,” *Hawai‘i Journal of Health & Social Welfare* 78, no. 11 (November 2019): 349-50, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6847999/>.

Family Medicine Physicians

A family medicine physician is a primary care physician who typically sees all members of a family, both children and adults.³⁷ The percentage of patients who received primary care from a family medicine physician in 2016-2022 varied by jurisdiction, from a high of 48.5 percent in South Dakota to a low of 11.3 percent in Washington, DC (figure 13).

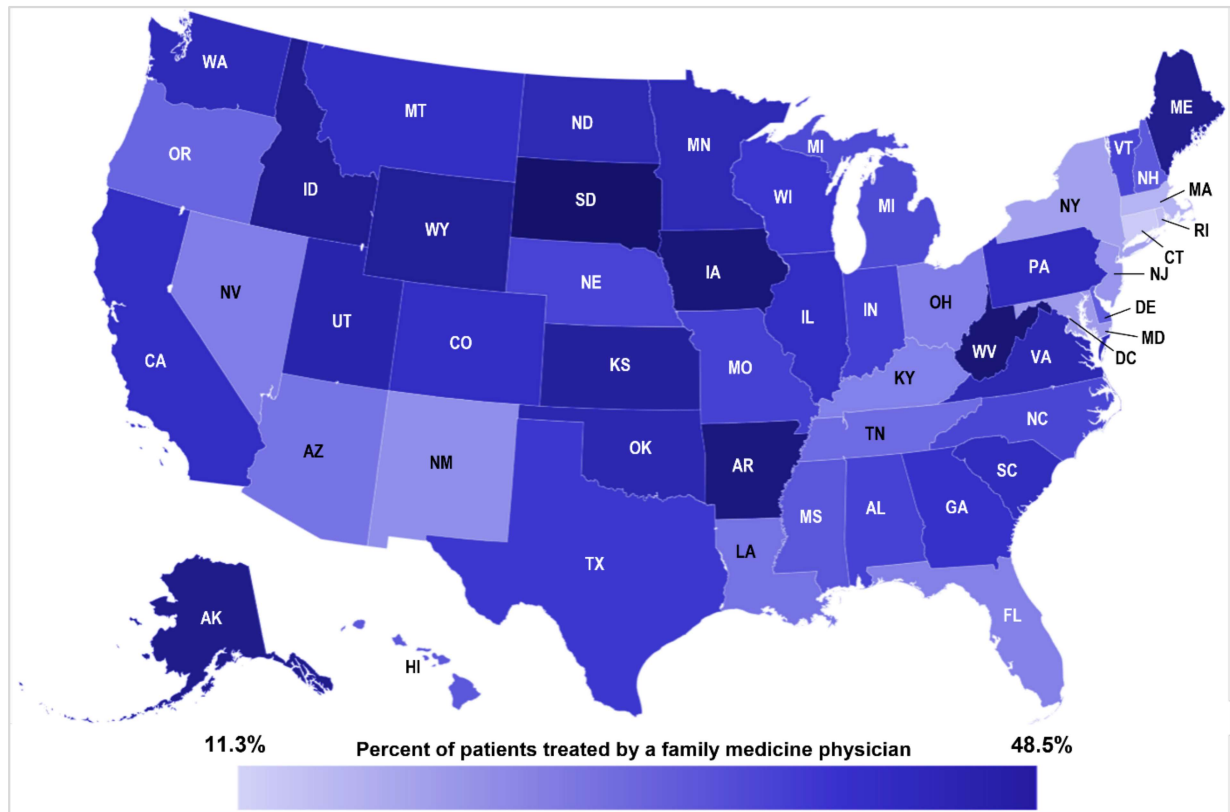


Figure 13. Percent of patients treated by a family medicine physician, 2016-2022

³⁷ "Internal Medicine vs. Family Medicine," American College of Physicians, accessed February 17, 2023, <https://www.acponline.org/about-acp/about-internal-medicine/career-paths/medical-student-career-path/internal-medicine-vs-family-medicine>.

The five states with the highest percentage of primary care patients receiving care from a family medicine physician in 2016-2022 were South Dakota, West Virginia, Iowa, Arkansas and Alaska (table 8). The five jurisdictions with the lowest percentage were Washington, DC; Connecticut; Rhode Island; Massachusetts; and New York. These lists suggest that states with a higher proportion of rural residents have a higher percentage of primary care patients being treated by a family medicine physician than specialists in other areas of primary care. Other researchers have found that rural areas rely heavily on family medicine.³⁸ One rural residency program in South Dakota, for example, is dedicated to family medicine.³⁹

Table 8. Top five and bottom five states by percent of primary care patients receiving care from a family medicine physician, 2016-2022

Top Five States		Bottom Five States	
State	Percent of Patients Seeing a Family Medicine Physician	State	Percent of Patients Seeing a Family Medicine Physician
South Dakota	48.5%	Washington, DC	11.3%
West Virginia	47.3%	Connecticut	12.9%
Iowa	46.9%	Rhode Island	15.7%
Arkansas	46.5%	Massachusetts	17.7%
Alaska	45.0%	New York	21.7%

³⁸ Larry A. Green et al., *The Physician Workforce of the United States: A Family Medicine Perspective*, (Washington DC: The Robert Graham Center, 2004), <https://www.aafp.org/dam/rgc/documents/publications-reports/monographs-books/rgc-mo-physician-workforce.pdf>.

³⁹ Nick Lowrey, "Rural Doctor Shortage in S.D. Worsened by Lack of Physician Training Opportunities," Keloland Media Group, December 8, 2019, <https://www.keloland.com/news/local-news/rural-doctor-shortage-in-s-d-worsened-by-lack-of-physician-training-opportunities/>.

Allowed Amounts

To study reimbursement for primary care services, FAIR Health compared average allowed amounts⁴⁰ by primary care specialty in 2022 for a common evaluation and management procedure, CPT 99213, established patient office or other outpatient visit, 20-29 minutes (figure 14). Nurse practitioners had the lowest average allowed amount associated with this procedure, \$88. Physician assistants had a higher average allowed amount for this service, \$95. Among primary care providers, OB/GYNs and pediatricians had the highest reimbursement for this service, \$108 each.

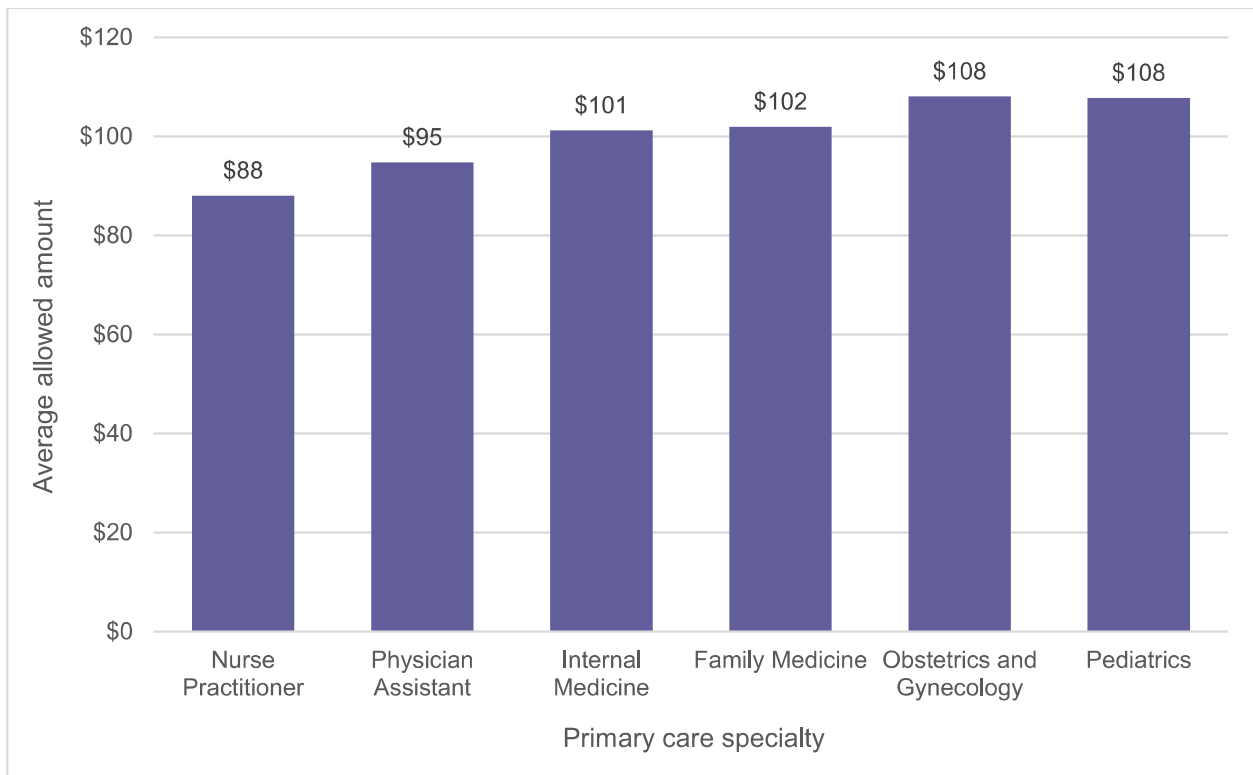


Figure 14. Average allowed amounts by primary care specialty for CPT 99213 (established patient office or other outpatient visit, 20-29 minutes), 2022

⁴⁰ An allowed amount is the total fee paid to the provider under an insurance plan. It includes the amount that the health plan pays and the part the patient pays under the plan's in-network cost-sharing provisions (e.g., copay or coinsurance if the patient has met the deductible).

Another common procedure in primary care is CPT 99395, established patient periodic preventive medicine examination for patients 18 to 39 years old. Among primary care specialties in 2022, nurse practitioners had the lowest average allowed amount for this procedure, \$141 (figure 15). While there is no definite upper age limit for patients treated by pediatricians,⁴¹ this specialty typically treats patients toward the lower end of the age range specified by CPT 99395 (i.e., ages 18 to 21). Pediatricians were reimbursed \$163 on average, close to the allowed amount for family medicine physicians (\$164); both were reimbursed less on average than internal medicine physicians (\$166) and OB/GYNs (\$168).

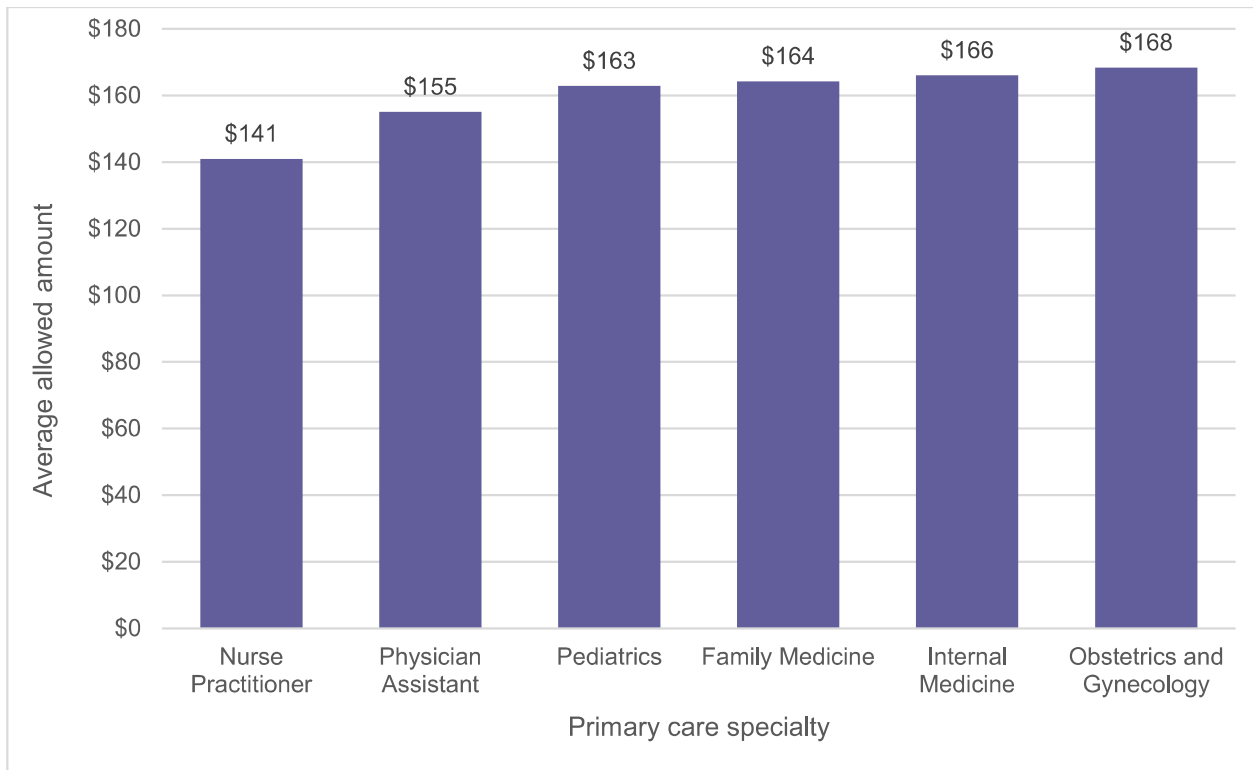


Figure 15. Average allowed amounts by primary care specialty for CPT 99395 (established patient periodic preventive medicine examination [18-39 years]), 2022

⁴¹ Amy Peykoff Hardin et al., “Age Limit of Pediatrics,” *Pediatrics* 140, no. 3 (September 1, 2017), <https://publications.aap.org/pediatrics/article/140/3/e20172151/38333/Age-Limit-of-Pediatrics>.

From 2016 to 2022, average allowed amounts increased for CPT 99395, established patient periodic preventive medicine examination for patients 18 to 39 years old, but the increase varied by primary care specialty (figure 16). The lowest increases were for nonphysicians, from 1.0 percent for a nurse practitioner to 2.6 percent for a physician assistant. Physicians varied in average allowed amount increase from 11.2 percent for pediatricians, internal medicine physicians and family medicine physicians; to 15.5 percent for OB/GYNs.

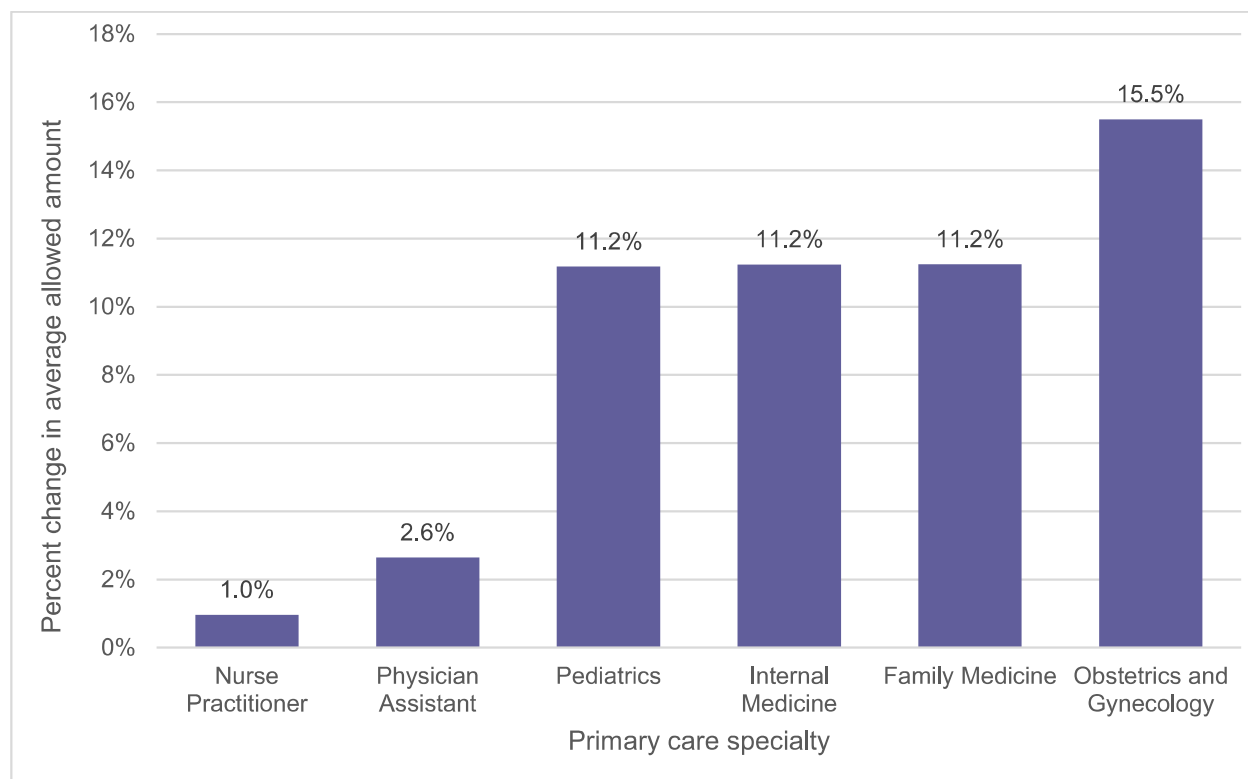


Figure 16. Percent change from 2016 to 2022 in average allowed amounts by primary care specialty for CPT 99395 (established patient periodic preventive medicine examination [18-39 years])

Telehealth

The share of patients being treated via telehealth from 2019 to 2020 increased markedly for each primary care specialty studied (figure 17). Physician assistants saw the biggest increase of almost 20,000 percent, followed by nurse practitioners with an increase close to 9,000 percent. Pediatricians were in third place with an increase of over 6,000 percent. These findings are consistent with increases in telehealth at the beginning of the COVID-19 pandemic in 2020^{42,43} and are also reflective of the expansion of telehealth and licensing waivers adopted by many states at that time, which allowed out-of-state practice.⁴⁴ Temporary suspensions of practice agreement and supervision requirements allowed many nurse practitioners and physician assistants to engage in full practice,^{45,46} which could account for nonphysician providers showing the largest increases.

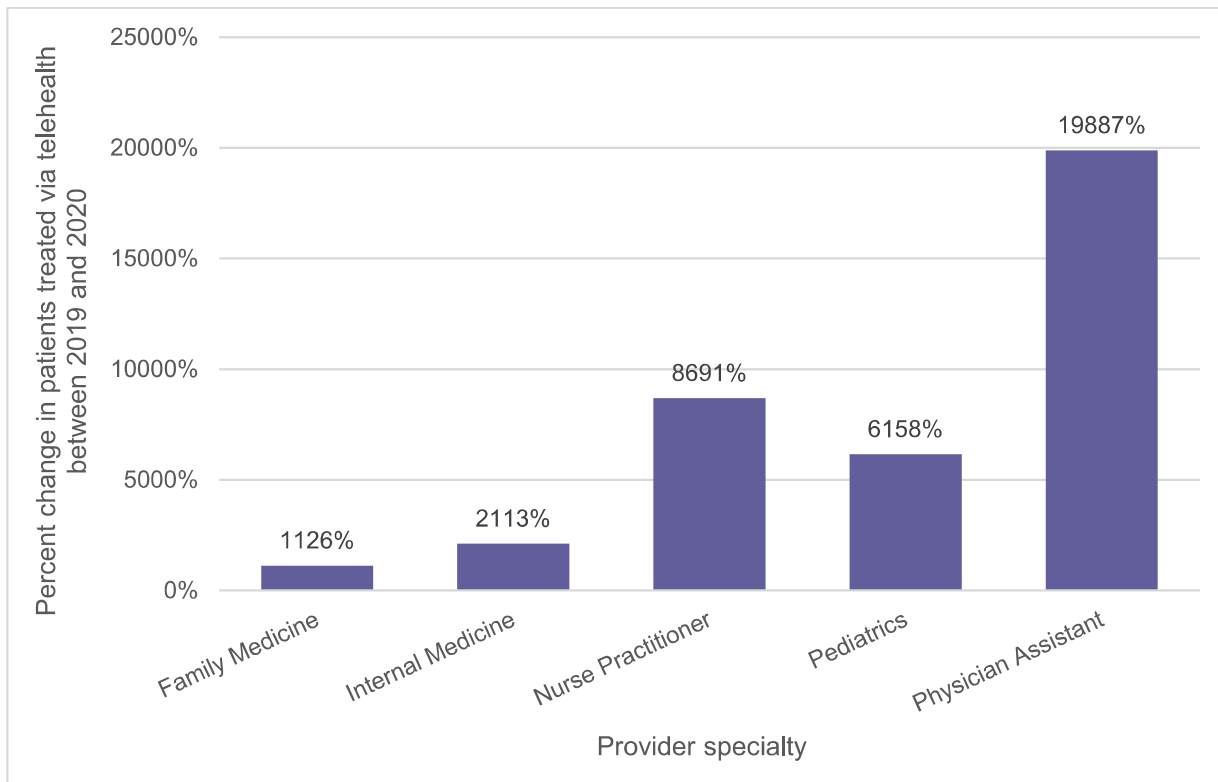


Figure 17. Percent change in patients treated via telehealth by primary care specialty, 2019-2020

⁴² Lisa M. Koonin et al., “Trends in the Use of Telehealth during the Emergence of the COVID-19 Pandemic—United States, January-March 2020,” *Morbidity and Mortality Weekly Report* 69, no. 43 (October 30, 2020): 1595-99, <http://dx.doi.org/10.15585/mmwr.mm6943a3>.

⁴³ “Monthly Telehealth Regional Tracker,” FAIR Health, accessed February 28, 2023, <https://www.fairhealth.org/states-by-the-numbers/telehealth>.

⁴⁴ “State Emergency Declarations: Telehealth and Licensure Flexibilities during COVID-19 and Current State of Emergency Waivers,” Alliance for Connected Care, last updated December 16, 2022, <https://connectwithcare.org/state-telehealth-and-licensure-expansion-covid-19-chart/>.

⁴⁵ “COVID-19 State Emergency Response: Temporarily Suspended and Waived Practice Agreement Requirements,” American Association of Nurse Practitioners, last updated January 18, 2023, <https://www.aanp.org/advocacy/state/covid-19-state-emergency-response-temporarily-suspended-and-waived-practice-agreement-requirements>.

⁴⁶ “COVID-19 Emergency Declaration Blanket Waivers for Health Care Providers,” Centers for Medicare & Medicaid Services, last updated October 13, 2022, <https://www.cms.gov/files/document/covid-19-emergency-declaration-waivers.pdf>.

In contrast to the notable increases in telehealth at the start of the pandemic, data from 2020 to 2021 show the use of telehealth declined by over 30 percent for all primary care specialties studied (figure 18). The following year, from 2021 to 2022, most specialties showed smaller declines of between four and nine percent, suggesting the use of telehealth had begun to plateau. Only pediatrics saw another steep decline of 35 percent from 2021 to 2022. Potential reasons for the continued decline in pediatric telehealth include barriers related to broadband connectivity, digital literacy, device access and interpretation services.⁴⁷ Additionally, families may prefer in-person care for children, especially for initial visits.⁴⁸

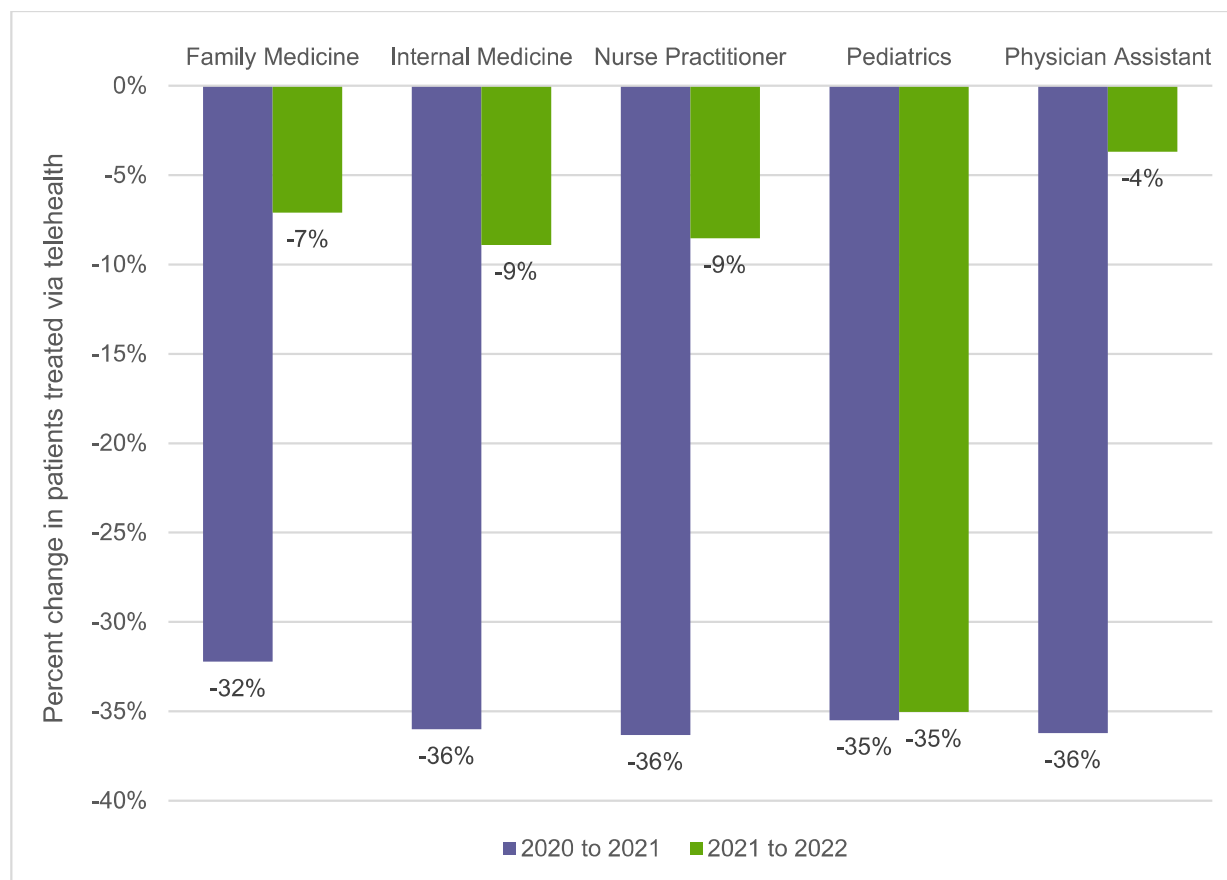


Figure 18. Percent change in patients treated via telehealth by primary care specialty, 2020-2021 and 2021-2022

⁴⁷ Robert D. Keder et al., “Society for Developmental & Behavioral Pediatrics Position Statement on Telehealth,” *Journal of Developmental and Behavioral Pediatrics* 43, no. 1 (January 1, 2022): 55-59, <https://doi.org/10.1097/DBP.0000000000001046>.

⁴⁸ Robert Siegel et al., “Families Chose In-Person Visits over Telehealth for Pediatric Weight Management during the COVID-19 Pandemic,” *Childhood Obesity* 18, no. 8 (December 2022): 572-75, <http://doi.org/10.1089/chi.2022.0005>.

Diagnoses

The top 12 diagnoses associated with primary care physicians from 2016 to 2022 included 57.3 percent of all services performed by primary care physicians; their distribution is shown in figure 19. The most frequent diagnosis category was encounter for examination (11.0 percent of diagnoses), followed by encounter for immunization (9.8 percent). The third most frequent diagnosis was encounter for examination of a child or adolescent (9.1 percent). Five of the same top 12 diagnoses appear in data from other researchers reporting the top 10 primary care diagnoses from 2021, where encounter for examination, immunization and hypertension appeared in the top five diagnoses for primary care physicians.⁴⁹ Differences between the two studies may be explained by the exclusive use of internists in the 2021 source and the focus on a single year. For example, a contact with COVID-19 diagnosis was included in the top 10 in 2021, but not in FAIR Health's top 12, which are aggregated across seven years, four of which were pre-COVID.

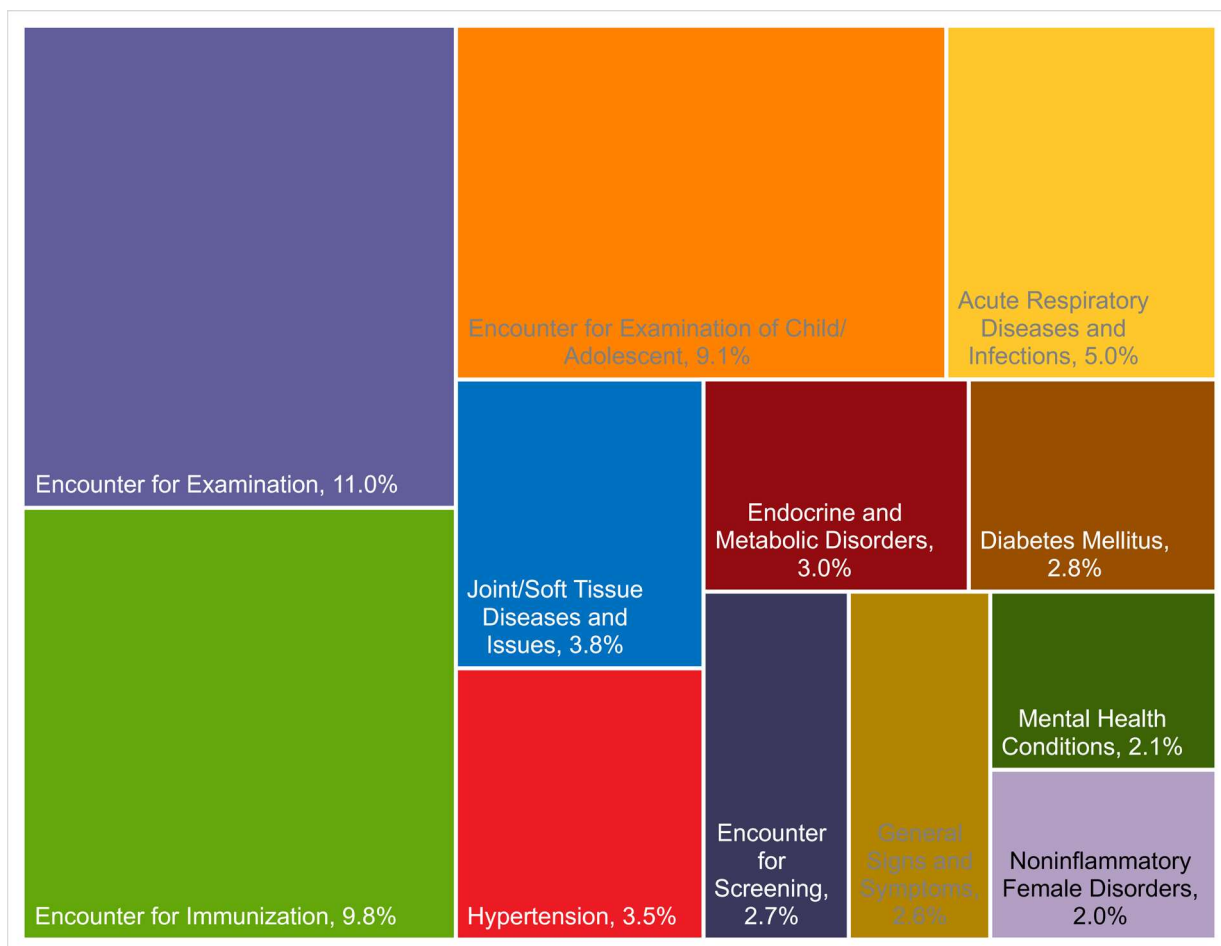


Figure 19. Top 12 diagnoses associated with primary care physicians, 2016- 2022

⁴⁹ “10 Most Common Diagnoses and Procedures in Primary Care in 2021,” Definitive Healthcare, accessed February 16, 2023, <https://www.definitivehc.com/blog/10-most-common-diagnoses-in-primary-care>.

The top 12 diagnoses associated with primary care nonphysicians from 2016 to 2022 included 58.7 percent of the total services performed by such providers; their distribution in figure 20 shows they were broadly similar to those for physicians. Encounter for examination was again the most frequent category (12.9 percent of diagnoses). Similarly, the second most frequent category was, again, encounter for immunizations (8.0 percent). The third most frequent category in this case was acute respiratory diseases and infections (7.3 percent). For physicians, this category accounted for 5.0 percent of diagnoses. Of note, 3.2 percent of all diagnoses were related to mental health conditions, which is higher than the 2.1 percent seen by physicians. Differences between physician and nonphysician diagnoses may be related to patient preferences⁵⁰ and provider availability; shorter wait times for appointments with nonphysicians⁵¹ may be preferred for acute diagnoses, such as respiratory infection.

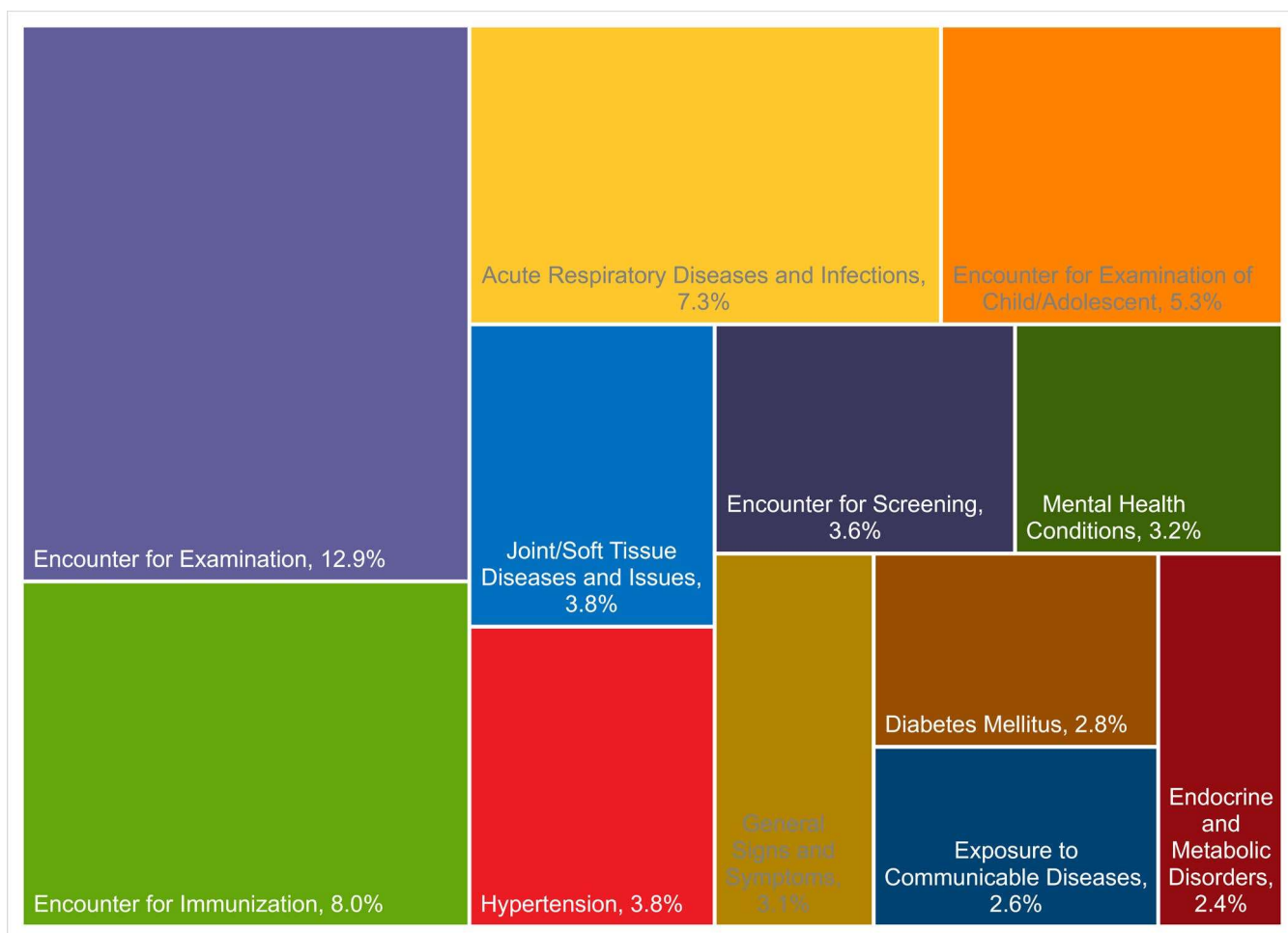


Figure 20. Top 12 diagnoses associated with primary care nonphysicians, 2016-2022

⁵⁰ Brandi Leach et al., "Patient Preference in Primary Care Provider Type," *Healthcare* 6, no. 1 (March 2018): 13-16, <https://doi.org/10.1016/j.hjdsi.2017.01.001>.

⁵¹ Sarah Tinkler et al., "Offers of Appointments with Nurse Practitioners If a Requested Physician Is Unavailable," *Journal of the American Association of Nurse Practitioners* 29, no. 4 (April 2017): 209-15, <https://doi.org/10.1002/2327-6924.12404>.

Behavioral Health

Of all patients who had at least one visit with a primary diagnosis of a mental health condition, the percentage treated by a primary care provider increased 7.0 percent, from 39.4 percent in 2016 to 42.1 percent in 2022 (figure 21). The percentage of patients with a substance use disorder as the primary diagnosis who were treated by a primary care provider decreased 2.5 percent during the same period, from 35.4 percent to 34.5 percent. During 2020, at the start of the COVID-19 pandemic, primary care providers saw an 18.6 percent increase in the percentage of patients with a mental health diagnosis as the primary diagnosis and a 17.6 percent increase in the percentage of patients with a substance use disorder as the primary diagnosis. These increases are consistent with predictions that behavioral health diagnoses would rise in response to COVID-19, including substance-related and addictive disorders.⁵² The percentage of patients with a primary mental health diagnosis seen by a primary care provider remained above 40 percent from 2020 to 2022.

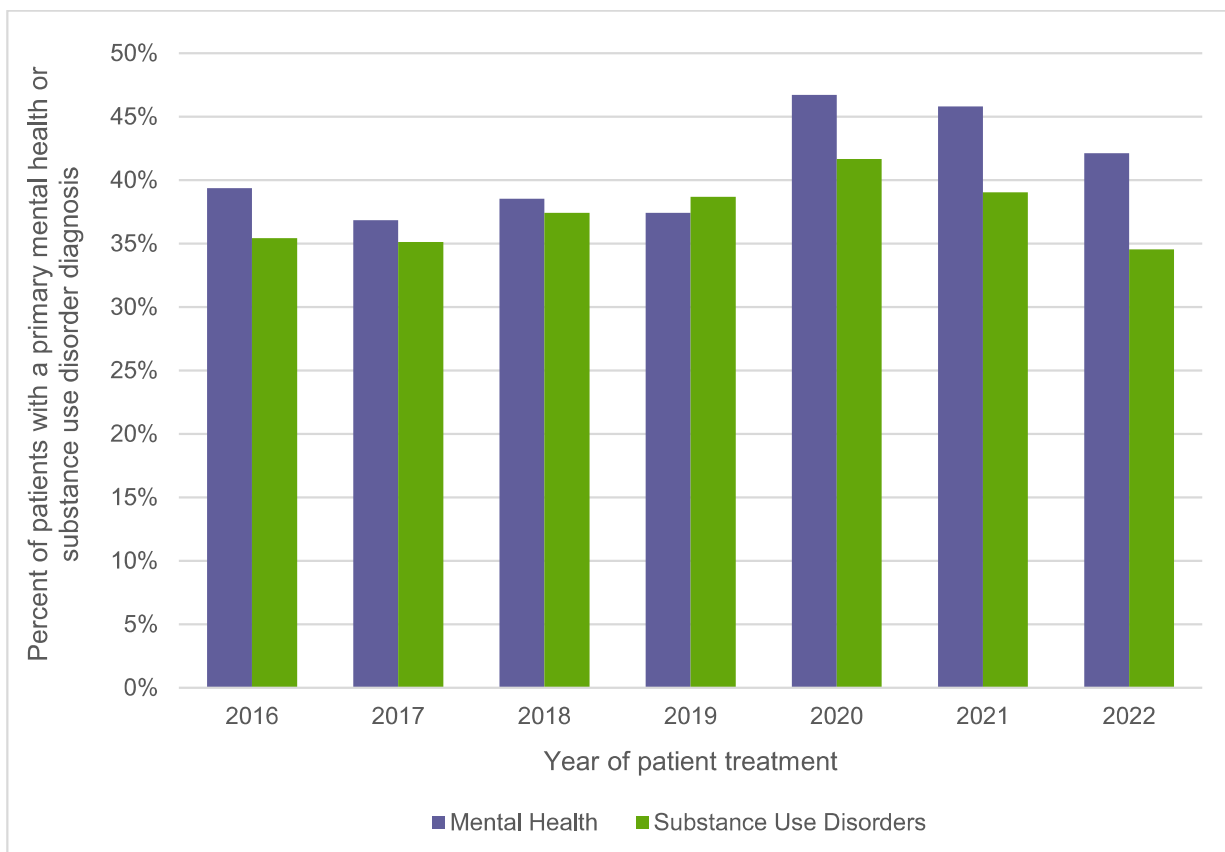


Figure 21. Percent of patients with a primary mental health or substance use disorder diagnosis treated by a primary care provider, 2016-2022

⁵² Barnali Bhattacharjee and Tathagata Acharya, "The COVID-19 Pandemic and Its Effect on Mental Health in USA – A Review with Some Coping Strategies," *Psychiatric Quarterly* 91 (August 23, 2020): 1135-45, <https://doi.org/10.1007/s11126-020-09836-0>.

From 2016 to 2022, there was a decline in the percentage of patients with a primary behavioral health diagnosis seen by primary care physicians (figure 22). Patients with a primary mental health diagnosis who visited a primary care physician decreased 4.0 percent, from 36.6 percent of all patients diagnosed with a mental health disorder in 2016 to 35.1 percent in 2022. Similarly, the percentage of patients with a primary substance use disorder diagnosis who visited a primary care physician decreased 9.5 percent, from 33.4 percent of all patients diagnosed with a substance use disorder to 30.2 percent over the same period.

In 2020 and 2021, however, primary care physicians saw an increase in the percentage of both types of patients. Patients with primary mental health diagnoses increased 10.1 percent in 2020 and 5.9 percent in 2021 when compared with 2016, while patients with primary substance use disorder diagnoses increased by 10.6 percent in 2020 and 2.7 percent in 2021 when compared with 2016. These increases correspond to the start of the COVID-19 pandemic in 2020.⁵³

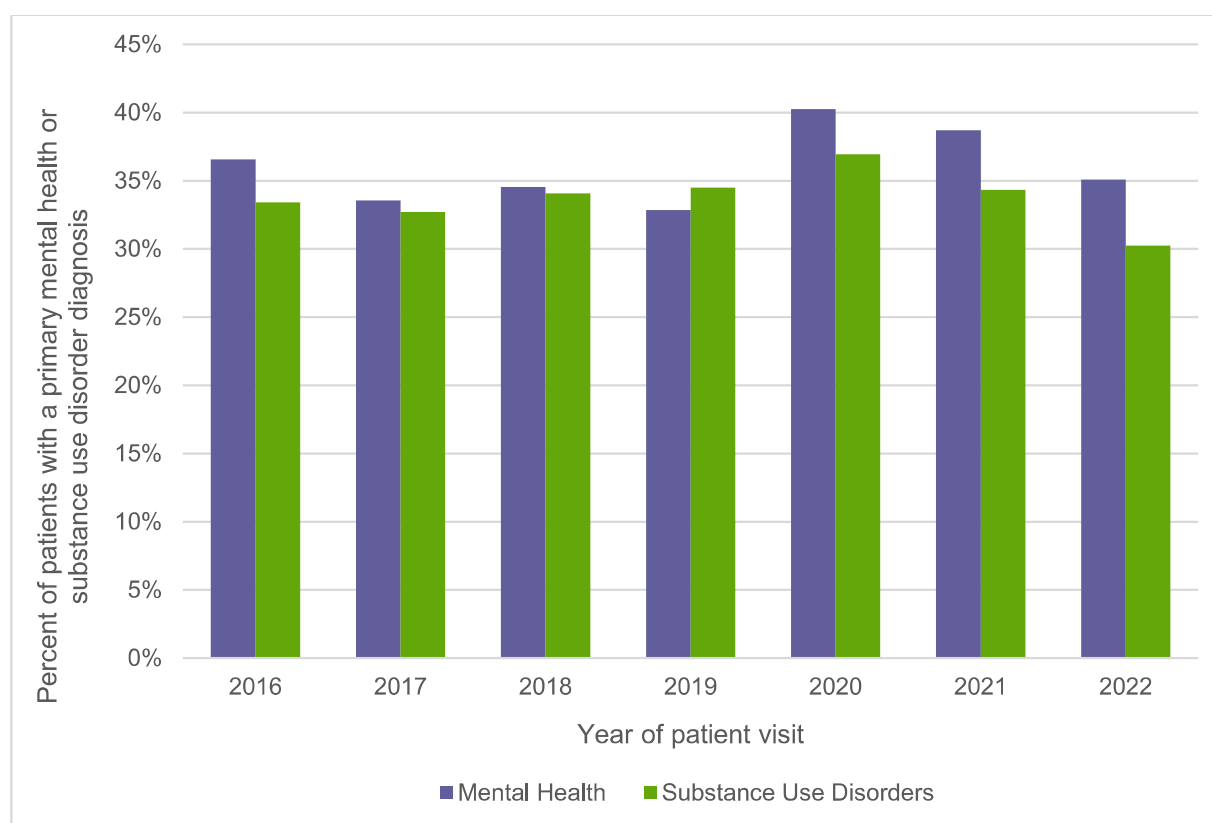


Figure 22. Percent of patients with a primary mental health or substance use disorder diagnosis seen by primary care physicians, 2016-2022

While FAIR Health found an overall decline in patients with behavioral health diagnoses seen by primary care physicians from 2016 to 2022, other researchers have found that primary care physicians increased

⁵³ Bhattacharjee and Acharya, “The COVID-19 Pandemic and Its Effect on Mental Health in USA.”

their provision of mental healthcare from 1995 to 2018.^{54,55} The variation could be due to different data collection methodologies and time frames. Other studies have analyzed National Ambulatory Medical Care Survey data;⁵⁶ FAIR Health uses private claims data. In addition, FAIR Health includes four more recent years of data (2019 to 2022), which may reflect a more recent decline.

In contrast to the data for physicians, the percentage of patients with primary behavioral health diagnoses seen by primary care nonphysicians increased (figure 23). Primary care nonphysicians saw a 149.7 percent increase, from 2.8 percent of all patients with a primary mental health diagnosis in 2016 to 7.1 percent in 2022. Similarly, the percentage of patients with a substance use disorder diagnosis treated by nonphysicians increased by 113.7 percent, from 2.0 percent of all patients with a substance use disorder diagnosis in 2016 to 4.3 percent in 2022.

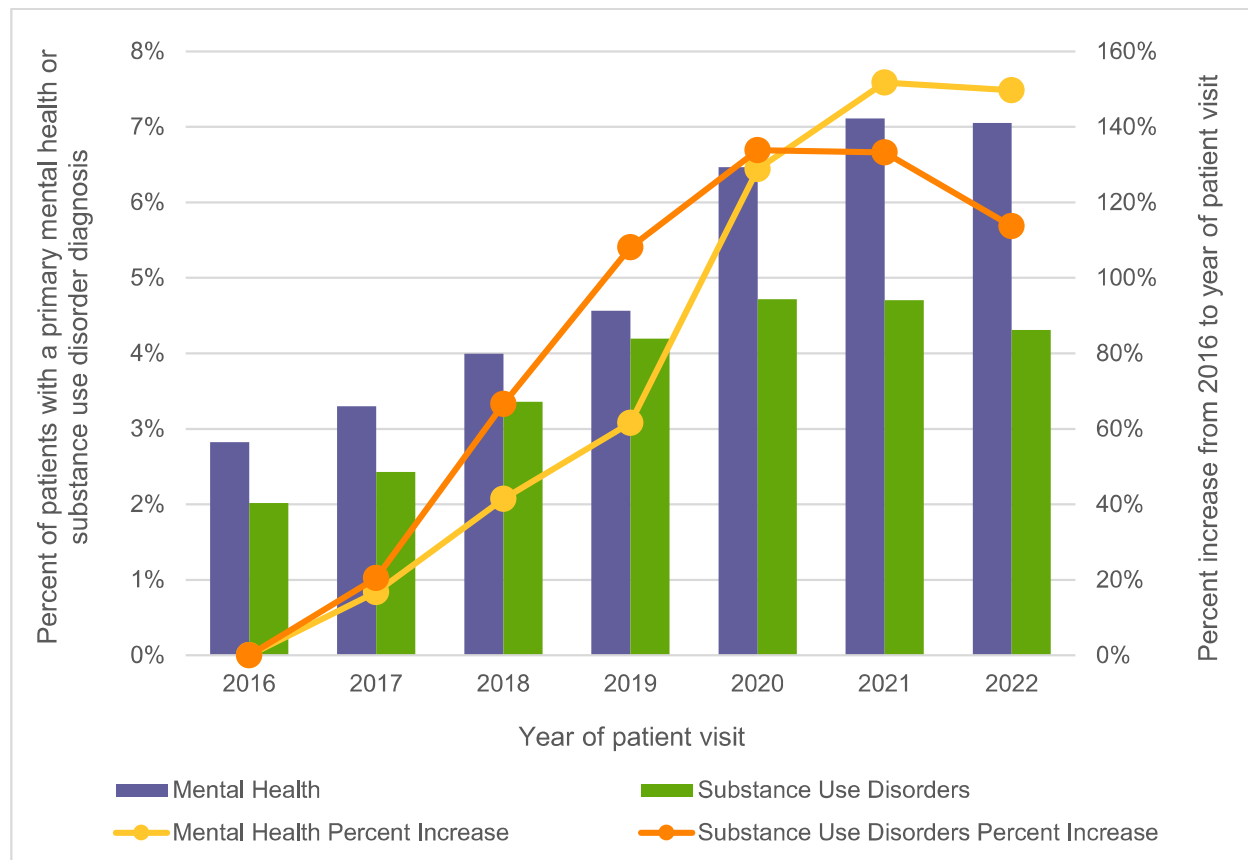


Figure 23. Percent of patients with a primary mental health or substance use disorder diagnosis seen by primary care nonphysicians, 2016-2022.

⁵⁴ Mark Olsson et al., “Trends in Office-Based Mental Health Care Provided by Psychiatrists and Primary Care Physicians,” *Journal of Clinical Psychiatry* 75, no. 3 (March 15, 2014): 247-53, <https://doi.org/10.4088/JCP.13m08834>.

⁵⁵ Rotenstein, Edwards and Landon, “Adult Primary Care Physician Visits Increasingly Address Mental Health Concerns.”

⁵⁶ “About the Ambulatory Health Care Surveys,” National Center for Health Statistics (NCHS), last reviewed December 30, 2021, https://www.cdc.gov/nchs/ahcd/about_ahcd.htm.

These latter results are consistent with the passing of the Comprehensive Addiction and Recovery Act in 2016, which allowed nurse practitioners and physician assistants to prescribe buprenorphine for opioid use disorder starting in January 2017.⁵⁷ The findings also correlate with those presented in figures 19 and 20 showing that nonphysicians were treating more patients with mental health diagnoses than were physicians. Potential reasons for the differences between providers include reduced costs⁵⁸ and increased availability⁵⁹ of nonphysicians compared with physicians.

Conclusion

This study of primary care makes several notable findings. Nationally, 29 percent of patients who received medical services in 2016-2022 did not visit a primary care provider, though the percentage varied among states, ranging from a high of 43 percent in Tennessee to a low of 16 percent in Massachusetts. The ratio of population to primary care provider varied among states and core-based statistical areas (CBSAs), and also differed depending on whether the ratio was calculated by primary practice location or by where patients received care.

Of providers who performed primary care services in 2016-2022, 56 percent were physicians and 44 percent nonphysicians. Of primary care providers analyzed by specialty, the largest share were nurse practitioners, followed by family medicine physicians, internal medicine physicians and physician assistants. Smaller shares were accounted for by pediatricians, OB/GYNs and others.

Different factors influenced which primary care specialties were most common in which states. The lists of five states with the highest and lowest percentage of primary care patients receiving care from a nurse practitioner in 2016-2022 correlate in large part with state laws and regulations regarding whether a nurse practitioner may engage in full practice, reduced practice or restricted practice. The lists of five states with the highest and lowest percentage of primary care patients receiving care from a family medicine physician in 2016-2022 suggest that states with higher proportion of residents in rural areas have a higher percentage of primary care patients receiving such care.

From 2016 to 2022, average allowed amounts for a common procedure in primary care, CPT 99395 (established patient periodic preventive medicine examination for patients 18 to 39 years old) increased more for physicians than for nonphysicians.

Telehealth as a venue for treating primary care patients increased greatly in all primary care specialties studied from 2019 to 2020, but declined to a lesser degree from 2020 to 2021. From 2016 to 2022, the most frequent diagnoses associated with all primary care providers were encounter for examination and encounter for immunization. Nonphysicians treated greater percentages of patients with a mental health diagnosis and acute respiratory diseases and infections than physicians did. From 2016 to 2022, the percentage of patients with a primary mental health diagnosis treated by a primary care provider increased 7.0 percent, while the percentage of patients with a primary substance use diagnosis decreased 2.5 percent. Primary care nonphysicians saw increases in patients with both behavioral health diagnoses of over 100 percent during the same period.

⁵⁷ Michael L. Barnett, Dennis Lee and Richard G. Frank, "In Rural Areas, Buprenorphine Waiver Adoption since 2017 Driven by Nurse Practitioners and Physician Assistants," *Health Affairs* 38, no. 12 (December 2019): 2048-56, <https://doi.org/10.1377/hlthaff.2019.00859>.

⁵⁸ Perri A. Morgan et al., "Impact of Physicians, Nurse Practitioners, and Physician Assistants on Utilization and Costs for Complex Patients," *Health Affairs* 38, no. 6 (June 2019): 1028-36, <https://doi.org/10.1377/hlthaff.2019.00014>.

⁵⁹ Tinkler et al., "Offers of Appointments with Nurse Practitioners If a Requested Physician Is Unavailable."

Taken together, these findings are relevant to understanding, maintaining and improving primary care in the United States. Healthcare stakeholders, such as patients, providers, payors, policy makers and researchers, can use these data to bring clarity to the use of primary care across the country and to help determine where attention should be directed to improve primary care access and, ultimately, health outcomes.

About FAIR Health

FAIR Health is a national, independent nonprofit organization dedicated to bringing transparency to healthcare costs and health insurance information through data products, consumer resources and health systems research support. FAIR Health qualifies as a public charity under section 501(c)(3) of the federal tax code. FAIR Health possesses the nation's largest collection of private healthcare claims data, which includes over 40 billion claim records and is growing at a rate of over 2 billion claim records a year. FAIR Health licenses its privately billed data and data products—including benchmark modules, data visualizations, custom analytics and market indices—to commercial insurers and self-insurers, employers, providers, hospitals and healthcare systems, government agencies, researchers and others. Certified by the Centers for Medicare & Medicaid Services (CMS) as a national Qualified Entity, FAIR Health also receives data representing the experience of all individuals enrolled in traditional Medicare Parts A, B and D; FAIR Health includes among the private claims data in its database, data on Medicare Advantage enrollees. FAIR Health can produce insightful analytic reports and data products based on combined Medicare and commercial claims data for government, providers, payors and other authorized users. FAIR Health's free, award-winning, national consumer websites are [fairhealthconsumer.org](https://www.fairhealthconsumer.org) and [fairhealthconsumidor.org](https://www.fairhealthconsumidor.org). For more information on FAIR Health, visit [fairhealth.org](https://www.fairhealth.org).

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