



Trends of Available PGY-1 Residency Positions and Practicing Physicians in South Carolina, 2004-2023

Introduction

In the 1980s and 1990s, experts anticipated a surplus in the number of physicians.^{1,2} The Balanced Budget Act of 1997 capped the number of Medicare-supported residency positions, effectively limiting growth in physician supply.^{3,4}

In 2005, the Council on Graduate Medical Education (COGME) reassessed the data and projected a future shortage of physicians.⁵ Around the same time, the Association of American Medical Colleges (AAMC) began calling for a 30% increase in medical school production to address shortage concerns.⁶

As a result, existing medical schools increased class sizes, and new medical schools were established, including two new medical schools in South Carolina: The Edward Via College of Osteopathic Medicine – Carolinas Campus (VCOM CC) in 2011 and the University of South Carolina School of Medicine Greenville (USC SOM Greenville) in 2012. USC SOM Greenville has continued to grow, nearly doubling its class size by 2023.

As the number of medical school graduates increased rapidly after VCOM CC and USC SOM Greenville opened, the number of graduate medical education (GME) programs and entry-level residency positions (post-graduate year 1, or PGY-1) also increased.

This brief describes how the numbers of medical school graduates and PGY-1 positions in South Carolina have both grown between 2004 and 2023. However, these increases have not yet translated into a corresponding growth in the number of physicians practicing within the state. Please see the Limitations and Data Sources and Methods sections for caveats and details on how these data were compiled.

Key Takeaways

1. The number of entry-level (PGY-1) residency positions lagged behind the number of South Carolina medical graduates in the years after VCOM-CC and USC SOM Greenville graduated their first classes.
2. During this time, new residency programs were created, despite the residency cap set by the 1997 Balanced Budget Act. The number of PGY-1 positions grew steadily, and in 2022, the number of first-year residency positions exceeded the number of physicians who graduated from South Carolina medical schools.
3. Despite the increase in medical school graduates and PGY-1 positions, the proportion of South Carolina medical graduates filling PGY-1 positions in South Carolina has remained fairly constant, ranging from 21% in 2013 and 2014 to 32% in 2007. Most PGY-1 positions are being filled by graduates from other states and countries.
4. The increase in medical school graduates and residency positions has not yet resulted in an equivalent increase in physicians in South Carolina. However, since residency programs are 3-5 years in length, the full impact of the continued growth in South Carolina residency programs may not be realized for another couple of years.
5. These data should be routinely monitored and reported to support effective medical education and workforce planning efforts in South Carolina.

After several years of lagging, PGY-1 positions have surpassed the number of South Carolina medical graduates

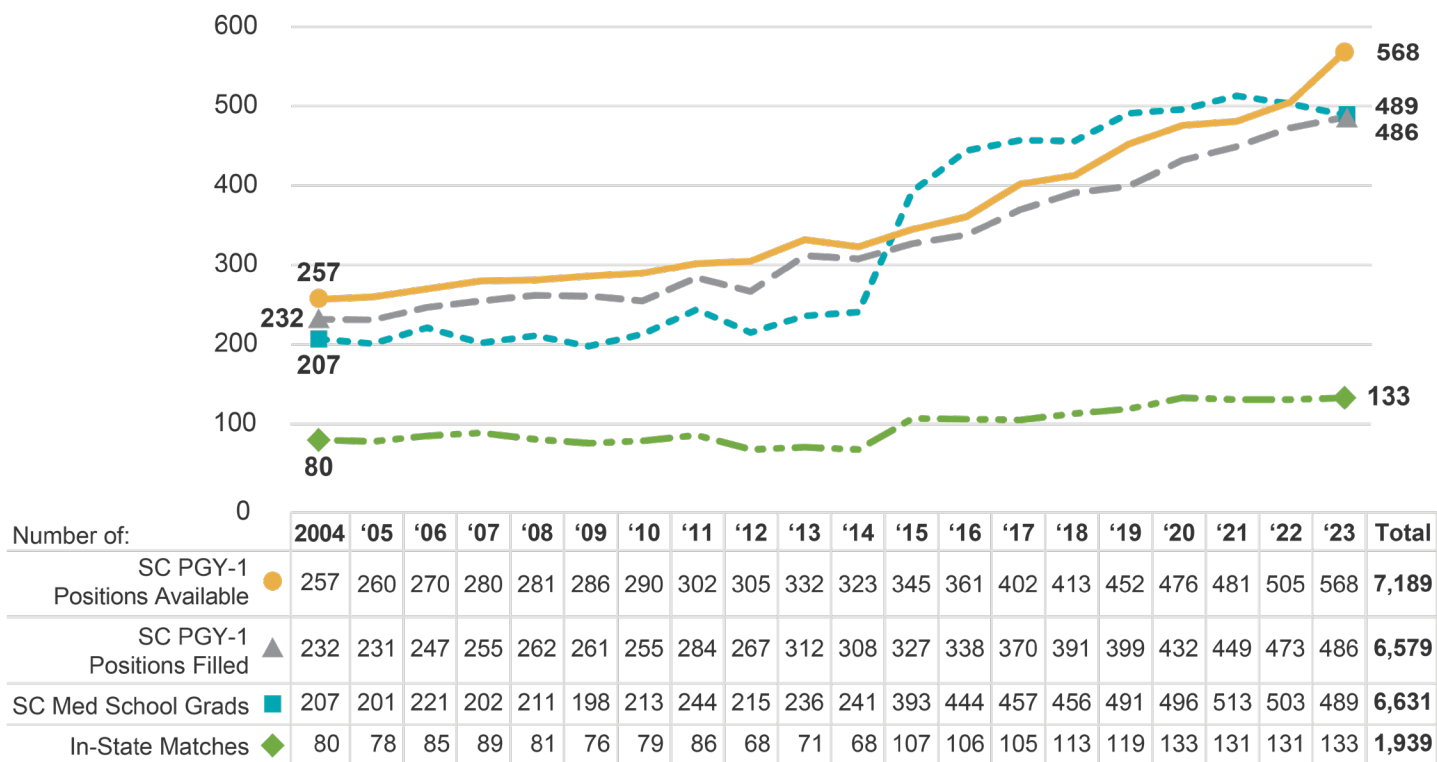
Figure 1 shows the number of South Carolina medical school graduates, available entry-level (PGY-1) residency positions, and filled PGY-1 positions from 2004 to 2023. It also shows the number of South Carolina medical school graduates matching into PGY-1 positions in South Carolina residency programs.

Prior to 2015, there were more available PGY-1 positions in South Carolina than medical school graduates. The number of medical school graduates rose sharply in 2015, when VCOM CC's first class graduated, and increased again in 2016, when USC SOM Greenville graduated its first class. The number of PGY-1 positions lagged in the subsequent years but continued to grow steadily. In 2022, the number of PGY-1 positions again surpassed that of medical school graduates.

Between 2015 and 2023, the number of medical school graduates and graduates matching into South Carolina residency programs both grew by 24%. The number of available PGY-1 residency positions in South Carolina grew by 65%. Despite the growth in PGY-1 residency positions, the proportion of South Carolina medical school graduates matching to South Carolina residency programs did not change.

The gray line in Figure 1 shows the number of PGY-1 positions filled during the Main Match®. Each year, a number of PGY-1 available positions are initially unfilled in the Main Match®, and many of those are later filled through the Supplemental Offer and Acceptance Program (SOAP). In 2023, 82 (17%) of available PGY-1 positions were unfilled after the Main Match, but on average, between 2004 and 2023, 9% of available PGY-1 positions initially went unfilled.

Figure 1. South Carolina Medical School Graduates, PGY-1 Positions and In-State GME Matches, 2004-2023



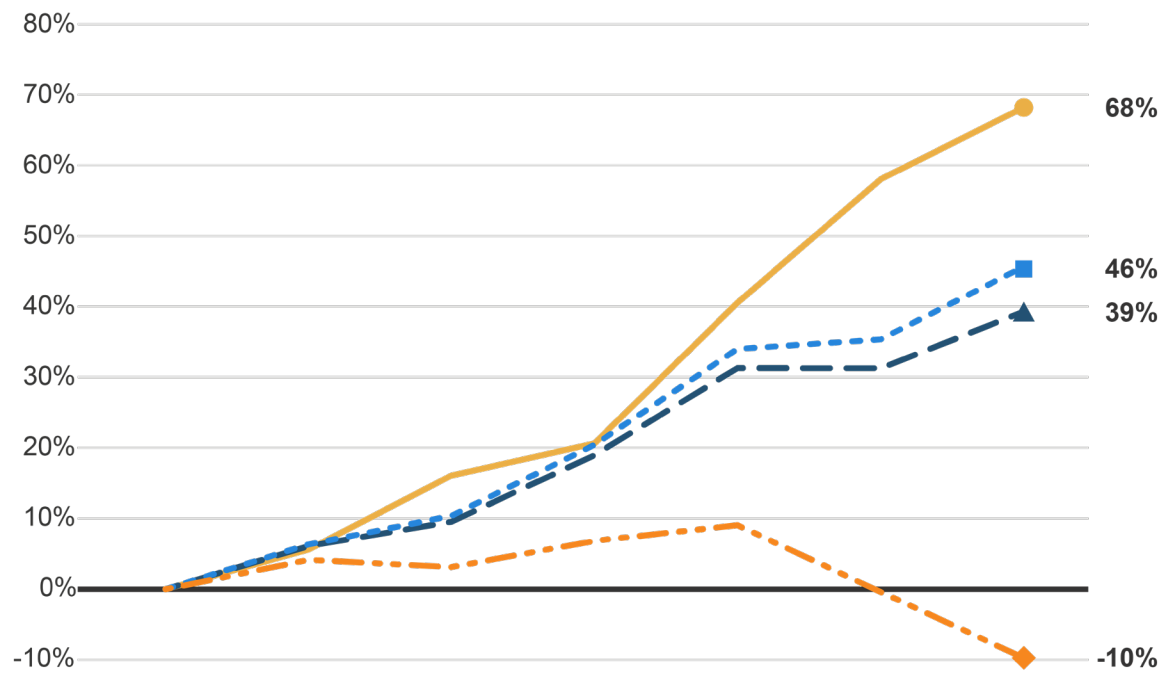
Sources: Authors' analysis of Main Match and Specialty results from the National Resident Matching Program's® reports, including Results and Data: Main Residency Match®, and Results and Data: Specialties Matching Service, for years 2004-2023 (# PGY-1 slots available and filled); and annual Match results from MUSC COM, USC SOM Columbia, USC SOM Greenville and VCOM CC (# SC medical school graduates and in-state matches). Available PGY-1 positions exclude positions offered outside of the NRMP Main Match, including SOAP, SF-Match, Urology Match, and Military Match. For more details and full citations, refer to the source notes on page 6.

To date, the growth in graduate medical education has not resulted in an equivalent growth in physicians in South Carolina

Figure 2 compares the growth in the number of available PGY-1 positions and the change in active physicians statewide and in rural and urban counties. The time period of 2009-2021 was chosen based on the availability of physician licensure data.

The number of available PGY-1 positions grew 68% during this period. However, the growth of physicians actively practicing in South Carolina did not increase at the same rate. The total number of physicians practicing in South Carolina increased by 39%, and urban physicians grew slightly faster (46%). The number of physicians in rural areas decreased by 10% during this period.

Figure 2. Cumulative Change in PGY-1 Positions and Active Physicians Relative to 2009, South Carolina



Percent Change in the Number of:	2009	2011	2013	2015	2017	2019	2021
SC PGY-1 Positions Available ●	0%	6%	16%	21%	41%	58%	68%
Urban Physicians ■	0%	6%	10%	20%	34%	35%	46%
Total Physicians ▲	0%	6%	10%	19%	31%	31%	39%
Rural Physicians ◆	0%	4%	3%	7%	9%	0%	-10%

Sources: Available PGY-1 positions from the National Resident Matching Program®; physician data from South Carolina Office for Health Care Workforce, South Carolina AHEC. Available PGY-1 positions exclude positions offered outside of the NRMP Main Match, including SOAP, SF-Match, Urology Match, and Military Match. Physician data include active, in-state, non-federal physicians and exclude residents-in-training. Rural areas are based on the U.S. Census Bureau definition using 2010 Census data. They are defined as all territory, population, and housing units located outside of urban areas and urban clusters. For more details, refer to the source notes on page 6.

The number of primary care residency programs has grown

Figures 3a and 3b show the locations of primary care residency programs in 2009 and 2023. Here, primary care includes family medicine, internal medicine, internal medicine-pediatrics, ob-gyn, and pediatrics. In 2009, there were 19 primary care programs, and two were in rural counties. In 2023, there were 31 primary care programs, including two in rural counties, plus three rural track sites.

Figure 3a. Primary Care* Residency Programs, South Carolina, 2009

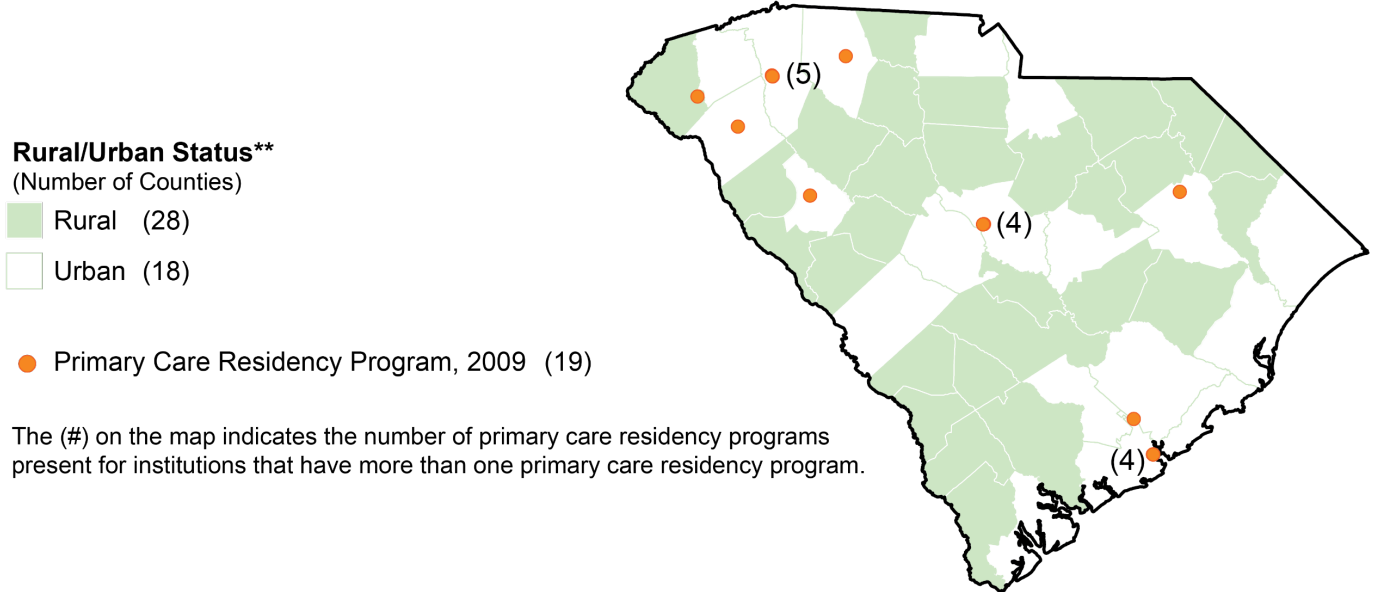
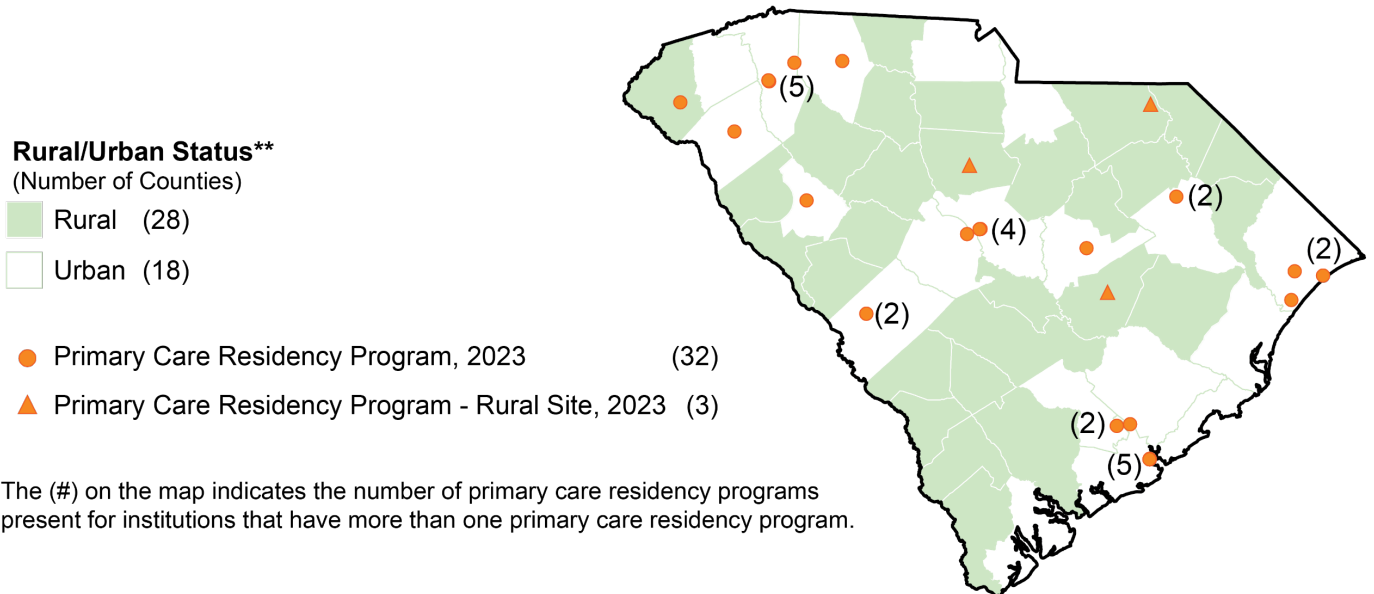


Figure 3b. Primary Care* Residency Programs, South Carolina, 2023



Data include accredited residency programs in a primary care specialty in South Carolina as of 2023. *Here, primary care includes family medicine, internal medicine, internal medicine/pediatrics, ob-gyn, and pediatrics. Each specialty counts as one residency program. Thus, multiple dots will overlap for institutions that offer more than one primary care specialty (i.e., Grand Strand Regional Medical Center, McLeod Health, MUSC, Prisma Health Richland, Prisma Health Upstate). The number of residency programs for institutions with multiple programs is listed in parentheses on the map. Sources: ACGME, <https://apps.acgme-i.org/ads/Public>. Rural definition from the U.S. Census Bureau, Geography Division, <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html>. Rural Counties are those counties where 50% or more of the population lives outside an urbanized area based on the 2020 Census. **The same definition of rural is used for both years. In the 2013 definition, Lancaster County was considered rural.

Discussion

Intuitively, growth in undergraduate and graduate medical education produces more physicians, but there is not yet proportional growth of physicians practicing in South Carolina, and there was a decrease in the number of physicians practicing in the state's rural counties between 2009 and 2021. However, since residency programs are 3-5 years in length, the full impact of the continued growth in South Carolina residency programs may not be realized for another couple of years.

Research supports that where physicians learn and train influences where they practice.^{7,8,9,10} Despite the increased number of GME slots, the proportion of South Carolina medical school graduates matching to in-state residency programs has remained relatively consistent. On average, nearly three-quarters of PGY-1 positions in South Carolina are filled by medical school graduates from other states and countries. Data from AAMC show that 45.7% of physicians who completed medical school in South Carolina and residency in another state and 45.7% of physicians who completed residency in South Carolina but medical school in another state were practicing in South Carolina in 2020. The percentage of physicians practicing within the state rises to 78.0% for physicians who completed both medical school and residency in South Carolina.¹¹

Primary care is vital to the entire healthcare system. A patient's access to comprehensive, high-quality primary care is linked to improved overall health outcomes.¹² The maps in this brief demonstrate the growth in primary care residencies in South Carolina; however, a companion analysis found that, in 2024, only 70 (14.7%) of 474 South Carolina medical school graduates matched into a primary care specialty in an in-state residency program.¹³ This suggests that the majority of those increased slots will be filled by out-of-state or internal medical school graduates. While a small percentage of these graduates may opt to practice in South Carolina after residency, evidence shows that most will not. To truly increase the number of primary care physicians across the state, focus will need to be placed on increasing the number of the state's medical school graduates choosing the specialty of primary care and also choosing to train in a South Carolina residency program.

Conclusions

Despite the 1997 cap on Medicare-funded residency slots, PGY-1 residency positions have increased in South Carolina by 68% since 2009. After several years of lagging behind a growth of medical school graduates driven by the creation of VCOM CC and USC SOM Greenville, the number of available PGY-1 positions has risen to and now exceeds the number of physicians graduating from South Carolina medical schools. However, most of these positions continue to be filled by physicians who completed medical school in another state or country.

Given the steady and continued growth in GME, these data should be routinely monitored and reported to support effective medical education and workforce planning efforts. Additional analyses are needed to monitor residency positions by specialty and location to ensure physicians are trained in critical specialty areas such as primary care, psychiatry, and general surgery. Furthermore, since evidence supports that physicians tend to practice within a radius of where they trained, and physicians who train in rural residency programs are more likely to practice in rural areas, further study is needed to examine the geographic placement of new residency programs and their impact on physician supply to those areas.

Limitations

- The data on available and filled PGY-1 positions are based on Main Match results. These data do not account for positions subsequently filled through SOAP or match programs outside of the NRMP, including the San Francisco Match, Urology Match, and Military Match. The data also do not include osteopathic residency positions prior to the transition to a single GME accreditation system beginning in 2015.
- The data on medical school graduates do not account for a minimal number of medical school graduates that do not or choose not to match to residency.

- Because of the length of residency, it may be a couple of years to fully know how the growth of residency positions translates into growth of the state’s physician workforce.

Data Sources and Methods

1. Number of total available and filled PGY-1 residency positions

- Data were compiled from published National Resident Matching Program® reports and are used with permission. Sources:
 - National Resident Matching Program®. Results and Data: Main Residency Match®. Individual reports for years 2004-2023. National Resident Matching Program, Washington, DC. Reports are available at <https://www.nrmp.org/match-data/>.
 - National Resident Matching Program®, Results and Data: Specialties Matching Service. Individual reports for Appointment Years 2004-2023. National Resident Matching Program, Washington, DC. Reports are available at <https://www.nrmp.org/match-data/>.
- The number of available PGY-1 positions is derived from the “Quota” column for each residency program by specialty each year. The number of filled PGY-1 positions is derived from the “Matched” column listed for each residency program by specialty for each year. The yearly program results were then summed to produce a state total.

2. South Carolina Match Data

- Match data for the Medical University of South Carolina College of Medicine, University of South Carolina School of Medicine Columbia, and University of South Carolina School of Medicine Greenville were obtained from each school’s website.
 - MUSC: <https://medicine.musc.edu/education/medical-students/student-affairs/match-information>
 - USC SOM Columbia: https://sc.edu/study/colleges_schools/medicine/education/md_program/about_us/index.php
 - USC SOM Greenville 2022-2024 results: https://sc.edu/study/colleges_schools/medicine_greenville/life_on_campus/events/match_day/index.php. Other years can be found by using a search engine or searching the school’s website using text such as “USC School of Medicine Greenville 2024 Match Results.”
- Match data for the Edward Via College of Osteopathic Medicine – Carolinas Campus were provided by VCOM CC leadership. The VCOM system also maintains a robust data visualization that combines information for all four of its campuses. The tool is available at <https://www.vcom.edu/residency-match>.
- Data were cleaned to remove duplicate records, standardize specialty, program name, and location, and add codes for in-state vs out-of-state, primary care, and federal/military.

3. Physician data

- Source: South Carolina Office for Healthcare Workforce, South Carolina AHEC, with data collected by the South Carolina Department of Labor, Licensing and Regulation and obtained from the South Carolina Revenue and Fiscal Affairs Office.
- Data include non-federal, non-resident-in-training physicians with an active license to practice and a primary practice location within South Carolina as of each biennial renewal period.
- Licensure data were available for 2009, 2011, 2013, 2015, 2017, 2019, and 2021.

4. Primary care residency program locations

- Source: Accreditation Council for Graduate Medical Education (ACGME). Accreditation Data System (ADS) Advanced Program Search. 2024. <https://apps.acgme-i.org/ads/Public>
- Data include family medicine, internal medicine, medicine-pediatrics, ob/gyn, and pediatrics residency programs with students in 2009 or 2023.
- Osteopathic residency programs accredited by the American Osteopathic Association before the transition to single accreditation starting in 2015 are not included in the 2009 map.

5. Rural definition

- a. Source: U.S. Census Bureau, Geography Division, retrieved from <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html>, January 7, 2021.
- b. This definition is based on the 2010 Census and was used across years. Rural areas in a county are defined as all territory, population, and housing units located outside of urban areas and urban clusters.

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Suggested citation

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 - ³ Balanced Budget Act of 1997, HR 2015, 105th Congress (1997–1998). <https://www.congress.gov/bill/105th-congress/house-bill/2015>, retrieved 8/10/2024.
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 - ¹¹ AAMC. 2021 State Physician Workforce Data Report. Washington, DC: AAMC; 2021. Available at <https://www.aamc.org/data-reports/workforce/report/state-physician-workforce-data-report>.
 - ¹² National Academies of Sciences, Engineering and Medicine. *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care*. Washington, DC: The National Academies Press. doi: [10.17226/25983](https://doi.org/10.17226/25983).
 - ¹³ Chastain-Brown A, Gaul K, Lefebvre A. Trends of South Carolina Medical School Graduates Pursuing Residency, 2016-2024. Charleston, SC: South Carolina Office for Healthcare Workforce, South Carolina Area Health Education Consortium. September 2024.