Applied Policy

Cap Flexibility: Putting GME Dollars to Work

The case for a strategic and targeted policy to provide new teaching institutions in underserved *Areas of Need* with additional time to establish Medicare funded GME caps.

Authors

Cap Flexibility:

Providing New GME Teaching Institutions in Areas of Need with Additional Time to Establish Caps

Medicare Should Exercise Existing Authority to Target GME Support to Areas of Greatest Need

Medicare has both the opportunity and the obligation to leverage its existing authority to establish GME caps in order to strategically target additional support to areas with the greatest need across the country.

Specifically, CMS should allow new GME teaching institutions[1] located in areas of need, to extend their cap-building window for up to an additional five years beyond the current window (for a total of up to ten years). This would include GME programs currently in their cap-building window.

Injecting flexibility into the cap-building process provides CMS with the ability to supplement the current broad-based cap-building window with a tailored policy designed to target federal funding (while keeping control over incremental costs) to the areas of highest need.

Cap-flexibility benefits our national GME system in many ways, including, but not limited to:

- Providing lifesaving opportunities for new teaching institutions to further develop residency programs and secure the resources necessary to launch and/or scale-up training capabilities. Additional time is vital to ensuring that teaching institutions in under-resourced areas will be able to build-up to a level necessary to meet regional needs.

- Alleviating regional physician shortages by providing time for institutions to add primary care and/or specialty and sub-specialty residencies in shortage.

- Boosting the return on investment for Medicare, local communities, states, medical schools, and the hosting teaching hospital. By expanding training opportunities, the likelihood of physicians remaining in the underserved area to practice increases.

- Helping address the maldistribution of physicians and GME resources across the country. Cap-flexibility incentivizes the establishment of GME programs in areas of high need, without taking away resources away from other areas. As residents tend to practice where they train, adding, developing, and incentivizing the establishment of programs at teaching institutions

[1] As conceptualized in this proposal, "New" GME institutions should include those yet to begin the base year of cap-building period as well as those currently in their cap-building window.

located in underserved, under-resourced, and rural areas will help address the current mal-distribution of physicians across the country. Over time, a well-tailored cap-flexibility policy will better align the supply of physicians with demand by creating a more diverse and equal distribution of GME training resources and programs, as well as physicians across the U.S.

Medicare's Critical Role in GME

As the single-largest financer of Graduate Medical Education (GME) in the United States (U.S.), Medicare plays a critical role in shaping the size, makeup, and geographic distribution of the national GME system and physician workforce. Despite this crucial role, however, Medicare funding for GME has evolved without strategic direction or a targeted approach in relation to the nation's physician workforce needs.

Moreover, in 1997, Congress enacted caps on Medicare funded GME slots. These caps have resulted in a national GME system that is not easily and readily able to respond to growing demands, and which does not strategically supply or effectively locate physicians according to demand.

Physician Workforce Issues

The U.S. suffers from a maldistribution of physicians and training programs across the country and is projected to face a **shortage of between 40,800 to 104,900 physicians** by the year 2030. These physician shortages vary widely by both specialty and geography, with no area of the U.S. left unaffected. While some areas of the country have an adequate supply or face minor shortages of primary care and/or specialty physicians and GME programs, other areas face significant shortages.

Particularly, rural, under-resourced communities, and underserved areas are dealing with a dearth of both the physicians and GME programs needed to supply the current and next generation of physicians.

Resource and Time Challenges in Areas of Need

The cap has all but crippled the development of GME program in under-resourced areas with the greatest need. The significant amount of resources, investment, and time required to establish new GME programs is a major barrier to their creation. Accomplishing the requisite groundwork for residency programs is all the more challenging for new teaching hospitals, especially those in medically and economically underserved and/or rural areas where available resources are scarcer and the referral area and community need larger.

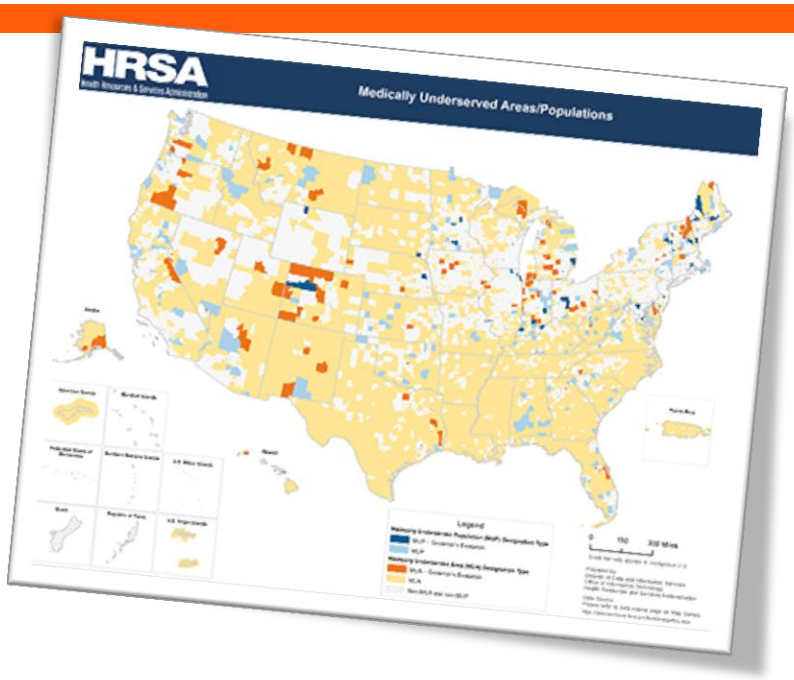
Accreditation Requirements

Building residencies to the level of complexity and volume expected for accreditation requires a significant amount of time. Criteria by the Accreditation Council for Graduate Medical Education (ACGME) for example, require new programs to operate under a two or three-year "initial" period before they can be granted "continued" accreditation. These requirements limit a teaching hospital's ability to add additional residency slots or to expand into new specialty or sub-specialty training program(s). Moreover, at the foundation of specialty programs are core primary care residencies that must be established and accredited first. Thus, specialty residencies in many cases take more than the five years provided by the cap to establish which means that a hospital must build these programs without Medicare funding. For rural and under-resourced communities, this is all but impossible.

Location of GME Programs

The location of GME programs significantly influences the geographic makeup of the nation's physician workforce. Approximately two-thirds of physicians practice in the same state in which they complete their training. Consequently, targeting federal support to teaching institutions located in underserved areas facing physician shortages is critical in order to build the infrastructure that will supply the next generation of physicians and alleviate local and regional shortages.

Strategically Targeting Support to Areas of Need



By design, cap-flexibility is intended to target support to those areas of the country with the greatest need for physicians and GME programs. The areas with the greatest need are more often than not rural, underserved, and under-resourced communities that also face the steepest obstacles to securing the necessary resources to address these issues. Consequently, in designing eligibility for cap-flexibility, CMS should prioritize undeserved and under-resourced communities.

Areas of Need for the purposes of determining eligibility for cap-flexibility should be defined so as to incentivize the establishment or expansion of GME programs in areas of the country that are currently:

- under-resourced and/or neglected;
- experiencing primary care and/or specialty physician shortages;
- struggling to expand or keep GME programs operational;
- lacking existing medical training infrastructure; or
- in the midst of building up such infrastructure.

Defining ***Areas of Need*** in this way provides Medicare with a tailored and targeted approach to direct additional GME support to areas of the country with the most need for such support.

Various criteria and measures could be used to define *Areas of Need*, including, but not limited to:

- Rural areas (as designated by HRSA);
- Medically Underserved Areas (MUAs) (as designated by HRSA – See Figure 8);
- Areas with shortages in primary-care or specialty for which the GME program is applying;
- Areas that lack access to an established medical school (see Figure 9) or GME program;
- Areas that lack existing medical training infrastructure, or are in the midst of establishing said infrastructure and would benefit from additional time;
- Programs located in states with the lowest resident-to-population ratios, residency slots, or Medicare GME funding;
- Programs located in states with the lowest physician to population ratios (see Charts 3 and 6) who demonstrate a shortage in their area;
- Hospitals that emphasize training in community-based settings or in hospital outpatient departments.

A Dynamic, Flexible, and Targeted Policy with Built-In Cost Controls

Through an application and evaluation process, CMS can tailor policy objectives and outcomes to specific institutions and increase both transparency and accountability. Cap-flexibility represents a dynamic policy solution that can be scaled to the nation's physician workforce needs.

Beyond allowing the Agency to respond to increasing demands, it also allows the CMS to adjust to future financial constraints through the ability to scale policy development according to timing and size of the teaching program needs as well as national physician workforce needs (through the evaluation and approval/denial of applications[2]). Cap-flexibility provides CMS with the ability determine and control incremental costs in a way that the current cap-building window does not.

Cap-flexibility may be structured in various ways designed to target the cap-extension more narrowly or broadly, as CMS experiments with the needs of particular programs or regions of the country. CMS can build controlled amounts of elasticity into the program and provide itself with sufficient discretion to:

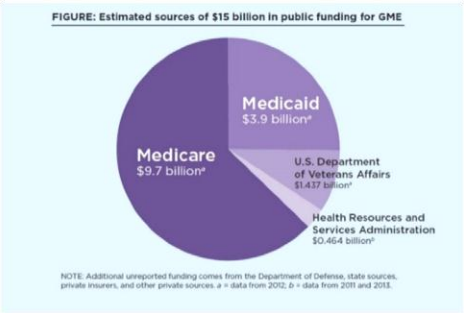
- Define eligibility requirements to directly address particular disparities in the physician workforce in a specific region;
- Approve applications for an institution's whole program *or* just specific needs within a program, whether it be primary care or a specialty;
- Approve applications while limiting the number of residency positions programs could add within a set time period or phase them in at a disclosed rate; and/or
- Limit years that can be added within the cap extension.

Furthermore, the application and evaluation process provides CMS an excellent opportunity to examine the challenges and operational capabilities of GME programs across the country. Based on an institution's particular challenges, CMS can tie cap-flexibility approvals to specific metrics.

[2] As proposed in this paper, the cap-building window would function just as it does today, with the exception that new teaching institutions would have the added opportunity to apply for a cap-extension based on clearly prescribed criteria set by CMS and/or Congress in order to target additional support to under-resourced communities, alleviate physician shortages, and better distribute GME programs and physicians across the nation.

Cap Flexibility: Providing New GME Teaching Institutions in Areas of Need with Additional Time to Establish Caps

GME FINANCING SNAPSHOT



Medicare Provides Lion's Share of GME Federal Funding

GME programs are financed through a mixture of private and public funding sources. However, the federal government is by far the largest financer. Of the over $15 billion in total federal spending on GME annually, Medicare contributes approximately $10 billion. This qualifies Medicare GME funding as the single largest public investment in the U.S. health care workforce.

FAST FACTS

99%

of residents in GME programs trained in urban areas from 2005 through 2015.

99%

of Medicare GME funding in 2010 went to just 21 states, with one state alone receiving 20% of that funding, while the remaining 29 states received less than 1%.

What is the Cap?

In 1997, Congress enacted caps on Medicare funded GME slots for new teaching institutions. However, the Center for Medicaid and Medicare Services (CMS) has the authority to define the timeframe by which new teaching institutions can establish these caps.

CMS currently allows for a five-year window to establish caps. During the five-year cap-building window, new teaching institutions are allowed to add as many residents as their program accreditations allow. However, once the cap-building window is reached, Medicare funding to that particular institution for all future years is limited to the number of Full-Time Equivalent (FTE) residency slots the program filled in the last year of the window.

While this cap-building window provides new programs time to get established, it represents a generalized, inflexible policy that lacks the ability for policymakers to control costs or direct funding toward either program development or to the areas of the country with the greatest need for physicians.

CMS Authority

CMS has the authority to establish rules for calculating the caps of teaching hospitals training residents in new teaching programs.[3] Although Congress instituted caps on new teaching institutions, CMS retains the discretion in setting the timeframe to set these caps.

Initially, when the caps were first implemented in 1997, the Agency set the cap at three years. However, in 2012, CMS exercised its statutory authority and extended the initial cap-building period from three years to five years.[i] CMS found that three years was inadequate because of ACGME accreditation rules, which require up to a three year ''initial'' accreditation period.

While the cap is set at the institutional level, CMS is not prevented from setting a cap-policy which tailors support as needed to meet regional physician workforce needs.

[3] Section 1886(h)(4)(H)(i) of the Social Security Act outlines the requirements. https://www.ssa.gov/OP_Home/ssact/title18/1886.htm

National Physician Workforce Faces Many Challenges

Physician Demand Outpacing Supply

According to the most up-to-date assessment by the Association of American Medical Colleges (AAMC), the U.S. is predicted to face a **shortage of between 40,800 to 104,900 physicians** by the year 2030. The report notes that shortages are projected in almost all categories of physician practices from primary care (8,700 to 43,100 shortfall projected), to medical and surgical subspecialties (projected shortfall of between 33,500 and 61,800), as well as emergency medicine, anesthesiology, radiology, neurology, and psychiatry (projected shortfall between 18,600 to 31,800).

Despite the growing number of residents year-over-year, physician demand outpaced the supply provided by current resident positions and is projected to continue to do so. According to the AAMC, the primary factors driving demand are population growth and an increase in the number of older Americans. The total U.S. population is expected to grow by about 12% by 2030. Also by 2030, the number of U.S. residents aged 65 and older is expected to increase by 55%.

Geographic Maldistribution of Physicians and Resources Exist

It is important to note that not all things are equal when it comes to physician workforce needs across the U.S. There is a maldistribution of physicians and training programs across the country. In fact, there are significant variances between physician supply and demand amongst the nation's regions, states, and even localities. While some areas of the country have an adequate supply or face minor shortages of primary care and/or specialty physicians and GME programs, many areas, particularly rural and underserved areas, are dealing with a dearth of both the physicians and GME programs needed to supply the current and next generation of physicians.

Location of Training Programs Linked to Workforce Shortages

One important determinant of where physicians end up practicing is where they train. The location of a physician's residency and/or fellowship program is predictive of their ultimate practice location. Despite the growth of GME programs from 2005 through 2015, residents are still overwhelmingly concentrated in urban areas and the resident ratio to the population continues to vary significantly by region of the country, as shown in Figure 3. The concentration of physicians in urban areas or in certain regions of the country can be largely attributed to a concentration of GME programs in those areas.

As residents tend to practice where they train, adding, developing, and incentivizing the establishment of programs at teaching institutions located in underserved, under-resourced, and rural areas will help address the current mal-distribution of physicians across the country.

PHYSICIAN and RESIDENT LOCATIONS NATIONWIDE

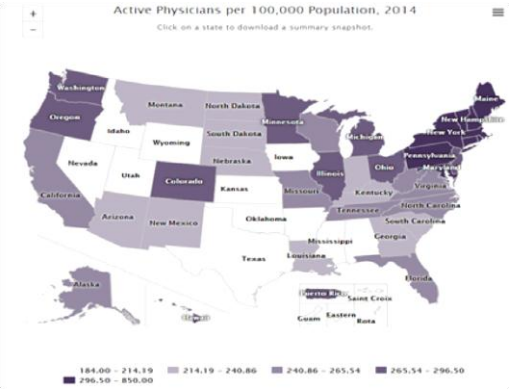


Figure 2 - Active Physicians per 100,000 Population by State

Comparing Figure 2 and Figure 3 illustrates the relationship between GME program locations and where physicians practice after completing training. These figures reveal the number of practicing physicians and the number of residents in each state per 100,000 residents, respectively. Tellingly, the maps present a strikingly similar picture of the concentration of physicians and residents by state.

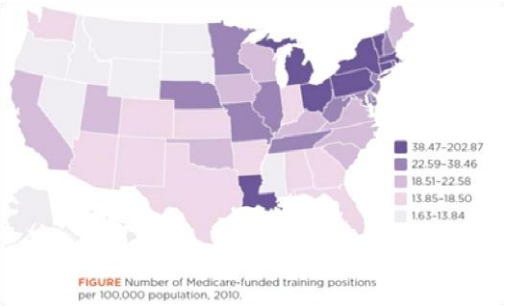


Figure 3 – Number of Medicare-funded Training Positions per 100,000 population (2010)

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National Physician Workforce Faces Many Challenges

The U.S. boasts a world-renowned medical education system that produces an increasing number of excellent physicians year after year. Yet many experts warn that our current system is failing to produce a sufficient number of physicians or to locate them geographically where they are needed to meet our national physician workforce needs.[2]

Physician Demand Outpacing Supply

According to the most up-to-date assessment by the Association of American Medical Colleges (AAMC), the U.S. is predicted to face a **shortage of between 40,800 to 104,900 physicians** by the year 2030.[3] The report notes that shortages are projected in almost all categories of physician practices from primary care (8,700 to 43,100 shortfall projected), [IV] to medical and surgical subspecialties (projected shortfall of between 33,500 and 61,800), as well as emergency medicine, anesthesiology, radiology, neurology, and psychiatry (projected shortfall between 18,600 to 31,800).[4] While shortages are estimated across the board, specialties make up a larger proportion of the projected shortages and a particularly acute shortage of surgeons is noted. Although demand for surgeons is expected to continue rising, the supply of surgeons is projected to have "little growth" resulting in a shortage of between 19,800 and 29,000 surgeons by 2030.[5]

Notwithstanding the projected physician shortages over the next decade, from 2005 through 2015 the number of GME residents grew by 22%, from 104,330 to 127,578.[6] Despite the growing number of residents year-over-year, physician demand outpaced the supply provided by current resident positions and is projected to continue to do so. According to the AAMC study, the primary factors driving demand are population growth and an increase in the number of older Americans. The total U.S. population is expected to grow by about 12% by 2030. Also by 2030, the number of U.S. residents aged 65 and older is expected to increase by 55% and the number of people aged 75 and older will grow by 73% during the same period.

Medical Schools Increasing Enrollment but Residency Positions Lag Behind

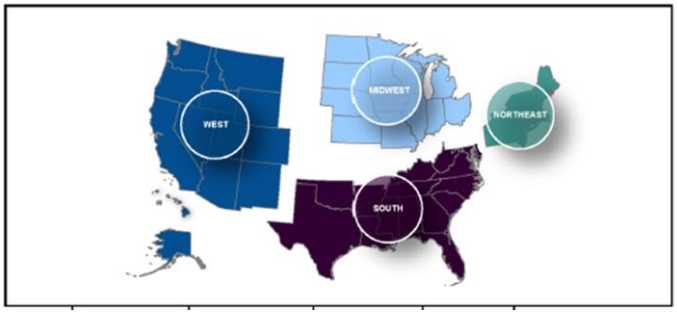
In response to the call by the AAMC to expand the physician workforce to resolve imminent shortages, medical schools have been working steadily to increase their enrollment. Medical schools have increased enrollment by nearly 3% annually from 2002 to 2014 but residency positions lag behind, growing by roughly 1% annually during this same period.[7] In 2015, more than 250 graduates of U.S. medical schools were not able to get a position in a residency training program.[8] In order to address looming physician shortages, states continue investing in medical schools. However, the lack of corresponding GME positions in areas of need within those states forces newly minted physicians to complete their training in different states. This imbalance results in a poor return on investment for the state and a continued geographic disparity with respect to physician supply and demand.

[IV] Primary care specialties are generally considered to be comprised of family medicine, internal medicine, pediatrics, and pediatric internal medicine.

Geographic Maldistribution of Physicians and Resources Exist

It is important to note that all things are not equal when it comes to physician workforce needs across the U.S. There is a maldistribution of physicians and training programs across the country. In fact, there are significant variances between physician supply and demand amongst the nation's regions, states, and even localities. While some areas of the country have an adequate supply or face minor shortages of primary care and/or specialty physicians and GME programs, many areas, particularly rural and underserved areas, are dealing with a dearth of both the physicians and GME programs needed to supply the current and next generation of physicians.

Figure 1: Changes in the Concentration of Graduate Medical Education Residents from Academic Year 2005 through 2015, by Region



Region	GME Residents (2015)	Total Population (2015)
Midwest	31,056 (24%)	67,907,403 (21%)
Northeast	38,951 (31%)	56,283,891 (18%)
South	37,967 (30%)	121,182,847 (38%)
West	19,604 (15%)	76,044,679 (24%)
National	127,578 (100%)	321,418,850 (100%)

Source: Applied Policy's interpretation of the GAO analysis of data from the Accreditation Council for Graduate Medical Education, the American Osteopathic Association, and Census Bureau (data); Map Resources (map). | GAO-17-411

Comparing the number of practicing physicians in each state (Figure 2) shows an imbalanced distribution from one state to the next. However, even within states, there are stark differences between urban, rural, and other underserved areas. For example, a 2013 study reported that while there are about 80 primary care physicians per 100,000 people in the U.S., the average in rural areas is 68 per 100,000.[9] Similarly, the Health Resources and Services Administration (HRSA) projects it would take 17,000 additional primary care clinicians to achieve a ratio of one primary care giver per 3,000 patients in the nation's 6,200-plus Health Professional Shortage Areas (HPSAs).[V]

[V] HRSA develops shortage designation criteria to determine whether a geographic area, population group, or facility is a HPSA or a Medically Underserved Area/Population (MUA/P). Medically Underserved Areas/Populations are areas or populations designated by HRSA as having too few primary care providers, high infant mortality, high poverty, or a high elderly population. https://bhw.hrsa.gov/shortage-designation. https://datawarehouse.hrsa.gov/topics/shortageAreas.aspx.

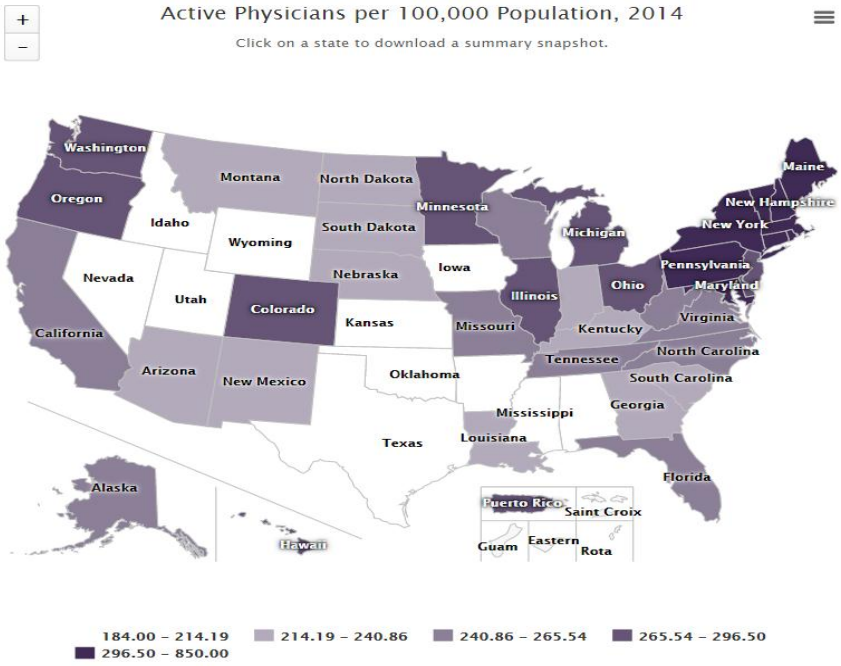


Figure 2. AAMC. 2015 State Physician Workforce Data book

Location of Training Programs Linked to Workforce Shortages

One important determinant of where physicians end up practicing is where they train.[10] In the U.S., physicians train in two distinct stages (see Figures 5 and 6 in the Appendix). The first stage is often referred to as *(undergraduate) medical education.* This phase consists of a four-year academic program at a medical school where students obtain an education in basic and clinical sciences.[11] Graduating from a medical school results in the granting of a medical degree (Doctor of Medicine "M.D." or a Doctor of Osteopathic Medicine "D.O."). The second stage, referred to as *GME*, involves the formal training of physicians in clinical settings, most notably teaching hospitals. GME includes a wide range of training programs including internships, residencies, and fellowship programs.[12] GME programs vary in length ranging from one year to seven years or more.

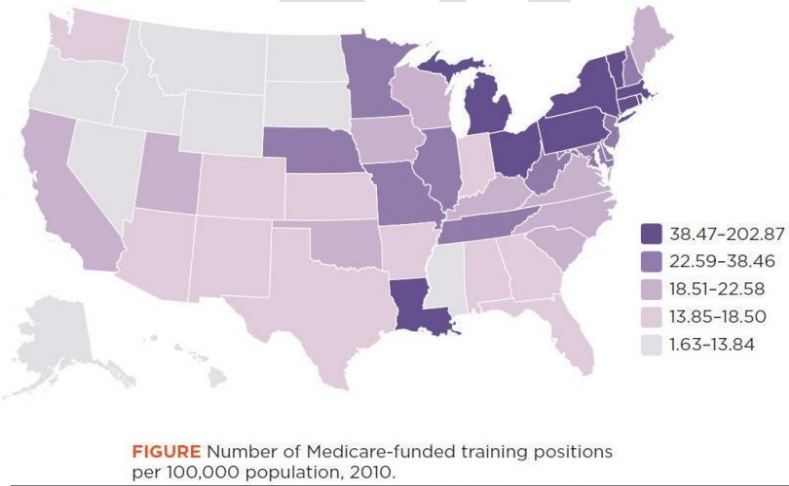


Figure 3. Number of Medicare-funded training positions per 100,000 population (2010). Institute of Medicine. 2014. *Graduate Medical Education That Meets the Nation's Health Needs*. Washington, D.C. The National Academies Press.

The location of GME programs significantly influences the geographic makeup of the nation's physician workforce. The location of a physician's residency and/or fellowship program is predictive of their ultimate practice location. Approximately two-thirds of physicians practice in the same state in which they complete their training.[13] For example, exposure to rural populations during residency makes it more likely that the physician will practice in those areas.[14] Graduates from rural residency programs are three times more likely to practice in rural areas than urban

residency program graduates.[15] Thus, the concentration of physicians in urban areas or in certain regions of the country can be largely attributed to a concentration of GME programs in those same areas and the evidence belies this fact. Given the relationship between where physicians train and where they practice, establishing more GME programs in areas of need in the country can ease physician shortages in those same areas.

Despite the growth of GME programs from 2005 through 2015, residents are still overwhelmingly concentrated in urban areas and the resident ratio to the population continues to vary significantly by region of the country, as shown in Figure 3. Moreover, physician shortages in rural and underserved areas continue to grow as does the lack of GME programs located in these areas.[16] From 2005 through 2015, 99% of residents in GME programs trained in urban areas (see Figures 3 and 7).[17] Both urban and rural GME programs added residents from 2005 thru 2015. However, urban areas added 23,000 new residents (from 103,526 to 126,355) while rural areas added a mere 419 (from 804 to 1,223).[18]

Comparing Figure 2 and Figure 3 illustrates the relationship between GME program locations and where physicians practice after completing training. These figures reveal the number of practicing physicians and the number of residents in each state per 100,000 residents, respectively. Tellingly, the maps present a strikingly similar picture of the concentration of physicians and residents by state.

Shortages Exist Throughout Both Primary Care and Specialties

Importantly, it is not just physicians who are unequally distributed relative to health needs throughout the country but also physician specialists. Physician shortages in primary care specialties and in rural areas are well documented in federal government reports.[19] For example, HRSA found that in 2013 the South faced a shortage of only 30 obstetricians and gynecologists (OB/GYNs) but experienced a shortage of 6,900 geriatricians. In contrast, during the same time period, the West experienced a more significant shortage of 420 OB/GYNs and a smaller shortage of geriatricians as compared to the South but still a large deficit of 4,310 doctors.[20, 21] Nationally, HRSA expects a nationwide shortage of geriatricians by 2025, with an unequal distribution of need across the nation. By then the Northeast is projected to have a deficit of 2,890 geriatricians and the West is projected to face a much more severe shortage of 14,530 geriatricians.[22,23] Further, specialty supply and demand varies even between states located in the same region. In the Northeast region for instance, HRSA reported that New Jersey and Pennsylvania had shortages of primary care physicians, while Massachusetts has a surplus.[24] These shortages, however, are not limited to primary care fields and include many medical and surgical subspecialties.[25]

For example, a deeper dive into one specialty shows that there are currently 28,250 psychiatrists in active practice in the U.S., with the top five most populous states of California, New York, Texas, Pennsylvania, and Florida comprising 39% of all psychiatrists and 37% of the general population.[26] When looking at the pipeline of future psychiatrists, an average of 1,243 psychiatrists completed GME programs for general psychiatry each year from 2014-2017, with 6,032 psychiatrists total completing GME programs across those four years. However, 59% of psychiatrists are 55 years of age or older (See Chart 2 in the Appendix), meaning a large percentage of the active psychiatry population will be retiring or reducing workload in the near future.[27] This amounts to 12,486 psychiatrists projected to leave the specialty per year, which is significantly more than the 1,243 projected to enter the specialty.[28] Adding

to this, there are currently 3,968 mental health care health professional shortage areas in the U.S.[29] and more than 50% of the country does not have the necessary amount of practitioners to meet the needs of their area. This impact is felt more severely in underserved populations including the over 50 million Americans who already live in rural and poor neighborhoods where health care services are scarce.[30]

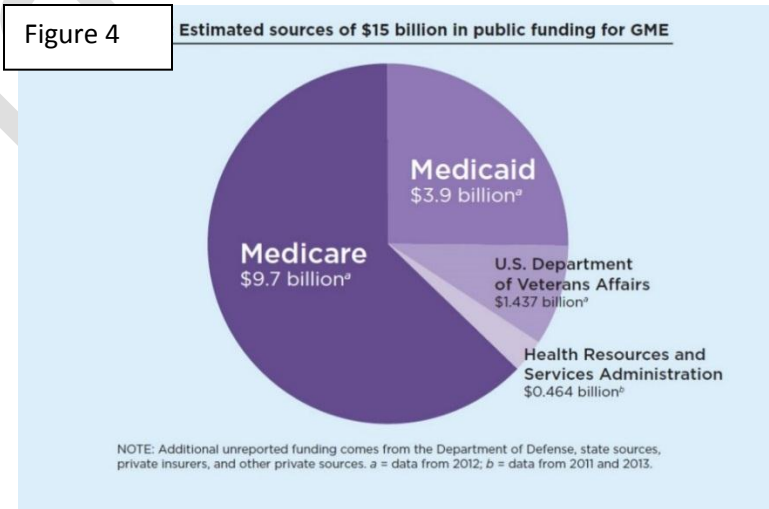
Furthermore, the AAMC estimates there will be a shortage of as many as 3,600 to 10,200 medical specialist physicians (i.e. internal medicine and pediatric subspecialists) and a surprisingly larger shortage of 25,200 to 33,200 surgical specialists by 2025.[31] For certain specialties, such as ophthalmology and urology, the supply is not expected to grow at all over the next decade as the attrition rate of practicing physicians will likely exceed the number of newly minted specialists entering the workforce.[32] High attrition rates in other specialties such as anesthesiology, radiology, and emergency medicine, also account for slower projected supply growth for these fields.[33] The unequal needs for various types of physician specialties across the country calls for a better-targeted and better-tailored solution taking into account local and regional demand for both primary care and other specialties.

As the U.S. population ages and health care utilization increases so does the average age of the physician population. By 2030, the elderly population will reach nearly 72.1 million – more than twice their number in 2000. This is the fastest growing segment of our population, which also requires the most medical care. As this need for patient care increases, 27.6% of the physician population is 60 years of age or older (see Chart 1 in the Appendix) – a total of 225,221 physicians – and nearly 1/3 of all physicians plan to retire in the next one to three years.[VI] Of 23 major specialties (see Chart 2 in the Appendix), 13 are 45% or more comprised of physicians 55 years old and older. Internal medicine subspecialists and surgical specialists often treat the pathologies and conditions associated with aging and it is these physicians who are aging out the fastest at the precise time when patient demographics are inexorably driving the need for medical specialists higher.

GME Financing Snapshot

GME programs are financed through a mixture of private and public funding sources. However, the federal government is by far the largest financer. Of the over $15 billion in total federal spending on GME annually, Medicare contributes approximately $10 billion. This qualifies Medicare GME funding as the single largest public investment

Figure 4



[VI] The Physicians Foundation 2014 Survey of America's Physicians found that 22.2% of physicians aged 56 or older indicate they will retire in the next 1-3 years, while 9.4% of all physicians indicate they will retire in the next one to three years. In addition, many physicians indicate that due to changes in the health care system they will accelerate their retirement plans.

in the U.S. health care workforce.[34] Medicaid contributes an additional $4 billion annually, while HRSA, the Veterans Health Administration (VHA), private payers, and others also make significant contributions (Figure 4).[35]

Medicare supports GME programs through two separate financing streams: Direct and Indirect GME payments. ***Direct GME (DGME)*** funding goes directly towards paying the salaries of residents/fellows as well as to teaching faculty. ***Indirect GME (IME*)** funding is used to subsidize other expenses associated with operating a training program, such as caring for more complicated patients, and accounting for longer hospital stays. Over 70% of Medicare GME funding goes toward IME payments.[36]

GME "Cap" Established to Prevent Oversupply of Physicians

In 1997, Congress passed The Balanced Budget Act of 1997 (BBA) which placed a cap on the number of Full Time Equivalent (FTE) residents a hospital claimed for DGME and IME payments through Medicare. Prior to the BBA, hospitals had a significant financial incentive to expand their residency programs because each new slot added generated additional revenue. At the time the BBA was enacted, Congress was heeding concerns of a rapidly expanding physician workforce, which many thought would lead to an oversupply of physicians and an ensuing increase in Medicare expenditures.[37] In response, Congress capped the number of Medicare-funded training positions based on each hospital's resident count as of December 31, 1996.

Many thought this cap would be temporary[38] but it has stayed in place for the past 20 years, effectively freezing the distribution of Medicare-supported residency positions. CMS currently provides new GME teaching institutions with a five-year window to establish caps. During the five-year cap-building window, institutions are allowed to add as many residents as their program accreditations allow. However, once the cap-building window is reached, Medicare funding for all future years is limited to the number of Full-Time Equivalent (FTE) residency slots the institution filled in the last year of the window. While the cap-building window provides new programs vital time to get established, it represents a generalized, inflexible policy that lacks the ability for policymakers to control costs or direct funding toward either program development or to the areas of greatest need.

The cap has resulted in a national GME system that is rigid and not easily and readily able to respond to the growing demands of the population. The cap has all but crippled the development of GME programs in rural, underserved areas, or those areas of the country without established medical training infrastructure such as medical schools and existing GME programs.[VII] The result, as previously described, is an increasing physician and specialty shortage across the country.

[VII] "Established medical training infrastructure" refers to institutions with affiliated medical schools, adequate faculty, and other resources necessary to develop and expand upon GME programs.

GME Programs Require Significant Investment of Time and Resources

Establishing a GME residency program requires an immense investment of human capital, infrastructure, institutional capacity, as well as community and financial support. Moreover, the continued operation of a GME program is costly, labor-intensive, and utilizes an immense amount of resources. Teaching hospitals must secure funds and build the institutional capacity and infrastructure needed to provide the clinical and scholarly resources necessary for higher level post-graduate medical training. Faculty with the requisite experience and academic background must be recruited and hospital and clinical staff must be trained to steer the residency program. Relationship(s) with local medical schools must be established and fostered. Substantial investments must also be made in the facilities to upgrade procedure rooms, to acquire equipment, and to provide for an effective teaching environment in different clinical settings. These costs are often the biggest barrier to starting or expanding GME programs:

- ***Personnel costs*** - Qualified and capable faculty must be recruited and provided with the resources they need to build their academic careers (e.g. attractive salary/benefits package, resources for research/publications). Hospital staff must be trained in how to operate in a teaching setting. Program leadership, administrative, and support staff are also needed to handle day-to-day GME program operations.
- ***Facility costs*** - Substantial investments must be made in the facilities to accommodate more providers in an environment conducive to teaching (e.g. upgraded procedure rooms, simulation labs, libraries, didactic rooms).
- ***Transition & Program Development Costs –*** The development and launching of residency training programs requires hospital-wide coordination and commitment. A training culture and teaching environment must be cultivated and integrated into the operational fabric of the hospital. Policies and procedures must be reviewed, adjusted, tested, and implemented. Becoming a teaching hospital is a learning experience for hospital administration, medical staff, faculty, employees, and patients. The hospital must adapt while maintaining efficiencies and a high standard of care.
- ***Accreditation Costs*** - Obtaining accreditation is a lengthy process during which the teaching hospital must prove they can produce capable physicians to practice independently upon matriculation. Bringing faculty, staff, and facilities up to par to meet these strict requirements is an intensive, costly, and ongoing process.[39]

New GME Programs in Areas of Need Face Major Challenges

The significant amount of resources, investment, and time required to establish new GME programs is a major barrier to their creation.[40] Accomplishing all the requisite groundwork for residency programs is all the more challenging for new teaching hospitals, especially those in medically and economically underserved and/or rural areas where available resources are scarcer and the referral area and community need larger. Moreover, new teaching hospitals located away from urban centers have a harder time recruiting necessary faculty and often face existing health care and medical professional

shortages and lack access to existing medical training infrastructure such as an established medical school to tap into for support.[41]

Additionally, for new programs, building residencies to the level of complexity and volume expected for an accredited program to be able to serve the substantial needs of the community in which they are located requires significant time; in many cases more than five years. At the foundation of specialty and subspecialty training programs are the establishment of core programs such as family medicine, internal medicine, pediatrics, anesthesiology, and general surgery. The Accreditation Council for Graduate Medical Education (ACGME) is the accrediting body for allopathic medical schools,[VIII] and performs site visits.[42] Once these core programs are established, one or more years (depending on the program) of training must be completed followed by accreditation by a body such as ACGME. Upon being granted "initial accreditation," the programs are constrained by ACGME requirements not to expand. By the time the application is processed, the site visited has been completed, and the preliminary or transition year is approved, the sponsoring institution is years into its cap-building period, which thereby limits the program's ability to establish and grow additional training programs.

The accreditation requirements, although necessary, limit a hospital's ability to expand residency program(s) beyond the number of positions for which it is initially accredited until this initial accreditation period has expired. Furthermore, a hospital that has plans to establish new programs to train residents in surgical sub-specialties, many times has to do so in excess of the hospital's cap because these programs require training beyond the allotted five years permitted to establish the FTE cap. Some examples include:

- Neurological Surgery: 7-year training program that requires hospital to, at minimum, have accredited programs in anesthesiology, internal medicine, diagnostic radiology, neurology, pediatrics and general surgery.
- Urology: 5-6 year training program that requires one or two years of general surgery followed by 4 years in urology.
- Colo-rectal surgery and head-neck surgery both require completion of the 5 years of general surgery training followed by 2 years of the specialty training.

These factors translate into a longer time frame required to get new residency programs fully up and running in areas of great need. However, even with a five-year window, many new teaching hospitals simply do not have sufficient time or ability to secure the necessary resources, resulting in no new programs or the establishment of smaller programs that are unable to supply enough physicians to keep up with local and regional demands. As a result, the national GME system continues to concentrate programs in urban areas of the country, while leaving other areas of the country neglected. For

[VIII] There are two kinds of practicing physicians in the U.S.: allopathic physicians (M.D.'s) and osteopathic physicians (D.O.'s). Both are fully licensed physicians, trained in diagnosing and treating illnesses and disorders, and in providing preventive care. www.hpplc.indiana.edu/medicine/med-res-twokinds.shtml

example, in 2010, 99% of Medicare GME funding went to just 21 states, with one state alone receiving 20% of that funding, while the remaining 29 states received less than 1%.[43] Accordingly, providing new GME training institutions with additional time to recruit faculty, secure resources, and build-up programs to the requisite levels can help alleviate acute physician shortages in the most underserved areas.

Cap-Flexibility - A GME System That Meets the Nation's Physician Workforce Needs

A dynamic and flexible system that is able to train a sufficient number of physicians today in order to meet tomorrow's needs is required to meet the health care needs of a growing population as large, diverse, and geographically distributed as that of the United States. However, despite the critical role Medicare plays in shaping the size and makeup of the nation's GME system and physician workforce, Medicare GME funding has evolved without strategic direction or a targeted approach in relation to the nation's physician workforce needs.

Current CMS regulations[44] provide new teaching hospitals a five-year period to build resident training programs before CMS establishes the hospital's permanent resident cap.[IX] Although the initial cap-building window provides the national GME system the ability to expand capacity, as discussed above, said capacity is not keeping up with demand. Moreover, the cap-building window is the opposite of a targeted approach and represents a generalized, inflexible policy for newly accredited GME programs to establish their resident caps, which lacks the ability for policymakers to control costs or direct funding toward either program development or to the areas of greatest need.

CMS has both the opportunity and the obligation to leverage its existing authority to establish caps in a way that supplements this broad-based policy with a strategic approach. Targeting support for GME programs by extending the cap-building window for new teaching hospitals in rural, underserved, under-resourced communities and/or areas currently lacking medical training infrastructure will benefit our national GME system in many ways, including, but not limited to:

- **Providing lifesaving opportunities for new teaching institutions to further develop residency programs and secure the resources necessary to launch and/or scale-up training capabilities.** The additional time is vital to ensuring that teaching institutions in under-resourced areas will be able to build-up to a level necessary to meet regional needs;
- **Alleviating regional physician shortages** by providing time for institutions to add primary care and/or specialty and sub-specialty residencies in shortage;

[IX] In 2012, CMS issued a final rule extending the amount of time a new teaching hospital has to build DGME and IME caps from three years to five years. The FTE Cap establishes a limit on the number of residents Medicare will pay for with a new teaching hospital's cap set at the highest number of residents in any program year in the new program's fifth year.

- **Boosting the return on investment for Medicare, local communities, states, medical schools, and the hosting teaching hospital.** By expanding training opportunities, the likelihood of physicians remaining in the underserved area to practice increases[45].
- **Helping address the disproportionate maldistribution of physicians and GME resources across the country.** Cap-flexibility provides CMS with the ability to incentivize the establishment of GME programs and to direct resources to neglected areas of high need, without taking away resources away from other areas[X]. As residents tend to practice where they train, adding, developing, and incentivizing the establishment of programs at teaching institutions located in underserved, under-resourced, and rural areas will help address the current mal-distribution of physicians across the country. Over time, a well-tailored cap-flexibility policy will better align the supply of physicians with demand by creating a more diverse and equal distribution of GME training resources and programs, as well as physicians across the U.S.

Specifically, CMS should allow new GME programs, including those currently in their cap-building window, that are located in areas of need to extend their cap-building window for up to an additional five years beyond the current window (for a total of up to ten years). Injecting flexibility into the cap-building process would provide CMS the ability to tailor policy, target federal GME investments (while keeping control over costs), and incentivize the establishment of primary care or specialty GME programs in precisely the areas of highest need and most-limited resources.

A Tailored Approach to Target Areas of Need

As discussed above, the areas of greatest need for physicians and GME programs in the country are the same areas that face the steepest obstacles to securing the necessary resources to address these needs. Consequently, any cap-flexibility program should target the availability of additional resources and time to those areas of greatest need.

It is CMS' responsibility to be a good steward of the Medicare Trust Fund. As such, the Agency has begun to shift its focus from fee-for-service to value based reimbursement. Directing GME funds to areas of need not only enables the program to be prudent with Medicare funds but also allows CMS to address imminent physician shortages by focusing on the goal of assisting teaching hospitals in rural or economically underserved areas that have experienced difficulties expanding training programs due to limited resources. These hospitals would in turn be required to focus on primary care and specialties in shortage in their community and aim to better equalize the distribution of programs and residency slots to match those local needs.

[X] This policy does not call for redistributing current resources away from those areas where resources are currently concentrated. Instead, it provides a mechanism for CMS to shape the future of the geographic distribution and makeup of the physician workforce by steering additional GME resources to particular geographic and physician needs across the country.

Eligibility for cap-flexibility should initially be limited to new GME programs and those currently within their cap-building period. If this method is insufficient in achieving the necessary policy goals, CMS could consider expanding this flexibility to existing programs who have established caps, yet meet the criteria.[XI] Programs would apply to CMS for an extension to the cap-building period of anywhere from one additional year, up to five additional years. In designing eligibility for a cap-flexibility program, CMS should prioritize ***Areas of Need***. ***Areas of Need*** would be defined to incentivize the establishment of GME programs in areas of the country that are currently:

- under-resourced and/or neglected;
- experiencing primary care and/or specialty physician shortages;
- struggling to expand or keep GME programs operational;
- lacking existing medical training infrastructure; or
- in the midst of building up such infrastructure.

Over time, defining ***Areas of Need*** in this way and providing a cap-building period flexibility program would result in a more equal distribution of GME programs and residents. This would ultimately aim to balance the distribution of physicians across the country so that supply more evenly matches demand for health care services.

Various criteria and measures could be used to define ***Areas of Need***, including, but not limited to:

- Rural areas (as designated by HRSA);[XII,46]
- Medically Underserved Areas (MUAs) (as designated by HRSA – See Figure 8);
- Areas with shortages in the specialty for which the GME program is applying;[XIII]
- Areas that lack access to an established medical school (see Figure 9) or GME program[XIV];
- Areas that lack existing medical training infrastructure, or are in the midst of establishing said infrastructure and would benefit from additional time;[XV]

[XI] Section 1886(h) of the Social Security Act provide CMS with the regulatory authority to extend the cap-building window for "new" GME programs including those currently within their cap-building window. CMS also arguably has the discretion and authority to broaden the definition of "new" programs to cover existing teaching hospitals who seek to add an entirely new GME programs (i.e. a different specialty with its own accreditation requirements).

[XII] The federal government uses two major definitions of "rural." One is produced by the U.S. Census Bureau and the other by the Office of Management and Budget. The Federal Office of Rural Health Policy uses components of each definition when determining a classification for a geographic region.
https://www.hrsa.gov/ruralhealth/aboutus/definition.html

[XIII] There are a wide array of sources upon which CMS can rely on to approve any residency training program's specialties in shortage. For example, in the December 2008 HRSA report entitled 'The Physician Workforce: Projections and Research into Current Issues Affecting Supply and Demand,' specialties identified in the report whose baseline physician requirements projections exceed the projected supply of total active physicians for the period of 2005 through 2020 can be identified as in shortage.

[XIV] This would be further defined by CMS upon implementation of the program.

[XV] Programs would demonstrate their activities in this area and thus the need for targeted assistance. Further defining of lacking resources would be defined by CMS upon implementation of the program.

- Institutions located in states with the lowest resident-to-population ratios, residency slots, or Medicare GME funding;[XVI]
- Institutions located in states with the lowest physician to population ratios (see Charts 3 and 6) who demonstrate a shortage in their area;[XVII]
- Hospitals that emphasize training in community-based settings or in hospital outpatient departments.[XVIII]

Additional eligibility criteria should be considered for programs partnering with the VHA.[47]

A Dynamic, Flexible and Targeted Policy with Built-In Cost Controls

Cap-flexibility represents a dynamic policy solution that can be scaled to the nation's physician workforce needs. Beyond allowing the Agency to respond to increasing demands, it also allows the CMS to adjust to future financial constraints through the ability to scale policy development according to timing and size of the teaching program needs as well as national physician workforce needs (through the evaluation and approval/denial of applications[XIX]). Cap-flexibility provides CMS with the ability determine and control incremental costs in a way that the current cap-building window does not.

Cap-flexibility may be structured in various ways designed to target the cap-extension more narrowly or broadly, as CMS experiments with the needs of particular programs or regions of the country. CMS can build controlled amounts of elasticity into the program and provide itself with sufficient discretion to:

- Define eligibility requirements to directly address particular disparities in the physician workforce in a specific region;
- Approve applications for whole programs *or* just specific needs within a program, whether it be primary care or a specialty;

[XVI] CMS would reference the regulations used to implement Section 5503 of the Affordable Care Act (ACA) which redistributed vacant Medicare-funded slots to programs in states with low resident-to-population ratios. States with the lowest number of residents or Medicare GME funding would be further outlined by CMS upon implementation of the program.

[XVII] Programs would demonstrate the shortage during the application process, likely relying upon U.S. Census Bureau population numbers and State Medical Board licensing numbers to provide a physician to population ration. CMS would provide further clarity on data sources and the application process upon implementation of the program.

[XVIII] Additionally, H.R. 2267, The Resident Physician Shortage Reduction Act of 2017, provides the same criteria as a way to prioritize applications for additional residency training slots. Hospitals that would qualify as emphasizing training in community based settings or in hospital outpatient departments would then be defined by CMS as they implement the policy. These hospitals would support the claim in their application for the extension program.

[XIX] As proposed in this paper, the cap-building window would function just as it does today, with the exception that new teaching institutions would have the added opportunity to apply for a cap-extension based on clearly prescribed criteria set by CMS and/or Congress in order to target additional support to under-resourced communities, alleviate physician shortages, and better distribute GME programs and physicians across the nation.

- Approve applications while limiting the number of residency positions programs could add within a set time period or phase them in at a disclosed rate; or
- Limit the number of years that can be added within the cap extension.

As discussed above, CMS can significantly tailor cap-flexibility to the particular needs of teaching institutions or more broadly to address regional or national needs and it could provide the Agency with options to account for financial concerns or constraints. Of the approximately $10 billion in Medicare spending on GME annually, CMS has little control over how and where these investments are allocated.[XX,48] While cap-flexibility would add additional costs to Medicare GME expenditures, the incremental cost to Medicare would be entirely under the control of CMS because it would retain discretion to approve or deny applications and to structure eligibility to limit costs, as described above.[49] In some years, the cost may be higher and others lower, depending on the adjustments made by CMS in that year to address particular needs. However, any incremental increase in costs should be weighed against the benefits of cap-flexibility, including, but not limited to, easing physician shortages and incentivizing the establishment of GME programs in areas of need.

Program Evaluations Play a Critical Role in Achieving Targeted Results and Increasing Transparency and Accountability

Using the public rule-making process to finalize and implement a cap-flexibility policy would allow the Agency to develop a program that considers comments, suggestions, and concerns provided by stakeholders. This stakeholder input would help CMS further tailor the program to both accomplish community-based goals as well as ease physician shortages in rural or underserved areas by equalizing the distribution of GME programs nationwide.

Furthermore, the application and evaluation process would provide CMS an excellent opportunity to examine the challenges and operational capabilities of GME programs across the country. Based on an institution's particular challenges, CMS could tie cap-flexibility grants to specific metrics. Institutions would be held accountable through regular program evaluations to determine whether the stated goals outlined within the application are being met. Upon completion of the evaluation, CMS would review the Institution's progress and decide as to whether to continue extending the cap-building period.

In addition to the current CMS cap-building period of five years, approved programs would be eligible to receive an additional one to five years as deemed necessary by CMS. Documentation and supporting materials in the extension application would play an integral role in CMS' consideration of the extension's duration. Programs that fail to meet the established goals throughout the extension period provided would have their extension period terminated earlier than the initial approval provided. Programs, specifically those in under-resourced, high-need communities, could be approved for an

[XX] DGME and IME payment formulas are defined statutorily. DGME is calculated by multiplying the Per-Resident Amounts (PRA) times the weighted number of residents working in all areas of the hospital and the hospital's Medicare share of total inpatient days. The amount of IME payment that a hospital receives is dependent upon the number of residents the hospital trains and the current level of the IME multiplier.

extension of their cap-building period on a year by year basis from six years up to the 10-year maximum to allow them to address the most widespread and difficult shortages. This increased cap-flexibility and open communication between CMS and institutions would ultimately facilitate increased efficiency and would adjust the mix of the physician workforce to the needs of the community.

CMS Has the Authority to Better Target and Tailor Federal GME Funding to the Areas of Need

CMS has the authority to establish rules for calculating the DGME caps of teaching hospitals training residents in new teaching programs.[50] As discussed above, Congress enacted caps on Medicare funded GME slots in 1997. However, CMS has discretion in setting the timeframe to set these caps. Initially, when the caps were first implemented in 1997, the Agency set the cap at three years. However, in 2012, CMS exercised its statutory authority and extended the initial cap-building period from three years to five years.[51] CMS found that three years was inadequate because of ACGME accreditation rules, which require up to a three year ''initial'' accreditation period. While CMS has historically applied a cap across the board and the cap is set at the institutional level, the current statutory framework does not prevent CMS from setting a cap-policy which tailors support as needed to meet the regional physician workforce needs[52].

CMS has the statutory authority to provide new institutions, including those currently in their cap-building window, with the opportunity to extend their caps to address physician workforce needs. Cap-flexibility will provide a better targeted approach for GME funding policy, which is needed to address the looming physician shortages and maldistribution of physicians and GME programs[XXI].

Cap-Flexibility Is Needed to Improve Upon Past Efforts to Increase Federal GME Support for Areas of Need

Previous efforts to address physician shortages in particular areas of need have either focused on re-distributing unused GME slots or on providing rural areas with assistance. However, while past efforts have made small improvements, they have been unable to address looming physician shortages or geographic disparities in the distribution of GME programs or physician practice locations.

The Medicare Modernization Act of 2003 (MMA) allowed for the redistribution of 3,000 unused Medicare-funded residency positions with a priority of expanding training slots in rural areas. However, after the first two years of the program, less than 3% of the redistributed positions went to rural institutions.[53] A later study found that of the 3,000 unused slots targeted by the MMA GME redistribution, only 599 IME and 692 DGME residents were transferred to other hospitals by 2011.[54]

[XXI] Additionally, CMS should consider exercising this authority to broaden the definition of "new" programs. This broader definition should cover existing teaching hospitals and those that wish to add or expand new GME programs to address particular physician shortages as well as those that are located in areas of need.

In 2010, Congress again attempted to address the issue with another redistribution effort as part of the Affordable Care Act (ACA). This legislation redistributed 65% of vacant Medicare-funded slots to primary care and general surgery programs in states with low resident-to-population ratios.[55] These positions were intended to increase training in those fields.[56] This program created by the ACA is still under way and is being audited to examine its effectiveness.[57] Although the audit is in progress, experts fear the results will be similar to its MMA predecessor.[58] Stakeholders speculate that the outcome will reflect a fundamental failure to purposefully redirect federal GME funding to areas of need.[59] A more tailored and intentional solution, providing flexibility beyond the five-year cap-building period for select programs demonstrating need, is necessary to successfully address this problem. The cap-flexibility policy solution would allow for the better targeting of Medicare GME funding without taking resources away from current programs.

Additionally, CMS currently provides three payment incentives intended to increase GME training in rural areas. First, CMS allows rural teaching hospitals to set resident caps at 130% if they had a GME program in 1996.[60] According to the U.S. Government Accountability Office (GAO), where applicable, rural hospitals use this incentive.[61] Second, CMS allows rural programs to increase their resident caps if they have a GME program in one specialty, for example family medicine, but start a new GME program in another specialty.[62] This program most closely mirrors the Cap-Flexibility policy proposed in this paper but unfortunately, due to constraints imposed by CMS, less than half of the hospitals eligible for this incentive use it.[63] Artificially low caps and resident numbers stemming from rural hospitals hosting clinical rotation sites for other teaching programs have made this incentive hard to use for many rural teaching hospitals. It has also increased challenges for rural hospitals' abilities to sponsor their own GME programs.[64] Consequently, in implementing a cap-flexibility policy, it is important to build upon lessons learned in order to develop a more effective program and to avoid perpetuating existing policy issues. Programs in areas of need applying for a cap-building period extension should also have flexibility from certain regulatory restrictions. In particular, those that impose artificially low total resident numbers are a significant hindrance to the establishment of GME programs.

Third, CMS introduced the Rural Training Track (RTT) program as an avenue to add residents outside of a hospital's cap-building period. Through the RTT program residents of urban hospitals rotate at rural training sites which exposes residents to rural populations and their health needs. This was expected to increase the number of physicians choosing to practice in these rural areas upon completion of their training.[65] Both urban and rural programs can develop RTT programs but there are some limitations.[xxii] The RTT program allows urban hospitals to establish a separately accredited RTT in a rural area to receive additional Medicare GME funding. Despite this available opportunity for urban hospitals to partner with rural hospitals, only two urban hospitals claimed an increase to their resident caps for starting RTT program partnerships with rural hospitals from 2000 through 2010.[66] Additionally, RTT programs are restricted only to family medicine programs and, as a result, they have little impact on the rural physician workforce in specialties outside of primary care.[67] Since most rural communities not only lack access to primary care but also to medical and surgical subspecialties, this program only addresses

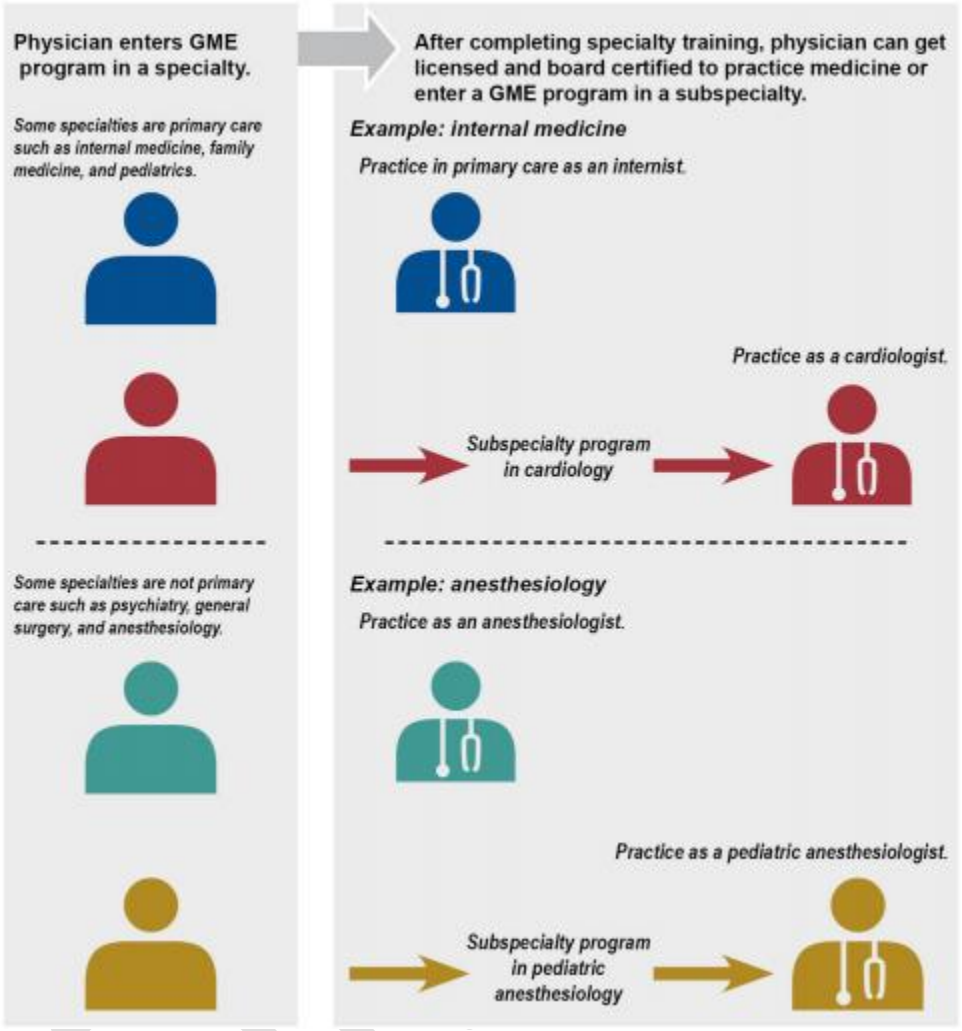
[xxii] Urban programs have three years to build their RTT cap whereas rural programs have five years to build their cap. Residents cannot be counted in both the hospital's GME cap and the RTT cap.

part of the problem. Increasing flexibility for teaching hospitals within their cap-building period by allowing them up to 10 years to establish their cap provides an innovative and individualized approach to more comprehensively address shortages across specialties.

Despite the vast data outlining the looming physician shortage, CMS continues to move forward with the established hard cap of five years for teaching hospitals to build up their resident counts. This unsophisticated limitation on GME program growth perpetuates the maldistribution of both primary care and specialty care physicians, which is felt more intensely in rural and underserved areas. Past CMS policies that redistributed vacant residency slots or incentivized partnerships with rural hospitals missed the mark when trying to provide individualized solutions aimed at addressing the looming physician shortage. CMS' existing authority enables them to modify the cap-building period in response to these supply and demand issues. Thus, CMS should inject additional flexibilities into the cap-building period by providing an extension of one to five additional years for programs in *Areas of Need.* This would provide much needed relief to teaching hospitals located in *Areas of Need* who not only struggle with recruiting residents and faculty but also struggle to retain them. These same teaching hospitals face the additional struggle of lacking infrastructure resources to float the costs associated with hiring personnel, retaining facility, gaining accreditation, transitioning existing clinical programs, and developing teaching programs. CMS can and should add flexibility into how new GME programs are allowed to set their resident caps through a strategic and targeted approach, providing incentives and additional assistance for GME programs to develop in areas of need across the country.

Appendix

Figure 5: Progression of Physicians through Graduate Medical Education (GME) Training



Source: GAO analysis of data from the Accreditation Council for Graduate Medical Education, the American Osteopathic Association, and Census Bureau. GAO-17-411

(Text for Nancy to make a graphic out of)

Figure 6: Progression of Physicians through Medical Education Training

After completing their undergraduate medical education and graduating from medical school with an M.D. or D.O. degree, a physician then goes on to residency to begin their graduate medical education (GME).[68]

GME: Residency

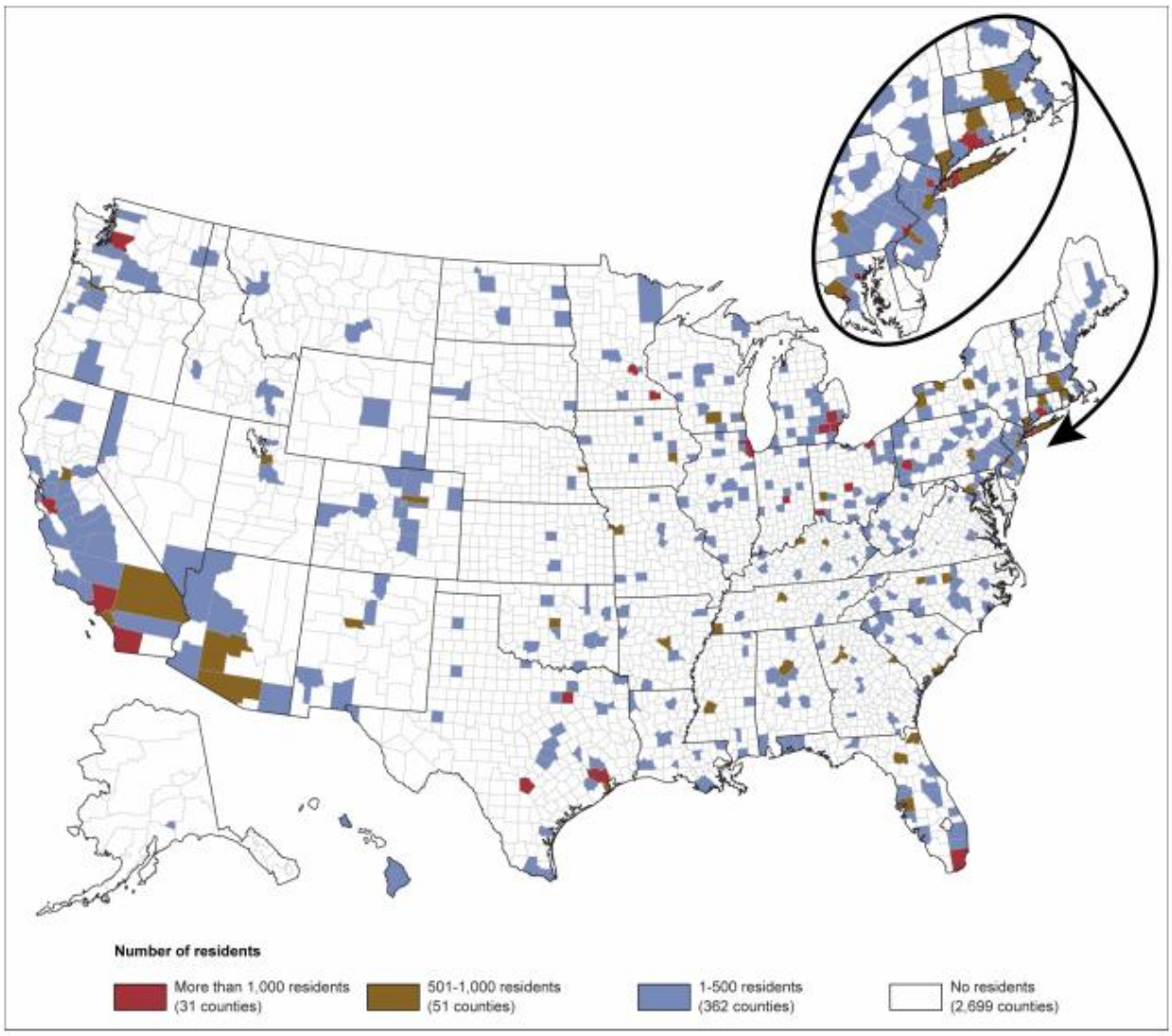
The physician enters into a residency program for training in their specialty of choice (e.g. internal medicine, family medicine, anesthesia, radiology, etc.). Once the physician completes their residency training, they either choose to practice within that specialty or go on to complete a fellowship program.[69]

GME: Fellowship

Fellowship programs are typically an additional 1 to 3 years beyond residency to provide additional training in a "subspecialty".[70]

For example, to become a cardiologist, a physician must complete a three-year internal medicine residency followed by an additional three-year cardiology fellowship.[71] Or to become a pediatric surgeon, a physician must complete a general surgery residency program (usually 5 years, plus additional years for research), followed by a two-year pediatric surgery fellowship.[72]

Figure 7: Distribution of Graduate Medical Education Residents in their Primary Training Sites, Academic Year 2015



Source: GAO analysis of data from the Accreditation Council for Graduate Medical Education, the American Osteopathic Association, and Census Bureau. GAO-17-411

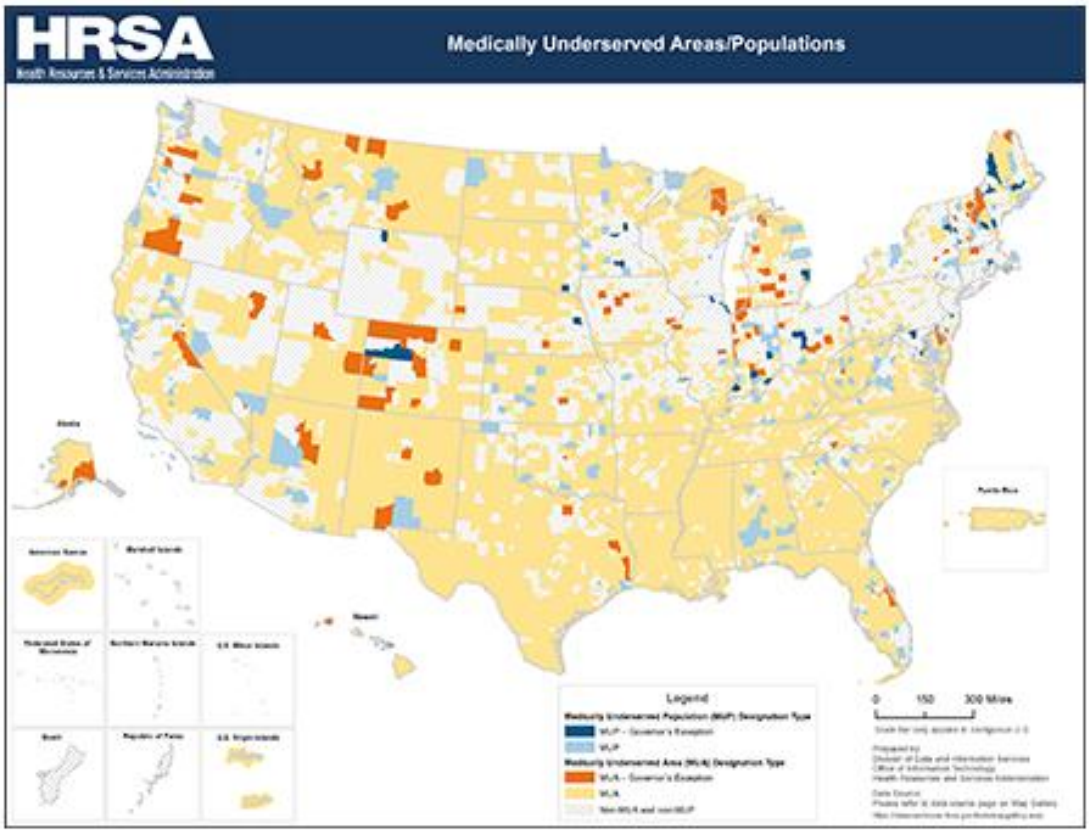
Figure 7A: Distribution of GME Residents by Georgia Counties in their Primary Training State, Academic Year 2015

Legend:

Source: GAO analysis of data from the Accreditation Council for

Graduate Medical Education, the American Osteopathic Association, and Census Bureau. GAO-17-411

Figure 8: HRSA Designated Medically Underserved Areas/Populations



Source: The Health Resources and Services Administration (HRSA) Medically Underserved Areas/Populations (MUA/P) maps show designated MUA/Ps as well as MUA/Ps as they relate to HRSA Federal Office of Rural Health Policy (FORHP) designated rural health areas.

Figure 9: Location of US Medical Schools

Red Pins: US Allopathic (MD) Medical Schools | Blue Pins: US Osteopathic (DO) Medical Schools | Source: Google. Accessed August 2017. https://www.google.com/maps/d/viewer?mid=1-RpY2gusu6ygJzlDtedKfHFN7w8&hl=en_US&ll=39.986827307508065%2C-93.44581458750002&z=4

Chart 1: Percent of Physicians 55 and Older by Specialty

Specialty	Percentage	Specialty	Percentage
Pulmonology	73%	**Otolaryngology**	45%
Oncology	66%	**Anesthesiology**	44%
Psychiatry	59%	**Dermatology**	43%
Cardiology	54%	**Hematology/Oncology**	41%
Orthopedic Surgery	52%	**Internal Medicine**	40%
Neurology	50%	**Vascular Surgery**	40%
General Surgery	48%	**Family Practice**	38%
Ophthalmology	48%	**Obstetrics/Gynecology**	38%
Urology	48%	**Pediatrics**	38%
Radiology	47%	**Emergency Medicine**	34%
Gastroenterology	45%	**Nephrology**	34%
Neurological Surgery	45%		

Source: 2013 American Medical Association (AMA) Master File

Chart 2: Number of Physicians 60 years or older by State

State	Number of Physicians 60+	Percentage of Physician Population	State	Number of Physicians 60+	Percentage of Physician Population
Alabama	2,612	27.00%	Montana	716	31.20%
Alaska	477	26.40%	Nebraska	991	24.30%
Arizona	3,988	26.50%	Nevada	1,332	25.00%
Arkansas	1,609	28.60%	New Hampshire	997	25.30%
California	30,835	31.50%	New Jersey	7,682	30.10%
Colorado	3,548	25.60%	New Mexico	1,610	33.30%
Connecticu	3,442	28.80%	New York	20,474	30.00%
Delaware	590	24.20%	North	5,214	22.60%
Washingto n, D.C.	1,653	29.70%	North Dakota	427	25.90%
Florida	14,318	29.40%	Ohio	7,742	24.90%
Georgia	5,266	24.70%	Oklahoma	2,237	29.70%
Hawaii	1,229	30.50%	Oregon	2,932	26.70%
Idaho	721	24.60%	Pennsylvania	10,478	27.30%
Illinois	8,865	26.20%	Rhode Island	923	26.00%
Indiana	3,625	25.40%	South	2,586	25.20%
Iowa	1,608	25.10%	South	473	25.70%
Kansas	1,716	27.90%	Tennessee	4,119	26.50%
Kentucky	2,499	25.90%	Texas	13,599	25.10%
Louisiana	3,161	29.20%	Utah	1,403	24.20%
Maine	1,243	30.50%	Vermont	589	28.30%
Maryland	6,307	29.40%	Virginia	5,322	25.80%
Massachus	7,516	26.80%	Washington	5,119	27.80%
Michigan	7,352	28.00%	West Virginia	1,337	30.10%
Minnesota	3,516	23.70%	Wisconsin	3,395	23.30%
Mississippi	1,511	28.00%	Wyoming	321	29.20%
Missouri	3,996	26.20%	**U.S.**	**225,221**	**27.60%**

Source: AAMC 2013 State Physician Workforce Data Book

Chart 3: Physician per 100,000 Population by State (Patient Care Only)

State	Total Population	Number of Physicians	Rater per 100,000	Rank
Alabama	4,849,377	9,176	189.2	**43**
Alaska	736,732	1,746	237.0	**19**
Arizona	6,731,484	14,558	216.3	**31**
Arkansas	2,966,369	5,393	181.8	**47**
California	38,802,500	90,159	232.4	**23**
Colorado	5,355,866	13,349	249.2	**14**
Connecticut	3,596,677	10,531	292.8	**6**
Delaware	935,614	2,256	241.1	**17**
Florida	19,893,297	46,839	235.5	**20**
Georgia	10,097,343	19,992	198.0	**39**
Hawaii	1,419,561	3,709	261.3	**11**
Idaho	1,634,464	2,953	180.7	**48**
Illinois	12,880,580	30,223	234.6	**21**
Indiana	6,596,855	13,571	205.7	**36**
Iowa	3,107,126	5,854	188.4	**45**
Kansas	2,904,021	5,669	195.2	**40**
Kentucky	4,413,457	9,195	208.3	**35**
Louisiana	4,649,676	10,128	217.8	**28**
Maine	1,330,089	3,869	290.9	**7**
Maryland	5,976,407	17,681	295.8	**5**
Massachusetts	6,745,408	23,574	349.5	**1**
Michigan	9,909,877	23,987	242.1	**16**
Minnesota	5,457,173	13,767	252.3	**13**
Mississippi	2,994,079	5,098	170.3	**50**
Missouri	6,063,589	15,791	229.6	**24**
Montana	1,023,579	2,349	217.6	**29**
Nebraska	1,881,503	3,853	204.8	**37**
Nevada	2,839,099	5,101	179.7	**49**
New Hampshire	1,326,813	3,671	276.7	**8**
New Jersey	8,938,175	23,273	260.4	**12**
New Mexico	2,085,572	4,368	209.4	**34**
New York	19,746,227	58,600	296.8	**4**
North Carolina	9,943,964	21,477	216.0	**32**
North Dakota	739,482	1,602	216.6	**30**
Ohio	11,594,163	28,097	242.3	**15**
Oklahoma	3,878,051	7,294	188.1	**46**
Oregon	3,970,239	10,443	263.0	**10**
Pennsylvania	12,787,209	34,057	266.3	**9**
Rhode Island	1,055,173	3,191	302.4	**2**
South Carolina	4,832,482	9,868	204.2	**38**
South Dakota	853,175	1,830	214.5	**33**
Tennessee	6,549,352	14,608	223.0	**26**
Texas	26,956,958	51,430	190.8	**42**
Utah	2,942,902	5,649	192.0	**41**
Vermont	626,562	1,867	298.0	**3**

Virginia	8,326,289	18,998	228.2	**25**
Washington	7,061,530	16,884	239.1	**18**
West Virginia	1,850,326	4,071	220.0	**27**
Wisconsin	5,757,564	13,462	233.8	**22**
Wyoming	584,153	1,104	189.0	**44**

Source: 2015 Physician Workforce Data Book, Association of American Medical Colleges

Chart 4: Residents and Fellows on Duty by State

State	Total Population	Number of	Rate per 100,000	Rank
Alabama	4,849,377	1,349	27.8	**24**
Alaska	736,732	36	4.9	**50**
Arizona	6,731,484	1,640	24.4	**36**
Arkansas	2,966,369	747	25.2	**32**
California	38,802,500	10,142	26.1	**31**
Colorado	5,355,866	1,272	23.7	**37**
Connecticut	3,596,677	2,276	63.3	**4**
Delaware	935,614	364	38.9	**15**
Florida	19,893,297	3,967	19.9	**41**
Georgia	10,097,343	2,080	20.6	**40**
Hawaii	1,419,561	376	26.5	**28**
Idaho	1,634,464	105	6.4	**48**
Illinois	12,880,580	6,028	46.8	**9**
Indiana	6,596,855	1,415	21.4	**39**
Iowa	3,107,126	841	27.1	**26**
Kansas	2,904,021	803	27.7	**25**
Kentucky	4,413,457	1,108	25.1	**33**
Louisiana	4,649,676	2,050	44.1	**12**
Maine	1,330,089	331	24.9	**34**
Maryland	5,976,407	2,836	47.5	**8**
Massachusetts	6,745,408	5,510	81.7	**1**
Michigan	9,909,877	4,995	50.4	**7**
Minnesota	5,457,173	2,308	42.3	**13**
Mississippi	2,994,079	558	18.6	**43**
Missouri	6,063,589	2,724	44.9	**11**
Montana	1,023,579	57	5.6	**49**
Nebraska	1,881,503	746	39.6	**14**
Nevada	2,839,099	340	12.0	**46**
New Hampshire	1,326,813	409	30.8	**21**
New Jersey	8,938,175	2,875	32.2	**19**
New Mexico	2,085,572	588	28.2	**23**
New York	19,746,227	16,100	81.5	**2**
North Carolina	9,943,964	3,189	32.1	**20**
North Dakota	739,482	133	18.0	**44**
Ohio	11,594,163	5,938	51.2	**6**
Oklahoma	3,878,051	766	19.8	**42**
Oregon	3,970,239	900	22.7	**38**
Pennsylvania	12,787,209	7,881	61.6	**5**
Rhode Island	1,055,173	776	73.5	**3**
South Carolina	4,832,482	1,275	26.4	**29**

South Dakota	853,175	132	15.5	**45**
Tennessee	6,549,352	2,329	35.6	**17**
Texas	26,956,958	7,835	29.1	**22**
Utah	2,942,902	731	24.8	**35**
Vermont	626,562	292	46.6	**10**
Virginia	8,326,289	2,196	26.4	**30**
Washington	7,061,530	1,873	26.5	**27**
West Virginia	1,850,326	701	37.9	**16**
Wisconsin	5,757,564	1,888	32.8	**18**
Wyoming	584,153	42	7.2	**47**

Source: 2015 Physician Workforce Data Book, Association of American Medical Colleges

Chart 5: Physicians Retained from Graduate Medical Education

State	Active Physicians Who Completed GME	Number of Physicians	Percent	Rank
Alabama	8,647	4,099	47.4%	**19**
Alaska	139	94	67.6%	**2**
Arizona	8,258	4,014	48.6%	**14**
Arkansas	4,797	2,710	56.5%	**6**
California	79,976	55,842	69.8%	**1**
Colorado	9,910	4,788	48.3%	**17**
Connecticut	13,824	4,791	34.7%	**45**
Delaware	1,542	443	28.7%	**48**
Florida	23,174	13,590	58.6%	**4**
Georgia	15,024	7,269	48.4%	**16**
Hawaii	3,040	1,180	38.8%	**39**
Idaho	378	204	54.0%	**9**
Illinois	43,182	20,801	48.2%	**18**
Indiana	10,344	5,701	55.1%	**7**
Iowa	6,730	2,413	35.9%	**44**
Kansas	5,795	2,270	39.2%	**37**
Kentucky	8,061	3,682	45.7%	**21**
Louisiana	13,199	6,177	46.8%	**20**
Maine	1,974	982	49.7%	**12**
Maryland	19,888	7,462	37.5%	**42**
Massachusetts	36,427	16,153	44.3%	**27**
Michigan	34,253	15,200	44.4%	**26**
Minnesota	18,363	8,095	44.1%	**29**
Mississippi	3,622	1,797	49.6%	**13**
Missouri	18,785	6,972	37.1%	**43**
Montana	105	65	61.9%	**3**
Nebraska	4,326	1,803	41.7%	**34**
Nevada	1,168	631	54.0%	**8**
New Hampshire	2,004	520	25.9%	**50**
New Jersey	18,670	8,323	44.6%	**25**
New Mexico	3,373	1,297	38.5%	**41**

New York	114,182	51,196	44.8%	**24**
North Carolina	19,441	8,108	41.7%	**33**
North Dakota	895	367	41.0%	**35**
Ohio	39,873	17,461	43.8%	**30**
Oklahoma	5,931	3,061	51.6%	**11**
Oregon	5,628	2,961	52.6%	**10**
Pennsylvania	53,344	21,857	41.0%	**36**
Rhode Island	4,606	1,374	29.8%	**47**
South Carolina	8,001	3,632	45.4%	**23**
South Dakota	761	336	44.2%	**28**
Tennessee	14,367	6,288	43.8%	**31**
Texas	48,662	28,298	58.2%	**5**
Utah	4,821	2,021	41.9%	**32**
Vermont	1,694	520	30.7%	**46**
Virginia	15,102	5,857	38.8%	**40**
Washington	12,085	5,861	48.5%	**15**
West Virginia	4,250	1,658	39.0%	**38**
Wisconsin	12,613	5,758	45.7%	**22**
Wyoming	389	111	28.5%	**49**

Source: 2015 Physician Workforce Data Book, Association of American Medical Colleges

Chart 6: Physicians with an Active License by State

Physicians with an Active License by State[a] and the District of Columbia, 2014	Licensed Physicians	Population Counts[b]	Physicians Per 100,000 Population
U.S.	916,264	318,857,056	**287**
Alabama	16,064	4,849,377	**331**
Alaska	3,786	736,732	**514**
Arizona	24,928	6,731,484	**370**
Arkansas	9,529	2,966,369	**321**
California	143,427	38,802,500	**370**
Colorado	19,897	5,355,866	**371**
Connecticut	16,678	3,596,677	**464**
Delaware	5,268	935,614	**563**
District of Columbia	10,623	658,893	**1,612**
Florida	71,024	19,893,297	**357**
Georgia	34,163	10,097,343	**338**
Hawaii	9,136	1,419,561	**644**
Idaho	5,687	1,634,464	**348**
Illinois	43,835	12,880,580	**340**
Indiana	27,206	6,596,855	**412**
Iowa	11,224	3,107,126	**361**
Kansas	9,002	2,904,021	**310**
Kentucky	17,645	4,413,457	**400**
Louisiana	16,346	4,649,676	**352**
Maine	6,364	1,330,089	**478**
Maryland	28,976	5,976,407	**485**
Massachusetts	33,965	6,745,408	**504**
Michigan	45,703	9,909,877	**461**

Minnesota	21,855	5,457,173	**400**
Mississippi	9,951	2,994,079	**332**
Missouri	25,926	6,063,589	**428**
Montana	4,765	1,023,579	**466**
Nebraska	8,598	1,881,503	**457**
Nevada	8,111	2,839,099	**286**
New Hampshire	6,346	1,326,813	**478**
New Jersey	35,842	8,938,175	**401**
New Mexico	8,691	2,085,572	**417**
New York	91,744	19,746,227	**465**
North Carolina	33,266	9,943,964	**335**
North Dakota	3,769	739,482	**510**
Ohio	44,981	11,594,163	**388**
Oklahoma	12,491	3,878,051	**322**
Oregon	14,092	3,970,239	**355**
Pennsylvania	55,443	12,787,209	**434**
Rhode Island	4,105	1,055,173	**389**
South Carolina	17,442	4,832,482	**361**
South Dakota	3,607	853,175	**423**
Tennessee	21,151	6,549,352	**323**
Texas	72,601	26,956,958	**269**
Utah	9,891	2,942,902	**336**
Vermont	3,171	626,562	**506**
Virginia	36,041	8,326,289	**433**
Washington	26,517	7,061,530	**376**
West Virginia	7,493	1,850,326	**405**
Wisconsin	25,774	5,757,564	**448**
Wyoming	3,360	584,153	**575**
State and D.C. Totals	**1,227,500**[c]	**318,857,056**	**385**

[a]State counts are based on state medical board license files from 2014 and reflect the number of physicians with a full and unrestricted license. Resident physician licenses were excluded when such licenses could be identified.

[b]U.S. Census Bureau, Population Division, July 2014

[c]Physician counts do not add up to 916,264 because some physicians maintain active licenses in more than one U.S. jurisdiction.

Acronyms

AAMC - Association of American Medical Colleges

ACA - Affordable Care Act

ACGME - Accreditation Council for Graduate Medical Education

BBA - The Balanced Budget Act of 1997

CMS - Centers for Medicare & Medicaid Services

D.O. - Doctor of Osteopathic Medicine

DGME - Direct Graduate Medical Education (funds)

FTE - Full Time Equivalent

GAO - U.S. Government Accountability Office

GME - Graduate Medical Education

HPSA - Health Professional Shortage Area

HRSA - Health Resources and Services Administration

IME - Indirect Graduate Medical Education (funds)

M.D. - Doctor of Medicine

MMA - Medicare Modernization Act of 2003

MUA - Medically Underserved Area

OB/GYN - Obstetrics and gynecology

RTT - Rural Training Track

VHA - Veterans Health Administration

Endnotes

[i] CMS. FY 2013 IPPS Final Rule. https://www.gpo.gov/fdsys/pkg/FR-2012-08-31/pdf/2012-19079.pdf

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[47] Such as hospitals that cooperates under section 7302(d) of title 38, U.S. Code, which outlines health-care personnel education and training programs for the VHA. https://www.law.cornell.edu/uscode/text/38/7302
[48] IME add-on payments are calculated using a hospital's ratio of residents to beds, which is represented as r, and a multiplier, which is represented as c, in the following equation: c x [(1 + r).405 - 1]. The multiplier c is set by Congress. Thus, the amount of IME payment that a hospital receives is dependent upon the number of residents the hospital trains and the current level of the IME multiplier. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/DGME.html; https://www.cms.gov/medicare/medicare-fee-for-service-payment/acuteinpatientpps/indirect-medical-education-ime.html.
[49] For reference: When CMS last extended the cap-building period from three to five years, CMS estimated an additional 20 programs per year would yield a total additional cost of $175 million, or $875,000 per program per year. There are currently approximately 40 teaching programs in their cap-building year (This number is based on our review of ACGME data. https://apps.acgme.org/ads/public/). Applying those same assumptions here (20 programs a year would be granted cap-flexibility) would yield an additional cost of $87.5 million over 10 years, including both DGME and IME payments. However, considering the various levers offered by cap-flexibility and the discretion of CMS to control costs, this number represents the upper limit of the cost and in all likelihood would be much, much lower. As stated in the discussion, CMS has wide discretion to tailor the program to target particular needs. The incremental costs of cap-flexibility would likely be minimal given the scope of Medicare GME financing and would help achieve great public policy goals.
[50] Section 1886(h)(4)(H)(i) of the Social Security Act outlines the requirements. https://www.ssa.gov/OP_Home/ssact/title18/1886.htm
[51] CMS. FY 2013 IPPS Final Rule. https://www.gpo.gov/fdsys/pkg/FR-2012-08-31/pdf/2012-19079.pdf
[52] Section 1886(h)(4) of the Social Security Act outlines the requirements.
[53] Chen, et al. The Redistribution of Graduate Medical Education Positions in 2005 Failed To Boost Primary Care or Rural Training. Health Affairs. January 2013 vol. 32 no. 1 102-110. http://content.healthaffairs.org/content/32/1/102.full
[54] GAO. *Locations and Types of Graduate Training Were Largely Unchanged, and Federal Efforts May Not Be Sufficient to Meet Needs.* GAO-17-411: Published: May 25, 2017. Publicly Released: Jun 26, 2017. http://www.gao.gov/products/GAO-17-411?utm_medium=email&utm_source=govdelivery
[55] 76 FR 13515. https://www.federalregister.gov/d/2011-5960/p-25
[56] Congressional Research Service Report R41278, *Public Health, Workforce, Quality, and Related Provisions in ACA: Summary and Timeline.*
[57] Congressional Research Service Report R41278, *Public Health, Workforce, Quality, and Related Provisions in ACA: Summary and Timeline*.
[58] Chen, et al. The Redistribution of Graduate Medical Education Positions in 2005 Failed To Boost Primary Care or Rural Training. Health Affairs. January 2013 vol. 32 no. 1 102-110.
[59] Ibid.
[60] The 2017 Update: Complexities of Physician Supply and Demand: Projections from 2015 to 2030. AAMC. https://aamc-black.global.ssl.fastly.net/production/media/filer_public/a5/c3/a5c3d565-14ec-48fb-974b-99fafaeecb00/aamc_projections_update_2017.pdf. Accessed July 10, 2017. pg. 25.
[61] *Ibid.*
[62] *Ibid.*
[63] *Ibid.*
[64] *Ibid.*
[65] AAMC. *Rural Training Track Programs: A Guide to the Medicare Requirements*. 2015. https://members.aamc.org/eweb/upload/Rural%20Training%20Track%20Programs%20-%20A%20Guide%20to%20the%20Medicare%20Requirements.pdf

[66] GAO. *Locations and Types of Graduate Training Were Largely Unchanged, and Federal Efforts May Not Be Sufficient to Meet Needs.* GAO-17-411: Published: May 25, 2017. Publicly Released: Jun 26, 2017. http://www.gao.gov/products/GAO-17-411?utm_medium=email&utm_source=govdelivery

[67] RTT Collaborative. *Directory of Rural Programs.* https://traindocsrural.org/rural-residency/directory-of-rural-programs/ (as of August 2016)

[68] AAMC. *The Road to Becoming a Doctor.* https://www.aamc.org/download/68806/data/road-doctor.pdf. Accessed July 2017.

[69] *Ibid.*

[70] *Ibid.*

[71] ACGME. *Eligibility Requirements- Cardiovascular Disease (Internal Medicine).* http://www.acgme.org/Portals/0/PDFs/Nasca-Community/EligibilityRequirements/140_InternalMedicine/141_cardiovascular_disease_IM_elig.pdf. Accessed July 2017.

[72] ACGME. *Eligibility Requirements-Pediatric Surgery.* http://www.acgme.org/Portals/0/PDFs/Nasca-Community/EligibilityRequirements/440_GeneralSurgery/445_pediatric_surgery_elig.pdf. Accessed July 2017.