Leveraging Graduate Medical Education to Increase Primary Care and Rural Physician Capacity in South Carolina



A Report by the South Carolina GME Advisory Group in Response to Proviso 33.34 (E)

January 2014

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EXECUTIVE SUMMARY

Budget Proviso 33.34 of the 2014 South Carolina State Appropriations Act, section E (1), directs the South Carolina Department of Health and Human Services (SCDHHS) to collaborate with other providers and health organizations to improve health outcomes through Graduate Medical Education, specifically:

E) Rural Provider Capacity - The department shall incentivize the development of rural physician coverage and capacity building through the following mechanisms:

1. the department shall leverage the Graduate Medical Education program and develop a methodology to improve accountability and increased outcomes for the State's GME and Supplemental Teaching Payments investment by January 1, 2014;

Graduate Medical Education (GME) is the phase of formal medical training after receipt of a medical degree. In South Carolina, GME is provided almost exclusively by teaching hospitals throughout the state, which train interns and residents in clinical settings under the supervision of faculty physicians. In state fiscal year 2012, South Carolina spent more than $185 million in state and federal Medicaid funds for graduate medical education, which ranks South Carolina Medicaid among the highest spenders in the United States.

Despite South Carolina's sizeable contribution to medical education, the state is facing an overall physician shortage. Perhaps more pressing for the state, however, is the maldistribution of primary care physicians in rural and low-income areas. Of the 46 counties in South Carolina, all have shortages in primary care and/ or pockets of medically underserved populations. Although South Carolina boasts strong medical schools and high resident retention rates, the state has struggled to attract and retain physicians to serve in these areas. Current inadequacies in the physician workforce in South Carolina highlight gaps in the "physician pipeline," beginning from pre-medical school programs through incentives for physicians to work in rural and underserved counties of the state after residency.

Recognizing the contribution of GME to health outcomes throughout South Carolina, a GME Advisory Group was formed to make recommendations to SCDHHS regarding graduate medical education policy and payment methodology to better meet the physician workforce needs of the state.

This report explores the issues surrounding physician shortages and access to health care in South Carolina, the current process for funding GME residency programs, and where the current system for producing doctors is failing to meet

the critical health care workforce needs of the state. Various models and strategies for addressing these gaps are presented as well as proposals for changes in the GME funding methodologies. The focus of this effort is not simply to produce more physicians, but to address the lack of primary care physicians and health care access in rural and underserved areas, which has a disproportionate impact on minority, Medicaid and uninsured populations.

For example, one gap in the physician production pipeline is the low number of students from rural counties admitted to medical school. There is evidence that individuals from rural communities are more likely to work in rural communities once they have completed medical training. Of the 213 physicians who graduated from a South Carolina medical school in 2010, 112 could be identified as having attended high school in South Carolina; of these, 95 came from a high school in an urban area and only 16 came from rural counties. In addition, the racial demographics of the physician workforce in South Carolina do not reflect the racial composition of South Carolina's population.

Despite the growth in the state's physician workforce over the past 30 years, the number of active primary care doctors in 2012 is still relatively low — South Carolina ranked 40th nationally with 77.5 primary care physicians per 100,000 population, compared to the national average of 90.1.

There is strong evidence that shows that medical school programs in the U.S. can succeed in designing programs with specific desired outcomes; i.e., developing a workforce that is reflective of the needs of various geographies and populations. Many medical schools are also planning or implementing initiatives to increase student interest in primary care specialties. These efforts include changes in curriculum, extracurricular opportunities, expanded faculty resources and training and changes in admissions criteria.

Advanced practice health professionals—nurse practitioners and physician assistants—play a key role in the delivery of primary care services. Clinical rotations in community based settings, such as federally qualified health centers, rural health clinics and private physicians' offices, are critical to training larger numbers of advanced practice professionals as well as medical students in primary care. Opportunities for community-based clinical rotations have been limited, however, and need to be expanded.

There is increasing concern on both the national and state level that at its current capacity, the GME system will be unable to provide medical residency training for the expected number of medical school graduates, creating a "bottleneck" in the physician production pipeline. The number of medical school graduates in South

Carolina is expected to increase 88% by 2016. However, medical school graduates do not simply translate into new physicians unless sufficient residency positions are available.

Five of the eight family medicine residency training programs in South Carolina are in the Upstate. Other regions are without such a residency training program, and are therefore at a relative disadvantage in attracting and retaining physicians who in large measure tend to locate in the areas where they trained. Perhaps not coincidentally, these regions correspond with our state's most medically underserved areas.

Further along the physician production pipeline, South Carolina could focus resources on proven programs to recruit and retain physicians and advanced practice professionals to rural and underserved areas. Medical school loan repayment programs have been found to be an effective incentive, but ideally these should be part of a comprehensive recruitment and retention plan that recognizes that local working conditions are important considerations when physicians choose where to work. For example, availability of telemedicine to provide specialty physician support can be an important tool for recruitment and retention of physicians and advanced practice professionals in rural and underserved areas, and ultimately helps increase access to medical care.

This report explores options for leveraging the current Medicaid GME program funding and Supplemental Teaching Physician (STP) payments to achieve state physician workforce goals and create reporting and performance measures that link GME funding to attainment of these goals. The advisory group recommends linking 15% of the current GME funding to state workforce goals as a reasonable objective.

Improving the performance of the physician production pipeline while implementing reimbursement policies that value primary care, encouraging the training and development of nurse practitioners and physician assistants, and investing in rural and underserved physician support systems (such as telemedicine) could make it possible for South Carolina to become the best place to train and practice primary care in the United States by 2020.

RECOMMENDATIONS

1. Expand effective existing programs and develop initiatives shown to be successful for recruiting more students from rural and underserved areas into college pre-med and advanced practice professional programs.
2. Collaborate with the deans of the state medical and osteopathic colleges in facilitating the admission and medical school support of students likely to practice primary care and serve in rural and underserved areas.
3. Create new graduate medical education residencies in family medicine and other primary care specialties that are critically needed in the rural and underserved areas of South Carolina.
4. Collaborate with state teaching hospitals to expand GME residencies to include more extensive practice opportunities in community-based health organizations.
5. Broaden the scope of existing GME funding to promote and expand the use of telemedicine, support education of advanced practice professionals such as physician assistants and nurse practitioners and enhance programs to recruit and retain physicians, PAs and NPs in medically underserved areas.
6. Support the efforts of SCDHHS to implement Medicaid payment rates that value family medicine and other general primary care providers.
7. Support the creation a permanent GME advisory council, which will include rural providers and representatives of medically-underserved areas, through executive order or other available means.
8. In coordination with existing programs, develop a data collection and assessment system to evaluate the effectiveness of GME and STP payments and other "physician pipeline" support programs in meeting statewide health care workforce needs.
9. Target up to 15% of GME and STP payment funding toward meeting physician workforce goals as outlined in the recommendations presented

above. Phase in this implementation based on a multi-year schedule, with budgets reviewed in advance and existing GME and STP funding reallocated as new programs are developed and implemented.

10. Develop a state Medicaid plan amendment to change the methodology for obtaining federal matching funds for the supplemental teaching physicians' payment program, using the average commercial payment methodology proposed as Method II in this report. The average commercial rate is based on what commercial payers reimburse for services as a percentage of charges for those services. As part of the state plan amendment process, SCDHHS should determine whether CMS would allow a common commercial payer rate that is equal in rate and applied across all STP participants.

11. Explore the development of a Delivery Health System Reform Incentive Pool (DSRIP), and/or other payment reform methodologies made possible under waivers granted by CMS, which provide more flexibility in leveraging the GME and STP payment programs to meet the workforce needs of South Carolina. SCDHHS should remain open to other new federal sources of funding that can be used to expand GME programs and provide seed money for pilot programs and new GME initiatives.

INTRODUCTION

Graduate Medical Education (GME), which is the phase of formal medical education after receipt of a medical degree, is a critically important aspect of the health care system in the United States. This phase of medical training is generally referred to as a residency; physicians in a GME program are typically referred to as residents. With more than 117,000 total residents in the country[1], states are an important source of funding and support for physician training. Medicaid programs in many states reimburse almost $4 billion to teaching hospitals, medical universities and other entities for GME.

During state fiscal year 2012, South Carolina spent more than $185 million in state and federal Medicaid funds for graduate medical education.

During state fiscal year 2012, South Carolina spent more than $185 million in state and federal Medicaid funds for graduate medical education. Despite South Carolina's sizeable contribution to medical education, the state is facing a physician shortage. The national outlook is similar. According to Association of American Medical Colleges (AAMC) estimates, by 2020 the United States faces a shortage of more than 90,000 physicians, 45,000 of which are primary care physicians.[2]

More pressing for the state of South Carolina, however, is the maldistribution of primary care physicians in rural and low-income communities. Of the 46 counties in South Carolina, all have shortages in primary care and/or pockets of medically underserved populations. Although South Carolina boasts strong medical schools and high overall resident retention rates, the state has struggled to attract and retain physicians to serve in rural and medically underserved areas.

The inadequacies in the physician workforce in South Carolina have continued to frustrate medical educators and policy makers and highlight the obvious gaps in the "physician production pipeline," ranging from pre-medical school to support of physicians working in rural and underserved areas.

Recognizing the contribution of GME to health outcomes throughout South Carolina, a GME Advisory Group was formed to make recommendations to SCDHHS regarding graduate medical education policy and payment methodology to better meet the workforce needs of the state. The goal of the advisory group is to recommend viable options to maximize the value returned by the state's graduate medical education investment. The policy and payment methodology recommendations are discussed in subsequent sections of this report.

[1] ACGME Data Resource Book. Academic Year 2012-2013.

[2] AAMC. Physician Shortages to Worsen Without Increases in Residency Training. Association for American Medical Colleges. https://www.aamc.org/download/286592/data/. Accessed October 31, 2013.

Budget Proviso & Charge to the Advisory Group

Budget Proviso 33.34 of the 2014 South Carolina State Appropriations Act, Medicaid Accountability & Quality Improvement Initiative, is a plan to "increase value and transparency in the current system, invest in hotspots of poor health, reduce per capita costs and improve health outcomes." In accordance with Graduate Medical Education (GME) Payments, section E(1) of Proviso 33.34, SCDHHS will collaborate with other providers and health organizations on the following:

E) Rural Provider Capacity - The department shall incentivize the development of rural physician coverage and capacity building through the following mechanisms:

1. the department shall leverage the Graduate Medical Education program and develop a methodology to improve accountability and increased outcomes for the State's GME and Supplemental Teaching Payments investment by January 1, 2014;

The GME Advisory Group was charged with the following tasks:

- To address the requirements of Proviso 33.34 E;
- To address the requirement from the Centers for Medicare and Medicaid Services (CMS) to revise the reimbursement methodology for Supplemental Teaching Physician (STP) payments that are allocated to medical universities and teaching hospitals; and
- To provide greater transparency and improve accountability in GME spending.

Schedule of Meetings and Advisory Group Guidelines

The initial GME Advisory Group meeting was held in August 2013 at SCDHHS. Four additional monthly meetings were scheduled September through December 2013.

During the initial GME Advisory Group meeting, Anthony Keck, director of the South Carolina Department of Health and Human Services, provided the advisory group with specific guidelines for the advancement of the group's overall goals. All presentations and reports of the advisory group were made public and are posted on the SCDHHS website.

GME Advisory Group Members

The time-limited GME Advisory Group comprised 16 members. The members of

the group consisted of representatives of the health care community, including medical training providers and physicians, and "consumers of medical education" (e.g., employers, consumer representatives and community leaders). Dr. Fred Carter, president of Francis Marion University, served as chair and directed the efforts of the advisory group.

The membership of the GME Advisory Group was divided into two subcommittees to examine critically important issues relevant to specific aspects of graduate medical education – Financing and Measures of Efficiency and Effectiveness. Michael Riordan, president and CEO of Greenville Hospital System, served as chair for the Financing Subcommittee; Charles Beaman, CEO of Palmetto Health, served as chair for Measures of Efficiency and Effectiveness Subcommittee.

The role of the Financing Subcommittee was to establish the current level of funding and payments; to review and advise on the options for amending the methodology for obtaining federal matching funds for the supplemental teaching physician payments; and to help determine options for targeting GME funding to better meet state health workforce needs.

The Measures of Efficiency and Effectiveness Subcommittee approved the following goal for the redirection of the graduate medical education program:

> **Increase access to primary and specialty care for the Medicaid and uninsured populations in rural and underserved areas. This will encompass:**
>
> - **Determining the most effective use of GME funding to increase medical education capacity and physician and advanced practice health professionals coverage throughout the state.**
> - **Determining ways to measure the impact of GME funding on medical education and physician and advanced practice health professionals capacity.**
> - **Developing strategies for recruitment and retention of physicians and advanced practice health professionals in rural and underserved areas.**

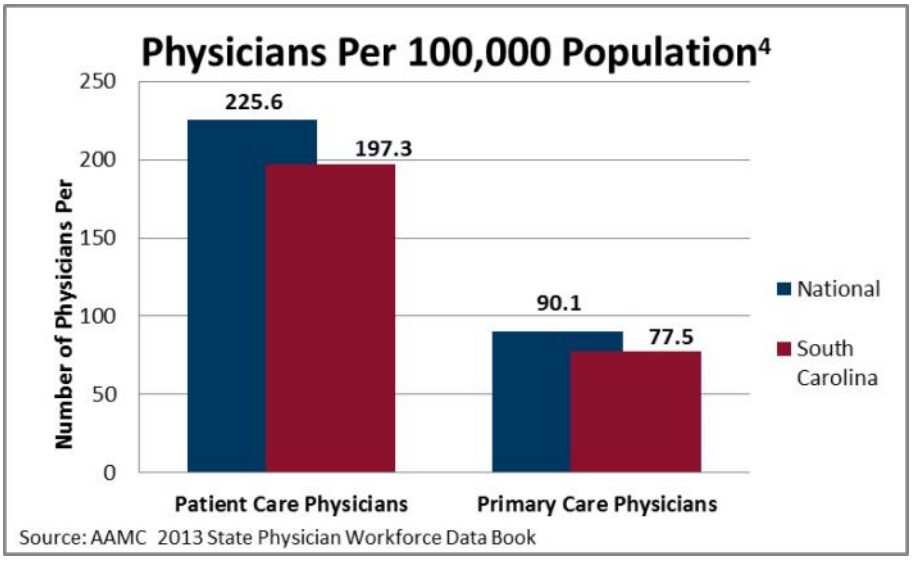
For the purpose of this report, primary care is generally defined as: family medicine, general pediatrics, OB/GYN, general surgery and general internal medicine. It is important to note, however, that data analysis conducted by other bodies such as AAMC may include other clinical specialties in the definition of primary care.

BACKGROUND

Physician Shortage in South Carolina

In 2012 South Carolina had the full-time equivalent of 9,322 active patient care physicians, and ranked 36th for the overall number of active patient care* physicians per 100,000 population, according to the 2013 State Physician Workforce Data Book published by the AAMC.[3] Although South Carolina has been ranked 18th (out of 51) for prevention and treatment services, the state ranks in the bottom quartile (39th) in access to health care services.[4]

Despite the growth in the state's physician workforce over the past 30 years, the number of active primary care doctors is still relatively low – in 2012 South Carolina ranked 40th with 77.5 primary care physicians per 100,000 population compared to the national average of 90.1. Overall, primary care physicians in South Carolina made up approximately 36% of the active patient care physician workforce in the state in 2012.[3]



Research has shown, however, that how the workforce is distributed in terms of primary care versus specialist physicians is more important for population health than sheer numbers. When primary care physicians make up the largest portion of the workforce, population health outcomes tend to be better.[5] Where those physicians practice makes a difference since overall numbers alone do not necessarily translate into better access to services.

One important aspect of the primary care field is the use of advanced-practice health professionals in the delivery of primary care services. A recent AAMC Consumer Survey found that nearly 60% of patients were willing to see a nurse

* Excludes physicians whose type of practice is administration, medical research, medical teaching or other non-patient care activities.

[3] AAMC Center for Workforce Studies State Physician Workforce Data Book. 2013.

[4] The Commonwealth Fund. State Scorecard on Health System Performance. 2009 http://datacenter.commonwealthfund.org/#ind=1/sc=1. Accessed November 25, 2013.

[5] Starfield, B.; Leiyu, S.; Macinko, J. Contribution of Primary Care to Health Systems and Health. The Milbank Quarterly, Vol 83, No. 3, 2005.

practitioner (NP) or a physician assistant (PA) for timely access to care.[6] In 2010, there were 1,525 NPs actively practicing in South Carolina. Of the actively practicing NPs in the state, 1,228 (80.5%) practiced in a primary care clinical specialty.[7] Data for 2010 published by the Agency for Healthcare Research and Quality shows that South Carolina ranks substantially above the national average (52.0%) of nurse practitioners practicing in primary care.[8]

In 2011, there were 847 PAs actively practicing in South Carolina, of which 292 (34.5%) were reported as practicing in a primary care specialty.[9] According to 2010 data reported by the Agency for Healthcare Research and Quality, South Carolina ranks below the national average (43.4%) of physician assistants practicing in primary care.[8]

Scope of practice laws allow these advanced-practice professionals the ability to perform a wide range of medical acts, tasks and functions, including primary care and specialty care services. Under state law physician assistants must practice under physician supervision, but nurse practitioners can work independently of a physician in certain circumstances. According to South Carolina Code of Laws, advanced-practice NPs can perform delegated medical acts under the general supervision of a licensed physician who must be "readily available for consultation." Further, South Carolina laws require that NPs perform medical acts in a practice site no greater than forty-five miles from the supervising physician.[10] In laymen's terms, the supervising physician is not required to physically be present in the place where medical services are rendered; however, he or she must be in contact. This should be considered in addressing the primary care shortage in the state, as the majority of the NPs in South Carolina practice in primary care.

For the purposes of this report, the GME Advisory Group determined that advanced-practice professionals—nurse practitioners and physician assistants—should be included in all discussions concerning physician shortages and potential strategies.

Two other issues critical to examine are the number of physicians expected to retire, and the extent to which the physician workforce reflects the racial composition of the population being served. Research shows that the states with the highest percentages of near retirement primary care physicians tend to be located in the Southern region of the United States. Further, research suggests that many of these locations with high proportions of older primary care physicians had an overall low supply and high demand for primary care.[11] South Carolina is no exception. According to the 2013 State Physician Workforce Data Book, 25.2% of active physicians in South Carolina were age 60 and older.[3] With

[6] Health Affairs. Survey Shows Consumers Open to a Greater Role for Physician Assistants and Nurse Practitioners. Health Affairs. June 2013. http://content.healthaffairs.org/content/32/6/1135.abstract. Accessed October 8, 2013.

[7] Office for Healthcare Workforce Analysis & Planning. Nurse Practitioners Data Brief. 2013.

[8] AHRQ. The Number of Nurse Practitioners and Physician Assistants Practicing Primary Care in the United States. Agency for Healthcare Research and Quality. 2010. http://www.ahrq.gov/research/findings/factsheets/primary/pcwork2/index.html. Accessed December 10, 2013.

[9] Office for Healthcare Workforce Analysis & Planning. Physician Assistants Data Brief. 2013.

[10] South Carolina Legislature. Code of Laws, Title 40, Chapter 33, Nurses, Article 1, Nurse Practice Act. http://www.scstatehouse.gov/code/t40c033.php. Accessed November 25, 2013.

[11] RHRC. The Aging of the Primary Care Physician Workforce: Are Rural Locations Vulnerable? Rural Health Research & Policy Centers Policy Brief. June 2009. http://depts.washington.edu/uwrhrc/uploads/Aging_MDs_PB.pdf. Accessed November 26, 2013.

[3] AAMC Center for Workforce Studies State Physician Workforce Data Book. 2013.

over a quarter of the state's physician workforce close to retirement, shortages brought about from "aging out" alone may exacerbate the primary care physician shortage in South Carolina in the near future.

The demographics of the physician workforce in South Carolina do not reflect the racial composition of South Carolina's population. In 2009, approximately 5.8% of the physician workforce identified as African-American compared to almost 29% of the state's residents identified as African-American. This is particularly concerning because research suggests that people from underrepresented groups generally prefer to see providers who share their racial and ethnic backgrounds. Approximately 34% of the minority population in South Carolina lives in rural areas, the majority of whom are African-American. Data show that minority physicians in South Carolina make up a larger share of the physician workforce in rural areas of the state than in urban areas. However, having too few minority physicians in the state's physician workforce overall has implications for access to care for many members of underrepresented populations in South Carolina.[12]

Health Professional Shortage Area Designation & Physician Workforce Needs

Americans residing in rural areas often have limited access to health care, because physicians disproportionately settle and practice in urban areas. National data show that only about 10% of physicians in America practice in rural areas despite that fact that one-fourth of the U.S. population lives in these areas. The maldistribution of primary care physicians in rural and underserved areas led Congress to pass the Health Professions Educational Assistance Act of 1976, which included the identification of Health Professional Shortage Areas (HPSAs).[13]

HPSAs are designated by the Health Resources and Services Administration (HRSA) as having shortages of primary medical care, dental or mental health providers. Medically Underserved Areas/Populations are areas or populations designated by HRSA as having too few primary care providers, high infant mortality, high poverty and/or high elderly population. Designation as a Medically Underserved Area requires an Index of Medical Underservice (IMU) of 62 or less (0 = completely underserved and 100 = best served) for a particular service area. The IMU involves four variables – ratio of primary medical care physicians per 1,000 population, infant mortality rate, percentage of the population with incomes below the poverty level and percentage of the population age 65 or over. Medically Underserved Populations (MUPs) may include groups of persons who face economic, cultural or linguistic barriers to health care. Economic barriers are

[12] Office for Healthcare Workforce Analysis & Planning. The Physician Workforce in South Carolina, Office for Healthcare Workforce Analysis & Planning. 2011.

[13] Castillo, G.; Gamm, L; Pittmann, S. Access to Quality Health Services in Rural Areas-Primary Care: A Literature Review. Rural Healthy People. 2010.

defined as low-income or Medicaid-eligible populations. (See map Appendix A.)

Although many definitions exist on how to properly identify rural areas, South Carolina's rural areas can best be described as transitional. State experts assert that the urban areas in the state are often bordered by rural areas, with very little suburban areas in between. One analysis shows that one-third of the state's population lives in rural areas; however, only 13.6% of the total number of active physicians in South Carolina in 2011 had their primary practice site in a rural area.[14] Of the 46 counties in South Carolina, all have shortages in primary care providers and/or pockets of medically underserved populations.

Of the 46 counties in South Carolina, all have shortages in primary care providers and/or pockets of medically underserved populations

International medical graduates (IMGs) are also important contributors to the U.S. rural health care workforce. Research suggests that IMGs are more likely to practice in health professional shortage areas. National data shows that IMGs comprise approximately 22% of the total clinically active physician workforce, 19% of which practice in rural primary care. National GME experts suggest that their ongoing participation in the rural health care workforce is necessary in addressing existing rural primary care shortages.[15]

According to the physician license file data, in 2011 there were a total of 1,138 actively practicing IMG physicians in South Carolina. Although the percentage of actively practicing IMGs (12.45%) in South Carolina was substantially lower than the national average, slightly more than 20% of those actively practicing IMGs chose to practice in rural counties.[16]

Bottleneck of Medical Residency Slots

Considering the fact that the successful completion of a residency training program is the path that leads to medical licensure and thus clinical practice in the U.S., a well-functioning system of graduate medical education is critical to addressing the impending physician shortage. In response to the projected shortage, more medical schools are being built, and existing schools are increasing the number of students enrolled. The AAMC estimates that there will be an additional 7,000 medical school graduates each year over the next decade due to these increases; however, there will not be enough residency training slots to accommodate all of the medical school graduates without expanding the number of GME positions.[2]

South Carolina is home to three public medical schools – The College of Medicine at the Medical University of South Carolina (MUSC) in Charleston, the University of South Carolina School of Medicine (USCSOM) in Columbia and the University of South Carolina School of Medicine Greenville (USC-Greenville) in Greenville, and

[14] Office for Healthcare Workforce Analysis & Planning. South Carolina Health Professions Data Book, 2012.

[15] Chen, FM; Doescher, MP; Fordyce, MA, et al. Osteopathic physicians and international medical graduates in the rural primary care physician workforce. Society of Teachers of Family Medicine, 2010 Jun; 44(6): 396-403.

[16] Office for Healthcare Workforce Analysis & Planning. Retaining Physicians Educated in South Carolina Data Brief. September 2013.

[2] AAMC. Physician Shortages to Worsen Without Increases in Residency Training. Association for American Medical Colleges. https://www.aamc.org/download/286592/data/. Accessed October 31, 2013.

one private institution – Edward Via College of Osteopathic Medicine (VCOM) in Spartanburg. The last two schools, USC-Greenville and VCOM, have opened within the last three years and have not yet had a graduating class. Medical students are expected to graduate in 2015 from VCOM and in 2016 from USC-Greenville.

The two new medical schools are having an immediate impact on the number of new physicians in South Carolinas physician production pipeline. State data shows that the number of new students entering medical school in South Carolina each year has increased by approximately 88% – from 254 new students in the 2010-11 academic year to a total of 478 new students in the 2012-13 academic year.[16]

The number of new students entering medical school in South Carolina each year has increased by approximately 88% from the 2010-11 academic year to the 2012-13 academic year.

The increase in new student enrollment should be reflected in the graduation numbers for the 2014-16. State GME experts express that the rapid increase in the number of new physicians graduating from South Carolina medical schools could ultimately mean: 1) a greater number of physicians choosing to train, and ultimately remain, in practice in the state, presumably by displacing out-of-state or IMGs in the state's limited residency slots, or 2) if the number of residency training programs remains unchanged, it could mean that a greater proportion of newly graduated physicians, educated in part with state tax-payer support, would have to leave the state in order to finish their training. Historical trends suggest that when a new physician leaves the state for residency training, he or she is less likely to return to South Carolina to practice than if they had been able to complete their residency training in-state.[18]

South Carolina boasts 14 resident teaching hospitals. Of the 14 teaching hospitals in the state, eight are in the Upstate region.

As of September 2013, a total of 1,385 residency training positions accredited by the Accreditation Council for Graduate Medical Education (ACGME) were available in South Carolina:[26]

- 803 in specialty care programs
- 582 in primary care programs.

In South Carolina, 42% of the ACGME-accredited residents were in primary care specialties in 2013. However, state data suggests that about half of physicians who complete residency training in internal medicine go on to practice in subspecialty areas.[17] It is important to note that the reported 50% of internal medicine residents that go on to subspecialize is probably underestimated, because the data does not distinguish between internists practicing in office-based primary care settings and those working as hospitalists. Research suggests that the inclusion of internal medicine often overestimates primary care production, as it is often difficult to account for the number of internists practicing as hospitalists.[19]

[16] Office for Healthcare Workforce Analysis & Planning. Retaining Physicians Educated in South Carolina Data Brief. September 2013.

[18] Office for Healthcare Workforce Analysis & Planning. Trends in Student Enrollment and Graduation in South Carolina Medical Schools Data Brief. September 2013.

[26] Office for Healthcare Workforce Analysis & Planning. 2010 SC Medical School Graduates and Location of Residency Training PGY1, updated December 2013.

[17] Office for Healthcare Workforce Analysis & Planning. "Retention Study of SC Physicians Who Did Their Residency within South Carolina" Unpublished document. October 2013.

[19] Chen, C; Petterson, S; Phillips, R, et al. Toward Graduate Medical Education (GME) Accountability: Measuring the Outcomes of GME Institutions. Academic Medicine September 2013; Volume 88, Issue 9: 1267-1280.

State GME experts agree that the figure is much higher than what is reported. A recent study conducted by the AAMC supports that assertion in its findings that, of the new doctors trained by U.S. physician training programs, only 24% go on to practice primary care. In fact, of the 24%, the AAMC says that 17% of internists self-identify as hospitalists.[19]

For the purposes of this report, the GME Advisory Group determined that a particular focus for expanding primary care should be on family medicine slots.

Problematic STP Funding Mechanisms

In May 2012, the director of SCDHHS requested an internal audit review of the Supplemental Teaching Physician (STP) payments made under the Medicaid program to teaching hospitals and medical universities in South Carolina. The audit looked at the hospital GME payments as well. The review found that in state fiscal years 2008 through 2011, the state disbursed $324,386,583 in supplemental teaching physician payments and $367,754,841 in GME payments. Despite the substantial amount of STP and GME payments, several deficiencies were found regarding program oversight and payment methodology, as follows:

- **Lack of agency policies for STP** – The Division of Audits could not identify written policies and procedures that guided the calculation and distribution of STP payments beyond those outlined in the State Medicaid Plan. There are no contracts between the teaching hospitals and universities and SCDHHS that established how STP funding was to be distributed, the roles and responsibilities for each party, and SCDHHS expectations for how the STP should be used. Importantly, each organization designates physicians as "teaching" according to its own guidelines.

- **STPs are based on physician charges, not Medicaid reimbursement** – The STP program pays a premium on services provided by teaching physicians to Medicaid enrollees. This premium is paid on a base of physician charges, not Medicaid reimbursement. The average ratio of program charges to Medicaid payments is 3.7 to 1. Although CMS approved this payment methodology, because charges may be raised by the teaching program independent of Medicaid reimbursement, SCDHHS is effectively not in control of rate setting for these payments. During the period examined, the universities and hospitals received substantially more in supplemental teaching physician payments than what was paid for the actual professional (physicians) services themselves which generate these STP payments.

- **Lack of goals for funding and tracking** – The ultimate purpose of the teaching payments had never been clearly defined or understood by the agency. The

[19] Chen, C; Petterson, S; Phillips, R, et al. Toward Graduate Medical Education (GME) Accountability: Measuring the Outcomes of GME Institutions. Academic Medicine September 2013; Volume 88, Issue 9: 1267-1280.

program name itself is misleading because payments are not uniformly used as supplements to teaching physicians, but rather the payments are made directly to the hospitals and universities that employ or sponsor these physicians.

Shortly after the completion of the SCDHHS audit, and independent from its findings, SCDHHS was notified by CMS that, as result of a "same page issue," CMS was opening up the state plan language for the STP payments. Specifically, CMS indicated that a premium paid based on charges was no longer acceptable.

Nationally, South Carolina ranked 8th in total GME payments made under the Medicaid program in 2012.

Current GME Slots and Funding

Nationally, Medicare is the single largest source of funding for graduate medical education in the U.S., accounting for almost $10 billion annually. Although GME funding is optional for state Medicaid programs, SCDHHS also provides Direct Medical Education and Indirect Medical Education payments to teaching hospitals (traditionally known as GME funding), as well as supplemental teaching physician payments for the GME program. Medicare payments are entirely federal dollars; South Carolina Medicaid payments are a mixture of state and federal dollars.

According to an AAMC 50-state survey in 2012,[20] Medicaid agencies in eight states do not provide GME payments, and five states reported having recently considered ending GME Medicaid payments. Of the 42 states and the District of Columbia that made GME payments under their Medicaid program in 2012, South Carolina ranked 8th in overall payments. In addition, of the 36 states in the survey with risk-based managed care programs, only 23 (65%) provided GME support to the teaching institutions under the Medicaid managed care plans in 2012. South Carolina provides both GME payments and the STP payments to teaching hospitals that provide care under a managed care plan.

The AAMC survey also found little correlation between the amount of total GME payments provided and the number of teaching hospitals and medical residents in the state. Only three states ranked in the top ten for both factors. While South Carolina ranked number 8th nationally in terms of the size of its GME payments, it was 33rd nationally in the number of GME residents and fellows per 100,000 population.[3]

During state fiscal year 2012, a total of $185,302,694 in Medicaid GME and STP funds were provided to the medical colleges and teaching hospitals. With the addition of Medicare funds this figure is $268,512,927. Table 1 shows the relative percentages of the three funding sources. Medicare funds its "share" of 847.6 residencies (as indicated in 2012 hospital cost reports) based on Medicare

[20] AAMC. Medicaid Graduate Medical Education Payments: A 50 -State Survey. 2013.

[3] AAMC Center for Workforce Studies State Physician Workforce Data Book. 2013.

utilization (i.e., the percentage of Medicare patients the hospital sees). Medicaid also pays for its "share" of these 847.6 residencies and provides funding above this cap, for a total of 1,056.14 full-time equivalent (FTE) GME residencies funded by Medicare and/or Medicaid. (Table 2)

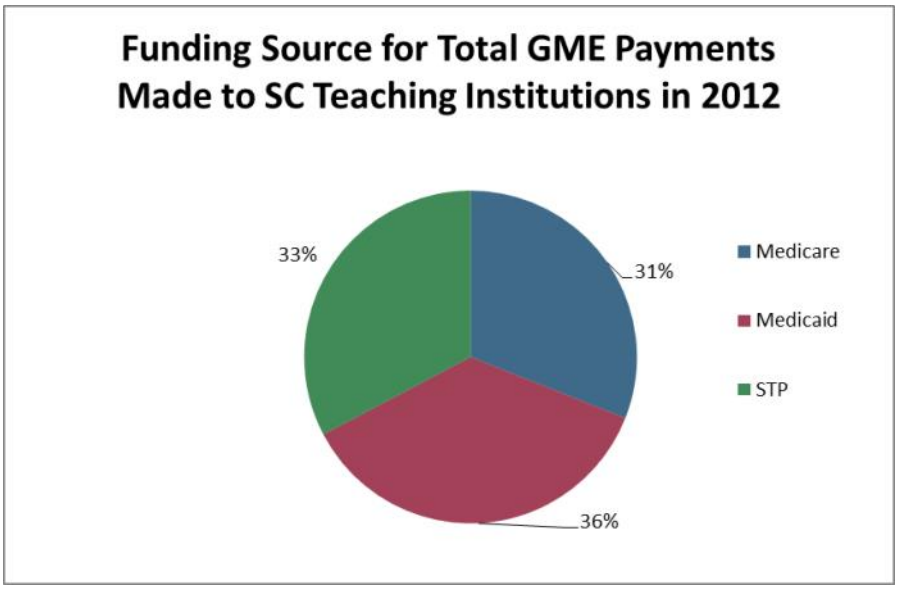


Table 1

Source: SCDHHS Financial Reports for GME/STP Payments Made to Teaching Hospitals/Medical Universities during SFY 2012

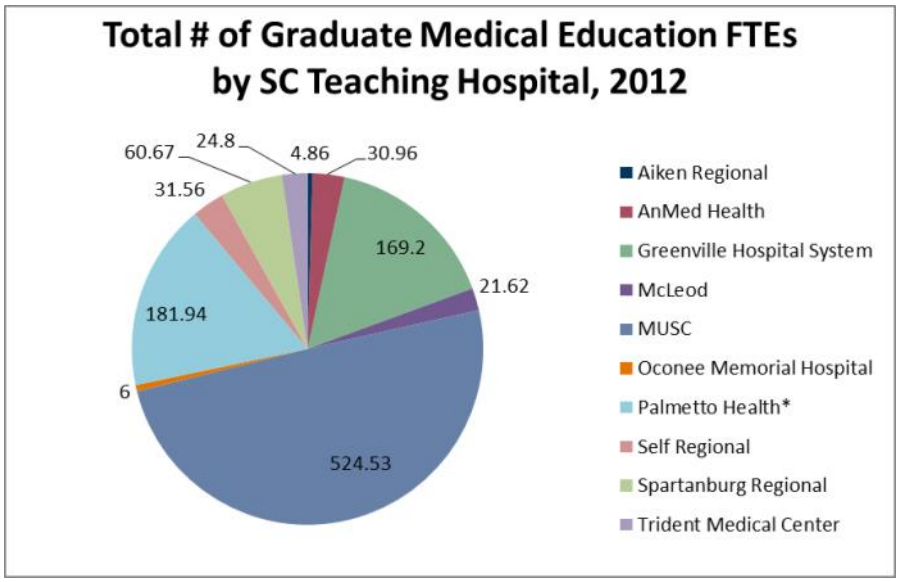


Table 2

Source: SCDHHS Financial Reports for GME/STP Payments Made to Teaching Hospitals/Medical Universities during SFY 2012.

*Greenville Hospital System includes Greer, Hillcrest and Patewood Memorial. Palmetto Health includes both Palmetto Richland and Palmetto Baptist hospitals

Despite billions in public funding going toward physician workforce development in the U.S., critical shortages in the physician workforce abound nationwide. This is

especially true in rural and underserved areas of the country. The American Academy of Family Physicians (AAFP) explains it this way: "medical education in the United States has become specialized, centralized and urban…As a result, medical training has been challenged to remain relevant to the needs of those small communities, and a persistent geographical maldistribution of physicians has characterized the past 70-80 years."[21]

According to the Robert Graham Center, the GME program in the U.S. is "not producing enough of what we need, [and] where we need them." [22] The same may hold true for South Carolina.

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[21] AAFP. Rural Practice: Graduate Medical Education for (Position Paper). American Academy of Family Physicians. http://www.aafp.org/about/policies/all/rural-practice.html. Accessed November 22, 2013.

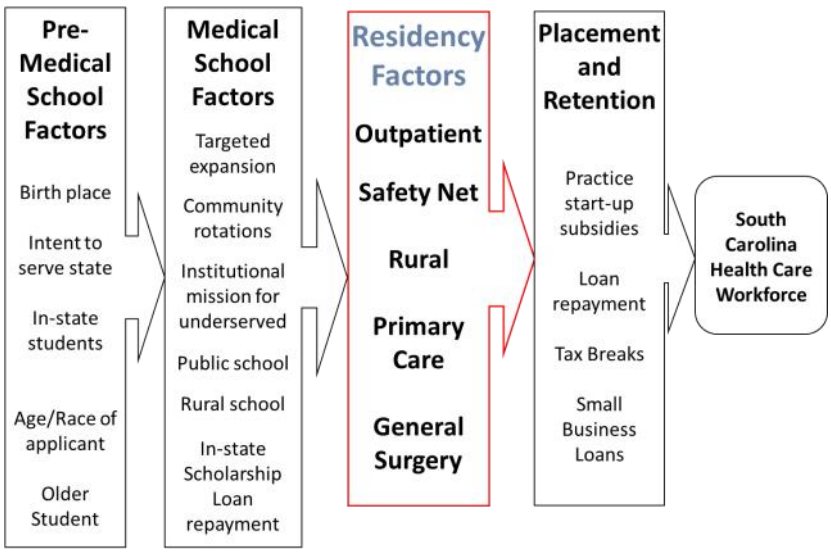
[22] The Robert Graham presentation to SC GME Advisory Group, Dr. Andrew Bazemore, September 2013.

MODELS AND STRATEGIES

Given the requirements of Proviso 33.34 to incentivize the development of rural physician coverage and capacity building, plus the goals developed early in its deliberative process, the GME Advisory Group adopted the Robert Graham Center's conceptual model of the physician production pipeline that follows the entire physician career pathway. This begins with identifying and encouraging qualified high school and college students interested in pursuing careers in medicine, especially minority and disadvantaged students; continues with supports, interventions and capacity building for undergraduate (medical school) and graduate (residency) medical education that will produce more primary care physicians and advanced practice professionals; and finally looks at ways to attract and retain primary care professionals in rural and medically-underserved areas in South Carolina. In developing this strategy the GME Advisory Group used material presented by Robert Graham Center in Washington, D.C., and Cecil G. Sheps Center for Health Services Research at the University of North Carolina (UNC).

State policymakers and GME stakeholders should reframe GME not as a stand-alone intervention to influence the specialty choice and geographic distribution of the physician workforce, but as a continuum of transitions linked across a physician's career…physicians who complete both UME and GME in the same state are more likely to practice in that state than are physicians who only complete one or the other in the state. For the highest return on investment, state policymakers should consider the physician pipeline beginning with admissions to medical school, and continuing through GME training, and out into practice.[23]

Physician Production Pipeline



Source: Presentation by the Robert Graham Center, September 23, 2013.

[23] The Cecil G. Sheps Center for Health Services Research, University of North Carolina. GME in the United States: A Review of State Initiatives. September 2013.

Various factors can influence practice location decisions by physicians, which should be considered to determine what opportunities exist along the pipeline to entice physicians to, and retain them in, rural areas and primary care.[24]

The following sections will examine the current gaps in the South Carolina pipeline for producing physicians and advanced practice professionals, and review models and/or strategies for addressing those gaps that should ultimately result in the creation of a health care workface better suited to meet the state's needs. These models and strategies are drawn from programs and processes already in place in South Carolina; from a review of the literature; from practices and experience of other states; and from the presentations and other material provided by the Robert Graham Center and the Sheps Center at UNC.

High School and College/Pre-Medical School

The first access point in the "physician production pipeline" is to identify and nurture qualified high school and college level students interested in pursuing health care careers, and there is evidence that individuals from rural communities are likely to return to a rural community once they have completed medical training.[25] The focus of this effort is not simply to produce more physicians, but to address the shortage of primary care physicians and health care access issues in rural and underserved areas, which has a disproportionate impact on minority, Medicaid and uninsured populations. At the same time, in order to have a future physician workforce best suited to meet South Carolina's needs, there must be a focus on the rural and minority students of today. In other words, the "development of rural physician coverage" envisioned by Proviso 33.34 begins here.

A national model for this first access point in the "pipeline" is the Summer Medical and Dental Education Program (SMDEP). SMDEP is a free six-week summer academic enrichment program that offers students a variety of academic and career experiences that will support their medical school career preparation. The program focuses on academic enrichment in basic sciences and math; learning and study skills seminars; clinical experiences; career development activities; and a financial planning workshop. The SMDEP is implemented at 12 program sites across the nation – the closest one operated at Duke University.

There are also models supporting this strategy already in existence in South Carolina:

1. **The South Carolina Area Health Education Consortium (AHEC) Health Careers Promotion and Preparation Program** aims to increase the number of

[24] J Rural Health. Factors that Influence Physicians to Practice in Rural Locations: A Review and Commentary. The Journal of Rural Health 2009 Summer, 25(3):276-81.

[25] NRHA. Health Care Workforce Distribution and Shortage Issues in Rural Health Policy Brief. National Rural Health Association. January 2012. Accessed December 10, 2013.

students entering health professions in South Carolina, with a focus on underrepresented minority and disadvantaged students. There are multiple educational opportunities sponsored through these programs, which are targeted to high school students. For example, the Health Careers Academy is a four year, extracurricular health career exploration experience. Communications, math and science make up a curriculum specifically designed to prepare participants for the academic challenge of pre-health training programs. In addition, the Summer Careers Academy is designed to increase the acceptance, retention and graduation rates of under-represented minority and disadvantaged students into health career training programs in South Carolina. This program encompasses medicine, nursing, physician assistant studies, dental medicine, pharmacy and occupational therapy. The Academy is conducted in collaboration with the MUSC College of Medicine, College of Nursing, College of Dental Medicine, College of Health Professions and the South Carolina College of Pharmacy.

In 2012-2013, the budget for the Health Careers Promotion and Preparation Program (HCPP) was $392,895, which was used to help provide a total of 12,429 contact hours with students and their families. Based on data provided by AHEC from 2003-2009, over 2,100 students participated in HCPP activities. Of the students who could be tracked and who spent at least 110 hours in HCPP activities, a total of 130 high school students entered into college programs. Of the 77 students who have graduated from college so far, an average of 70% were health majors. (It should be noted that it is oftentimes difficult to track high school students throughout their college career and, consequently, the actual number of high school students in the HCPP program that entered into college and were health majors may be understated.) Four South Carolina AHEC HCPP Coordinators work directly with students from more than 60 high schools located in all four AHEC regions of the state and have distributed Health Careers Academy educational modules to over 20 other high schools in South Carolina.

2. **The AHEC Bench to Bedside Initiative (B2B)** works to increase the number of applicants and the acceptance rates of underrepresented minority college students to health professions education programs in the state. In partnership with several of South Carolina's undergraduate colleges, AHEC facilitates a series of interactive, intercollegiate seminars and activities designed to address barriers that impact the successful matriculation of the targeted population. The South Carolina Health Occupations Outreach Learning System (SCHOOLS) teleconferencing network is utilized to deliver educational

sessions which promote professional and personal development and the investigation of health care research topics. Funded by a three-year grant from The Duke Endowment, the Bench to Bedside initiative has convened a core committee of campus faculty to support project coordination, content design and program implementation. Participating campuses include Claflin University, Clemson University, Coastal Carolina University, College of Charleston, Greenville Technical College and Winthrop University. The total budget in fiscal year 13 was $250,000, with 85 participants, for an average anticipated cost per participant of $2,941. Since this program is new, an evaluation has not yet been completed; however, anticipated performance measures are:

- Number of participants pursuing a health science major
- Number of participants applying to health careers training program
- Number of applicants accepted into a health careers program.

Undergraduate Medical Education (Medical School)

An important gap in the South Carolina physician production pipeline is the low number of students from rural counties who are admitted to medical school after completing an undergraduate degree. According to the National Rural Health Association, as long as rural students more generally experience inadequate preparation in key math and science topics that facilitate entry into medical school, overall lower educational attainment and socioeconomic status, fewer role models and less encouragement to pursue advanced degrees than their urban counterparts, a disproportionate number of physicians will naturally matriculate into medical schools from urban areas.[25]

A study completed in 2010 by the South Carolina Office for Healthcare Workforce Analysis and Planning (based on data from the 2006 and 2007 MUSC and USC medical schools' applicant pool) traced the relationship between birthplace, high school location and first-year residency location for 2010 graduates. Of the 213 physicians who graduated from a South Carolina medical school in 2010, 112 could be identified as having attended high school in South Carolina; of these students, 95 (84.8%) came from a high school in an urban area and only 16 (14.3%) came from rural counties.[26,*]

At the same time, there has been a general decline in the number of medical students entering family medicine, general internal medicine and general pediatrics, and this is also having a more pronounced impact in rural locations.[27]

[25] NRHA. Health Care Workforce Distribution and Shortage Issues in Rural Health Policy Brief. National Rural Health Association. January 2012. Accessed December 10, 2013.

[26] NRHA. Health Care Workforce Distribution and Shortage Issues in Rural Health Policy Brief. National Rural Health Association. January 2012. Accessed December 10, 2013.

[*] Data caveat: The USC applicant data did not include high school location information for their 2006 and 2007 applicants, but due to a large overlap in the applicant pool for USC and MUSC, applicant information from MUSC was used to fill in the high school locations for some USC graduates. Any 2010 graduates that did not also apply to MUSC did not have high school data available for this analysis.

[27] Health Affairs. Accelerating Physician Workforce Transformation Through Competitive Graduate Medical Education Funding. Health Affairs. Vol 32. Number 11. November 2013.

Overall, however, South Carolina is turning out more medical school graduates. This increase is fueled by the opening of USCSOM-Greenville and VCOM—South Carolina's sole doctor of osteopathic medicine (DO) school. The prospects for more primary care physicians should be bolstered with the VCOM first graduating class; historically, about 32% of graduating DO students report that they want to enter into primary care specialties,[28] compared to 20% of allopathic medical students.[29] According to the American Osteopathic Association, there are 82,500 osteopathic physicians in the U.S. today; 60% practice in primary care.[30]

Information from the pubic website for the ACGME gives an indication of the primary care residencies medical students are going into. Please note that the total of GME residencies reported in this table are based on data reported as of the last ACGME site visit, and therefore is not as up-to-date as the number (1,385) reported on page 13.

Distribution of Primary Care Residencies

Hospital	Affiliated Medical Colleges	Total GME Residencies Filled (1)	Percent Primary Care (2)
Spartanburg Regional Health Care System	V-Com, MUSC	59	90%
McLeod Regional Medical Center	MUSC	24	100%
Greenville Hospital System	USC SOM	196	74%
AnMed Health (3)	MUSC	39	97%
Self Regional Health Care	MUSC	30	97%
Palmetto Health	USC SOM	231	60%
Trident Medical Center	MUSC	37	84%
Medical University Hospital	MUSC	653	31%
TOTALS		**1269**	**52%**

Source: ACGME Accreditation Data System

(1) Total resident positions filled

(2) Primary care includes family medicine, general internal medicine, general pediatrics, geriatrics, OB/GYN and general surgery.

(3) Oconee Medical Center is included in AnMed Health.

According to the Robert Graham Center, encouraging more students to go into primary care is critical to the "social mission" of the medical schools. The social mission of medical education is "the contribution of a medical school in its mission, programs and the performance of its graduates to addressing the critical and unmet health problems of the society in which it exists." A "Social Mission

[28] Medical Economics, Osteopathic Medical Students Could be a Solution to the Primary Care Shortage. http://medicaleconomicsmodernmedicine.com Accessed October 28, 2013.

[29] Sadick, Barbara. In Search of More Primary-Care Doctors. Journal reports: Health Care, the Wall Street Journal, November 17, 2013

[30] Health Affairs. A New Pathway for Medical Education. Health Affairs. Vol. 32, No. 11. November 2013.

Score" was developed to rate medical colleges based on a composite of three measurements, the percentage of graduates who practice in primary care, work in professional health shortage areas and are under-represented minorities.[22] The description of the social mission score and rankings for MUSC and USC were part of the Robert Graham Center's presentation to the GME advisory group, which is available on the SCDHHS website at www.scdhhs.gov.

Nationally, there are multiple models for helping students from under-represented populations overcome barriers to admittance to medical school and/or advanced degree programs for nurse practitioners and physician assistants. Most of the programs have been implemented at universities to help these students reach their goals, such as the University of Illinois at Chicago's Urban Health Program. The Urban Health Program has been in existence for over 30 years and has been exposing Chicago-area public and private school students as young as five years old to health careers. According to the National Center for Education Statistics (NCES), the local impact has been significant: nearly 70% of all African-American and Latino doctors practicing in Chicago are graduates of the University of Illinois or the Urban Health Program. Further, the NCES reported that the University of Illinois was the second producer nationwide in the number of minority physicians in 2008, and in May 2009, 64 African-American and Latino students graduated with medical degrees.[31]

Another notable model for helping students from rural and underserved areas is the Physician Shortage Area Program (PSAP) at Jefferson Medical College in Pennsylvania. The PSAP is an admissions and educational program designed to increase the supply and retention of physicians in rural areas and small towns. The program is designed to recruit and educate medical students who grew up in a rural area or small town and who intend to practice in rural communities – with a priority being placed on those medical students planning to practice in family medicine. According to the New England Journal of Medicine and the Journal of American Medical Association (JAMA), outcomes of the PSAP have shown that PSAP graduates are eight times more likely than their peers to become rural family physicians; have a retention rate of 79% after 11-16 years in practice;1 and account for 21% of family physicians practicing in rural Pennsylvania, even though they represent only 1% of graduates from one of the state's seven medical schools.[32]

Models like the Urban Health Program at the University of Illinois and the Physician Shortage Area Program at Jefferson Medical College demonstrate that rather than simply accepting that medical schools have no influence over eventual specialty selection and practice location of their students, medical school

[22] The Robert Graham presentation to SC GME Advisory Group, Dr. Andrew Bazemore, September 2013.

[31] Anyaso, H. Patching the Pipeline. The New Physician October 2009: Volume 58, Number 7.

[32] Jefferson Medical College. Physician Shortage Area Program (PSAP). http://www.jefferson.edu/jmc/psap.html. Accessed December 10, 2013.

programs can succeed in designing programs with specific desired outcomes. It has also been argued that "changes in the way medical students are selected will make for better primary care physicians. Grades and test scores can no longer be the exclusive criteria for entry into primary care."[16] This has not meant easing medical school admission standards. Rather, this has meant:

1. Assistance with MCATs preparation for rural and disadvantaged students;
2. Discussions with Medical School Admission Committees to broaden standards to include more students from rural areas and ensure that more rural and primary care physicians are on the admissions committee.
3. Seeking out students with public service work experience and those from disadvantaged backgrounds who are likely to return to their communities to practice.
4. Targeting scholarship programs to ensure greater diversity among medical school students that are under-represented in the health care work force.

Nationally, there are multiple models for helping students from under-represented populations overcome barriers to admittance to medical school and/or advanced degree programs for nurse practitioners and physician assistants.

The AAMC administered a web-based survey to the deans of 138 U.S. medical schools in 2012. Seventy-six percent of schools responding to the survey said they either had or were planning at least one initiative to increase student interest in primary care specialties. These efforts included changes in curriculum, extracurricular opportunities, expanded faculty resources and training, and changes in admissions criteria.[33]

The advisory group also identified two model programs in South Carolina directed at college students and which focused on these goals:

1. The **AHEC Health Professions Students Program** helps arrange required community-based rotations and provides housing for health professions students in the fields of medicine, nursing, pharmacy, dentistry and the allied health sciences. Many of these rotations are in rural and medically-underserved communities. Clinical rotation sites include private clinical practices, community health centers, rural health clinics, and hospitals. The total budget in fiscal year 13 was $658,983, with 468 students obtaining 902 placements, for an average cost of $1,408 per student and $730 per placement.

   Performance data for this approach to date have come from an AHEC program known as the South Carolina Rural Interdisciplinary Program of Training (SCRIPT) program, which provided for a summer experience that was more intense than the normal Health Profession Student clinical rotation. SCRIPT ran from 1994 until 2010 with the goal of preparing health professions

[16] Office for Healthcare Workforce Analysis & Planning. November 2013.

[33] AAMC. U.S. Medical Schools' Ongoing Efforts to Meet Physician Workforce Needs Analysis in Brief. Association of American Medical Colleges. June 2013: Volume 13, Number 4 https://www.aamc.org/download/347038/data/june2013analysisinbrief-usmedicalschoolsongoingeffortstomeetphy.pdf. Accessed October 15, 2013.

students to deliver culturally appropriate care in rural settings from an interdisciplinary and community-focused perspective. A total of 866 South Carolina health profession students from 14 disciplines completed the SCRIPT program during the 17 years it was in existence. Five SCRIPT alumni surveys were conducted in 2001, 2003, 2005, 2007 and 2009. Data from those surveys found that 90% of alumni demonstrated intent to practice on an interdisciplinary team and 40% were either practicing in a rural area or intended to practice in a rural area.

2. The **Institute for Primary Care Education and Practice at MUSC and USC** is funded through a three-year grant from The Duke Endowment with the goal of supporting students who begin their health profession training with a vision of practicing in primary care. The premise is to build a support infrastructure so that when the students graduate they will continue in a primary care residency program and then practice in their field. Currently 80 first and/or second year students are signed up – physician assistants, advanced practice nurse practitioners and medical students. There potentially will be up to 100 students. The program provides a monthly seminar to the students on topics important to working in primary care, and offers other supports through networking events and social media.

   The program also offers each student the opportunity to link with a community-based preceptor working in primary care; currently the program has 22 preceptors. The preceptors are drawn from medical practices throughout the state, many of them rural, and hold "clinical" faculty appointments with MUSC or USC. The Medicaid supplemental teaching physician payments are not currently used to support the preceptors for this program; it has been voluntary on the part of the physicians.

   The budget for this program is $250,000 from The Duke Endowment and $157,394 in state appropriations, at a cost of $4,072 per student (for 100 students). Since this program is new, an evaluation of its effectiveness has not yet been conducted. It is anticipated that at least 70% of the students who participate in the Institute throughout their training will graduate with plans to enter careers in primary care. Anticipated evaluation methods include:

   - Students will be surveyed annually to obtain baseline information about their knowledge, attitudes, and beliefs about primary care and the issues that may influence their ultimate decision about their specialty choice.

- Using a database created in the South Carolina AHEC Program Office, Institute students will be followed after they graduate to determine where they are practicing and the type of clinical practice with which they are involved.

Clinical rotations for medical students in community-based settings, such as rural health clinics and physician's offices, are an important part of training a primary care workforce. It is also critical to training larger numbers of advanced practice professionals such as nurse practitioners and physician assistants. While advanced practice professions do not routinely have to complete post-graduate programs (i.e., a GME residency) they must complete a certain number of hours of clinical experience while in school, as do medical students. Indeed, medical students are in direct competition with the NPs and PAs for the current limited number of clinical rotations currently available, according to program directors at MUSC.

Two programs in South Carolina previously facilitated clinical rotations for medical students in community based settings. The South Carolina Student Experiences and Rotations in Community Health (SEARCH) started in 1994 through HRSA funding of a South Carolina Office of Rural Health (SCORH) and South Carolina Primary Health Care Association partnership. SCORH provided student coordination and facilitated 17 years of graduate health professional student placements in rural and federally qualified health center settings. The program lost funding nationally in 2012. During SEARCH's duration communities gained access to academic resources, networked with state and regional organizations, had access to a pipeline for pending and future health care clinicians and provided preceptorship opportunities to their medical staff. Students trained in culturally diverse, community-based systems of care and gained skills in delivering primary healthcare services by working with mentors. From 1998-2012, SCORH facilitated 320 health professional student placements in medically underserved and/or rural communities, and of those 57% now practice primary care in rural and/or underserved areas of South Carolina.

In addition, in the past, a component of MUSC and USCSOM curricula included a "rural clerkship" program, mandatory for all students, which exposed them to practicing medicine in a rural area. This was important in helping students decide whether community-based medicine was right for them. However, budget cuts several years ago forced the medical schools to prioritize and funding for rural clerkships was cut. While there are still some rural teaching sites in South Carolina, the focus has moved away from this aspect of the medical school experience.

Graduate Medical Education (Residency)

The next step in the physician production pipeline is graduate medical education – the residency programs where medical school graduates actually start seeing patients in clinical settings under the supervision of faculty physicians. GME typically lasts for three years for primary care and as much as seven years for sub-specialists. As noted, an increase of about 224 or 88.2% of medical school graduates in South Carolina by 2016 is projected.[16]

However, "medical school graduates do not simply translate into new physicians unless new residency positions are also created."[23] South Carolina will not achieve a good return on investment for dollars spent on medical schools without sufficient GME slots – this is because state and national data show that physicians who complete both medical school and GME residency training in-state are far more likely to remain in-state. Nationally, about 66% of physicians who attended ***both*** medical school and graduate residency training in the same state stayed in that state to practice. In South Carolina the retention rate is 77% when both factors are present.[16] Based on the 2010 physician workforce, as measured by the American Medical Association, South Carolina ranked 9th in the country for retaining physicians who attended medical school here and completed their residency training here as well.[12]

As of September, there were 582 residency positions for primary care in South Carolina.[26] This includes internal medicine as well as family medicine, pediatrics, OB/GYN and geriatric medicine. (As noted, in many cases internal medicine graduates do not stay in general internal medicine but go on to sub-specialize.) One issue, however, is that the mechanism by which medical school graduates are matched with a residency slot is nationwide, not state-specific. The graduates apply to the top residency programs of their choice; the programs choose the GME residents from a national pool. The majority of South Carolina medical school graduates are matched to GME residency programs in other states; conversely, there have not been enough family medicine medical school graduates from USC and MUSC to fill all the in-state family medicine residency slots. Office for Healthcare Workforce Analysis and Planning data show that of the 245 physicians who graduated from a South Carolina medical school in 2010:

- 87 (35.5%) were matched to a residency program in SC; 51 were in primary care specialties
- 158 (64.5%) were matched to residency programs in other states; 85 of these were in primary care specialties.[26]

[16] Office for Healthcare Workforce Analysis & Planning. Retaining Physicians Educated in South Carolina Data Brief. September 2013.

[23] The Cecil G. Sheps Center for Health Services Research, University of North Carolina. GME in the United States: A Review of State Initiatives. September 2013.

[12] Office for Healthcare Workforce Analysis & Planning. The Physician Workforce in South Carolina, Office for Healthcare Workforce Analysis & Planning. 2011.

[26] Office for Healthcare Workforce Analysis & Planning. 2010 SC Medical School Graduates and Location of Residency Training PGY1, updated December 2013.

With USCSOM-Greenville expected to have its first graduating class in 2016 and with the VCOM in Spartanburg in 2015, there will certainly be more medical college graduates seeking GME slots and presumably more South Carolina graduates will want to stay in-state for their residency program.

To absorb these new undergraduates, there must be sufficient GME slots for family practice, other primary care specialties such as general surgery and specialties with a demonstrated shortage of practitioners (e.g. psychiatry). To meet state physician workforce needs, there must be a strategic development and positioning of the appropriate graduate medical education programs targeted to the *types* of physicians and advanced practice professionals needed, in the areas *where* they are needed.

South Carolina will not achieve a good return on investment for dollars spent on medical schools without a corresponding increase in GME slots.

There are eight family medicine residency programs in South Carolina: AnMed Health in Anderson; Trident Medical Center in Charleston; Palmetto Health in Columbia; McLeod Regional Medical Center in Florence; Greenville Hospital Systems; Self Regional Healthcare in Greenwood; Oconee Medical Center in Seneca; and Spartanburg Regional Medical Center. Information from the ACGME shows that there are approximately 214 family medicine residency slots.

Out of the eight family practice residency training programs in the state, five are in the Upstate. Other regions in the state are without such a residency training program and are therefore at a relative disadvantage in attracting and retaining physicians. According to an Institute of Medicine (IOM) report, once students are trained in rural areas, they are more likely to remain in rural areas.[25] Perhaps not coincidentally, these rural areas coincide with the counties along the I-95 corridor in the Pee Dee and the Lowcountry, which also happen to comprise many of the counties in the most medically underserved areas. (See map in Appendix A.) Data from the 2009 American Medical Association Physician Masterfile shows that 56% of family residency program graduates practice within 100 miles of their residency programs.[34]

Rural training tracks (RTTs) have changed the scale generally thought necessary for a rigorous teaching program to one that fits rural communities. A rural training track prepares residents for a rural practice in any specialty and can be integrated with experience in community-based facilities. RTTs are a demonstrated boon for both recruitment of practitioners and retention of experienced rural faculty, and have proven successful in placing a high percentage of their graduates in rural locations.[35]

Given the increase in graduating medical students, the current primary care physician shortages and the need to replace retiring primary care doctors, the lack

[25] NRHA. Health Care Workforce Distribution and Shortage Issues in Rural Health Policy Brief. National Rural Health Association. January 2012. Accessed December 10, 2013.

[34] AAFP. Migration After Family Medicine Residency: 56% of Graduates Practice Within 100 Miles of Training. American Academy of Family Physicians. http://www.graham-center.org/online/etc/medialib/graham/documents/publications/migration-after-residency.Par.0001.File.dat/nov_15_graham.pdf. Accessed October 30, 2013

[35] National Rural Health Association Policy Brief: Graduate Medical Education for Rural Practice, 2008. http://www.ruralhealthweb.org.

of GME slots could create a major gap in the physician pipeline unless new slots are created for the right specialties in the right geography at the right training site.

However, it may not be necessary, nor even feasible, to create large numbers of primary care residency slots. Rather, a more effective approach could be to design rural training tracks that align with HPSA areas and that are part of a larger strategy to retain the primary care practitioner in the rural community once his or her GME is completed. As a place to start, adding just 20 new family practice and other primary care doctors along with a corresponding number of advanced practice professionals to targeted areas in the state, could go a long way toward alleviating health care shortages.

It is important to remember that all residency training programs must be accredited by the ACGME. The teaching institution must demonstrate its capacity to provide a quality GME experience, and it can take a significant investment in time and resources to create new GME slots.

There are several local and national models of GME designed to train primary care and rural physicians.

1. The **Seneca Lakes Family Medicine Residency Program** at Oconee Medical Center was created to populate rural upstate South Carolina with physicians trained in the full spectrum of family medicine, with the goal of providing access to quality health care in rural communities.

   The residency, which opened in July 2001, is a joint venture between Oconee Medical Center and Anderson Area Medical Center, and focuses on training physicians for a rural practice. Seneca Lakes currently is the only rural residency track program in South Carolina. In fiscal year 2013 there were six FTE positions available, which means that only two medical school graduates can be matched each year with these slots. Areas of special emphasis also include surgical obstetrics, practice management and sports medicine. GME residents in the Seneca Lakes program perform clinical rotations in the hospital setting at Oconee Medical Center, and then receive outpatient training at Seneca Medical Associates, a six-member private practice owned by the hospital system and located 0.3 miles from the hospital. GME residents learn the nature of family medicine with their own ambulatory care patients under the supervision of the family medicine doctors there.

2. The **Self Regional Family Medicine Residency** program has developed an Underserved Community Care Track for residents who are interested in providing health care to underserved and marginalized individuals of their community. The residents are being trained to assess the needs of a

community, to take a leadership role in developing medical outreach and to provide best practice medical care in the two free clinics of Greenwood.

3. Two other possibilities, **Community-Based Health Training Centers** and new or "**virgin" GME slots**, have been used in other states but so far have not been attempted in South Carolina. The 2010 Patient Protection and Affordable Care Act created two new sources of GME community-based funding through HRSA – Primary Care Residency Expansion (PCRE) grants and the Teaching Health Center (THC) agreements. PCRE funds are available to existing GME programs to provide support for expanding positions in general internal medicine, family medicine and pediatrics. The Teaching Health Center Graduate Medical Education program, a new investment made in GME on a federal level, is aimed at increasing the number of primary care residents and dentists trained in community-based ambulatory patient care settings. THC funding is available to community-based, ambulatory patient care centers with primary care (and dental) residency programs. To be eligible for the program, community-based ambulatory patient care centers must operate a primary care residency program (i.e., family medicine, internal medicine, pediatrics, OB/GYN, psychiatry, general dentistry, pediatric dentistry and geriatrics). THC-GME funding can only be used for the costs of new residents in a newly-established THC residency program or an expanded number of residents in a pre-existing THC residency program. In contrast to Medicare and Medicaid GME funds, which are provided to hospitals, THC-GME funds are provided directly to training programs located in community-based settings, such as federally qualified health centers (FQHCs). Neither the primary care residency expansion nor the teaching health center programs, however, has guaranteed annual funding past 2015.[36]

   Under current federal guidelines for GME, new residency slots can be created outside of the caps imposed by Medicare. Georgia Governor Deal spearheaded a plan to expand the number of residency positions by creating 400 new positions at hospitals that did not previously have a GME program. These so-called "virgin" hospitals would be able to capture new Medicare GME funds because they do not fall under the cap. Governor Deal's initiative, which began in fiscal year 2013, provides hospitals up to a dollar-for-dollar match for program start-up costs.

4. Another model, the **Delivery System Reform Incentive Payment (DSRIP) Pool**, allowable as a waiver program under Section 1115 of the Social Security Act, has been used by states to incentivize delivery system reform in line with the Triple Aim—a framework developed by the Institute for Healthcare

[36] The Cecil G. Sheps Center for Health Services Research, University of North Carolina. GME in the United States: A Review of State Initiatives. September 2013.

Improvement, which focuses on improving the quality of patient care, increasing efficiency and reducing costs, and addressing population health. The DSRIP program provides incentive payments to hospitals and other health providers that have agreed to undertake intensive delivery system reform. DSRIP programs must be consistent with the hospital's mission and quality goals, as well as CMS' approach to improving health care. A few states—California, Massachusetts, and Texas—are leading the way in utilizing the DSRIP program. Through use of the DSRIP waiver, states can have greater opportunities to improve access to care, improve quality of care and enhance the health of the patients in rural and medically underserved areas. As such, the DSRIP program has the potential to help states meet GME goals for expanding rural physician capacity and training. It is important to note, however, that the development of this and similar programs under 1115 waivers is a complicated process that cannot be implemented quickly.

National trends show that the debt load of many medical school graduates plays a significant role in both their specialty choice and where they go to practice.

Recruiting/Retaining Primary Care Physicians in Rural and Underserved Areas

As previously discussed in this report, in addition to the increasing shortage of physicians—more than 45,000 in primary care alone by 2020, according to the AAMC—the nation is facing a lack of primary care physicians in the areas of most need. There are several ways to approach resolution of this problem, mainly through incentive programs, loan debt repayment, and rural and underserved-specific medical training programs.

For example, the impact of the high student loan debt on the specialty choices of physicians, and where they go to practice, is critical. The AAMC reports that medical school graduates who attended a public institution are, on average, indebted upwards of $162,000; private medical school graduates owe slightly more with $181,000 in student loan debt. National trends show that the debt load of many medical school graduates play a significant role in both their specialty choice and where they go to practice. Salary is the biggest differential. Medical specialists can earn up to $500,000 a year or more, while primary care physicians make less than $225,000 a year.[37] Based on these figures, specialists have the potential to earn millions more than a primary care doctor over the course of a lifetime

Loan repayment programs are viewed as an important incentive, not just for physician recruitment but also for retention. Ideally, loan repayment programs are not limited to a fixed set of specialties but instead are linked to the specialties and

[37] AAMC. Medical Student Education: Debt, Costs, and Loan Repayment Fact Card. Association of American Medical Colleges. October 2013. https://www.aamc.org/download/152968/data. Accessed November 25, 2013.

geographies identified as shortage areas using state level health care workforce data.[21] Multiple states have physician loan repayment programs in place. Other rural physician grant programs are used to create an enhanced reimbursement as a retention strategy for physicians who lead primary care teams in rural areas. These are ongoing incentives to remain in rural areas, not time-limited like the recruitment incentives.[38]

As with other components of the physician production pipeline, there are models supporting this strategy already in existence in South Carolina.

1. **The SC Office of Rural Health (SCORH),** a 501(c) 3 nonprofit organization, is dedicated to ensuring equitable access to quality healthcare for all rural South Carolinians. SCORH's vision is that South Carolina's "rural and underserved people have optimal health care services that enhance the quality of life in every community." SCORH helps health care professionals to access programs that support retention through loan repayment and other incentives, such as the National Health Service Corps Loan Repayment Program and the SC Rural Physician Incentive Grant. For example, SCORH helps rural health clinics and other rural health care employers develop retention and recruitment plans for clinical staff and assists them with practice management. SCORH also directly provides low interest loans for construction, renovation, and capital improvements for both individual physician practices and rural health clinics and other health care facilities.

   South Carolina currently has four rural health networks dedicated to improving access to health care and securing health care safety nets. SCORH assists these networks in developing targeted projects determined by the growing needs identified in their communities, and can provide seed money for grants. All four rural health networks, which include multiple counties, have a common goal of increasing access to care, strengthening and expanding services to underserved areas, returning health care dollars to the local community, improving the cost efficiency of services and maximizing quality of health care. The Rural Health Networks encompass Critical Access Hospitals, ten small rural hospitals, five federally qualified health centers, five rural health clinics and numerous other community-based safety-net providers.

2. The **Office of Primary Care (OPC) at the SC Department of Health & Environmental Control** has the following mission statement: "Connecting Communities and Resources to Develop Accessible and Sustainable Health Care Systems in South Carolina." The OPC helps link medically underserved populations with primary health care providers. Primary care includes

[21] AAFP. Rural Practice: Graduate Medical Education for (Position Paper). American Academy of Family Physicians. http://www.aafp.org/about/policies/all/rural-practice.html. Accessed November 22, 2013.

[38] NRHRC. Midwest Retention Toolkit 2012. The National Rural Health Resource Center.

medical, dental and mental health services. Funded by the U.S. Department of Health and Human Services, the office provides health care planning and technical assistance, and maintains the health professional shortage data. The areas of greatest need for primary care in the state are designated as the Health Professional Shortage Areas.

The OPC also helps applicants complete the process required for National Health Service Corps (NHSC) grants. The NHSC is a federal program that provides scholarships or repays the educational loans of primary care physicians and other health care providers who agree to serve a minimum of two years in a federally designated health professional shortage area. In addition to physicians, health care providers who qualify for the program include nurse practitioners, physician assistants and other health professionals.

3. **Rural Physician Incentive Grants.** The South Carolina AHEC Rural Physician Program was initiated by the South Carolina Legislature in 1989 to address the undersupply of clinicians in rural and underserved South Carolina communities. The program provides incentive grants for primary care physicians who commit to practice in a medically underserved area or a health professional shortage area for at least three years. The program was inactive for about three years, but the state fiscal year 2013 budget restored $500,000 in state funding. Grants to the physicians are either $40,000 for a three-year commitment or $70,000 for a four-year commitment. The four-year commitment is reserved for physicians willing to commit to practicing in the most medically underserved areas of the state. SCDHHS has an administrative contract with AHEC to administer this program, and can leverage federal Medicaid funds for the program. The fiscal year 13 budget was a total of $745,360 in state and federal funds.

   From 1989 until 2010, 342 physicians received recruitment incentive grants from the Rural Physician program. Of this total, 89% (303) are still licensed to practice in South Carolina; 80% (276) have active practice addresses; and 69% of those physicians still actively practicing have remained in the original county in which they were placed.

4. **The Rural Outreach Program** is a project of the University of South Carolina School of Medicine (USCSOM) to offer services that will enhance the quality of health care delivered in rural and disadvantaged communities. This program is designed to encourage medical students to select a career path in rural, underserved areas of South Carolina. Under this program, USCSOM provides:

a. Management of Rural Health Revolving Loan Program to assist rural providers serving Medicaid beneficiaries.

b. Billing and coding consultations to Rural Health Clinics (RHC) and other rural providers serving recipients.

c. Provision of physician and mid-level recruitment services to assist rural hospitals, federally qualified health centers, and other rural practices serving recipients.

d. Provision of health promotion programs to recipients in rural communities by medical students under the supervision of their health promotion mentors.

e. Expansion of the rural primary care medicine experience to encourage medical students to select a career path caring for recipients in rural underserved areas of South Carolina.

Currently, the University of South Carolina (not the School of Medicine) provides matching funds of $389,809 for this program and SCDHHS provides the federal Medicaid share in the same amount, for a total budget of $779,618. The university sub-contracts with the SC Office of Rural Health (described on page 34) to carry out many of the outreach activities.

Of course, individual choice of the physician is the primary determinant of the health care workforce in South Carolina, but incentives can help attract and retain family medicine and other primary health care practitioners in rural and underserved areas. Loan repayment programs have been found to be an effective incentive, but ideally these should be part of a comprehensive recruitment and retention plan that includes things such as the availability of relief coverage for vacations and holidays, access and relationships with major medical centers and consulting specialists, availability of video conferencing and telemedicine and continuing medical education opportunities.[38]

In addition to making a rural residency program of interest to a medical school graduate, attention must also be paid to making the program and community of value to the potential resident's spouse or "significant other" and family. Factors of importance to the residents' family members include the community's grade school systems, support network for spouses and families, employment opportunities for significant others, as well as numerous other "quality of life" factors. Answering questions and providing resources that can help address some of these factors can facilitate more graduates entering rural residency programs, as well as the placement and long-term retention of residency graduates in these communities.

[38] AAMC. Medical Student Education: Debt, Costs, and Loan Repayment Fact Card. Association of American Medical Colleges. October 2013. https://www.aamc.org/download/152968/data. Accessed November 25, 2013.

Enhanced Use of Telemedicine

Telemedicine or telehealth uses specialized technology to connect urban specialty care with providers and their patients in rural areas. As such, telemedicine holds promise in terms of improved support for providers, especially advanced practice professionals, as well as increased cost efficiency, better provider communication and decreased transportation concerns. It can be an important tool for recruitment and retention of physicians and advanced practice professionals in rural and underserved areas, and ultimately helps increase access to medical care.

In the past two years, SCDHHS has developed new policy for telemedicine designed to expand its use, especially in shortage specialties such as psychiatry and OB/GYN. From 2011 to 2012, claims by Medicaid providers for telemedicine more than tripled, although telemedicine is still a very small part of Medicaid payments for physician services.

In addition, a separate section of Proviso 33.34, E (2), calls upon SCDHHS to expand the use of telemedicine and ensure targeted placement and support of OB/GYN services in at least four counties with a demonstrated lack of adequate OB/GYN resources by July 1, 2014. Based on health professional shortage data, four target counties were selected: Bamberg, Barnwell, Allendale and Hampton. SCDHHS is working with MUSC and USC to incorporate specialty maternal fetal medicine care for patients that are identified as high-risk through use of telemedicine equipment. This project will use telemedicine to enhance the OB/GYN services available in these rural and underserved counties.

POLICY OPTIONS FOR GME FUNDING CHANGES

Background

Proviso 33.34, as well as the charge to the GME Advisory Group, calls for developing a methodology to "improve accountability and increased outcomes" by leveraging the GME program. The UNC Sheps Center report on state Medicaid GME programs reports that, historically, most states' Medicaid payments for GME did not provide any leverage in targeting funding toward needed specialties or geographies.[23] The individual training institutions were responsible for making all decisions about how to allocate funding among specialties. The SCDHHS 2012 internal audit of the GME and STP programs reached much the same conclusion.

This section explores options for leveraging the Medicaid GME and STP funding and for creating reporting and performance measures that will improve the linkage of these funds with state physician workforce goals. In addition, this section identifies possible changes for the payment methodology for the GME and reviews specific options for changing supplemental teaching physician payments.

As noted previously, for the purposes of this report, "GME funding" was considered to include both the Medicaid GME and the STP payments. However, because of the different funding rules and payment flows, the two sources of money are discussed separately in this section, although performance criteria, reporting requirements and some distribution mechanisms recommended will apply equally to both.

Both Medicare and Medicaid dollars are used for GME, as the table on page 39 shows. Medicare established a cap on the number of GME positions it will support at the level of 1996 funding. Therefore, Medicare funds its "share" of 847.6 residencies based on Medicare utilization (i.e., the number of Medicare patients the hospital sees). Medicaid helps fund additional slots above this cap, for a total of 1,056.14 GME residencies funded by Medicare and/or Medicaid. However, the funding mechanisms are different, and the Medicare GME funding is entirely from federal funds and outside the management of SCDHHS. For Medicaid GME funding, state matching funds must be used for the non-federal share to draw down federal funding.

GME payment methodology as established by Medicare (and followed by SCDHHS for Medicaid) has been comprised of two components: Direct Medical Education and Indirect Medical Education. "Direct" Medical Education pays for salaries and benefits for residents, the salaries and benefits of faculty who supervise the

[23] The Cecil G. Sheps Center for Health Services Research, University of North Carolina. GME in the United States: A Review of State Initiatives. September 2013.

interns and residents, other direct costs and some institutional overhead. "Indirect" Medical Education is provided to compensate teaching hospitals for what has historically been assumed as the higher costs that are attributable to the involvement of residents in patient care and the severity of illness of patients requiring specialized services available only in teaching hospitals.[38]

The GME payments are made directly to the teaching hospitals via add-on components to the hospital-specific per discharge rates, for services provided fee-for-service. In other words, for each hospital claim SCDHHS pays to a teaching hospital, a portion of that payment is based on GME costs. For hospital services provided through Medicaid managed care organizations (MCO), and therefore not directly paid by SCDHHS, managed care inpatient hospital claims data is submitted to SCDHHS, the GME amount is calculated, and a gross adjustment is made to that hospital's Medicaid account. Ultimately, the amount of Medicaid GME paid to a hospital is determined by its Medicaid claims volume and its allowable GME costs.

Unlike many states, SCDHHS also provides a third source of funding—supplemental teaching physician payments—to the medical colleges and teaching universities. STP payments are not based on hospital costs and number of GME residents, but rather are bonus payments equal to 35% of the charges for medical services performed by teaching physicians (i.e., "medical university providers"). The State Medicaid plan establishes the requirements for who is eligible to receive supplemental teaching payments. "Medical University Providers" are defined in the SC State Medicaid Plan as "those providers who are employed by or under contract with South Carolina Medical Universities and/or their component units." Additional criteria later developed and approved by SCDHHS defined South Carolina "University Providers … as traditional tenure track faculty, full and part time faculty with USC School of Medicine and MUSC paid by affiliated Hospitals, and full time faculty paid by affiliated teaching hospitals that constitute the SC AHEC system." The State Plan also establishes that SCDHHS "will pay a quarterly, enhanced teaching fee to each participating South Carolina Medical University. The enhanced teaching payment will be equal to 35% of the actual, billed Medicaid charges."

STP funds are directly distributed by SCDHHS to the medical colleges and the affiliated teaching hospitals that employ or contract with teaching physicians. The non-federal share of these funds comes from the medical colleges' state funds and AHEC, plus money allocated through inter-governmental transfers from governmental sub-divisions (Greenville Hospital). In short, while GME funding is driven by teaching hospital costs and capacity, STP funding is driven by physician

[38] COGME. Improving Value in Graduate Medical Education Twenty-First Report. Council on Graduate Medical Education. August 2013.

charges and the number of teaching physicians that each medical school and teaching hospital reports.

SCDHHS has been informed that the U.S. Centers for Medicare and Medicaid (CMS) is no longer allowing the current payment methodology – 35% of Medicaid charges – as the basis for the STP program, and SCDHHS must file a State Plan Amendment to change the STP methodology to one approved by CMS. Any changes to GME methodology will require a State Plan Amendment and approval by CMS as well. CMS is requiring that STP payments sunset by July 1, 2014, under the current methodology.

Unlike many states, SCDHHS also provides a third source of funding —STP payments— to the medical colleges and teaching universities.

Current GME Funding in South Carolina

As noted, while South Carolina only ranked 33rd[3] in the number of GME residents and fellows, the state ranked 8th in overall payments.[20] This ranking did not include the STP payments, which were not part of the analysis. Had these payments been included, South Carolina would have ranked even higher since few states make these payments.

The total amount of state and federal Medicaid and Medicare GME funding in South Carolina, based on 2012 cost reports, was $180,703,818. If STP funds are included, this amount is more than $268 million. However, there are wide variations in the amount of GME funding received by each teaching hospital in the state on a per resident basis; these variations are further exacerbated when STP funding is added. In addition, the purpose for the STP funding is not clear; it is debatable whether it has actually been used as a GME funding source. This is discussed further on page 41.

The information in this report is taken from the hospital's cost reports that are filed with SCDHHS and which are used to establish both Medicare's and Medicaid's contributions to GME. As noted, Medicare established a cap on the number of GME positions it will support at the level of 1996 funding. The 2012 cost report data, therefore, shows that of 1,056.14 FTE GME positions, Medicare funded its share of only 847.60 of these positions. It is assumed that Medicaid and other sources of funding were used to supplement Medicare payments for these positions as well as fund the remaining GME positions. In addition, data published by Office for Healthcare Workforce Planning & Analysis shows an even higher number of GME residencies: a combined total of 1,385 GME residencies as of September 2013.[26] Many of these additional slots are at MUSC. This is above and beyond what the hospitals report on their cost reports and indicates that the teaching hospitals are using other funds, such as their own clinical revenue, for funding GME.

[3] AAMC Center for Workforce Studies State Physician Workforce Data Book. 2013.

[20] AAMC. Medicaid Graduate Medical Education Payments: A 50 -State Survey. 2013.

[26] Office for Healthcare Workforce Analysis & Planning. 2010 SC Medical School Graduates and Location of Residency Training PGY1, updated December 2013.

Medicare's support nationally for residents in training averages about $100,000 per resident per year,[38] and the average Medicare GME payment shown below is very close to that. With Medicaid funds added, that brings the average South Carolina GME payment to the teaching hospitals to $171,098 per resident for 2012, based on the number of Medicaid residencies (the larger number).

While South Carolina only ranked 33rd in the number of GME residents and fellows, South Carolina ranked 8th in overall payments.

FY 2012 GME & STP Funding in South Carolina - All Sources

Hospital/ Medical University	Total Medicaid GME Payments	Total Medicaid STP Payments	Total Medicare GME Payments	Total All Payments	Medicaid GME Slots (FTE)	Medicare GME Slots (FTE)
Aiken Regional Medical Center	$487,622	$0	$515,500	$1,003,122	4.86	4.00
AnMed Health	$1,362,147	$829,316	$3,925,393	$6,116,856	30.96	29.73
Greenville Hospital System (1)	$12,962,740	$20,613,676	$14,969,800	$48,546,216	169.20	166.92
McLeod Regional Medical	$1,816,042	$216,533	$2,384,807	$4,417,382	21.62	20.21
Medical University Hospital (MUSC)(3)	$58,441,430	$50,876,279	$31,823,296	$141,141,005	524.53	355.38
Oconee Memorial Hospital	$216,935	$0	$617,081	$834,016	6.00	3.96
Palmetto Health (2)	$16,463,574	$6,493,508	$14,815,530	$37,772,612	181.94	163.00
Self Regional Healthcare	$1,510,183	$305,230	$2,449,194	$4,264,607	31.56	23.74
Spartanburg Regional Medical Center	$2,961,731	$2,809,872	$8,815,255	$14,586,858	60.67	57.26
Trident Medical Center	$1,271,181	$0	$2,894,377	$4,165,558	24.80	23.40
USC (3)	NA	$5,664,695	NA	NA		
Total Teaching Hospitals	**$97,493,585**	**$87,809,109**	**$83,210,233**	**$268,512,927**	**1,056.14**	**847.60**

Average Medicaid/Medicare Funding Per GME Slot - FY 2012

Hospital/Medical University	Average GME Pmnt Per Medicaid FTE	Average GME Pmnt per Medicare FTE	Average Medicaid/ Medicare GME Pmnt per GME FTE (4)	Average STP Pmnt Per Medicaid FTE	Average Pmnt Per Medicaid FTE-All Sources (4)
Aiken Regional Medical Center	$100,334	$128,875	$206,404	$0	$206,404
AnMed Health	$43,997	$132,035	$170,786	$26,787	$197,573
Greenville Hospital System (1)	$76,612	$89,682	$165,086	$121,830	$286,916
McLeod Regional Medical Center	$83,998	$118,001	$194,304	$10,015	$204,319
Medical University Hospital (MUSC)(3)	$111,417	$89,547	$172,087	$96,994	$269,081
Oconee Memorial Hospital	$36,156	$155,829	$139,003	$0	$139,003
Palmetto Health (2)	$90,489	$90,893	$171,920	$35,690	$207,610
Self Regional Healthcare	$47,851	$103,167	$125,456	$9,671	$135,127
Spartanburg Regional Medical Center	$48,817	$153,951	$194,115	$46,314	$240,430
Trident Medical Center	$51,257	$123,691	$167,966	$0	$167,966
Overall Average	**$92,311**	**$98,172**	**$171,098**	**$77,778**	**$254,240**

(1) Greer, Hillcrest and Patewood Memorial were combined into Greenville Hospital Systems for both payments and FTE count

(2) Palmetto Health Baptist and Richland were combined into Palmetto Health for both payments and FTE count

(3) MUSC Medical College STP Payment included in under Medical University Hospital. USCSOM STP payments are shown but not included in analysis of cost per FTE since USC does not have its own hospital system

(4) Using the higher number of Medicaid GME residency slots

[38] COGME. Improving Value in Graduate Medical Education Twenty-First Report. Council on Graduate Medical Education. August 2013.

Wide Variation in Per-Resident GME Payments

The information in the tables on p.39 reflects the current methodologies for distributing the hospital-based Direct and Indirect GME funds. For example, the teaching hospitals with the smallest South Carolina Medicaid GME share on a per resident FTE basis—AnMed, McLeod, Oconee, Self, Spartanburg and Trident—are almost 100% primary care training programs. But the *Medicare* payments for these hospitals, when shown as an average payment per FTE resident slot, are much larger. This is partly because these hospitals have a higher proportion of Medicare patients. MUSC receives the majority of both the Medicaid GME and the STP payments. Correspondingly, it has the largest number of GME residency slots and trains more than twice as many specialists as it does primary care physicians. However, Medicare's average GME payment per MUSC resident is the lowest compared to payments made to the smaller teaching institutions. One reason for this is that Medicare limits its support to only 50% of cost for training beyond the years required for a resident's initial board certification in his or her first specialty. For example, Medicare will pay for general pediatric training but limits this support for pediatric sub-specialists. MUSC is the only teaching hospital in South Carolina that trains pediatric sub-specialists.

When the Medicaid GME and STP funds are added to the GME funding "pot," they more than double the amount provided by Medicare. For example, the inclusion of STP payments makes Greenville and MUSC the two highest-funded GME programs. MUSC is also the primary source of GME for most of the subspecialties in the state, and that helps explain its high level of funding per GME slot. MUSC also supports a significant number of residents above what is shown in its cost report.

While overall funding varies according to the size and nature of each hospital's GME program, this does not fully explain the variation in the per-resident amount. Nor is it clear that wide variation in per resident payments by Medicaid (or for that matter Medicare) is appropriate. Certainly for Indirect Medical Education the variance is driven largely by the underlying efficiency of the hospital, yet in other Medicaid payments unwarranted variation is being phased out. And for both Direct and Indirect GME payments, Medicaid only pays the share of the costs proportional to the hospitals' overall Medicaid percentage (as noted Medicare pays in a similar manner).

This is based on the logic that Medicaid and Medicare should only pay for the portion of training attributable to their respective beneficiaries; however, it ignores the potential physician payor mix for the forty or so years after residency.

While overall funding varies according to the size and nature of each hospital's GME program, this does not fully explain the wide variation in the per resident amount. Nor is it clear that wide variation in per resident payments by Medicaid (or for that matter Medicare) is appropriate.

For example, Hospital A with 50% Medicaid mix may receive higher payments than Hospital B with 10% Medicaid mix, even though no residents from Hospital A go on to serve any Medicaid patients during their career and all the residents from Hospital B go on to serve large numbers of Medicaid and the uninsured.

The current Medicaid reimbursement methodologies also do not generally distinguish between physician specialties; therefore, under the current methods it would be difficult for Medicaid to target Medicaid GME and STP funds to training specialties where there is a demonstrated need. In fact, the structure of the program tends to incentivize the opposite.

Research indicates that certain residencies actually improve hospital productivity and revenues (such as orthopedic surgery) and other residencies tend to reduce productivity (such as psychiatry). Therefore, because IME and DME payments do not distinguish between residency types and only focus on allowable cost – without regard for revenues generated – residency programs in specialties that improve productivity are more financially attractive to teaching hospitals, even though these may not be the types of physicians needed in the community.

The structure of the STP payments program produces a similar incentive toward sub-specialization over primary care. Because the STP payment is based on a premium paid over charges, sub-specialties with higher charges are preferred over specialties with lower charges (primary care).

As noted, the original purpose and goals for the supplemental teaching physician payments were not clearly defined. The 2012 SCDHHS audit found that, according to an agency letter written in 2002, the intent of the STP payments was to "support the teaching costs incurred by academic physicians serving the Medicaid population." In this sense the STP program could be seen as additional support for the GME program, since the interns and residents work under the tutelage and supervision of attending physicians. The teaching physician costs associated with residents and interns could be seen as the third component of GME, along with the direct and indirect GME costs incurred by the teaching facilities.

However, some providers have looked at the STP funding primarily as a way to attract physicians, especially specialists, willing to serve the Medicaid population. In 2002, when STP payments began, Medicaid rates paid to physicians were low, and there was no special rate for teaching physicians. But there is not clear evidence to show that the STP payments have been used as a direct supplement to physicians teaching residents in the context of seeing Medicaid patients. First, STP payments are made directly to the teaching hospitals and medical schools, not the doctors themselves. Second, the "teaching" physicians are not independent

practitioners but are in practice groups that are wholly owned by the hospitals or are a component of and operated by the medical schools. Finally, Medicaid rates have been steadily increased by SCDHHS. Rates for pediatric sub-specialists have been increased to 100% of Medicare up to 120% of Medicare for some services, and under the Patient Protection and Affordable Care Act (ACA) new funding has been provided to increase primary care rates. However, STP-defined teaching physicians are not eligible to receive the ACA increase since they supposedly are already receiving the supplemental teaching payment.

If the intent of the supplemental teaching physician payments was simply to supplement physician payments, the need to continue to support this program is questionable. If, on the other hand, the STP payments are intended to pay hospitals, health centers, and physician groups for providing community-based clinical rotations and GME in needed areas and specialties, the program needs better definition to tie payments to educational outcomes.

Revision of the Disbursement Methodology for GME and STP

The way federal Medicaid matching funds for the GME and STP payment programs are obtained (drawn-down) and the absolute amount of the funding (size of the draw-down) must be based on a methodology defined in the State Medicaid Plan and approved by CMS. Currently, SCDHHS follows Medicare's GME guidelines. Regardless of the payment method employed by each state's Medicaid Program, only teaching hospitals are eligible to receive GME payments; they must be a "licensed certified hospital currently operating an approved intern and resident teaching program or a licensed certified hospital currently operating an approved nursing or allied health education program." Under the current state Medicaid plan, those eligible to receive STP payments must meet the criteria to be South Carolina "University Providers."

With modification to the State Plan, SCDHHS has the flexibility in how funds may be disbursed to the medical colleges and teaching hospitals. States can distribute Medicaid funds for GME via add-on components to the hospital specific per discharge rates, as a base cost component of the outpatient hospital rates, by incorporating GME support into Medicaid managed care capitation rates, or via lump sum adjustment payments. SCDHHS could use the current methodology for direct and indirect GME payments to establish the overall size of the GME "pot," or create a new GME payment pot based upon the number of Medicaid interns and residents which it currently funds, but it would not have to distribute the funds to the hospitals in this way. Likewise, SCDHHS could use a new

methodology for the STP payments (see page 47) for determining the overall size of the STP pot, with additional conditions that teaching institutions would use these funds to support clinical rotations and rural GME training tracks. The Advisory Group discussed a payment mechanism by which hospitals would retain most of what they traditionally receive according to the current GME formulas, but up to 15% would be contingent upon meeting specific performance objectives.

For example, the average cost per GME slot could be used as a basis for the distribution of the funds to the teaching hospitals as a lump sum adjustment. Once the total amount of the GME fund was determined, funding could be redistributed back to the teaching hospitals based on an average cost per FTE by program (GME and STP programs). Hospitals could be incentivized to dedicate GME slots toward physician shortage areas by funding for enhanced FTE payments above the statewide average for that specialty.

Set-aside a Percentage of the STP and GME funding

Under a fee-for-service system, GME payments are "hidden" within the hospital-specific discharge rate. However, if these payments were distributed as a stand-alone, lump sum payment to each teaching institution, this would create greater transparency, and would allow the GME payments to be managed as a dedicated fund to be used for GME. In reality, as SCDHHS moves away from fee-for-service and into managed care for service provision, it is already making gross adjustments to the teaching hospitals based on MCO inpatient claims data. The STP payments also are made to teaching institutions as quarterly, lump sum payments.

Once the CMS-approved payment methodology for the GME and STP funds is determined, the resulting amounts could be combined into one GME budget for the state. SCDHHS could then set aside a certain percentage from each type of funding to target needed specialties or rural training tracks. Fifteen percent of the 2012 Medicaid GME funding would be $14,624,038, and 15% of the 2012 STP funding would be $13,171,366, for a total of $27,795,404 or almost $28 million.

The majority of this set-aside could be used to incentivize the production of physicians necessary to meet state workforce goals – such as starting or expanding rural residency tracks or increasing the number of family medicine residents matched each year. The remainder of the budget could be used for other parts of the pipeline such as:

- The development of more rural and community-based physician preceptorships;

- Development of community-based clinical rotations for advanced practice professionals; and/or
- Expansion of physician incentives such as loan repayment programs.

Any use of GME funds should be accompanied with the requisite performance measures, regardless of where this funding is inserted along the physician production pipeline. Critical metrics for addressing the physician shortage and lack of access to care include number of primary care physicians produced, number of physicians practicing in HPSAs and presence of practicing underrepresented minorities.

Ultimately, new payment methodologies for the GME and STP funds will have to be approved by CMS through state plan amendments, and this approval is not guaranteed. However, a dedicated, statewide GME budget could significantly impact the development of graduate medical education that is focused on the needs of the state.

Proposals on a National Level

On the national level, there have been multiple recommendations to better align Medicare GME funding with the nation's healthcare workforce needs, including the concept of a performance-based GME payment system. There is general agreement that graduate medical education has fallen short in training physicians to meet changes in the US population and health care delivery systems, yet this "shortfall in training has happened despite a consensus on the need for accelerated change."[39]

Health Affairs in its November 2013 issue proposed a new funding mechanism coupled to a competitive peer-review process. The result would be to reward GME programs that are aligned with publicly set priorities for specialty numbers and training content. New teaching organizations and residency programs would compete on an equal footing with existing ones. Over a decade, all current programs would undergo peer review, with low review scores leading to partial, but meaningful, decreases in funding. This process would incentivize incremental and continual change in GME and would provide a mechanism for funding innovative training through special requests for proposals.[27]

The Medicare Payment Advisory Commission (MedPac), in its June 2010 report to the U.S. Congress, recommended that Medicare institute financial incentives to facilitate the development of a GME payment system that rewards education and training that will improve the value of the health care delivery system. The

[39] MEDPAC: Report to the Congress: Aligning Incentives in Medicare, June 2010.

[27] Health Affairs. Accelerating Physician Workforce Transformation Through Competitive Graduate Medical Education Funding. Health Affairs. Vol 32. Number 11. November 2013.

Commission recommended that funding for this initiative should come from reducing Medicare's indirect medical education (IME) payments to eliminate the amount currently paid above empirically justified IME costs. Only those institutions meeting these educational standards specified by the Secretary of Health and Human Services should be eligible for such incentive payments; conceivably, therefore, all, some, or none of this amount could be distributed, depending on performance.[39]

This was echoed by the Council on Graduate Medical Education in its August 2013 report, which recommended setting aside 10% of the Medicare indirect medical education payments to be used to reward "training innovations that reflect society's needs for physicians who can practice effectively in the changing health care environment."[38]

Written Agreements with the Teaching Institutions

As early as 1965, advisory bodies have recommended that GME be more accountable to the public's health needs. Despite these calls for accountability, important characteristics of GME programs such as training in priority health needs and relevant delivery systems, and workforce outcomes, including specialty and geographic distribution, remain unaddressed. The impact of residency programs on local or regional physician workforces is not measured or tracked. Nonetheless, measuring GME outcomes is essential to inform deliberations about medical workforce problems and policies.

Unless conditions are established upfront for participation in the GME program, it will be difficult to track GME/STP money and measure its effects. Currently, the medical colleges and affiliated teaching hospitals that participate in the supplemental teaching physician payments program as well as the GME program are not required to sign a contract or enter into written agreements with SCDHHS in order to receive these funds. GME funding is part of the methodology for rate development that is included in the State Medicaid Plan and referenced in hospital contracts with SCDHHS; but, again, there are no specific requirements in the SCDHHS service contracts with the hospitals that establish any other requirements or performance outcomes for the use of GME funds.

For the STP payments program, non-federal matching funds are provided from state appropriations to other governmental agencies; i.e., the medical colleges and AHEC. However, SCDHHS is responsible for managing the STP program and is held accountable for compliance with federal Medicaid funding rules and presumably outcomes. These funds cannot simply be considered pass-through of money.

[39] MEDPAC: Report to the Congress: Aligning Incentives in Medicare, June 2010.

[38] COGME. Improving Value in Graduate Medical Education Twenty-First Report. Council on Graduate Medical Education. August 2013.

Unless conditions are established upfront for participation in the GME program, it will be difficult to track GME/STP money and measure its effects.

Therefore, a necessary step in bringing accountability and transparency to the GME program is to develop a written memorandum of understanding (MOU) with each medical college and teaching hospital. Entering into these agreements would be a condition for eligibility for both the GME and the supplemental teaching physician payments, regardless of how the non-federal match is provided. The MOUs should incorporate the payment methodology used and the types of information that must be provided. They should also incorporate a requirement that the teaching institutions certify the source, accuracy and reliability of the data used to determine payment levels. The MOUs will also set out the funding flows and payment methodology used by SCDHHS to draw down federal Medicaid funds and establish how the funds will be distributed to the teaching institutions. For example, SCDHHS could set aside a certain percentage of GME funds that would be contingent upon meeting certain performance objectives, as described by COGME. For STP payments, the medical universities and teaching hospitals would be required to meet certain criteria for using the teaching payments, such as demonstrating that the STP is being used to expand clinical rotations in rural and community-based settings.

In addition, the MOUs should require:

- Reporting of specific measures annually, with five- and ten-year requirements for tracking. The measures should include:
    - the number of graduates in family medicine, general pediatrics, general surgery, OB/GYN and general internal medicine programs, as well as shortage specialties such as psychiatry;
    - the number remaining in-state and practicing in primary care five and ten years after completion of GME residency;
    - the number locating in HPSA geographic and low-income health professional shortage areas.
- Measurement of how these institutions are moving toward statewide goals for the increase in the number of primary care physicians and advanced practice professionals. This could include metrics such as the "social mission score" described by the Robert Graham Center, or the other metrics that measure access to care and availability of physician coverage in certain areas.
- Documentation from the teaching institutions as to the demonstrated demand for any particular specialty or subspecialty, and how it anticipates meeting the workforce needs with its GME programs.

There should also be a separate written MOU with AHEC since it provides the

matching funds for the family medicine GME programs. Currently, there is no written agreement between SCDHHS and AHEC to support the supplemental teaching physician payments program. After SCDHHS calculates the quarterly STP payments to the hospitals, it simply invoices AHEC for the state's share of the Medicaid payment for those hospitals in the AHEC system.

New Methodology and State Plan Amendment (SPA) for Supplemental Teaching Payments

Communication with CMS has indicated that SCDHHS would have to change the Supplemental Teaching Physician (STP) payment methodology as it could no longer be based on 35% of the teaching physician's charges. SCDHHS took an incremental step to cap the number of teaching physicians eligible for the supplemental payments in a Final Public Notice published July 2013. The public notice stated that the SCDHHS will amend the South Carolina (SC) Title XIX state plan by capping provider specific enrollment of teaching physicians entering into the South Carolina Medicaid STP Program at the March 2013 levels. This change was envisioned as the first step in the process of reviewing the current supplemental teaching physician payment program for physicians as well as the Graduate Medical Education payment program for teaching hospitals, with the expectation of combining the funding for the two programs.

Historically, states have used one of three methodologies for determining the amount of their supplemental reimbursement to certain groups of practitioners: (1) payment up to 100 percent of the Medicare fee schedule rate, (2) payment up to the average commercial rate based on what commercial payers reimburse for services as a percentage of charges for those services and (3) payment up to the Medicare equivalent of the average commercial rate.

Under the second method, payment data for either all or the top five commercial payers is divided by charges related to payment. This rate represents the amount of payment allowed, including copays and deductibles, for each service (by CPT code) provided by the groups of practitioners included in the State Plan Amendment (SPA). Commercial payers exclude Medicare, Workers Compensation and any other payer not subject to market forces. CMS requires a clear demonstration of the rate using source documents from eligible providers' accounts receivable systems. Charge and payment data from other providers may not be used. Notably, when the average commercial rate is used, the state must calculate the rate annually while for the use of the Medicare equivalent of the average commercial rate (the third method) this calculation would not have to be

performed annually. While the choice of methods may be determined by the state, CMS may, depending on a state's ability to demonstrate its calculation, require the use of a particular method.

At this time, the GME Advisory Group Finance Subcommittee believes that the second method—payment up to the average commercial rate—would provide the most payment under the three scenarios previously listed. SCDHHS is planning to conduct pilot tests on each of these formulas to confirm that belief.

Details of the three payment methods are provided in Appendix B.

CONCLUSION AND RECOMMENDATIONS

Medical schools that successfully graduate large number of students who pursue primary care and practice in underserved areas are focused on recruiting and admitting students who are both academically qualified and demonstrably likely and interested in practicing primary care and serving in these areas. One of the strongest indicators of practice in a rural area is having grown up in a rural area, and one of the strongest predictors of service to underserved populations is identifying oneself as belonging to a traditionally underserved population. It is therefore critical that South Carolina medical schools have a strong pool of academically qualified students from rural and underserved backgrounds to recruit from. This requires focused efforts to identify, develop and support these students early in their secondary and undergraduate education.

It is therefore critical that South Carolina medical schools have a strong pool of academically qualified students from rural and underserved backgrounds from which to recruit.

Consideration of academically qualified students' rural or underserved background as well as their expressed interest in primary care and service in rural and underserved areas should be made by medical schools. Once admitted, these students should be provided focused support to continue to develop their interest and capabilities to practice primary care in rural areas and underserved populations. Programs such as Jefferson Medical College's Physician Shortage Area Program have demonstrated long term success in supporting students throughout their medical school experience with rural clerkships, interest groups and other efforts.

Nurse practitioners and physician assistants play an important role in primary care access. South Carolina faces significant physician shortages, and "homegrowing" new physicians takes considerable time. Therefore, at the same time that South Carolina is investing in the production of new primary care physicians that will practice in rural and underserved areas, GME support should be configured so as to also increase the production of NPs and PAs.

Research increasingly demonstrates that while primary care physicians make average salaries considerably higher than other professions outside medicine, it is their low relative compensation compared to their sub-specialty colleagues that is increasingly dissuading medical students and residents from pursuing careers in primary care.

The advisory group supports the efforts of SCDHHS to close this gap by increasing reimbursement for primary care physicians, financially incentivizing primary care practices to become certified Patient Centered Medical Homes, implementing enhanced care management fees for primary care practices that manage chronic

illness and setting NP and PA reimbursement (many of whom are employed by primary care practices) for office visit codes equal to physician reimbursements.

The time limited GME Advisory Group created by Proviso 33.34 is the first time that a broad group of teaching hospitals, medical schools, payors and consumers has met to discuss the performance of the physician production pipeline in South Carolina. In truth, the system has operated in the past more as separate silos, where opportunity to achieve workforce goals is lost at each transition, instead of a coordinated, smoothly flowing "pipeline" that identifies promising students early in their education and continues to support them into their ultimate medical practice. Despite expending several hundreds of millions of dollars of taxpayer and private funds annually, the system lacks clearly defined goals.

The time limited GME Advisory Group created by Proviso 33.34 is the first time that a broad group of teaching hospitals, medical schools, payors and consumers has met to discuss the performance of the physician production pipeline in South Carolina.

The advisory group agrees that given the importance of a strong medical workforce to the health and economic development of South Carolina, and the current significant level of spending by federal and state governments and the private sector to produce this workforce, a long-term advisory body should be assembled and charged with providing guidance on producing a high performing workforce that is capable of meeting the needs of all South Carolinians.

This body, comprised of both "producers" of medical education and "consumers" of medical education, would work collaboratively with public and private stakeholders to identify common workforce goals and performance measures that would inform public policy. Critical to this mission is improved data to track the cost and benefit of each program in the pipeline and evaluate the overall performance of the system.

South Carolina already has an active system for health care workforce data collection, led by the Office for Healthcare Workforce Analysis and Planning plus the Office of Primary Care at DHEC. The South Carolina data used in the creation of this report was primarily provided by these offices. A key recommendation of the Cecil G. Sheps Center for Health Services Research at UNC was that states should develop more robust physician workforce data collection systems that allow policymakers to continuously identify the changing workforce needs of the state.

Health care and government are facing significant financial challenges as individuals, businesses and taxpayers increasingly demand more efficiency and effectiveness for their money. Medical education falls squarely at the intersection of these challenges. While teaching hospitals are navigating substantial changes to financing and reimbursement systems at the state and federal levels, which pose significant risk to their bottom line, the policy and payment community at the

same time is challenging the level of spending on medical education. Several state Medicaid programs have ended GME over the recent years and influential advisory bodies such as the Medicare Payment Advisory Committee have suggested that a large portion of GME spending is not empirically justifiable. Simultaneously, the nation and South Carolina struggle with, if not an overall shortage of physicians, a significant mal-distribution by geography and specialty mix.

Advisory group members recommended that up to 15% of current spending on the two medical education programs (hospital GME and STP) be redirected or tied to performance.

The advisory group recognizes that it is unlikely that more money could be added to the medical education system. Instead, it is clear that more of the current funding should be tied to specific state workforce goals. This may take the form of reallocating resources to necessary areas of the production pipeline currently not in place or not well resourced, or placing at risk a portion of funding for programs currently operating based on performance against identified goals. Advisory group members recommended that up to 15% of current spending on the two medical education programs (hospital GME and STP) be redirected or tied to performance.

Plans for the implementation of final adopted methodologies should include a phase–in or transition period to allow for current resources and time to be reallocated or refocused. This will allow the medical colleges and teaching hospitals time to assess and implement any changes necessary to ensure continuity and a smooth transition for their GME programs and to avoid any unintended consequences caused by funding changes.

The following recommendations are directed at the South Carolina General Assembly, the South Carolina Governor's Office and the South Carolina Department of Health and Human Services.

1. **Expand effective existing programs and develop initiatives shown to be successful for recruiting more students from rural and underserved areas into college pre-med and advanced practice professional programs.**
2. **Collaborate with the deans of the state medical and osteopathic colleges in facilitating the admission and medical school support of students likely to practice primary care and serve in rural and underserved areas.**
3. **Create new graduate medical education residencies in family medicine and other primary care specialties that are critically needed in the rural and underserved areas of South Carolina.**

4. **Collaborate with state teaching hospitals to expand GME residencies to include more extensive practice opportunities in community-based health organizations.**

5. **Broaden the scope of existing GME funding to promote and expand the use of telemedicine, support education of advanced practice professionals such as physician assistants and nurse practitioners and enhance programs to recruit and retain physicians, Pas and NPs in medically underserved areas.**

6. **Support the efforts of SCDHHS to implement Medicaid payment rates that value family medicine and other general primary care providers.**

7. **Support the creation a permanent GME advisory council, which will include rural providers and representatives of medically-underserved areas, through executive order or other available means.**

8. **In coordination with existing programs, develop a data collection and assessment system to evaluate the effectiveness of GME and STP payments and other "physician pipeline" support programs in meeting statewide health care workforce needs.**

9. **Target up to 15% of GME and STP payment funding toward meeting physician workforce goals as outlined in the recommendations presented above. Phase in this implementation based on a multi-year schedule, with budgets reviewed in advance and existing GME and STP funding reallocated as new programs are developed and implemented.**

10. **Develop a state Medicaid plan amendment to change the methodology for obtaining federal matching funds for the supplemental teaching physicians' payment program, using the average commercial payment methodology proposed as Method II in this report. The average commercial rate is based on what commercial payers reimburse for services as a percentage of charges for those services. As part of the state plan amendment process, SCDHHS should determine whether CMS would allow a common commercial payer rate that is equal in rate and applied across all STP participants.**

11. **Explore the development of a Delivery Health System Reform Incentive Pool (DSRIP), and/or other payment reform methodologies made possible under waivers granted by CMS, which provide more flexibility in leveraging the GME and STP payment programs to meet the workforce needs of South Carolina. SCDHHS should remain open to other new federal sources of funding that can be used to expand GME programs and provide seed money for pilot programs and new GME initiatives.**

REFERENCES

[1] ACGME Data Resource Book. Academic Year 2012-2013

[2] AAMC. Physician Shortages to Worsen Without Increases in Residency Training. Association for American Medical Colleges. https://www.aamc.org/download/286592/data/. Accessed October 31, 2013

[3] AAMC Center for Workforce Studies State Physician Workforce Data Book. 2013

[4] The Commonwealth Fund. State Scorecard on Health System Performance. 2009 http://datacenter.commonwealthfund.org/#ind=1/sc=1. Accessed November 25, 2013

[5] Starfield, B.; Leiyu, S.; Macinko, J. Contribuition of Primary Care to Health Systems and Health. The Milbank Quarterly, Vol 83, No. 3, 2005.

[6] Health Affairs. Survey Shows Consumers Open to a Greater Role for Physician Assistants and Nurse Practitioners. Health Affairs. June 2013. http://content.healthaffairs.org/content/32/6/1135.abstract. Accessed October 8, 2013

[7] Office for Healthcare Workforce Analysis & Planning. Nurse Practitioners Data Brief. 2013

[8] AHRQ. The Number of Nurse Practitioners and Physician Assistants Practicing Primary Care in the United States. Agency for Healthcare Research and Quality. 2010. http://www.ahrq.gov/research/findings/factsheets/primary/pcwork2/index.html. Accessed December 10, 2013

[9] Office for Healthcare Workforce Analysis & Planning. Physician Assistants Data Brief. 2013

[10] South Carolina Legislature. Code of Laws, Title 40, Chapter 33, Nurses, Article 1, Nurse Practice Act. http://www.scstatehouse.gov/code/t40c033.php. Accessed November 25, 2013

[11] RHRC. The Aging of the Primary Care Physician Workforce: Are Rural Locations Vulnerable? Rural Health Research & Policy Centers Policy Brief. June 2009. http://depts.washington.edu/uwrhrc/uploads/Aging_MDs_PB.pdf. Accessed November 26, 2013

[12] Office for Healthcare Workforce Analysis & Planning. The Physician Workforce in South Carolina, Office for Healthcare Workforce Analysis & Planning. 2011

[13] Castillo, G.; Gamm, L; Pittmann, S. Access to Quality Health Services in Rural Areas-Primary Care: A Literature Review. Rural Healthy People. 2010.

[14] Office for Healthcare Workforce Analysis & Planning. South Carolina Health Professions Data Book, 2012

[15] Chen, FM; Doescher, MP; Fordyce, MA, et al. Osteopathic physicians and international medical graduates in the rural primary care physician workforce. Society of Teachers of Family Medicine, 2010 Jun; 44(6): 396-403.

[16] Office for Healthcare Workforce Analysis & Planning. Retaining Physicians Educated in South Carolina Data Brief. September 2013.

[17] Office for Healthcare Workforce Analysis & Planning. "Retention Study of SC Physicians Who Did Their Residency within South Carolina" Unpublished

document. October 2013.

[18] Office for Healthcare Workforce Analysis & Planning. Trends in Student Enrollment and Graduation in South Carolina Medical Schools Data Brief. September 2013.

[19] Chen, C; Petterson, S; Phillips, R, et al. Toward Graduate Medical Education (GME) Accountability: Measuring the Outcomes of GME Institutions. Academic Medicine September 2013; Volume 88, Issue 9: 1267-1280.

[20] AAMC. Medicaid Graduate Medical Education Payments: A 50-State Survey. 2013.

[21] AAFP. Rural Practice: Graduate Medical Education for (Position Paper). American Academy of Family Physicians. http://www.aafp.org/about/policies/all/rural-practice.html. Accessed November 22, 2013.

[22] The Robert Graham presentation to SC GME Advisory Group, Dr. Andrew Bazemore, September 2013.

[23] The Cecil G. Sheps Center for Health Services Research, University of North Carolina. GME in the United States: A Review of State Initiatives. September 2013.

[24] J Rural Health. Factors that Influence Physicians to Practice in Rural Locations: A Review and Commentary. The Journal of Rural Health 2009 Summer, 25(3):276-81

[25] NRHA. Health Care Workforce Distribution and Shortage Issues in Rural Health Policy Brief. National Rural Health Association. January 2012. Accessed December 10, 2013.

[26] Office for Healthcare Workforce Analysis & Planning. 2010 SC Medical School Graduates and Location of Residency Training PGY1, updated December 2013.

[27] Health Affairs. Accelerating Physician Workforce Transformation Through Competitive Graduate Medical Education Funding. Health Affairs. Vol 32. Number 11. November 2013.

[28] Medical Economics, Osteopathic Medical Students Could be a Solution to the Primary Care Shortage. http://medicaleconomicsmodernmedicine.com Accessed October 28, 2013.

[29] Sadick, Barbara. In Search of More Primary-Care Doctors. Journal reports: Health Care, the Wall Street Journal, November 17, 2013.

[30] Health Affairs. A New Pathway for Medical Education. Health Affairs. Vol. 32, No. 11. November 2013.

[31] Anyaso, H. Patching the Pipeline. The New Physician October 2009: Volume 58, Number 7.

[32] Jefferson Medical College. Physician Shortage Area Program (PSAP). http://www.jefferson.edu/jmc/psap.html. Accessed December 10, 2013.

[33] AAMC. U.S. Medical Schools' Ongoing Efforts to Meet Physician Workforce Needs Analysis in Brief. Association of American Medical Colleges. June 2013: Volume 13, Number 4 https://www.aamc.org/download/347038/data/june2013analysisinbrief-usmedicalschoolsongoingeffortstomeetphy.pdf. Accessed October 15, 2013.

[34] AAFP. Migration After Family Medicine Residency: 56% of Graduates Practice Within 100 Miles of Training. American Academy of Family Physicians. http://www.graham-center.org/online/etc/medialib/graham/documents/publications/migration-after-residency.Par.0001.File.dat/nov_15_graham.pdf. Accessed October 30, 2013.

[35] National Rural Health Association Policy Brief: Graduate Medical Education for Rural Practice, 2008. http://www.ruralhealthweb.org.

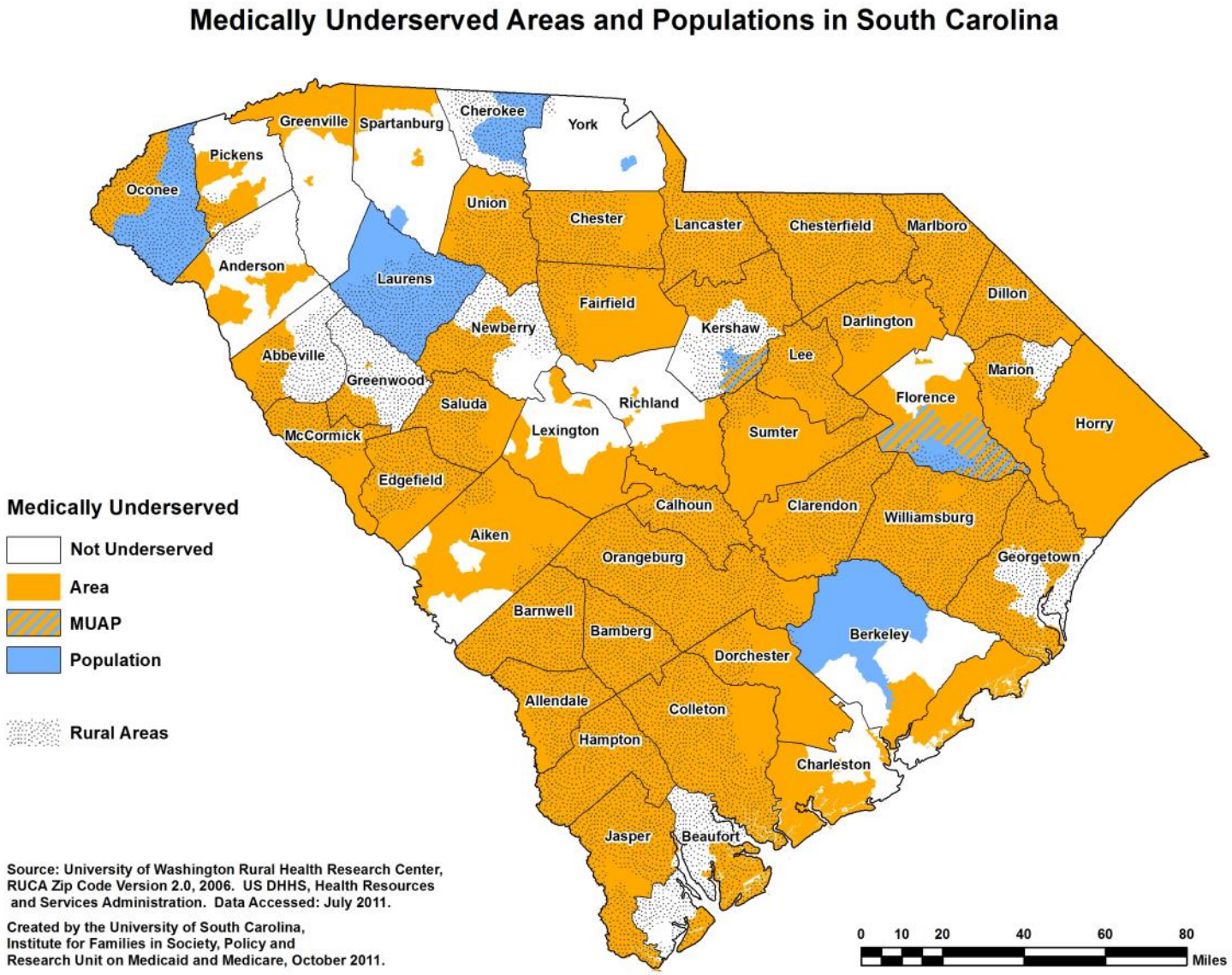
[36] AAMC. Medical Student Education: Debt, Costs, and Loan Repayment Fact Card. Association of American Medical Colleges. October 2013. https://www.aamc.org/download/152968/data. Accessed November 25, 2013.

[37] NRHRC. Midwest Retention Toolkit 2012. The National Rural Health Resource C enter.

[38] COGME. Improving Value in Graduate Medical Education Twenty-First Report. Council on Graduate Medical Education. August 2013.

[39] MEDPAC: Report to the Congress: Aligning Incentives in Medicare, June 2010.

Appendix A: Map: Medically Underserved Areas and Populations in South Carolina



Appendix B: Options for Methodologies for Supplemental Teaching Physician Payments

Method I: Payment up to the Medicare Rate

States may choose to pay, as a supplemental or enhanced payment, the difference between the Medicare payment rate for services provided by the targeted practitioners and the Medicaid fee schedule rate for those same services. If the State chooses to pay no more than 100 percent of the Medicare rate, the plan must provide for payment up to the Medicare rate as the payment methodology and no further rate documentation is required.

Method II: Payment Up To the Average Commercial Rate

This rate represents the amount of payment allowed, including copays and deductibles, for each service (by CPT code) provided by the groups of practitioners included in the SPA by either the top five or all commercial payers. Commercial payers exclude Medicare, Workers Compensation and any other payer not subject to market forces. The allowed amount includes reimbursement by the third party payer and any patient liability that together equal total payment for a service covered by a commercial payer. A State must be able to demonstrate clearly how the allowed amount was determined under each of the accounts receivable systems of eligible providers. Before a SPA may be approved the State must provide primary source documentation directly from accounts receivable systems. The dates of service in the rate must match the dates of service included in the Medicaid charges. Medicaid charges must be derived from the State's MMIS system to assure that charges have been adjusted for dual eligible liabilities and that charges are associated with covered services delivered to Medicaid beneficiaries. In such instances where the State cannot provide adequate documentation, it may use Method III: Medicare Equivalent of the Average Commercial Rate. Unlike Method I, this rate does not have to be calculated annually.

The formula for this methodology would be as follows: **(The ratio of Commercial Payments to Commercial Charges) x (Medicaid Charges Associated with Paid Claims from the MMIS) – (Medicaid Payments) = Supplemental Payment**

Method III: Payment Up To Medicare Equivalent of the Average Commercial Rate

This methodology is the most complex and can best be described in several steps:

Step 1: Compute Average Reimbursement by Commercial Payers

For each procedure code (e.g. CPT) compute the average amount reimbursed by either the top five commercial third party payers (TPPs) or all commercial TPPs during a defined base period. Exclude data from Medicare, Workers' Compensation and other non-commercial payers from the calculation.

Commercial insurers almost always reimburse an allowed amount for a service rather at the level of charges. In most instances the commercial insurer and patient share in payment up to the allowed amount. Regardless of patient liability for any copayment or deductible, CMS permits calculation of the average commercial rate using the allowed amount to represent payment by the commercial payer.

Step 2: Compute the Reimbursement Ceiling

Multiply the average as determined in Step 1 by the number of times each procedure code was rendered to Medicaid beneficiaries during the base period used for Step 1. Add the product for all procedure codes. This total represents the physician reimbursement ceiling. Supplemental and fee schedule/base payment may not in the aggregate exceed this reimbursement ceiling. The State may make payment up to this ceiling either by adjusting its fee schedule or by making supplemental payment in addition to its regular fee schedule reimbursement. The dates of service included in the calculation of the ceiling should match the dates of service included in the fee schedule reimbursement.

Step 3: Determine the Medicare Equivalent to the Reimbursement Ceiling

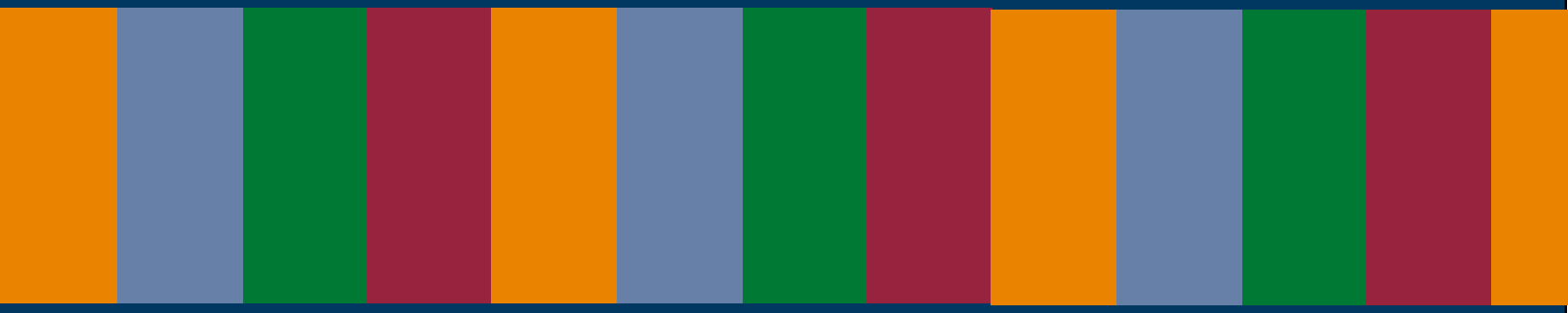
For each of the procedure codes used to determine the reimbursement ceiling, multiply the Medicare rate by the number of times each procedure code was rendered to Medicaid beneficiaries during the base period used for Step 1. Add the product for all procedure codes. This sum represents the Medicare-equivalent to the reimbursement ceiling. Divide the reimbursement ceiling (e.g. commercial payment) by Medicare reimbursement. This ratio indicates the relationship between Medicare and commercial third party payers.

Step 4: Update Annually the Medicare Equivalent to the Reimbursement Ceiling

The Medicare equivalent ratio from Step 3, once established, will be multiplied annually by the amount Medicare would have paid for Medicaid practitioner services. That is, Medicare rates are applied to reimbursable Medicaid practitioner ser-

vices to determine the period's practitioner payment ceiling. This ceiling includes both regular base payment and supplemental payment.

The formula for this methodology would be as follows: **[(Medicare equivalent ratio from Step 3) X (sum of all Medicare rates X Medicaid practitioner services for the period)] – (Medicaid practitioner base payments) = maximum supplemental payment.** The ratio from Step 3 does not have to be computed annually.



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