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Graduate Medical Education

GME expansion exceeds projections, but coverage gaps persist in underserved, rural areas

Why we did this review

The House Appropriations Committee asked that we review the state's strategy for the development of medical residency programs to support the state's growing need for providers in the state. In response, we addressed whether new Graduate Medical Education (GME) programs established under the Board of Regents of the University System of Georgia (BOR) expansion plan are resulting in more doctors in the state and targeting areas with the greatest need for providers. We also assessed the extent to which residents of new GME programs remain in the state to practice upon completion of their training. Finally, we examined strategies to improve retention and recruitment results of GME programs.

About GME

Graduate medical education (GME) refers to the training residents complete after medical school graduation to develop clinical and professional skills required to practice medicine in specialty areas such as general surgery, pediatrics, and internal medicine. In academic year 2018-19, 25 institutions were accredited to administer GME programs in Georgia covering 107 different specialties and 113 sub-specialties. GME programs administer over 2,000 residency positions. Since fiscal year 2013, $19 million in state funds has been awarded to increase residency positions in Georgia. As of fiscal year 2018, the funding initiative is complete.

What we found

Prior to fiscal year 2015, Georgia had 1,842 residency positions. Under the GME expansion plan developed by BOR, 262 new positions have been added, and an additional 351 positions are planned through 2025 for a total of 613 new positions. Though Georgia still lags behind the national and southeast averages in medical residents per capita (due to simultaneous population growth in Georgia and growth in GME programs around the nation), it will have exceeded its initial goal of 400 new residency positions established by 53% if all planned positons are created. And, early indications suggest favorable retention rates for new GME program graduates. However, research indicates that increasing the number of residency positions alone is not sufficient to address physician shortages—the positions have to be in the right disciplines and the right locations. While the new positions are primarily in shortage disciplines, they are not geographically dispersed, with most new teaching hospitals (and residency positions) located in North Georgia and metropolitan areas.

The expansion plan focused on creating the residency positions in shortage disciplines of primary care, general surgery, and psychiatry, but positions in other specialties were also added. Of 262 new residency positions created as of fiscal year 2019, 196 (75%) are in primary care disciplines, increasing the number of primary care residency positions by 23%. If all planned positions are created, then primary care, general surgery, and psychiatry positions will increase by 43%, 25%, and 62%, respectively. In addition to these targeted disciplines, 141 of the 613 positions have been created or are planned for OB/GYN (32), emergency medicine

(54), and transitional year (55), which provides one year of post-graduate training in preparation for specialties such as ophthalmology or dermatology.

Of nine teaching hospitals funded under the plan, most were located in North Georgia and in metropolitan areas. Only two hospitals located south of the metropolitan Atlanta area were funded, including one in rural South Georgia (Colquitt County) and University Hospital in Augusta (which received funds to expand an existing program). Efforts to establish more residency programs in the rural, underserved areas of Central and South Georgia were impeded by a lack of hospitals capable of meeting BOR's patient case mix criteria (although at least five other hospitals in Central and South Georgia met BOR's criteria but either decided not to apply or did not complete the process). In addition, financial constraints associated with establishing GME programs, an unwillingness to participate among medical staff, and the time needed to implement a GME program (including meeting accreditation requirements) were also among the obstacles faced.

It is too soon to fully evaluate if the residency expansion plan will result in the retention of doctors who completed their residency in Georgia. However, as of 2018, 27 residents from two hospitals – Gwinnett Medical Center (17 residents) and St. Mary's Health Care System in Athens (10 residents) – have completed their programs. And, of the 27 residents, 17 (63%) are currently practicing in Georgia, although most (14 residents) are practicing in the metropolitan Atlanta area. Our review did find some variation in retention rates among the two hospitals, however.

We identified several strategies that could potentially address the continued shortage of residency positions in underserved areas (particularly rural counties in Central and South Georgia) and to improve retention rates.

- During the residency training period, GME programs can provide exposure to rural areas through rural rotation programs or specialized Rural Training Tracks, which may increase the likelihood that residents will practice in these communities upon program completion. We identified federal programs that could incentivize more GME programs to add rural training to their curricula should funding be made available for new rural GME programs.
- Due to the broad coverage provided by family physicians, an emphasis on family medicine residencies could be considered for future GME expansion efforts. The broad training family medicine residents undergo (pediatrics, obstetrics and gynecology, internal medicine, psychiatry and neurology, surgery, and community medicine) allows one physician to provide primary care to the entire range of patients.
- GME programs could engage in targeted recruitment efforts to attract residents who are more likely to remain in Georgia. Studies indicate that personal characteristics, attributes, and background are positively associated with a physician's decision to practice in areas of need.
- GME programs could offer financial incentives to recruit Georgia medical school graduates into Georgia GME programs. In addition, our 2017 Performance Audit of Loan Forgiveness Programs recommended improvements to further encourage residents to remain in Georgia and practice in rural areas.

What we recommend

This report is intended to answer questions posed by the House Appropriations Committee and to help inform policy decisions.

***BOR's Response**: BOR generally agreed with the report's conclusions and expressed its appreciation to the Governor, General Assembly, and partner hospitals for their dedication to medical education. In addition, BOR provided points of clarification and technical corrections that were incorporated in the final report.*

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Purpose of the Special Examination

The House Appropriations Committee requested a review of the state's strategy for the development of medical residency programs in the state. As cited by the committee in its request, *the aggressive addition of residency slots initiated in 2013 has resulted in funding for hundreds of new residency positions to further Georgia's medical education resources and "grow our own" doctors to support the state's growing need for providers.* The committee asked that this review *include an evaluation of whether the higher number of slots is resulting in more doctors within the state and whether these new programs are effectively targeting the areas of the state with the greatest need for providers*. Based on the committee's request and subsequent discussions with House Budget and Research Office staff, this examination will answer the following questions:

1. To what extent has the state's Graduate Medical Education strategy been successful in creating new residency positions, particularly in the areas with the greatest need?
2. Upon Graduate Medical Education program completion, do residents practice in Georgia, particularly in underserved areas?
3. What opportunities exist for enhancing the recruitment and retention results of Graduate Medical Education programs?

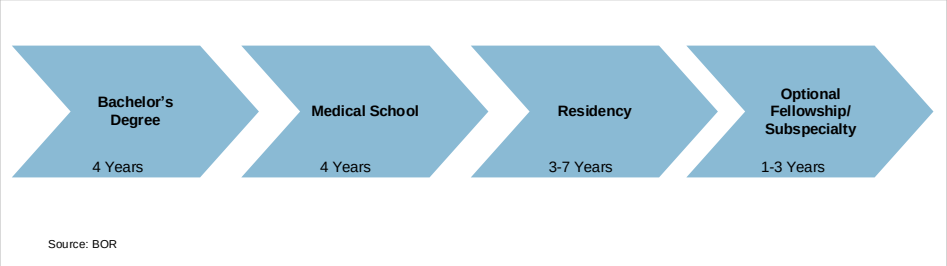
A description of the objectives, scope, and methodology used in this review is included in Appendix A. A draft of the report was provided to the Board of Regents of the University System of Georgia and the Georgia Board for Physician Workforce for their review, and pertinent responses were incorporated into the report.

Background

Overview of GME

Graduate Medical Education (GME) is the 3-7 year clinical training period following medical school. Medical school graduates (or residents) complete GME programs to develop clinical and professional skills required to practice medicine. GME is provided through residency programs that are typically sponsored by a teaching hospital where residents provide patient care under the supervision of an attending physician. The content and length of GME programs vary based on the criteria required to obtain board certification for a particular specialty/discipline. After completing a residency program, physicians may pursue advanced training in a subspecialty program (e.g., cardiology, vascular surgery), as **Exhibit 1** shows.

Exhibit 1
Medical Education Timeline



To ensure residency quality, both GME programs and GME sponsoring institutions must obtain accreditation.[1] The Accreditation Council for Graduate Medical Education (ACGME) accredits allopathic GME programs and sponsoring institutions, which serve as the primary clinical sites for residency training. Although sponsoring institutions in Georgia are typically hospitals and medical schools, non-hospital health care facilities also may be accredited GME-sponsoring institutions. These facilities include federally qualified health centers, public health departments, and other health care delivery systems. For example, the Gateway Behavioral Health Community Service Board is an accredited sponsoring institution in Georgia.

Need for Additional Residency Positions

GME makes an important contribution to a state's physician workforce because it trains future physicians. Research has shown that residents can have a significant impact on a state's workforce because many remain in the state in which they completed GME to practice medicine. Studies also show a strong relationship between the location of medical training (including medical school and residency) and where physicians end up practicing. For example, one study found that 56% of family physicians practiced within 100 miles of their GME training site; 39% remained within 25 miles of the site; and 19% remained within 5 miles. In addition, research indicates that the likelihood of a resident remaining nearby to practice increases if the resident also attended medical school in-state.

In 2012, Georgia was ranked 39th in the nation in active physicians per capita with 12% fewer physicians per capita than the national average. Georgia had greater shortages among certain specialties, including primary care and general surgery. For primary care physicians per capita, the state was ranked 44th in the nation and was predicted to fall to 50th by 2020. In addition, Georgia had 40% fewer general surgeons per capita than the nation as a whole.

Applying a pipeline approach described by the research, Georgia began addressing the physician shortage by expanding medical school capacity. Between 2002 and 2012, the number of Georgia medical school enrollees increased from 1,621 to 2,604 (61%). Though medical school capacity had increased, residency positions did not keep pace. In 2012, Georgia medical school graduates (594) outnumbered first year residency slots (473) by 20%. Most of the available residency slots (84%) were filled by graduates of out-of-state medical schools. Furthermore, approximately two-thirds of residency positions were located in Atlanta and Augusta.

GME Expansion Process and Timeline

Physician workforce shortfalls were expected to increase due to population increases and broad changes in health care. GME staff at the (former) Medical College of Georgia met in August 2011 and developed a funding model that would allow hospitals access to GME start-up funds. The GME plan recommended three main points—that funding should be used to establish 400 residency positions at new teaching hospitals (thereby maximizing Medicare funding and bringing Georgia in line with the southeast region's residents per capita rate); that hospitals be required to match the

[1] The Accreditation Council for Graduate Medical Education (ACGME) accredits allopathic GME programs and the American Osteopathic Association accredits osteopathic GME programs. By 2020, ACGME will be responsible for accrediting GME programs for both medical doctors (MDs) and doctors of osteopathic medicine (DOs).

funding they receive $1:$1; and that new programs focus predominantly on shortage disciplines including primary care and general surgery.[2]

The plan was endorsed by the Board of Regents (BOR) of the University System of Georgia (USG) and gained the support of the Governor and the General Assembly. In 2011, funds to support start-up costs for new teaching hospitals were requested and appropriated to BOR, which was charged with overseeing the process of GME expansion. Approximately $1.2 million in initial start-up funds was appropriated for the fiscal year 2013 budget. The GME Regents Evaluation and Assessment Team (GREAT) Committee[3] was established as an advisory committee to BOR as they worked to develop a process for assessing the feasibility of establishing new teaching hospitals and make recommendations on allocating funding. The committee developed a method for distributing funds to potential GME hospitals, created an application process, developed eligibility criteria (which included the $1:$1 funding match of hospital and state funds), and established a requirement that all programs must secure accreditation.

Considering such factors as facilities, patient volume and mix, and physician specialties, the committee targeted 30 hospitals (out of approximately 170 hospitals across Georgia) to develop new programs, although any hospital could apply for funds, according to BOR staff. **(See Exhibit 2.)** Between 2012 and 2017, 10 hospitals applied for funds to implement new residency programs, and one hospital applied for funds to expand an existing program. The hospitals submitted their plans for developing GME programs, general hospital data (e.g., number of beds, specialty services), and financial information. All 11 applicants were selected for start-up funding. However, two of the hospitals awarded funds have since halted plans. It should also be noted that three other hospitals/medical centers have begun new GME programs outside of the BOR plan (see text box below).

Two hospitals that were awarded funds by BOR have halted plans:

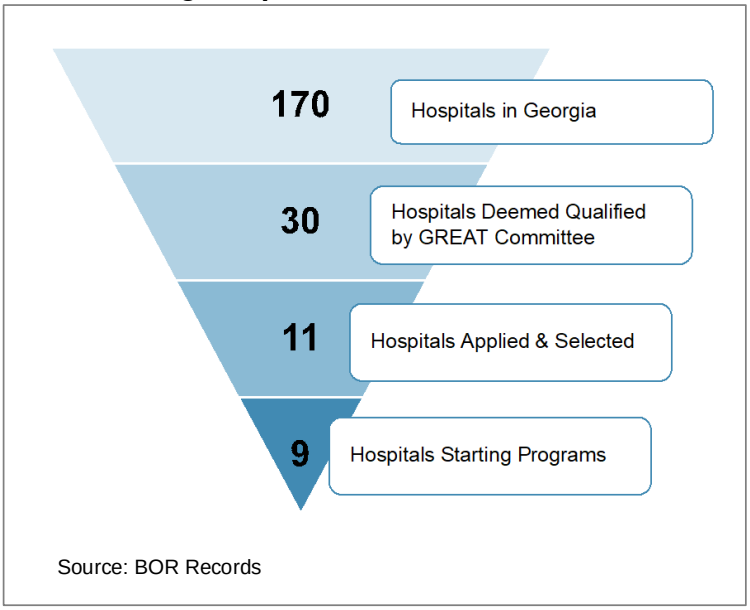
- *Wellstar Spalding was not initially on BOR's list of 30 qualified hospitals but applied for funding and was selected. However, Spalding has since decided to conduct a feasibility study before committing to moving forward. According to a Wellstar representative, the feasibility study will consider other Wellstar locations that may be better suited for a GME program than Spalding.*
- *Tanner Health System in Carrollton used start-up funds to hire a recruiter or consultant, but decided against implementing a program due to changes in its strategic plan and financial concerns, according to state officials.*

Three hospitals are implementing new GME Programs outside of BOR's plan:

- *Coliseum Medical Center in Macon initially expressed interest in obtaining start-up funds, according to state officials, but never officially applied.*
- *Houston Medical Center in central Georgia implemented a family medicine residency program at the time BOR was developing its expansion plan, and began accepting residents in July 2012.*
- *Gateway Behavioral Health in Savannah is in the process of implementing a psychiatry residency program.*

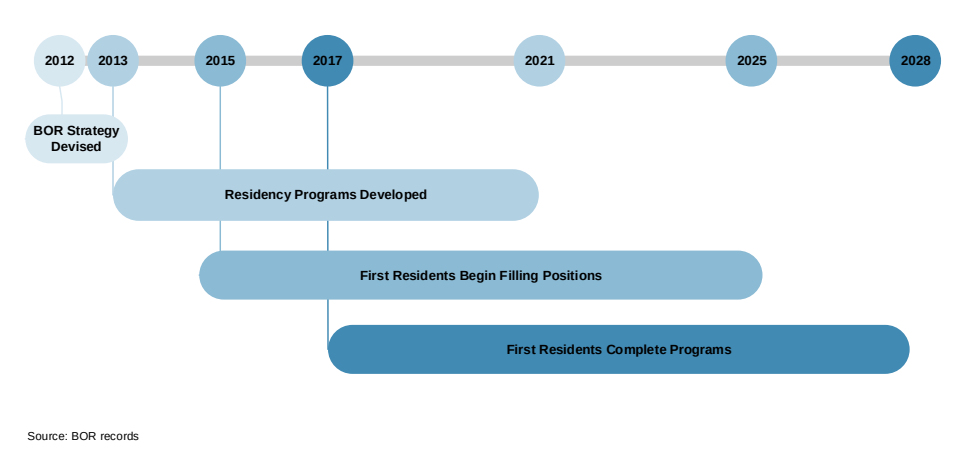
[2] Primary care consists of internal medicine, family medicine, and pediatrics.
[3] The GREAT Committee was composed of USG staff, GME staff representing public and private medical schools, and staff from the Georgia Board for Physician Workforce.

Exhibit 2
New Teaching Hospitals Created Under BOR Plan



Once approved for funding, it can take several years for a hospital to develop a program and add all the positions. (See **Exhibit 3.**) This process involves building GME infrastructure, recruiting and preparing faculty, obtaining accreditation, developing curriculum, and establishing policies and procedures. Gwinnett Medical Center and St. Mary's Health Care (Athens) were the first hospitals to begin filling residency positions in fiscal years 2015 and 2016, respectively. As of 2018, 27 residents have completed programs at these hospitals.[4] Five other hospitals began filling positions in fiscal years 2016-2018 but have not had any graduates, and two hospitals are still in the planning and development process. A listing of the hospitals with the number of positions added or planned each year through 2025 is provided in Appendix B.

Exhibit 3
GME Expansion Process
Fiscal Years 2012-2028

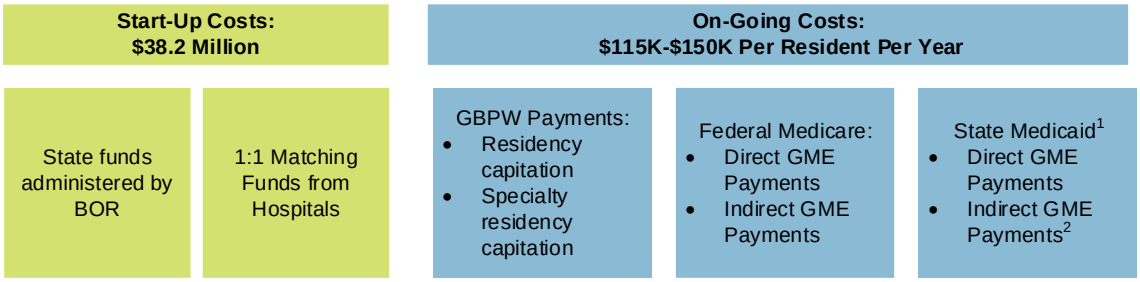


[4] Does not include residents completing a transitional year.

Financial Information

The residency expansion plan involves state-funded start-up costs of over $19 million (plus matching funds provided by the new teaching hospitals) and on-going costs estimated at $115,000-$150,000 per resident per year. Start-up costs include expenses for recruiting and training program directors and faculty, legal fees, consultant fees, accreditation, simulation equipment, office and call room furniture, and library resources. On-going costs include salaries and benefits for residents, faculty, and administration, as well as higher operating costs associated with residency programs (e.g., reduced patient care productivity and additional tests ordered by residents as part of the learning process). The start-up and on-going costs, along with funding sources, are shown in **Exhibit 4** and discussed in greater detail below.

Exhibit 4
Residency Cost Components



[1] Medicaid funding for new GME programs is subject to approval of the amended State Medicaid Plan by Centers for Medicare and Medicaid Services.
[2] Indirect GME payments are made through an adjustment to hospital per patient base rates (Fee for Service) and Managed Care Organization capitation rates.

Source: Statewide Area Health Education Centers Network; BOR records

- **Start-up costs** – Between fiscal years 2013 and 2018, BOR awarded over $19.1 million in state funding for start-up costs, as shown in **Exhibit 5**. These costs vary significantly among hospitals, ranging from $744,000 to $6.1 million. The average funding per residency slot also varied significantly, ranging from $18,103 to $62,000.[5] The variance in costs can be attributed to factors including the number of new residency programs, program types (e.g., surgery, pediatrics, etc.), and the existing physical infrastructure of the facility. Of the $19.1 million awarded, nearly $12 million has been expended as of the end of fiscal year 2018. As previously noted, hospitals are required to provide 1:1 matching funds for start-up costs.

[5] University Hospital/Medical College of Georgia was excluded in the range because this hospital already had a residency program in place, and therefore incurred significantly less start-up expenses. Tanner Health System was also excluded because the facility decided not to implement a program.

Exhibit 5
GME Start-Up Funding Totals Over $19 Million, Fiscal Years 2013-2018

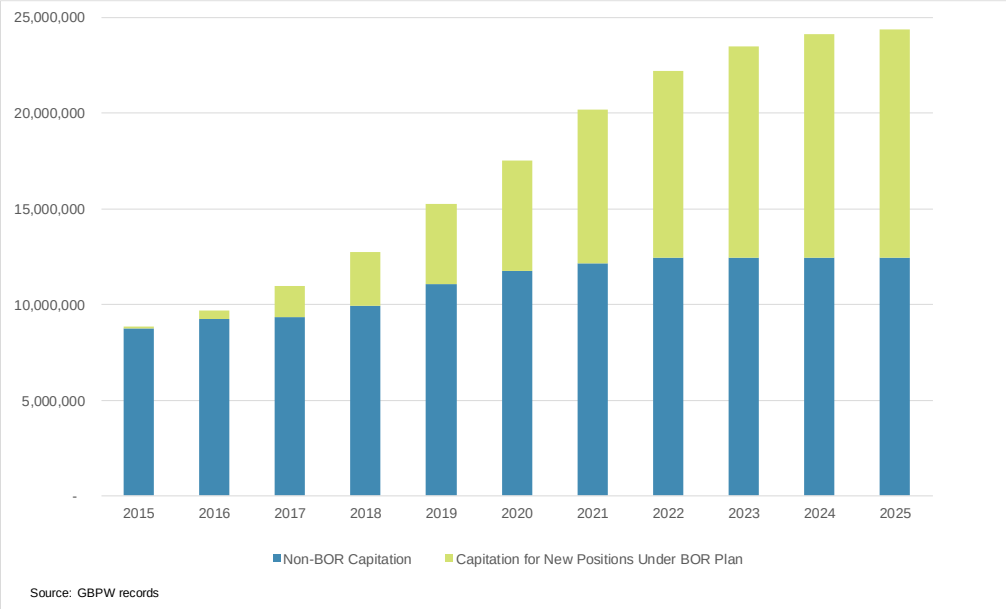
Hospital[1]	Start-Up Funds (FY 13-18) Awarded	Expended	Returned to State Ledger[2]	Available	Number of Residents	Funding per Residency Slot[3]
Northeast Georgia Medical Center	$6,132,042	$2,611,720		$3,520,322	190	$32,274
Wellstar, Kennestone	$3,900,000	$3,442,041		$457,959	166	$23,494
Athens Regional Medical Center	$2,151,000	$2,151,000			55	$39,109
Gwinnett Medical Center	$1,355,000	$1,047,277		$307,723	55	$24,636
Hamilton Health Center	$1,908,507	$180,554		$1,727,953	46	$41,489
Redmond Regional Medical Center	$1,200,000	$778,409	$421,591		43	$18,103
St. Mary's Healthcare	$875,000	$874,422	$578		34	$25,718
University Hospital/Medical College of Georgia	$800,000	$68,620	$731,380		12	$5,718
South GA Medical Education and Research Consortium	$744,000	$744,000			12	$62,000
Tanner Health System	$89,954	$89,954			0	NA
Total	**$19,155,503**	**$11,987,997**	**$1,153,549**	**$6,013,957**	**613**	**$31,248.78**

[1] Tanner Health System never implemented a residency program. University Hospital was awarded funds to expand an existing program, while the other hospitals are implementing new programs.
[2] According to BOR, hospitals have three years to spend the awarded funds before the money is returned to the state ledger. Four hospitals can still spend remaining funds.
[3] Calculated based on amount awarded for those hospitals that have available funds; otherwise, calcuated based on the amount expended. Total is calculated based on amount awarded.
Source: BOR records

- **On-going Costs** – The Georgia Board for Physician Workforce (GBPW)[6], an agency attached to the Department of Community Health, has a role in financing the ongoing costs of GME. Utilizing state general funds, GBPW provides an annual general residency capitation of $3,224 and a specialty specific residency capitation that ranges from $14,500 to $19,056 for designated disciplines/slots. Total capitation payments for new positions increased from approximately $100,000 to $2.8 million between fiscal years 2015 and 2018 as new slots were added. (See **Exhibit 6.**) If capitation rates remain the same and all the expected positions are created, GBPW will be providing nearly $12 million annually when the expansion plan is fully implemented in 2025. This amount is in addition to the approximately $12 million projected for residency positions funded outside of the BOR expansion plan.

[6] In addition to providing capitation dollars, GBPW studies undergraduate and graduate medical education; offers a job matching service for physicians; provides funding for new osteopathic GME program development; administers the medical school scholarship program; administers loan repayment programs for practicing physicians, advanced practice registered nurses, physician assistants, and dentists; and analyzes and reports on the supply and distribution of physicians, physician assistants, and dentists in Georgia.

Exhibit 6
GBPW Capitation Funding for Residency Positions
Fiscal Years 2015 – 2025 (Projected)



Source: GBPW records

Direct costs *associated with providing GME include resident stipends and benefits, teaching physicians' salaries and benefits, accreditation fees, and administrative costs and overhead.*

Indirect costs *include those associated with using tests and procedures to treat medically complex cases, clinical research, and specialized services.*

On-going costs for GME are also funded through Medicare and Medicaid. Medicare, administered by the federal Centers for Medicare and Medicaid Services (CMS), has historically been the largest payer for GME. CMS makes payments directly to teaching hospitals in the form of reimbursements to cover their direct and indirect medical costs. Direct GME payments are based on a per resident amount, the number of residents a hospital trains, and the hospital's percentage of Medicare inpatient days. Indirect payments are made by adjusting the base rate Medicare pays to hospitals for regular inpatient care. However, due to the 1997 Balanced Budget Act[7], which placed a cap on the number of residency positions funded under Medicare, only hospitals that have not previously provided GME (e.g., new teaching hospitals) can receive funding for new programs. Medicare payments do not begin until the first resident starts working—not before. Between 2014 and 2016 (the most recent data available), total Medicare direct payments have averaged $51 million annually and total indirect payments averaged $96 million annually for total annual payments of approximately $147 million to 21 hospitals. (See Appendix C for a breakdown of GME payments through Medicare.) [8]

[7] The Act limited reimbursements to the unweighted number on each hospital's most recent cost report as of December 31, 1996. The Balanced Budget Refinement Act of 1999 increased the limit for rural teaching hospitals to equal 130% of each rural hospital's 1996 resident count.

[8] Medicare payments average about $100,000 per resident per year within each GME program's allotted cap; however, payments vary significantly based on when the program was established. Programs established prior to 1997 receive approximately $80,000 per resident (due to the funding freeze), while new programs receive approximately $135,000 per resident.

Since July 2015, DCH has paid direct GME out of a supplemental pool, which provides a flat grant amount to individual teaching hospitals. Under the new methodology, once approved by CMS, direct GME payments would be made on a per resident basis.

In addition, the Department of Community Health makes payments to teaching hospitals for GME through its Medicaid Program and receives federal matching funds for those payments.[9] However, new GME programs (including those funded under BOR's expansion plan and other new programs) are not currently funded under Medicaid. According to DCH staff, payments to new teaching hospitals is contingent upon CMS approval of an update to the State Medicaid Plan. Once approved by CMS, the plan would allow DCH to pay a base amount to both existing and new teaching hospitals based on 1) the number of FTE residents and 2) percentage of the hospital's inpatient services that are provided to Medicaid recipients. In addition to the base rates, hospitals would receive supplemental funding for each resident in certain specialties, including family medicine, OB/GYN, general pediatrics, and pediatric specialties, placing the state in a better position to direct financial support toward priority needs in Georgia.[10] If appropriated funds are available, this could increase the overall amount of direct GME payments given the increase in the number of residency positions from the state's GME expansion efforts.

According to DCH officials, although the payment methodology establishing the indirect GME amounts will not be impacted by the changes to the State Medicaid Plan, the underlying data that feeds into the funding formula for indirect payments will change if the plan is approved (e.g., the resident counts will be different).[11] DCH uses Medicare's funding formula for indirect payments under Fee for Service, which produces a percentage that increases the base rate paid to teaching hospitals per patient to account for the additional costs associated with GME programs and the effect on Medicaid costs. Under managed care, indirect payments should be included in the base rates negotiated between Care Management Organizations and individual hospitals, though we could not confirm this with available data. Between fiscal years 2016 and 2018, DCH made direct payments of approximately $46 million annually to 18 hospitals. However, we were not able to determine the amount paid for indirect GME costs with available data.[12] (See Appendix D for a breakdown of direct GME payments through Medicaid.)

[9] Federal Medicaid regulations do not recognize GME as an approved component of inpatient and outpatient hospital services. However, if state Medicaid programs opt to cover GME costs, the federal government will provide matching funds.

[10] Family Medicine ($33,000 per FTE resident), OB/GYN ($33,000), General Pediatrics ($28,500), Pediatric Specialty Programs ($13,500), and General Surgery ($10,000).

[11] According to DCH officials, this means that new programs will start to receive indirect funding for the first time and existing programs will have updated indirect percentages.

[12] To estimate indirect Medicaid payments, a general rule of thumb is twice the amount paid for direct GME payments. If applied, estimated indirect GME payments were approximately $92 million between fiscal years 2016 and 2018.

Requested Information

To what extent has the state's strategy been successful in creating new GME positions, particularly in the areas with the greatest need?

Under BOR's GME expansion plan, the number of available residency positions has increased. And, if fully implemented, BOR will exceed its initial goal of 400 new residency positions by 2025. However, research indicates that increasing the number of residency positions alone is not sufficient to address physician shortages—the positions have to be in the right disciplines and the right locations. As discussed in the following sections, the new positions are primarily in shortage disciplines. However, they are not geographically dispersed, with most new teaching hospitals (and residency positions) located in North Georgia and metropolitan areas.

Overall Change in Positions

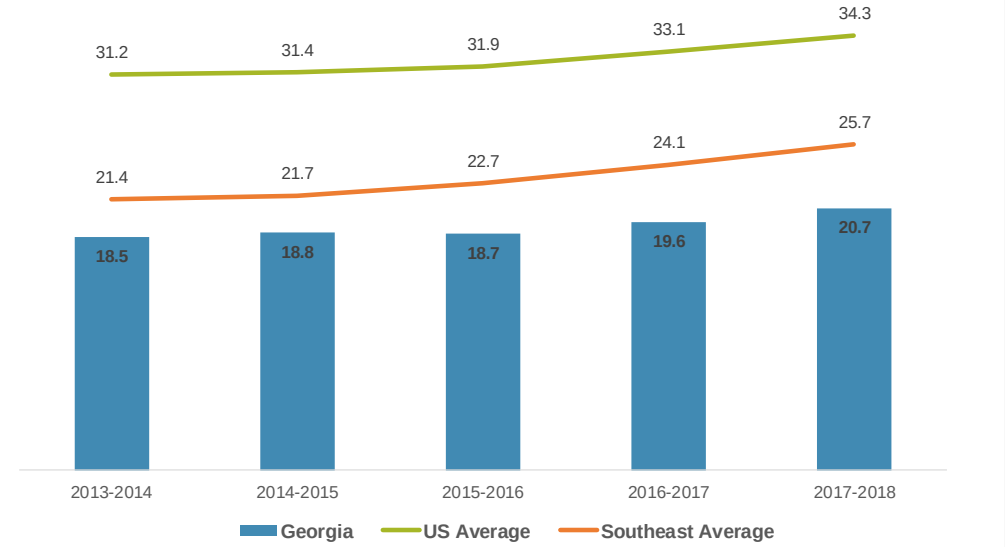
262
residency positions created as of 2018

351
additional positions planned through 2025

BOR appears on track to exceed its goal for creating new residency positions. When the expansion plan was being developed, BOR determined that 400 new positions were needed to bring Georgia's residents per capita rate up to par with the Southeast average. As of July 2018, 262 residency positions have been created. An additional 351 residency positions are planned through 2025. If all these positions are created and filled, the expansion plan will result in a total of 613 new positions, 53% more than the initial goal of 400. However, the total number of positions is a moving target as some programs have had to halt or scale back plans and other programs have added more positions than initially planned.

As the overall number of residency positions is increasing, so is the number of medical residents per capita. As shown in **Exhibit 7**, the number of residency positions per 100,000 population in Georgia increased from 18.5 to 20.7 (12%) between fiscal years 2014 and 2018. However, Georgia is still below the Southeast's per capita average of 25.7, as well as the national average of 34.3. By 2025, the number of residents per 100,000 in Georgia could increase to over 25 if all of BOR's planned positions are created. Even still, Georgia may fall below the Southeast average given residency expansion efforts in other states such as Florida.

Exhibit 7
Number of Medical Residents per 100,000 Population is Increasing but Still Below National and Southeast Averages
Fiscal Years 2014-2018

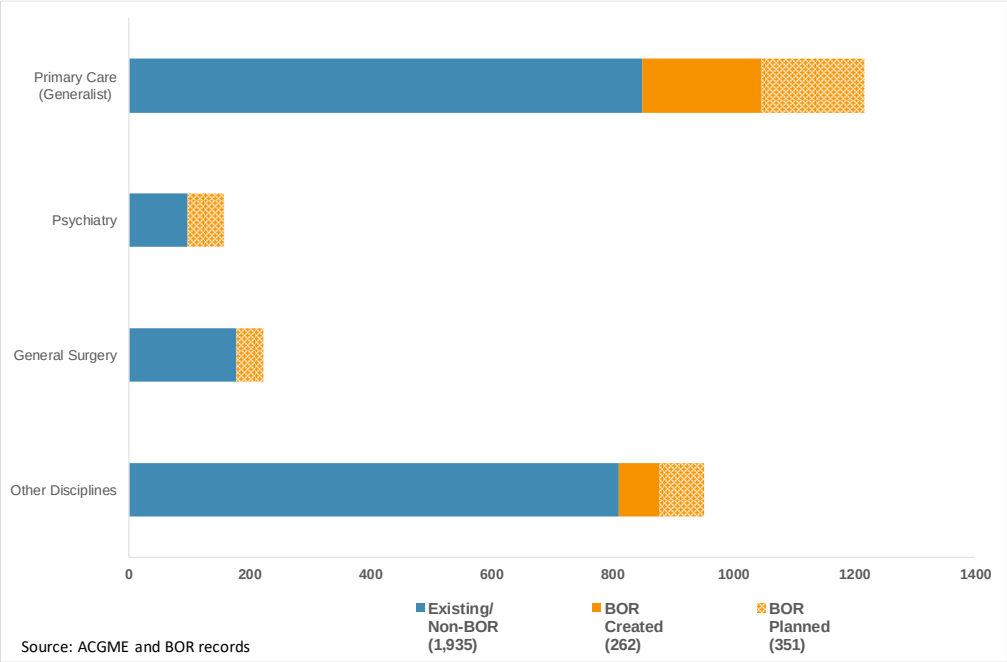


Source: ACGME and U.S. Census Bureau

Shortage Disciplines

Most of the new residency positions are in the shortage disciplines of primary care, general surgery, and psychiatry. These specialties were determined to be under the greatest workforce stress based on GBPW studies analyzing physician supply and demand. As shown in **Exhibit 8**, 196 of 262 (75%) new residency positions are primary care disciplines, resulting in a 23% increase in this specialty. An additional 171 primary care positions are planned by 2025, as well as 45 general surgery positions and 60 psychiatry positions. If all planned positions are created, then primary care, general surgery, and psychiatry positions will increase by 43%, 25%, and 62%, respectively. In addition to these targeted disciplines, 141 of the 613 positions have been created or are planned for OB/GYN (32), emergency medicine (54), and transitional year (55) which provides one year of post-graduate training in preparation for specialties such as ophthalmology or dermatology.

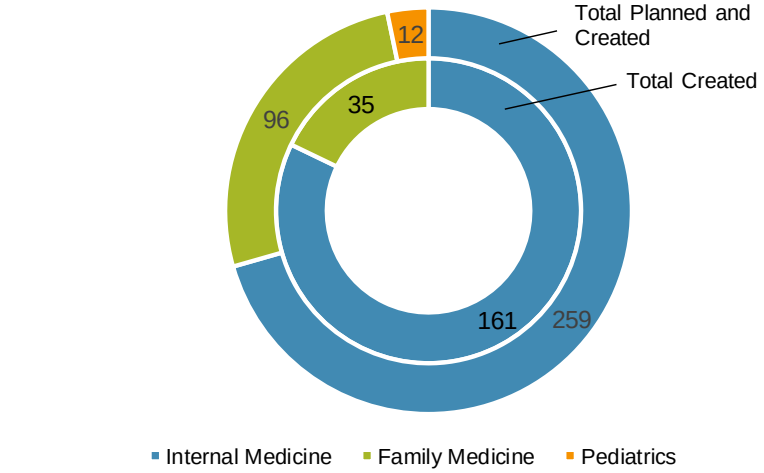
Exhibit 8
New Residency Positions Address Shortage Disciplines



While the new expansion strategy is significantly increasing primary care residency positions, these positions are split among three core specialties - internal medicine, family medicine, and pediatrics. Internal medicine provides more in-depth training and develops expertise in diagnosing diseases and managing complex medical situations. In comparison, family medicine is broader in nature and involves training in the care of children and procedures often provided by other specialties. As shown in **Exhibit 9**, internal medicine positions account for 161 of 196 (82%) primary care positions created as of July 2018. The remaining 35 (18%) primary care positions are family medicine. By 2025, BOR anticipates a total of 367 primary care positions consisting of 259 (71%) internal medicine, 96 (26%) family medicine, and 12 (3%) pediatric positions.

This distribution of residency slots between internal medicine and family medicine may impact the production of primary care physicians and access to basic health care. Internal medicine residents have a tendency to subspecialize in areas such as cardiology or gastroenterology. According to national data, only about 20-25% of internal medicine residents stay in general internal medicine. Conversely, almost all of family medicine residents become primary care physicians rather than subspecializing. In addition, family medicine practitioners can offer a greater breadth of coverage in rural areas by providing care for both adults and children as well as some services typically provided under other specialties (e.g., prenatal care).

Exhibit 9
Internal Medicine Accounts for Most New Primary Care Positions
Fiscal Years 2015-2025



Source: BOR records

Underserved Areas

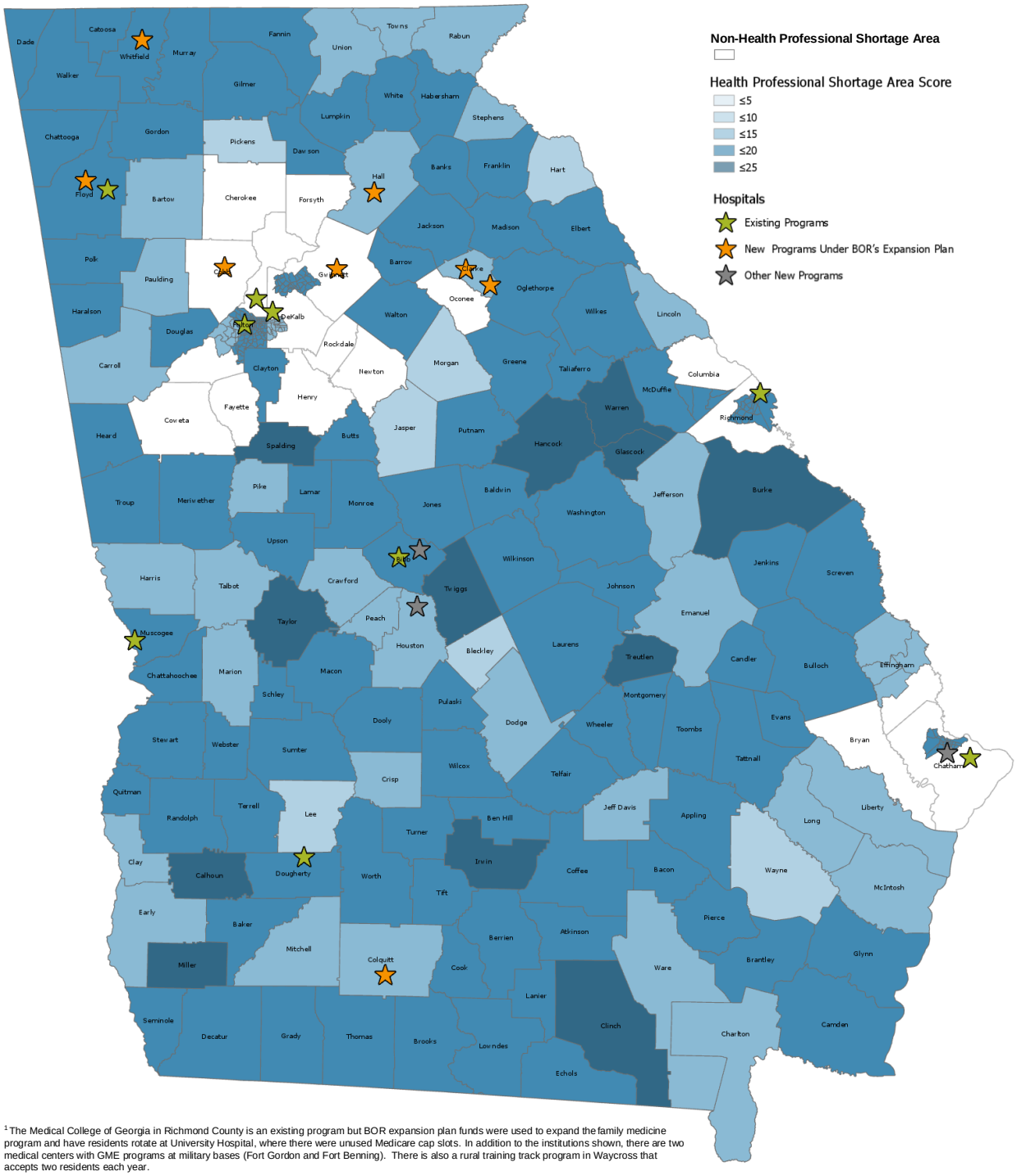
While there are underserved areas throughout the state, access to primary care physicians is a particular concern among the more rural counties. As shown in **Exhibit 10**, all but 10 counties in Georgia are designated as a health professional shortage area (HPSA) for primary care (either county-wide or partial county). While there are many HPSA-designated counties in each region, these counties are more prevalent outside of larger metropolitan areas of Atlanta, Augusta, and Savannah. Furthermore, there are counties outside of these metropolitan areas that do not have primary care providers. Of Georgia's 159 counties, there are 63 counties without pediatricians, 37 without internal medicine physicians, and 11 without family medicine physicians, according to 2017 data provided by GBPW. Eight counties, primarily in South Georgia, did not have any primary care physicians at all.[13]

Health Professional Shortage Areas *receive scores ranging from 0-25, with higher scores representing higher need. The designations are based on:*

- *population to provider ratios*
- *percent of population below 100% of poverty limit*
- *travel time to nearest hospital*

[13] Counties without primary care physicians: Long, Taliaferro, Glascock, Treutlen, Echols, Webster, Schley, Quitman.

Exhibit 10
Most New Residency Positions Are Located in Metropolitan Atlanta/North Georgia[1]



[1] The Medical College of Georgia in Richmond County is an existing program but BOR expansion plan funds were used to expand the family medicine program and have residents rotate at University Hospital, where there were unused Medicare cap slots. In addition to the institutions shown, there are two medical centers with GME programs at military bases (Fort Gordon and Fort Benning). There is also a rural training track program in Waycross that accepts two residents each year.

Source: BOR documents, ACGME website

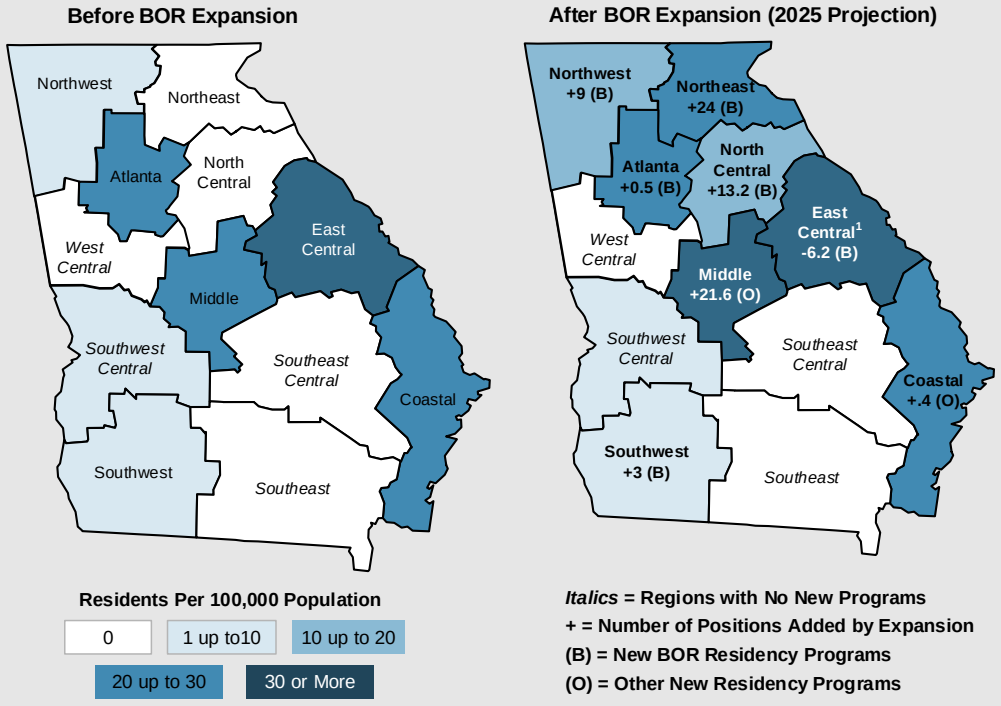
BOR's expansion plan intended to increase physicians practicing in these underserved areas by expanding residency training opportunities. Prior to BOR's plan, four of the nine sponsoring hospitals were located in metropolitan Atlanta and Augusta. On a per capita-basis, Augusta had an exceptionally high number of residents per 100,000 population (94), and Atlanta's per capita rate (26) was also above the state average. In comparison, there were no residency positions in five regions across Northeast, West, and South Georgia.

BOR's expansion plan has had limited success in establishing GME programs in rural, underserved areas of Central and South Georgia.[14] Of the nine teaching hospitals funded under the plan, only one is located in a rural, underserved county (Colquitt). Three hospitals are located near Atlanta and Augusta – the two largest metropolitan areas of the state—and the remaining five are located in the metropolitan areas of Athens, Gainesville, Dalton, and Rome. Furthermore, the new programs are not geographically dispersed. Only two of the nine hospitals are located south of Atlanta, and one of these hospitals (University Hospital in Augusta) received funds to expand an already existing program.

Given that new program locations are clustered in North Georgia and metropolitan Atlanta, the new positions are also highly concentrated in these areas. Approximately 60% of positions (368 of 613) are located in North Georgia (Athens, Gainesville, Dalton, and Rome). The metropolitan Atlanta counties, Gwinnett and Cobb, account for approximately 36% of positions (221 of 613). The remaining 4% of positions (24 of 613) are split evenly between Augusta and Colquitt County in South Georgia. Not surprisingly, North Georgia also accounts for the most significant increase in residency positions on a per-capita basis. As shown in **Exhibit 11**, we projected the number of residents per 100,000 population to increase from 2.6 to 11.7 (342%) in the Northwest region. In the Northeast and North Central regions, where there were previously no residency positions, we projected the number of residents per 100,000 population to increase to 24 and 13.2, respectively. Other regions in South and West Georgia have seen no to little improvement in residents per capita.

[14] For the purposes of this report, we used the State Office of Rural Health's (SORH) designation as the basis for our description of "rural" counties. SORH defines rural counties as those with population of 50,000 or less.

Exhibit 11
Residency Positions Per Capita is Increasing but Varies Significantly Among Regions, Fiscal Years 2014-2025



[1]The East Central Region decreased because population projections outpaced the growth in residency positions.

Source: ACGME website, BOR records, and Georgia Office of Planning and Budget

Expansion efforts in underserved areas faced several obstacles, including fewer qualified hospitals, financial constraints, a lack of desire/willingness to participate among medical staff, and the time needed to implement a program.

- Qualifications - Many of the more rural facilities were not considered for new programs because of low case mix indexes, which measure illness severity.
- Financial Constraints & Willingness Among Medical Staff - Most of the hospitals that did meet the desired case mix index did not apply for new residency programs. According to BOR, some eligible hospitals did not pursue residency programs due to financial considerations and a lack of interest among medical staff in becoming a teaching institution and undergoing that culture shift.
- Time - A representative from the South Georgia Research Consortium also noted that more rural hospitals face challenges in gaining accreditation and recruiting faculty. Four hospitals within the Consortium were initially approved for residency programs, but three of the hospitals are no longer implementing programs under the BOR plan because they could not overcome these challenges within the designated timeframe.

It should be noted that five other hospitals in Central and South Georgia met BOR's criteria but either decided not to apply or did not complete the process. (See Appendix E.)

BOR's Response: "We concur with the assessment that the fully implemented plan will result in us exceeding our initial goal of 400 new residency positions by 2025. As noted in the report, residency efforts have focused on both addressing shortages in certain disciplines and in underserved areas while also noting the continued challenges of creating GME programs in parts of South Georgia. Many obstacles exist in starting new GME programs (as discussed in the report) to include potential hospitals that chose not to participate for various reasons, e.g., financial constraints, willingness of the medical staff to participate or GME was not part of the strategic plan of the hospital."

Upon program completion, do residents practice in Georgia, particularly in underserved areas?

We cannot fully evaluate the expansion plan's impact, as it still being implemented and very few residents have completed their programs. Based on the initial outcomes of the first cohorts and historical outcomes of existing residency programs, there is indication that the plan will help increase the number of physicians practicing in Georgia. However, addressing the shortages in certain underserved areas may prove more difficult.

Historical Outcomes for Existing Programs

Georgia is generally effective at retaining residents. According to the 2017 State Physician Workforce Databook, 47.5% of physicians nationally were active in the state where they completed their most recent GME, and the state median is 44.9%. Georgia's retention rate of 48.9% is above the national average and median. In addition, Georgia's retention rate is above most other southeastern states, including Alabama, Kentucky, Louisiana, North Carolina, South Carolina, Tennessee, and Virginia.

While Georgia has a relatively high overall retention rate, retention can vary significantly by institution and program. GBPW compiles and reports retention outcomes on a five-year rolling average for the residency programs that receive capitation payments. The retention rates for 2013-2017 ranged from 35% for Memorial's OB/GYN program to 80% for Morehouse's Preventative Medicine program. (See **Exhibit 12.**)

Exhibit 12
Retention Rates by Institution & Specialty for Existing Programs
Fiscal Years 2013-2017

	Family Medicine	Pediatrics	Preventative Medicine	OB/GYN	General Surgery	Residency Capitation[(1)]
Emory University School of Medicine	67.5%	---	50.0%	---	---	
Floyd Medical Center	65.8%	---	---	---	---	65.8%
Mayo Clinic	55.6%	---	---	---	---	55.6%
Medical College of Georgia	61.0%	---	---	---	---	50.0%
Navicent Health	78.0%	58.3%	---	---	50.0%	58.4%
Memorial Health University Medical Center	42.9%	42.3%	---	35.3%	---	42.7%
Midtown Medical Center Columbus Regional	56.5%	---	---	---	---	56.5%
Morehouse School of Medicine	64.3%	70.8%	80.0%	---	---	
Phoebe Putney Memorial Hospital	78.6%	---	---	---	---	78.6%
Wellstar Atlanta Medical Center	58.3%	---	---	---	---	57.1%

[(1)] Includes all residency programs that receive the general capitation payment from GBPW
Source: GBPW

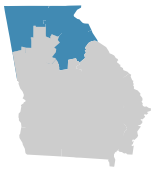
The majority of residents remaining in Georgia to practice stay in the same region that they completed their residency programs; however, those residents who do re-locate tend to move from South and Central Georgia to metropolitan Atlanta. We analyzed practice locations for 442 Georgia physicians who completed a Georgia residency program between fiscal years 2013-2017 and remained in-state to practice.[15] Overall, 285 (64%) of the residents stayed in the same region (North, South, Central, or metropolitan Atlanta) to practice. The link between residency location and practice location was particularly strong within North Georgia and metropolitan Atlanta, with 80% and 78%, respectively, remaining in the region to practice. (See **Exhibit 13.**) In comparison, 55% of residents from Central Georgia and 65% of residents from South Georgia remained in the same region to practice. The residents who re-located to a different region to practice were most likely to move to metropolitan Atlanta.

We also found that graduates of residency programs located outside of metropolitan Atlanta are more likely to practice in underserved areas. Of the 442 graduates who remained in Georgia, 29 (7%) are practicing in a county with a per-capita physician ratio that is below the state median. We also found that 63 of the 442 (14%) are practicing in a rural county (population less than 50,000).[16] However, only 5.6% of residents from Atlanta area programs are practicing in counties with a per-capita physician ratio below the state median, and only 8% are practicing in rural counties. Floyd Medical Center in North Georgia and Phoebe-Putney Memorial Health Center in South Georgia had the highest percentage of residents practicing in counties that are rural and/or have a low per capita physician ratio.

[15] Practice location data was reported by each institution and compiled and verified by GBPW. We limited the analysis to specialties included under the BOR expansion plan (internal medicine, family medicine, pediatrics, OB/GYN, and emergency medicine).

[16] The State Office of Rural Health (SORH) has designated 120 counties as rural.

Exhibit 13
Physicians Staying In Georgia Practice in the Same Region as Residency Location, Fiscal Years 2013-2017

Residency Location	Practice Location			
				
North Georgia				
Floyd (Rome)	80%	0%	8%	12%
Metropolitan Atlanta	12%	78%	7%	3%
Wellstar Atlanta	19%	63%	15%	4%
Morehouse	9%	85%	3%	3%
Emory	4%	96%	0%	0%
Central Georgia	8%	21%	55%	16%
Navicent (Macon)	18%	21%	45%	16%
MCG (Augusta)	3%	21%	60%	16%
South Georgia	12%	19%	4%	65%
Columbus Regional	7%	30%	7%	56%
Phoebe-Putney (Albany)	23%	18%	5%	55%
Memorial (Savannah)	10%	14%	2%	74%

Source: GBPW records

Outcomes of Initial Cohorts

Most of the graduates from the new residency programs are practicing in Georgia, but they are primarily located in metropolitan Atlanta. As of 2018, 27 residents from two hospitals – Gwinnett Medical Center and St. Mary's Health Care System in Athens – have completed their programs. Of the 27 graduates, 17 (63%) are currently practicing in Georgia, as shown in **Exhibit 14**. However, all the graduates practicing in Georgia are in metropolitan Atlanta with the exception of three who are located in Greensboro (locum tenens)[17], Sandersville, and Athens. The 10 graduates who are not currently practicing in Georgia are either practicing in another state (4), completing a fellowship in another state (3), or continuing training in Georgia through a fellowship or chief residency position (3).

[17] Refers to practitioners who temporarily fulfill the duties of other practitioners.

Exhibit 14
Seventeen of 27 Residents from New Programs Practice in Georgia

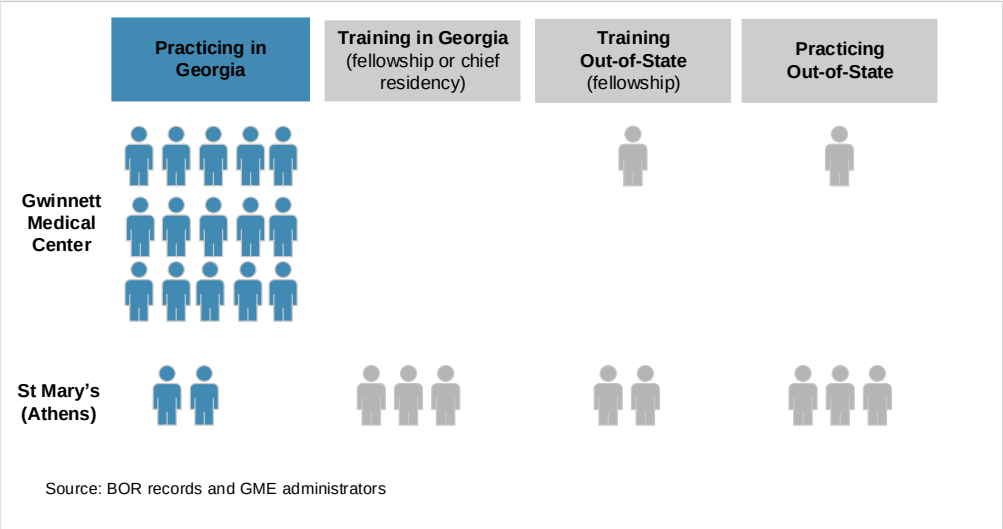


Exhibit 14 also shows that retention among this first cohort varies between the two residency location sites. Of the 17 Gwinnett Medical Center residents, 15 are currently practicing in Georgia. In comparison, only two of 10 residents from St. Mary's Health Care are currently practicing in Georgia. As discussed below, these outcomes are likely influenced by the program types and the resident backgrounds.

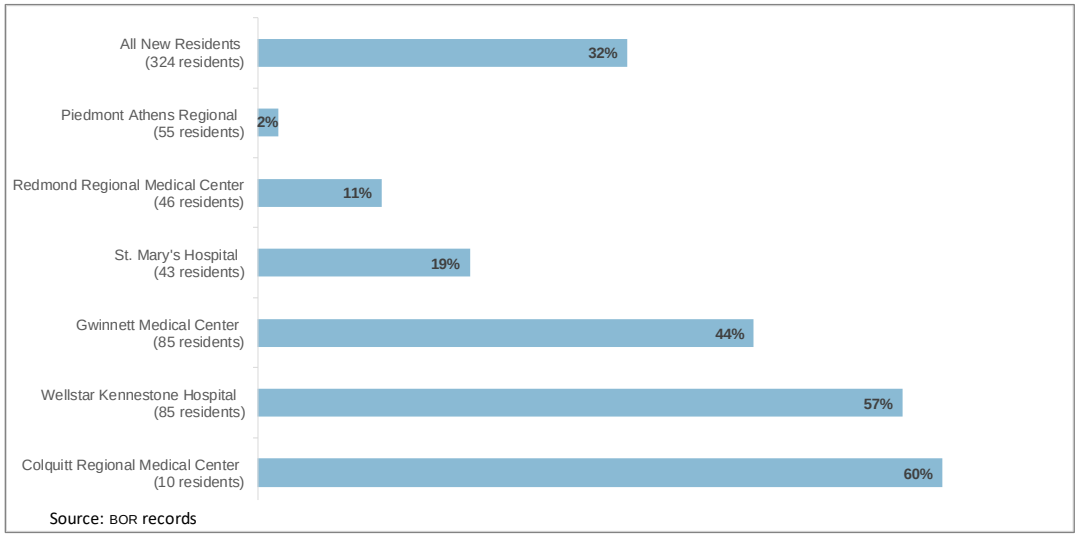
- Program Types - All of St. Mary's residents specialized in internal medicine, while the Gwinnet Medical Center residents included family medicine and internal medicine specialties. As noted on page 11, internal medicine residents are significantly more likely to sub-specialize. In addition to family medicine and internal medicine, Gwinnett Medical Center has also had 18 residents complete a transitional year. These residents were not included in the outcome results above because they all must pursue additional training before practicing medicine. However, the majority of these graduates (13) have moved out-of-state to continue training. In addition, all but five are pursuing specialties, such as dermatology and ophthalmology, which are outside of the core primary care fields and targeted shortage disciplines.

- Resident Backgrounds - In addition to program type, the retention rates of the initial cohorts are also likely influenced by the residents' medical school backgrounds. As previously noted, 48.9% of physicians are retained from GME programs in Georgia. That percentage increases to 73% if the physician also attended medical school in Georgia, according to the 2017 State Physician Workforce Data Report. As shown in **Exhibit 15**, 105 of the 324 (32%) new residents between fiscal years 2015 and 2019 are from Georgia Medical Schools.[18] The percentage varies significantly among the hospitals, ranging from 2% at Piedmont Athens Regional to 60% at Colquitt Regional Medical Center. Gwinnett Medical Center, which has a high retention rate among its first residency graduates, also has a relatively high percentage of residents

[18] New residents include both residents who have completed programs and residents currently enrolled.

from in-state medical schools (44%). Whereas St. Mary's Health Care, which has a much lower retention rate, has only filled 19% of positions from in-state medical schools. Opportunities for improving retention by recruiting Georgia medical students are discussed in the following section.

Exhibit 15
Proportion of New Residents from Georgia Medical Schools Ranges from 2% to 60% Among GME Hospitals, Fiscal Years 2015-2019



BOR's Response: *"We concur that the relative newness of this effort means that very few residents have fully completed their programs but note that initial results and historical outcomes indicate the plan will help increase the number of physicians practicing in Georgia. Our established retention rate of ~49% is higher than most states in the southeast region and a promising indicator of future results."*

What opportunities exist for enhancing the recruitment and retention results of GME programs?

BOR's expansion plan has been successful in creating slots in North Georgia and Atlanta, and if early outcomes are any indication—with 17 of 27 (63%) graduates of new GME programs practicing in Georgia—the state seems to be on the right track to increase the number of doctors in the state. The lack of residency positions located in Central and South Georgia is still a concern, however, and the fact that residents tend to practice near where they trained makes it is less likely that new GME graduates will establish a practice in those regions. Even when you consider existing residency positions, there is still a gap in those areas as shown in the map on page 13. We identified several studies that included best practices for recruiting and retention strategies in underserved and rural areas. We also identified a meta-analysis of 72 medical studies to determine the factors most strongly associated with primary care physicians' decisions to practice in underserved or rural areas across the nation. The research largely emphasizes physician's personal characteristics, participation in

medical training programs emphasizing underserved geographic and discipline areas, and student loan debt obligations as crucial determinants.[19] And, for the best possible outcomes, the research recommends a multifaceted strategy to address every phase of the physician pipeline (from medical school enrollment to physicians' practice locations). Though there are many, we primarily limited our discussion to strategies that potentially could be influenced through state-level policy directives or funding mechanisms.

Training Rotations/Rural Training Tracks

Research suggests that there are other opportunities for training in rural areas, including rotations at various health care facilities in rural areas and expanding GME programs to create Rural Training Tracks (RTTs), that help attract physicians to those locations.

- **Rotation Programs** – Nationally, GME programs use training rotations as a way to provide residents experience practicing in a rural setting. Based on our review of the literature, this exposure to rural practice improves the chances that graduates will choose to practice in a rural area. Among the research reviewed in the meta-analysis of 72 medical studies, the researchers found a study examining outcomes of 3,430 residents who conducted a rotation in a rural health center, federally qualified health center (FQHC), or critical access hospital. According to the study, more than half of residents who trained at critical access hospitals were still seeing patients in a similar setting after graduation. Nearly two-fifths and one-third of rural health center and federal qualified health center trainees, respectively, were still practicing in their respective settings four to eight years after training. A separate study found that rural physicians are significantly more likely than urban physicians to have had rural rotations during residency.

  We identified two GME programs in Georgia that incorporate rotations in rural areas. St. Mary's Health Care System in Athens supports two, one-month rotations to Greene County – one to an FQHC in Greensboro for third year internal medicine residents and another to the St. Mary's critical access hospital in the county. In addition, Gwinnett Medical Center's family medicine program requires a one-month rotation at a private clinic in rural North Georgia.[20] According to a St. Mary's GME representative, there is a per resident cost associated with rural rotations. For St. Mary's, estimated costs range from $19,000 to $25,000 per resident per month, according to the GME representative. The estimate includes costs associated with salary and benefits (which would be paid regardless of where the resident's training is occurring), room and board, as well as lost revenue from Medicare because the hospital cannot count the resident on their own Medicare cost report. The GME representative also noted that the cost of a faculty preceptor in rural Georgia to provide the teaching and supervision could be an additional cost

[19] Goodfellow, Amelia, Jesus G. Ulloa, Patrick T. Dowling, Efrain Talamantes, Somil Chheda, Curtis Bone, and Gerardo Moreno. "Predictors of Primary Care Physician Practice Location in Underserved Urban or Rural Areas in the United States: A Systematic Literature Review." *Academic Medicine* 91, no. 9 (2016): 1313-321.

[20] Residents receive training in rural medicine by providing care for patients at the Habersham Family Practice Center located in Demorest, Georgia located 80 miles north of Atlanta.

to the hospital, adding an estimated $500 to $2000 to the per resident monthly cost.

- **Rural Training Tracks (RTTs)** – RTT programs are partnerships between urban and rural hospitals (and rural nonhospital clinical settings) with an interest in training residents to practice in rural areas. RTT programs are designed to help alleviate primary care physician shortages in rural areas. Working together, these partners form a separately accredited RTT program and, if the resident conducts more than half his or her training at the rural site, the urban teaching hospital can receive additional Medicare funding beyond its GME cap (if certain criteria are met), according to a report by the Association of American Medical Colleges (AAMC).[21]

  We identified one active RTT program in Georgia sponsored by the Medical College of Georgia (MCG) at Augusta University in partnership with Memorial Satilla Health in Waycross that was established in response to declining numbers of primary care physicians in the region. Each year, the program accepts two family medicine residents who spend their first year training at Medical College of Georgia, a university-based hospital, and their second and third years training in Waycross. Nine residents completed this program between fiscal years 2013 and 2017, and five of these residents continued to practice in South Georgia upon completion of their training. An MCG GME official indicated that the institution is considering opening other regional sites in South and Northwest Georgia to deliver needed services and expose students to rural communities. A GME administrator at another institution also indicated an interest in adding a rural site.

  According to a 2015 publication by the Association of American Medical Colleges, physicians who are trained in RTT programs are more likely to practice in rural settings than those who train in traditional family medicine residencies.

  Similar results were revealed in an analysis of research on characteristics and experiences influencing recruitment and retention of primary care physicians. The results of the analysis found that RTT programs demonstrated successful placement and retention rates.[22] For example, RTTs were reported to "have successfully placed 49% to 86% of graduates in rural areas." In addition, a 2008 to 2015 longitudinal study of graduate cohorts found that 35% to 50% of RTT graduates who began in rural practice remained rural physicians from one to seven years (the last year the cohorts were tracked). However, the researchers note that the total number of graduates from RTTs each year is small compared to the need for rural physicians, suggesting that the number RTT graduates retained is not nearly enough to alleviate primary care physician shortages in rural areas. They also note that "despite recent increases in faculty and resident recruitment, historically, many RTT residency programs experienced difficulties with recruitment, retention, and funding."

  Our review identified funds to support RTT programs through the federal Health Resources and Services Administration's (HRSA) Rural Residency Planning and Development Program. The program awards up to $750,000 (per

[21] Rural Training Track Programs: A guide to the Medicare requirements, Association of American Medical Colleges, 2015.

[22] Parlier, Anne Beth, Shelley L. Galvin, Sarah Thach, David Kruidenier, Ernest Blake Fagan. "The Road to Rural Primary Care: A Narrative Review of Factors That Help Develop, Recruit, and Retain Rural Primary Care Physicians." *Academic Medicine* 93, no. 1 (2018): 130-140.

grantee over a three-year period) in grant funds, which are available to rural hospitals, FQHCs, community mental health centers, rural health clinics, urban and rural GME consortiums, medical schools, tribal health programs, etc., to develop new rural residency or RTT programs in family medicine, internal medicine, and psychiatry.[23] Grant funds cover program start-up costs, and there is no state match required. Applicants have to show their programs are able to gain accreditation and that they can provide ongoing funding to sustain the programs.

Family Medicine Residency Programs

Among primary care disciplines, family medicine would provide the most coverage in underserved and rural areas. Family medicine residents receive training in six areas: pediatrics, obstetrics and gynecology, internal medicine, psychiatry and neurology, surgery, and community medicine. Unlike other types of physicians, this broad training allows one physician to provide primary care to the entire range of patients, rather than focusing on a particular organ, disease, type of procedure, sex, or age group. Family physicians, therefore, can provide the basic care that would otherwise require several different specialists. Given the content of their training, family physicians are more likely to pursue primary care practice. Some evidence regarding practice location of family medicine residents suggests a link between GME training location and the initial practice location. In Georgia, among primary care specialties, graduates of family medicine programs maintained the highest rate of practice within 60 miles of their GME site in both 2016 and 2017 at 36% and 43%, respectively. New family physicians in Georgia also emerged as more likely to practice in the areas of the state most in need. Family Medicine represented the largest portion of graduating physicians heading to practice in a rural HPSA: 41% in 2016, 36% in 2017. This is consistent with the American Academy of Family Physicians (AAFP), which notes that family physicians provide the majority of care for underserved populations, both urban and rural.

- **Teaching Health Center Graduate Medical Education (THCGME)** – Established under the Patient Protection and Affordable Care Act (ACA) of 2010, this program provides federal funding to community-based health centers that expand existing or establish new accredited residency programs in primary care fields. Administered by HRSA, the program is designed to increase the number of residents training in community-based settings and providing care to largely low-income and underserved populations, which is expected to better prepare them to work in similar settings and influence their practice location decisions and/or populations served upon completion of their programs. The research contrasts THCGME with Medicare, with major differences including the community-based, outpatient focus versus Medicare's hospital-based, inpatient model. By design, Medicare effectively limits the amount of funding non-hospital sites can receive for GME, thus becoming a disincentive for community-based sites to establish new residency programs. The Bipartisan Budget Act of 2018 (BBA2018) provided $126.5 million in federal fiscal years 2018 and 2019 (a significant increase over prior years), and will fund approximately 60 residency programs. Though there are numerous sites in Georgia that could potentially qualify as community-based health centers, particularly in parts of Central and South

[23] Rural residency programs primarily train in rural communities, place residents in rural locations for greater than 50 percent of their training, and focus on producing physicians who will practice in rural communities.

Georgia where primary care needs are greatest, there are no active grantees located in Georgia at this time and, based on BOR's discussion with HRSA, the program is currently closed to new grantees.

Active recruitment of students with ties to Georgia

The research indicates that certain personal characteristics, attributes, or background of residents are strong predictors of successful recruitment to practice in underserved and rural areas in Georgia. For example, studies we reviewed found that rural practice is associated with a particularly resilient and service-oriented personality and screening for such attributes, and a demonstrated commitment to working in underserved areas, may help improve the physician workforce in those communities. In addition, the meta-analysis of 72 medical studies found that personal characteristics, attributes, and background—including growing up in a rural area or inner city, prior interest in rural or an underserved practice, and prior interest in rural practice—to be positively associated with a physician's decision to practice in areas of need.

Our own analysis of medical school graduates exit survey data compiled by the Georgia Board for Physician Workforce suggested a link between Georgia high school graduation and plans to practice in underserved and rural areas. Although a small number of graduates planned to enter patient care/clinical practice in rural Georgia (and not pursue additional training)[24], 60% (6 of 10) of 2016 graduates and 45% (5 of 11) of 2017 graduates reported having attended high school in Georgia. Similarly, of the small number of graduates who planned to enter patient care/clinical practice in a HPSA in Georgia, 63% (10 of 16) of 2016 graduates reported having attended high school in Georgia, but the linkage was not as strong for 2017 graduates (6 of 21 or 29%).

The National Resident Matching Program *provides a systematic way of placing medical school students into GME positions in accredited U.S. teaching hospitals. In the fourth year of medical school, students submit applications to desired residency programs. Program residency committees review applicants and invite prospects for interviews. After interviews are complete, both the applicants and the programs submit rank-order lists to the NRMP, which then employs a computerized mathematical algorithm to place applicants with programs. It is a violation of NRMP rules for an applicant or a program to solicit information about how the other will rank them, but an applicant or a program may volunteer information during interviews.*

GME program administrators generally acknowledged the importance of recruiting applicants who have ties to Georgia. For example, one director stated that the best predictor of future practice is recruiting the right people, especially those familiar to the area. Though the National Resident Matching Program places limitations on the content of discussions held between GME administrators and prospective residents during the interview process, administrators noted that the personal and academic attributes of candidates is typically offered by the resident during interviews. Some GME administrators also indicated that they look to their affiliate medical schools for potential candidates. However, several administrators indicated that the likelihood of retention is less of a priority during the recruitment process than recruiting the most academically qualified applicants.

Incentivizing residents to practice in Georgia and in underserved, rural areas

According to the research, financial factors such as educational debt and loan repayment and scholarship programs were associated with primary care physician practice in underserved and rural areas. Our analysis of GBPW exit survey data found

[24] Graduates who reported planning to enter patient care/clinical practice in rural Georgia were 176 of 443 total graduates surveyed in 2016 and 142 of 318 total graduates surveyed in 2017.

median student loan debt obligations of $220,000 and $200,000 in fiscal years 2016 and 2017, respectively. And, of 142 graduates in 2017 who planned to enter patient care/clinical practice in Georgia, 32% (45) reported that they were likely or very likely to consider a five-year obligation to practice in a rural setting if their medical school debt was forgiven.

Our 2017 Performance Audit of Loan Forgiveness Programs found that the Rural Areas Assistance Program administered by GBPW had some influence in a small number of physicians' decisions to practice in rural, underserved parts of the state.[25] In addition, the audit found that award recipients were more likely than non-recipients to be treating Medicaid patients in rural Georgia five years after the award. To maximize the impact of the loans, we recommended that GBPW expand its marketing efforts to increase awareness of the program, eliminate the requirement that physicians already be working in a targeted area prior to receiving the award, and increase loan award amounts above $25,000. GME program administrators we interviewed for this review stated similar concerns, but also noted expanding geographic eligibility criteria to include "rural adjacent" areas would be beneficial. The 2017 audit also recommended that GBPW change its geographic eligibility criteria from being solely based on population[26] and consider a more statistical approach (e.g., ratio of providers to population, health status, poverty levels) to ensure program funds are targeted toward the highest need rural areas. For example, the loan repayment program administered by the National Health Service Corps requires that applicants be employed in a HPSA. None of the nine states' loan repayment program we reviewed as part of the audit relied solely on population to define underserved areas. According to GBPW officials, the criteria has been revised to include counties with population of 50,000 or less and marketing efforts have been expanded to increase awareness of the program since the audit.

In keeping with the pipeline approach advocated in numerous studies we reviewed, Georgia Area Health Education Centers (AHEC) has proposed a plan for providing loan forgiveness for Georgia medical school graduates selecting Georgia residency training programs in family medicine. Loan repayment would begin the first year of residency and continue through the third year. The plan also entails a three-year service commitment to practice in Georgia immediately post residency and agreement to take Medicaid patients. Recipients would also be eligible for the loan forgiveness program described above.

BOR's Response: *"We concur with the overall statement that Georgia 'seems to be on the right track to increase the number of doctors in the state.' The report outlines multiple methods to increase resident training in rural locations; of those, Georgia is utilizing all but the Teaching Health Center Graduate Medical Education (THCGME) grant program."*

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[25] Performance Audit of Loan Forgiveness Programs, Report No. 17-07, October 2017. The Rural Areas Assistance Program is aimed at medical professionals practicing full-time in a county with a population less than 50,000 (e.g., physicians, dentists, advanced practice registered nurses, and physicians assistants). Approximately 37% (11 of 30) of physician loan repayment recipients who responded to our survey stated the program significantly influenced their decision to practice in rural areas.

[26] At the time of our 2017 performance audit, only those physicians practicing in counties with a population less than 35,000 were eligible to apply for loans.

- ***Rural Residency Planning and Development Program*** - *BOR acknowledged that Georgia GME programs are eligible to apply for start-up funds through the Rural Residency Planning and Development Program, "but would have to identify how to fund the ongoing costs of any new rural GME residency program."*

- ***Teaching Health Center Graduate Medical Education (THCGME)*** – *BOR indicated that, based on a discussion with HRSA, the THCGME grant program "is not currently supporting NEW residency programs" and the additional funding to the program "will only support those GME programs established under the program years ago." As a result, "there are no current dollars to support any new rural Georgia GME programs unless the future funding would be earmarked to support new rural program development."*

  Auditor's Response*: Normal practice would be to confirm information BOR received from HRSA, but we were unable to contact HRSA staff at the end of this review. Given this, GME and funding officials should closely monitor the THCGME program for any changes that may allow new or existing rural GME programs in Georgia to participate.*

- ***Loan Forgiveness*** – *BOR stated that many loan forgiveness programs "have constraints that may deter a resident from participating in the program[s]. Changes to those programs have occurred which may attract more residents to applying for the incentives," and "continued review of these programs may assist with placement of residents to the most rural locations in Georgia."*

Appendix A: Objectives, Scope, and Methodology

Objectives

This report examines the State's strategy for the development of medical residency programs. Specifically, our examination sought to determine the following:

1. To what extent has the state's Graduate Medical Education (GME) strategy been successful in creating new residency positions, particularly in the areas with the greatest need?
2. Upon GME program completion, do residents practice in Georgia, particularly in underserved areas?
3. What opportunities exist for enhancing the recruitment and retention results of GME programs?

Scope

This special examination primarily focused on medical residency expansion efforts implemented between fiscal years 2015 and 2018, as well as future plans through 2025. Information used in this report was obtained by reviewing relevant laws, agency policies, other states' initiatives, and industry research. We also interviewed officials from BOR and GBPW and GME program administrators at the hospitals. In addition, we analyzed GBPW survey data and retention outcome data.

Methodology

To determine the extent to which the GME strategy has been successful in creating new residency positions, particularly in the areas with greatest need, we reviewed BOR documents showing the number of new positions created and the number planned through 2025. We also obtained information from the Accreditation Council for Graduate Medical Education (ACGME) website that showed the number of residents in existing programs in Georgia, as well as the number of positions in other states. We used this information, along with population data from the U.S. Census Bureau, to calculate the number of residency positions per capita in Georgia and compare to the national and southeast averages. We also obtained population projections from Georgia's Office of Planning and Budget to project per capita increases in Georgia through 2025. In addition, we used BOR records and ACGME data to determine the percentage increase in residency positions by discipline type (e.g., primary care). To determine if the strategy is creating positions in underserved areas, we obtained and analyzed federal HPSA data by county. We also reviewed GBPW reports showing counties without physicians. We compared this information with the location of the new residency positions.

To determine if upon GME program completion, residents practice in Georgia, particularly in underserved areas, we reviewed BOR records showing the practice location for the new residents who have completed programs. We also reviewed BOR records showing the educational background of the new residents because this is linked to retention results. Because there have only been 27 graduates from the new programs, we also reviewed GBPW's retention outcome report for its previously existing programs to serve as an indicator. The outcome report provides a retention percentage by residency program and institution based on a five-year rolling average (2013-2017). We also analyzed GBPW's practice location data to determine where physicians who are retained go on to practice. The data provided by GBPW was reported by the hospitals and verified by GBPW. GBPW's data only includes residency programs that receive capitation payments.

To identify opportunities for enhancing the recruitment and retention results of GME programs, we reviewed the academic literature, as well as strategies utilized in other states. We also interviewed GME administrators from 16 hospitals (both new and existing programs) regarding retention efforts. Lastly, we

reviewed GBPW survey results from 2016 (443 respondents) and 2017 (318 respondents) GME graduate exit surveys.

This special examination was not conducted in accordance with generally accepted government auditing standards (GAGAS) given the timeframe in which the report was needed. However, it was conducted in accordance with Performance Audit Division policies and procedures for non-GAGAS engagements. These policies and procedures require that we plan and perform the engagement to obtain sufficient, appropriate evidence to provide a reasonable basis for the information reported and that data limitations be identified for the reader.

Appendix B: New Residency Positions Under BOR Plan

	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
PIEDMONT ATHENS REGIONAL											
Internal Medicine			15	30	45	45	45	45	45	45	45
Transitional Year					10	10	10	10	10	10	10
TOTAL			**15**	**30**	**55**	**55**	**55**	**55**	**55**	**55**	**55**
ST. MARY'S HOSPITAL											
Internal Medicine		10	20	32	31	34	34	34	34	34	34
TOTAL		**10**	**20**	**32**	**31**	**34**	**34**	**34**	**34**	**34**	**34**
GWINNETT MEDICAL CENTER											
Internal Medicine		6	11	17	25	30	30	30	30	30	30
Family Medicine	5	10	15	15	15	15	15	15	15	15	15
Transitional Year			9	10	10	10	10	10	10	10	10
TOTAL	**5**	**16**	**35**	**42**	**50**	**55**	**55**	**55**	**55**	**55**	**55**
SOUTH GA CONSORTIUM											
Family Medicine			3	6	9	12	12	12	12	12	12
TOTAL			**3**	**6**	**9**	**12**	**12**	**12**	**12**	**12**	**12**
REDMOND REGIONAL MEDICAL CENTER											
Internal Medicine			10	20	30	30	30	30	30	30	30
Transitional Year				6	10	13	13	13	13	13	13
TOTAL			**10**	**26**	**40**	**43**	**43**	**43**	**43**	**43**	**43**
WELLSTAR KENNESTONE HOSPITAL											
Internal Medicine			10	20	30	30	30	30	30	30	30
Family Medicine					7	14	21	21	21	21	21
OB/GYN			4	8	12	16	16	16	16	16	16
General Surgery						3	6	9	12	15	15
Emergency Medicine					12	24	36	36	36	36	36
Transitional Year				12	12	12	12	12	12	12	12
Pediatrics											12
Psychiatry											24
TOTAL			**14**	**40**	**73**	**99**	**121**	**124**	**127**	**130**	**166**
UNIVERSITY HOSPITAL											
Family Medicine				2	4	12	12	12	12	12	12
TOTAL				**2**	**4**	**12**	**12**	**12**	**12**	**12**	**12**
NE GA MEDICAL CENTER											
Internal Medicine						20	40	60	60	60	60
Family Medicine							12	24	36	36	36
OB/GYN								4	8	12	16
General Surgery						6	12	18	24	30	30
Emergency Medicine							6	12	18	18	18
Psychiatry								5	10	15	20
Transitional Year							10	10	10	10	10
TOTAL						**26**	**80**	**133**	**166**	**181**	**190**
HAMILTON MEDICAL CENTER											
Internal Medicine							10	20	30	30	30
Psychiatry							4	8	12	16	16
TOTAL							**14**	**28**	**42**	**46**	**46**
RESIDENT COUNTS BY YEAR	**5**	**26**	**97**	**178**	**262**	**336**	**426**	**496**	**546**	**568**	**613**

Source: BOR records

Appendix C: Medicare Payments to Georgia Teaching Hospitals (3-year average calculated)

Hospital	Average of Indirect Medical Education Payments	Average of Direct Medical Education Payments	Average of Total
Piedmont Athens Regional Medical Center	$465,609	$ -	$465,609
Wellstar Atlanta Medical Center	$1,952,877	$1,945,227	$3,898,104
Augusta University Medical Center /Medical College of Georgia	$16,509,699	$8,311,923	$24,821,623
DeKalb Medical Center	$605,695	$284,317	$890,012
Emory University Hospital - Midtown	$5,309,076	$2,999,652	$8,308,728
Emory University Hospital	$29,707,641	$10,093,290	$39,800,931
Floyd Medical Center	$2,349,496	$1,638,598	$3,988,094
Grady Memorial Hospital	$13,242,411	$8,899,851	$22,142,262
Gwinnett Medical Center	$1,466,485	$759,995	$2,226,480
Houston Healthcare System	$1,294,091	$730,598	$2,024,689
Wellstar Kennestone Hospital	$1,402,116	$499,355	$1,901,471
Mayo Clinic Health System - Waycross	$189,279	$149,770	$339,049
Medical Center of Central Georgia	$7,423,517	$5,809,282	$13,232,799
Memorial Health-University Medical Center	$7,732,804	$4,264,256	$11,997,060
Midtown Medical Center	$1,545,339	$1,332,517	$2,877,856
Phoebe Putney Memorial Hospital	$861,856	$1,154,785	$2,016,640
Piedmont Hospital	$616,868	$202,520	$819,389
Redmond Regional Medical Center	$1,626,145	$581,880	$2,208,025
St. Mary's Healthcare System	$1,118,942	$1,184,736	$2,303,678
Saint Joseph's of Atlanta	$245,552	$99,033	$344,585
University Health Services	$286,302	$163,697	$449,999
Three-year average (report years 2014 – 2016)	**$95,951,799**	**$51,105,281**	**$147,057,081**

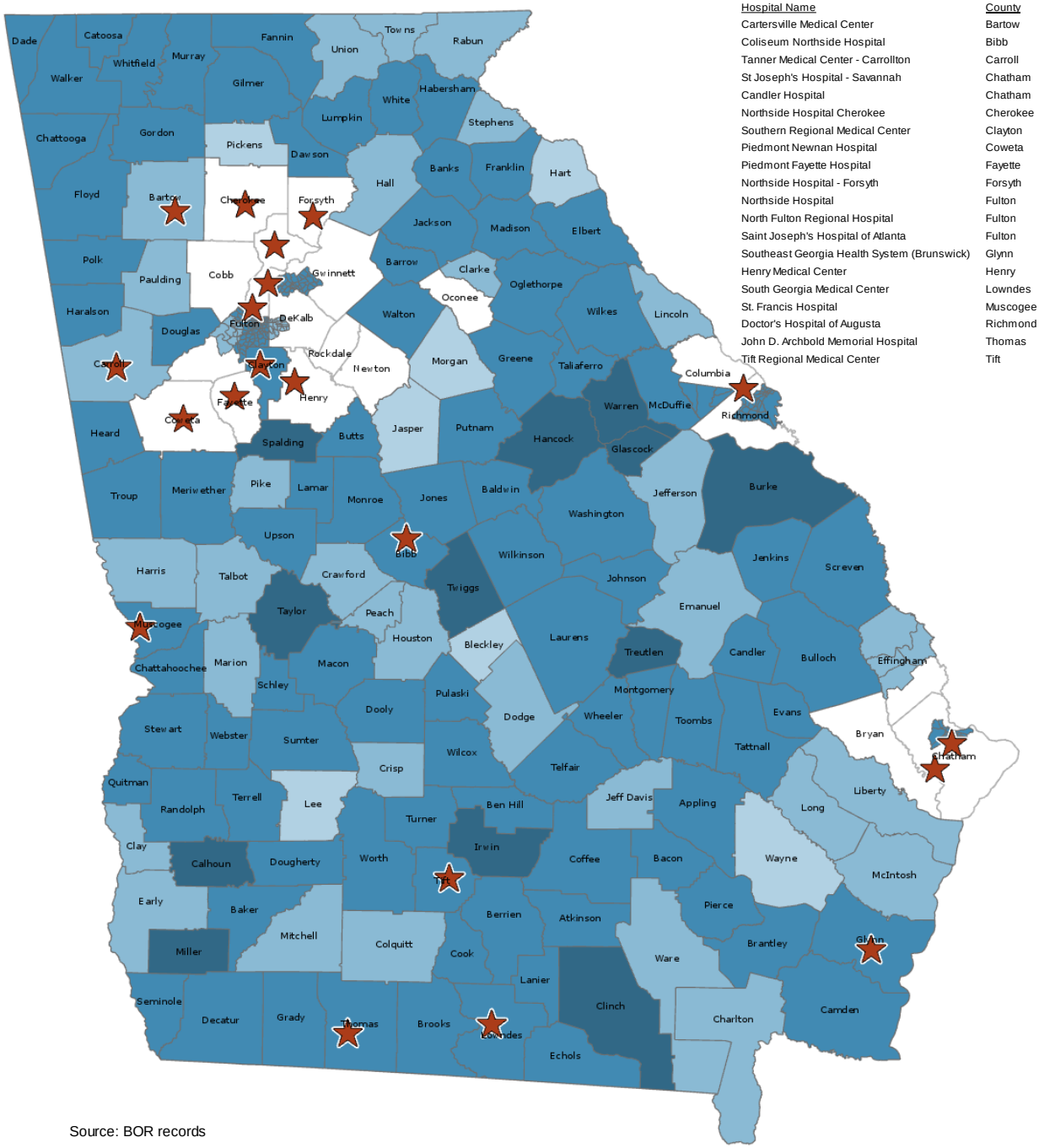
Source: Centers for Medicare and Medicaid Services

Appendix D: Medicaid Direct GME Grant Amounts by Hospital Fiscal Years 2016 –2018

Hospital	SFY 2016	SFY 2017	SFY 2018
Wellstar Atlanta Medical Center	$5,015,565	$5,070,358	$5,068,732
Augusta University Medical Center/Medical College of Georgia	$4,872,590	$4,859,136	$4,859,136
Children's Healthcare of Atlanta at Egleston	$8,637,798	$8,493,850	$8,489,280
Children's Healthcare of Atlanta at Hughes Spalding	$360,517	$422,661	$422,164
Children's Healthcare of Atlanta at Scottish Rite	$1,162,701	$1,194,876	$1,194,432
DeKalb Medical Center	$168,386	$171,012	$171,012
Emory University Hospital	$2,087,994	$2,097,872	$2,097,872
Emory University Hospital - Midtown	$1,094,346	$1,018,350	$1,018,200
Floyd Medical Center	$1,049,858	$1,070,000	$1,069,784
Grady Memorial Hospital	$14,213,913	$14,113,456	$14,111,092
Mayo Clinic Health System - Waycross	$22,592	$23,381	$23,368
Medical Center, Navicent Health	$2,619,560	$2,670,868	$2,670,868
Memorial Health - University Medical Center	$2,672,663	$2,720,672	$2,720,280
Midtown Medical Center	$1,674,271	$1,730,928	$1,730,928
Phoebe Putney Memorial Hospital	$242,933	$249,164	$249,032
Piedmont Hospital	$20,935	$19,992	$19,992
University Hospital	$13,900	$14,086	$14,080
Wesley Woods Center of Emory University	$62,168	$62,168	$62,168
Total	**$45,992,691**	**$46,002,831**	**$45,992,420**

Source: Department of Community Health

Appendix E: Eligible Hospitals Not Implementing Programs Under BOR Plan



Source: BOR records

The Performance Audit Division was established in 1971 to conduct in-depth reviews of state-funded programs. Our reviews determine if programs are meeting goals and objectives; measure program results and effectiveness; identify alternate methods to meet goals; evaluate efficiency of resource allocation; assess compliance with laws and regulations; and provide credible management information to decision makers. For more information, contact us at (404)656-2180 or visit our website at www.audits.ga.gov.