UPDATE ON GEORGIA'S PHYSICIAN WORKFORCE

FOLLOW UP REPORT TO: "IS THERE A DOCTOR IN THE HOUSE?"

THE GEORGIA BOARD FOR PHYSICIAN WORKFORCE
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FOLLOW-UP REPORT TO: IS THERE A DOCTOR IN THE HOUSE?
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EXECUTIVE SUMMARY

Some consider it the normal course of events. Try to visit your doctor and you often have to wait weeks. Add to this the numerous articles in our news media that inform us of growing challenges facing medicine and concerns begin to emerge. Collectively, these speak to unease with the capacity of the physician workforce in Georgia. Certainly Georgia enjoys a workforce willing and able to meet the needs of its patients. Thanks to recent growth in this workforce, as well, it is likely that many in Georgia have access to the quality care they need. However, there is growing evidence that concerns exist with the current capacity and growth trends in Georgia's physician workforce. We care about this because of the unique role that physicians play in helping to ensure the health and wellbeing of all Georgians. As such, evidence that speaks to potential concerns with the state's physician workforce warrant attention.

The Data in this report show current capacity and trends in the physician workforce as of 2004. The picture painted by these data show a somewhat mixed picture, however, they do show some specific concerns with the current state of this workforce as well as the future of medicine in Georgia. A striking example is the fact that Georgia's workforce continues to rank in the mid to low 30's. Since the Georgia Board began reporting on physician capacity in Georgia, the state has never ranked above 35, in the per capita number of physicians practicing in the state. In 2004, the state ranked 37th in the nation. However, a range of other concerns exist that reflect a number of problems, both current and pending. These are described in the following report. Some of the bigger issues include the following:

- Georgia currently ranks 37th in the nation in the per capita capacity of physicians. This is a slight improvement over 2002 figures (when Georgia ranked 38th), but is essentially unchanged.
- Georgia's population is growing at a rapid rate and will require an equally rapid introduction of new physicians, just to maintain current physician capacity.
- As this population grows, it is also aging and will require higher levels of care as it ages.
- The proportion of physicians reporting to be in a primary care specialty declined slightly between 2002 and 2004.
- Growth in important specialties was minimal or negative, including OB/GYN, which barely grew and General Surgery, which is in a continuing state of decline.
- The subspecialties of Diagnostic Radiology and Gastroenterology are currently predicted to be in shortages by 2010.
- Substantial distribution problems are seen in Pediatrics and OB/GYN. Challenges are also seen in Diagnostic Radiology, Gastroenterology, Oncology and Psychiatry.
- Even as demand for physicians is expected to rise, their average work effort is expected to decline. This limits the recent gains in physician capacity and suggests that Georgia will have to rapidly expand this workforce if it is to meet growing demand for services.
- Diversity in the workforce stills lags the diversity seen in the population.
- Medical education debt continues to grow.

The extent of these concerns suggests the need for effective and immediate action. For years the state has supported efforts to understand the medical workforce and support its production and maintenance. Yet, the extent and nature of the new challenges require that Georgia take a

modified approach to solving the immediate concerns with this workforce and the long term trends impacting it. The most important elements here include:

- Understand the nature of the problem – To create effective responses, we must understand what is driving these concerns - From changes in physician work effort, to the extent of Georgia's rural population, to the nature of the forces that are expected to drive future demand for physician services.
- Take the necessary steps to maintain current physician capacity – To ensure future needs for physician services are met the state must, at a minimum, maintain the current capacity and impact these physicians have. To do this the state can explore enhancing physician efficiency through technology and partnerships, explore ways to further build on the growing diversity of this workforce and ensure that rural Georgia has access to the physicians it needs.
- Right size the medical education system – The best way to ensure that Georgia always has the physicians it needs to build and maintain a medical education system that can adequately provide for the state's needs.

This last point is particularly important. Certainly, Georgia has benefited from an excellent medical education system for many years. Yet this system has only recently started to enhance enrollment and its expected level of outputs. Even as it has done this, state support has not matched these enhancements. Further, what growth has occurred has been uneven and the growth that has occurred in medical schools has not been matched by similar growth in Georgia's residency programs. This imbalance could reduce the benefit Georgia will see from what enhancements have taken place. To correct the many challenges confronting the medical education system, the state must do the following:

- Build sufficient capacity in all levels of the medical education system. We must ensure that sufficient enhancements develop in the state's residency programs to meet the growth that has developed in medical schools. This can help ensure that all the medical students graduating from a medical school in Georgia can choose a residency also located in Georgia.
- Ensure adequate funding for medical education. This includes an array of issues, from restoring supports to medical education programs lost earlier this decade, to providing enhancements to support program expansion to ensure that they remain viable, to selectively increasing supports to build capacity in areas where it has not already developed, such as Geriatrics.
- Maintain a focus on primary care
- Perhaps most importantly, Georgia must maintain a long-term focus. At a minimum, this system requires 7 years to produce a physician once a student has completed his or her baccalaureate education. As such, Short-term solutions will fail to adequately account for important trends in medical education.

STATE OF THE PHYSICIAN WORKFORCE

Introduction:

Information released in FY 2005 by the Georgia Board for Physician Workforce (GBPW), based on data from the 2002 licensure renewal cycle for physicians, described new concerns about the physician workforce in Georgia. This marked a shift from previous views held by the Board and similar entities throughout the nation. Previously, trends and data warned of a potential surplus of physicians. This message changed in FY 2005 when the GBPW reported about potential shortages in the physician workforce seen emerging in coming years. The concerns for primary care remained (from the 1990s), but were now joined by sub-specialty fields, distribution of various physician specialties and conditions prevailing within the medical education system and the physician marketplace.

Some good news is seen in data from the 2004 physician renewal cycle. This progress included such developments as:

- Growth was finally seen in per capita physician numbers.
- Georgia's national rank, in terms of physicians per 100,000, improved slightly.
- Per capita numbers of Family Medicine physicians began to recover from the recent decline.
- The diversity of the physician workforce continued to grow.
- A new medical school in Gwinnett County opened its doors.
- All existing medical schools in the state increased enrollment or expressed the intention to do so.

However, in other regards, these data reflect many of the concerns seen in 2002 data and often reflect problems seen in data from the national level. Overall, problems remain with the size of the state's physician workforce, the availability and distribution of certain specialties within the workforce and the capacity of the medical education system in the state. Examples of these concerns include:

- Georgia currently ranks 37th in the nation in the per capita capacity of physicians. This is a slight improvement over 2002 figures (when Georgia ranked 38th), but is essentially unchanged.
- Georgia's population is growing at a rapid rate and will require an equally rapid introduction of new physicians, just to maintain current physician capacity.
- As this population grows, it is also aging and will require higher levels of care as it ages.
- Even as demand for physicians is expected to rise, their average work effort is expected to decline. This limits the recent gains in physician capacity and suggests that Georgia will have to rapidly expand this workforce if it is to meet growing demand for services.
- The proportion of physicians reporting to be in a primary care specialty declined slightly between 2002 and 2004.
- Growth in important specialties was minimal or negative, including OB/GYN, which barely grew and General Surgery, which is in a continuing state of decline.

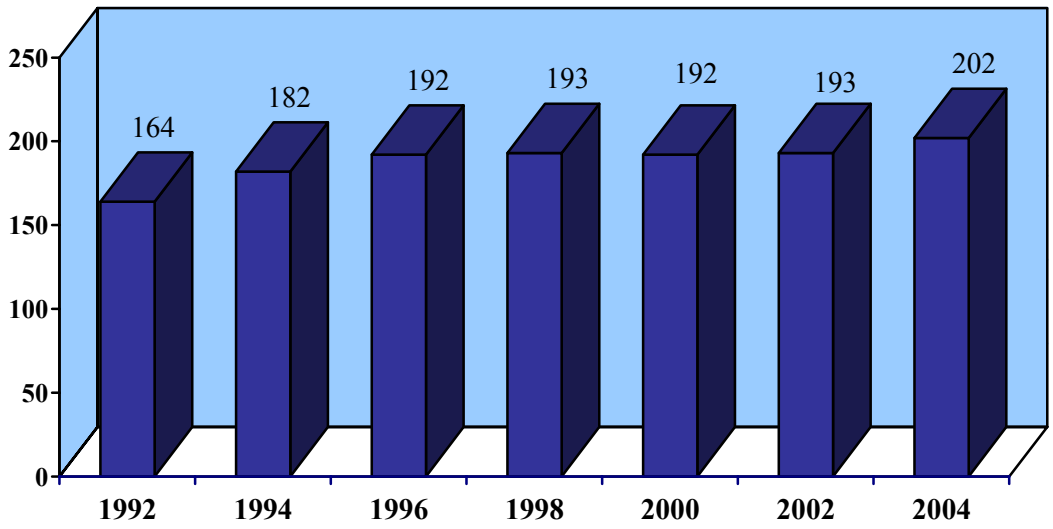
- The subspecialties of Diagnostic Radiology and Gastroenterology are currently predicted to be in shortages by 2010.
- Substantial distribution problems are seen in Pediatrics and OB/GYN. Challenges are also seen in Diagnostic Radiology, Gastroenterology, Oncology and Psychiatry.
- Diversity in the workforce stills lags the diversity seen in the population.
- Medical education debt continues to grow.

Specific details are provided in the following pages. Clearly, despite some recent improvements, Georgia has work to do to ensure that its citizens have adequate access to quality health care.

Capacity of the Physician Workforce:

Physician supply:
The basic metric of physician capacity is the number of physicians in relation to the population they serve and how this supply changes over time. Usually, this picture is expressed in terms of physicians per 100,000 Population (see Exhibit 1). During the four licensure renewal cycles between 1996 and 2002, Georgia maintained a rate of 192/193 physicians per 100,000. During that time, the average rate of growth of the physician workforce in Georgia roughly matched the growth seen in the population. Between 2002 and 2004, the rate of growth in the physician workforce exceeded the rate of growth in the population. Data from physicians renewing their licenses in 2004 show the first increase in the per capita rate of physicians in a decade. As seen in Exhibit 1, Georgia had 202 physicians per 100,000 Population in 2004, representing a five percent gain in physician capacity in the state since 2002.

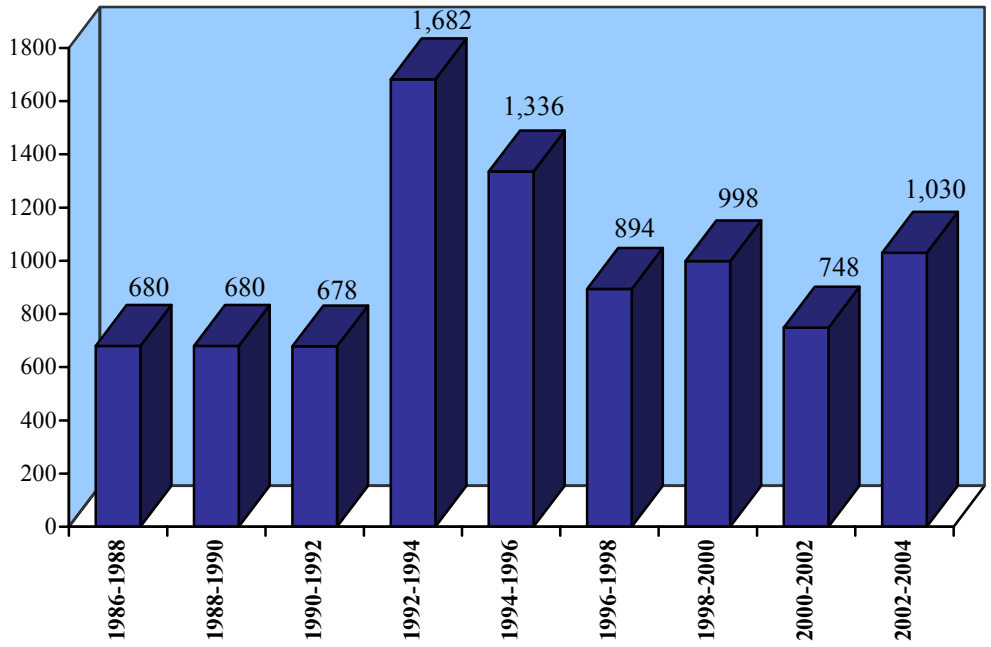
Exhibit 1
Physician Supply in Georgia, 1992-2004
Rate per 100,000 Population



This growth in physician capacity resulted from exceptional increases in the number of new physicians entering practice in Georgia between 2002 and 2004. Data on this growth can be seen in Exhibit 2. Between 2002 and 2004 the number of new physicians obtaining licenses in the state and practicing was almost 40 percent higher than the previous renewal cycle. While several

implications emerge from this data the most important is this exceptional growth rate meant Georgia's real physician capacity increased during that time.

Exhibit 2
Physician Growth, 1986-2004

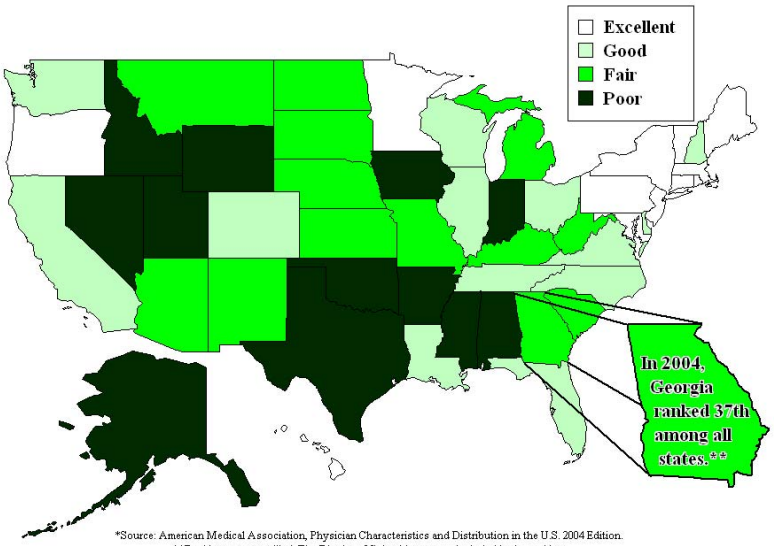


The impacts of this growth will provide real benefit to citizens throughout the state, because more physicians are in place to provide needed services. In part, this fact can be seen in the improved ranking of the state's physician workforce. As seen in Exhibit 3, Georgia's per capita physician capacity now ranks it 37th in the nation, up from 38th. This represents an improvement from the per capita numbers of physicians who renewed their licenses in 2002.

While this is clearly good news for the state, its significance should not be over-interpreted. Other considerations also affect physician supply. These considerations relate to the average work contribution each physician makes in providing needed health care services to the state. The different work ethics displayed by new physicians entering the workforce and the lower work effort contributed by women physicians, due to the impacts that family and life cycle issues have on their professional lives, will reduce the amount of time physicians, on average, commit to their practice. Reducing the average amount of work effort performed by physicians effectively reduces the capacity of the workforce and erodes the recent workforce gains.

Exhibit 3

Distribution of Physicians, U.S. 2004*
per 100,000 population



*Source: American Medical Association, Physician Characteristics and Distribution in the U.S. 2004 Edition.
**Rankings are quartilied. The District of Columbia was not included in the ranking.

The X and Y Generation - An increasing number of physicians practicing in Georgia come from the X and Y generations. This suggests a likely change in important values of the workforce as these new physicians begin to replace retiring ones. Reports by the Council on Graduate Medical Education, Families and Work Institute, and others (Bland and Isaacs 2002; Gelfand et al 2002; Newton et al 2005, Howell et al 2005 and Bickel and Brown 2005) show that members of the X and Y generations display different propensities to work than do Baby-Boomers. Long work weeks are typical for Baby-Boomers. For them, work demands often take priority over quality of life issues. This is not the case with younger physicians, who place greater emphasis on balancing work and life issues. Family concerns are more likely to take priority over the demands of work. Thus they are less likely to put in the extended hours of older physicians. The result of this difference will be seen in a declining level of work performed by the younger physicians.

The concern with this issue will grow over time. Currently, as seen in Exhibit 4, roughly three fourths of physicians practicing in Georgia are Baby-Boomers and the 80 hour work week is still the norm. However, the impact of these physicians on the average work effort of the workforce is declining. As seen in Exhibit 4 and 5, in 2002 only 24.9 percent of the workforce was younger than 40. Just two years later this figure increased to 28 percent. Driving this change is the growth in the youngest cohort of physicians: those aged 35 and younger. The presence of physicians ages 29 – 35 grew rapidly in this period, rising from 10 percent in 2002 to 13 percent in 2004, representing a total of 517 new physicians.

While these numbers are small, they clearly indicate the demographic shift unfolding in the physician workforce. As this change occurs the work ethic of X and Y generation physicians will begin to dominate, potentially leading to a decline in the average work effort of the physician workforce. Further, this factor will reduce the impacts of growth in workforce

capacity even as physician numbers rise. With roughly one in every seven current physicians between 29 and 40 years old, a considerable portion of the workforce comes from these younger generations. Because it is understood these physicians work fewer hours than previous generations of physicians, the effective growth that was seen in physician capacity cannot be viewed to be as substantial as the raw data suggests. While there are nine more physicians per 100,000 practicing in the state today than there were two years ago, many likely work fewer hours than their predecessors. The effects of this issue will also grow over time as the Baby-boomers are increasingly replaced by X and Y Generation physicians.

Exhibit 4
Physician Workforce: 2004 Age Distribution

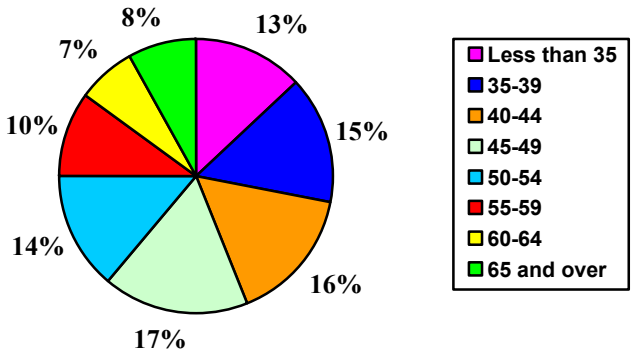
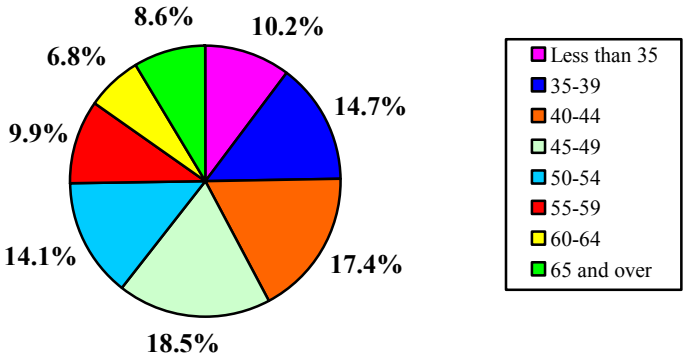


Exhibit 5
Physician Workforce: 2002 Age Distribution



Gender Practice Patterns - Similar concerns exist with the growing presence of women in the workforce. Women still bear the larger responsibility for managing family life and, as such, life cycle issues impact them more than men. These responsibilities require them to reduce the time and effort committed to work over the course of a career (COGME 2005, Families and Work Institute, HRSA 2000, Cull et al 2002). As more women become physicians, a reduction in average work contribution made per physician is expected. As with the changing of generations, this will reduce the efficacy of any gains seen in physician capacity.

Looking at Exhibit 6, the extent of growth in women's role in medicine is obvious. Since 1992, the percentage of women in the workforce has increased, from 15.4 percent in 1992 to 20.6 percent in 2004. It can also be noted that the growth of women in the workforce has begun to taper off. The presence of women in medicine peaked in 2000 and has been slowly eroding. However, this number will likely rise in the long term. Data reported by the Association of American Medical Colleges in 2006 indicated 49 percent of the 2005 class of matriculants to medical schools across the nation were women. Similar numbers are seen in Georgia in responses to the 2004 survey of graduates of residency programs, which indicated that 40 percent of graduates from residency training programs were women. These figures represent a much higher percentage of women entering the workforce. Over time, these figures will affect the overall composition of the workforce and cause the proportion of women in the workforce to rise beyond the rates reported in Exhibit 6.

Exhibit 6
Physicians by Gender

Year	Male percent	Female percent
1992	84.6	15.4
1994	83.8	16.2
1996	81.6	18.4
1998	80.0	20.0
2000	79.0	21.0
2002	79.1	20.9
2004	79.4	20.6

Demand for Services:
Unfortunately, concerns with supply become even more alarming when considering forces that impact the total demand for physician services. While the list of these forces is potentially large, population growth and aging trends in the population clearly suggest that demand for services could increase substantially in the future.

Population Growth - It is generally understood that population growth has an impact on demand. If the population declines, a subsequent drop in demand takes place, and if the population increases rapidly, a sharp increase in demand for health care services can be expected. Georgia's rapid population growth in population means the state should expect a substantial increase in demand. Between 1990 and 2000, Georgia's population grew by 26 percent, adding 1.7 million to the population. Since 2000, Georgia's population has continued to grow at one of the highest rates in the nation, adding an average of 175,000 citizens per year. Currently, the Census Bureau estimates that Georgia's population has increased by 886,123 since 2000 and

now has (as of July 1, 2005) a population of 9,072,576. With this growth comes additional demand for physician services. Fortunately, data on recent growth in the physician workforce between 2002 and 2004 (see Exhibit #1) indicate that the recent growth in supply in this state has more than matched population growth.

Aging of the population - Clearly, with this population growth will come additional need for physician services. Yet the aging of the general population suggest the growth in demand for physician services will be well in excess of the growth of the population. Merely comparing Georgia's supply of physicians to the state's population greatly underestimates this growth and the imbalance that may exist between supply and demand for services in the future.

An accepted fact of aging is the decline in overall health. With that declining health comes an increase in chronic disease and the need to seek care from a physician with increased frequency. This is true, despite the fact that today's seniors are in better health than seniors in previous generations. Subsequently, the rate at which the older components of the population grow has a profound impact on overall demand for health care services (COGME 2005, Health Resources and Services Administration 2003, Council of State Governments 2001). Because Georgia's population is clearly aging, it is, therefore, likely that demand for services will grow at a very rapid rate. Importantly, it is anticipated that the impacts of the aging of the population will increase the average per capita demand for health care services offered by physicians. This means that the rate of increase in demand for health care services will exceed that which would have resulted simply from an increase in the size of the population.

That Georgia is aging is clear. According to the U.S. Census Bureau, the population that is 65+ will grow by over 140% between 2000 and 2030, increasing in size by more than 1.1 million. The extent of this growth in 65+ is such that the proportion of Georgia's elderly population (65 and older) is expected to increase from 9.6 percent of the total population in 2000 to 15.9% in 2030. Given the sharp increase in the size of this population over the coming years, the state should anticipate the impacts of this population's health seeking behaviors. This fact is seen in data that show both ambulatory and in patient visits to a physician increase with age, with the 65+ population demanding the most health care. Further, this data also indicate that the baby boom generation is seeking health care at greater levels than previous generations.

The extent of this change is considerable. In fact, the census predicts that every age segment under 45 will decrease as a proportion of the overall state's population. This change will have profound impacts on average demand for physician services. Georgia must expect an ever increasing per capita demand for health care services in future years. This must be factored on top of the growth that is already happening as the overall population grows.

Specialty Mix:

The availability of specialists is also an important facet of workforce supply. Each specialty is trained to deal with specific health concerns, ranging from primary care to cancer to AIDS, etc. Even when the supply of physicians is sufficient, shortages of various specialties can create problems with access and quality of care, similar to those seen in overall shortages of physicians in the state.

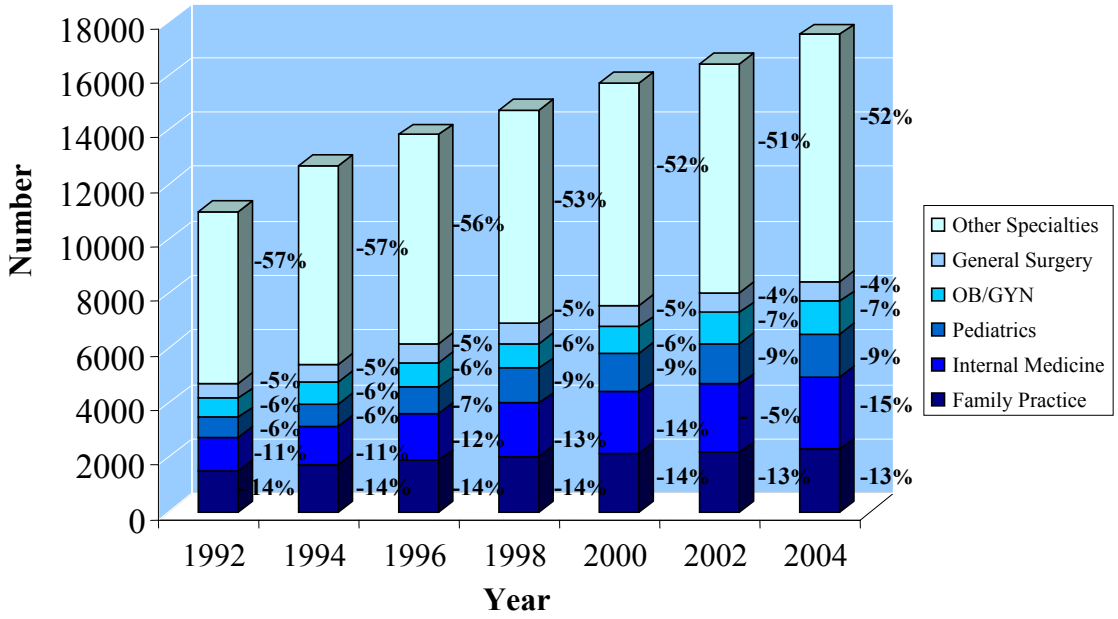
The system works best when sufficient numbers of primary care physicians and specialists are available to meet demand for services. In a properly functioning system (Ferrer et al. 2005), primary care physicians serve as the doorway into the health care system. They triage patients, diagnose undifferentiated diseases, refer patients to specialists when warranted, serve as a buffer to unnecessary care, and perhaps most importantly, mitigate the negative consequences geography and economics can play on access to health care. Specialists provide unique skills to the health care system. Specializing in particular organ systems, tissues or disease states, specialists have an ability and expertise to effectively treat diseases that exceed the training of primary care physicians. When there are enough of both types of physicians, the health care system can maximize quality of care. For this reason, the specialty mix of physicians in Georgia is always of concern, with particular attention towards primary care. Fortunately, the state has seen important progress in building the numbers of primary care physicians practicing in the state. However, recent trends seen in growth of primary care physician numbers warrant attention.

Primary Care/Core Specialties:

The specialties that comprise the primary care workforce consist of Family Medicine, General Internal Medicine, Pediatrics and OB/GYN. However, because of certain market behaviors and the critical role General Surgery plays in providing a basic trauma care safety net for rural parts of the state, the GBPW places special emphasis on General Surgery. In an effort to prevent any misinterpretation of the GBPW's intentions with this specialty, it considers General Surgery as one of its core specialties. Core specialties include the four primary care specialties and General Surgery. To ensure the needed availability and balance in the physician workforce, the GBPW looks at the availability of these five core specialties to ensure that growth trends are positive for these physicians.

Until 2004, the general trends with these core specialties were positive. Some apprehension existed with Family Medicine and General Surgery, but, as a whole, the core specialty workforce was growing, both numerically and as a proportion of the whole physician workforce in the state. The data from 2004, however, reintroduces an old problem to the state. As seen in Exhibit 7, 2004 saw an end to the proportional growth of the core specialty workforce. Between 1992 and 2002, the proportion of these physicians in the workforce grew steadily, rising from 42.9 percent in 1992 to 49.2 percent in 2002. This rise ended in 2004, when only 48.2 percent of the workforce reported specializing in any of the core specialties. This marked a decline of one percent for the core specialty workforce.

Exhibit 7
Generalists vs. Specialists,
Georgia, 1992-2004



Currently, this drop appears small. Further, while the proportion of core specialty physicians did decline, generally, the numbers of these physicians rose in numbers and rate to population. This can be seen in Exhibit 8. However, the implications are not promising. These data clearly indicate a move away from critical core specialties. Should these trends continue, Georgia could face challenges with accessing primary care and core specialties. This is particularly the case with three of the five core specialties: Family Medicine, General Surgery and OB/GYN. Although Geriatricians are not considered one of the five core specialties by the GBPW, they provide similar care to core physicians, although it is tailored to the unique needs of the elderly. Thus, concerns with these physicians are also noted here.

Family Medicine – As seen in Exhibit 8, the rate of Family Medicine physicians peaked in 1998, with 26.52 physicians per 100,000 Population. This was followed by declines in the rate of Family Medicine physicians in 2000 and 2002. By 2002, the rate had dropped nearly five percent, when data reported only 25.4 Family Medicine physicians per 100,000. Fortunately, the data for 2004 showed a higher rate of family physicians. However, the rate of Family Medicine physicians reported in 2004 still falls short of its peak in 1998. Given the importance of this specialty to ensuring access to quality health care services, attention must be paid to ensure that it maintains its numbers and is able to meet demand today and in the future.

Exhibit 8 Georgia Physician Workforce: Total Physicians by Specialty and Rate*, 1992-2004							
Specialty	**1992**	**1994**	**1996**	**1998**	**2000**	**2002**	**2004**
Allergy & Immunology	1.02	1.05	0.98	0.83	0.87	1.24	1.31
Anesthesiology	9.06	10.48	10.22	9.84	9.56	8.93	9.52
Cardiovascular Diseases	4.94	5.54	5.45	4.83	4.73	4.28	4.75
Dermatology	2.65	2.77	2.98	2.94	2.98	2.88	3.16
Diagnostic Radiology	3.15	3.82	4.16	4.07	3.24	3.17	3.88
Emergency Medicine	6.31	7.74	7.84	8.41	8.94	8.81	9.62
Endocrinology	0.94	0.95	1	0.86	0.77	0.8	0.89
Family/General Practice	22.52	25.04	26.27	26.52	26.18	25.36	26.4
Gastroenterology	2.57	2.77	2.73	2.55	2.65	2.1	2.38
General Surgery	8.63	9.29	9.59	9.26	9.42	8.48	8.44
Infectious Disease	1.23	1.59	1.37	1.32	1.2	1.56	1.71
Internal Medicine	18.34	20.08	23.83	25.79	27.66	29.3	30.53
Nephrology	1.38	1.45	1.51	1.41	1.28	1.43	1.7
Neurological Surgery	1.59	1.58	1.54	1.53	1.34	1.39	1.48
Neurology	2.6	2.99	3.37	3.35	3.19	3.22	3.48
Obstetrics/ Gynecology	10.22	11.63	12.25	11.82	12.04	13.29	13.48
Oncology	1.44	1.74	1.69	1.57	1.58	1.75	2.08
Ophthalmology	4.82	5	5.17	4.92	4.75	4.64	4.67
Orthopedic Surgery	6.32	6.99	7.62	7.2	6.79	6.89	7.04
Otorhinolaryngology	2.42	2.73	2.86	3.02	3.11	2.88	3.12
Pathology	3.91	4.11	4.4	4.41	4.51	4.43	4.55
Pediatrics	10.61	11.77	13.37	16.75	17.13	17.46	18.28
Plastic Surgery	1.56	1.84	2.03	1.87	1.82	2.13	2.31
Psychiatry	8.49	10.21	11.42	11.04	11.14	10.45	10.53
Pulmonary Diseases	1.7	2.1	2.03	1.92	1.92	1.67	1.89
Radiology	4.61	4.85	5.13	4.89	5.86	5.15	4.62
Rheumatology	0.74	0.92	0.83	0.76	0.75	0.6	0.72
Thoracic Surgery	0.49	0.59	0.49	0.42	0.43	1.08	1.08
Urological Surgery	3.32	3.59	3.44	3.42	3.04	3.06	2.97
State Total**	164	182	192	193	192	193	202

* Rate per 100,000 population: Population for 1992-2004 + Governor's Office of Planning and Budget: (http://www.opb.state.ga.us)
** All physicians
Only the specialties with ≥ 100 practicing physicians included.

General Surgery – The ongoing decline in General Surgery, noted in 2002, continued in 2004. Growth in this specialty peaked in 1996, when there were 9.56 general surgeons per 100,000 in Georgia. Since that time, the per capita capacity of the workforce has declined at a steady rate and reached its lowest point in 2004. The 8.44 General Surgeons per 100,000 is the lowest point seen in years with these data and represents a capacity in General Surgeons that is lower than that reported twelve years ago, when there were 8.63 General Surgeons per 100,000.

The decline seen here represents the impact of rapid population growth. While the rate of General Surgeons has been dropping, the actual number of them practicing medicine in the state has actually increased steadily since 1992. In 1992, there were only 580 General Surgeons, whereas there were 733 in 2004. This represents an increase of 153 surgeons during that time, yet represented growth that was too meager to keep pace with the state's population growth. Thus, even as the number of General Surgeons has increased, the capacity for these specialists to meet the population's need for services has declined.

OB/GYN – Substantial concerns were raised regarding OB/GYN in the GBPW's previous report looking at 2002 licensure data. While these data showed healthy increases in the numbers of OB/GYNs, there were various pressures in the physician marketplace, including increases in medical malpractice premiums, which could result in decreases. According to the 2004 data, these concerns might have been realized. While the per capita rate of these physicians did increase between 2002 and 2004, it did so at a very low rate. In only one instance in the period reported in Exhibit 7 did this specialty grow at a slower rate. This occurred in 1998, when the rate of OB/GYNs actually dropped. The average annual rate of growth for the period between 1992 and 2002 was six percent. Between 2002 and 2004 this specialty grew at a rate of only 1.4 percent. Further scrutiny is warranted on this specialty, given its recent growth and the important services this specialty provides.

Geriatrics – As reported earlier, the state's demographics are shifting. One such shift is the growing age of the state's population. By 2025, roughly 1 in 6 residents will be 65 years old or older. Literature (Kovner et al. 2002, Center for Health Workforce Studies 2005, HRSA 2003, Alliance for aging Research 2003) clearly indicates that the health care needs of the senior population are unique and extensive, often misunderstood and may require more expertise and time on the part of physicians. Often, seniors have multiple chronic conditions which must be managed. As the population ages and confronts a new set of health care challenges, the physician workforce must change to meet the new set of needs. To some extent medicine has accounted for this through the creation of the geriatrician specialty. However, the number and rate of Geriatricians has yet to reach levels deemed sufficient to meet current and emerging demand. To illustrate this problem, the Alliance for Aging Research (2002) reported that "the U.S. currently needs 20,000 physician-geriatricians to care adequately for our aging population of 35 million people. Yet of the 650,000 licensed physicians practicing in the U.S., fewer than 9,000 physicians have met the qualifying criteria in geriatrics. By 2030, the U.S. will need up to 36,000 geriatricians and will fall far short of that figure by as many as 25,000 unless effective steps are taken to train new providers."

Georgia also has these problems. As of 2004 there were only 73 physicians specializing in Geriatrics, representing a per capita rate of 0.82 physicians per 100,000 Population. This figure represents a sizeable gain since 1992, when there were only 16 Geriatricians in the state and a per capita rate of Geriatricians to population of 0.23. However, assuming that even a fraction of the number of physicians called for by the Alliance for Aging Research is needed, Georgia falls far short.

Specialists:

As stated earlier, for the health care system in Georgia to function effectively and efficiently, it requires an adequate number and array of specialists to treat the various diseases that will afflict

citizens. These physicians work in concert with primary care physicians. Upon referral from primary care physicians, specialists would provide their expertise and technological capacity to treat a variety of diseases. Just as a well functioning health care system requires an adequate number of primary care physicians, it also requires an appropriate array of specialists covering the multiple organ systems and disease states.

The analysis here is less concerned with the comparative presence of specialists to primary care physicians. Instead, it is concerned with the overall array, and availability of the various specialties, ranging from cardiovascular disease specialists to Oncologists and Psychiatrists…. Fortunately, improvements are noted in the 2004 data. The 2002 data indicated pending shortages with as many as six specialties. Data from the 2004 licensure renewal cycle shows progress in this area. This may be a reflection of the issues discussed earlier that are encouraging physicians to choose non-primary care specialties. These data show only three specialties currently heading towards shortage by 2010. As seen in Exhibit 9, these include Diagnostic Radiology, Gastroenterology and Urology. Further, the anticipated shortage in Urology is small at this time and while the anticipated shortages in Diagnostic Radiology and Gastroenterology still appear large, they are less than what was anticipated in the 2002 data.

Exhibit 9
Predicted Specialty Shortages

Specialty	Supply 2004	Supply Projected 2010	Supply Needed 2010	Deficit/ Surplus 2010*
Diagnostic Radiology	337	397	777	-380
Gastroenterology	207	225	384	-159
Urology	258	276	297-345	-21
Hematology/Oncology	191	227	211-345	Adequate**
Endocrinology	78	84	77-106	Adequate**
Rheumatology	63	69	67-77	Adequate**

* = Deficit or Surplus determined by lowest need standard in 2010.
** = Supply projected 2010 is within the supply needed range of standards

DISTRIBUTION:

Primary Care/Core Specialties:

Georgia is essentially rural and considerable portions of the state possess very small populations. The numbers of those under-populated areas mean significant challenges to attracting, retaining and accessing physicians when necessary. This fact requires an understanding of the state's physician distribution. The distribution of core specialties is evaluated utilizing primary care service areas (PCSAs). These 96 PCSAs are categorized as being in deficit, adequate or in surplus of physicians based on +/- 1 standard deviation of the physician rate per 100,000 in 2004. Most core specialties look reasonably well distributed in service delivery areas, even though their overall numbers are poor when compared to urban parts of the state. However, serious maldistributions of Pediatricians and OB/GYNs are evident.

Family Medicine/General Internists and General Surgeons - The PCSA distribution of Family Medicine and General Internists remains relatively even across the state. As seen in Exhibit 10 only five of the 96 PCSAs are deficient in Family Physicians. In part, this can be attributed to the emphasis placed on supporting Family Medicine residency training programs during the 1980's and 1990's and the recent growth in that specialty in Georgia. Today, there are 10 family practice residency programs strategically located around the state, including one rural training program.

Shown in Exhibit 11, just less than 30 percent of PCSAs are lacking General Internists. This is a substantial improvement from 2002, when nearly 40 percent of PCSAs needed General Internists, and likely due to the growth in the number of these specialists in the state.

Although differences exist in the practices of these two groups of physicians, they engage in much the same work and can substitute for each other when care is scarce. For this reason it is useful to look at the collective distribution of these two specialties across the state. Effective distribution exists in these critical core specialties. Looking at the coverage for both, only 2 PCSAs, in Brooks and Irwin Counties, show a need for both types of physicians. This means that almost all of Georgia has some access to basic primary care services.

In addition, though the presence of General Surgeons in the state declined between 2002 and 2004, the distribution of General Surgeons improved. Exhibit 12 shows only 26 PCSAs needed General Surgeons. This represents a decrease of 4 PCSAs from 2002, when 30 PCSAs were in deficit of General Surgeons. However, this important improvement may not last. Since the late 1990s, the per capita rate of General Surgeons has been eroding, and today is slightly less than it was in 1992. If this decline continues, problems with distribution of these physicians will eventually be seen.

Exhibit 10

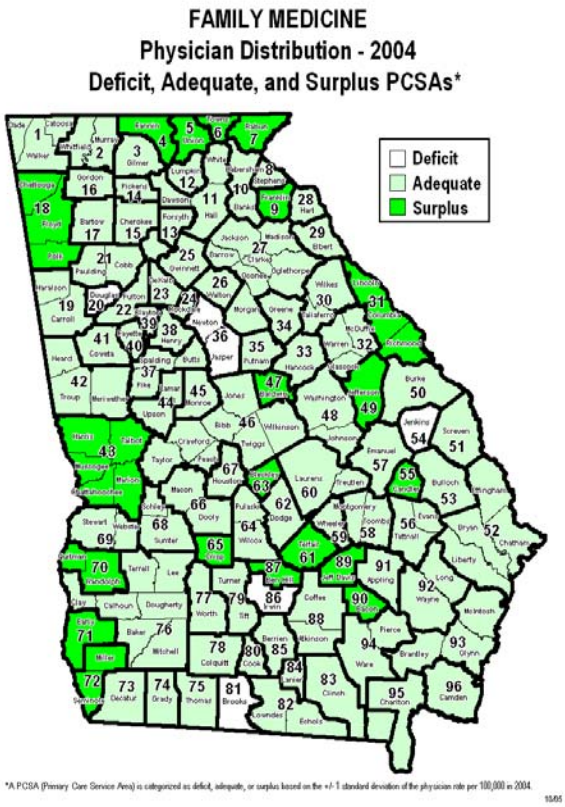


Exhibit 11

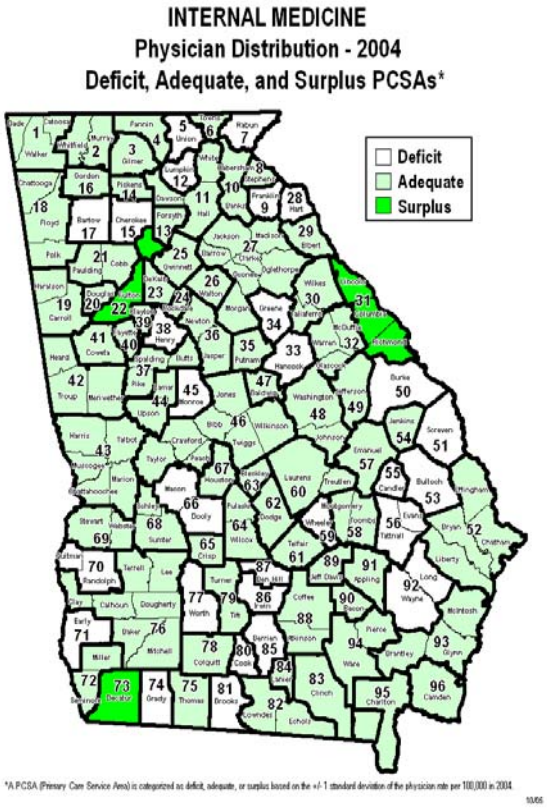
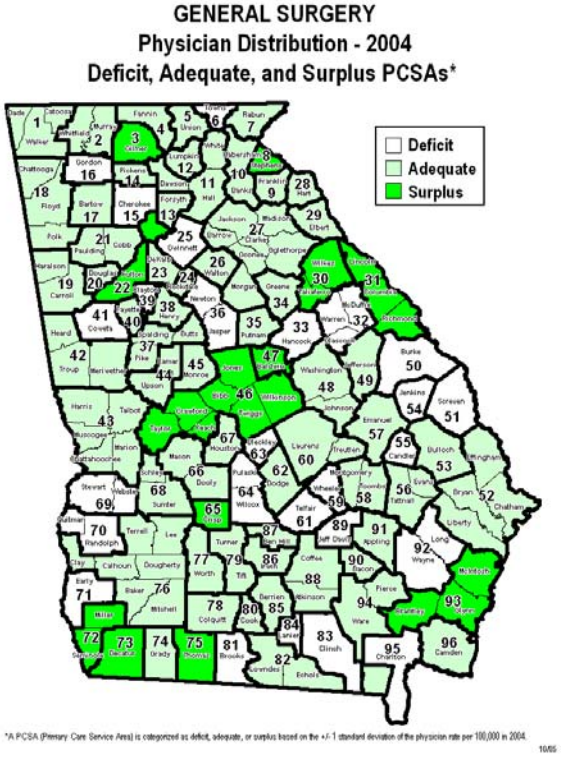


Exhibit 12



Pediatrics and OB/GYN - In 2002 the distribution of both Pediatricians and OB/GYNs was problematic. Pediatrics showed nearly 60 percent of PCSAs to be in deficit. The distribution of OB/GYNs was also problematic, as over 40 percent of PCSAs were lacking these specialists. Often, the deficit areas for these two specialties overlapped. This is important because, while some of the care provided by these physicians can be provided by a Family Medicine or Internal Medicine Physician, many such practitioners will no longer engage in some of the care typical of these specialties, particularly for obstetrics. Further, Family Physicians and Internists may not be able to provide the best care for unusual or difficult obstetric or pediatric cases. As such, gaps in access to these physicians may mean people in need of their services will not have access to the care they need.

Fortunately, as seen in Exhibits 13 and 14, the 2004 data show improvements for both Pediatrics and OB/GYN. The supply and distribution of Pediatricians shows multiple PCSAs (50 out of 96) where a shortage exists. This represents 52 percent of the PCSAs in the state. However, it does reflect an improvement over the previous period when 56 areas were showing a deficit. The current supply and distribution of OB/GYN physicians shows deficits in 37 of 96 primary service areas. While still much higher than is desirable, this represents less than 40 percent of the state's PCSAs and is an improvement over 2002, which showed 42 percent of PCSAs in deficit.

Even with marginal improvements, considerable concerns remain. In 2002, the eastern and northern parts of the state had deficits of both Pediatricians and OB/GYNs. Citizens in these parts may still struggle to access the critical skills of these physicians.

Exhibit 13

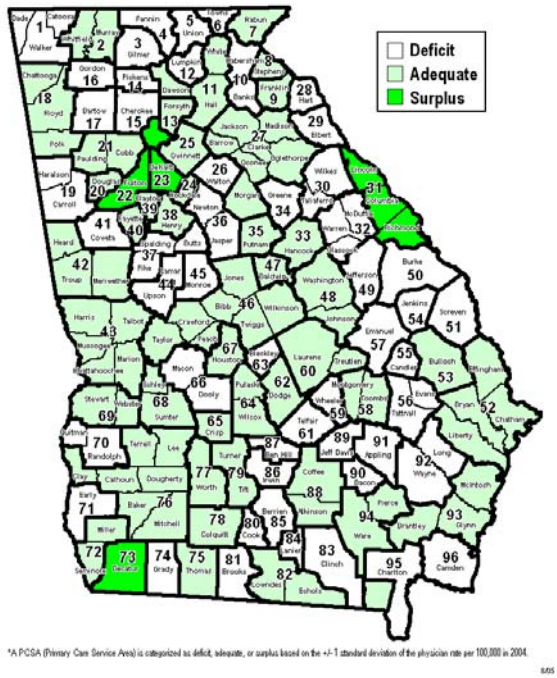
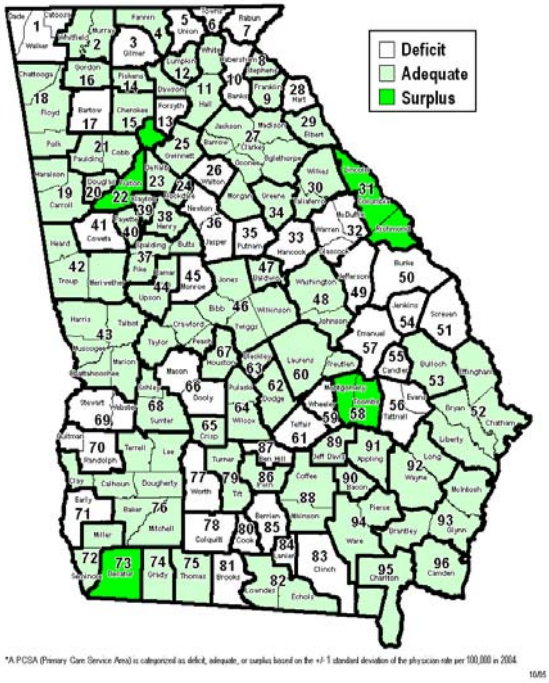


Exhibit 14



Specialists:
Data collected by the GBPW are also used to determine the distribution of non-core specialty physicians. The methodology used for these physicians is slightly different. Because of differences in the nature of core specialty and specialist practices, an analysis of distribution of the various sub-specialists in the state looks at regional distribution of physicians. In place of the PCSAs, the 12 state service delivery regions, defined by the General Assembly during the 1998 legislative session, were used.

While distribution patterns were analyzed for most major sub-specialties, those that are predicted to be in substantial shortage in 2010 warrant attention. These include Diagnostic Radiology and Gastroenterology. Given they are predicted to be in short supply by 2010, it is not surprising that these specialties suffer from substantial distribution problems. Data on the national distribution of the sub-specialties were not readily available for 2004. However, national numbers reported in data developed in 2002 are available and are used in this analysis. In 2002, the national rate of Diagnostic Radiologists to population was 7.9 physicians per 100,000. Georgia's average distribution of 3.9 physicians per 100,000 in 2004 was less than half the national average at that time. While this rate is improved, it is still problematic. As in 2002, Georgia had only one region where the presence of these physicians matched the national average. The remaining 11 secondary care service areas had a rate of Diagnostic Radiologists that was 1/2 to 1/5 that of the national rate.

Showing some improvement in 2004, Gastroenterologists had two regions that matched or beat national rates. Unfortunately, maldistributions were particularly acute for Gastroenterology, as these specialists were effectively non-existent in one region of the state (Region 9). This presents daunting challenges to regional residents who need specialized care from a Gastroenterologist. Additionally, seven of the remaining regions had a per-capita rate of Gastroenterologists that is less than half the national rate. The distribution of the two specialties could get worse in the future as they head into predicted shortages.

Exhibit 15

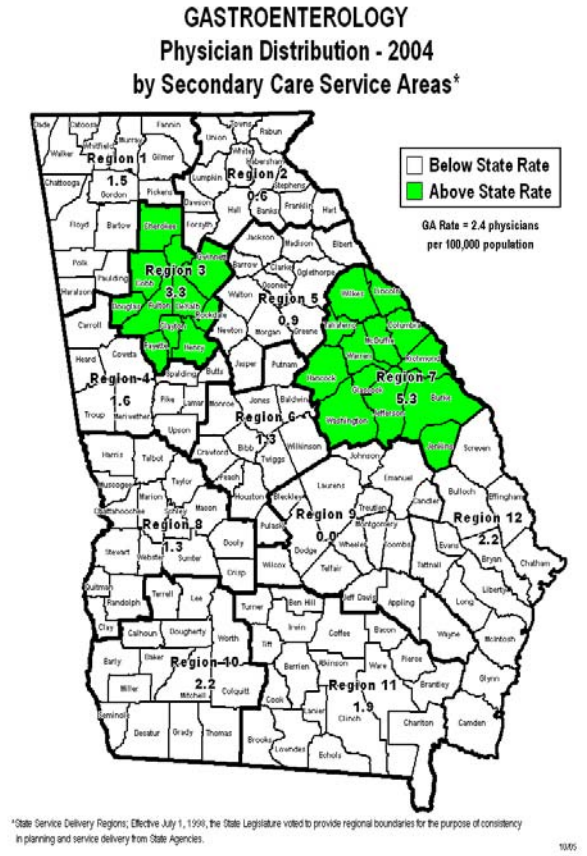
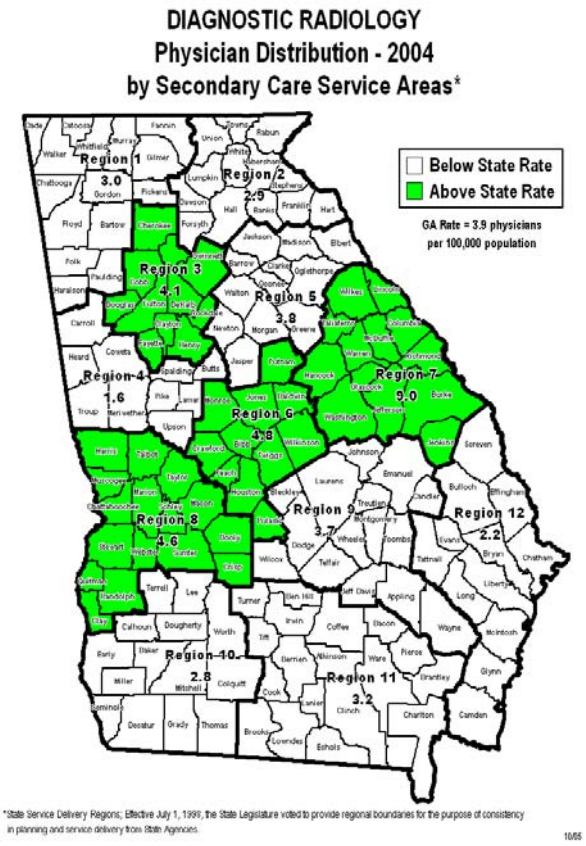


Exhibit 16



Two other specialties deserve consideration. Because of the state's efforts to promote an effective system to prevent and treat cancer, the state requires enough well-distributed Oncologists. Further, because of its commitment to providing mental health services, the state must also ensure that it has enough Psychiatrists in all areas.

Problems exist with the distribution of Oncologists and Psychiatrists. With an average per capita rate of Oncologists of only 2.1, Georgia is well below the national rate for 2002. Only two regions have Oncologists at a rate comparable to national levels. The remaining regions are between 1/2 to 1/5 of the national rate. Similarly, Georgia's average per capita rate of psychiatrists is roughly 1/3 lower than the national average. Fortunately, three regions compare favorably to the 2002 national rate for Psychiatrists (13.8 per 100,000), although the remaining regions are well below that.

Exhibit 17

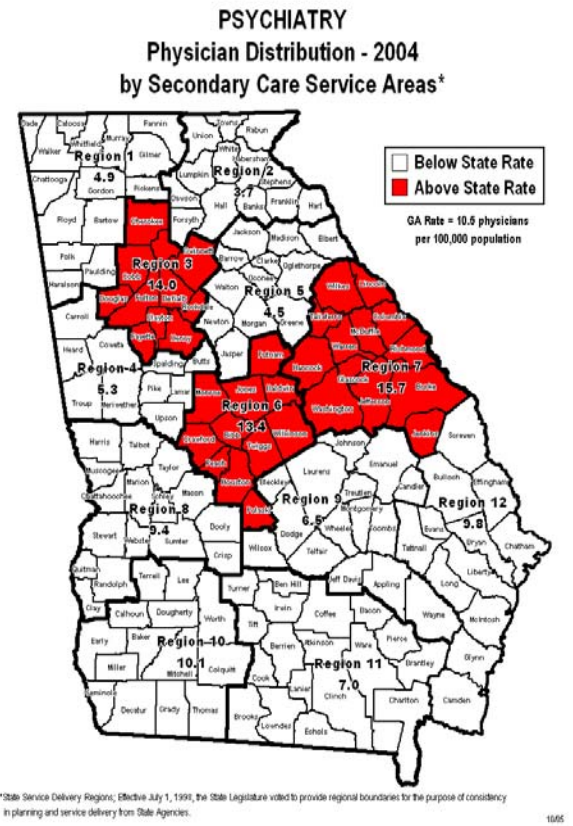
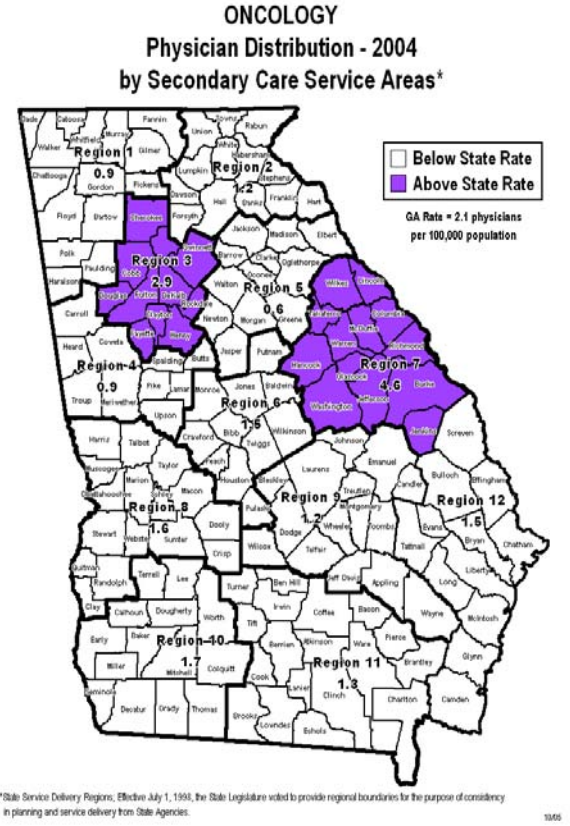


Exhibit 18



Diversity of the Physician Workforce:

The diversity of the state's population continues to grow, and with it the challenges of communications between physicians and their patients. This diversity requires a workforce that can effectively work with this population and makes cultural competency essential. Experts continue to discuss and attempt to understand this matter, however, at a minimum, cultural competency involves a complex web of issues, including religion, world view, language, and more. When a physician and patient are from two different cultures, the differences that define their respective cultural communities can contribute to ineffective communications between them. Vital medical information can be poorly communicated and misunderstood, limiting the accuracy of diagnosis, reducing the proper understanding of needed interventions and ultimately diminishing the effectiveness of agreed-upon treatments. Ultimately, the whole population suffers as it enjoys poorer outcomes from services than it needs.

The strength of various factors in cross cultural interchange is still in debate. Clearly language is a factor, but the other factors mentioned above are also important (Betancourt, Kagawa-Singer et al.). While language barriers can be overcome through interpreters and language education for physicians, other cultural difference can remain and disrupt the communications between the physician and patient. This last issue can be seen in the physician and patient interactions where language is not an issue, such as between US born white physicians and African-American patients. Long-term solutions must be sought for these issues.

No simple pathway exists to provide for this competency. However, part of the answer is to "increase the pool of health care professionals who are from diverse communities" (US Dept. of Health and Human Services). While the impacts of cross-cultural communication will remain, despite the increasing cultural similarity between patients and doctors, the chances of effective communications may increase when physicians and patients come from similar cultures.

Fortunately, as shown in Exhibit 19, Georgia has achieved success in diversifying its physician workforce in exactly this way. The percentage of African-American physicians in the workforce rose from 6.5 percent to nearly 13 percent between 1992 and 2004. Further, the proportion of those reporting as "other" ethnicities increased more than four-fold during that time. Thus a larger base of minority physicians can serve the needs of minority patients where cultural barriers might be present. However, this area needs more work. For example, over 30 percent of Georgian's are African-American, compared with only 13 percent of the physician workforce. Similarly, roughly 65 percent of the population in Georgia is white, yet over 77 percent of physicians in the state are white, as of 2004.

Exhibit 19
Physicians by Race*

Year	Percent White	Percent Black	Percent Asian	Percent Other
1994	84.9	7.6	6.6	0.9
1996	84.1	8.1	6.9	0.9
1998	80.2	8.9	7.8	3.1
2000	79.0	10.3	8.1	2.6
2002	77.4	11.9	7.7	3.0
2004	77.1	12.7	6.8	3.4

*Response Rate in 2004 was 92.9 percent.

Ability of the Physician Workforce to Respond:

Clearly, Georgia must respond to these challenges seen in its physician capacity and build the workforce that it needs. Central to this is the medical education system. Comprised of both medical schools and residency programs, this system must produce enough of the right kind of physicians to meet the demands for services. Throughout recent years, the outputs from Georgia's medical education system did not rise to meet the growth in the state's population. As a result, the state's ability to meet its own physician needs eroded. Fortunately, changes have recently taken place that will provide for some relief in the future. However, most of the improvements have happened in only one part of the medical education system. Further, the costs of medical education have increased substantially in recent years, increasing the debt faced by many young physicians. These facts may reduce the benefits that result from the improvements to the medical education system and may compound certain problems.

Capacity of the Medical Education System:
Georgia has consistently had limited capacity in its medical education system. In 2002, when the GBPW reported the capacity of Georgia's medical education system (based on 1998 data), the

state's enrollment levels in medical schools and residency programs placed it low in national rankings. This problem continues today. Consider the following facts:

- Medical Students education capacity – (In 2000) on a per capita basis, Georgia graduated fewer new physicians per 100,000 Population (4.7) than did the entire United States (6.4) and ranked 34th among the 46 states with medical schools in medical school graduates per capita.

- Resident Physicians per Capita – (In 2000 – 2001) Georgia ranked 35th among states, with 21.7 residents per 100,000, well below the national rate of 34.1.

More recent proof of this was reported in 2006 by the Association of American Medical Colleges (AAMC), which indicated that Georgia's medical school enrollment and residency numbers placed it 35th in the country. These figures are much lower than Georgia requires, and may partly explain the low ranking of the state's physician capacity. Any long term solution to Georgia's physician shortages, therefore, must involve increasing the numbers graduated from the medical education system. Fortunately, the figures regarding per capita enrollment in medical school will improve in the future. In August of 2005, the Georgia Campus of the Philadelphia College of Osteopathic Medicine (PCOM) opened its doors. This new medical school matriculated 86 students, 84 of whom remain at the school through the first year. In addition, all the other schools in Georgia's medical education system increased their enrollment or indicated plans to do so. Mercer University School of Medicine increased enrollment by 12 students between 2005 and 2006 and Morehouse School of Medicine increased their enrollment by 6 during the same period. The combined increase of all three institutions represents over a 6 percent increase over 2005. This increase will continue to rise as new classes are admitted into PCOM. When PCOM's first class of medical students reaches its fourth year, this medical school will enroll a total of roughly 400 students. This will represent nearly a 25 percent increase over 2005 enrollment figures. In addition, both the Medical College of Georgia and the Emory University School of Medicine indicated plans to increase enrollment in the future. Collectively, these increases will improve the capacity of Georgia's medical education system and the state should see a substantial increase in per capita enrollment in its medical schools.

Enrollment in Georgia's residency programs is also increasing, which is due entirely to expansion of existing programs. No new hospitals have converted their operations to include residency training in recent years. Absent any new hospitals entering the medical education system, the extent of the growth in residency programs is not as substantial as that seen in the medical schools. Between the last time figures were tabulated in 2001 and 2006, there was roughly a 12 percent increase in the number of residents in training in the state. As this figure spans 5 years, it represents an average annual increase of just over two percent. This rise does provide additional capacity to the state; however, it may not be sufficient to meet the state's growing needs.

Complicating the picture of Georgia's residency capacity is the fact that, while overall state residency numbers have risen in recent years, certain critical specialties have seen reductions. Both Family Medicine and OB/GYN programs offered fewer slots in 2006 than in 2001. Fortunately, these reductions are small. However, further reductions in Family Medicine training are underway and the impact of these reductions is compounded by the rapid growth in Georgia's population.

Potential missed opportunities in medical education:
The picture regarding capacity of the state's medical education system is clearly mixed. Enrollment in medical schools is growing rapidly, while the number of residents being trained in the state has increased more modestly. Georgia is likely missing important opportunities to build its physician workforce through the medical education system. To take full advantage of its medical education system, the state must ensure that all components of the system expand at a similar level, which capitalizes on the unique attributes and influences that each component has on the location of physician practice.

Given the lagging growth seen in residency programs, particular interest is on maximizing the impact of these programs at this time. Data (Siefer, Vranizan and Grumbach 1995, Henderson et al 2003) show a strong relationship between the location of a physician's residency training and the location of his/her practice. Simply stated, new physicians are more likely to locate their new practices in an area that is near the location of their residency. Thus, increasing the number of residents in training in Georgia should result in an increase in the number of new physicians who will ultimately select to practice here. With this understanding, the GBPW funds the residency programs in Georgia, which also require at least 50 percent of the graduates from these programs to remain in state to practice.

When viewing the impacts of residency programs on practice location, it is also important to realize that these programs can serve to export medical students out of state, to become physicians who practice outside of Georgia. This could happen if medical students training in one of the state's medical schools entered a residency program located in another state. Given the imbalance that has developed in Georgia's medical education system, the potential for this may be increasing. This is due to the nature of residency selection, which depends on a number of variables, including the mutual selection between the residency program and the medical student. As substantially more graduates emerge from Georgia's medical schools, they may find it more difficult to get into residency programs in Georgia that have not substantially increased their size. Thus, this imbalance suggests that students training in Georgia could be forced to select a residency program outside the state, ultimately depriving the state of additional physicians that it needs. As the state's medical education system has become increasingly imbalanced, with Georgia investing substantial resources to train physicians who may have increasing difficulty in finding a residency locally, this possibility is increasingly likely. The state's interests would be poorly served if this were to happen.

Medical Education Cost/indebtedness:
Even as these limited enhancements are emerging in the medical education system, the cost of providing this medical education is rising rapidly. Reports released by the AAMC in 2004 and 2005 showed the substantial rise in the costs of medical education. During the period between the mid 1980s and the present, tuition increased remarkably across the nation. Figures reported by the AAMC (Jolly 2004, AAMC 2005) showed that tuition increased by 165 percent for private schools and over 300 percent for public schools. Examples of this were seen in Georgia and reported by the GBPW last year (GBPW Fact Sheet, 2005). According to these figures, tuition increased at a higher rate than inflation. Three of Georgia's four medical schools had double-digit increases in tuition in just one year, well above the rate of inflation for that period of time.

These steep tuition increases have to be paid by the student. While some students can handle this through personal wealth or income they may already have – often through family resources – many must seek outside loans and scholarships to support their medical education. Based on

data from residents leaving training in Georgia, the state's youngest physicians may be facing unprecedented debt as a result of these increases. An annual survey conducted by the Georgia Board for Physician Workforce showed a seven percent increase from 2003 to 2004 in the percentage of residency program graduates with educational debt totaling $80,000 or more. Shown in Exhibit 20, as of 2004, almost 50 percent of physicians graduating from medical training reported holding medical education debt in excess of $80,000. This is up from 42 percent reported in 2003. Further, nearly one in ten physicians reported medical education debt in excess of $200,000.

A particular issue of note in this data is the discrepancy between indebtedness of graduates from Georgia's private schools and its public schools. The AAMC study found the median debt level of medical school graduates has increased dramatically over the last 20 years, with greater debt seen in graduates of private medical schools (up to roughly $135,000) than for public medical schools (up to $100,000). Georgia's medical education system is heavily reliant on private medical schools. The addition of a new private medical school in Georgia further increased this dependence. We should therefore expect greater indebtedness of Georgia medical schools graduates. The data reported in the GME exit survey does support the concerns raised by the AAMC, and suggests the Georgia may struggle with this issue more than other states.

The rapid growth in these debt levels suggests that Georgia may struggle with access to primary care physicians in the future. The literature regarding the impact medical education debt has on specialty choice and rural practice is mixed. However, some reports on the effect of medical education debt have shown impacts on interest in primary care, although other factors also appear to impact choice of specialty (Rosenblatt and Andrilla 2005, Colquitt et al 1996). In particular, one report (Rosenthal, Marquette and Diamond 1996) showed clear and significant impacts on the choice to specialize in Family Medicine. If this is the case, and reductions in interest in family medicine are possible in response to this, Georgia could see increasing distribution problems. Family Medicine has proven to have the best capability to move into rural and underserved areas (Rabinowitz and Paynter 2002, COGME 1998, Colwill and Cultice 2003). This is seen in the effective distribution of Family Physicians in 2004 in Georgia, which shows Family Physicians to be the best distributed physicians of all primary care specialists. Yet, if these pressures continue to build, interest could decrease in Family Medicine. As numbers of Family Physicians begin to decline, fewer would find their way into rural and other underserved parts of the state. Should numbers dwindle significantly, access problems could emerge.

Finally, the literature on this subject (Marci and Roberts 1998, Jolly 2004, Rosenblatt and Andrilla 2005) also raises concerns that debt could rise to a level where it does begin to substantially impact choice of specialty. While the extent of the impacts of medical education debt reported from the 1990s appeared to be modest at that time, the impacts of the much larger debt seen today may be significant. Should debt rise to a certain point where it does begin to substantially impact choice of specialty, all primary care specialties could suffer, and along with it access to primary care physicians throughout the state.

Exhibit 20 Educational Debt of Survey Respondents Number/Percentage of Respondents by Level		
Amount of Debt	**Number of Respondents**	**Percentage of Respondents**
None	92	29%
Less than $20,000	8	2%
$20,000-$39,999	18	6%
$40,000-$59,999	22	7%
$60,000-$79,999	24	7%
$80,000-$99,999	26	8%
$100,000-$124,999	43	13%
$125,000-$149,999	19	6%
$150,000-$199,999	41	13%
Over $200,000	29	9%
TOTAL Respondents (n =)	**322**	**100%**

GEORGIA'S RESPONSE TO POTENTIAL SHORTAGES

The picture drawn by this report, and the data included within it indicate that many in Georgia may struggle to access physician services when they need them. Further, the state is not developing that workforce sufficiently to meet future demand. These shortcomings lead to questions of whether this workforce will be available in sufficient types and numbers in the near future.

Clearly, the state must respond. Stakeholders throughout the state must now take the time to actively confront the issues impacting Georgia's physician workforce and medical education system. It is imperative that the problems be recognized and addressed now to ensure that Georgia has the physicians it will need in the future. While a large number of responses are needed, a few, core factors must be addressed, including:

Understand the problem:
To create effective responses, we must understand what is driving these concerns - From changes in physician work effort, to the extent of Georgia's rural population, to the nature of the forces that are expected to drive future demand for physician services. With this knowledge state leaders can move aggressively to confront these challenges. Specifically, leaders must understand that:

- Georgia currently ranks 37th in the nation in the per capita capacity of physicians. This is a slight improvement over 2002 figures (when Georgia ranked 38th), but is essentially unchanged.
- Georgia's population is growing at a rapid rate and will require an equally rapid introduction of new physicians, just to maintain current physician capacity.
- As this population grows, it is changing in ways that will result in higher levels of care being sought from physicians. Two critical trends here are the aging of the population and the lifestyles of many Georgians.
- The proportion of physicians reporting to be in a primary care specialty declined slightly between 2002 and 2004.
- Growth in important specialties was minimal or negative, including OB/GYN, which barely grew and General Surgery, which is in a continuing state of decline.
- The subspecialties of Diagnostic Radiology and Gastroenterology are currently predicted to be in shortages by 2010.
- Substantial distribution problems are seen in Pediatrics and OB/GYN. Challenges are also seen in Diagnostic Radiology Gastroenterology, Oncology and Psychiatry.
- Even as demand for physicians is expected to rise, their average work effort is expected to decline. This limits the recent gains in physician capacity and suggests that Georgia will have to rapidly expand this workforce if it is to meet growing demand for services.
- Diversity in the workforce stills lags the diversity seen in the population.

Take the necessary steps to maintain current physician capacity:
Given anticipated long term trends the state must, at a minimum, maintain the current effective capacity and impact these physicians have Georgia. To do this the state can explore enhancing physician efficiency through technology and partnerships, explore ways to further build on the growing diversity of this workforce and ensure that rural Georgia has access to the physicians it

needs. Ultimately, however, Georgia must continue to build its physician workforce to prepare for demand in coming years.

Promote increased physician productivity:
With drops in the average productivity of future physicians anticipated, ways must be found to increase their efficiency. Doing this will increase the impact new physicians have, even as the overall work effort of the workforce declines. Done to a sufficient extent, increasing physician efficiency can counter these anticipated declines. Based on the relevant information included in this report, state leaders should strongly consider the following responses:

- Assess technologies now coming to market that decrease the burden of the clerical aspects of medicine, including electronic medical records, telemedicine and other issues.
- Build partnerships to enable physician groups and other providers in the health care environment to capitalize on their strengths and account for their individual limitations.

Increase diversity of the Workforce:
Data indicate that Georgia has diversified its physician workforce. However, the diversity of the state's population continues to grow at a rapid rate and the state continues to be challenged in this area. Adding to this challenge is the fact that new ethnic populations are growing in Georgia, bringing with them the need to master new languages and build bridges with populations not previously seen in the state. Ultimately, Georgia must achieve a workforce that reflects the diverse population that it serves.

- Continue to build collaboration with partner institutions and agencies to develop a comprehensive response to this issue.
- Explore ways to account for growing linguistic barriers emerging in Georgia, particularly the increasing Hispanic population in the state.
- Identify new partnerships to bring new ideas and expanded resources to develop and implement new programs, further increasing the diversity of Georgia's workforce.
- Understand the forces that slow the growth of diversity in this workforce and develop a series of programmatic responses that account for any identified barriers to diversity.

Ensure practice in underserved areas:
Distribution of physicians remains a problem for the state, particularly with Pediatrics and OB/GYN. This poses serious challenges and disproportionately affects rural Georgia. Fortunately, GBPW and other entities have developed and encouraged practice in underserved and rural areas. However, resources must be increased and other methods created that encourage rural practice. At a minimum, state leaders should:

- Maintain support for the scholarship and loan repayment programs run by the State Medical Education Board. These programs provide financing to physicians in return for service in rural Georgia.
- Expand supports for these programs when possible, through budgetary and legislative means.
- Continue to support tax credits that encourage practice in rural Georgia.

- Continue to build physician-matching programs, such as the State Medical Fair and the GBPW physician matching service, which assists physicians in finding placement throughout Georgia.
- Support research to gain an understanding of factors that discourage rural practice and develop new programs that encourage greater numbers of physicians to practice in rural Georgia.

Increase the overall numbers of physicians practicing in the state:
Georgia's population is growing at a rapid rate and will require an equally rapid introduction of new physicians, just to maintain current physician capacity. Complicating this is the fact that the state's per capita physician capacity ranks very low. Clearly, Georgia needs to rapidly increase the number of physicians practicing in state. In addition, any increase must be to a sufficient level to address population growth, demographic change and anticipated declines in physician work effort. To account for this, the state must:

- Ensure that its medical education system can produce the number and types of physicians to meet the needs of all Georgians.
- Maintain a physician marketplace that is attractive to physicians and serves to attract physicians to Georgia from other states
- Identify and correct any factors which may encourage physicians to leave practice early in their careers.

Right size the medical education system:
The best way to ensure that Georgia always has the physicians it needs to build and maintain a medical education system that can adequately provide for the state's needs. In part, this means restoring and maintaining the existing capacity that has been built within this system over the years. However, of particular importance at this time is the need to ensure that sufficient enhancements develop in the state's residency programs to meet the growth that has developed in medical schools. This can help ensure that all the medical students graduating from a medical school in Georgia can choose a residency also located in Georgia.

Ensure adequate funding for medical education:
A key to solving physician shortages in the state is to invest sufficiently in the systems that produce these practitioners. The funding provided to the GBPW to support medical education eroded substantially during the budget challenges earlier this decade. Since then some funding has been restored, however, in many areas funding for medical education programs provided by the state are below their 2001 levels. Further, these declines have occurred as the costs of providing medical education have been rising. These cuts impact the ability of medical schools and teaching hospitals to maintain faculty, support the physical space needs of the teaching institutions, overall operating costs and other important ancillary needs. Collectively, they increase the challenges of maintaining the current level and quality of outputs from this system and render expansion of programs harder. To address this, the state must renew its investment in medical education in Georgia:

Restore funding:

- To family practice residency programs, Preventive Medicine and other residency programs that provide Georgia with critically needed primary care and specialty care physicians.
- To the medical student capitation program that reserves slots for Georgia residents in Georgia's private medical schools. This helps ensure that the highest number of students graduating from medical school here will practice in Georgia.

Selectively increase supports:

- Expand the number of slots covered by the Medical Student Capitation Program. This program purchases slots in the state's private medical schools for Georgia residents. As the medical schools expand class size, Georgia has a good opportunity to take steps to ensure that more residents are able to go to medical school in Georgia. Students originally from Georgia are more likely to practice here and purchasing more slots for Georgians will help ensure more graduates of these programs will stay in the state, thereby increasing the size of our physician workforce.
- Provide funding to cover all Pediatric residency slots through the Pediatric Residency Program. Pediatric programs in many parts of the state are expanding, some of which are in areas struggling with deficits of Pediatricians. This program provides the state with a means to ensure Pediatricians graduating from program in the state stay in Georgia to practice, and by fully funding programs in areas of Pediatrician deficit Georgia could provide ling-term relief to families in these areas.
- Increase the level of funding to the Residency Capitation Program. This program supports residency programs across the state and requires that at least 50 percent of the graduates of funded programs to remain in the state and practice. Further, this program supports training of both OB/GYNs and General Surgeons. As such, it serves as an important tool in increasing physician capacity in this state.
- Provide support to Georgia's Geriatric fellowship programs to ensure that as many Geriatricians graduating from these programs take up practice in the state. This support would be provided through a Geriatric Fellowship Capitation program. Like other GBPW programs, this would require at least 50 percent of graduates to remain in Georgia and practice. As more remain, the state will see an increase in the number of specialists in this state.

Maintain a focus on Family Medicine:

The current successes identified with Family Medicine Physicians in Georgia are the result of considerable effort made by state leaders through the years. Due to the thoughtful intervention throughout the 80s and 90s, the state has seen important growth in this workforce and now enjoys an effective distribution of these physicians throughout the state. This stands as proof that states can make positive change through the wise application of resources.

However, concerns still exist with Family Medicine physicians. Additionally, Family Physicians represent the backbone of the physician workforce. Therefore, Georgia must maintain its effort to support this component of the workforce in future years, through continuous, thoughtful intervention, including:

- Continuing support for the residency programs that produce Family Medicine physicians.

- Fully restoring funds that were removed from Family Medicine Residency program during the early years of this decade.

Build appropriate capacity in all levels of the medical education system:
Georgia has seen some important increases in the capacity of its medical education system, particularly in undergraduate medical education. However, growth in the medical education system has been uneven and the state may miss out on an important means to attract physicians to practice in the state through its residency programs. To prevent this, the state must work with the graduate medical education system to ensure capacity meets new demands for these slots and that Georgia's needs are served: Specifically, Georgia should:

- Ensure that teaching hospitals are funded at levels that sustain their operations
- Work with leaders to expand residency capacity in Georgia and identify a ways to facilitate this expansion.
- While looking at any possible expansion of residency capacity in Georgia, look at models and methods that facilitate a better distribution of physicians across the state.

Expand research capacity:
The state possesses an effective system to assess its need for physicians and develop required responses. Through the Georgia Board for Physician Workforce, the state has an accurate picture of the capacity of its workforce and can make effective and thoughtful responses to identified needs. Yet, the challenges confronting this workforce are complex, and growing more complicated with each passing year. If the state is to understand the challenges in this workforce, it mush have sufficient analytical capacity and the skills required to address emerging research and analysis needs. At a minimum, the following is needed:

- Expand the resource base of the GBPW, through expanded support from state sources and new partnerships with the private sector.
- Through needs assessment and dialogue with all partners in the medical landscape, develop a long-term research strategy that touches on the big issues impacting medical practice as well as the capacity needs of the GBPW.

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