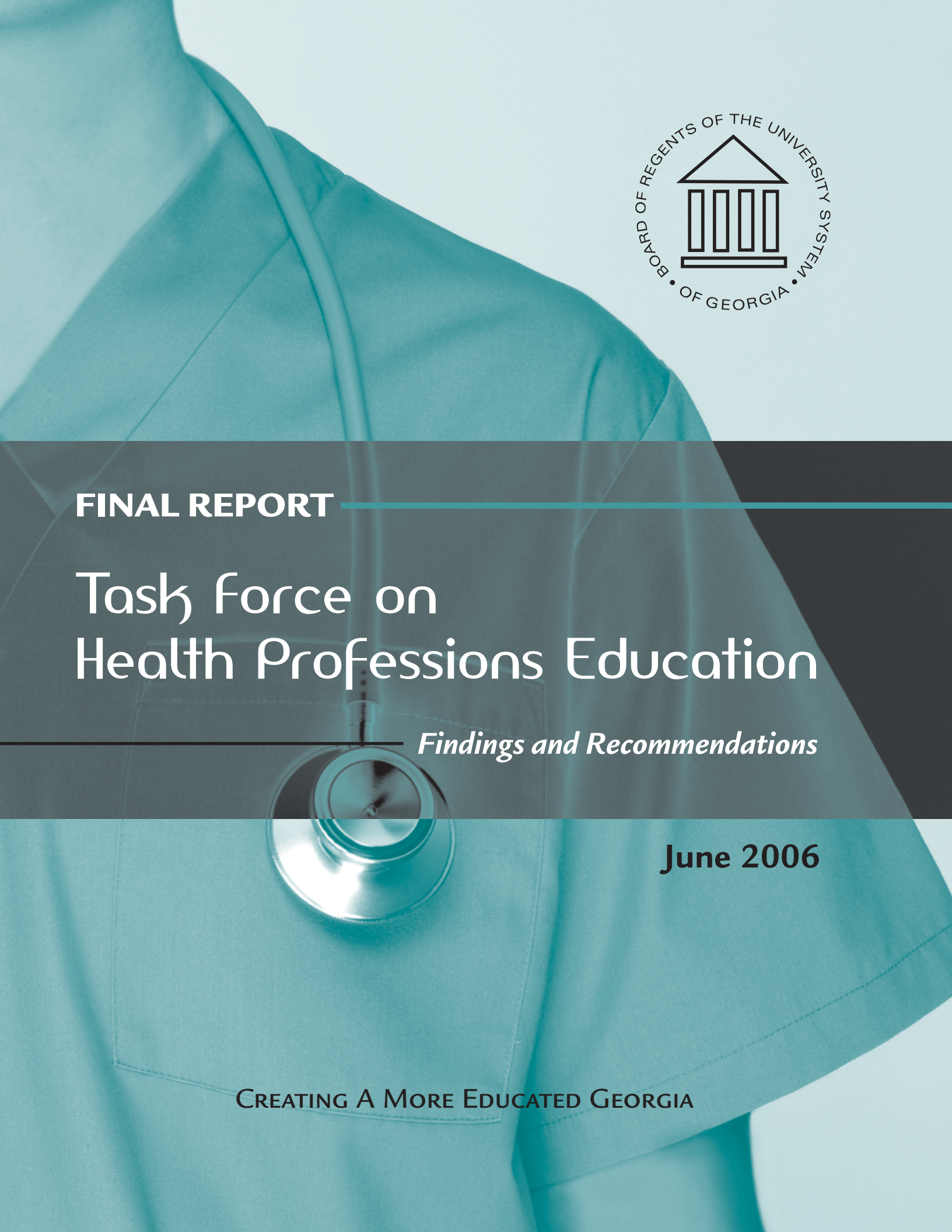

FINAL REPORT

Task Force on Health Professions Education

Findings and Recommendations

June 2006

CREATING A MORE EDUCATED GEORGIA

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University of Georgia
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Valdosta State University
Waycross College

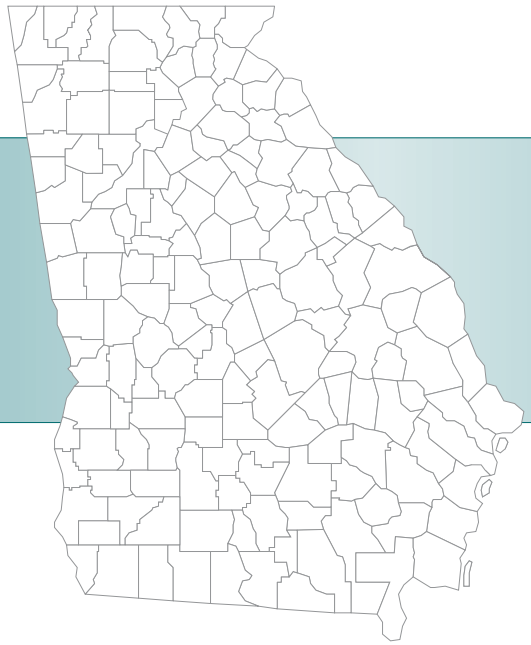
EXECUTIVE SUMMARY

The health care sector is an important economic force in Georgia, providing nearly fifteen percent (15 percent) of the state's labor income. Yet, the economic viability and the quality of the health sector are in jeopardy, due to critical shortages of health professionals anticipated during the coming decade.

The University System of Georgia is the dominant academic producer of health professionals and therefore must provide significant leadership to the state's efforts to address health workforce shortages. Through its thirty-five institutions, the University System enrolls more than 5,000 students in health professions education programs annually.

In September 2005, the University System appointed the Task Force on Health Professions Education to analyze future needs and inform the decision making necessary to address the health professions education needs of the state. The Task Force was charged with documenting critical areas of shortage, considering demographic and economic influences, examining current and future challenges, and identifying programmatic strengths and educational gaps. The group was asked to develop a comprehensive report to be submitted by June 2006, which detailed recommendations about the University System's role and strategic directions related to health professions education. The Task Force actively engaged the Department of Technical and Adult Education in the planning process, as a peer public agency and significant educator in the health sector particularly in the nursing and technology fields.

The following findings and recommendations summarize the report of the Task Force.



Through its thirty-five institutions, the University System of Georgia enrolls more than 5,000 students in health professions education programs annually.

The Challenges for Georgia's Health Workforce

Georgia's growing and aging population creates a continuous, increasing demand for health care professionals. The state's population is expected to grow by nearly 20 percent or 1.8 million over the next decade. By 2015, the population age 65 and older will account for 14 percent of the total population. Georgia is becoming more diverse. Over the next ten years, the number of African Americans, Hispanics and Latinos, Asians, and other racial and ethnic minorities will grow to account for more than 40 percent of the state's population. These factors combined with economic demands and health status concerns are driving Georgia's need for more health professionals. To sustain its economic viability and promote quality of life for her citizens, Georgia must ensure it has a strong and vibrant health care delivery system. To do so, a sufficient number of well-trained health care professionals must be available. Yet, the supply and demand challenges are daunting.

Since 2000, the demand for health professionals has been increasing and Georgia's public colleges and universities along with the technical and adult education system have sought to respond to the demands for more qualified health professionals. Yet, the needs continue to outstrip the existing systems' production capabilities. Current system capacity and the projected future demand for health professionals make it clear that, within resource limitations, Georgia needs to find ways to produce more and different types of health professionals.

A key concern in planning for health professions education and workforce needs is the lack of adequate and dependable data. At present, educational programs, regulatory agencies and the business sectors all collect different types of data for different purposes. None of these groups has workforce planning as its mission and thus the data are generally not useful for these purposes. As the recommendations of the Task Force emerged, it became clear that data integrity was tantamount and that going forward sufficient and reliable data would be needed to drive decisions and promote accountability.

Facts about Georgia's Health Professions Workforce...

- **The health care industry is Georgia's fourth leading employer.**
- **The health care sector accounts for nearly 15% of Georgia's labor income and 11% of Gross State Product.**
- **Health care positions in Georgia account for eight of the 20 fastest growing occupations and, by 2012, the health industry will account for one in every 12 jobs in the state** (Labor 2006)**.**
- **U. S. Census estimates now place Georgia as the ninth largest state in the nation and yet on a per capita basis the state ranks 39th in physician supply, 47th or lower in supply of psychologists, social workers and dietitians, and 42nd or lower among the states in supply of physical therapists and registered nurses. Georgia does not reach its population ranking in any comparative category of health professions supply** (Health Resources and Services Administration 2004)**.**
- **Georgia hospitals and nursing homes report vacancy rates for nurses and therapy professions as high as fifteen percent, at or above national rates** (GHA 2005)**.**

The University System of Georgia (USG) educates the vast majority of health professionals who live and practice in Georgia. With outstanding programs in the fields of medicine, dentistry, pharmacy, nursing, allied health, and behavioral health, the public institutions of higher education in Georgia have played a pivotal role in advancing health systems and economic development. The University System, in partnership with the Department of Technical and Adult Education, must lead Georgia in addressing the professional education needs for tomorrow's health care workforce.

Health Professions Requiring Priority Focus from the University System

All health professions face significant shortages over the next decade. Limited resources and instructional capacity require that priority for the next five years be focused on those professions most in jeopardy. The Task Force has identified the following professions, in priority order, as the most fragile and in need of attention over the near term.

- Nursing;
- Clinical Psychology and Clinical Social Work;
- Pharmacy;
- Dentistry;
- Allied Health (to include therapy and diagnostic services); and
- Medicine and specialty graduate medical education.

In each of these professional fields, it is clear that there are interested and qualified students who are applying to these programs. However, faculty constraints, facility and clinical placements limitations, and lack of programmatic integration are preventing the system from responding to market demand and limiting educational options.

Recommendations for the University System of Georgia

The recommendations center on those areas in which the University System has responsibility, authority and clear opportunity. In most cases, the USG already has the necessary authority to organize and act in accordance with the recommendations. Guidance and support from the Board of Regents is critical but no additional policy action is required at this point.

Recommendation 1

Coordination and accountability for health professions education should reside at the system level. System-level planning and accountability should be value-added and responsive to local needs with the goals of promoting innovation, streamlining planning, supporting coordination, avoiding duplication, monitoring outcomes, and rewarding performance.

Quick facts about Nursing Supply and Demand

- **Nearly 20,000 additional registered nurses will be needed in Georgia by 2012** (Labor 2006)**.**
- **The USG graduated 1,891 total candidates eligible for the RN examination (956 associate degrees and 935 bachelor's degrees) in the 2004-2005 academic year.**
- **During this same academic year, DTAE graduated 140 associate degree nursing students, yielding slightly more than 2,000 potential registered nurses being produced between the two public higher education systems on an annual basis.**
- **This rate of production would yield only 12,000 additional nurses by 2012, using the optimistic assumption that all of these graduates pass the examination, stay in Georgia and practice on a full-time basis.**
- **USG and DTAE programs collectively reported more than 4,000 qualified nursing program applicants who could not be enrolled in fall 2005 due to facility and faculty constraints. (Some of these applicants may be counted more than once as a result of applying to more than one institution.)**

a. System-wide targets and performance goals should be established for health professions programs' capacity, delivery and performance.

b. The USG should establish a Health Professions Academic Leadership function within the system office, with clear responsibility for program accountability, health professions educational research, educational data, and liaison activities.

c. The USG should establish a small Health Professions Committee and Working Group comprised of system and institutional leaders in the field.

Recommendation 2

The University System of Georgia should launch sustained initiatives to review and revise system and institutional policies related to health professions faculty recruitment and retention. Because faculty shortages may be the most significant factor limiting future health professions educational capacity, a host of strategies must be considered to increase the number and diversity of qualified faculty. These efforts must occur at a system level to prevent institutions from endangering the quality and viability of all such programs by competing for a limited pool of faculty members.

a. The USG should seek to increase the number of potential faculty by expanding and improving graduate health professions educational offerings.

b. The USG must identify successful strategies and use appropriate incentives for recruiting and retaining faculty.

c. The USG and individual institutions must focus considerable attention on hiring, developing and retaining more diverse faculty, representing both genders and the wide range of racial and ethnic backgrounds in Georgia.

d. The system should support ongoing faculty development and mentoring and consider methods to expand professional practice opportunities for faculty.

e. The USG should consider alternative academic tracks for selected health professions faculty and expand the use of adjunct faculty and part-time faculty.

Quick Facts about Supply and Demand in Clinical Behavioral Health

- **Georgia ranks almost last in the nation in the supply of psychologists and social workers per 100,000 population.**
- **An additional 850 psychologists and 700 clinical social workers will be needed by 2012.**
- **In 2005, USG programs graduated only 39 doctoral candidates in clinical and counseling psychology.**
- **USG programs reported more than 220 qualified applicants for doctoral psychology programs in 2004-2005; yet, less than 20 students were enrolled in these degree programs due to capacity limitations.**

Quick Facts about Pharmacy and Allied Health Profession

- **An additional 2,100 pharmacists are needed in Georgia by 2012** (Labor 2006)**.**
- **The UGA School of Pharmacy graduated some 130 students annually in the 2004 and 2005 academic years. Yet, UGA has to turn away more than 100 qualified applicants each year.**
- **The demand for respiratory, occupational, physical and radiation therapists will increase by 38% to 58% by 2012** (Labor 2006)**.**
- **USG programs were only able to enroll 90 students in physical therapy programs while another 114 qualified applicants were turned away** (USG 2005)**.**
- **In 2005, USG programs graduated 34 occupational therapists, 53 radiation therapists and 70 respiratory therapists; in all fields, the numbers are insufficient to meet the demands of the health sector.**

Recommendation 3

The University System should establish an ongoing process of curricular revision and enhancement to integrate new knowledge and to promote the use of emerging technology in the delivery of health professions education. Health professions education is particularly appropriate for technology-based education and for models of interaction and collaboration in teaching, research and clinical care across various disciplines and institutions.

a. The system should adopt more rigorous planning and approval processes for new programs; implement more substantive reviews of existing health professions programs; strengthen the curricular focus on diversity and multiculturalism within the curriculum; and encourage curricular revision as needed to emphasize skills and competencies that are important in a dynamic health care environment.

b. The USG should utilize emerging instructional technologies to expand offerings and address clinical practice site limitations.

c. The USG should promote and strengthen institutional collaboration.

d. The USG should support continued delivery and expansion of quality, market-responsive education programs and streamlined professional advancement.

e. The system should improve health professions education accessibility through the use of distance technologies to create online and hybrid programs to expand access to health professions education for working adults, rural students and others for whom classroom-based education is not feasible.

Partnership Strategies to Address Georgia's Health Workforce Needs

The Task Force also has identified a number of strategies to be undertaken at the campus level and in partnership with other educators and health system stakeholders.

- ✔ Marketing for Health Professions Education and Advancement
- ✔ Educational Partnerships to Grow and Diversify the Pipeline
- ✔ Innovative Education Models to Attract More Diverse Students
- ✔ Recruitment Efforts for Minority and Non-Traditional Students
- ✔ Student Financing Options to Attract and Retain Students in Health Professions Education.

Quick Facts about Medical and Dental Education

- **The Medical College of Georgia (MCG) operates the state's only dental school and its one public medical school.**
- **Georgia needs an additional 600 dentists by 2012** (Labor 2006)**; yet, due to facility and faculty constraints, MCG is limited to enrolling some 60 students annually.**
- **The rate of physicians-to-population in Georgia has remained stagnant over the last decade, and leading national agencies are calling on medical schools to increase enrollments significantly over the next decade** (Robinson 2004)**.**
- **More than 90% of USG medical and 100% of dental students are Georgia residents.**

A Call to Action

Georgia faces numerous and complex challenges in addressing the health care workforce needs of the next decade. Failure to ensure an adequate supply of qualified health professionals poses substantial risks for Georgia's health status and economic viability.

The University System of Georgia and the Department of Technical and Adult Education must play central and substantive roles if a sufficient supply of qualified health professionals is to be available to support the state's economy, quality of life and health and well-being. This report proposes strategic organizational approaches; wise distribution of resources; thoughtful investment in faculty, technology and infrastructure; and business and community partnerships to maximize benefits and outcomes.

The responsibility for health workforce education and retention rests squarely, but not solely, with Georgia's public institutions of higher education. The institutions and their governing organizations must utilize their considerable talents, tools and resources to respond successfully to the state's future health professions education needs. Adoption and implementation of the recommendations outlined herein will provide a foundation for long-term success.

CHAPTER 1
Introduction and Charge to the Task Force

Like most of the nation, Georgia is facing a serious shortage of health care professionals. The shortfall spans the gamut of physicians, dentists, pharmacists, nurses, behavioral health professionals, and virtually all allied health professionals. The University System of Georgia (USG) has as one of its many responsibilities the education of health care professionals to meet the needs of the State of Georgia. While USG institutions are doing a good job in meeting this responsibility from a quality perspective, to address long-term economic and health care demands the system must find ways to significantly increase the number of well-trained health professionals to meet current and future workforce needs in Georgia. To analyze future needs and develop a strategic plan to address these challenges, the University System of Georgia appointed the Task Force on Health Professions Education in September 2005.

Charge to the Task Force

The Task Force on Health Professions Education was asked to examine the following questions, and provide recommendations about how best to answer them.

Research Questions:

- What are the current critical areas of shortage for health professionals in Georgia?
- What regions of the state are underserved in each specific health discipline, and how can distributional problems be addressed through educational initiatives?
- What are the long-term trends (7 to 10 years) to which the USG must respond to provide an adequate work force in the health professions?
- Are there emerging health disciplines that are not being addressed by the USG?

Policy Questions:

- How should the USG respond to trends in the health professions?
- What strategies should the USG employ to help mitigate regional and state-wide shortages?
- What strategies should the USG employ to educate professionals in emerging health disciplines?

To accomplish these significant tasks, the Task Force was charged to:

1. Review information on the quality, accessibility, productivity and cost of health professions education offered by the USG.
2. Document supply and demand expectations, to include the need for increased diversity and cultural competency, for health professionals in Georgia through 2015.
3. Identify gaps (geographic and curricular) and potential redundancies in health professions education within the public and private post-secondary and higher education systems in Georgia.
4. Illuminate special characteristics of health professions education and related resource challenges and considerations.
5. Propose appropriate refinement and further definition of the role of the USG and its respective institutions in meeting health professions education and workforce needs for the State of Georgia.
6. Identify emerging opportunities and document the best strategies by which the USG can prepare an adequate number of graduates in health professions programs and assure that those graduates can be successful contributors to the 21st century health workforce.
7. Submit a final report to the Board of Regents and the University System by June 2006.

The Challenges for the Health Workforce

Georgia's growing and aging population creates a continuous, increasing demand for health care professionals. The state's population is expected to grow by nearly 20 percent or 1.8 million over the next decade (OPB 2005). By 2015, the population age 65 and older will account for 14 percent of the total population. This growth will be due in part to in-migration of baby boomers and retirees combined with longer life expectancy and the aging-in-place of current Georgia residents, particularly those in rural communities.

Georgia is becoming more diverse. Over the next ten years, the number of African Americans, Hispanics and Latinos, Asians, and other racial and ethnic minorities will grow to account for more than 40 percent of the state's population (OPB 2005). These groups are substantially under-represented in the health care workforce, making cultural competence and service delivery a significant challenge.

Like its citizens, Georgia's health care workforce is aging; sizeable numbers of professionals will be retiring over the next five-to-ten years. During the 1990s, smaller numbers of young people became health professionals. Demand for health professionals began increasing rapidly in 2000, and education systems have expanded program offerings in an effort to respond to these escalating needs. However, current educational capacity is inadequate to meet the future demand for new and replacement health professionals.

Health care workforce shortages decrease access to care, increase costs of care and negatively impact patient safety and well-being. American's Health Rankings 2005, a nationally recognized composite of health status indicators, places Georgia 43rd in the nation (United Health Foundation 2005). The state has some of the nation's worst rankings in infant mortality, infectious disease rates and obesity prevalence. Limited access to health care and coverage concerns are key factors in

the state's low score. Due to its inadequate supply of nurses and board-certified emergency physicians, Georgia recently received a D+ in access to care on a national report card (National Report Card on the State of Emergency Medicine 2006).

To sustain its economic viability and promote quality of life for her citizens, Georgia must ensure it has a strong and vibrant health care delivery system. To do so, the state needs a sufficient number of well-trained health care professionals.

The University System of Georgia educates the vast majority of health professionals who live and practice in Georgia. With outstanding programs in the fields of medicine, dentistry, pharmacy, nursing, allied health, and behavioral health, the public institutions of higher education in Georgia have played a pivotal role in advancing health systems and economic development. The University System, in partnership with the Department of Technical and Adult Education, must lead Georgia in addressing the professional education needs for tomorrow's health care workforce.

Understanding the Problem

The Task Force reviewed a wide range of data documenting the projected shortages and anticipated future demand by health profession. Sources include the Georgia Department of Labor, the federal Bureau of Health Professions, surveys from professional associations, the U.S. Census, and a host of industry specific data reflecting drivers of health care demand and cost. Recently published national and state studies were reviewed. Data from the University System were analyzed to document student demographics, enrollment, and graduation trends for the past five years. The Task Force has surveyed all of the USG institutions to gain insight on their health professions programs and solicit recommendations for this study. In December, the Task Force hosted an invitational forum to seek input on health professions education needs for the state.

More than a dozen representatives presented on behalf of health care providers, payers and policy makers.

Task Force findings underscore the supply and demand challenges:

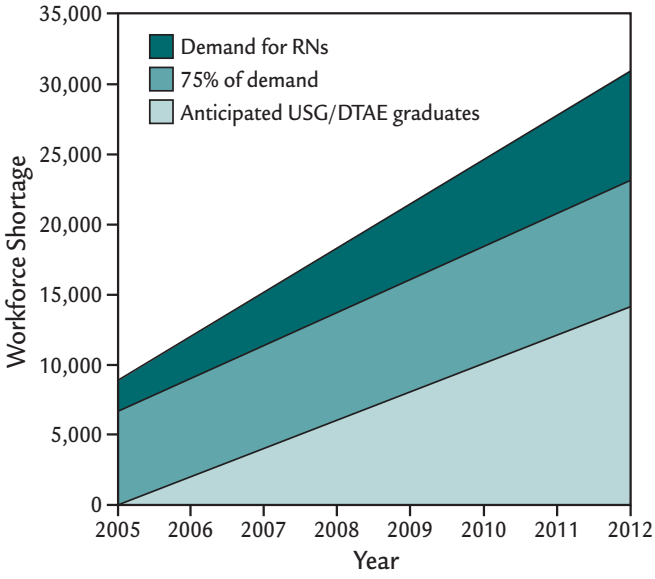
- Health care positions in Georgia account for eight of the 20 fastest growing occupations and, by 2012, the health industry will account for one in every 12 jobs in the state (GADOLa 2005).
- Nearly 20,000 additional registered nurses will be needed by 2012 (Labor 2006).
- The demand for respiratory, occupational, physical and radiation therapists will increase by 38 percent to 58 percent by 2012 (GADOLa 2005).
- U. S. Census estimates now place Georgia as the ninth largest state in the nation and yet on a per capita basis the state ranks 39th in physician supply, 47th or lower in supply of psychologists, social workers and dietitians, and 42nd or lower among the states in supply of physical therapists and registered nurses. Georgia does not reach its population ranking in any comparative category of health professions supply (Health Resources and Services Administration 2004).
- Georgia hospitals and nursing homes report vacancy rates for nurses and therapy professions as high as fifteen percent, at or above national rates (GHA 2005).
- Due to facility and faculty constraints, USG institutions reported turning away some 3,000 qualified applicants for associate and bachelor's degree nursing programs and 142 applicants to clinical psychology programs in fall 2004 (USG 2005).
- USG programs were only able to enroll 90 students in physical therapy programs while another 114 qualified applicants were turned away (USG 2005).

The Task Force documented current system capacity and the projected future demand for health professionals. The challenge of the nursing workforce provides an excellent example of the challenges facing Georgia and the higher education system. The federal agency charged with monitoring health workforce supply finds that Georgia has a shortfall of registered nurses approaching 9,000 in 2005 (HRSA 2002). The Georgia Department of Labor forecasts that Georgia will need more than 3,100 new and replacement registered nurses annually through 2012 (GADOLa 2005). Assuming the peak graduation figures of 2005 remain constant, the USG and DTAE are able to produce some 2,000 registered nurses annually. With the caveats that all of these graduates would pass the examination and continue to practice in Georgia, Figure 1.1 portrays the challenge of supply and demand. At present, the Georgia public systems of higher education are only able to meet about two-thirds of the state's annual need for registered nurses, without even taking into consideration the existing shortfalls.

While nursing presents an extreme picture, this scenario is repeated for nearly all health professions, particularly those which require considerable educational time and resource investment and, as such, have limited educational program sites in the state. In the case of nursing, though the shortfalls are daunting, the options for responding are much greater given the number of educational programs between USG, DTAE and private college and universities. It is clear that, within resource limitations, Georgia needs to find ways to produce more and different types of health professionals.

Addressing the future academic program needs for each of these professions will require different approaches and distinct strategies. In all cases, new resources – both human and capital – will be essential. Yet, resources alone will not solve the problem. New strategic approaches, including performance expectations and academic partnerships, will be equally important.

FIGURE 1.1 REGISTERED NURSING WORKFORCE FORECAST OF SHORTAGES



Creating the Strategic Vision

Over its months of work, the Task Force explored a host of strategies to increase the size, diversity and quality of the Georgia's health care workforce, with specific emphasis on the priority professions. It is clear that a number of challenges must be addressed, including aging faculty, inadequate educational facilities and limited clinical training sites.

Health professions education is among the most costly in the field of higher education. In previous short-term cyclical health workforce shortages, the nation and the state have been able to address supply needs in part by importing professionals from other countries. The long-term nature of the current shortages combined with global health concerns limit the use of this strategy going forward. To address its workforce needs, Georgia must plan to educate the vast majority of health professionals needed for the state in the future.

Faculty shortages are one of the primary challenges facing the USG and DTAE. In reviewing USG faculty data, fully 41 percent of nursing school faculty, 45 percent of medical school faculty, and 58 percent of dental school faculty are age 55 or older. More than 10 percent of current nursing faculty positions are vacant, with another 12 percent of nursing faculty projected to retire in the next five years (Darden 2006). Retirements combined with smaller pools of potential faculty are seriously straining the education system. Shortages of health professions faculty are exacerbated by the fact that Georgia's academic settings are unable to compete with better paying clinical opportunities. Any long-term solution to the health professions workforce dilemma necessarily will require strategies to ensure adequate faculty compensation.

This report is organized into three main sections in addition to this introduction and the summation and call to action. Chapter 2 presents key aspects of the factors affecting planning for health services in Georgia, including the economic and demographic forces driving the need for additional, qualified health professionals. Chapter 3 provides an overview of the health professions considered by the Task Force, with information on USG and DTAE academic programs and challenges facing the various programs. Chapter 4 details the recommendations of the Task Force, organized by University System areas of focus, partnership strategies and professions in need of priority focus.

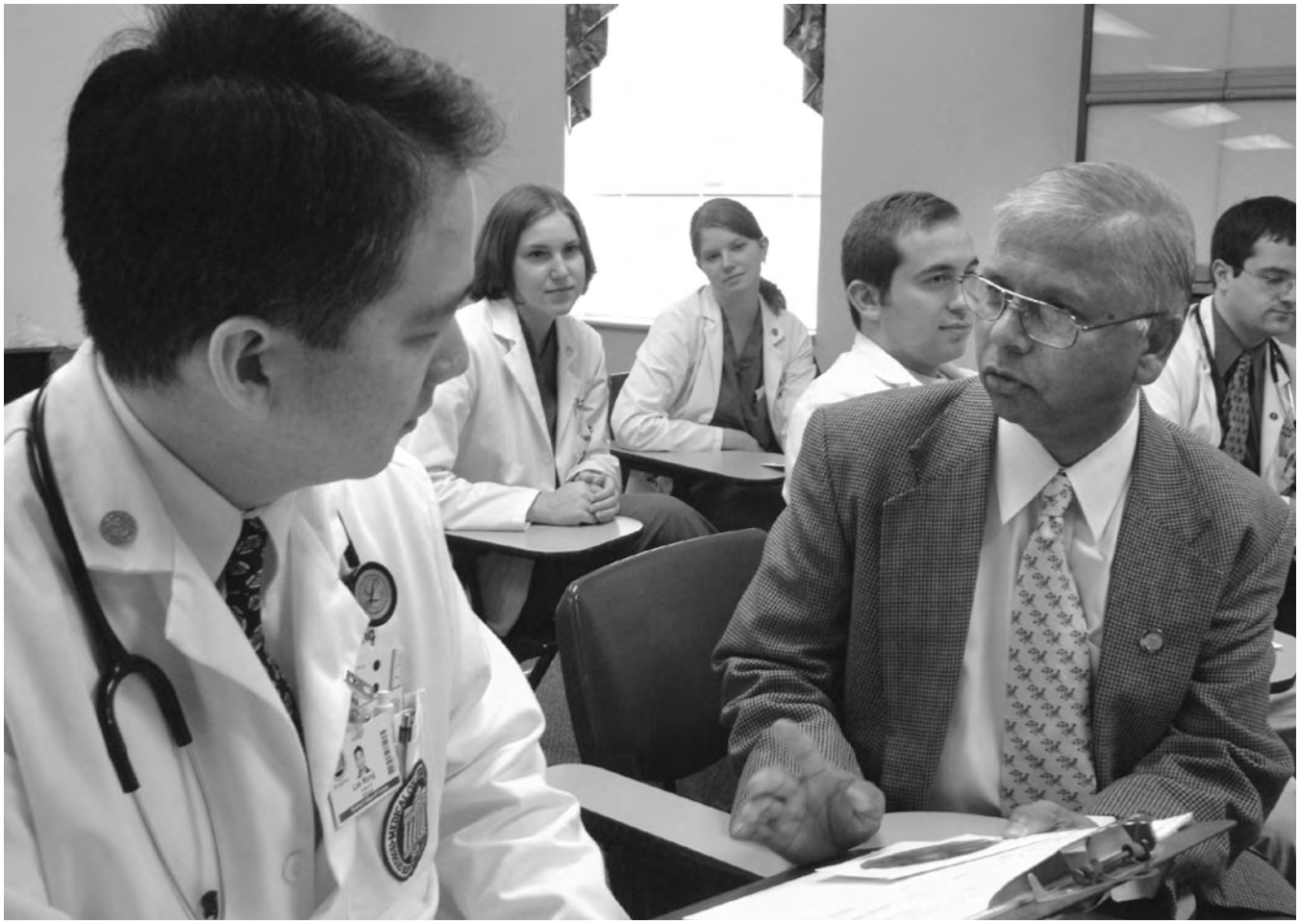
Before turning to the findings and recommendations, it is important to acknowledge certain caveats about forecasting supply and demand in the health workforce. First, in the United States, demand for health professionals is tied closely to health care financing. Increases or decreases in coverage will affect the need for services and, therefore, the demand for workers. By way of example, the recently enacted Medicare drug benefit has significantly increased the demand for pharmacists. Secondly, the supply of health professionals is affected by the broader economy as well as the work environment of the health sector. Expansions in other

The challenge of attracting and retaining nursing faculty

A recent survey of USG and DTAE registered nursing programs finds that the average salary for faculty with a master's degree is $46,000; with a doctoral degree, the average is $63,000 (Darden 2006). Salary surveys for the Atlanta and Georgia markets indicate that the mean annual wage for a charge nurse is $63,000 and a head nurse is $78,600; both positions required no more than a bachelors' degree.

business and professional sectors will cause more students to select those professions at the expense of health fields. Conversely, as has been observed since the economic downturn of the early 2000s, uncertainty in other economic sectors will increase employment and education interest in the health fields. Finally, the data needed to make informed forecasts are simply not available for most health professions. State licensure numbers radically overestimate workforce supply, as many license holders are inactive in their practice or live and work outside of the state. Even those who do practice may not work full-time. The supply and demand data are collected by different groups, using different metrics, for different purposes; therefore, it is almost impossible to condense disparate data into one cohesive framework.

Data from the USG and other education systems are not presently collected in a format that make it reliable for forecasting and analysis. Moreover, in-migration of new health professionals and out-migration of recent Georgia graduates makes the process even more challenging. Georgia does not require workforce data from health professionals on a regular basis; therefore, analysis of demographic characteristics, consideration of practice patterns and projections of retirements are simply impossible. In sum, health professions workforce planning is much more of an art than a science. Data and forecasts discussed herein are useful to direct planning for the system at the broadest level. Yet, it is important to monitor changes in the factors influencing health care and health professions education at the state and local levels so as to respond effectively and flexibly.



CHAPTER 2
Planning for Health Services in Georgia

Health services and the professionals who support these programs are important contributors to Georgia's economic and human development. To sustain its economic viability and promote quality of life for her citizens, Georgia must ensure it has a strong and vibrant health care delivery system. To do so, a sufficient number of well-trained health care professionals is critical. This chapter documents current health status concerns in Georgia and the demographic and economic factors which both drive and benefit from the health industry in Georgia.

Georgia's Health Status

Georgia faces considerable health challenges, in part because of its diversity and size, both population and geography. Health care workforce shortages decrease access to care, increase costs of care and negatively impact patient safety and well-being. America's Health Rankings 2005, a nationally recognized composite of health status indicators, places Georgia 43rd among states in the nation. The state has some of the nation's worst rankings in infant mortality, infectious disease rates, obesity prevalence, heart disease, diabetes, and cancer. Limited access to health care and coverage concerns are key factors in the state's low score (United Health Foundation 2005). Due to an inadequate supply of nurses and board certified emergency physicians, Georgia recently received a D+ in access to care on the National Report Card on the State of Emergency Medicine (2006). Demographic trends and socioeconomic factors, such as education and poverty, are important influences on health status and the demand for health care services. Any efforts to improve health status will necessarily require more health professions, greater access to preventive and primary care and improved distribution of services throughout the state.

Demographic Trends in Georgia

In the year 2015, Georgia is expected to become the eighth most populous state in the nation with 10.8 million residents (OPB 2005). Migration and natural population growth patterns will vary across the state yielding concentrations of various demographic groups by region. Demographic changes are expected to influence the demand for health care in Georgia. Hence, it is helpful to understand the distribution of various demographic groups across Georgia. In this section, expected demographic changes are presented. The demographic categories include age, minority status, poverty status, level of education, and income.

As noted above, Georgia's population will rise to 10.8 million by 2015, from some 9 million in 2005. Population growth will not be uniform across the state. The region of the state adding the most population to its current base will be the Atlanta metropolitan area. Notable growth also is expected in the northern portion of the state, particularly to the northwest and northeast of Atlanta.

Figure 2.1 Total population projections by state service delivery region in Georgia, 2005 and 2015

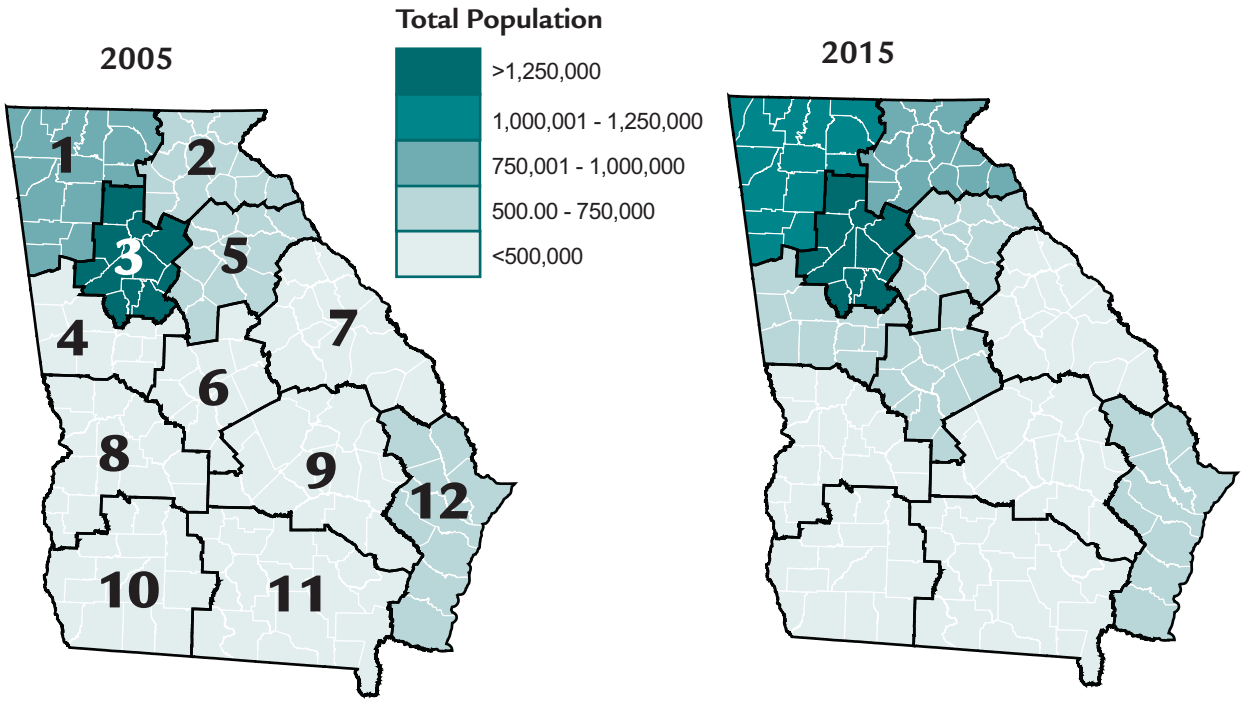
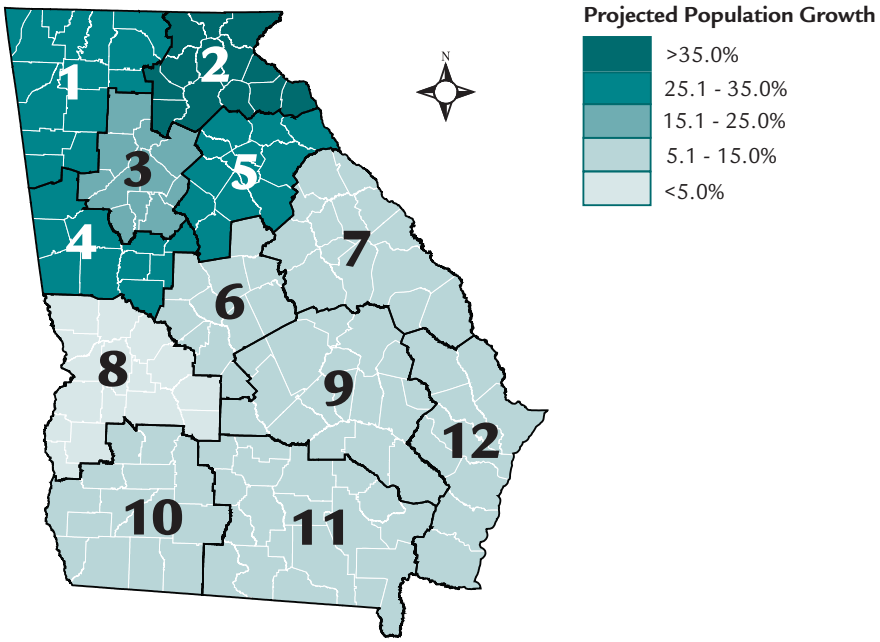


Figure 2.2 Projected population growth by state service delivery region in Georgia, 2005 to 2015



The coastal counties, roughly from Savannah to Brunswick, will experience population growth but at a much slower rate than the Atlanta area and other north Georgia communities. Growth will be minimal in the interior southern and southwestern regions of Georgia.

The first wave of the baby boom generation becomes eligible for retirement in 2011, and this will substantially alter the demand for health care across the nation. The portion of Georgia's population age 65 or older is projected to increase from 11 percent in 2005 to 14 percent in 2015. In addition, the proportion of the state population over 85 is expected to nearly double from approximately 1.5 percent in 2005 to roughly 3 percent by 2015. To a large degree, the regions of the state where those over age 65 will be most concentrated are those areas experiencing relatively slow population growth rates.

The emerging pattern shows that the non-urban and non-coastal areas are those that are "aging" most rapidly. The trend is different for the Atlanta, Savannah, Augusta and Columbus areas. Atlanta will remain the "youngest" area of the state while the interior, non-coastal southeastern area will have the largest concentration of those persons age 85 and above. A recent report from the Center for Health Workforce Studies (SUNY-Albany 2006) documents the tremendous impact that older adults are expected to have on health care resources and workforce demand.

Georgia is also expected to become more diverse as in-migrants take up residency in the state. In 2005, the Hispanic population was estimated at approximately seven percent, but it is expected to grow to 10 percent by 2015. The Atlanta area and regions northwest and northeast of it will have the largest share of Hispanics, with estimates ranging from 10 percent to 14 percent of the total population. In much of the remainder of the state, Hispanics will comprise roughly four to six percent of the total population by 2015.

FIGURE 2.3 PERCENT OF POPULATION AGE 65+ BY STATE SERVICE DELIVERY REGION IN GEORGIA, 2005 AND 2015

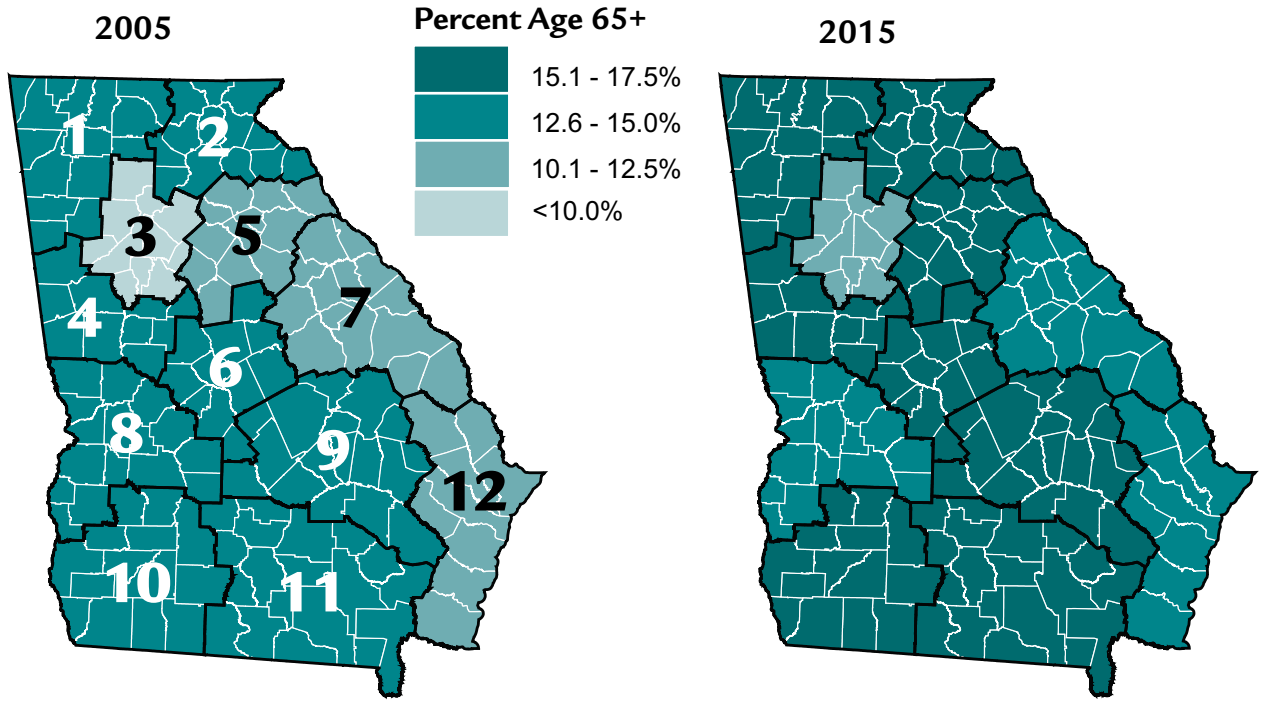
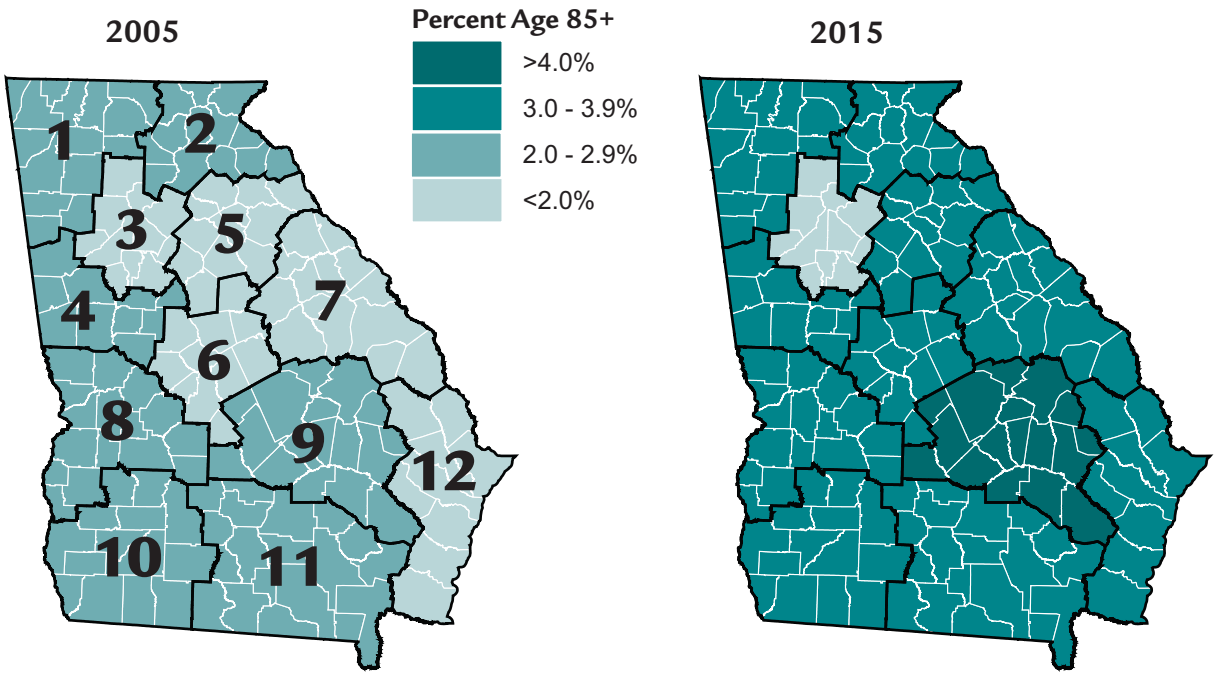
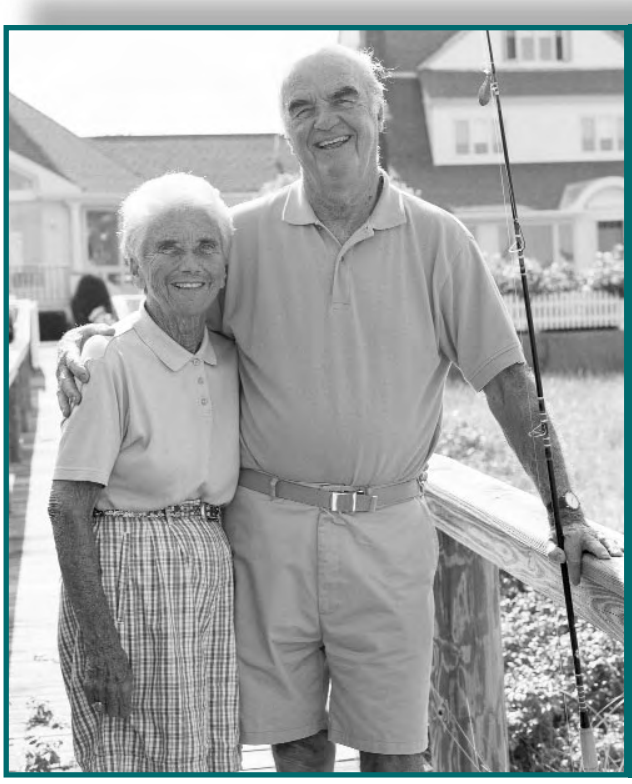


FIGURE 2.4 PERCENT OF POPULATION AGE 85+ BY STATE SERVICE DELIVERY REGION IN GEORGIA, 2005 AND 2015

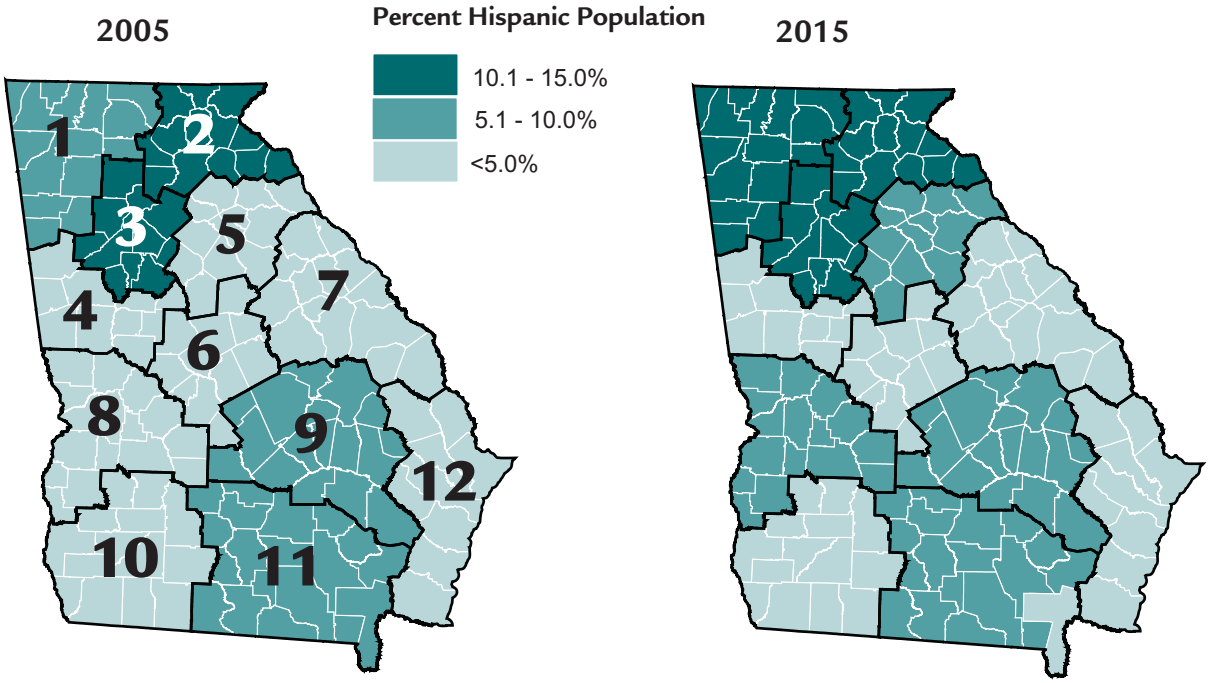




Matter of Fact

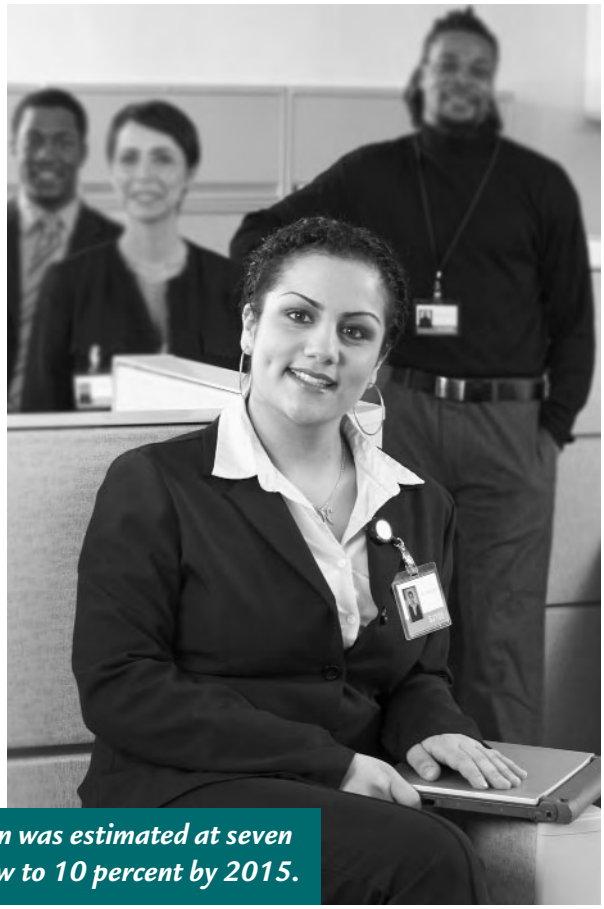
The portion of Georgia's population age 65 or older is projected to increase from 11 percent in 2005 to 14 percent in 2015 and the proportion of the state population over 85 is expected to nearly double from 1.5 percent in 2005 to roughly 3 percent by 2015.

FIGURE 2.5 PERCENT OF HISPANIC POPULATION BY STATE SERVICE DELIVERY REGION IN GEORGIA, 2005 AND 2015



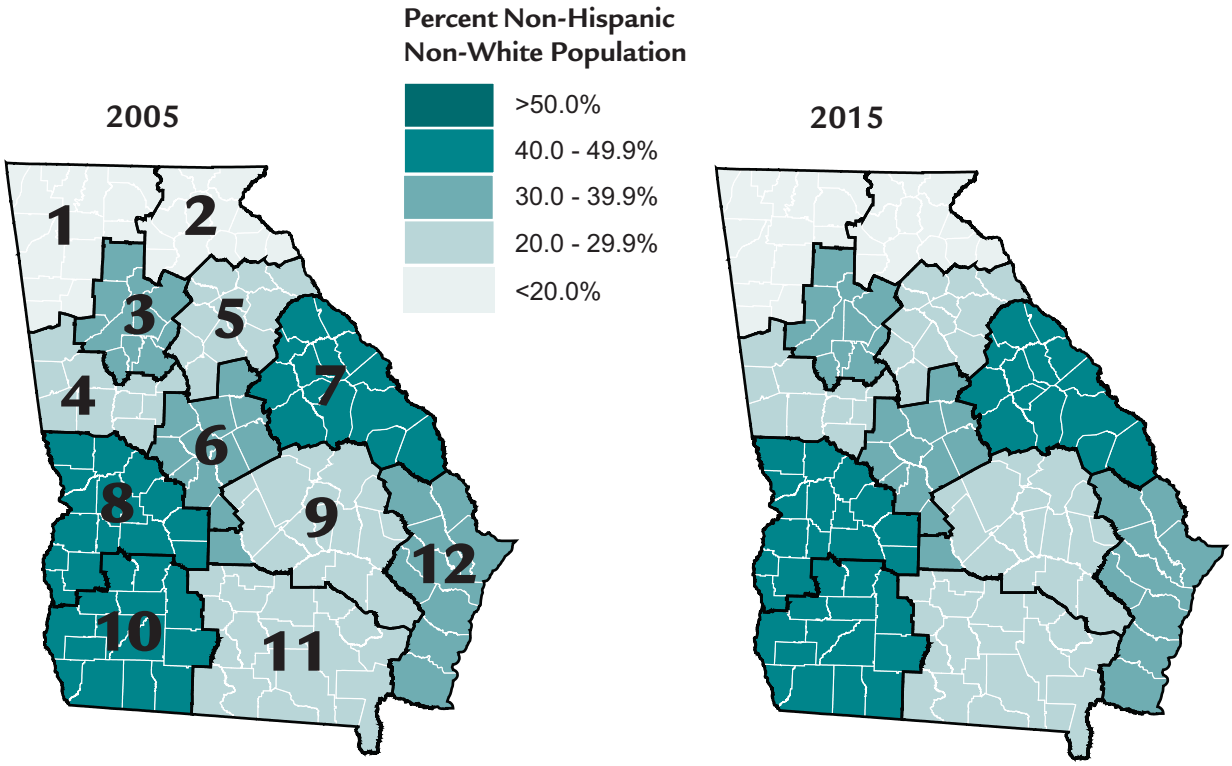
The influx of Hispanics to the state will mean that other minority groups' proportional share of the state population may be reduced. The non-white, non-Hispanics group's share of the state population will drift down slightly from the current figure of approximately 33 percent. Non-White, non-Hispanic populations are expected to be most concentrated in southwest Georgia and in the Augusta area where the group's population share reaches 43 to 45 percent. North Georgia has the lowest proportion of non-White, non-Hispanics with approximately five percent of the population in this category.

Poverty levels are also likely to influence the demand for healthcare, or at least health care delivery systems. In 2002, Georgia's poverty rate was estimated at 13 percent. Atlanta and the northern areas of the state had poverty rates well below the state average, while the interior south and western areas of the state have poverty rates that range from 18 percent to 19.4 percent.



In 2005, the Hispanic population was estimated at seven percent, but it is expected to grow to 10 percent by 2015.

FIGURE 2.6 PERCENT OF MINORITY POPULATION BY STATE SERVICE DELIVERY REGION IN GEORGIA, 2005 AND 2015



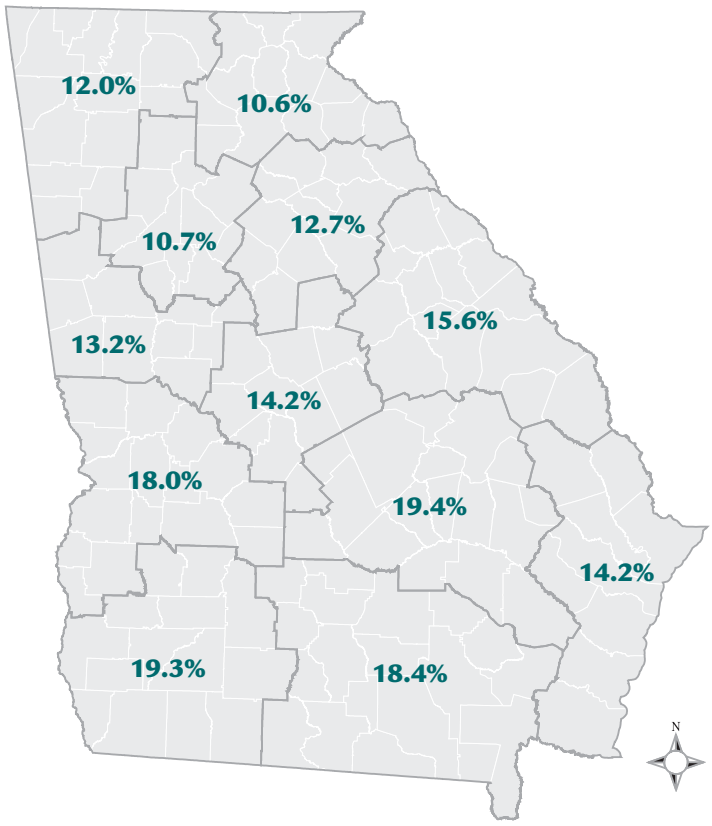
Matter of Fact

In the year 2015, Georgia is expected to become the eighth most populous state in the nation with 10.8 million residents

The level of educational attainment also can influence the demand for health care services. While higher levels of educational attainment may be associated with greater knowledge of and practice of healthier lifestyles, it may also imply more educated self-advocating health care consumers. In either case, educational attainment has an effect on health care demand. In 2000, the most highly educated persons tended to be concentrated in the Atlanta and Savannah areas of the state where fewer than 50 percent of the population had a high school education or less. The southern and northwestern portions of the state had approximately 60 percent of the population with a high school education or less, while the highest concentration of poorly educated Georgians was in the interior southeastern portion of the state.

Lastly, but perhaps most importantly, personal income levels may influence the demand for health care. Indeed, aggregate and multiyear forecasting analyses tend to place the greatest emphasis on a measure of income, usually gross domestic product (Gerdtham 2000; Phelps 2003; Santerre and Stephen 2004). In many studies, income is the only variable of consideration, accounting for up to 90 percent of the variation in health care demand (Phelps 2003). Thus, a key determinant of Georgia's long term demand for health care services is total personal income and per capita income.

FIGURE 2.7 PERCENT OF POPULATION LIVING IN POVERTY



Georgia Total 13.0%

According to Woods and Poole Economics (Woods and Poole 1999), Georgia's total personal income is expected to rise by 26 percent between 2005 and 2015. (See Table 2.1.) Only in the Atlanta and Athens metropolitan statistical areas (MSA) is total personal income expected to grow at a faster rate than the state as a whole. The slowest rates of growth are expected in the Macon and Savannah MSAs. In terms of magnitude, total personal income in the Atlanta MSA overshadows that of the rest of the state, comprising 59 percent of the state total.

Total personal income in a region helps characterize the size of the market in a particular area. The strength of any given market for health care services would be reflected in per capita income figures. In 2015 the Atlanta MSA is expected to have the highest per capita income ($58,974) in the state. Georgia's per capita income is expected to grow by 55 percent in current dollar terms, and 39 percent after adjusting for inflation. Per capita income is expected to grow the fastest in the Macon, Augusta and Athens MSAs, although the differential across the state's MSAs is relatively low. In summary, while a variety of demographic patterns are layered across the state, some consistencies emerge in the data through 2015. The northern part of the state has the most and fastest growing population, is better educated, has lower poverty rates, has the largest share of the Hispanic population, and is the fastest growing in income. On the other hand, the southern areas of the state are expected to grow older, tend to be less well educated, and suffer from more severe poverty. In additional to molding itself to meet the demands of very diverse demographic regions, Georgia's health care system will also face the issues associated with a generally aging population. The state's health care system will find itself stretched to meet the needs of its citizens and will be challenged in unprecedented ways.

Figure 2.8 Level of education attainment by state service delivery region in Georgia, 2000

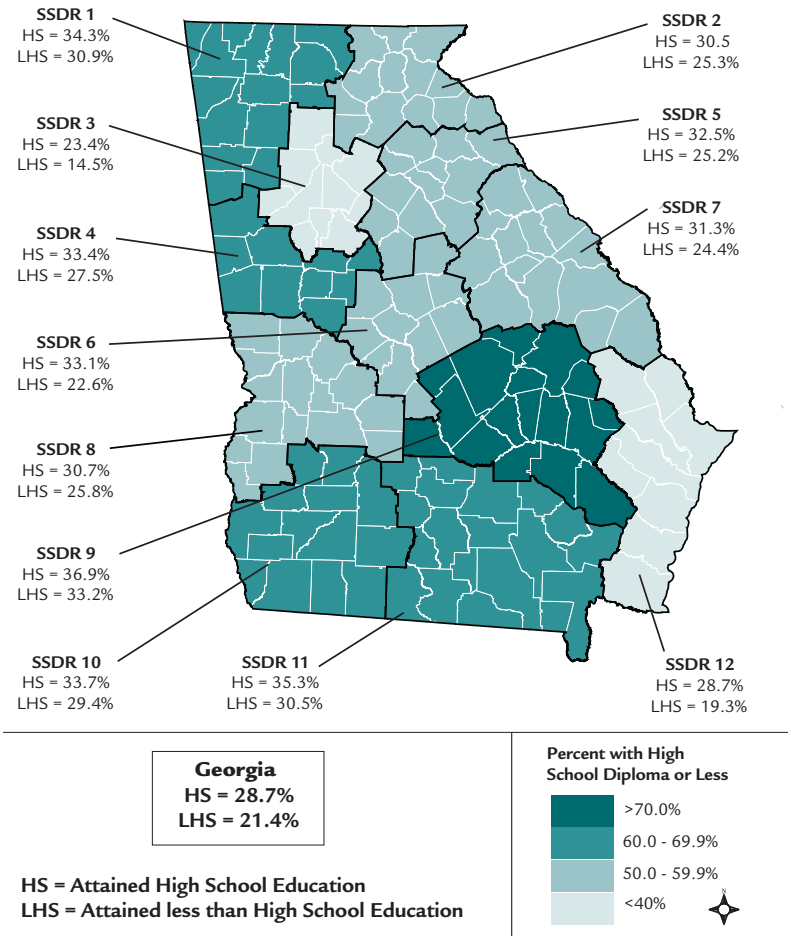


Table 2.1 Total personal and per capita income Georgia metropolitan areas, 2005 to 2015

MSA	Total Personal Income Millions of Dollars			Per Capita Income Current Year Dollars		
	2005	2015	Percent Change	2005	2015	Percent Change
Albany	2,511.7	3,050.6	21.5	27,102	41,748	54.0
Athens	3,264.6	4,168.9	27.7	28,575	44,199	54.7
Atlanta	115,547.0	148,147.9	28.2	38,300	58,974	54.0
Augusta	10,436.1	13,093.9	25.5	28,243	43,777	55.0
Columbus	5,956.0	7,216.0	21.2	27,780	42,648	53.5
Macon	7,169.3	8,647.2	20.6	29,319	45,728	56.0
Savannah	6,964.7	8,338.3	19.7	31,432	48,219	53.4
Georgia	196,995.7	248,275.4	26.0	32,466	50,398	55.2

Economic Forecasts and Drivers

Forecasts of health care expenditures for Georgia are developed in this section. The forecasts of Georgia data leverage the work of the National Health Statistics Group at the Centers for Medicaid and Medicare Services (Borger et al. 2006) which recently released long term estimates of health care expenditures for the United States. Nationwide health care expenditures (NHE) are expected to increase by just over seven percent annually throughout the forecast horizon. While the rate of NHE growth has declined in recent years, it still outpaces that of GDP, thus health care expenditures are expected to rise from 16 percent of GDP in 2005 to 20 percent of GDP by 2015.

The primary drivers of NHE are characterized by demand or supply factors[1]. On the demand side, the primary drivers of long term NHE are demographic shifts, declining insurance coverage and changes in the nature of insurance coverage. The age of the population has a larger effect on the out-years of the forecast as the baby boomers begin to reach the traditional retirement age beginning in 2011. The recent emergence of health savings accounts (HSA) also has a role in NHE, as HSAs effectively increase the buying power of participants. Continuing adjustments in the structure of private insurance are expected to generate cost containment, but not on the same order of magnitude as the substantial shift toward managed care in the mid-1990s.

Supply side factors influencing nationwide NHE forecasts include rising input prices, medical price inflation and continued medical and technological innovation. Input prices are expected to rise at a rate that exceeds that recorded during the 1990s, but below the peak occurring in 2001. Output prices for medical goods and services are also expected to increase at a faster rate than input prices, the reverse of what occurred during the 1997 to 2004 period. The adoption of new technology is also expected to further spur spending but in a more focused manner as the innovations are targeted more closely on populations deriving the greatest benefit.

One acknowledged problem on the supply side of the market is related to a potential barrier to entry into the field. The level of debt carried by recent medical school graduates has grown substantially in recent years as medical school tuition inflation has reached double digits. In the state of Georgia, recent survey data reveals that 35.81 percent of medical school graduates had no debt, while the comparable figure for the U.S. was 17 percent (Robinson 2004; Jolly 2005). Nearly 30 percent of recent Georgia graduates had between $60,000 and $125,000 in debt, roughly the same proportion for medical school graduates nationwide. In contrast, 37 percent of the graduates nationwide had debt that ranged from $125,000 to $200,000 while only 13 percent of Georgian medical school graduates were burdened by that debt load.

TABLE 2.2 STUDENTS FINANCE DEBT AMONG MEDICAL STUDENTS

Amount of Debt	Georgia (Percent)	United States (Percent)
None	35.8	17.0
Less than-$60,000	14.1	15.0
$60,000-$124,999	28.9	26.0
$125,000-$199,999	13.0	37.0
$200,000 and over	8.2	5.0

[1] *These factors drive the forecasts for health care expenditures for the nation as a whole. Thus, much of the data used for the U.S. model is simply unavailable for sub-national geographies such as the Southeastern United States or Georgia. In order to sidestep this problem, the statistical relationship between historical health care expenditures at the U.S. and state level is exploited to develop corresponding NHE forecasts for Georgia. While fluctuations in supply and demand drivers at the state level may not perfectly match the fluctuations in the national data, they are likely to be very highly correlated.*

State level forecasts[2] of total personal health care expenditures, hospital care, physician and other professional services, and dental services through 2015 are developed and presented below. Table 2.3 presents the inflation-adjusted health care expenditures forecasts for Georgia.

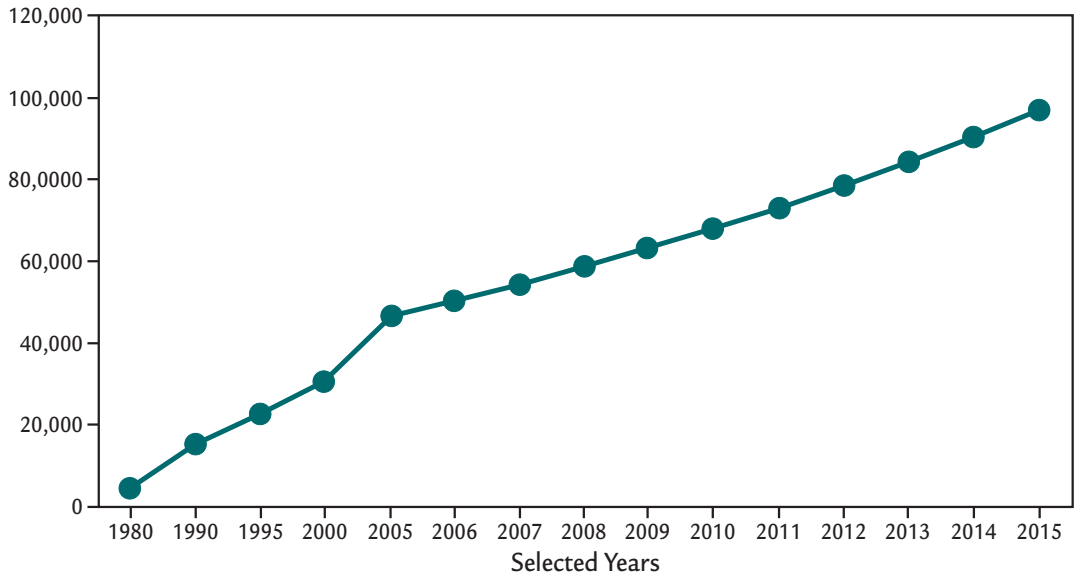
Total personal health care expenditures in Georgia are expected to rise from $39 billion dollars in 2005 to $63.5 billion by 2015. The underlying rate of growth in Georgia from year to year is 5.0 percent, as compared to 4.6 percent for the nation. (See Table 2.3 and Figure 2.9)

The fastest growing sub-sector is Physician and Other Professional Services which is expected to grow by 5.0 percent annually (before inflation) as compared to 4.5 percent in the nation. Total expenditures in this category will rise from $13.2 billion in 2006 to $20.3 billion in 2015. Hospital care expenditures will remain the largest sub-category with expenditures totaling $22.1 billion in 2015.

Table 2.3 Forecasts of health care expenditures in Georgia selected years 1980-2015; inflation adjusted millions of 1996 dollars

Year	Total Personal Health Care	Hospital Care	Physician and Other Professional Services	Dental Services Care
1980	7,962.8	3,772.8	1,919.7	471.6
1990	17,757.5	7,719.3	5,290.7	867.0
1995	23,332.3	9,454.6	7,060.1	1,122.3
2000	28,683.4	10,396.6	9,110.8	1,532.6
2005	39,141.6	13,992.1	12,464.0	2,028.6
2006	41,309.1	14,719.5	13,201.6	2,154.1
2007	43,429.6	15,418.3	13,912.7	2,276.0
2008	45,742.8	16,205.4	14,674.7	2,408.6
2009	48,115.6	17,017.9	15,406.2	2,534.8
2010	50,558.6	17,864.1	16,138.6	2,657.5
2011	52,956.0	18,695.0	16,840.2	2,776.5
2012	55,499.0	19,529.7	17,644.6	2,895.2
2013	58,110.2	20,353.0	18,505.9	3,000.9
2014	60,758.2	21,184.1	19,364.1	3,103.3
2015	63,515.8	22,051.1	20,250.9	3,199.4

Figure 2.9 Forecasts of health care expenditures in Georgia; millions of dollars, actual dollars; selected years 1980-2015



[2] *Forecasts for Georgia through 2015 of overall health care expenditures and several sub-categories are based on the statistical relationship that held in corresponding national and state level data during the 1980 to 2000 period for which the state data was available (Borger et al. 2006). The statistical relationships between the state and national data uncovered during the modeling process were then applied to the national forecasts available through 2015 to obtain forecasts for the state of Georgia.*

Similar to the nation, health care expenditures will consume an increasingly larger share of gross state product during the forecast period. When expenditures are measured including projected inflation of 2.5 percent during the period, health care expenditures in Georgia will grow at an annual pace of 7.5 percent versus 7.1 percent for the United States. (See Table 2.4.) These rates of growth portend the continued and significant growth in demand for health professions in Georgia over the next decade.

Table 2.4 Average annual percent change from previous year in health care expenditures, Georgia and United States, 2005 to 2015

	Adjusted for Inflation		In Current Dollars	
	Georgia	United States	Georgia	United States
Total Personal Health Care	5.0%	4.6%	7.5%	7.1%
Hospital Care	4.7%	4.6%	7.2%	7.2%
Physician and Other Professional Services	5.0%	4.5%	7.6%	7.0%
Dental Services	4.7%	4.2%	7.2%	6.7%

Value and Impact of Health Professions Education and the Health Industry

Georgia's health systems and the professionals who work in them are significant contributors to the economy. Although health systems require considerable public and private investment to operate, and education for health professionals is a costly public enterprise, the return on these investments is substantial. The following paragraphs highlight the value of higher education for the state's economy and showcase the important economic contributions of the health sector.

This review of the value and impact of post-secondary and higher education is divided into two components. The first section is a discussion of labor market effects associated with health care professions education. A person's earnings potential is substantially enhanced by continuing education beyond the high school level. This section compares the expected benefits associated with continuing one's education in health professions as compared to other fields. The second part of this section is an economic impact assessment of the health care sector in Georgia. It sheds light on the economic role a typical physician's office, for example, plays in a local economy. The analysis is also expanded to examine the economic impact of the health care sector on Georgia's economy.

Impact of Post-Secondary and Higher Education on Earnings

This section assesses the economic returns to post-secondary and higher education in fast growing health care professions. In general, individuals with higher levels of educational attainment earn higher wages in their professional field and over their working career. Occupations requiring higher levels of educational attainment also tend to grow faster than others. This is particularly true of occupations in the health care sector.

The average hourly wage and lifetime earnings associated with levels of educational attainment and occupations are presented in Table 2.5. The occupations listed are among the categories expected to grow at the most rapid rate in the health care sector through 2012 (GADOLa 2005). The wage rates list in the table are based on the most recent Georgia Wage Survey (GADOLb 2005). Georgians with professional degrees earned approximately $58 per hour while those with high school degrees earned approximately $14 per hour. Among the fastest growing occupations in health professions, Family Physicians and General Medical Practitioners earned $76 per hour while Medical and Public Health Social Workers earned roughly $18 per hour.

One method of assessing the impact of post-secondary and professional education in the health care sector is to compare earnings differentials for those with a baseline level of educational attainment and those who specialize in health professions. A Georgian with a bachelor's degree can expect about $26 per hour, whereas the same person with a high school degree in Georgia can expect about half of that wage per hour. Those persons with a bachelor's degree who become physician's assistants earn even more, about $37 per hour. This represents a net difference of $11 per hour (the earnings differential) for the Georgian who selected a degree preparing them to become a physician's assistant as compared to a bachelor's degree holder on average.

In general, for a given level of educational attainment, there is an earnings premium for almost all occupations in health care, ranging from the professional degree level through the associate degree level. As an example, for holders of professional degrees in health care, the earnings premium is approximately $18 per hour for General Medical Practitioners and about $9 per hour for Dentists compared to persons holding non-health related professional degrees. Pharmacists are the only health professionals who do not derive an earnings premium as compared to their counterparts with professional degrees in other fields.

Doctoral and master's degree holders in health professions secure a smaller earnings premium when compared to others with the same degrees. The premium is about $9 per hour for medical and health services managers and roughly $4 per hour for collegiate level health specialties instructors. Physical therapists benefit from a $4 per hour premium while clinical psychologists benefit from a $2 per hour premium as compared to their peers holding similar advanced degrees.

The wage premium for health care sector workers begins to dissipate at the bachelor's degree level. While the earnings premium is $11 per hour for physician's assistants, social workers in health professions are bettered by their peers with similar levels of educational attainment.

The wage premium re-emerges for those with associate degrees or post-secondary vocational training in health professions. All of the fast growing occupations in Georgia requiring this level of educational attainment derive an earnings premium as compared to those with the same level of attainment in other professions. The wage premium among these occupations varies between $1 per hour up to $5 per hour for the occupations listed in the table.

Table 2.5 Education and Earnings Georgia's Fastest Growing Occupations through 2012 in Health Care Professions

Education Level and Occupation	Average Hourly Wage	Expected Lifetime Earnings (Millions)
Professional Degree	$57.83	$4.99
Family and General Practitioners	76.34	
Dentists	69.13	
Physicians and Surgeons, All Other	62.73	
Pharmacists	37.88	$3.86
Doctoral Degree	30.15	
Health Specialties Teachers, Postsecondary	34.44	$2.83
Master's Degree	25.11	
Medical and Health Services Managers	34.39	
Physical Therapists	29.11	
Clinical, Counseling, and School Psychologists	27.33	$2.38
Bachelor's Degree	25.57	
Physician Assistants	36.90	
Occupational Therapists	26.15	
Medical and Clinical Laboratory Technologists	21.06	
Medical and Public Health Social Workers	18.45	$1.81
Associate's Degree or Postsecondary Vocational Training	18.68	
Registered Nurses	23.50	
Dental Hygienists	22.71	
Radiological Technologists and Technicians	19.60	$1.36
Respiratory Therapists	19.40	
High School Degree or Equivalent	13.77	

Note: Wages and earnings calculated in 2004 dollars.

A second, more general method of comparing the impact and returns to post secondary and higher education is to compare expected lifetime earnings for various levels of educational attainment (Occupational Outlook Quarterly 2002). The expected earnings over a 40 year working career for holders of professional degrees is $4.99 million. Doctoral degree holders can expect to earn approximately $3.8 million during their career, while master's degree holders can expect $2.8 million. The figure is $2.38 million for workers with a bachelor's degree and $1.8 million for those with an associate degree. This is compared to a baseline of $1.36 for those who have a high school education. The benefits of higher education are clearly visible in the lifetime earnings data presented in Table 2.5.

Estimated Economic Impact of the Health Care Industry in Georgia

The impact of the health care industry on Georgia's economy is substantial. In addition to the highly visible 350,000 employees in the sector, a large number of jobs in non-health care sectors are supported by the health sector. The economic rippling effects of the health care industry arise as a result of supply chain linkages to other Georgia businesses and as Georgians working in health care related occupations spend their income in local business establishments. Thus, it is important to understand the role played by the health care sector in maintaining Georgia's economic vitality. Should the demand for health care professionals in the state go unmet, it not only will adversely affect those impacted by the shortages of services, but it may also adversely affect the state's economic health. The demand for a professionally trained labor force is critical to the state's health care sector, and without that critical input, the sector is less likely to thrive and thereby may inhibit growth of the state's economy.

The economic impact of the health care industry in the state of Georgia is estimated using an input-output model that tracks the flow of dollars and economic activity in an area. Economic activity is created in an economy as consumers, businesses and governments purchase services from health care providers. This activity is referred to as a direct economic impact. The health care establishments then spend a portion of their income purchasing goods and services from other local businesses, thus generating a second round of economic activity. In addition, households that derive income from the direct economic impact (for example, as a receptionist earns an income from a dentist) also subsequently spend a portion of their income in local business establishments. Each subsequent round of spending results in a smaller impact as a portion of the spending leaks out of the local economy through the purchase of non-local goods and services.

An input-output model tracks each of these waves of spending and yields an economic multiplier that can be applied to the direct economic activity to estimate the total impact of the economic activity[3]. The estimated impacts presented in this document are organized along two dimensions. First, the economic impact associated with a typical firm is presented. The underlying data for a typical firm is drawn from the 2003 edition of County Business Patterns for the state of Georgia for establishments in the health care sector (NAICS code 62). This allows one to ascertain the level of economic activity associated with a typical Georgian dentist's office, a physician's office, or a general surgical hospital, for example. Second, the impacts are presented in an aggregate manner for each health care sector for which the analysis could be performed. This provides on overview of the magnitude of the sector's impact on the state economy as a whole.

The economic impact is reported separately along four dimensions: employment, labor income including proprietors' income, business revenue, and state and local taxes.

[3] *The economic impacts reported in this document are generated by a state of the art software program, Implan (by the Minnesota Implan Group, Inc.), that is commonly used to estimate economic impacts. The software estimates the secondary impacts or economic ripple that results from the direct impact, tallies the figures and reports a total economic impact.*

Employment refers to the number of workers supported by the activity. Labor income is a measure of the compensation (including benefits) earned by employees and owners of firms supported by economic activity associated with health care. Business revenue is an estimate of business sales that are generated by health care establishments or firms. Lastly, an estimate of state and local taxes generated by economic activity attributable to the health care sector is provided. The economic impacts have been computed in 2006 dollars.

Economic Impacts per Health Care Establishment

The focus of this section is on the economic impact attributable to a typical Georgia business establishment in the health care sector. As indicated above, direct impacts are the economic effects associated with the day-to-day operation of the establishment. Employment impacts are presented first in Table 2.6. Not surprisingly, on average, hospitals generate the largest employment impacts in the health care. In particular, general hospitals generate the largest total employment impact per establishment with 1,730 jobs. Of these, approximately 904 workers are employed directly by the hospital with the remainder in a variety of jobs outside of this sector. The second largest estimated employment impact was in psychiatric and substance abuse hospitals with a direct impact of 365 jobs and an additional ripple effect of 334 jobs, for a total impact of 699 jobs per establishment. Specialty hospitals employ 306 workers directly and supported another 280 jobs for a total impact of 586 jobs per establishment.

Estimated labor income impacts per establishment are also presented in Table 2.6. Similar to the employment impact, labor income impacts are largest among hospitals. Together, general, psychiatric and substance abuse and specialty hospitals generate $130 million in total labor income per establishment. Of this figure, $57 million of compensation to laborers resulted from the economic ripple as it spread out away from the hospitals themselves

Table 2.6 also includes estimated business revenue impacts per firm. Hospitals generate the largest total business revenue impact of $322 million. Of this amount, nearly 51 percent or $164 million of business revenue is generated in the rest of the state economy as a result of activity in the health care sector.

Although the figures are heavily influenced by the presence of the hospital impacts, the typical health care establishment employs 23 persons, generates $1.2 million of labor income and earns $2.2 million of revenue. These direct impacts are multiplied through economic rippling to support a total of 42 jobs, $1.9 million in labor income and $4.3 million of business revenue per health care establishment.

Economic Impacts of Health Care Sectors

The health care sector supported over 616,000 jobs in Georgia in 2003, or nearly 13 percent of the state's employment base (including proprietors). While the largest total employment impact is in the general hospital sector with 264,700 jobs, the next largest employment impact is attributable to offices of physicians with 111,000 total jobs supported in the state. Overall, nursing care facilities support a total of 53,000 jobs on a statewide basis. These figures all include jobs supported outside of the sector referenced, again as a result of the economic ripple resulting from health care sector activity.

As compared to establishment level impacts, where hospitals dominate because of their relative size, a somewhat different pattern emerges when each health care sector's economic impact on the Georgia economy is estimated. Table 2.7 details the economic impact by sector. The larger economic role for non-hospital sectors is due to the substantial number of

TABLE 2.6 ESTIMATED ECONOMIC IMPACTS PER ESTABLISHMENT

NAICS Code	Sector Description	Direct Impact			Total Impact		
		Employment in 2003	Labor Income ($000)	Business Revenue ($000)	Employment in 2003	Labor Income ($000)	Business Revenue ($000)
6211	Offices of Physicians	10	710	1,110	19	1,057	2,103
6212	Offices of Dentists	7	497	777	13	740	1,472
6214	Outpatient Care Centers	26	696	1,153	36	1,067	2,248
6215	Medical and Diagnostic Laboratories	20	1,064	2,844	45	2,071	5,710
6216	Home Health Care Services	30	983	1,532	43	1,492	2,996
6221	General Medical and Surgical Hospitals	904	42,373	96,335	1,730	75,106	185,367
6222	Psychiatric and Substance Abuse Hospitals	365	17,109	36,721	699	30,325	74,844
6223	Speciality Hospitals Excluding NAICS 6222)	306	14,343	30,785	586	25,423	62,746
6231	Nursing Care Facilities	84	2,249	3,724	117	3,447	7,264
6233	Community Care Facilities for the Elderly	24	643	1,064	33	985	2,076
62	Health Care*	23	1,191	2,176	42	1,926	4,285

**Note:* As defined in this document, NAICS code 62 excludes social assistance (NAICS code 624)

establishments that populate these sectors. For example, there were over 5,800 physicians' offices in the state in 2003, along with nearly 2,900 dentists' offices, and just over 450 nursing care facilities as compared to approximately 150 general hospitals.

The health care sector is estimated to generate $28.3 billion of labor and proprietor income. This is 14 percent of the comparable state figure. Higher relative wages in the health care sectors account for its larger share of labor income than total jobs in the state. More specifically, general hospitals supported $11.5 billion in total labor income. Physicians' offices supported approximately $6.2 billion of labor income, while dentists' offices supported $2.1 billion on a statewide basis.

The health care sector was responsible for generating $63 billion in business revenue in the state, equaling approximately 11 percent of Georgia's total business revenue. The direct effect of $32 billion in health care business revenue was multiplied throughout the states' economy and generated an additional $30 billion in business sales in other sectors of the state's economy. For individual sectors, general hospitals generated a total of $28.4 billion in the state, followed by offices of physicians at $12.3 billion and offices of dentists with $4.2 billion.

Table 2.7 Estimated Economic Impacts per Sector

NAICS Code	Sector Description	Number of Establishments in 2003	Direct Impact			Total Impact		
			Employment in 2003	Labor Income ($000,000)	Business Revenue	Employment in 2003	Labor Income ($000,000)	Business Revenue
6211	Offices of Physicians	5,845	58,071	4,147.5	6,485.3	111,055	6,181.0	12,291.3
6212	Offices of Dentists	2,882	21,214	1,431.5	2,238.4	37,466	2,133.4	4,242.3
6214	Outpatient Care Centers	676	17,589	470.6	779.1	24,336	721.2	1,520.0
6215	Medical and Diagnostic Laboratories	256	5,083	272.4	728.0	11,520	530.3	1,461.7
6216	Home Health Care Services	454	13,639	446.2	695.6	19,522	677.3	1,360.2
6221	General Medical and Surgical Hospitals	153	138,352	6,483.1	14,739.3	264,690	11,491.2	28,361.2
6222	Psychiatric and Substance Abuse Hospitals	23	8,406	393.5	844.6	16,077	697.5	1,721.4
6223	Speciality Hospitals Excluding NAICS 6222)	18	5,506	258.2	554.1	10,548	457.6	1,129.4
6231	Nursing Care Facilities	453	37,851	1,018.8	1686.8	53,001	1,561.4	3,290.7
6233	Community Care Facilities for the Elderly	398	9,532	255.7	423.4	13,134	392.0	826.1
62	Health Care*	14,670	338,062	17,478.5	31,916.8	616,140	28,255.7	62,856.4

**Note:* As defined in this document, NAICS code 62 excludes social assistance (NAICS code 624)

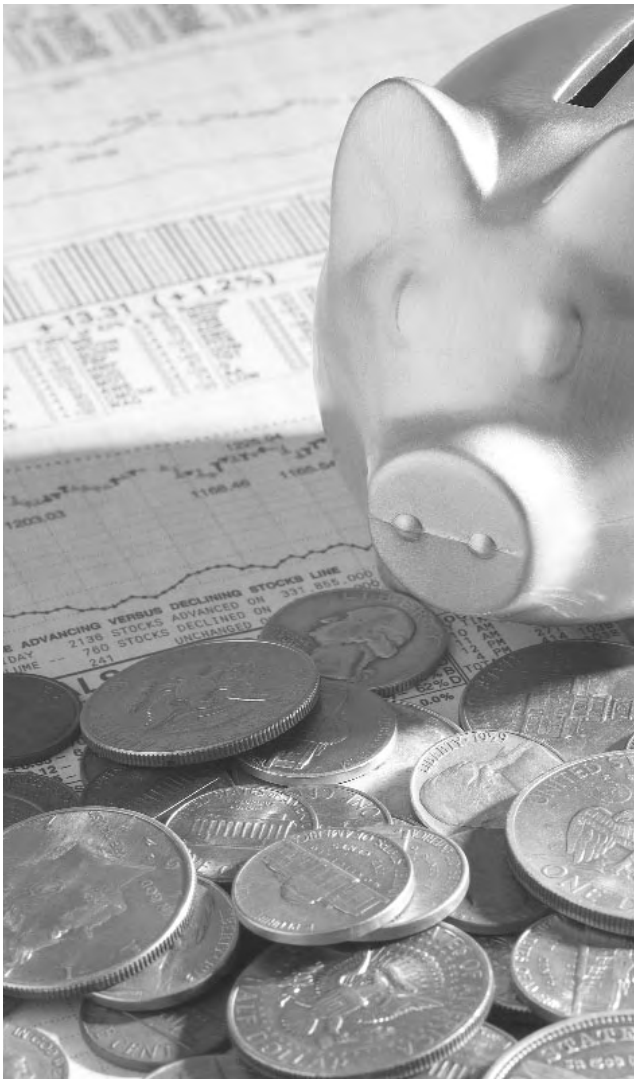
Table 2.8 Total State and Local Sales Tax Revenue Impact

NAICS Code	Sector Description	Per Establishment ($000)	Per Sector ($000,000)
6211	Offices of Physicians	93.9	548.7
6212	Offices of Dentists	65.7	189.4
6214	Outpatient Care Centers	106.1	71.7
6215	Medical and Diagnostic Laboratories	218.6	55.9
6216	Home Health Care Services	129.5	58.8
6221	General Medical and Surgical Hospitals	7,544.5	1,154.3
6222	Psychiatric and Substance Abuse Hospitals	3,046.2	70.1
6223	Speciality Hospitals Excluding NAICS 6222)	2,553.8	46.0
6231	Nursing Care Facilities	342.8	155.3
6233	Community Care Facilities for the Elderly	97.9	39.0
62	Health Care*	182.8	2,682.2

Sales Tax Revenue Impacts of Health Care Establishments and Sectors

Health care establishments have a substantial fiscal impact on the coffers of local and state government. Table 2.8 presents the estimated state and local tax revenue effects associated with health care sectors and a typical establishment in each sector. On the whole, the health care sector annually generates $2.7 billion for state and local governments in the form of tax revenue. Of this amount, 47 percent or $1.3 billion is generated by hospitals alone. Offices of physicians generate the next largest amount of tax revenue at just under $550 million, while dentists' office yield $190 million.

At the establishment level, general hospitals generate the largest amount of state and local tax revenue with $7.5 million per hospital. This is followed by psychiatric and substance abuse hospitals with $3 million and specialty hospitals yielding $2.6 million. This pattern is to be expected given the large employment base and correspondingly large economic ripple effect spreading across the state.



Summary

The health care sector generates substantial economic impacts across the state of Georgia and across its various industries. This section has presented estimates of the economic impact associated with a typical establishment in the health care sector and the impacts associated with the sectors as a whole. Hospitals generate the largest impacts on a per establishment basis, but share the stage at the sector level with smaller practices of physicians and dentists. As a whole, the health care sector supported 13 percent of the state's employment base in 2003, 14 percent of its labor and proprietor income, and 11 percent of its business revenue. These contributions are expected to grow well into the future. To sustain the important economic and service contributions of the health sector, an adequate supply of qualified health professionals is critical.

CHAPTER 3
The Health Professions Workforce and Educational Characteristics

Demographics, economics and health status concerns are significant forces in shaping Georgia's need for health professionals. Moreover, the economic contributions of this industry sector and its professionals must not be underestimated. This chapter provides an overview of key health professions in Georgia and documents the important role of the University System of Georgia in attracting, educating and sustaining that workforce.

The health professions workforce consists of a wide range of skilled and paraprofessional workers across a myriad of employment sectors. The health care industry alone currently ranks as the fourth leading employer in Georgia according to the U. S. Bureau of Economic Analysis. Health professionals also are employed in the other top industry sectors of government, retail and manufacturing. Recent estimates from the Bureau of Labor Statistics forecast that health care practitioner and related technical occupations will grow by more than twenty-five percent (25%) in the next ten years, growing twice as fast as the average for all other occupations (Hecker 2005).

The University System of Georgia educates the vast majority of health professionals who live and practice in Georgia. With outstanding programs in the fields of medicine, dentistry, pharmacy, nursing, allied health, and behavioral health, the public institutions of higher education in Georgia have played a pivotal role in advancing health systems and economic development. In part because health professions education is among the most costly in the field of higher education, public universities and colleges provide the educational infrastructure for most health professions. The University System of Georgia, in partnership with the Georgia Department of Technical and Adult Education (DTAE), has the lead responsibility for addressing the professional education needs of tomorrow's health care workforce.

The University System of Georgia, through its 35 institutions of higher learning, operates a multitude of health sciences instructional programs across the state. It is particularly interesting to note the importance of Georgia's public higher education system in educating students from the state. Table 3.1 documents the proportion of students enrolled in USG health programs who are Georgia residents. In most professions, Georgia residents account for more than 80 percent of the enrolled student body. This fact is important as the primary determinants of health professionals' choice of practice location are state of residence, location of academic institution and location of clinical training.

The Task Force on Health Professions Education focused its review on the fields of allied health, behavioral health, dentistry, medicine, pharmacy and nursing. This chapter provides brief descriptive overviews of each professional field and documents the degree programs offered by the University System of Georgia (USG) in the field. As appropriate, DTAE data is incorporated. Each section provides a general description of the professional field, an overview of the

workforce and employment projections, a review of educational characteristics, and specific concerns related to the USG's role. These sections provide important context in framing the strategic direction of the USG.

At the outset, it is important to acknowledge that there is a lack of sufficient, dependable data. At present, educational programs, regulatory agencies and the business sectors all collect different types of data for different purposes. None of these groups has workforce planning as its mission and thus the data are generally not useful for these purposes. Data integrity is clearly a problem and the data which are currently available are insufficient for use in forecasting, decision making or productivity measurement.

Table 3.1 Percentages of enrolled students who are Georgia residents; selected USG health professions programs, all semesters Fall 2000 - Fall 2005

Health Professions Program	Percentage
Dental Hygiene	83.2
Dentistry	97.9
Marriage and Family Therapy	75.0
Medicine	90.7
Nursing	88.3
Nutrition and Dietetics	89.5
Occupational Therapy	91.0
Pharmacy	87.0
Physical Therapy	81.6
Physician Assistant	88.8
Psychology	30.3
Radiation Therapy	75.7
Respiratory Care Therapy	90.0
Social Work	83.4
Speech and Language Pathology	86.7

FYI

The U. S. Department of Health and Human Services, Bureau of Health Professions reported the following statistics regarding the allied health workforce in active practice in Georgia during 2000:
(Health Resources and Services Administration 2004)

- ***11.4 dietitians and nutritionists per 100,000 population, less than the national rate of 15.2. Georgia ranks 47/50 in the nation.***
- ***21.7 occupational therapists per 100,000 population, less than the national rate of 26.6. Georgia ranks 35/50 in the nation.***
- ***32.3 physical therapists per 100,000 population, less than the national rate of 42.7. Georgia ranks 43/50 in the nation.***
- ***30.6 respiratory therapists per 100,000 population, comparable to the national rate of 29.2. Georgia ranks 20/50 in the nation.***
- ***24.5 speech-language pathologists and audiologists per 100,000 population, less than the national rate of 32.7. Georgia ranks 42/50 in the nation.***

Allied Health Professions Overview

Allied Health and the Health Care System

Although Allied Health covers a broad array of health professions, the Task Force has focused only on those professions requiring the resources of the higher education system. For purposes of this review, the allied health sciences have been clustered together. The practitioners described below are educated in a variety of college and university settings.

Clinical Laboratory Science/Medical Technology – Medical technologists are employed in a variety of settings including hospital laboratories, blood banks, nursing homes, government facilities, universities, and private industry. Specialty areas include chemistry, hematology, biogenetics, immunology, microbiology and more. Programs include approximately 3-4 years of coursework and 1 year of clinical practice. One and two year certificate programs are available for students who have completed at least two years of general college courses. Clinical Laboratory Science/Medical Technologists are not required to be licensed by the state of Georgia. However, employment in Georgia hospitals requires national certification through one of several professional organizations.

Dietetics/Nutrition – Dietitians and nutritionists are responsible for developing food plans to meet the health needs of a variety of individuals (e.g., elderly, students, pregnant women, athletes, patients). As such, the need for dietitians extends to a variety of industries including healthcare, food service, businesses and colleges/universities. Specialty areas include pediatric nutrition, renal nutrition, education and research, and clinical dietetics. A career in dietetics requires completion of two components:

- A dietetic program approved by the American Dietetic Association
- Supervised practice (i.e. internship/pre-professional practice programs).

Registered Dietitians (RD) must pass examination established by the Commission on Dietetic Registration. Licensed Dietitians (LD) basically meet the same requirements as RD; however, licensure of dietitians is administered through a state licensing board.

Occupational Therapy – Programs in occupational therapy are offered at the bachelor's and master's degree levels. Occupational therapists are in demand in a variety of health care settings (e.g. home health agencies, hospitals, nursing homes, prisons, and mental health centers). Georgia mandates licensure through the State Board of Occupational Therapy. Licensure requires the completion of an accredited educational program as well as supervised fieldwork and passage of a national certification examination.

Physical Therapy – Entry into academic programs in physical therapy requires an undergraduate degree; these programs which lead to licensure are now offered at the doctoral level. Specialization areas include cardiovascular/pulmonary, clinical electrophysiology, geriatrics, neurology, orthopedics, and pediatrics. Graduates work across the health care system. Physical Therapists (PT) are required to be licensed by the Georgia State Board of Physical Therapy. PTs are required to pass a national examination upon completing an approved educational program.

Radiation Therapy – Radiation therapists are educated through hospital-based certificate programs, associate degree programs and bachelor's degree programs. Radiation plays a major role in treating cancer by relieving symptoms and many times producing a cure. Therapists work with patients under the direction of a radiation oncologist (physician specializing in the treatment of cancer through radiation). They provide emotional support to patients, keep records, administer treatment, and provide radiation protection for their patients and themselves.

Licensure is not required in Georgia, but certification may be obtained through the American Registry of Radiologic Technologists.

Respiratory Care Therapy – Programs last approximately two to four years depending on type of program (associate or bachelor). Respiratory care therapists specialize in areas such as cardiopulmonary diagnostics, critical care, neonatal care, and pulmonary rehabilitation. Graduates of respiratory care programs work in home health agencies, hospitals, medical supply and equipment sales, nursing homes, and physician offices. Eligibility for a state license requires individuals to earn certification as a certified respiratory therapist (CRT), through the National Board of Respiratory Care. Graduates of advanced therapy programs may also earn the credentials of registered respiratory therapist (RRT).

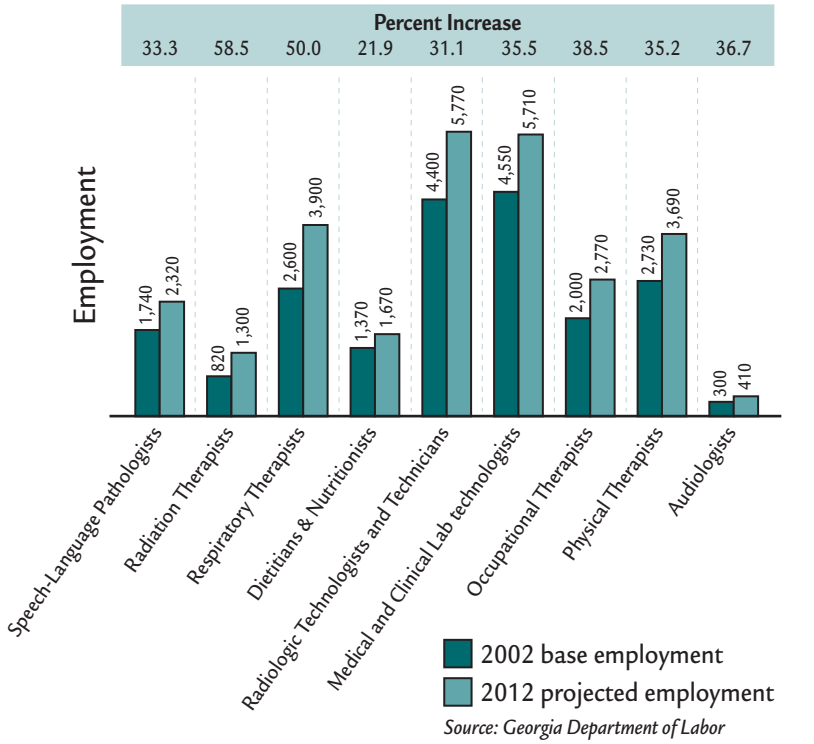
Speech-Language Pathology and Audiology – Graduates of speech-language pathology and audiology programs often work together due to the close relationship of the professions. Licensure is required through the Georgia State Board of Examiners for Speech Pathology and Audiology. To be licensed, a speech-language pathologist must complete at least a master's degree. The entry-level degree for audiologists is a doctorate. Certification of Clinical Competence (CCC) requires successful completion of an examination offered through the American Speech-Language-Hearing Association (SOWEGA-AHEC 2004).

Allied Health Workforce

According to the Professional Licensing Boards Division of the Office of Secretary of State, 1,683 Dietitians, 2,829 Occupational Therapists, 5,642 Physical Therapists, 361 Audiologists and 3,064 Speech Language Pathologists were licensed in the State of Georgia as of November 2005.

The number of professional licenses increased only 4.2 percent, 9.2 percent, 4.0 percent and 3.5 percent respectively for Dietitians, Physical Therapists, Audiologists and Speech Language Pathologists between 2001 and 2005. Additionally, the Professional Licensing Boards Division reported a 10.6 percent decrease for Occupational Therapists during this time period. Evaluating the number of state licenses, however, can be misleading. Many persons holding licenses may be temporarily or permanently not practicing in the profession. Additionally, some professionals may hold licenses in more than one state. Thus, the number of licensees represents a much larger figure than the actual practicing workforce in any of these health professions.

Figure 3.1 Allied Health Long Term Occupational Projections Georgia Statewide



Source: Georgia Department of Labor

Employment Projections

Using data from surveys of more than 9,000 employers annually over three years, the Georgia Department of Labor projects the demand for new and replacement allied

health professionals through 2012. Figure 3.1 details that demand for practicing allied health professionals in the state of Georgia between the years 2002 and 2012 is projected to change as follows:

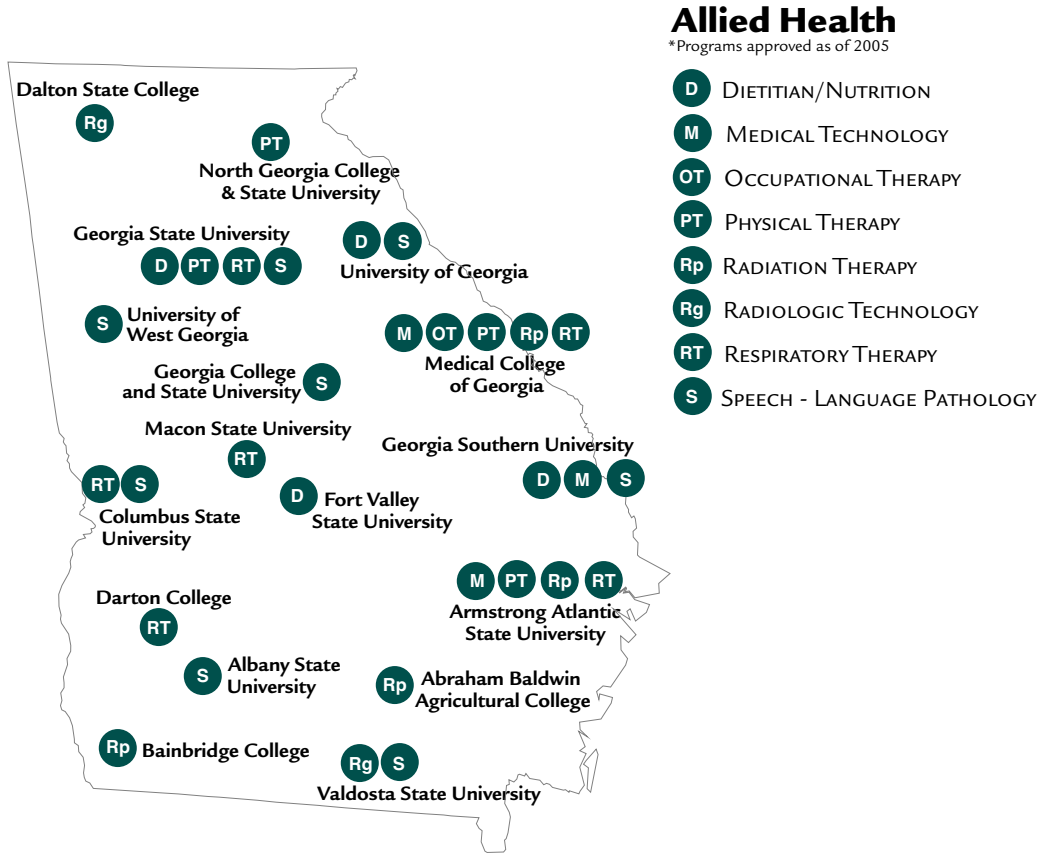
- Medical and Clinical Laboratory Technologists will increase from 4,550 in 2002 to 5,710 in 2012.
- Dietitians and Nutritionists will increase from 1,370 in 2002 to 1,670 in 2012.
- Occupational Therapists will increase from 2,000 in 2002 to 2,770 in 2012.
- Physical Therapists will increase from 2,730 in 2002 to 3,690 in 2012.
- Respiratory Therapists will increase from 2,600 in 2002 to 3,900 in 2012.
- Audiologists will increase from 300 in 2002 to 410 in 2012.
- Speech-Language Pathologists will increase from 1,740 in 2002 to 2,320 in 2012 (GADOLa 2005).

University System of Georgia Education Overview

Numerous institutions, public and private, across the state of Georgia offer higher education degrees in allied health. At present, within the USG, three institutions offer programs in medical technology; four institutions offer dietetics and nutrition; five institutions offer radiation therapy; one institution offers occupational therapy; four institutions offer physical therapy; and four institutions offer speech-language pathology programs. (See Figure 3.2.)

Table 3.2 reports the following degrees conferred by discipline across the various programs over the academic years ending in 2001 through 2005.

FIGURE 3.2 LOCATION OF USG PROGRAMS



In response to a survey from the Task Force, all of the allied health programs reported a desire or need for program expansion. Additionally, these programs reported problems associated with faculty shortages. Most reported having more qualified applicants than available enrollment space for entering classes.

Future Challenges for the University System of Georgia

When evaluating future challenges it is important to consider the intricacies of each individual allied health profession. That said, there are many challenges in common to the allied health professions. These include an aging workforce, gaps between future demand and current supply and maldistribution of health professionals. Additional challenges include:

High demand for specific specialties – Feedback received in 2005 from USG institutions showed high student demand not only for allied health professions but also for more specific specialty areas (e.g., radiological technology specialties of sonography/ultrasonography and nuclear medicine).

Financial Support for Students – Students not eligible for HOPE scholarships need financial support. One USG institution offering allied health programs noted, "Assisting worthy students is a real need in rural Georgia."

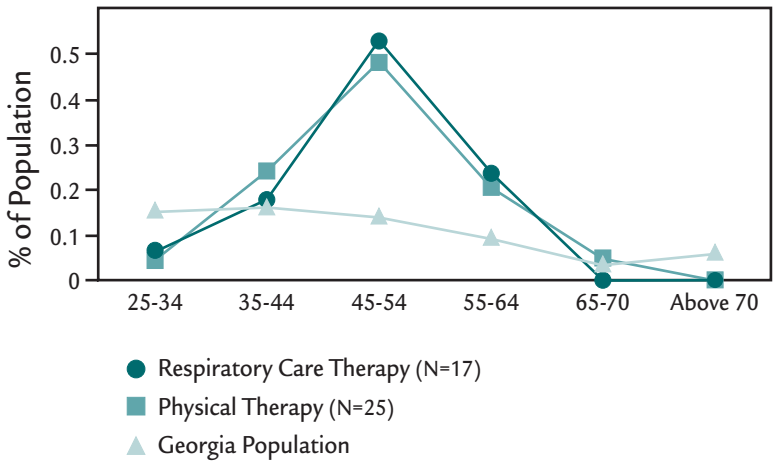
Adequate facilities - USG institutions report facility (i.e. classroom, labs, etc.) limitations as a strong concern in limiting allied health programs. Medical Technology programs in particular were listed as requiring more modern and advanced technology.

Faculty limitations – Faculty shortages and impending retirements in allied health programs were identified by USG institutions as the primary limitation to program expansion. (See Figure 3.3.)

Table 3.2 Number of degrees conferred by profession across various programs; academic years ending in 2001 through 2005

Discipline	2001	2002	2003	2004	2005
Undergraduate Degrees					
Dietitians	50	38	45	51	48
Medical Technologists	14	17	20	26	26
Occupational Therapists	67	38	1	44	34
Radiation Therapists	42	52	43	51	53
Respiratory Care Therapists	67	60	50	67	70
Speech-Language Pathologists	49	33	50	38	39
Graduate/Professional Degrees					
Physical Therapists	112	118	89	100	102
Speech-Language Pathologists	101	97	80	57	60

Figure 3.3 Allied health faculty age distribution



Source: USG, faculty by Age, Corps of Instruction, December 2004
2004 population data: U.S. Census

Behavioral Health Professions Overview

Behavioral Health and the Health Care System

Behavioral health covers a broad array of health professional fields and functions. The Task Force has focused its work on those clinical behavioral health disciplines requiring the resources and rigorous learning environment of higher education.

Psychologists – Psychologists are specialists in human behavior and work to prevent, identify, and treat mental health problems. At the level of professional practice, they are categorized as Clinical and Counseling Psychologists. A bachelor's and master's degree in a relevant field is required to enter a doctoral program in psychology. Doctoral degrees involve four to five years of study beyond a master's degree and include a one-year internship. Georgia requires licensure through the State Board of Examiners of Psychologists. To be licensed, an individual must graduate from a program accredited by the American Psychological Association; complete an internship and a 2000-hour post-doctoral work experience; and pass the National Licensing Exam, the Georgia Jurisprudence Exam and an oral exam.

Social Workers – Social workers support people in their efforts to function within their environments and provide counseling to clients. Although social workers may work in a variety of settings, in the health care field, clinical practice is limited to those individuals who are licensed as a clinical social worker, which requires a master's degree from an accredited program and supervised practice. Doctoral programs are also available in this field.

Marriage and Family Therapists – Marriage and Family Therapists are relationship specialists who treat persons involved in interpersonal relationships. They are trained to assess, diagnose and treat individuals, couples, families and groups to achieve more adequate, satisfying and productive marriage, family and social adjustment. A master's degree and supervised practice is required to be eligible for licensure.

Georgia requires practicing clinical social workers and marriage and family therapists to secure licensure through the Georgia Composite Board of Professional Counselors, Social Workers, and Marriage and Family Therapists. In addition to education and practice requirements, licensure requires passage of an examination.

Advanced practice nurses (clinical nurse specialists in the field of mental health) also support the behavioral health workforce. However, education and employment data for this specialized area of training and practice are not readily available.

FYI

The Bureau of Health Professions reports the following statistics regarding the behavioral health workforce in 2000:
(Health Resources and Services Administration 2004)

- ***13.5 registered psychologists per 100,000 population, less than the national rate of 36.2. Georgia ranks 48/50 in the nation.***
- ***89.4 social workers per 100,000 population, lower than the national rate of 159.1. Georgia ranks 47/50 in the nation.***

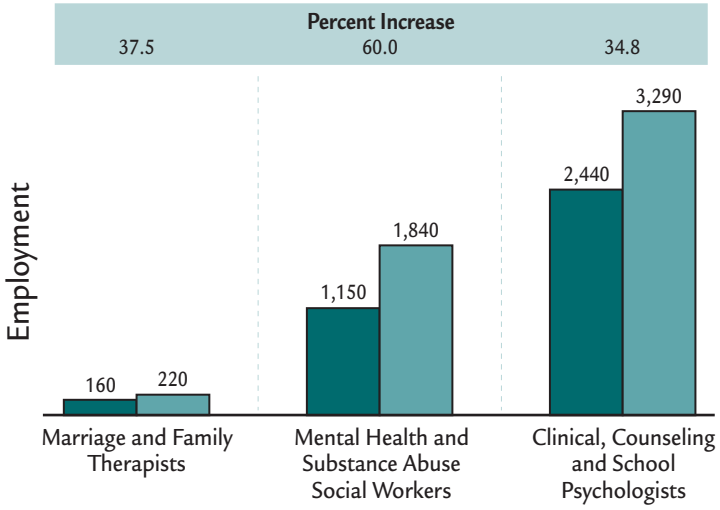
Behavioral Health Workforce

According to the Professional Licensing Boards Division, 1,998 psychologists were registered in the State of Georgia in November 2005. For this same period, the Professional Licensing Boards Division recorded 2,303 clinical social workers and 605 marriage and family therapists licensed in the State of Georgia.

Employment Projections

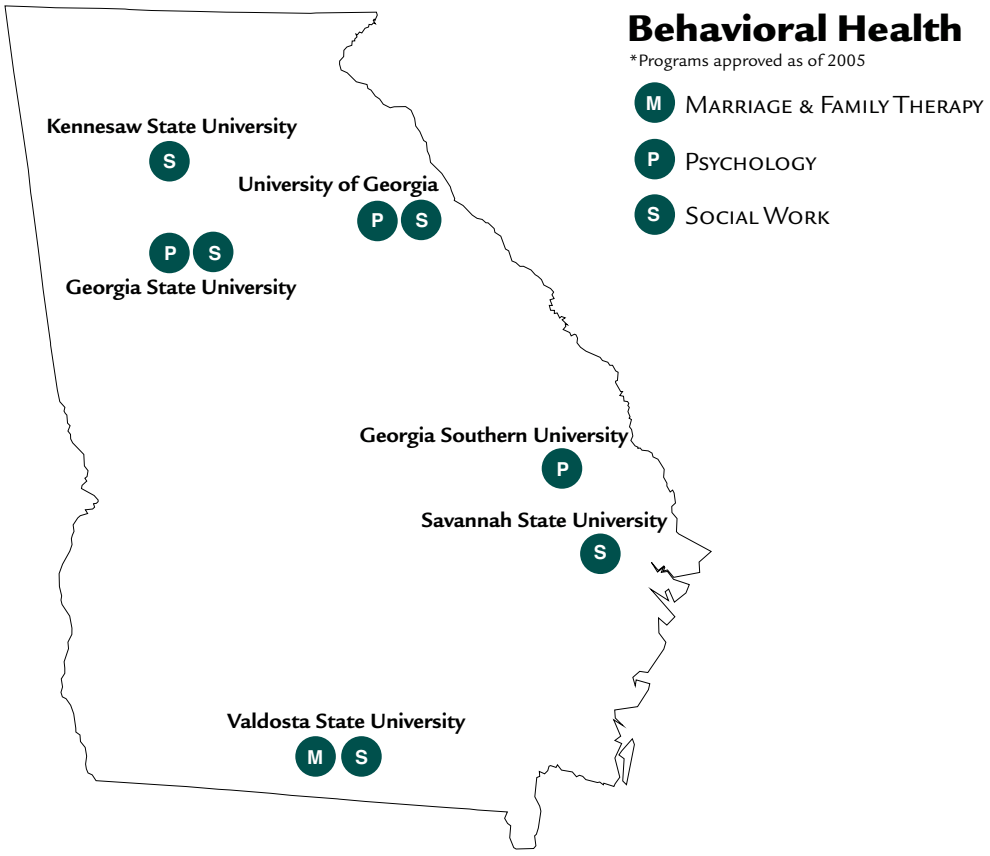
The demand for psychologists and clinical social workers is expected to increase over the years in Georgia. (See Figure 3.4.) According to the Georgia Department of Labor, demand for clinical and school psychologists is projected to climb from 2,440 in 2002 to 3,290 in 2012 and the demand for clinical social workers is projected to jump from 1,150 in 2002 to 1,840 in 2012. Marriage and family therapists are expected to experience a nearly 40 percent increase in demand.

FIGURE 3.4 BEHAVIORAL HEALTH LONG TERM OCCUPATIONAL PROJECTIONS GEORGIA STATEWIDE



Source: Georgia Department of Labor

FIGURE 3.5 LOCATION OF USG PROGRAMS



University System of Georgia Education Overview

Numerous institutions, public and private, across the state of Georgia offer educational programs in psychology. At present, Georgia Southern University, Georgia State University and University of Georgia are approved to offer doctoral degrees in clinical psychology. Master and doctoral degrees in social work are offered by a number of USG institutions including Georgia State University, Savannah State University, the University of Georgia and Valdosta State University. Yet, only a few students are educated at the graduate level and able to sit for examination as a licensed clinical social worker (LCSW). Only Valdosta State University offers the marriage and family therapy degree. In 2005, the USG produced 39 clinical and counseling psychologists, 253 graduate level social workers and 6 marriage and family therapists.

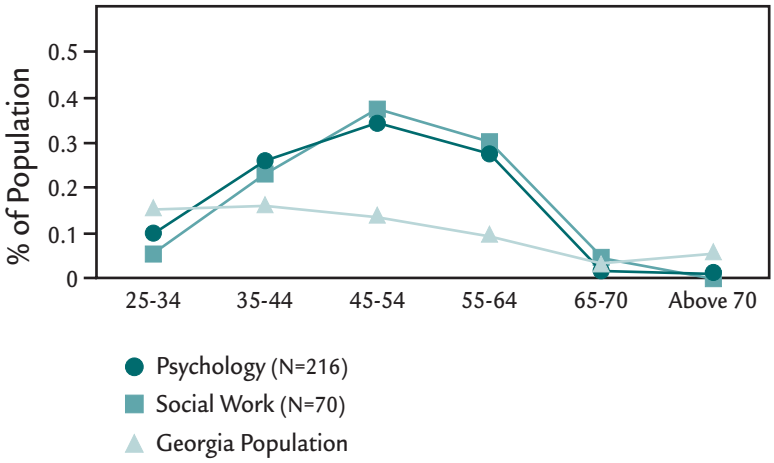
In response to the Task Force survey, most USG social work programs identified a shortage of professionals and reported a desire to expand. Additionally, both social work and psychology programs reported problems associated with faculty shortages and/or financial limitations as the most significant contributors to limiting enrollment capacity and graduation. Limited clinical sites also were reported as constraining expansion of these programs.

Future Challenges for the University System of Georgia

One of the key challenges for USG is to address the rapidly increasing demand for psychologists and clinical social workers. The behavioral health needs of the population are driving higher demand for these professionals. Approximately one in five children and adults will have some type of mental health diagnosis over the life course. The state presently has only limited capacity to educate clinical behavioral health professionals, with programs concentrated in a few areas of the state. Conditions limiting growth of these programs include faculty limitations and adequate facilities (e.g., classroom, labs, etc.). Faculty retirements will certainly take a toll on clinical behavioral health education. (See Figure 3.6.)

Clinical site limitations ranked as the second highest constraint to program expansion. All of the programs indicated a desire to expand enrollment. In the case of doctoral psychology programs, USG programs are presently able to accommodate less than ten percent of qualified applicants.

FIGURE 3.6 BEHAVIORAL HEALTH FACULTY AGE DISTRIBUTION



Source: USG, faculty by Age, Corps of Instruction, December 2004
2004 population data: U.S. Census

Dental Profession Overview

Dental Professions and the Health Care System

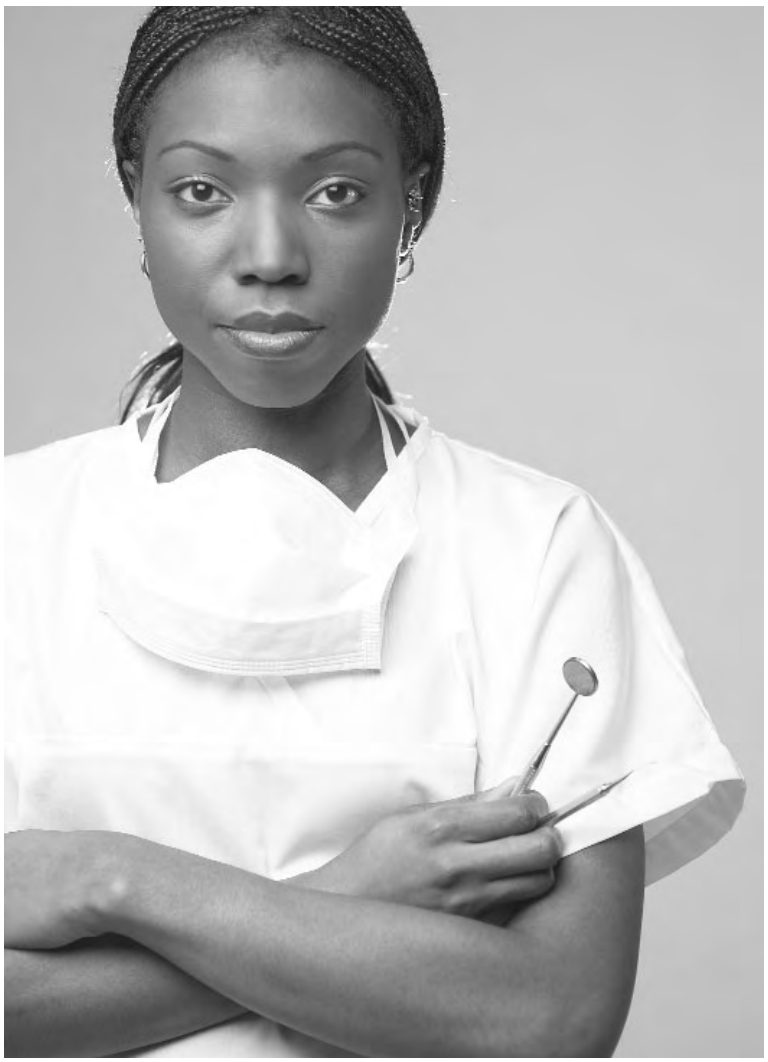
The dental profession includes teams led by dentists who, with assistance from dental hygienists and dental assistants, provide diagnosis, prevention and treatment of oral diseases in independent practices and clinics. Dentists and some hygienists are educated in the university system. DTAE educates a significant number of dental hygienists in the state.

Dentists – Dentists repair diseased and injured teeth, gums, and oral tissues. They also educate people about oral health and prevention of dental problems. This involves guidance in both hygiene and nutrition. Dentists help improve the appearance of their patients through dental techniques, such as braces and dentures.

Dental Hygienists – Dental hygienists are important members of the dental health care team. Working with dentists, they provide dental care by examining teeth, removing tooth deposits, applying fluoride and sealants, and performing preventive services. They instruct patients on methods to improve and maintain their oral health.

All fifty states and the District of Columbia require dentists to be licensed. To qualify for a license in most states, candidates must graduate from one of 56 dental schools accredited by the American Dental Association and then must pass written and practical examinations.

Dental hygienists must be licensed by the state in which they practice. To qualify for licensure in nearly all states, a candidate must graduate from an accredited dental hygiene school and pass both a written and clinical examination. The American Dental Association's Joint Commission on National Dental Examinations administers the written examination, which is accepted by all States. Education is offered at associate and bachelor degree levels.



Georgia's Dental Workforce

According to the Professional Licensing Boards Division 5,135 dentists and 5,846 dental hygienists were licensed in the State of Georgia as of November 2005. Many licensees are not in active practice or are practicing in other states.

The average dentist in Georgia is a 47-year-old white male in private practice (MCG 1999). The average licensed dental hygienist in Georgia is a 47-year-old white female who works in a practitioner's office. Only half of dental hygienists work fulltime, averaging some thirty-seven hours per week.

Occupational projections for the dental, pharmacy and medical professions are presented in Figure 3.7.

Employment Projections

Although employment growth will provide some job opportunities, most jobs will result from the need to replace the large number of dentists expected to retire over the next decade. Since multiple job holding is common with dental hygienists, the number of jobs exceeds the number of hygienists. A number of factors affect the demand for dental services, including the growth of the aging and pediatric populations along with geographic maldistribution of oral health providers across the state. An example of geographic maldistribution is that although 21.3 percent of Georgia population lives in Atlanta area, 26.8 percent of dentists practice there. Increasing popularity of cosmetic dental procedures and new technology are also important contributors. Due to limited dental insurance coverage for much of the population, financing plays a significant role in the supply and demand of dental professionals.

According to the Georgia Department of Labor (GADOLa 2005), the demand for dentists and dental hygienists in the state of Georgia is projected to jump from 3,050 and 4,900 in 2002 to 3,610 and 6,680 in 2012 respectively. (See Figure 3.7.) These figures reflect the need for full-time equivalent positions in active practice. One must be cautious in considering employment demands to avoid using licensure figures, which would overestimate the actual supply of professionals available in the state.

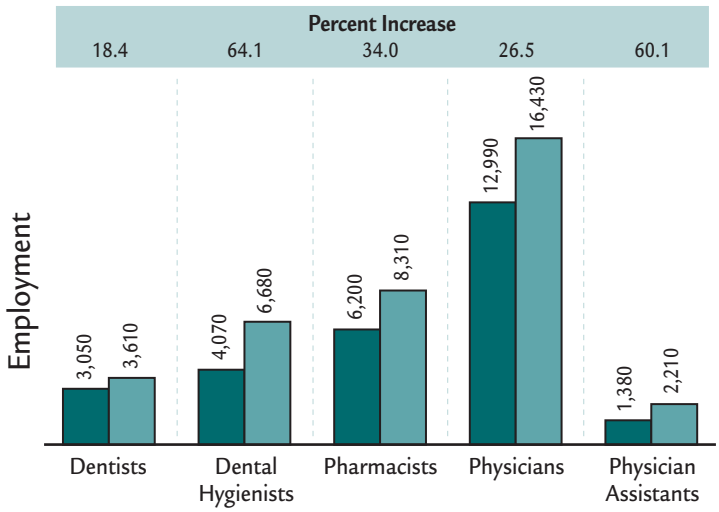
University System of Georgia Education Overview

The Medical College of Georgia operates the only school of dentistry in the state. A bachelor's degree is required to enter dental school. Most dental schools conduct a four-year program leading to a doctoral degree in dentistry. An additional one to three years are required to practice in a specialty area.

Dental hygiene two-year programs lead to certificates or associate degrees while four-year programs lead to bachelor's degrees. The bachelor's degree in dental hygiene is offered at Armstrong Atlantic State University, Clayton State University and the Medical College of Georgia. (See Figure 3.8.) Several USG institutions and a number of technical colleges operated by the Georgia Department of Technical and Adult Education offer the associate degree in dental hygiene. As is obvious from the graduation rates in Table 3.3, these systems will need to produce many more graduates to meet the workforce demands of the future.

Both USG and DTAE report having more qualified applicants than the programs are able to enroll. In 2005, the USG turned away some 40 potential students and DTAE placed another 470 on a waiting list for enrollment.

Figure 3.7 Dentistry, Medicine and Pharmacy Long Term Occupational Projections Georgia Statewide



Source: Georgia Department of Labor

Table 3.3 Graduation Rates for Dental Hygiene Programs; Academic Years Ending in 2001 through 2005

Dental Hygiene	2001	2002	2003	2004	2005
USG Programs	145	163	137	144	150
DTAE Programs	68	62	73	87	88

Future Challenges for the University System of Georgia

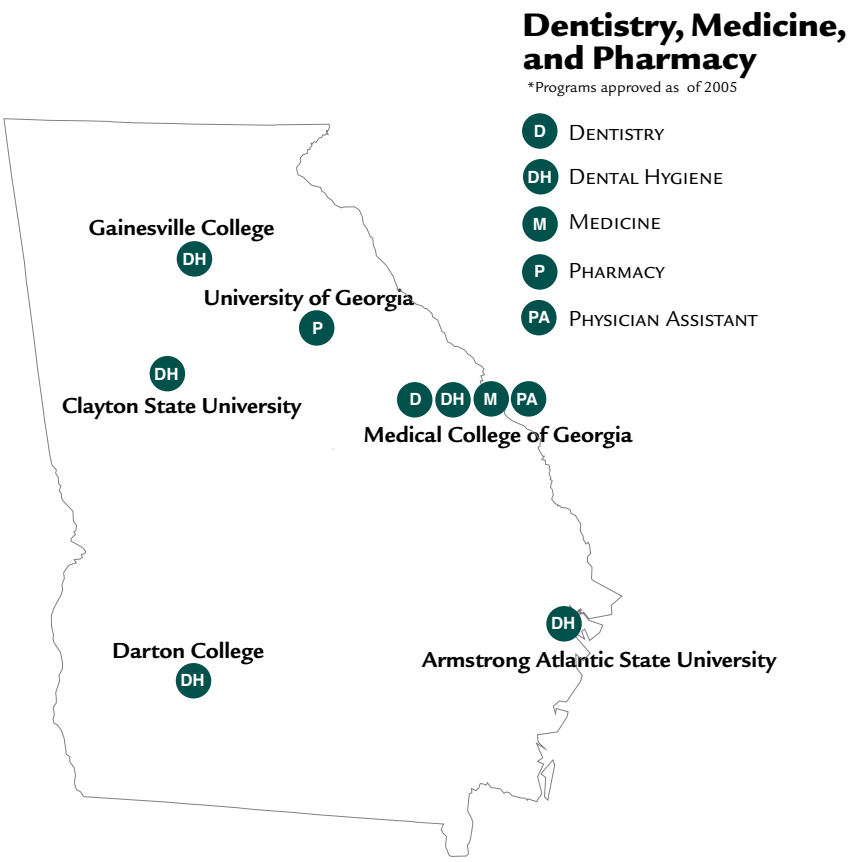
It is estimated by the U. S. Department of Labor that in future years demand for dentists will increase and supply will not be sufficient. In 2006, more than 40 percent of Georgia's counties are designated dental health professions shortage areas (HPSA 2006). The following factors are significant contributors to the growing need for dental education.

Workforce Aging and Retirement – The issue of pending retirements is of utmost importance. In response to a 2003 Georgia survey, nearly 70 percent of dentists indicated that they expected to retire within 15 years (Robinson and Hepburn 2003). Aging of dentists is a major factor since it leads to shorter hours and diminished duties for professionals.

Influx of females – In the past, dentistry has been largely practiced by males. However, this is changing and a near majority of incoming students in dental programs are females. Female professionals do not have the same work life cycle as males and these practice patterns will affect the actual supply of dental professionals. Dental hygiene is a female dominated profession and the workforce has one of the highest turnover rates in the health sector.

Aging of population – Since more Americans are retaining their teeth into older age, service demand by these age groups will increase.

Figure 3.8 Location of USG programs



FYI

The Bureau of Health Professions reports the following statistics regarding the dental healthcare workforce in 2000:
(Health Resources and Services Administration 2004)

- ***60.9 registered dentists per 100,000 population, less than the national rate of 63.6. Georgia ranks 23/50 in the nation.***
- ***57.8 dental hygienists per 100,000 population, higher than the national rate of 49.9. Georgia ranks 23/50 in the nation.***

Medical Profession Overview

Physicians and Physicians Assistants and the Health Care System

Physicians are an integral part of the health care system and they have played the dominant role in the organization, financing and delivery of health services in United States. Physician assistants work under the supervision of doctors and present their findings to them. They assist in conducting hospital rounds, developing and implementing patient management plans, and performing routine diagnostic procedures.

Geographic maldistribution of physicians and physician assistants is one of the major challenges for these professions. The cost of education and residency program along with retention of faculty members are also issues faced by medical colleges and schools. State and federal financing, combined with insurance coverage and regulatory concerns, have significant impact on physician supply and demand.

Licensure for medical practice is required of physicians and residents through the Georgia State Board of Medical Examiners. During residency training, physicians generally work toward obtaining board certification in various specialty fields through national peer organizations representing approved medical specialty boards.

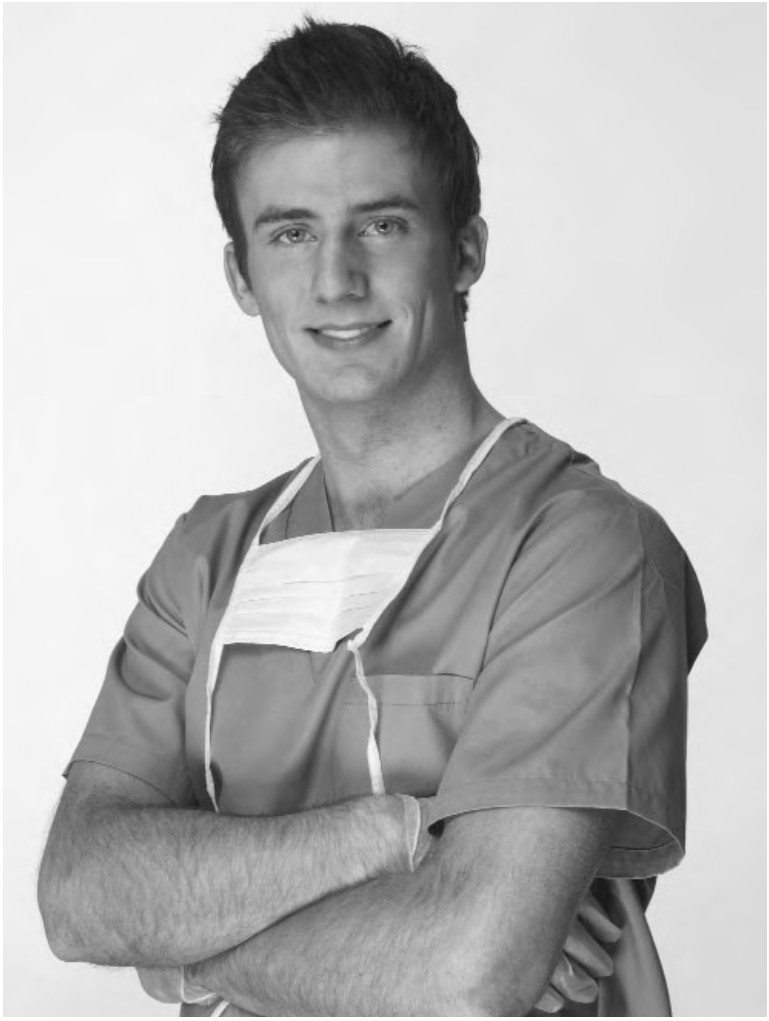
Physician assistants must be nationally certified through the National Commission on Certification of Physician Assistants. Upon certification, they must apply for licensure from the Georgia Composite State Board of Medical Examiners.

Georgia's Physician Workforce

In August 2005, there were some 27,000 physicians and 2,100 physician assistants licensed by the State of Georgia. Evaluating the number of state licenses can be misleading since many license holders may not be in active practice or may not be working in the state.

University System of Georgia Education Overview

Public and private institutions in Georgia offer medical education. The Medical College of Georgia (MCG) is the sole public medical school in Georgia. In addition, the private institutions of Emory University, Mercer University and Morehouse School of Medicine along with the newly established Georgia Campus of the Philadelphia College of Osteopathic Medicine offer medical education. The USG role in educating and training these professionals is of paramount importance. Almost all of the MCG students are Georgia residents. Table 3.4 provides an overview of graduates with medical or physician's assistant degrees over the past five years.



A major determinant in practice location for physicians is location of the residency program. Georgia now supports a number of family practice residency programs around the state. Residency program expansions, particularly in certain specialty fields, may assist in increasing physician supply and retention in the state.

The number of physician assistants graduating from USG has been flat over the past five years although the need has increased. The difference between the number of qualified applicants and number offered admission has increased from FY2003-2004 to FY 2004-2005 for both physicians and physician assistants. Responding to a survey conducted by the Task Force, the Medical College of Georgia expressed desire to expand its medical education programs while identifying a shortage of qualified faculty members.

Future Challenges for the University System of Georgia

The challenges faced by the University System of Georgia with respect to medical profession are similar to other healthcare professionals with respect to population growth, funding and faculty shortage. However, the unique nature of graduate medical education makes this discipline particular complex for workforce planning. Some specific areas of concern include:

TABLE 3.4 OVERVIEW OF GRADUATES WITH MEDICAL OR PHYSICIAN ASSISTANT DEGREES

MCG Graduates	2001	2002	2003	2004	2005
Physicians	171	170	181	173	168
Physician Assistants	44	37	40	36	38

GEOGRAPHIC MALDISTRIBUTION – Georgia's physician workforce is not uniformly distributed among rural, urban and suburban areas.

GENDER AND RACE/ETHNICITY IMBALANCES – Increasing diversity in the Georgia population is not reflected in its healthcare workforce especially physicians.

The Georgia Board for Physician Workforce is statutorily charged with planning for the medical education needs for the state. Given the Board's role and competency, the Task Force has adopted the Board's findings as issued in its December 2004 report, *Is There a Doctor in the House?* The report acknowledges the existing and growing shortage of physicians practicing in Georgia, particularly in key specialty fields. Moreover, the report clearly outlines a series of proactive strategies in which the USG and the Medical College of Georgia could be involved (Robinson 2004).

FYI

The Bureau of Health Professions reports these comparative statistics regarding Georgia's medical workforce in 2000:
(Health Resources and Services Administration 2004)

- ***166.9 licensed physicians per 100,000 population, less than the national rate of 197.7.***
- ***15 certified physician assistants per 100,000 population, greater than the national rate of 14.4.***
- ***Georgia ranked 39th and 24th in supply per capita of physicians and physician assistants respectively among the 50 states.***

Pharmacy Professions Overview

Pharmacy and the Health Care System

According to the American Association of Colleges of Pharmacy (AACP), the academic pharmacy enterprise is expanding. In fall 2005, there were 89 accredited colleges. Nationwide, schools of pharmacy in the United States have increased enrollment by 33 percent since 1998 (AACP 2005).

Pharmacists – Pharmacists dispense prescribed drugs, help the consumers select over-the-counter medications, and prepare ointments, powders and capsules. These healthcare professionals serve as medication "specialists" on patient-care teams by providing information to assure optimal patient outcomes with drug therapy.

Pharmacy Technicians – Pharmacy technicians work under the direct supervision of a pharmacist. They assist the pharmacist in preparing and distributing medications, and providing pharmaceutical care to patients. Other duties include compounding, preparing IVs, sterilizing equipment and determining drug charges.

Licensure for pharmacists (also known as registration) is required through the Georgia State Board of Pharmacy. Georgia does not require licensure for pharmacy technicians. National certification may be obtained through the Pharmacy Technician Certification Board (PTCB).

Georgia's Pharmacy Workforce

According to the Professional Licensing Boards Division, some 11,000 pharmacists were registered in the State of Georgia in November 2005. It is unclear how many of these individuals were in active practice in the state of Georgia.

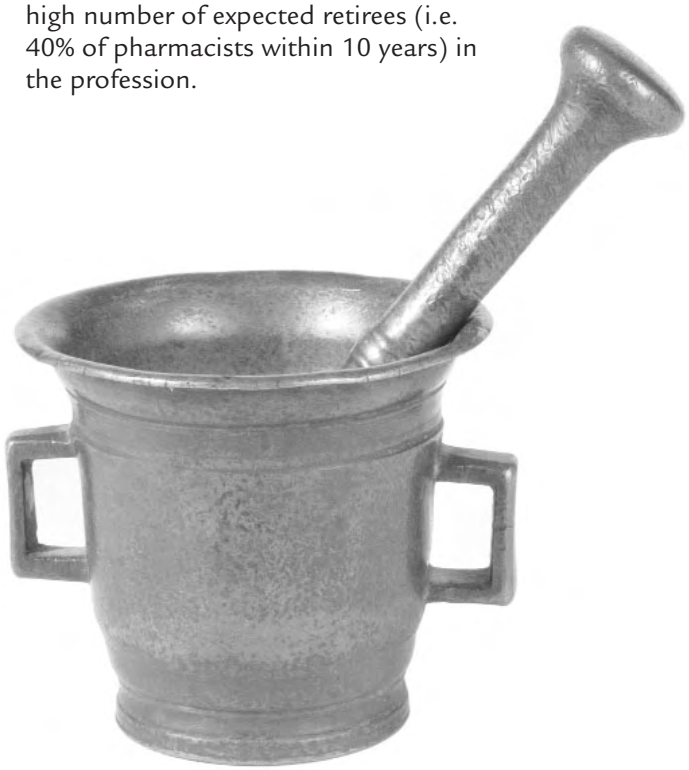
Employment Projections

Pharmacy is the nation's third largest health profession (HRSA 2000). A significant shortage of pharmacists is cited and an undersupply is projected well into the future.

Georgia will need 2,110 new pharmacists and 1,790 new pharmacy technicians to meet demand by 2012. Based on the limited capacity to produce these occupations, the State of Georgia is faced with a significant challenge.

The following factors are significant contributors to the growing need for pharmacists:

1. Exponential growth of number of prescriptions prescribed and dispensed.
2. Increasing number of retail pharmacies.
3. Administrative burdens of third party payers.
4. The complexity of medication therapy requiring significant monitoring and patient care management.
5. Emphasis on reducing morbidity and mortality through medication interventions.
6. An aging population and a significantly high number of expected retirees (i.e. 40% of pharmacists within 10 years) in the profession.



University System of Georgia Education Overview

The University of Georgia operates the only public school of pharmacy in Georgia. Mercer University and South College also offer doctoral degrees in pharmacy. A Doctor of Pharmacy (Pharm.D) requires six years of education including internship experience. USG has taken steps to enhance resources in order to increase pharmacy educational opportunities; however, capacity limitations do exist. In recent years, following degree conversion and a programmatic expansion, the UGA School of Pharmacy has been able to enroll and graduate some 130 students annually. However, the school is still forced to turn away more than one hundred qualified applicants annually.

Pharmacy technician certification and degrees are provided by a number of private and public institutions. Online courses are also available. An associate degree for pharmacy technology is approved to be offered by a number of USG institutions: East Georgia College, Darton College, Bainbridge College, Macon State College and Valdosta State University. DTAE offers pharmacy technician programs as well. However, at present, much of the training for pharmacy technicians occurs on-the-job.

Future Challenges for the University System of Georgia

The demand for the pharmacy profession is growing in Georgia. The USG has to address a number of issues in order to meet this demand. Various constraints to the program expansion were identified through the survey conducted by the Task Force:

Adequate Facilities – Facility (e.g., classroom, labs, etc.) limitations ranked as the highest constraint to pharmacy program expansion.

Faculty recruitment and retention – The shortage of faculty threatens the efforts of institutions to educate pharmacists at a rate sufficient to meet current demands, especially at a time when there is high demand for contemporary pharmacist's expertise to manage complex drug regimens.

Maldistribution – Educational program location tends to exacerbate the problems with equitable distribution of pharmacists throughout the state.

FYI

The Bureau of Health Professions reports statistics regarding the pharmacy workforce in 2000:

(Health Resources and Services Administration 2004)

- ***73.1 registered pharmacists per 100,000 population, less than the national rate of 75.4. Georgia ranks 29/50 in the nation.***
- ***79.7 pharmacy technicians per 100,000 population, lower than the national rate of 88.7. Georgia ranks 30/50 in the nation.***

Nursing Education Overview

Nursing and the Health Care System

The demand for nurses in Georgia is strong. This trend is expected to continue well into the future as the state's population and need for health services continue to grow. Nurses are needed not only in hospitals, but also in home health agencies, long-term care facilities such as nursing homes, managed care centers, and in community health.

Specialty areas include acute care, geriatrics, intensive care, maternal infant nursing, neonatology, nursing administration, occupational health, oncology, pediatrics, psychiatry, public health, and surgery.

Entry into the nursing profession is somewhat unique among the health professions, in that there are two primary paths through which individuals can acquire the educational credentials necessary for licensure as a registered nurse (RN).

Associate Degree in Nursing – Programs last approximately 2-3 years and prepare students to provide direct patient care in a variety of settings. Associate degree programs account for 59 percent of all RN programs nationally, and about the same proportion – 60 percent of all RN students – are admitted annually into such programs (HRSA 2005).

Bachelor's Degree in Nursing - Programs designed to prepare students to practice in all healthcare settings. Baccalaureate nursing programs admit students with no previous nursing education and award a baccalaureate nursing degree in approximately four years. Some programs provide degrees in short time frames for students with an existing bachelor's degree or comparable coursework.

Master's Degree in Nursing - A masters degree is an 18-24 month program that allows a nurse to specialize in a particular area - such as an area of advanced clinical training or research. Some students take on joint degrees in related fields like business administration, public health or hospital administration.

Doctoral Degrees in Nursing (e.g. Ph.D., DNP, DNS, DNSc) – Programs are critical for educating nursing faculty. Most doctoral degree students are engaged in advancement of nursing sciences and nursing education.

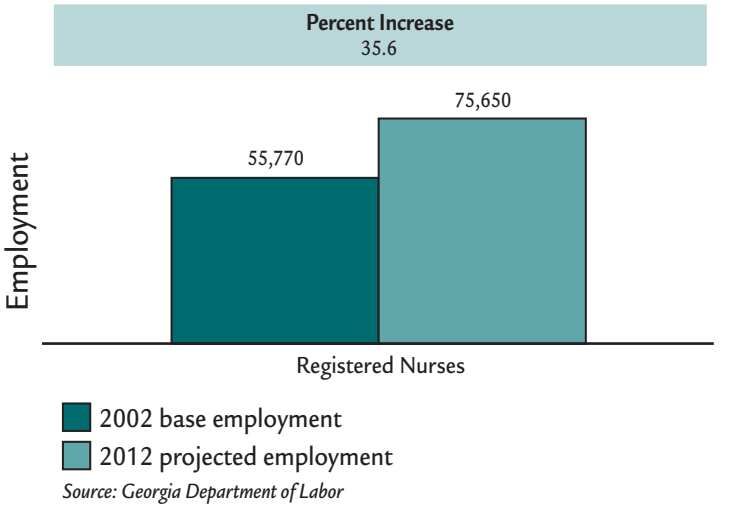
Nursing registration is required by the state through the Georgia Board of Nursing, requiring completion of an accredited nursing program and examination. After licensure, nurses may use the initials RN. The Board also credentials certain APNs. Graduate level certification or certification demonstrating excellence in a specialty area is available from the American Nurses Association and other national certifying boards (SOWEGA-AHEC 2004).

Demand for advanced practice nurses (APN) continues to grow in Georgia. Some APNs are opening their own practices as the health system looks increasingly at nurse practitioners (NPs) for delivery of health care.

Georgia's Nursing Workforce

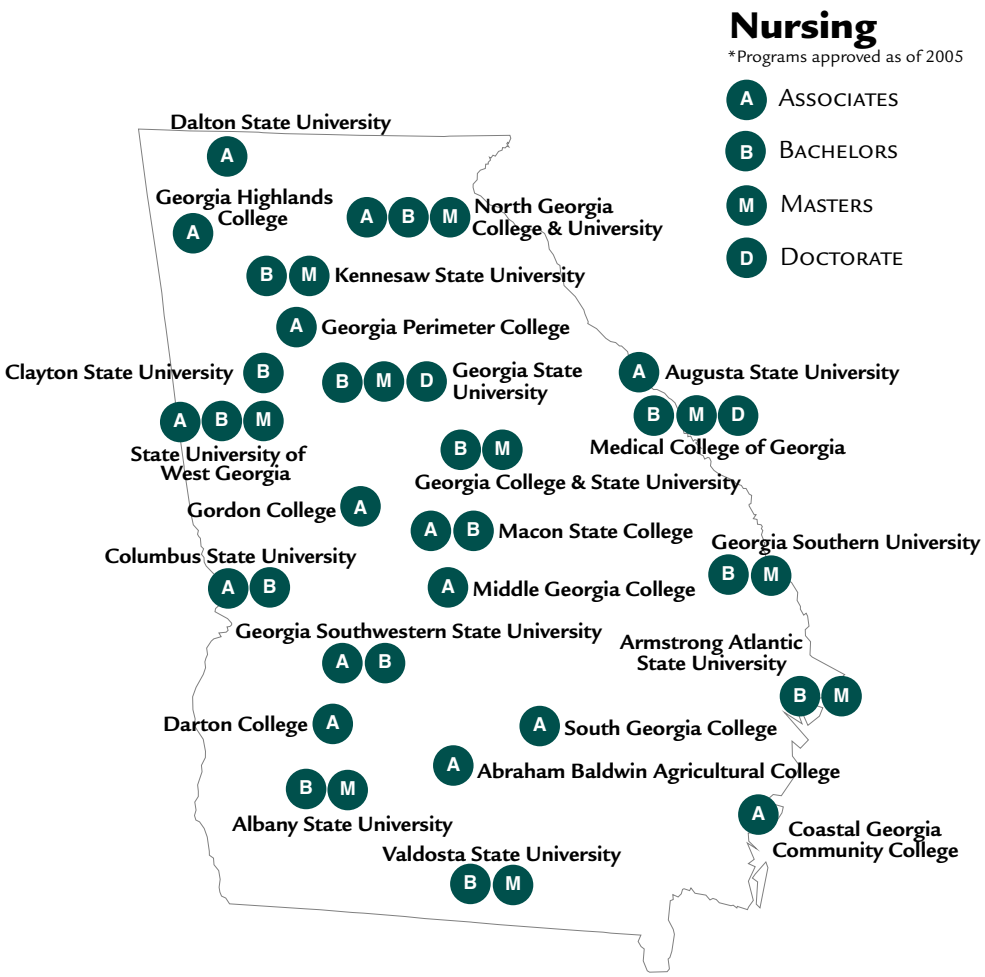
According to the Professional Licensing Boards Division 93,527 nurses were registered in the State of Georgia in November 2005. The number of RN licenses increased 8.6 percent since 2003. Additionally, the Professional Licensing Boards Division reported 5,557 registered advanced practice nurses in the State of Georgia in November 2005, an 8.7 percent increase since 2003. Evaluating the number of state licenses can be misleading. Many persons holding licenses may be temporarily or permanently not practicing in the profession. Since Georgia nurses are not required to receive continuing education for license renewal, many may continue to hold licenses for years without actively practicing. Moreover, registered nurses may hold licenses in more than one state.

FIGURE 3.9 NURSING LONG TERM OCCUPATIONAL PROJECTIONS GEORGIA STATEWIDE



Source: Georgia Department of Labor

FIGURE 3.10 LOCATION OF USG PROGRAMS



Employment Projections

The supply of nurses has remained fairly stable at the same time that demand for health care services has been rising rapidly (DHHS 2005). According to the U.S. Department of Labor, the demand for full-time equivalent registered nurses in active practice in the state of Georgia is projected to jump from 55,770 in 2002 to 75,650 in 2012. (See Figure 3.9.) Georgia is already feeling the pinch from a significant nursing shortage. According to HRSA, hospitals in Georgia are experiencing double-digit vacancy rates for nurses. Likewise, nursing homes report at least 15 percent vacancy rates. Correctional and mental health inpatient facilities have rates reaching 20-30 percent (HRSA 2005).

University System of Georgia Education Overview

Numerous institutions, public and private, across the state of Georgia offer professional education in nursing. As of 2005, fifteen University System of Georgia (USG) programs offer associate degrees, and 13 USG programs offer the baccalaureate, BSN, degree. (See Figure 3.10.)

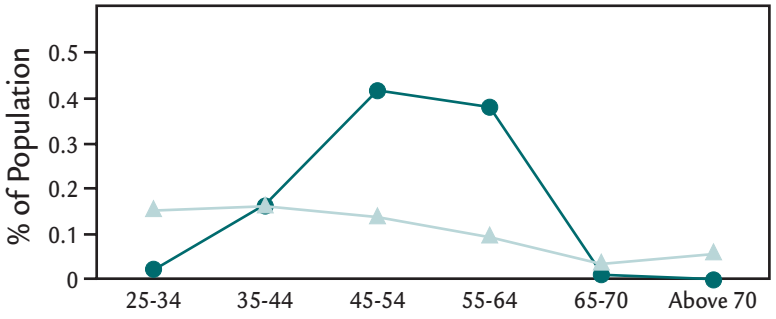
In addition, DTAE offers the associates degree in nursing at five of its campuses. Table 3.5 summarizes DTAE and USG degrees conferred from 2001 to 2005.

The good news is that USG and DTAE, in partnership with industry, community and governmental officials, have worked diligently to expand programs and increase enrollment over the past five years. Double digit graduation rate increases testify to the impressive mobilization of the systems in response to market demands. The troubling aspects of these data are the plummeting rates of graduate degree production. Market forces have drawn nurses into practice settings and away from graduate education. Yet, the education systems need nurses prepared at the master's and doctoral levels to provide quality academic leadership for undergraduate education. Moreover, many health care programs need increased numbers of advanced practice nurses.

TABLE 3.5 NURSING DEGREES CONFERRED OVER PAST FIVE YEARS

Nursing	2001	2002	2003	2004	2005	Percent change 2001 - 2005
DTAE Nursing						
Associate Degree	28	26	62	90	140	400.0
USG Nursing						
Associate Degree	595	540	654	832	956	37.8
Bachelor's Degree	725	700	744	913	935	29.0
Master's Degree	211	166	154	195	182	(13.7)
Doctoral Degree	14	7	3	4	6	(57.1)

FIGURE 3.11 NURSING FACULTY AGE DISTRIBUTION



Source: USG, faculty by Age, Corps of Instruction, December 2004
2004 population data: U.S. Census

In a survey conducted by the Task Force, all USG nursing programs reported a desire to expand. However, the programs also reported problems associated with faculty shortages and clinical practice sites as limiting their ability to expand. The USG programs reported turning away more than 3,000 qualified nursing students due to space, faculty and clinical placement limitations. DTAE reported placing more than 1,100 potential nursing students on waiting lists due to limited program capacity.

Future Challenges for the University System of Georgia

One of the key challenges for USG is to address the nursing shortage and rapidly increasing demand for nurses. Factors driving demand and constraining program expansions include:

High number of expected retirees over the next ten years - In 2002, 53 percent of full- and part-time RNs were over the age of 40 and 29 percent were over the age of 50. There is an insufficient pool of new nurses to replace outgoing nurses.

General funding – Nursing programs indicate that resource limitations rank as the highest constraint to nursing program expansion. Associate and bachelor's degree programs in the USG and DTAE report turning away thousands of qualified candidates in 2003 and 2004.

Faculty limitations - An aging nursing workforce is particularly troublesome with regard to retiring faculty. Faculty limitations will continue to restrict opportunities for program expansion. (See Figure 3.11.)

Faculty salaries – Salary limitations for faculty positions pose problems in all of the health fields. However, the problem is much more pronounced in the nursing field due to the heavy demand for nurses and strong wages in the health services field. The average nursing faculty member at the doctoral level is likely to be compensated at or below the level of a charge nurse with an associates or bachelor's degree in a hospital setting.

Nursing continues to be a predominately female workforce - In 2000, only 5.4 percent of the nursing population was male. Higher rates of female workers lead to higher percentages of workers electing to work part-time.

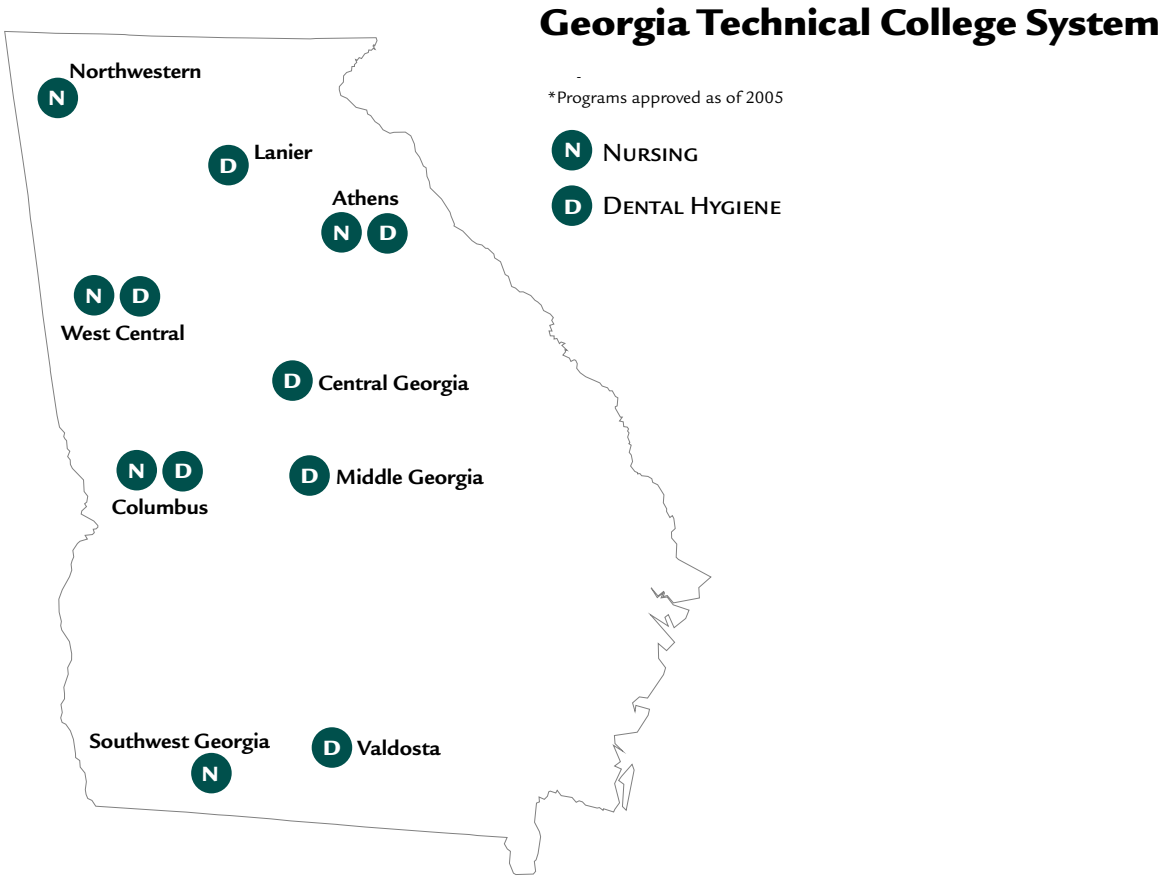
Recruitment, retention and geographic distribution - The supply of registered nurses varies greatly across the state of Georgia. Solutions will require an in-depth look at program site location and retention efforts.

FYI

The Bureau of Health Professions reports nursing workforce data for 2000:
(Health Resources and Services Administration 2004)

- ***678.6 registered nurses per 100,000 population, less than the national rate of 780.2. Georgia ranks 42/50 in the nation.***
- ***27.5 nurse practitioners per 100,000 population, lower than the national rate of 33.7. Georgia ranks 33/50 in the nation.***
- ***4.7 certified nurse midwives (CNMs) per 100,000 population, higher than the national rate of 2.9. Georgia ranks 9/50 in the nation.***
- ***9 nurse anesthetists (CRNA) per 100,000 population, comparable to the national rate of 9.3. Georgia ranks 28/50 in the nation.***

FIGURE 3.12 LOCATION OF DTAE PROGRAMS



High variance of RN National Council Licensure Examination passing rates – First time passage rates on the licensure examination by students graduating from USG institution ranged from 55.6 percent to 100 percent.

Federal funding – Federal funding to support students and graduate nursing education is limited.

Collaboration with partners – The USG is one of many partners working to address nursing workforce issues. Additionally, there are multiple entry points into the nursing profession. Therefore strong collaboration is a critical factor for ensuring integrated solutions.

The Important Role of the Department of Technical and Adult Education (DTAE)

DTAE plays a critically important role in educating various health professionals, such as dental hygienists and registered nurses. Moreover, the technical college system serves are the primary educator of health care technicians and paraprofessionals. These individuals are critical to the successful workings of the health system and frequently occupy the greatest numbers of jobs in fields such as long term care and home care. While being an educator of health professionals in its own right, DTAE is also an important supplier of candidates for advanced degrees through the University System. The USG must work closely with DTAE to monitor mix and supply of health professions and to ensure transparency and clarity in educational requirements so as to assist students in moving successfully between educational systems.

CHAPTER 4
Task Force Recommendations

The preceding chapters document the critical shortages forecast for Georgia's health professions in the coming decade. The University System of Georgia (USG) is the dominant academic producer of health professionals in the state. If the state is to have a sufficient number of qualified health professionals, the USG and its various academic institutions must lead Georgia's efforts. The Task Force on Health Professions Education has considered the significant role of the USG and the complexities of addressing the gaps between supply and demand.

The health professional workforce shortage is multifaceted, thus responses to the challenges confronting the state should include a wide range of strategies and solutions. Education systems must play the predominant role in increasing the supply and quality of health professions. A recent report from the Institute of Medicine (IOM 2003) notes that transformations in health profession education will be needed to ensure that academic structures, programming and curriculum address the health professional workforce needs of the coming decade. The call for public accountability and outcome-centered planning for health professions education is heralded in a recent report published for the Association of Academic Health Centers (Henderson 2006).

Recommendations for the University System of Georgia

The recommendations of the Task Force center on those areas in which the University System of Georgia has responsibility, authority and clear opportunity. The Task Force has identified three broad areas of focus for which the USG should be responsible in directing policy and sustained action. In most cases, the USG already has the necessary authority to organize and act in accordance with the recommendations. Guidance and support from the Board of Regents is critical but no additional policy action is required at this point. The areas of focus are:

- ✔ Firmly establishing coordination and accountability for health professions education at the system level.
- ✔ Leading efforts to review and revise system and institutional policies related to faculty recruitment and retention.
- ✔ Identifying, assessing and promoting updated and integrated curriculum and enhanced technology in the delivery of health professions education.

Recommendation 1

Coordination and accountability for health professions education should reside at the system level. System-level planning and accountability should be value-added and responsive to local needs with the goals of promoting innovation, streamlining planning, supporting coordination, avoiding duplication, monitoring outcomes, and rewarding performance.

1.a. System-wide targets and performance goals should be established for health professions programs' capacity, delivery and performance. Health professions have a statewide market and a significant impact on the state's economic well-being. As such, program planning and development can no longer be driven solely at a local level in market isolation. Keeping in mind local needs, total statewide program capacity (across targeted professions) should be established at a system level to meet current and future workforce demand. Institutions should be encouraged to respond with innovative curricular designs. A coordinated approach to state and regional planning for health professions education should be a priority, emphasizing institutional collaborations over competition. The USG should promote flexibility in curricular design and delivery--using technologies, program satellites and collaborations across the system and with DTAE. Cooperation and collaboration should be encouraged over silo-centered program development to meet state and community demands for health professions education.

1.b. The USG should establish a Health Professions Academic Leadership function within the system office. The function may take the form of an office or other entity, but should be structured to provide academic leadership for a comprehensive approach to health professions education. The function should have sufficient capacity and stature to be effective.

1.c. The USG should establish a Health Professions Committee and Working Group comprised of system and institutional leaders in the field. This recommendation could be accomplished by revitalizing the health professions committee, supported by new bylaws or guidelines and with representation from those institutions heavily invested in health professions education. Major responsibilities for the Committee should include screening program proposals and off-site/distance education initiatives, setting system-wide benchmarks for system productivity, authorizing state-wide initiatives with competitive funding, and system marketing. To be appropriately focused and responsive, the Committee should consist of no more than ten members reflecting the various institutional types within the USG along with representation from the Department of Technical and Adult Education.

The system office and the Committee should constitute the health professions academic leadership function for the USG, the purpose and goals of which should be driven by a higher level of central coordination that is both mission-centered and customer-responsive. Specifically, these functions should:

1. Lead strategic planning efforts for the system.

2. Establish goals, objectives, and benchmarks on system productivity in health professions education, facilities, and finances.

3. Provide initial review for curricular proposals and modifications.

4. Work with system institutions to market health professions education and to establish a portal for accessing health professions education programs in the system.

5. Review, support and link distance education initiatives in the health professions as appropriate.

6. Support policy decisions and related administrative activities for health professions education.

Specific tasks for the USG's Health Professions Academic Leadership should include:

Accountability Functions

✔ review all requests for new programs and program changes, secure input from all affected parties and propose recommendations that meet the needs for the entire state;

- ✔ obtain and review accreditation reports for all health professions programs across the system and identify system-wide areas of strength, need and weakness; and

- ✔ issue to the Board, public officials, partner organizations and the public an annual report of relevant health professions data, health professions initiatives and areas of challenge for the system.

Research Functions

- ✔ compile and distribute best practices in identified areas (e.g., recruitment) from across the system and across the states;

- ✔ compile and distribute system summary of extramural funding used to support health professions education;

- ✔ seek and manage research awards and support collaborative efforts to increase applications to HRSA, NSF, NIH, and other federal and state agencies, and private philanthropies with priorities in health professions education and workforce analysis;

- ✔ manage competitive grant money to introduce targeted initiatives; and

- ✔ secure or provide technical assistance on specialized initiatives (e.g., professional practice, career laddering, faculty development, etc.).

Educational Data Functions

- ✔ establish a minimum data set to include educational productivity, workforce supply and workforce demand to inform planning and coordination in health professions education;

- ✔ collect and publish system data on productivity in health profession education (capacity, enrollment, retention, graduation, and time-to-degree) by institutions/programs/degrees;

- ✔ track data on student and faculty diversity and overall faculty employment and turnover;

- ✔ collaborate with state agencies and others to compile and publish annual data on licensure and certification rates by program and institution; and

- ✔ generate reports evaluating progress and showing changes over time.

Liaison Functions

- ✔ serve as liaison to health professions education programs in the system;

- ✔ serve as USG liaison to health professions initiatives in other states;

- ✔ serve as USG liaison to health care employers and to private colleges and universities offering health professions educational programs; and

- ✔ link to state agencies with responsibilities for health professions data and with interests in monitoring the supply, demand, and resources available to health professions education (e.g., Georgia Department of Labor, Professional Licensing Boards, etc.)

Recommendation 2

The University System of Georgia should launch sustained initiatives to review and revise system and institutional policies related to health professions faculty recruitment and retention. Because faculty shortages may be the most significant factor limiting future health professions educational capacity, a host of strategies must be considered to increase the number and diversity of qualified faculty. These efforts must occur at a system level to prevent institutions from endangering the quality and viability of all such programs by competing for a limited pool of faculty members.

2.a. The USG should seek to increase the number of potential faculty by expanding and improving graduate health professions educational offerings. Quality and capacity in undergraduate health professions education are built on adequate faculty resources. As a primary goal, the research and regional universities, in their respective disciplines, should expand graduate education in high need health fields to prepare faculty and researchers to fill faculty positions in programs across the state and nation. To address the particularly acute shortage of nursing faculty, the universities authorized to provide doctoral nursing education should work in collaboration with other universities, particularly those with leading graduate nursing programs, to launch innovative strategies which encourage talented baccalaureate students (and advanced practice nurses) to enter directly into advanced graduate education.

2.b. The USG must identify successful strategies and use appropriate incentives for recruiting and retaining faculty. The system should conduct a system-wide audit of current faculty resources in the health professions and project the supply of faculty needed to increase program capacity and maintain quality. The system should assemble existing salary studies (national benchmarks, peer academic institutions and private market) to establish targets for faculty compensation at selected degree and institutional levels. For certain educational tracks, it may be necessary to seek additional funding to retain current faculty and to recruit new faculty to satisfy the quality-capacity equation. To decrease faculty attrition, the system must consider methods to improve benefits and workplace conditions that are important to the productivity and satisfaction of health professions faculty. The system must be mindful of salary compression and consider salary comparability with health care provider organizations and with academic competitors. Acknowledging that Georgia is competing with other states for a limited pool of academic leaders, the system must consider innovative and non-traditional recruitment methods (e.g., recognition of existing tenure for associate professors).

2.c. The USG and individual institutions must focus considerable attention on hiring, developing and retaining more diverse faculty, representing both genders and the wide range of racial and ethnic backgrounds in Georgia. To address health disparities and expand the pool of talented faculty and students, health professions must engage more diverse faculty. Attention should be given to race and ethnicity as well as under-represented genders in certain fields. The USG should conduct institutional and program assessments to document the climate for faculty of color in the critical areas of tenure and promotion, mentoring, and teaching and research. The system should work with the institutions to offer programs and services to address issues of faculty development that are critical to minority faculty success and retention.

2.d. The system should support ongoing faculty development and mentoring and consider methods to expand professional practice opportunities for faculty. Institutions should be encouraged to provide meaningful professional development opportunities for faculty in the health professions and allocate resources and responsibilities to align employment with designated tasks of instruction, research, outreach, and college and university service. Utilizing expertise and leadership from various USG institutions and health sciences schools around the country, the system should support all institutions with a significant health sciences focus in exploring innovative professional practice programs as means to expand faculty service, improve community health status and increase program funding.

2.e. The USG should consider alternative academic tracks for selected health professions faculty and expand the use of adjunct faculty and part-time faculty. The system should identify methods to recognize, value and promote faculty fulfilling clinical and instructional roles through a non-traditional academic track using retention methods that acknowledge the vital role of teaching and clinical service in health professions education. Within the guidelines of accreditation and regulation, the system should expand the use of the "clinical scholar" model to allow practicing professionals the opportunity to teach in health programs at all levels and to give students increased access to practitioners and practice locations. Strategies (e.g., tuition remission) to attract and develop part-time faculty into full-time scholars should be explored.

Recommendation 3

The University System should establish an ongoing process of curricular revision and enhancement to integrate new knowledge and to promote the use of emerging technology in the delivery of health professions education. Health professions education is particularly appropriate for technology-based education and for models of interaction and collaboration in teaching, research and clinical care across various disciplines and institutions.

3.a. The system should adopt more rigorous planning and approval processes for new programs; implement more substantive reviews of existing health professions programs; strengthen the curricular focus on diversity and multiculturalism within the curriculum; and encourage curricular revision as needed to emphasize skills and competencies that are important in a dynamic health care environment. The system should monitor results of specialized accreditation, program approval status, and passage on licensure and certification exams as indicators of curricular quality and program performance. The USG and institutions should establish benchmarks for program performance. Accountability measures should include graduation rates, licensure and certification rates and accreditation from appropriate review organizations and institutional performance measures should be publicly available. Regular, external surveys of alumni and employers will keep student learning objectives aligned with

essential workforce competencies. Program outcomes (i.e., retention, graduation, time-to-degree) should be monitored over time and absolute performance as well as performance improvement which contribute to growing the pipeline and achieving institutional and system goals should be rewarded. Programs that consistently perform above established benchmarks should be recognized and tapped for their leadership in the designated field.

3.b. The USG should utilize emerging instructional technologies to expand offerings and address clinical practice site limitations. The system should promote the availability of emerging technologies across the system and their effective use by faculty and programs to build clinical proficiency and to support student learning and needed workplace skills. As one example, working with the Area Health Education Centers and local health care providers, the system could establish shared, regional clinical practice centers with human patient simulators and related technologies to allow expanded placements for clinical and specialized training.

3.c. The USG should promote and strengthen institutional collaboration. Across the USG, there are many examples of results-oriented academic collaboration. In the health professions, due to program cost and professional demand, these types of educational partnerships are particularly important. The system should expect integration and resource-sharing across the health disciplines throughout various educational levels. Within accrediting guidelines, the USG should consider common distance learning programs for appropriate allied health and nursing career laddering programs, to provide statewide course access with degree and credit hours linked to an academic home institution. Other examples of desirable collaboration include encouraging the Medical College of Georgia, the state's only public institution for medical and dental education, and the University of Georgia, the state's only public institution for pharmacy and veterinary education, to expand their presence throughout the state and build collaborative programming with system research universities and regional universities which also provide graduate and professional education in the health sciences. To address the specialized and significant need for behavioral health professionals, the system should call upon the leadership of Georgia Southern University, Georgia State University, the University of Georgia, and Valdosta State University to use distance technology to expand program offerings in clinical psychology and graduate social work. To increase efficiency and maximize access, the USG should support the establishment of several regional clinical training programs using shared faculty to provide a range of graduate health professions education as appropriate in the fields of medical, dental, pharmacy, nursing, and allied health education.

3.d. The USG should support continued delivery and expansion of quality, market-responsive education programs and streamlined professional advancement. The system should build on the success of accelerated programs for nursing baccalaureate graduates, considering expansion to more institutions and other disciplines. Entry-level certificate and associate degree programs in health professions education are successfully delivered by the technical college sector in Georgia. The USG should collaborate with DTAE programs to develop articulation agreements that increase transparency and transferability of credit so that students may move successfully through the educational pipeline.

3.e. The system should improve health professions education accessibility through the use of distance technologies to create online and hybrid programs to expand access to health professions education for working adults, rural students and others for whom classroom-based education is not feasible. Quality in education should be demonstrated by student learning outcomes and other measures of student success, not by equating quality with the type of medium in which the education was delivered, privileging face-to-face seat time over other modalities. The use of distance

and online education should be prioritized to extend education to underserved areas of the state. The USG, working with DTAE, should develop a statewide plan for the creation and deployment of instructional technology, both onsite and at a distance, in health professions education, tapping the capabilities of the Advanced Learning Technologies unit to assist in collaborative course development, technology assessment, and faculty development. The USG should work with the DTAE, public schools and workplace settings to develop incentives and agreements for sharing classroom space, faculty and networks to meet the need for programs and health professionals across the state.

Focusing on the supply of qualified health professionals, however, is only one component of the complex array of solutions necessary to address workforce shortages. The University System should have a meaningful leadership role but cannot assume sole responsibility for addressing all aspects of workforce supply and demand. In most cases, overarching policies must be built on partnerships between providers, businesses, educators, consumers, and public officials.

Recommendations for Partnership Strategies to Address Georgia's Health Workforce Needs

The Task Force also has identified a number of strategies to be undertaken at the institutional level and in partnership with other educators and health system stakeholders. Once clear responsibilities and performance expectations are established through the USG areas of focus, the Task Force believes that many of the strategic goals envisioned in the broader recommendations will be much easier to achieve.

Beyond the areas in which the University System has both the mandate and the authority to address health professions education and supply, there are a number of significant initiatives that should be undertaken by the state and its business and community partners. Using input from health care providers, regulators, payers, and advocates, and documentation from national and state leaders, the Task Force has identified several key areas in which Georgia's higher education system should be actively engaged to ensure a sufficient supply of health professions in the future. Recognizing that these are proposals requiring mobilization across a host of stakeholders, the Task Force captures these recommendations under the broad rubric of *Partnership Strategies to Address Georgia's Health Workforce Needs*. The University System should work closely with other education partners, health organizations, businesses, communities, and public officials to implement a full range of activities designed to increase the supply of qualified and diverse candidates into the health professions field.

Marketing for Health Professions Education and Advancement

A coordinated marketing program for USG and other health professions programs should be implemented with a goal of linking the multiple efforts that are currently in place. The program should coordinate marketing efforts with Area Health Education Centers (AHEC), K-12, DTAE, and business and community partners and improve information and accuracy of health careers materials and USG links on the Georgia College 411 website.

Educational Partnerships to Grow and Diversify the Pipeline

USG institutions should establish, or in many cases build upon, comprehensive and sustainable partnerships with the triangle of schools, regulatory bodies and health care organizations to increase student interest, to implement accessible pre-health programs and clinical opportunities, and to leverage financial investments and incentives to increase the educational pipeline. Specifically, community-based partnerships with selected middle schools and high schools and health care institutions should be expanded to focus students on the health professions and high need areas for employment. These efforts also should support collaboration with schools and

workplaces to develop pre-health mentor programs and shadowing opportunities for minority and other underserved middle school and high school students throughout the state. College preparatory development should link with the Georgia Partnership for Reform in Science and Mathematics (PRISM) and related efforts to ensure that K-12 students have the necessary educational backgrounds to pursue health careers.

Innovative Education Models to Attract More Diverse Students

Education programs should work together to support the development and funding of magnet schools in communities with high minority populations that will focus on science and math in preparation for post-secondary study in the health professions. Other models of curricular enhancement (e.g., mentoring, tutoring) should be identified and replicated to assist minority and other underserved students in preparing for success in health professions education.

Recruitment Efforts for Minority and Non-Traditional Students

Targeted recruitment efforts are needed to promote the health professions to minority students and schools in underserved areas. USG institutions also need to work with school counselors to increase awareness of the opportunities in health care. Additionally, recruitment efforts should target paraprofessionals and entry level health professionals who are candidates for bridge programs and career laddering initiatives. Education and health organizations need to work more closely with the Department of Labor to attract displaced workers and transitioning professionals to health careers.

Student Financing Options to Attract and Retain Students in Health Professions Education

Financial barriers to study in the designated high priority health professions should not exist. One strategy may be to establish a one-stop-shop for students to explore loans, scholarships and other forms of financial aid and for health care partners to promote their financial incentives for study and work in the health professions. Educators and employers should encourage expansion of the service cancelable loan program through the Georgia Student Finance Commission, with specific emphasis on key health disciplines. Georgia needs to be much more aggressive in securing more federal scholarship and loan repayment funding. To attract and retain underprivileged, first generation minority students and other underserved populations in the health professions, additional funding is needed to provide for scholarships and need-based financial aid.

Focusing on the Professions Most in Jeopardy

All health professions face significant shortages over the next decade. Limited resources and instructional capacity require that priority for the next five years be focused on those professions most in jeopardy. The Task Force has identified the following professions, in priority order, as most fragile and in need of attention over the near term.

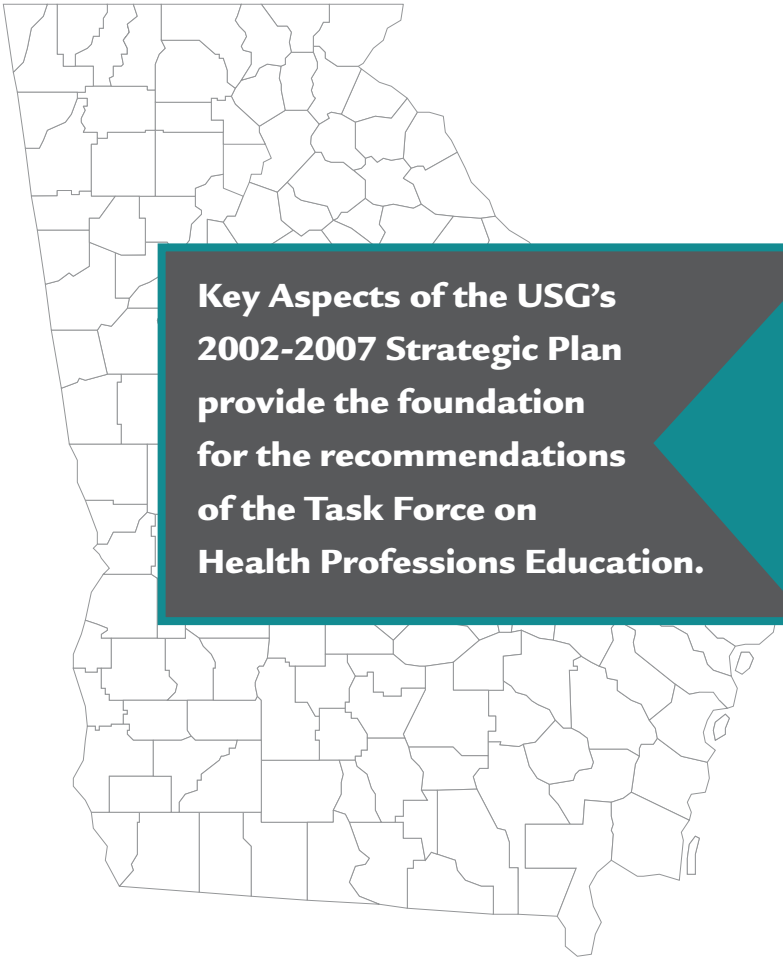
- ✔ Nursing;
- ✔ Psychology and Clinical Social Work;
- ✔ Pharmacy;
- ✔ Dentistry;
- ✔ Allied Health (to include therapy and diagnostic services); and
- ✔ Medicine and specialty graduate medical education.

Working within an enhanced structure of coordination and accountability and building upon existing and new education-practice partnerships, the University System of Georgia can sustain and enhance its important contribution to health professions education. Moreover, with focused effort and prioritized investment, the USG and its partner institutions can increase the quantity, quality and diversity of Georgia's health professionals. To do so requires significant long-term vision and commitment to the task; failure to do so places Georgia at considerable risk for disastrous consequences.

CHAPTER 5
Summation and Call to Action

Like much of the nation, Georgia is currently facing serious shortages of health professionals. The state's population growth, economic changes and increasing diversity will drive the demand for health professionals even higher. Over the next decade, more qualified health professionals will be needed to respond to an aging and growing population and to address specialized needs in distinct regions throughout the state. The health sector accounts for a significant portion of Georgia's employment, economic and tax bases. An adequate supply of well-educated health professionals will significantly influence the viability and quality of Georgia's health system.

The University System of Georgia educates the vast majority of health professionals who are working in the state. Securing and increasing Georgia's supply of health professionals will require engagement and action from the USG and its partner, DTAE. Addressing the future academic program needs for the various health professions will require different approaches and distinct strategies. In all cases, new resources – both human and capital – will be essential. Yet, resources alone will not solve the problem. New strategic approaches, including performance expectations and academic partnerships, will be equally important. The Task Force has used key aspects of the USG's strategic plan to inform and underpin its recommendations.



Key Aspects of the USG's 2002-2007 Strategic Plan provide the foundation for the recommendations of the Task Force on Health Professions Education.

University System of Georgia – Key Aspects from the 2002-2007 Strategic Plan

GOAL 1. Educate graduates who are intellectually and ethically informed individuals with well-defined skills and knowledge who are capable leaders, creative thinkers, and contributing citizens.

Recommendation 1. 3. Set target pass rates for professional licensure tests, including teacher education, nursing, law, and other programs requiring certification.
Recommendation 1.4. Develop more opportunities for internships and cooperative programs with businesses, government, and community service organizations.

GOAL 2. Expand participation by increasing access, enhancing diversity, improving service to nontraditional students, expanding use of distance education, advancing public library usage, and marketing the advantages of postsecondary education.

Recommendation 2.1. Plan for significant growth in the number of students served by the USG.
Recommendation 2.5. Develop additional programs in which four-year universities offer four-year degree programs at two-year colleges.
Recommendation 2.6. Implement programs to raise Georgia's educational aspirations and to overcome barriers to access for minority and non-traditional students.
Recommendation 2.7. Use distance learning technologies, and form consortia of USG institutions, to develop and deliver certificate and degree programs.

GOAL 3. Increase academic productivity through improved recruitment, increased retention, accelerated graduation, expanded credit generation, augmented continuing education opportunities, and current technology.

Recommendation 3.2. Offer courses, programs, and degrees in formats, at times, and in locations that are convenient for students.

GOAL 4. Emphasize the recruitment, hiring, and retention of the best possible faculty, staff, and administration.

Recommendation 4.1 Make salaries competitive in the South and nationally.
Recommendation 4.4. Develop opportunities for institutions to enhance, develop, and promote flexible work schedules and telecommuting opportunities.

GOAL 5. Help accelerate Georgia's economic development by providing needed graduates, offering appropriate academic programs, and marketing the System and its institutions as economic assets of the state.

Recommendation 5.2. Strategically promote and contribute to Georgia's economic development.
Recommendation 5.3. Create a USG think tank to study issues facing the state and suggest policies to resolve them.

GOAL 6. Seek the most efficient, effective and technologically sound business and service best practices, and regularly compare ourselves to national peers.

Recommendation 6.1. Monitor and report on institutional best practices, recognizing outstanding efforts with awards.
Recommendation 6.2. Require best practices benchmarking to be part of institutional strategic plans.

GOAL 7. Provide and maintain superior facilities, funded by innovative mechanisms that shorten the time that elapses between approval and use.

Recommendation 7.1 Gain support to initiate a comprehensive building program to accommodate the expected significant growth in the number of USG students.
Recommendation 7.3. Improve coordination of privatization efforts, and incorporate coordination processes in Board policies.

GOAL 8. Assure coordination, where appropriate, between University System of Georgia policy and practices and those of the Department of Education (DOE) and the Department of Technical and Adult Education (DTAE).

Recommendation 8.1. Coordinate USG policies and practices with the DOE to enhance mutual understanding of requirements, to ensure curriculum alignment, and to resolve issues that may arise between the USG and DOE.
Recommendation 8.2. Coordinate USG policies and practices with the DTAE to ensure mutual understanding of requirements and to resolve issues that may arise between the USG and DTAE.
Recommendation 8.3.Improve transferability and transfer processes between USG institutions.

GOAL 9. Increase, diversify, and strategically allocate resources.

Recommendation 9.1. Review and refine allocation methodology to better capture missions, costs, and quality indicators.
Recommendation 9.2. Identify options to diversify and increase flexibility in use of existing resources.

Strong partnerships with other educational providers and business partners will be critical. Model programs, such as the Intellectual Capital Partnership Program (ICAPP), need to be emulated and expanded. Additional opportunities to bring together education and practice must be identified. Further, the system must explore innovative practices and models for replication from other states and university systems.

A comprehensive, system-wide approach will be required to strengthen performance and outcomes within the parameters of resource limitations. The USG needs the capacity and the clear responsibility to monitor trends and respond to changing demands, to promote academic partnerships and productivity, and to establish and maintain a strategic direction for the system.

This report from the Task Force on Health Professions Education documents the drivers of health workforce demand and the unique characteristics that make Georgia's workforce needs especially challenging. The materials include an overview of the current health professions education system in Georgia along with forecasts of workforce supply and demand over the next decade. A portfolio of recommendations has been provided to support the USG and its academic and business partners in moving proactively to address the short- and long-term health workforce needs of the state.

The University System of Georgia recognizes its important leadership role in health professions education and health services delivery. Further, the University System embraces its responsibility as one partner within a comprehensive public-private network of organizations that must work together to address these workforce challenges. The final report of the Task Force has set forth the challenges for the state, identified the key leadership and partnership opportunities and outlined recommended policy and programmatic directions. To be successful in addressing long-term health professional workforce and service needs, Georgia's efforts must be strategic, comprehensive and sustained.

Georgia faces numerous and complex challenges in addressing the health care workforce needs of the next decade. The University System of Georgia and the Department of Technical and Adult Education must play central and substantive roles if a sufficient supply of qualified health professionals is to be available to support the state's economy, quality of life and health and well-being. This report proposes strategic organizational approaches; wise distribution of resources; thoughtful investment in faculty, technology and infrastructure; and business and community partnerships to maximize benefits and outcomes. The responsibility for health workforce education and retention rests squarely, but not solely, with Georgia's public institutions of higher education. The institutions and their governing organizations must utilize their considerable talents, tools and resources to respond successfully to the state's future health professions education needs. Adoption and implementation of the recommendations outlined herein will provide a foundation for future success.

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