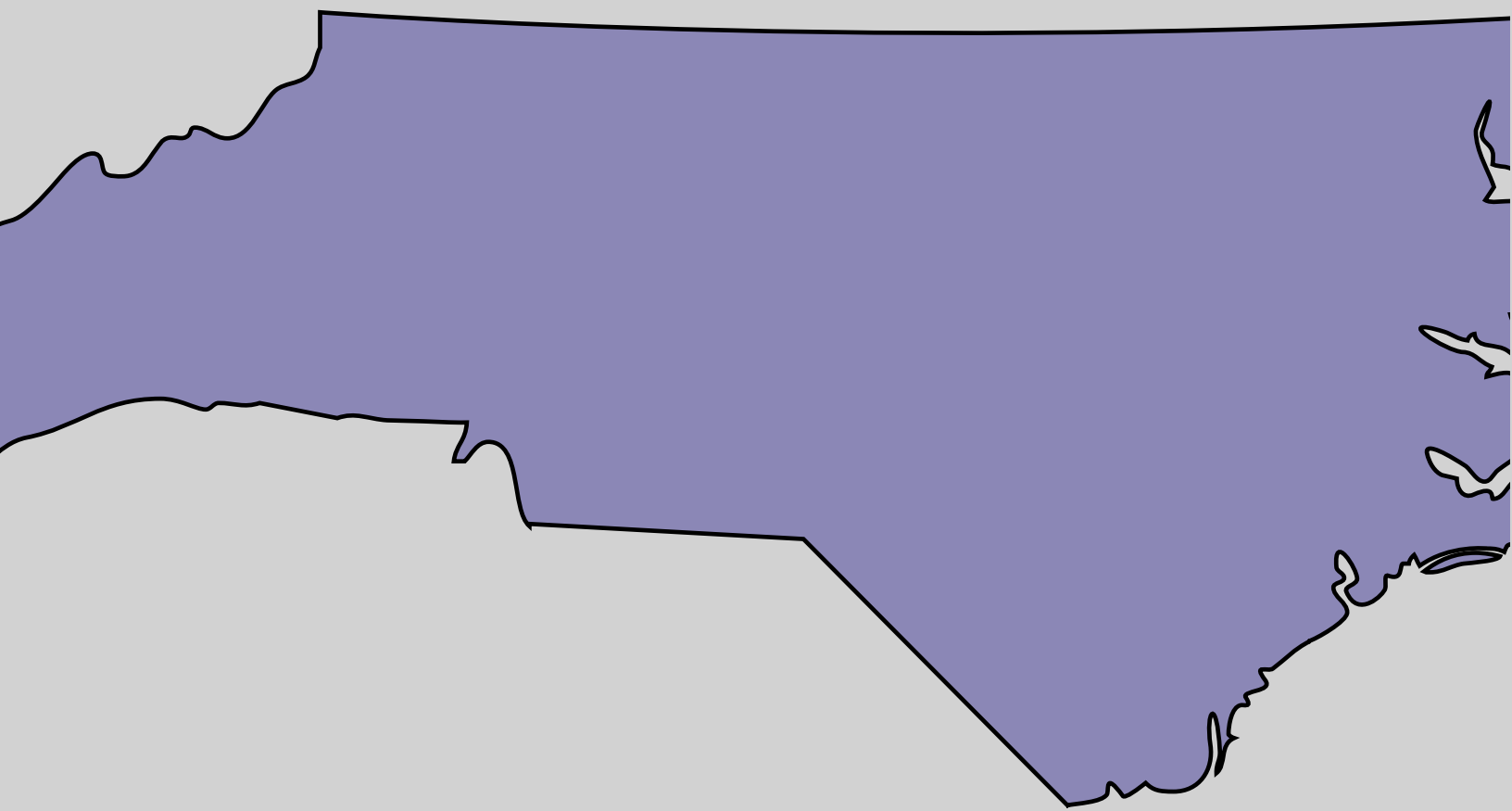


Maintaining Balance:

The Physical Therapy Workforce in North Carolina in the Year 2000

REPORT OF THE TECHNICAL PANEL ON THE PHYSICAL THERAPY WORKFORCE



Presented to:

THE COUNCIL FOR ALLIED HEALTH IN NORTH CAROLINA

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*The Physical Therapy Workforce
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Executive Summary

Background

A proposal to establish an advisory panel to examine the status of various North Carolina allied health professions was presented by The Cecil G. Sheps Center for Health Services Research to the North Carolina Area Health Education Centers Program (NC AHEC) and the Council for Allied Health in North Carolina (Council) in March 1999. The purpose of the advisory panel process was to review the best available statistical and administrative data, to discuss existing and emerging policies, and to construct a consensus statement on the need for, and supply of, allied health professionals by selected disciplines in North Carolina. The process was approved and designed as a collaborative effort by the representatives of the Cecil G. Sheps Center for Health Services Research, the Council and the NC AHEC. The process envisioned a series of panels comprised of stakeholders including practitioners, employers, educators, and workforce planning experts for each allied health profession. Physical therapy was selected as the first profession under review and this document reports the results of the consensus process.

A physical therapy panel was convened on November 17, 1999. The task before the panel was to address one overarching question: *“What is the overall balance between supply and requirements for physical therapists (PTs) and physical therapist assistants (PTAs), and how is it likely to change given current trends?”* Relatively good data describing the supply of PTs and PTAs are available through the North Carolina Health Professions Data System (HPDS) maintained by the Cecil G. Sheps Center in collaboration with the NC AHEC. These data provided the basis for the panel’s examination of historic trends in the supply of PTs and PTAs.

Historically, the physical therapy occupation in North Carolina has been believed to be in either a shortage or balance situation when compared with the demand for physical therapy services. Several indicators including the ratio of PTs per population, the number of applicants for the employment positions, and the reports of educational program directors, and growing salaries have supported this belief. More recently, anecdotal reports of cut-backs in hours and employment for physical therapists have become widespread since the phase in of changes to the Medicare program in the long-term care and rehabilitation systems required by the Balanced Budget Act (BBA) of 1997. Although systematic data were not always available or analyzed to quantify or validate these views, the panel process undertaken as part of the collaborative effort was able to systematically analyze and evaluate the PT workforce situation in North Carolina.

Based on the data analyzed by the advisory panel and presented at length in this report, the panel makes the following recommendations:

Recommendations

SUPPLY and EDUCATION

The panel concludes that supply and requirements in the physical therapy professions are in approximate balance at this time and recommends the following courses of action to educational institutions in North Carolina preparing physical therapy personnel:

- Maintain the status quo with respect to the number of programs and the number of enrollments in physical therapy and physical therapist assistants in North Carolina’s PT and PTA programs. Follow the APTA suggested moratorium on any new programs through 2003.
- Address the issue of under-representation of minorities in physical therapist and physical therapist assistant programs in North Carolina.
- Educational policy makers should avoid downsizing or closing programs in response to a single year’s decline in the applicant pool or graduates’ employment opportunities. Doing so might waste resources if demand resurfaces while the capacity to produce new personnel is eroded. Hence, the panel recommends that those few programs experiencing declining enrollments should receive continued support for a minimum of 3 to 5 years as local, state and national trends can be observed and interpreted.

DISTRIBUTION

The panel acknowledges that geographic disparities in the availability of physical therapy personnel exist throughout the state and recommends the following policies:

- Continue to assess trends in geographic disparities but augment this information with more focused assessment of the nature and extent of employment opportunities for graduates that are available both in rural and in health professions shortage areas.
- Oppose legislative initiatives which might inhibit patients from having direct access to physical therapy practitioners because such efforts might well discourage PT practice in physician shortage areas.

DIVERSITY

The panel recommends that representatives of a diverse community of stakeholders from the educational, professional, regulatory, and employer communities should meet to frankly address the lack of diversity in North Carolina’s PT workforce and assess what specific strategies can be designed and implemented to enable the ethnic composition of NC PT and PTA workforce to more closely approach that of North Carolina’s general population. The agenda of this group should include efforts to:

- develop an effective strategy to monitor admission, matriculation, graduation, and initial employment data at both PT and PTA programs for their size and diversity;
- monitor shifts in affirmative action policies affecting the health professions at the national and state level;
- enlarge and develop the applicant pool and foster the recruitment and retention of minority candidates to PT and PTA educational institutions;

- assure that there are adequate employment opportunities for minority physical therapists and physical therapist assistants, especially in health professions shortage areas; and
- assess the success of educational programs in historically minority colleges and universities and in other post-secondary education locations in the recruitment and retention of minority students.

WORKFORCE SURVEILLANCE

The panel recommends that the following activities be undertaken by the panel itself and other partners in the Allied Health community.

Convene the expert panel annually to analyze workforce supply data using a three-year time horizon. The timing of this meeting should be determined in consultation with AHEC personnel, the Council, educational program directors, and the licensing board. It should be strategically timed, late enough in the “licensing cycle” to acquire and analyze latest available workforce data, but early enough in the “educational planning” cycle to provide meaningful input into that process. In addition, the panel recommends that in the interim a regular one-hour time be scheduled every three months for an optional meeting at which panel members can share information and updates on PT/PTA workforce issues via a conference call.

The panel endorses efforts by the licensure board, the Cecil G. Sheps Center for Health Services Research, and NC AHEC to enhance the collection and analysis of data on several crucial workforce supply issues. These issues include changes in the overall supply of licensees, the number residing and the number working in the state. The panel encourages these organizations to work together to focus attention on transitions involving attrition

from, and accessions to, the physical therapy workforce. The panel will work with these organizations to develop a specific data analysis protocol to facilitate year to year comparisons of the overall supply of workforce and of key transitions in the workforce supply. To facilitate interpretation, the panel recommends that this protocol once developed be applied retrospectively to the previous three years’ data to facilitate five-year forward projections. Key elements in that protocol should include:

- attrition measured in terms of: (a) withdrawals from licensed practice (b) retirements;
- accessions broken down by: (a) in-migrants previously licensed in another state; (b) initial licensees in NC coming from out of state educational institution; (c) initial licensees in NC coming from in-state program.

The panel endorses ongoing efforts to monitor geographic trends in supply including county level ratios, under-representation of minorities, urban versus rural differences, and AHEC regions. The panel endorses ongoing efforts to monitor the requirements for physical therapy personnel insofar as possible both in terms of need and demand and recognizes that need is likely to be relatively stable while demand can be quite volatile. Need is largely driven by slowly varying and relatively predictable underlying demographics and disease patterns, while demand can shift quickly depending on scope of coverage and reimbursement levels, and administrative decisions.

The panel recognizes both the utility of periodic surveys of employers about demand for selected allied health professionals and the costs and challenges that such data collection efforts involve. It will explore the feasibility of more selective and efficient survey mechanisms in subsequent annual meetings.

I. Background

1.1 THE PHYSICAL THERAPY WORKFORCE IN TRANSITION

For the 10 year period from 1996 to 2006, the US Bureau of Labor Statistics has predicted that the supply of physical therapists in the United States will increase from 115,000 to 196,000 and that physical therapist assistants will increase from 84,000 to 151,000. Despite these predictions, this strong growth may not be realized due to changes in the way in which physical therapists are reimbursed and because of changes in federal health insurance programs. Anecdotal reports of cutbacks in hours and employment for physical therapists have become widespread since the phase in of changes to the Medicare program in the long-term care and rehabilitation systems required by the Balanced Budget Act (BBA) of 1997. Because private insurers often follow Medicare's lead in coverage limitations and service exclusions, the BBA provisions may have wider implications for the financing of physical therapy and related services. Specifically, according to an employment survey released in December, 1999 by the American Physical Therapy Association (APTA), physical therapists who work in skilled nursing facilities (SNFs), home health settings, and in private practice continued to experience job losses, salary cuts and reductions in practice hours. However, this survey reported an unemployment rate of 3.2 percent, which was up just slightly from the 3 percent unemployment rate reported in an April 1999 APTA survey. There have been anecdotal reports by the directors of educational programs for physical therapists and physical therapist assistants about declines in employment prospects for recent graduates.

More recent developments may have also affected the outlook for physical therapy nationally. On November 9, 1999, Congress passed the Balanced Budget Refinement Act (BBRA) that mandates a two-year moratorium on the \$1,500 Medicare payment cap on physical therapy and other rehabilitation services which was included in the BBA of 1997. This new legislation was signed into law on November 29, 1999 with an implementation date of February 1, 2000. This law increases payment for services provided in skilled nursing facilities to patients who have medically complex conditions; it also delays a previously scheduled 15 percent cut in payment for home health services until one year after the implementation of a prospective payment system (PPS). This development is likely to result in some improvement in the outlook for the profession in the very near future. A notice in the *Federal Register* [April 11, 2000] made it clear that physical therapy services are not part of the outpatient hospital PPS and that Medicare will continue to pay for physical therapy services under the fee schedule in all settings. This rule becomes effective in October 2000. The PPS for rehabilitation hospitals is scheduled for implementation on April 1, 2001 and is likely to affect the physical therapy profession.

Despite the concerns associated with federal payment policies, recent assessments of the balance between supply and requirements for physical therapy occupations have either assumed labor shortages, a balanced employment situation, or only a slight labor surplus. However, the possibility of a significant decrease in demand for physical therapy services provides an important context in which to focus attention on the physical therapy workforce. It is possible that reductions driven by national reimbursement policies may reverberate through local employers and may lead to underemployment or unemployment of physical therapy personnel.

This possible scenario was an important consideration motivating various stakeholders to approach the Council for Allied Health in North Carolina and ask that a study be conducted to assess the physical therapy workforce in the state.

1.2 THE ALLIED HEALTH WORKFORCE PLANNING PROCESS

A proposal to establish an advisory panel to examine the status of various North Carolina allied health professions was presented to the North Carolina Area Health Education Centers Program (NC AHEC) and the Council for Allied Health in North Carolina (Council) in March 1999. The purpose of the proposed panel process was to review the best available statistical and administrative data, discuss existing and emerging policies, and to construct a consensus statement on the need for, and supply of, allied health professionals in selected disciplines in North Carolina. The process was designed to take place under the joint guidance of representatives of the Cecil G. Sheps Center, the Council for Allied Health in NC and the Area Health Education Centers Program. The process envisioned a series of panels composed of representatives from various stakeholder groups. Stakeholders included practitioners from the allied health professions, as well as employers, educators, and workforce planning experts. Panels would be constructed to address the specific situation of different allied health professions over an extended time period. The NC AHEC and the Council approved this proposal for Allied Health in NC on April 27, 1999. Subsequently, the Council for Allied Health in NC members debated which professions would be selected for study over the next three years. Physical therapy was selected as the first profession.

1.3 PHYSICAL THERAPY WORKFORCE TECHNICAL PANEL: SCOPE OF WORK

A panel consisting of educators, practitioners and employers was convened on November 17, 1999. The task before the panel was to assess the employment conditions of physical therapists and physical therapist assistants in the state of North Carolina. A number of questions were raised:

- Are PTs and PTAs facing the same situation in North Carolina as in the rest of the country?
- How well are the physical therapy needs of the North Carolinians being met?
- Have the employment prospects of physical therapy personnel been reduced?

These questions can be subsumed under one general question:

What is the overall balance between supply and requirements for physical therapists and physical therapist assistants, and how is it likely to change given current trends?

At the state level, where educational and workforce policy meet, one of the key issues involves answering the question: "Are we producing too many, too few, or about the right number of physical therapists and physical therapist assistants to meet current and future requirements?"

Although the overall balance between supply and requirements is a paramount workforce issue, other concerns are equally important. For example, some issues, such as staffing shortages, recruitment and retention difficulties, and underemployment of physical therapists and physical therapist assistants may be more relevant for certain areas of the state or for certain specific stake-

holder groups. This is the case because North Carolina is a diverse state with extensive geographic and demographic variability. Concerns with distribution and diversity raise the following question: "Are some areas of the state or population groups more prone to experience certain kinds of labor imbalances such as staffing shortages, recruitment and retention difficulties, or under-employment?"

The goal of this collaborative project was to examine the forces affecting employment for physical therapists and physical therapist assistants in North Carolina. The primary strategy was to build the project on accepted workforce analysis methods and to use the best available data to address the above questions. This consensus statement is based on the data analysis and panel discussion concerning the current and likely future balance of supply and requirements for physical therapists and physical therapist assistants in the state of North Carolina.

The remainder of this report examines national trends in the physical therapy workforce, provides background on the North Carolina situation, describes the information and data sources that the panel used, reports the panel's findings and conclusions, and ends with the panel's recommendations.

NATIONAL TRENDS

In 1997, the APTA commissioned a workforce study from Vector Research, Inc. to look at the employment prospects of PTs and PTAs through the year 2020. Their methodology included the examination of salaries and job vacancy rates and interviews with program directors in educational institutions, recruiters, state APTA representatives, researchers, and practicing PTs and PTAs.

Vector's supply projections accounted for US and international new entrants, deaths, retirements, and part-time labor force participation. The demand forecasts used age-, sex-, and insurance-adjusted per capita staffing models that reflect the current paradigm of population-centered health care planning. The model also incorporated factors such as the aging of the population, long-term economic growth, and increased HMO penetration. Finally, increased competition from other health care providers (chiropractors, athletic trainers, and occupational therapists) was also considered.

The Vector study projected that a national shortage of qualified PTs would continue through 1998, at which point equilibrium would occur. By the year 2000, they projected a slight surplus. According to this scenario, physical therapists would still be able to find employment, but not in their most preferred employment setting or geographic location. The Vector Study projected that new entrants into the field would increase due to both an increasing number of educational programs and an in-migration of foreign-educated PTs. Not until 2005 would there be a noticeable decline in employment opportunities marked by lower real compensation, lower rates of labor participation, and declining enrollments in educational programs. A surplus of PTs on the order of 20-30 percent would exist by 2005-2007.

On the supply side, Vector used conservative estimates of new educational programs that yielded average annual increases in new entrants of slightly more than 5 percent for PTs and 12 percent for PTAs at the national level. On the demand side, PTs and PTAs typically serve an older patient population that provides a source of reimbursement at the most favorable rates. Vector assumed that competitors such as chiropractors, occupational therapists and athletic trainers would maintain a market share

similar to their current share. Technology would have a negligible effect on the demand. They also stated that the demand for PTs may decrease due to increased use of PTAs. Demand for PTs was projected to decrease by 3 percent between 1995 and 2005.

Vector projected that demographic and economic factors would each affect demand: an aging population would account for a 12 percent increase and economic growth would account for an additional 12 percent increase. The Vector study assumed that growth in demand would be lessened through expansion of the "California model" of managed care. This "California model" suggests that managed care firms will lower expenses by limiting patient visits to health professionals, in this case PTs and PTAs. This service delivery policy was expected to account for an anticipated 17 percent decrease in demand, while the substitution of PTAs for PTs accounts for an additional 10 percent decrease in demand for PTs. Taken together, Vector's scenarios anticipated that new demand for PTs or PTAs would be concentrated among 'second-choice' settings like home health and nursing homes. The introduction of the Balanced Budget Act of 1997 (subsequent to the Vector Study) may change the applicability of this scenario. It appears that underemployment (i.e., part-time personnel who report working fewer hours than they want to) may actually be a special characteristic of PTs and PTAs employed in skilled nursing facilities and home health care settings.

Additionally, in the area of physical therapy educational programs, the Doctor of Physical Therapy (DPT) — a post baccalaureate degree offered upon successful completion of a doctoral-level professional (entry-level) or a post-professional "transition" education program— has recently been the focus of numerous questions and concerns by physical therapists. Throughout the US, as of April 1, 2000, eight professional DPT programs are accredited, 19 BSPT (Bachelors) or MPT (Masters) programs are making the transition to the DPT, and 3 institutions are developing professional DPT programs.

As health care delivery becomes a global enterprise, both for-profit and nonprofit organizations are making health care available to people in developing and transitional countries in Africa, Asia and Latin America. Globalization of the employment market is likely to increase employment opportunities for physical therapists and physical therapists assistants outside the United States and is expected to affect the supply and demand scenario in the long run.

Finally, there has been an emerging interest in the area of evaluating effectiveness of physical therapist interventions at the national level. This interest is reflected by the six one-year research grants awarded by the Foundation for Physical Therapy Board of Trustees to fund research projects to evaluate the effectiveness of physical therapist interventions in different practice areas.

II. The North Carolina Situation

Historically, the physical therapy occupation in North Carolina has been believed to be in either a shortage or balance situation when compared with the demand for physical therapy services. This belief was supported by several indicators. First, the supply of therapists per population has been below the national average. Further, the number of applicants has far exceeded the positions available, and the reports of physical therapy program directors have consistently indicated that virtually all of their graduates were being employed or seeking additional education. Growing salaries and widespread reports that employers were seeking to fill positions buttressed this widely shared belief,

although systematic data were not always available to quantify or validate these perceptions.

Relatively good data describing the supply of PTs and PTAs are available through the North Carolina Health Professions Data System (HPDS). The HPDS is maintained by the Cecil G. Sheps Center in collaboration with the North Carolina Health Education Centers Program and contains data on many of North Carolina's licensed health professionals. The HPDS data facilitated the panel's ability to examine historic trends in the supply of physical therapists and physical therapist assistants with a relatively high level of precision. Early in the panel's deliberations, panel members realized that efforts to assess demand or requirements for PT services are not very precise, and may require more sustained data collection or the definition of more explicit assumptions. Existing data in North Carolina's license files report the settings in which PTs and PTAs in North Carolina are currently working. These settings include hospitals, nursing homes, home health agencies, rehabilitation centers, physician offices, school systems, private and contract practices, as well as faculty positions in educational institutions. However, these data do not specify whether personnel are part or full time workers in these settings. The most recent license renewal data collected in 1999 by the North Carolina Physical Therapy Board contains this information and will prove helpful in future workforce monitoring efforts. Unfortunately, these 1999 data were not available to the panel during its deliberations and therefore could not be included as part of supporting evidence for this consensus statement.

One of the advantages of having licensure data is that information is available on PTs and PTAs who are classified as inactive within the state. It can also be ascertained year to year who does not renew their license and thus, the supply numbers can be adjusted with more precision. Because this workforce is a relatively young one, it is not expected that retirements will be a major factor in projecting the size of the workforce in the near term. It is not presently known how extensive mid-career temporary withdrawal is present among the physical therapy workforce, or how frequently inactive PTs living in NC return to the workforce. Both longitudinal analyses of licensure data, and ongoing work by members of the panel in this area will be helpful in monitoring the supply and demand of physical therapy professions. Analyses of the most recent data from the NC licensure renewal form for 2000 is not reflected in this study.

Because the assumptions on the supply side of the Vector study were either unstated or not applicable to North Carolina, we chose a comparative approach. This involves benchmarking the supply and requirements balance against national ratios. The first order measure of "requirements" is a comparative practitioner-to-population ratio where the primary standard is the national practitioner-to-population ratio as defined by the APTA's latest available data. This ratio was compared to the North Carolina practitioner-to-population ratio which was determined using the HPDS data. Data from the HPDS files were analyzed at the Sheps Center during June– November 1999 and a preliminary statement on the state of physical therapy profession was drafted and disseminated to members of the panel in March 2000.

2.1 THE CONTRIBUTION OF NORTH CAROLINA'S EDUCATIONAL INSTITUTIONS TO THE OVERALL SUPPLY OF PHYSICAL THERAPY PERSONNEL

A key issue for workforce planning in North Carolina relates to the extent to which policies under the control of the state can affect the size, composition, and distribution of the health care workforce. The primary impact that state policy makers can have on these factors is through support for educational institutions. Consequently we have devoted a substantial portion of this report to the discussion of this topic.

To understand the relationship between the output of North Carolina's educational institutions and new entrants in the workforce, we have calculated an indicator called the "retention factor." This index is simply the proportion of graduates of schools located in North Carolina who have obtained a license, kept that license for one year, and who currently have a mailing address in this state. For PTs statewide, the overall retention factor is about 0.54. This means that only slightly more than half of the PTs trained in the state's educational institutions can be expected to enter the North Carolina PT workforce.

However, as can be seen from **Exhibit 1**, the retention factor differs substantially by school and program. Private schools (e.g., Duke) tend to recruit a larger proportion of their applicants from out of state and disperse these graduates quite widely geographically. The retention factor for Duke's master's degree program for the 1998 graduating class was 0.17, meaning that only 17 percent of those graduates are currently in the NC workforce. Studies of employment of recent graduates in NC and adjoining states are currently being conducted by Dr. Jan Gwyer and promise to yield more information about this process.

The master's degree programs at the three large state schools— East Carolina University (Greenville), University of North Carolina (Chapel Hill) and Western Carolina University (Cullowhee) most likely recruit a larger proportion of in-state students than programs at private colleges and universities. A relatively uniform proportion of the graduates of each of these programs—almost 60 percent— enters the North Carolina workforce. The retention profile of the state's only bachelor's level program, Winston Salem State, is somewhat higher, with about 82 percent of the school's 1999 graduates entering in the North Carolina workforce. Although the graduating class of this program is quite small, its actual capacity exceeds the number graduating in recent years. Because of the new requirement for postgraduate education, the future contribution of this institution to the NC PT workforce assumes that the proposed Master's degree program will receive provisional accreditation shortly and that 70 percent of 20 estimated graduates will stay in state. This estimate is based on the fact that 7 of the 10 students already admitted to that program are North Carolina residents. Finally, we have included a projected graduation class of 44 in our estimates from the state's newest PT program located at Elon College. We project that 15 of those graduates (34 percent) will remain in state based on an informal poll taken by the director of Elon College's PT program. Our projections assume that the class size will remain constant for all these programs.

This profile of the state's graduates should be placed in the context of the entire PT workforce. Historically, the growth of North Carolina's PT workforce has resulted more from in-migration than from production of graduates from the state's schools. Over the last decade, the average net annual growth in PTs has

averaged about 165 per year, but, assuming our retention figures are correct, only about 66 per year of these new additions have been due to production of graduates from the state's schools. This latter figure comes from applying the aggregate retention factor (0.54) to the average of the 1996 and 1997 graduates. We do not have graduation or retention figures before this period.

Although less than half of all new additions to the North Carolina PT workforce are coming from in-state schools, the overwhelming majority of that 50 percent are coming from the four state-supported schools. Consequently, this is the place where state-initiated activity might have its greatest impact on the PT workforce. Comparison of the 1998 licensure file to the 1997 file suggests that new licenses were granted to 317 individuals with NC mailing addresses. Of these, only 81 were graduates of NC schools, which is a number consistent with our expectations using the data provided by the NC PT Board. However, the relatively large number of new entrants into the state, compared to the overall historic trend may need further examination. More analysis of year-to-year differences in attrition and out-migration would be worthwhile. It is not possible to compare 1999 addresses to 1998 addresses, because the 1999 data file is not yet available.

When the same type of analysis is applied to the physical therapist assistant workforce, we find that the overall retention factor is in the range of 0.75 (see **Exhibit 2**). Thus unlike physical therapists, most of this growth has occurred as a result of the activities of in-state educational institutions, mostly the publicly-supported community college system. There are currently 8 widely dispersed community colleges that are educating PTAs in two-year programs; most of these typically accept a new class each year. The total output of these programs has typically been about 100 to 120 graduates per year for the last four years. The Guilford Technical Community College started in fall 1998 and is the most recent PTA program. It offers training in cooperation with 7 other community colleges and reserves slots for each of these colleges. Further, since a high proportion of these individuals enter the NC workforce, net additions to the workforce from in-state technical and community college programs are in the range of 90 to 95 new PTAs. One school, Fayetteville Technical Institute and Community College located near a large military base, has approximately 54 percent of individuals who enter the NC workforce.

2.2 TRENDS IN PERSONNEL SUPPLY: PHYSICAL THERAPISTS

The growth in the number of physical therapists in the state has been substantial over the last 20 years. North Carolina had only 677 active physical therapists in 1979; a decade later that number had almost doubled to 1,335, while by 1998 there were 2,815 PTs active in the state. Similarly, **Exhibit 3** displays growth in the ratio of PT per 10,000 population which has been substantial and has increased over the last decade. In 1989 there were 2 PTs for every 10,000 persons in North Carolina. By 1998 this ratio had become 3.7, approximating the national rates. According to data from the American Physical Therapy Association, the national ratio of PTs per 10,000 population has stabilized between 4.0 and 4.9 over the last decade, after a period of substantial growth in the 1980s. Thus, North Carolina's current ratio of about 1 physical therapist for every 2,700 persons is not much different than the national average of 1 PT for every 2,500 persons. However, there has been uneven growth across the state both in the absolute numbers of physical therapists (see **Exhibit 4**) and in numbers of PTs per population (see **Exhibit 5**).

PTs are more likely than PTAs to be recruited from across the state, as well as from other states, but their employment location post graduation may cluster in the counties where educational institutions are located. Thus, the counties where PT schools are located show the highest ratio of 3.53 or more active PTs per 10,000 population in 1998 in the entire state. **Exhibit 9** displays variation in active PT-per-population ratio and the location of PT programs.

2.3 TRENDS IN PERSONNEL SUPPLY: PHYSICAL THERAPIST ASSISTANTS

Physical therapist assistants in North Carolina are an important part of the health care team, and their numbers have grown dramatically over the last two decades (see **Exhibit 6**). In 1979, there were only 208 active PTAs licensed in the state; over the next ten years the number grew to 494. In 1998, the number of PTAs was 1,430. During the 1980s the average annual rate of growth in PTA supply was approximately 9 percent per year. The growth rate during the 1990s was approximately 13 percent per year, with most of this growth occurring in the most recent years. However, there has been uneven growth across the state both in the absolute numbers of physical therapist assistants (see **Exhibit 7**) and in numbers of PTAs per population (see **Exhibit 8**).

The typical location of employment for PTAs is close to their training site. Students enrolled in PTA programs are generally being recruited from communities near the campus and are seeking employment opportunities in the same or similar nearby communities. **Exhibit 10** displays variation in the active PTAs-per-population ratio and the location of PTA programs.

Little is known about the long-term workforce participation of PTAs over their life span, so future projections about their availability and/or their utilization can only be speculative. Further, we do not have a clear impression about whether or not future plans of these educational institutions are in the direction of expansion, contraction, or stability. Finally, we are not aware of any plans to initiate programs at other educational institutions or to close existing ones. Therefore, our projections assumed stability in the number of graduates, the site of their education, and the deployment and retention of their graduates.

2.4 SUPPLY OF PTAS RELATIVE TO PTS.

Physical therapist assistants may play an important role in extending physical therapy services to a larger population than can be reached by physical therapists alone, and most national and local estimates project a more rapid increase in PTA jobs than for PT jobs. Hence, one important consideration in understanding workforce dynamics in the supply of physical therapy personnel is the ratio of PTAs to PTs. Nationally, PTA/PT ratio was .28 in 1995, and it was expected to increase to nearly .50 in 2005, and to over .60 in 2020. In North Carolina, the ratio of PTA to PTs rose from 0.31 in 1979 to 0.37 in 1989. It has risen even more rapidly during the 1990s, and for the most recent year (1998) stands at 0.51. Although the number of physical therapists graduating annually in North Carolina is higher than the number of physical therapist assistants, the in-state retention of PTAs is substantially higher than that of PTs, leading to an increase in the PTA to PT ratio.

2.5 TRENDS IN THE DISTRIBUTION OF PHYSICAL THERAPY PERSONNEL ACROSS NORTH CAROLINA

In this section we examine the question of the distribution of physical therapy personnel across the state and the extent to which differential distribution of the workforce represents a health policy concern. Both the regional and rural-urban distribution of physical therapy personnel are far from uniform across the state (see **Exhibits 4, 5 and 9** for PT distribution in North Carolina). As is typical of all health professionals, the highest absolute and relative numbers of PTs are in the state's urban areas and in areas where per capita income is the highest. These are also areas where other health professionals, notably physicians, are more likely to be present. Thus in the Wake, Mountain, and Greensboro AHEC areas the availability of PTs approximates 1 for every 2,000 persons. On the other hand, in Area L, Eastern, and Southern Regional AHEC, the population to PT ratio exceeds 3,000:1. The distribution of PTAs, on the other hand, seems to reflect a different pattern with higher numbers and densities in areas near training institutions that are located in nonmetropolitan areas (see **Exhibits 7, 8 and 10** for PTA distribution in North Carolina). Three of the four AHEC areas with the highest PTA-to-population ratios are largely rural: Mountain AHEC, Area L AHEC, and Coastal AHEC. On the other hand, Greensboro and Wake AHECs seem to have lower than the state average of PTAs-per-population suggesting that in these areas, PTAs are not substituting for PTs.

When the PT and PTA workforce is broken down by metropolitan and non-metropolitan areas, an interesting trend emerges (see **Exhibit 11**). The ratio of PTs to PTAs has remained relatively constant in metropolitan areas over the last 20 years, ranging around 0.4 PTAs per PT. In the state's non-metro areas, however, PTAs have grown steadily relative to PTs. Consequently, there are now about 0.8 PTAs for every PT in the state's nonmetropolitan counties.

The geographic distribution of PTs and PTAs also differs by whether or not a county is a federally designated Health Professional Shortage Area (HPSA). Those counties that are whole county HPSAs tend to have fewer physical therapists, and also have fallen further behind as the growth of PT supply has escalated (both absolutely and relatively) in the more prosperous, more urbanized counties. Thus, HPSA designated counties currently have about 1.2 PTs per 10,000 population while the remaining counties have about 4.0 PTs per 10,000 which is approximately at the national average (see **Exhibit 12**). The trends in geographic distribution of PTAs are somewhat different than for PTs. Growth in PTAs has occurred most especially since 1993 and has occurred both in HPSA counties and in other counties. There are currently about 1.2 PTAs per 10,000 population in HPSA counties, which is approximately the same as the ratio of PTs per 10,000 population in those same counties. The remaining counties have a ratio of about 2.0 PTAs per 10,000 population (see **Exhibit 13**).

2.6 WORKFORCE DIVERSITY

Given a steady growth in the physical therapy workforce, the panel thought it important to examine the extent to which the diversity of this workforce matches the diversity of North Carolina's current and future population. Using the self-stated race on the licensure forms for 1996, 1997, and 1998, we estimated the number of individuals in the PT and PTA by race. Traditionally under-represented minorities in the health professions are not well represented in North Carolina's physical therapy

workforce (see **Exhibit 14** for ethnic composition of North Carolina's physical therapy workforce and general population in 1998). For example, only 4.2 percent of individuals in the PT workforce identified themselves as Black, American Indian, or Asian. Although this proportion has increased recently from 3.9 percent in 1996, it is still small when compared with a 1998 estimated statewide population which contains 26.5 percent minorities. About 2 percent of the physical therapist workforce is African American compared with approximately 22 percent of the overall population in North Carolina. The diversity of the physical therapist assistant workforce is somewhat greater. In 1998, nonwhite PTAs constituted about 8.9 percent of the workforce. This percentage is down slightly from the previous two years: 9.5 percent (1997); 9.2 percent (1996). Further, despite a growing Hispanic population in North Carolina, there are no reliable data on Hispanic ethnicity of PTs and PTAs nor on the linguistic competence of these professionals.

III. Conclusions

3.1 SUPPLY AND DISTRIBUTION OF PHYSICAL THERAPY PERSONNEL.

The data provided here do not suggest that there is a substantial surplus of physical therapists in North Carolina, nor that such a surplus situation is likely to occur in the near term given the continuation of current trends in North Carolina's production of physical therapists. However, the situation does bear continued monitoring as the traditional signposts of a shortage are no longer present.

The supply of, and requirements for, physical therapists seem to be in balance at this time. Hence, the current situation does not warrant implementing any rapid major changes in the state's educational policy at this time. The overall supply of physical therapists is slightly below the national ratios, approximates the national average in urban areas, and is substantially below the national ratios in the traditionally underserved health professions shortage areas of the state. The state's urban areas may have reached a saturation point, but there is room for improvement elsewhere, assuming employment opportunities can be developed. At the same time, it does not appear that physical therapists are becoming increasingly more likely to practice in rural areas, or in the less economically developed regions of the state, especially in the eastern part of the state.

More systematic data collection on the physical therapy workforce employment situation should be conducted by requesting this information directly from individuals on the annual re-licensure survey. Tabulation and dissemination of this information can help identify imbalances and fine tune any state policy decisions or actions in a more timely and objective manner.

3.2 THE IMPORTANCE OF PHYSICAL THERAPIST ASSISTANTS IN THE WORKFORCE

Much of the expansion and extension of physical therapy services to the less urban, more isolated, and less economically developed regions of the state appears to have been provided through the use physical therapist assistants. The existing system of education through community colleges appears to have largely achieved its objective of the extension of PTA services into more

remote areas of the state. However, this process may be reaching a limit if sufficient numbers of PTs are not available in these communities to supervise the PTAs living and working in these communities. However, no change in the educational policies with respect to the PTA programs seems warranted without a more systematic vision of the future utilization of these personnel. We have not examined retention or workforce participation of PTAs over their life cycle but clearly such information will be required if we are to have better information in order to plan for the preparation of these health professionals over a longer time horizon.

3.3 ISSUES OF DIVERSITY IN THE WORKFORCE

Despite a steady growth in the PT workforce, the diversity of that workforce does not match the diversity of North Carolina's current or future population. Traditionally under-represented minorities in the health professions are not well represented in North Carolina's physical therapy workforce. For example, only 4.2 percent of the PT workforce and 8.9 percent of the physical therapy assistant workforce is nonwhite (i.e., African American, Asian, or Native American.). In comparison, the state's general population is 26.5% nonwhite. It is worth noting that the diversity of the physical therapist assistant workforce is somewhat greater than that of the PT workforce. Further, there is a higher representation of minorities in the PTA workforce in the two AHEC regions of the state where more than one third of the general population is nonwhite (Area L and Eastern AHEC).

The problem of under-representation of the state's largest ethnic minority, African Americans, in the health professions is long-standing and is by no means limited to physical therapy. However, this traditional challenge is compounded by new demographic trends. The ever increasing diversity of the population of North Carolina now includes growing numbers of individuals with Asian and Hispanic origin. Many of these individuals may face linguistic isolation and pose special cultural challenges for the physical therapy workforce in the coming years. The task force is unaware of data describing health professionals' linguistic competencies in North Carolina. Further, although there has been much discussion of cultural competencies in educational circles, little is known about how efforts to develop such competencies play out in actual practice.

3.4 ISSUES OF DATA AND MEASUREMENT OF CHANGES IN THE WORKFORCE

More systematic data collection about the employment situation of physical therapy practitioners should be conducted by requesting this information directly from individuals on the annual re-licensure survey. Timely tabulation and dissemination of this information can help identify imbalances and should increase the effectiveness with which decision makers can "fine-tune" the educational and other workforce policies. As objective data are accumulated, ongoing analyses of trends might minimize the tendency for various stakeholders to overreact to transient events. Thus a solid database should enable all stakeholders to better distinguish short-term fluctuations in demand occasioned by changes in employment levels or reimbursement policies from underlying long term trends that may require more deliberate or decisive intervention.

The North Carolina Board of Physical Therapy has taken a step forward by adding questions about current workforce participation and workforce intentions to its annual relicensure survey.

The panel made use of preliminary releases of these data to guide its deliberations. In particular, the panel's efforts to calculate the unemployment rate for PTs and PTAs and to identify the extent to which individuals were not renewing their licenses relied on these data (data not reported in this report since it is in the preliminary stage of analysis). These figures seemed to be relatively low and comparable to national data provided by the APTA. However, the most effective and promising use of these data are still ahead of us; as more meaningful interpretation will require ongoing data compilation, refinement and analysis of trend data.

IV. Recommendations

SUPPLY AND EDUCATION

The panel concludes that supply and requirements in the physical therapy professions are in approximate balance at this time and recommends the following courses of action to educational institutions in North Carolina preparing physical therapy personnel:

- Maintain the status quo with respect to the number of programs and the number of enrollments in physical therapy and physical therapist assistants in North Carolina's PT and PTA programs. Follow the APTA suggested moratorium on any new programs through 2003.
- Address the issue of under-representation of minorities in physical therapist and physical therapist assistant programs in North Carolina.
- Educational policy makers should avoid downsizing or closing programs in response to a single year's decline in the applicant pool or graduates' employment opportunities. Doing so might waste resources if demand resurfaces while the capacity to produce new personnel is eroded. Hence, the panel recommends that those few programs experiencing declining enrollments should receive continued support for a minimum of 3 to 5 years as local, state and national trends can be observed and interpreted.

DISTRIBUTION

The panel acknowledges that geographic disparities in the availability of physical therapy personnel exist throughout the state and recommends the following policies:

- Continue to assess trends in geographic disparities but augment this information with more focused assessment of the nature and extent of employment opportunities for graduates that are available both in rural and in health professions shortage areas.
- Oppose legislative initiatives which might inhibit patients from having direct access to physical therapy practitioners because such efforts might well discourage PT practice in physician shortage areas.

DIVERSITY

The panel recommends that representatives of a diverse community of stakeholders from the educational, professional, regulatory, and employer communities should meet to frankly address the lack of diversity in North Carolina's PT workforce and assess what specific strategies can be designed and implemented to enable the ethnic composition of NC PT and PTA workforce to

more closely approach that of North Carolina's general population. The agenda of this group should include efforts to:

- develop an effective strategy to monitor admission, matriculation, graduation, and initial employment data at both PT and PTA programs for their size and diversity;
- monitor shifts in affirmative action policies affecting the health professions at the national and state level;
- enlarge and develop the applicant pool and foster the recruitment and retention of minority candidates to physical therapist and physical therapist assistant educational institutions;
- assure that there are adequate employment opportunities for minority physical therapists and physical therapist assistants, especially in health professions shortage areas; and
- assess the success of educational programs in historically minority colleges and universities and in other post-secondary education locations in the recruitment and retention of minority students.

WORKFORCE SURVEILLANCE

The panel recommends that the following activities be undertaken by the panel itself and other partners in the Allied Health community.

Convene the expert panel annually to analyze workforce supply data using a three-year time horizon. The timing of this meeting should be determined in consultation with AHEC personnel, the Council for Allied Health in North Carolina, educational program directors, and the licensing board. It should be strategically timed, late enough in the "licensing cycle" to acquire and analyze latest available workforce data, but early enough in the "educational planning" cycle to provide meaningful input into that process. In addition, the panel recommends that in the interim a regular one-hour time be scheduled every three months for an optional meeting at which panel members can share information and updates on PT/PTA workforce issues via a conference call.

The panel endorses efforts by the licensure board, the Cecil G. Sheps Center for Health Services Research, and Area Health Education Centers Program to enhance the collection and analysis of data on several crucial workforce supply issues. These issues

include changes in the overall supply of licensees, the number resident in the state, and number working in the state. The panel encourages these organizations to work together to focus attention on transitions involving attrition from, and accessions to, the workforce. The panel will work with these organizations to develop a specific data analysis protocol to facilitate year to year comparisons of the overall supply of workforce and of key transitions in the workforce supply. To facilitate interpretation, the panel recommends that this protocol, once developed, be applied retrospectively to the previous three years' databases to reflect three-year trends to facilitate five-year forward projections. Key elements in that protocol should include:

- attrition measured in terms of: (a) withdrawals from licensed practice (b) retirements;
- accessions broken down by: (a) in-migrants previously licensed in another state; (b) initial licensees in NC coming from out of state educational institution; (c) initial licensees in NC coming from in-state program.

The panel endorses ongoing efforts to monitor geographic trends in supply including county county-level ratios, under-representation of minorities, urban versus rural differences, and AHEC regions. The panel endorses ongoing efforts to monitor the requirements for physical therapy personnel insofar as possible both in terms of need and demand and recognizes that need is likely to be relatively stable while demand can be quite volatile. Need is largely driven by slowly varying and relatively predictable underlying demographics and disease patterns, while demand can shift quickly depending on scope of coverage and reimbursement levels, and administrative decisions.

The panel recognizes both the utility of periodic surveys of employers about demand for selected allied health professionals and the costs and challenges that such data collection efforts involve. It will explore the feasibility of more selective and efficient survey mechanisms in subsequent annual meetings.

EXHIBIT 1
Graduating class size and expected additions to physical therapist workforce from in-state educational institutions: North Carolina, 1996-2003

Educational Institution	Graduating class size						Retention factor*	Expected additions to NC workforce					
	1996	1997	1998	1999	2000			1998	1999	2000	2001	2002	2003
Duke	30	30	29	29	29	29	0.17	5.0	5.0	5.0	5.0	5.0	5.0
East Carolina	35	48	47	47	47	47	0.60	28.0	28.0	28.0	28.0	28.0	28.0
UNC-CH	28	38	36	37	37	37	0.58	21.0	21.5	21.5	21.5	21.5	21.5
Western Carolina	0	0	29	31	31	31	0.59	17	18.2	18.2	18.2	18.2	18.2
Winston Salem State	18	18	17	17	17	17	0.82	14.0	14.0	14.0	14.0	14.0	14.0
Elon College	0	0	0	0	44	44	0.34	0.0	0.0	15.0	15.0	15.0	15.0
Total	111	134	158	161	205	205		85.0	86.7	101.7	101.7	101.7	101.7

* The retention factor is the proportion of graduates from 1998 classes actually holding licenses in and having a work address in North Carolina in 1999. Year 2000+ estimates assume that the class size and retention rate is constant with historical trends. This factor is applied prospectively to anticipated graduating class size to estimate new NC workforce entrants.

Sources: American Medical Association Allied Health databases, North Carolina Health Professions Data System and interviews with Elon College and Winston Salem State University officials.

**EXHIBIT 2
Graduating class size and expected additions to physical therapist assistant workforce from in-state educational institutions: North Carolina, 1996-2003**

Educational Institution	Graduating class size					Retention factor*	Expected additions to NC workforce					
	1996	1997	1998	1999	2000		1998	1999	2000	2001	2002	2003
Stanly Community College	15	21	19	17	17	0.74	14.0	12.5	13.3	13.3	13.3	13.3
Central Piedmont Community College	0	0	21	21	21	0.81	17.0	17.0	17.0	17.0	17.0	17.0
Fayetteville Technical Community College	14	14	13	15	15	0.54	7.0	8.1	7.5	7.5	7.5	7.5
Caldwell Community College and Technical Institute	24	0	20	20	20	1.00	20.0	20.0	20.0	20.0	20.0	20.0
Nash Community College	18	13	13	12	12	0.85	11.0	10.2	10.6	10.6	10.6	10.6
Southwestern Community College	15	15	14	11	11	0.86	12.00	9.4	10.7	10.7	10.7	10.7
Martin Community College	23	21	20	19	19	0.7	14.00	13.3	13.7	13.7	13.7	13.7
Guilford Technical Community College	0	0	0	12	11	1.00	0	12	11	12	12	12
Total	109	84	120	127	126		95.0	102.5	103.8	104.8	104.8	104.8

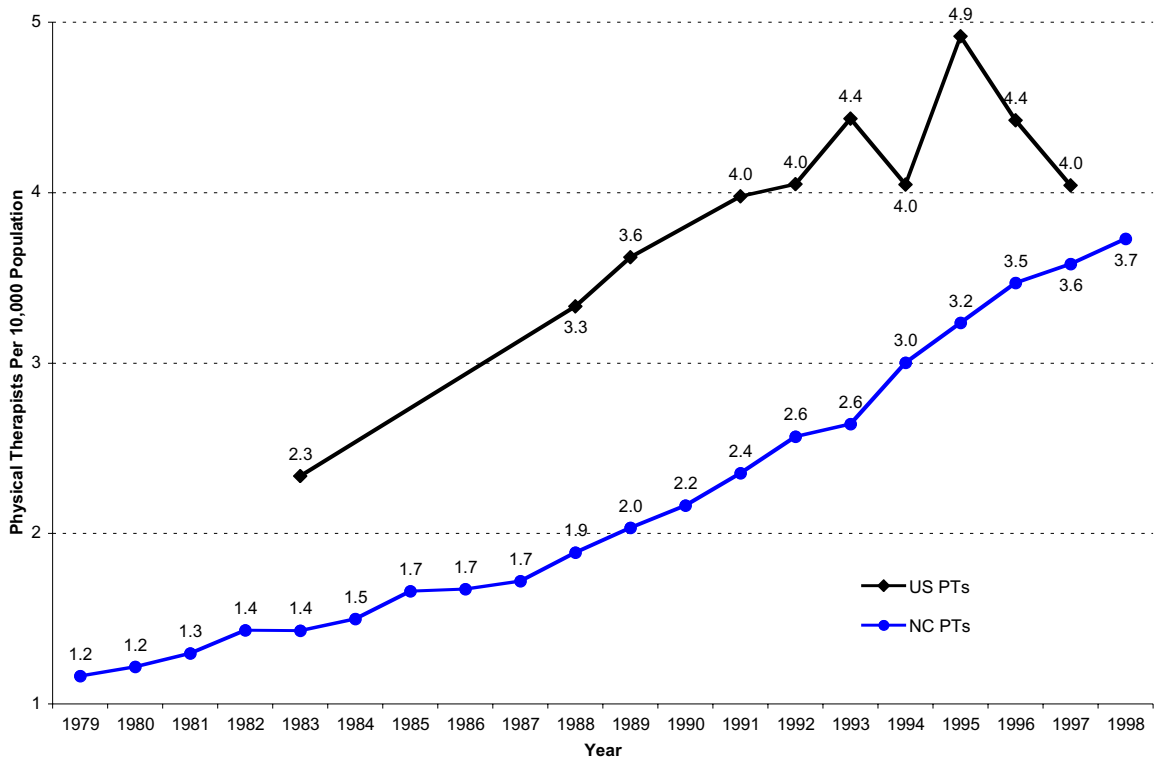
* The retention factor is the proportion of graduates from 1998 classes actually holding licenses in and having a work address in North Carolina in 1999. Year 2000+ estimates assume that the class size and retention rate is constant with historical trends. This factor is applied prospectively to anticipated graduating class size to estimate new NC workforce entrants.

Several other community colleges offer PTA training program through agreements with other educational institutions.

Sources: American Medical Association Allied Health databases, North Carolina Health Professions Data System and interviews with Guilford Technical Community College officials.

EXHIBIT 3

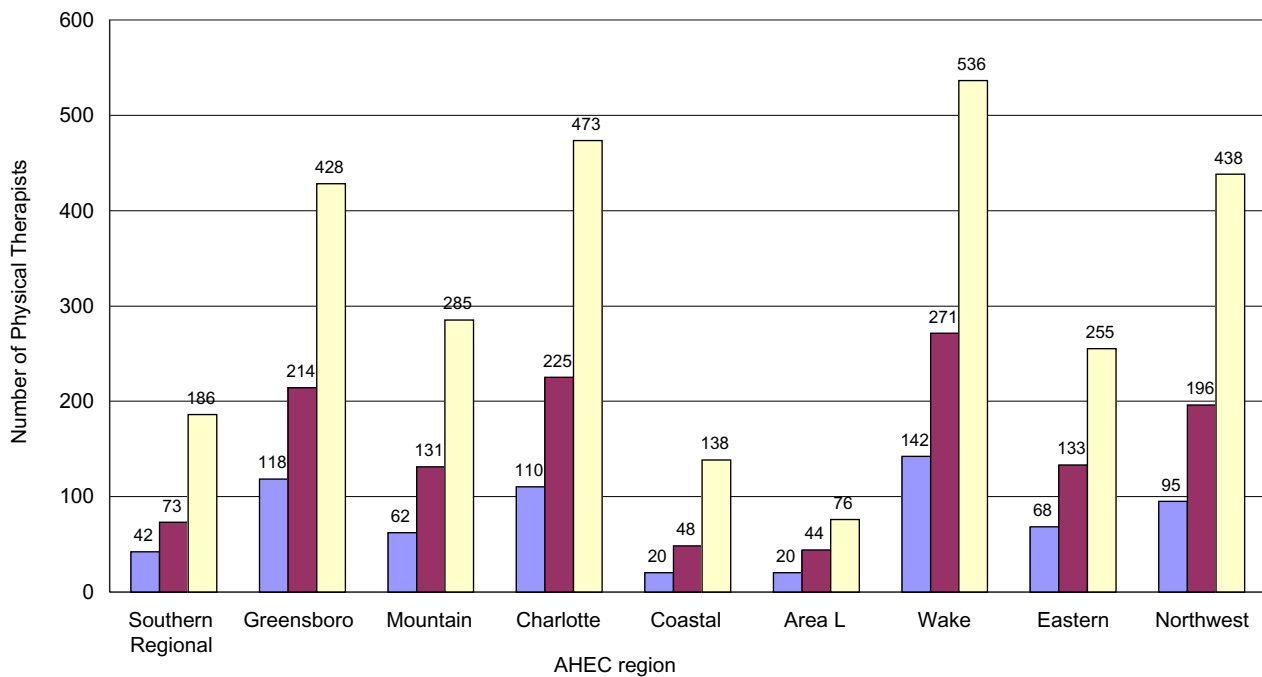
Number of Physical Therapists per 10,000 Population, US and NC, 1979 to 1998



Sources: North Carolina Health Professions Data System, 1979 to 1998; HRSA, Bureau of Health Professions; US Bureau of the Census; North Carolina Office of State Planning
 Figures include all licenced active physical therapists

EXHIBIT 4

Physical Therapists 1979, 1989, 1998, North Carolina

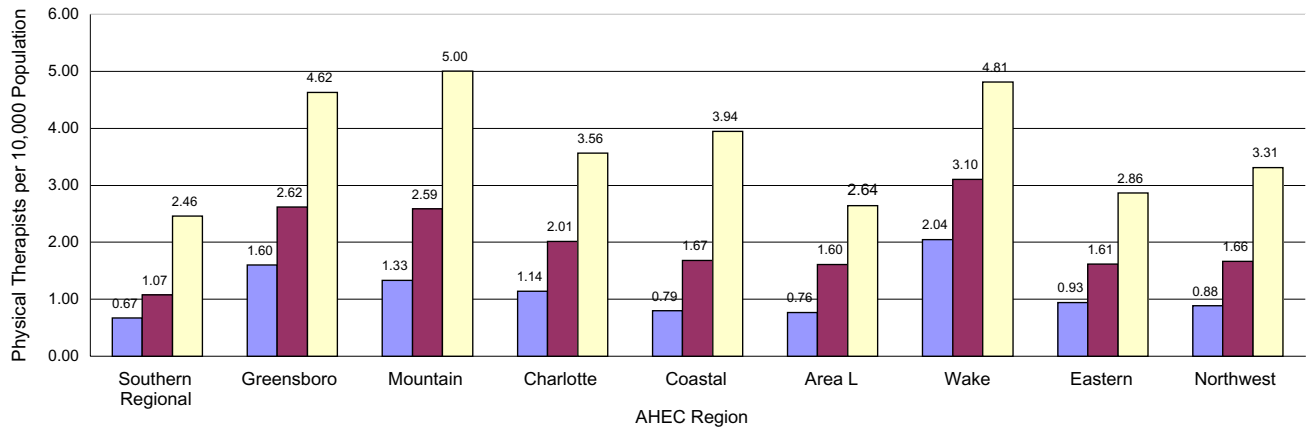


■ Number of Active PTs, 1979 (Total in NC = 677)
■ Number of Active PTs, 1989 (Total in NC = 1335)
■ Number of Active PTs, 1998 (Total in NC = 2815)

Source: North Carolina Health Professions Data System, 1979, 1989 and 1998.
 Figures include all licensed active physical therapists.

EXHIBIT 5

Physical Therapists per 10,000 population for 1979, 1989 and 1998 in North Carolina

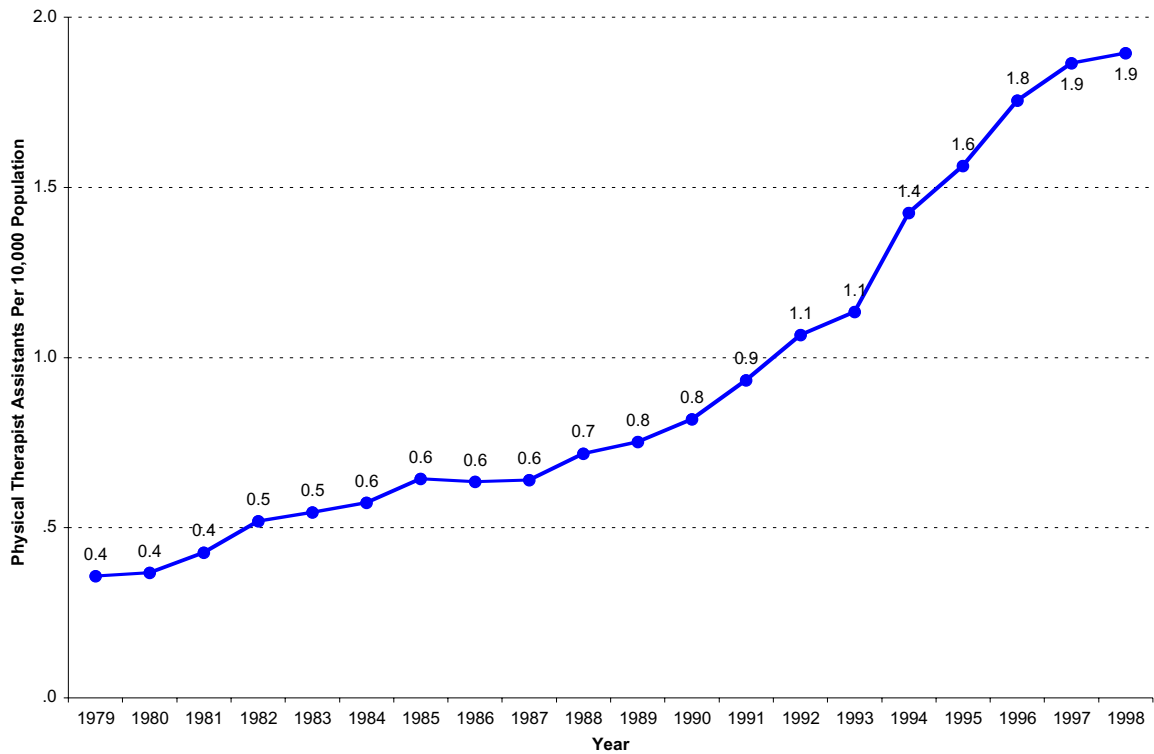


■ 1979 Ratio of PTs per 10,000 population (Statewide ratio = 1.16)
■ 1989 Ratio of PTs per 10,000 population (Statewide ratio = 2.03)
■ 1998 Ratio of PTs per 10,000 population (Statewide ratio = 3.73)

Source: North Carolina Health Professions Data System, 1979, 1989 and 1998. Figures include all licensed active physical therapists.

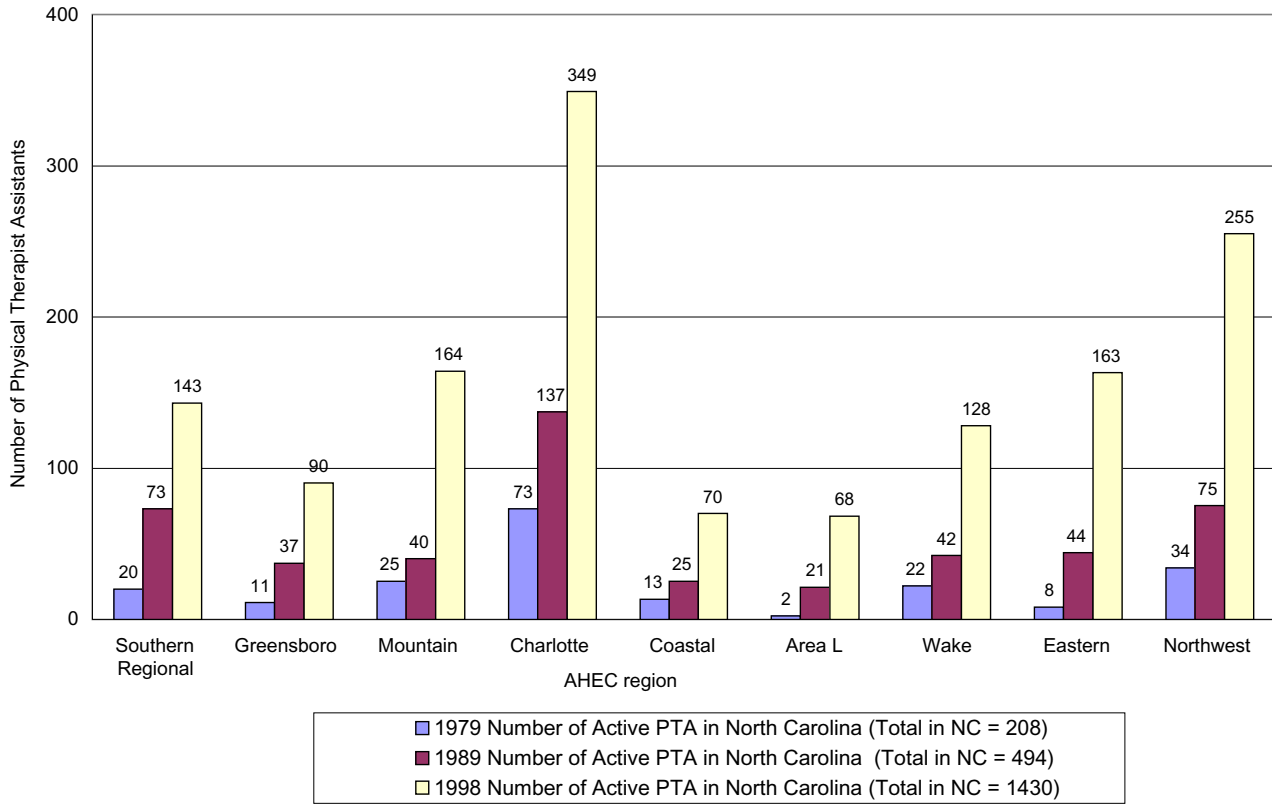
EXHIBIT 6

Number of Physical Therapist Assistants per 10,000 Population, NC, 1979 to 1998



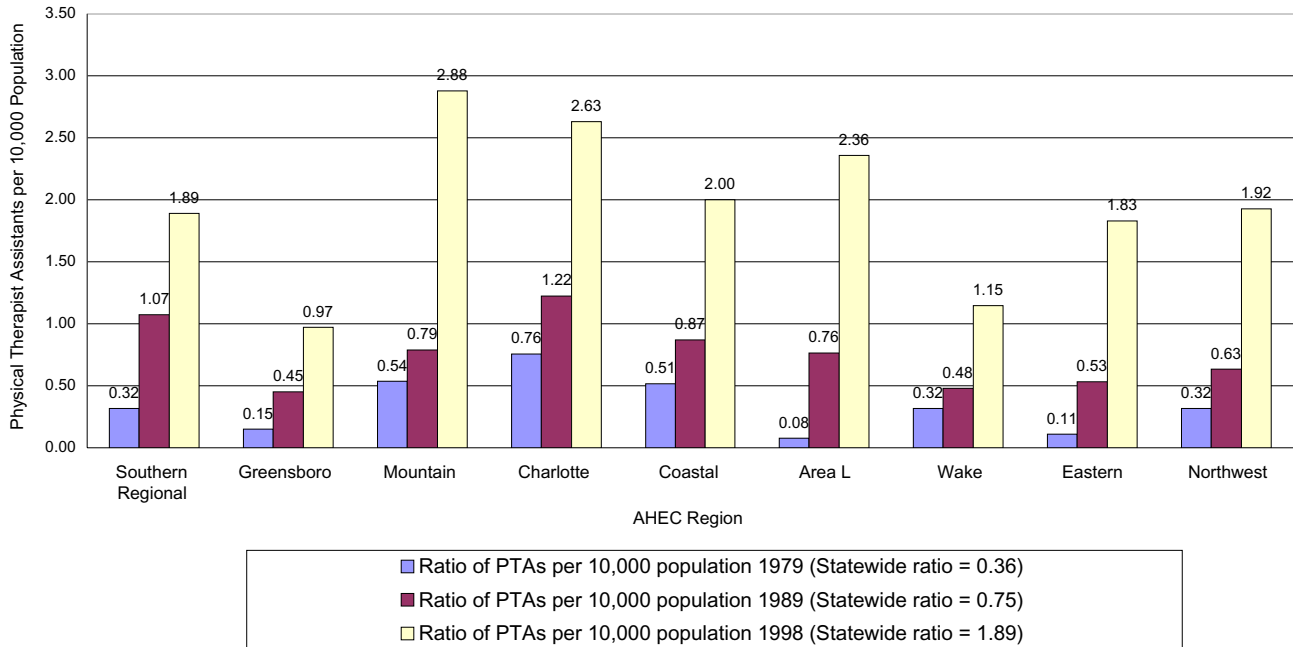
Sources: North Carolina Health Professions Data System, 1979 to 1998; HRSA, Bureau of Health Professions; US Bureau of the Census; North Carolina Office of State Planning. Figures include all licensed active physical therapy assistants.

EXHIBIT 7
Physical Therapist Assistants 1979, 1989, 1998, North Carolina



Source: North Carolina Health Professions Data System 1979, 1989 and 1998.
 Figures include all licensed active physical therapist assistants.

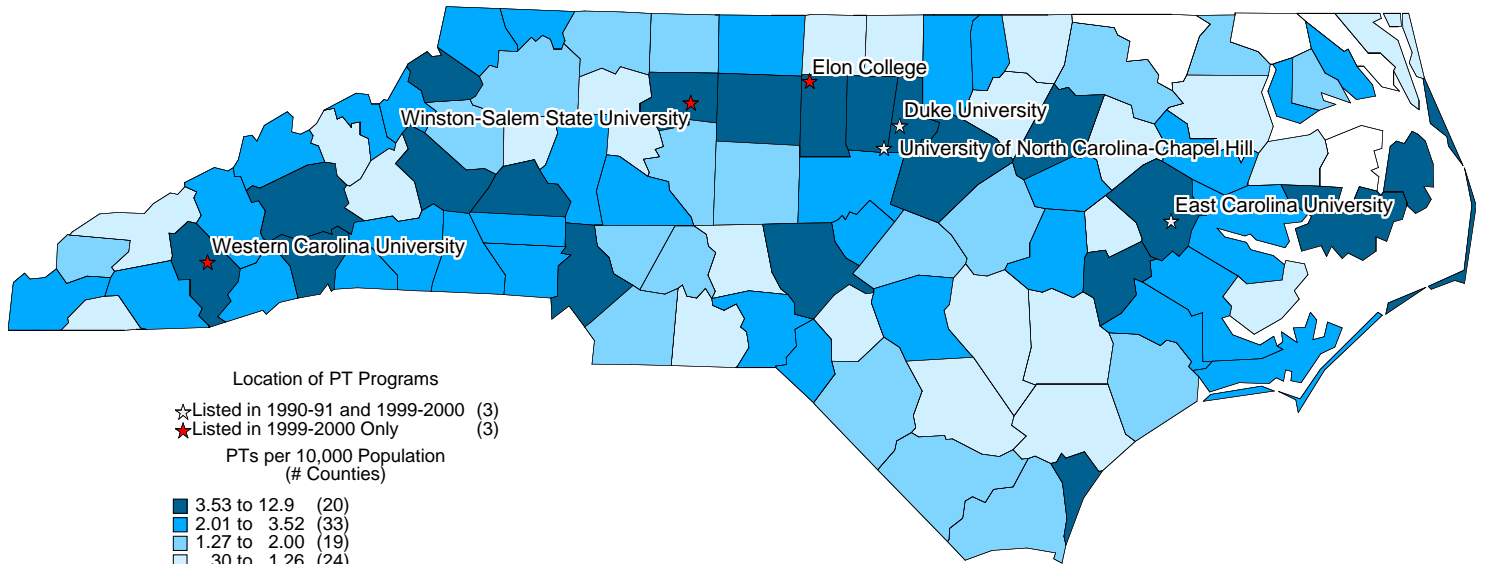
EXHIBIT 8
Physical Therapist Assistants per 10,000 population for 1979, 1989 and 1998 in North Carolina



Source: North Carolina Health Professions Data System, 1979, 1989 and 1998.
 Figures include all licensed active physical therapist assistants.

EXHIBIT 9

Active Physical Therapists per 10,000 Population, 1998 Location of Physical Therapy Training Programs

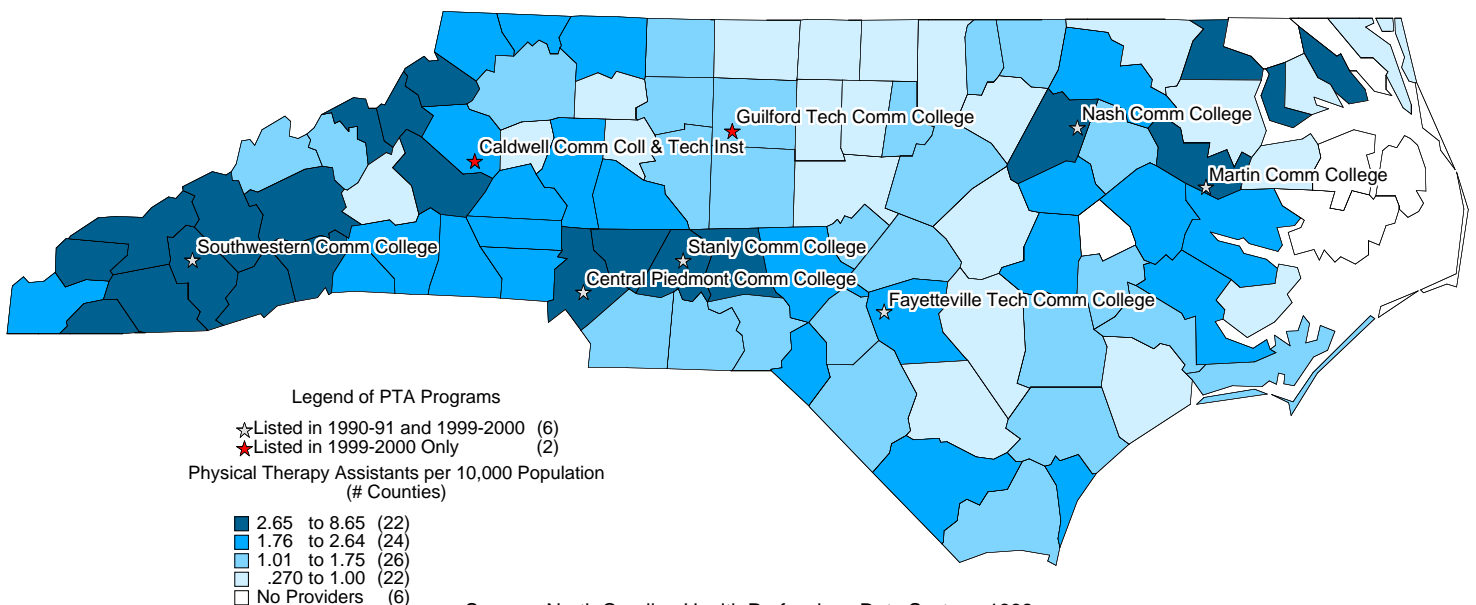


Source: North Carolina Health Professions Data System, 1998;
North Carolina AHEC Health Careers Manual, 1990-91, 1999-2000.

Produced By: North Carolina Rural Health Research and Policy Analysis Center,
Cecil G. Sheps Center for Health Services Research,
University of North Carolina at Chapel Hill.

EXHIBIT 10

Active Physical Therapist Assistants per 10,000 Population, 1998 Location of Physical Therapy Training Programs



Source: North Carolina Health Professions Data System, 1998;
North Carolina AHEC Health Careers Manual, 1990-91, 1999-2000.

Produced By: Cecil G. Sheps Center for Health Services Research,
University of North Carolina at Chapel Hill.

EXHIBIT 11

Physical Therapist Assistants per Physical Therapist, North Carolina

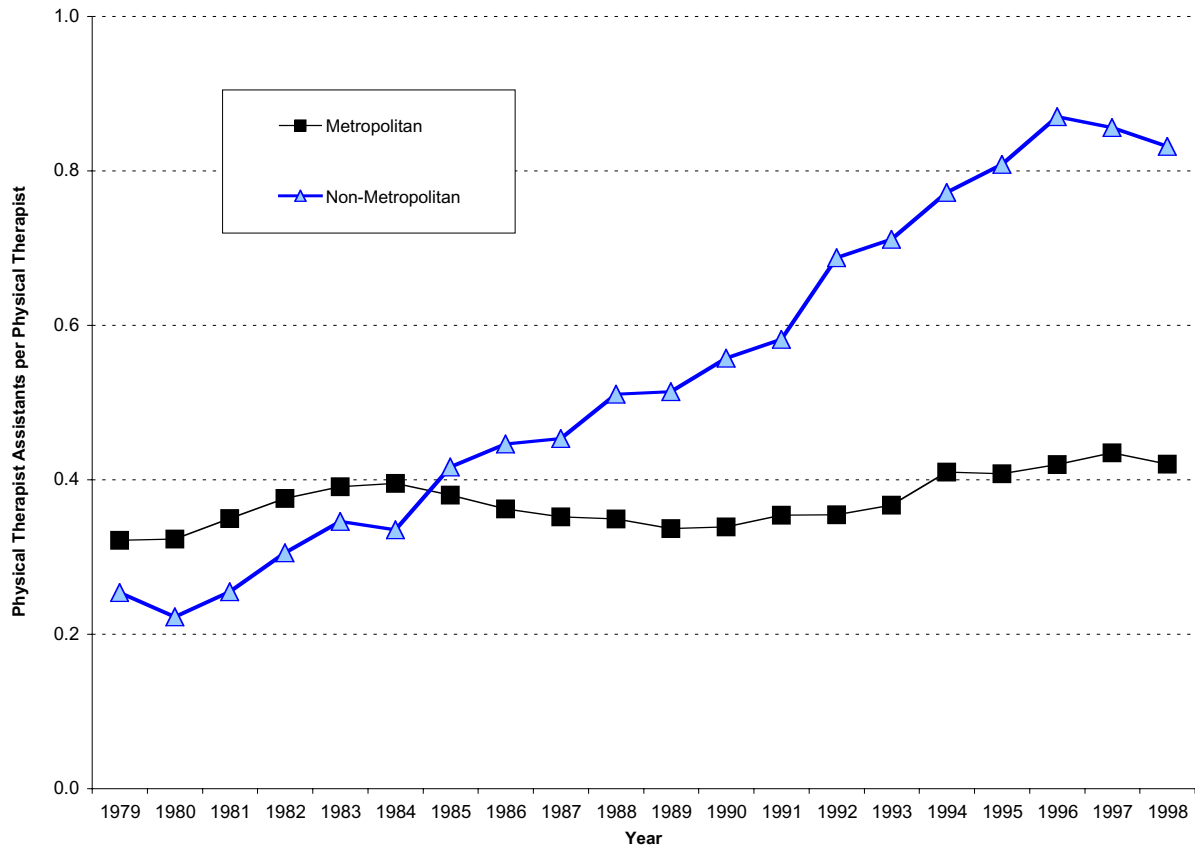
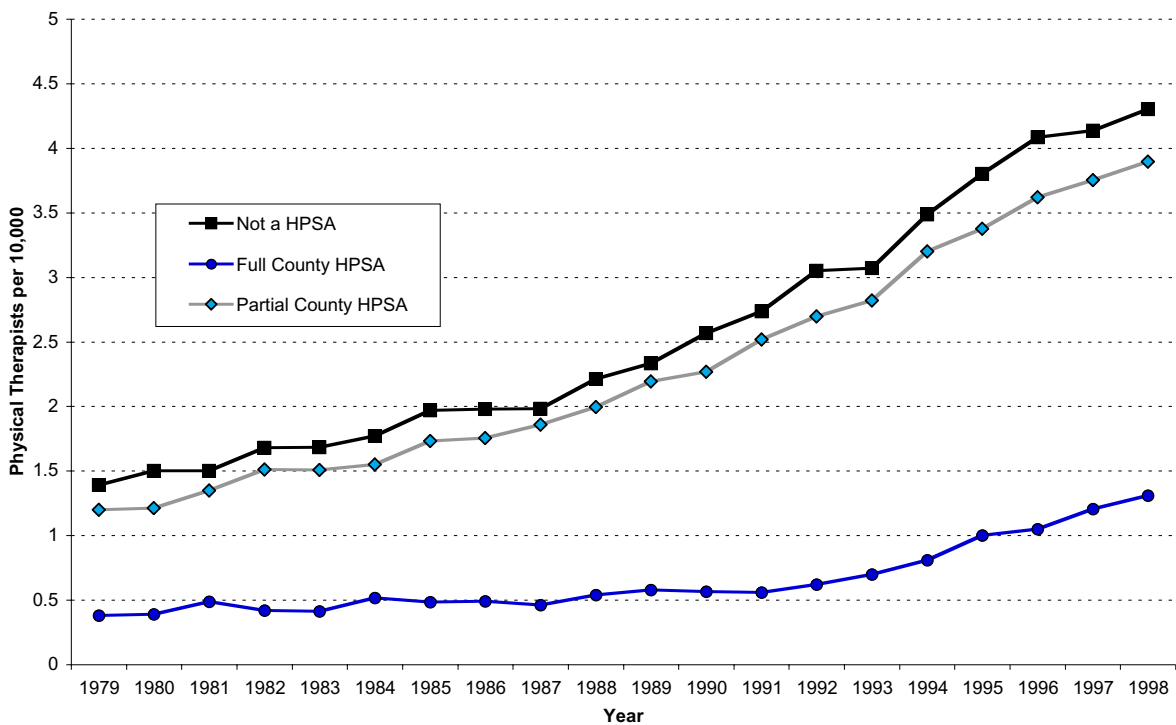


EXHIBIT 12

Physical Therapists per 10,000 Population Grouped by Health Professions Shortage Area (HPSA) Status, North Carolina, 1979 to 1998

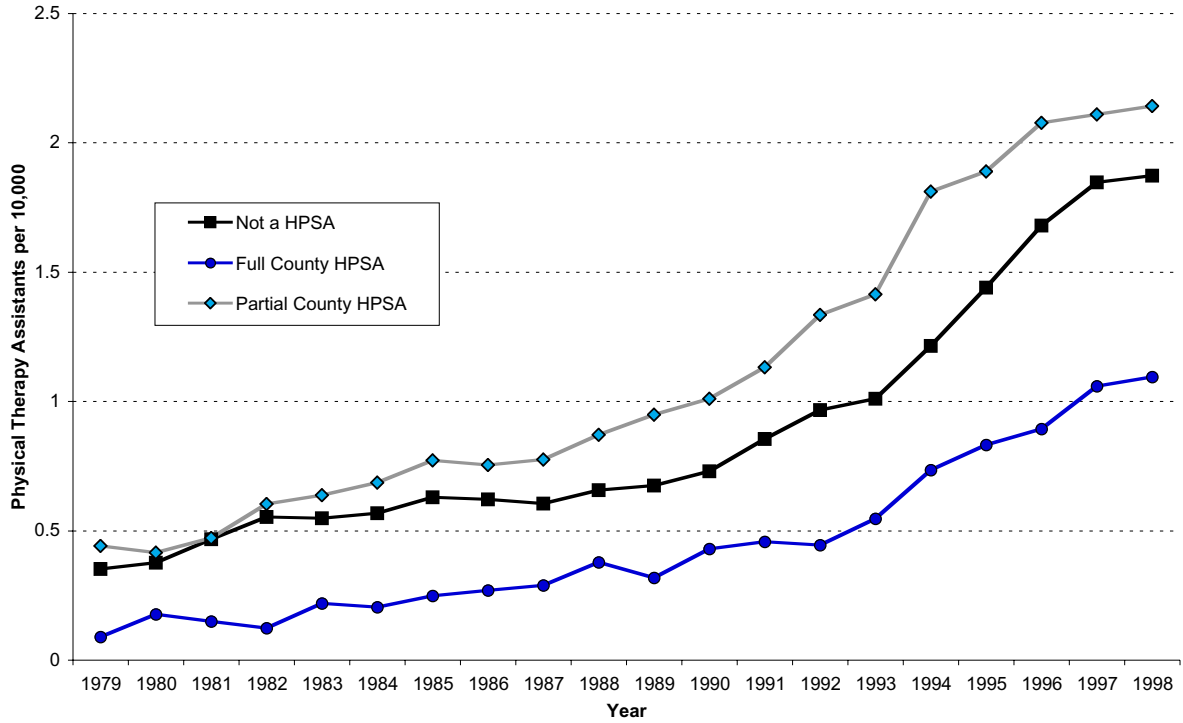


Sources: North Carolina Health Professions Data System, 1979 to 1998; HRSA, Bureau of Health Professions; US Bureau of the Census; North Carolina Office of State Planning
 Figures include all licenced active in-state non-federal Physical Therapists

Source for Health Professions Shortage Areas: Department of Health and Human Services, HRSA, Federal Register: Dec. 31, 1996, Vol 61, No. 251

EXHIBIT 13

Physical Therapist Assistants per 10,000 Population Grouped by Health Professions Shortage Area (HPSA) Status, North Carolina, 1979 to 1998



Sources: North Carolina Health Professions Data System, 1979 to 1998; HRSA, Bureau of Health Professions; US Bureau of the Census; North Carolina Office of State Planning
 Figures include all licenced active in-state non-federal Physical Therapy Assistants

Source for Health Professions Shortage Areas: Department of Health and Human Services, HRSA, Federal Register: Dec. 31, 1996, Vol 61, No. 251

EXHIBIT 14

Ethnic composition of North Carolina's Physical Therapy Workforce and General Population, 1998

AHEC region	Percent Nonwhite*		
	Physical Therapists	Physical Therapist Assistants	General Population
Southern	8.1	18.9	39.7
Greensboro	4.7	10.0	22.9
Mountain	1.7	2.4	7.0
Charlotte	5.1	9.2	22.5
Coastal	3.6	7.1	24.0
Area L	4.0	17.7	45.4
Wake	4.3	10.9	28.3
Eastern	3.5	9.2	30.8
Northwest	3.0	3.5	13.2
Entire State	4.2	8.9	24.1

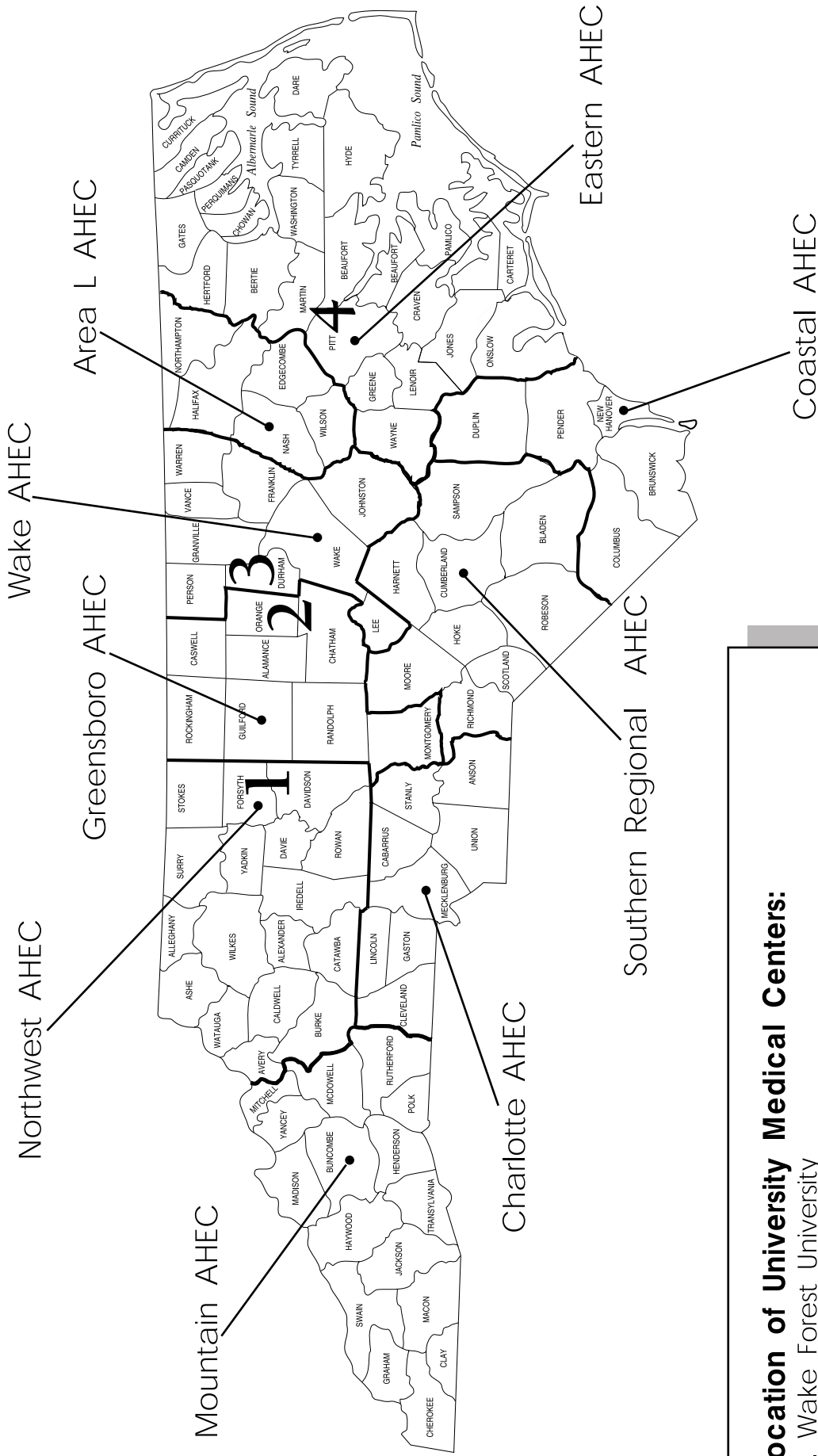
* Individuals identifying themselves as Black make up 93% of nonwhite PTAs and 57% of nonwhite PTs. The remaining practitioners in the nonwhite category are Asians (N=58), and American Indians (N=3) In addition to whites, the three remaining groups: other (N=8), Spanish origin (N=12) and unknown or missing (N=41). Total Physical therapists, 1998 = 2815, Total number of physical therapist assistants, 1998 = 1430.

Sources: NC Health Professions Data System, 1998 and the US Bureau of the Census. Figures include all licensed, active, physical therapists and physical therapist assistants.

North Carolina Counties Served by



North Carolina
Area Health
Education Centers
Program



- Location of University Medical Centers:**
1. Wake Forest University
 2. University of North Carolina at Chapel Hill
 3. Duke University
 4. East Carolina University