2007 - 2008 Texas State Health Plan Update

Technology as a Tool to Ensuring a Quality Health Care Workforce for Texas





Statewide Health Coordinating Council

OFFICE OF THE GOVERNOR

RICK PERRY
GOVERNOR

September 19, 2006

Ben G. Raimer, M.D.
Chair
Texas Statewide Health Coordinating Council
1100 West 49th Street
Austin, Texas 78756-3199

Dear Dr. Raimer:

I am pleased to receive the 2007-2008 Texas State Health Plan Update (2007-2008 Update) entitled, "Technology as a Tool to Ensuring a Quality Health Care Workforce for Texas." I appreciate your leadership on health workforce issues and the work of the members of the Statewide Health Coordinating Council (SHCC) in preparing a report that provides a thorough overview and analysis of the status of the Texas health workforce.

As you know, the Texas Health Workforce Planning Partnership, a standing subcommittee of the Texas Health Care Policy Council, is developing a health workforce strategic plan that includes priority actions to focus and synchronize health workforce planning and development activities in Texas over the next five years. I believe this strategic plan, in combination with the information included in the 2007-2008 update, will serve as useful guides for the Texas Legislature and other state policy makers. These documents will also help strengthen coordination and collaboration among the health workforce partners across the state – governmental agencies (federal, state, and local), colleges, universities, health science centers, local and regional workforce entities, and health professional associations.

I applaud your work in preparing the 2007-2008 update and the SHCC's dedication to maintaining and improving our health care workforce in Texas.

Sincerely,

Rick Perry

Rick Perry
Governor

RP:tgp

STATEMENT OF THE CHAIRMAN

The *1999-2004 Texas State Health Plan,* the state's initial fundamental health workforce-planning document, developed by the Texas Statewide Health Coordinating Council (SHCC) in 1998, envisioned a Texas in which all citizens were able to achieve their maximum health potential. However, six years later, due to a myriad of factors and circumstances, Texas continued to be challenged to meet its current health care workforce needs and the anticipated needs for future generations.

As the SHCC considered the approach it would take in developing the *2005-2010 Texas State Health Plan*, the members felt that it was necessary to consider a different approach. Rather than continue to look only at the health workforce that would be required to fulfill the requirements of the current traditional medical model, the SHCC chose to consider innovative delivery models and the mix of health professionals that would be required to ensure a quality health workforce under a non-traditional delivery model. The SHCC followed the same approach in the development of the *2007-2008 Texas State Health Plan Update*.

The SHCC conducted an extensive assessment of health workforce issues. Additionally, in May 2006, the SHCC hosted the Texas Statewide Health Workforce and Health Information Technology Summit. The summit provided a forum for stakeholders to come together to discuss the most critical workforce and health information technology issues and to entertain possible solutions. Both the result of the literature review and the summit support the need for fundamental system change within the health care delivery system and the policy environment that shapes it. Consequently, the *2007-2008 Texas State Health Plan Update* continues to focus on innovative approaches to the recruitment and retention, the education and training, and the regulation of the Texas health care workforce.

We are committed to the belief that a healthy Texas can be a productive Texas and envision a Texas in which each person enjoys optimal health status, is informed, and is productive. We continue to believe that the recommendations included in the *2005-2010 Texas State Health Plan* place Texas on the right track in preparing our state for its future.

Ben G. Raimer, M.D., Chairman
Texas Statewide Health Coordinating Council

STATEWIDE HEALTH COORDINATING COUNCIL

A VISION

We envision a Texas in which all are able to achieve their maximum health potential - A Texas in which:

- ★ Prevention and education are the primary approaches for achieving optimal health.
- ★ All have equal access to quality health care.
- ★ Local communities are empowered to plan and direct interventions that have the greatest impact on the health of all.
- ★ We, and future generations, are healthy, productive and able to make informed decisions.

A Healthy Texas is a Productive Texas

2007-2008

TEXAS STATE HEALTH PLAN UPDATE
TEXAS STATEWIDE HEALTH COORDINATING COUNCIL

November 2006

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Commissioner of Health
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FOREWORD

The *Texas State Health Plan* is prepared every six years and updated biennially. The plan serves as a guide to help Texas decision makers formulate appropriate health policies and programs.

The Texas Statewide Health Coordinating Council, a 17-member council with 13 members appointed by the governor and four *ex officio* members representing specified state agencies, develops the plan. The Texas Health Planning and Development Act, Chapter 104 of the Health and Safety Code, is the enabling legislation for the Statewide Health Coordinating Council. Under the authority of Chapter 104, the governor, with the consent of the senate, appoints the 13 council members to staggered six-year terms. The heads of the four state agencies serve on the council or designate an individual to serve on their behalf.

The broad purpose of the Statewide Health Coordinating Council is to ensure that health care services and facilities are available to all Texans through health planning activities. Based on these planning activities, the council makes recommendations to the governor and the legislature through the *Texas State Health Plan*. The council provides overall guidance in the development of the *Texas State Health Plan*, submission of the plan to the governor, and promotion of the plan's implementation. The plan is due to the governor for adoption by November 1 of each even-numbered year. Staff in the Center for Health Statistics, with assistance from other program areas at the Texas Department of State Health Services, supports the council's activities.

House Bill 1716 from the 75th Legislature amended Chapter 104 of the Health and Safety Code and focused the council's planning activities on the health professions workforce. The council produced the *1999–2004 Texas State Health Plan: Ensuring a Quality Health Care Workforce for Texas,* which was the fundamental plan for the previous six-year planning cycle. The *2001–2002 Texas State Health Plan Update* was the first update to that document, while the *2003–2004 Texas State Health Plan Update* was the final update.

The *2005–2010 Texas State Health Plan,* which was presented to Governor Rick Perry in October of 2004, serves as the initial document and fundamental plan for the current six-year planning cycle and once again focuses on the Texas health workforce. For the purposes of this report, the *2005–2010 Texas State Health Plan* is referenced as the S*tate Health Plan.*

The *2007-2008 Texas State Health Plan Update (2007-2008 Update)* is the first biennial update to the *State Health Plan*. Senate Bill 45, 79th Regular Legislative Session, amended Chapter 104 of the Health and Safety Code and further focused the council's planning activities on the use of information technology in the service delivery system. S.B. 45 also directed the Statewide Health Coordinating Council to form an advisory committee to develop a long-range plan

for health care information technology. On November 17, 2005, the Statewide Health Coordinating Council appointed an eleven member advisory committee, the Health Information Technology Advisory Committee (HITAC). Under the guidance and coordination of staff within the Texas Health Care Policy Council, the HITAC will develop the draft of the long-range plan for presentation to the Statewide Health Coordinating Council on July 20, 2006. The document will be created as a separate document, but will be presented to the governor simultaneously with the *2007-2008 Update*.

The S*tate Health Plan* outlines Texas' interests in issues concerning the workforce in the health professions. The state is a major provider of medical and health education through its system of publicly funded health science centers, universities, and community and technical colleges. Texas is a major purchaser of health care services through the state's Medicaid program and other public health care programs, as well as a provider of such services through its system of publicly funded medical schools and hospitals. Finally, Texas has the responsibility for the health, safety, and welfare of its residents. In the *State Health Plan*, the council develops and presents policy-level recommendations to ensure Texas has a workforce with the skills, competencies, and abilities to meet the needs of its growing and diverse population.

The *2007-2008 Update* will be presented to the governor on October 26, 2006. Copies of the plan will be distributed to state legislators, universities, licensing boards, professional associations, and other interested parties and will be posted on the Web site at http://www.texasshcc.org or http://www.dshs.state.tx.us/chs/shcc/default.shtm. The *State Health Plan* and the *2007-2008 Update* will serve as two of the state's fundamental documents for information on the health professions and workforce planning. The plan and updates include input from major stakeholders throughout the state, including professional associations, state agencies, employers of health professionals, educators of health professionals, and numerous other public and private entities.

The recommendations included in the *2005-2010 Texas State Health Plan* are included in Appendix A.

Copies of the 2005-2010 Texas State Health Plan and the 2007-2008 Texas State Health Plan Update *can be downloaded from the Web site at* http://www.TexasSHCC.org or at http://www.dshs.state.tx.us/chs/shcc/default.shtm. *Printed copies of the documents are also available from the Texas Department of State Health Services, Center for Health Statistics, at a cost of $20 per copy. To order a document copy, call (*512) 458-7261.

INTRODUCTION

The workforce policy question the Statewide Health Coordinating Council (SHCC) addressed in the *1999–2004 Texas State Health Plan: Ensuring a Quality Health Care Workforce for Texas* is whether or not the current and future supply of health care professionals in Texas will be adequate to meet the current and future needs of the population. The *1999–2004 Texas State Health Plan* was the state's first fundamental health workforce-planning document incorporating policy, research, and a strategic plan with goals, objectives and strategies. The *2001–2002 Update* furthered that strategic plan with new strategies to strengthen the systems that support and ensure a quality health care workforce for Texas. The *2003–2004 Update,* the final update to the *Texas State Health Plan*, continued to build on that strategic plan with additional strategies for those areas that continued to present challenges and for new areas that had surfaced as significant workforce issues during the years since the *2001–2002 Update* was published.

In early 2003, the SHCC began to consider the approach it would take during the current six-year planning cycle and the production of the *2005-2010 Texas State Health Plan*. Due to critical health workforce shortages and the challenges of changing demographics, the members felt it was necessary to take a step back and consider a slightly different approach. Rather than continue to look only at the health workforce that would be required to fulfill the current traditional medical model, the SHCC decided to research innovative delivery models and the mix of health professionals required to ensure a quality health workforce under a non-traditional delivery model. This model would focus on "wellness" and on the implementation of evidence-based protocols.

In October 2004, the SHCC presented the *2005-2010 Texas State Health Plan* to Governor Rick Perry. This document, which presented innovative approaches to health workforce planning for Texas, continues to serve as the fundamental health workforce strategic plan for the state. The SHCC incorporated numerous recommendations utilizing information technology to ensure that Texas has a quality health care workforce for the present and future.

During the 79th Regular Legislative Session, S.B. 45 amended Chapter 104 of the Health and Safety Code to statutorily require the SHCC to consider and identify ways in which information technology can be used to ensure a quality health care workforce. S.B. 45 also directed the SHCC to consider the use of technology in other aspects of its planning activities and subsequent recommendations.

Additionally, S.B. 45 established the Health Information Technology Advisory Committee (HITAC) as a permanent advisory committee to the SHCC. The SHCC appointed the HITAC on November 17, 2005 and charged the group with developing a long-range plan for health information technology for Texas, including the use of electronic medical records, computerized clinical support systems, computerized physician order entry, regional data sharing interchanges for health care information, and other methods of incorporating information technology in pursuit of greater cost effectiveness and better patient outcomes.

The plan to be presented to the governor by November 1, 2006, will:

- Include formalized input from stakeholders within identified information technology domains (e.g. data standards, regional health information organizations, electronic health records, disease management);
- Include recommendations to accelerate the adoption of information technology and an electronic health information infrastructure to support quality, safety and efficiency within the health care arena;
- Consider the public health implications of health information technology; and
- Emphasize the applications of health information technology within the educational and employment arena of the health care workforce.

Identification of Issues

In order to establish a basis for the development of the *2007–2008 Texas State Health Plan Update* (*2007-2008 Update*), an extensive assessment of issues concerning the health workforce and the use of information technology was conducted. The SHCC chose to approach the first biennial update from two perspectives. First, they identified the most critical health workforce issues that remain unresolved from the previous six-year planning cycle: ongoing and increasing workforce shortages across numerous health professions, the demand for an expanded workforce required to care for a burgeoning aging and disabled populations, and the critical nursing shortage. The second issue was to identify ways in which information technology could be used to support the health care workforce. This would include an assessment of how technology could be used to prepare the current and future health professionals to practice safely and effectively in a technology-rich environment.

Demographics

Changes in the rates and sources of population growth, increases in the non-Anglo population, aging of the population, and change in the household composition of Texas families are major demographic trends that will affect the future of health care delivery in Texas. Using the U.S. Census count for 2000, 53.1 percent of the Texas population was Anglo, 11.6 percent was Black, 32.0 percent was Hispanic, and 3.3 percent was Other. By 2004, it is estimated those percentages changed in Texas to 49.9 percent Anglo, 11.4 percent Black, 34.9 percent Hispanic, and 3.8 percent Other. Based on the Texas State Data Center's population projection 1.0, in 2040 those numbers will be 23.9 percent Anglo, 8.0 percent Black, 59.2 percent Hispanic, and 8.8 percent others. [1]

Although minority populations are growing at a tremendous pace, they remain seriously underrepresented in the health care professions. In Texas, while it is estimated Hispanics constitute 34.9 percent of the population, they make up only 8.5 percent of registered nurses and only 11.2 percent of direct patient care physicians. Non-Hispanic African Americans are estimated to constitute 11.4 percent of the population, yet make up only 7.6 percent of registered nurses and 4.3 percent of direct patient care physicians.[2]

The Texas population of those over age 65 is expected to double from 2000 to 2040. Other sources project this population will triple during this time frame. Health care for persons over 65 is commonly projected to cost three times as much as for those under 65. The aging of the population and the increase in the Hispanic population pose numerous implications for the incidence of chronic disease. It is well documented that treatment for chronic diseases is the most costly aspect of medical care. Some project 90 percent of Medicare expenditures are spent for the management of chronic disease. At the same time, the incidence of chronic disease is increasing in all age groups due to the obesity epidemic.

Texas is the second-largest state in the United States, second only to California, and continues to be the second-fastest growing state in population. Currently, about 22.8 million people live in Texas. The Texas population is increasing at a rate roughly twice that of the nation as a whole and is second only to California in population growth. Texas has the distinction of having one of the fastest growing youth (18 and under) populations as well as one of the fastest growing aging populations (60 and over). Forecasts predict the Texas population will reach 35.8 million by 2030.[3] The projected rates of growth in the youth and elderly populations and in minority populations will result in increased demand for health services. This increase in demand and the special health care needs of these populations must be taken into consideration in the planning and preparation of the health care workforce.[4]

Status of the Texas Health Workforce

Chapter 2 provides detailed information on health professions licensed in Texas. In addition to reporting the supply of health professionals practicing in Texas in 2005 for each of these professions, this report also shows the trends in the supply of the various providers over the last two decades, and compares those trends with the national trends. While these comparisons may not indicate whether or not Texas has a shortage of health professionals, they do show where the supply of health professionals in Texas is above or below the national average and whether the supply of those professionals in Texas and the United States has been increasing or declining over the years. Additional information about the individual professions is provided in Appendix B. Most of the data are presented as ratios and reflect the number of providers per 100,000 population. This allows comparisons to be made between areas with different populations, such as the United States and Texas or metropolitan counties and non-metropolitan counties. The provider-per-population ratio is a more accurate indicator of the supply of health providers in a given area than is the raw number of health providers. The higher the ratio, the greater the supply of health professionals available in an area for providing health care services.

Ratios are presented for Texas and the United States and for various geographic locations in Texas: metropolitan and non-metropolitan counties, border and non-border counties. The 43-county border area was defined by the state legislature and a map of this area is provided in Figure 2.1. The following is a summary of statistics presented in Chapter 2.

- Supply ratios vary according to geographic location:
  - Metropolitan county ratios are higher than non-metropolitan county ratios.
  - Non–border county ratios are higher than border county ratios.
  - Pharmacist ratios in non-metropolitan areas are decreasing more rapidly than pharmacist ratios in metropolitan areas.

- Over the past decade, Texas supply ratios have differed from U.S. average ratios as follows:
  - PC physician ratios in the United States have consistently exceeded the ratios of PC physicians in Texas; however, four years ago, the gap between the two began to widen. Metropolitan ratios are considerably larger than non-metropolitan ratios.

- Supply ratios for pediatricians per 100,000 children and internal medicine physicians have been well below the United States supply ratios over the past 20 years.

- Supply ratios for family practice physicians have been similar to United States ratios.
  - Registered Nurse (R.N.) supply ratios in the United States have consistently exceeded the supply ratios in Texas for the past 20 years and will for the foreseeable future.
  - Licensed Vocational Nurse (L.V.N.) ratios in the United States have consistently been lower than the Texas ratios for the past 20 years. In contrast with R.N. ratios, L.V.N. ratios in non-metropolitan areas in Texas are higher than ratios in metropolitan ratios.
  - Medical Radiologic Technician ratios were below United States average ratios between 1994 and 2001; however, since that time Texas ratios have been increasing faster than United States ratios.
  - The ratios for most of the other Texas-licensed health professions are below the United States average ratios.
  - Dentist supply ratios in the United States have consistently exceeded the supply ratios in Texas for the past 20 years and the numbers both in the United States and Texas have remained virtually flat since 1998.
  - Pharmacist ratios in non-metropolitan areas have been lower than the ratios in metropolitan areas for over 20 years. This gap is widening and the supply of pharmacists in non-metropolitan areas appears to be decreasing more rapidly than the supply in metropolitan areas.
  - Psychiatrist supply ratios have remained flat in Texas since 1998 and are lower than in 1992.

Some counties in Texas have been chronically short of various health professions; other counties have never had various types of professionals employed in their area and may not have the population to support those professions. L.V.N. is the most widespread profession throughout the state, with only seven of 254 counties having no providers from this profession. In contrast, Certified Nurse-Midwife is the least widespread profession with 214 counties not having a representative from this profession.

As far as primary care providers are concerned, non-metropolitan areas have only 11 percent of the state's primary care physicians, but have 13.6 percent of the population. Metropolitan areas have 89 percent of the primary care physicians, but only 86.4 percent of the population. In addition, the growth rate of Nurse Practitioners (N.P.s) and Physician Assistants (P.A.s) in Texas has greatly

exceeded the growth rate of primary care physicians. Some of that increased growth rate of P.A.s can be attributed to their increased growth rate in non-metropolitan areas, compared to the rate in metropolitan areas:

- N.P.s increased their supply ratios at a rate eight times faster than physicians (185 percent compared to 23 percent); and
- P.A.s increased their supply ratios at a rate nine times faster than physicians (207 percent compared with 23 percent).

79th Legislative Session and Interim Period

During the 79th Regular Legislative Session, there were numerous bills proposed that were identified as relating to the SHCC's recommendations on workforce in the *2005–2010 Texas State Health Plan,* including legislation to increase the number of nursing graduates, telemedicine and telehealth, safe working environment for nurses, and other legislation to strengthen the use of technology in health care delivery and to strengthen the infrastructure for strategic planning within the state.

The health workforce-related bills passed are as follows:

Senate Bill 45 – Relating to the establishment of an advisory committee on health care information technology.

S.B. 45 amended Chapter 104 of the Health and Safety Code to statutorily require the SHCC to consider and identify ways in which information technology can be used to ensure a quality health care workforce. S.B. 45 also directed the SHCC to consider the use of technology in other aspects of its planning activities and subsequent recommendations.

Additionally, S.B. 45 established the Health Information Technology Advisory Committee (HITAC) as a permanent advisory committee to the SHCC. The SHCC appointed the HITAC on November 17, 2005 and charged the group with developing a long-range plan for health information technology for Texas, including the use of electronic medical records, computerized clinical support systems, computerized physician order entry, regional data sharing interchanges for health care information, and other methods of incorporating information technology in pursuit of greater cost effectiveness and better patient outcomes.

House Bill 916 - Relating to a study of the health care delivery system in certain medically underserved communities and creating the Texas Health Care Policy Council.

H.B. 916 created the Texas Health Care Policy Council within the Office of the Governor which reports to the governor or the governor's designee. The council is composed of the administrative head of the following agencies or that person's designee: Health and Human Services Commission, Department of State Health Services, Department of Aging and Disability Services, Texas Workforce Commission, the Texas Higher Education Coordinating Board, Texas Department of Insurance, Employees Retirement System of Texas, Teacher Retirement System of Texas, each health care related licensing agency identified by the governor; and any other state agency or system of higher education identified by the governor that purchases or provides health care services.

House Bill 916 also created The Texas Health Workforce Planning Partnership as a standing subcommittee of the council and is composed of the members of the council representing the Health and Human Services Commission, the Department of State Health Services, the Texas Workforce Commission, the Texas Higher Education Coordinating Board, and any other state agency or system of higher education identified by the governor that impacts health care or workforce planning, and the administrative head or that person's designee of the Health Professions Council and the Office of Rural Community Health Affairs.

The partnership shall monitor the health care workforce needs of the state, including monitoring the number and type of health care workers in the state by region and the health care workforce needs of the state, identifying any changes in the number of health care workers or health care workforce needs, and monitoring the quality of care provided by the health care workforce. The partnership shall also undertake and implement appropriate health care workforce planning activities and research and identify ways to increase funding for health care, including obtaining money from federal, state, private, or public sources.

Senate Bill 1340 - Relating to the regulation and reimbursement of health care services provided through telehealth or telemedicine under the state Medicaid program.

S.B. 1340 expands and defines the use and reimbursement of telemedicine in the state Medicaid Program.

Senate Bill 1188 – Relating to the medical assistance program and other health and human services.

The Health and Human Services commission shall establish the office of medical technology within the commission. The office shall explore and evaluate new developments in medical technology and propose implementing the technology in the medical assistance program under Chapter 32, Human Resources Code, if appropriate and cost-effective. The staff must have skills and experience in research regarding health care technology.

Other bills were filed that addressed the important subject of telemedicine and telehealth as a means to use technology to overcome the distances many Texas residents must travel to see a health care provider. However, none of those bills passed.

Another bill identified as affecting the state's health workforce is as follows:

House Bill 1126 — Relating to emergency medical services vehicles and personnel and the collection and use of certain health-related data.

H.B. 1126 amends Chapter 104 of the Health and Safety Code and directs the SHCC to report all workforce-related data by rural and urban categories.

Several additional bills passed during the 79th Regular Legislative Session that have a direct impact on nursing in Texas:

Senate Bill 132 — Relating to goals and strategies concerning the number of graduates from professional nursing education programs and incentives to recruit and retain professional nursing program faculty.

S.B. 132 sets statewide goals for increasing the number of initial RN graduates, develops strategies for increasing graduation rates from nursing programs and promotes innovation in nursing education through the regionalization of common administrative and instructional functions, pooled or shared faculty and new clinical instruction models to maximize the use of existing resources and faculty.

House Bill 916 – Health Care Delivery System Study

H.B. 916, among other things, mandates the SHCC, with area health education centers, study the system in five geographically diverse, medically underserved (MUA) communities to identify how nonphysician providers are being used; to determine which MUAs have been successful in recruiting physicians; to identify the nonphysician providers who

could provide supplementary services within the scope of their licenses; to examine whether alternative supervision of nonphysician health care providers or service delivery in nontraditional settings would provide a benefit; to examine whether a medically underserved area is caused by a shortage of providers, a shortage of health care facilities, or both; and to evaluate the measures each MUA has taken to resolve the shortage in their area and identify innovative solutions.

Senate Bill 39 – Relating to continuing education in forensic evidence collection for certain physicians and nurses.

S.B. 39 requires ER Nurses receive two hours of continuing education training in forensic evidence collection.

Senate Bill 502 – Relating to common undergraduate admission application forms for public institutions of higher education in this state.

S.B. 502 requires the Texas Higher Education Coordinating Board to work with junior college districts, public state colleges and public technical colleges to adopt an electronic common application form, much in the way Texas public universities now have.

Senate Bill 1 – General Appropriations Bill

S.B. 1 designates the Texas Higher Education Coordinating Board, as trustee of $6 million in funds, $4 million in tobacco settlement dollars and $1.8 million in financial aid, to achieve an increase in the number of professional nursing program graduates, an increase in the percentage of professional nursing program students who graduate within a reasonable period of time, and an increase in the number of master's and doctoral programs graduates that join the faculty of a professional nursing program. Funds can be used to create additional nurse faculty positions, provide temporary salary supplements for professional nursing faculty, and engage qualified preceptors to expand faculty capacity. Appropriated funds will be distributed in an equitable manner to institutions based on increases in numbers of graduating nursing students. Rider was added requiring APNs (and PAs) to bill under their own Medicaid provider number.

Senate Bill 1000 – Relating to the regulation of the practice of nursing.

S.B. 1000 amends the definition of "vocational nursing" adding more detail (scope of practice definition for LVNs) and parallel format with definition of "professional nursing;" clarifies a nurse's conduct is reportable to the Board of Nurse Examiners (BNE) only when the conduct creates an unnecessary risk of harm to patient; clarifies relationship between employer reporting and conducting of nursing peer review when a terminated nurse elects not to participate in peer review; addresses employer reporting of temporary agency nurses to the BNE; and makes the Nurse Licensure Compact permanent in Texas.

House Bill 1366 – Relating to the regulation of nursing.

H.B. 1366 expands the BNE's authority to investigate criminal charges against nurses through establishment of a criminal investigations unit, allows the BNE to consider deferred adjudication when considering candidates applying for nurse licensure, and adds a list of offenses which require suspension, revocation or denial of licensure.

House Bill 1718 – Relating to the regulation of certain nursing practices including circulating duties in an operating room.

H.B. 1718 further defines a nurse first assistant and clarifies an APN who has completed the registered nurse first assistant (RNFA) education course can function as a nurse first assistant. It authorizes nurses who are not RNFAs to assist in surgery provided they do not use the first assistant title and assist only under the direct personal supervision of a physician, podiatrist or dentist in the same sterile field. H.B. 1718 includes language providing for an RN to perform circulating duties in the operating room and allows LVNs and surgical technologists under the direct supervision of an RN.

House Bill 2680 – Relating to services provided by health care practioners to charities and liability insurance for those practioners.

H.B. 2680 calls for reduced fees and continuing education requirements for a retired health care practitioner whose only practice is voluntary charity care.

Senate Bill 1525 – Related to safe patient handling and movement practices of nurses in hospitals and nursing homes.

S.B. 1525 requires facilities to set up policies and procedures for the safe handling of patients. It discourages, but does not prohibit, manual moving and handling of patients.

A tracking list of all health workforce–related bills introduced during the 79th Regular Texas Legislative Session is available in Appendix C.

Several charges from the 79th Legislative Interim Committee relate to the health workforce:

House Committee on Government Reform – Review the feasibility and benefits of consolidating existing health professions licensing boards.

House Public Health Committee – Examine the selected scope of practice issues related to health professions which maintain the safety of patients through demonstrated competency and education, and balance improved cost efficiency within the health care system.

Senate Health & Human Services Committee – Study and make recommendations relating to filling shortages in the health care workforce and improving medical educational services. Evaluate the state's use of the National Health Service Corps and Federally Qualified Health Centers (FQHCs) to address the needs of the Medicaid/Medicare and underinsured populations. Examine the strategies used by other states that have had success with FQHCs and make recommendations for increasing the number of FQHCs in Texas.

The House Public Health Committee invited Ben G. Raimer, M.D., SHCC chair, to present expert testimony on their Interim Charge One relating to the selected scope of practice issues related to health professions, which maintain the safety of patients through demonstrated competency and education, and balance improved cost efficiency within the health care system at their committee hearing on June 15, 2006. Dr. Raimer also presented to the Texas Health Workforce Planning Partnership on the SHCC's statutory charge, key findings, and recommendations that have been included in the *2005-2010 Texas State Health Plan* and the *2007-2008 Update*. Finally, SHCC staff was invited to provide expert testimony at the Senate Health and Human Services Committee Hearing on May 3, 2006, relating to filling shortages in the health care workforce and improving medical educational services.

Other State Health Workforce Initiatives

Texas Center for Nursing Workforce Studies and the Texas Center for Nursing Workforce Studies Advisory Committee

In response to the passage of House Bill 3126 from the 78th Regular Legislative Session, the Texas Center for Nursing Workforce Studies (TxCNWS) in the Texas Department of State Health Services, Center for Health Statistics, was established in January 2004. The Texas Center for Nursing Workforce Studies Advisory Committee (TxCNWSAC) was added to the structure of the Statewide Health Coordinating Council and serves as a permanent advisory committee to review policy matters on the collection of data and reports, develop priorities and an operations plan for the Center, and review reports and information before dissemination. The funding for the Center and the Data Section and Nursing Workforce Advisory Committee comes from surcharges made on nurse license renewal fees ($3 for R.N.s, $2 for L.V.N.s).

The TxCNWS serves as a resource for data and research about educational and employment trends concerning the nursing workforce in Texas. One of the roles of the TxCNWS is coordination with other organizations (such as the Board of Nurse Examiners, the Texas Higher Education Coordinating Board, the Center for Health Economics and Policy, the Texas Nurses Association, the Texas Hospital Association, and regional health care organizations and educational councils) that gather nursing workforce data. The coordination is needed in order to avoid duplication of efforts in gathering data, to avoid overloading employers and educators with completing a large number of duplicative surveys, to share resources in the development and implementation of studies, and to establish better sources of data and methods for providing data to legislators, policy makers, and key stakeholders.

The TxCNWS is also implementing the Hospital Registered Nurse Staffing Study and the School of Nursing Capacity Study. The results of both studies should provide current and pertinent supply and demand trends on nursing workforce in Texas. In addition, a *Demographics of the Nursing Workforce Texas — 2003* was developed and is available for public distribution. This report includes supply trends, gender, age, and racial-ethnic data on R.N.s, Advanced Practice Nurses, Licensed Vocational Nurses, Certified Nurse Aides, Medication Aides, and Documented Midwives. Other demographic and data reports will be available on enrollment and graduation trends, characteristics of nursing faculty, and migration of Registered Nurses in and out of Texas.

In the future, a study will be done with qualified applicants who were unable to be admitted to nursing programs. The TxCNWS is also working with the Board of Nurse Examiners to establish an online system for deans and directors of nursing programs to enter information about their programs, students, and faculty in order that data can be collected and analyzed in a more efficient and effective manner.

Shared Vision Project

Recognizing the need to develop a shared vision of health and health care delivery for the state of Texas, the Texas Health Institute (THI), formerly the Texas Institute for Health Policy Research, launched the Shared Vision for Health Care in Texas Project. To create this vision, the Institute is establishing a forum for dialogue among the leaders of Texas' health care providers, payers, and consumers for informed decision-making. This collaborative effort is the only statewide effort that brings stakeholders together to provide leadership in developing innovative products and ideas to improve the state's access to health care and that care's quality and cost effectiveness.

As part of that process, the institute identified the following six focus areas: delivery systems, finance, information technology, workforce, rural issues, and community and public health issues. An expert workgroup was created for each of the focus areas. Recognizing the SHCC has the statutory charge in Texas for making policy recommendations related to the health workforce, the Institute asked the SHCC to serve as the expert workgroup for the workforce area. The SHCC members approved this request in early 2004.

In an effort to educate stakeholders on the issues relating to health information technology as part of the implementation of S.B. 45, 79th Regular Legislative Session, the SHCC and the THI co-hosted a Statewide Health Information Technology Policy Forum in Austin on December 1, 2005. Approximately 200 stakeholders from throughout the state attended the forum. In February, the SHCC and the THI followed up the state forum with four regional health information technology forums that were held in Harlingen, Houston, Dallas, and Lubbock.

Texas Nurses Association's 2004 Redesign of Nursing Practice and Education

Another current initiative has the potential to greatly impact the status of nursing practice and policy in Texas. The Texas Nurses Association (TNA) has initiated the 2004 Redesign of Nursing Practice and Education. Two task forces of multiple stakeholders have met to review what reinvented models of nursing and education could look like. The two task forces were charged to define what patients will need by 2007 in care planning and delivery, describe the best person to fill this need, identify collaborative imperatives in the new nurse practice model, and prioritize the environmental, legal, administrative, and regulatory changes that will be needed to support the new nursing practice model. Both task forces have completed their work and have made recommendations to TNA's Board of Directors.

Texas State Strategic Health Partnership

The Texas State Strategic Health Partnership (Partnership) is a group of public and private organizations convened by the Texas Commissioner of Health to identify priority goals to improve the health of Texans. Six of the goals focus on improving the health status of Texans and six goals focus on improving the public health system.

Two of the Partnership's public health system goals relate to the health workforce for Texas. Goal J states by 2010, the public health system workforce will have the education and training to meet evolving public health needs. Goal L states by 2010, the Texas public health system partners will be informed by, and make decisions based on, a statewide, real-time, standardized, integrated data collection and reporting system (s) for demographic, morbidity, mortality, and behavioral health indicators accessible at the local level, while at the same time protecting the privacy of Texans. The SHCC has voted to formally join the Partnership in support of Goals J and L.

Texas Workforce Commission and Local Workforce Development Boards

The Texas Workforce Commission (Commission) and the Local Workforce Development Boards (Boards) serve as partners in Texas health workforce development. In 2000, Governor Rick Perry named nursing as one of the state's three targeted occupations. The Commission and the Boards launched several initiatives across the state that focused on the nursing shortage. These initiatives included recruiting and training efforts using the Boards' formula funds, state discretionary funds, and the federal funds, notably federal H-1B grants.

Notes

[1] Murdock SH. Projected Proportion of Population by Race/Ethnicity in Texas, 2000-2040. Texas State Data Center data presented to the Texas Health Care Policy Council, June 20, 2006; Austin, TX.

[2] Brian King, Texas Department of State Health Services, Center for Health Statistics, Health Professions Resource Center, data confirmed verbally to Connie Turney, June 21, 2006; Austin, TX.

[3] Texas State Data Center, University of Texas at San Antonio, Web site statistics. Available online at: http://txsdc.utsa.edu . Accessed July 24, 2006.

[4] Ibid.

Chapter 1

THE CASE FOR HEALTH WORKFORCE PLANNING IN TEXAS

INTRODUCTION

The *2007-2008 Texas State Health Plan Update* (*2007-2008 Update*) is the first biennial update to the *2005-2010 Texas State Health Plan* (State Health Plan). The purpose of the *2007–2008 Update* is twofold. First of all, the document provides a status report on health workforce issues addressed as priorities in the *State Health Plan* and identifies other critical workforce issues arising since the production of that document. Second, the *2007-2008 Update* outlines how information technology may be incorporated in the education and training of health care professionals and in the health service delivery system to help ensure Texas retains a quality health care workforce today and for the future.

In an effort to provide Texas leaders with the information they need to prepare for ensuring a quality health workforce, the SHCC created a biennial process, the Statewide Health Workforce Symposium. The Symposium is used to gather accurate and objective information to enable legislators, policy makers, community leaders, and professionals in the private sector to set clear and effective health workforce policies for Texas. The Symposium provides an opportunity for experts in the health workforce field to openly discuss the issues and consider potential policy directions.

To provide a platform for the Symposium, and ultimately for development of the *State Health Plan,* a review of recent literature is conducted on the state of the health workforce. This information, as well as contributions from other health workforce experts in Texas, is incorporated into this *State Health Plan*.

Due to the passage of SB 45, 79th Regular Legislative Session, the SHCC incorporated both health workforce and health information technology and partnered with the Texas Health Institute to host the 2006 Statewide Health Workforce and Health Information Technology Summit. The event, which was attended by an estimated 200 stakeholders, was held in Austin on May 8, 2006, and highlighted two topics: "Public Health Implications for Creating a Health Information Technology Infrastructure" and "Health Professions Workforce Development to Support a Technology-Rich Environment."

I. STATUS OF PRIORITY ISSUES INCLUDED IN THE *2005–2010 TEXAS STATE HEALTH PLAN*

Although the most critical workforce issue identified in the *2005-2010 Texas State Health Plan* was the nursing shortage, many of the recommendations focused on strengthening four interdependent workforce areas:

- Telemedicine and telehealth;
- General recruitment and retention;
- Ensuring a quality workforce for the aging Texas population; and
- Ensuring a quality public health workforce.

The following paragraphs provide a brief status update on each of these four workforce areas.

Telemedicine and Telehealth

The lack and distribution of available qualified health professionals continue to be major barriers to accessing health care in rural Texas and in many urban areas. Telemedicine technologies, including teledentistry, hold promise for providing greater access to medical care, ensuring quality of care, and containing costs through early diagnosis and intervention.

Telehealth technologies provide an avenue to maximize scarce resources, such as faculty and building infrastructure, in the education of our future health workforce. Additionally, telehealth extends our capacity to provide educational programs to potential students located in geographic areas that historically have lacked access to health education and training. Other new technologies, such as patient simulation laboratories, can also provide opportunities to increase the number of educated health professionals.

The SHCC continues to view telemedicine and telehealth as a critical strategy to address the numbers and maldistribution of health professionals and to increase access to health care and health education through technology. Although numerous telemedicine and telehealth projects and networks are now functioning throughout the state, there continues to be no designated agency or body to serve as the authority and coordinator for these projects.

During the 78th Regular Legislative Session, S.B. 691 charged the Texas Health and Human Services Commission (HHSC) with implementing telemedicine in ways that are cost-effective and

clinically effective, and parallel Medicare where appropriate. HHSC administers Medicaid and the Children's Health Insurance Program, and has reached the following milestones in complying with S.B. 691:

- met with the Telemedicine Advisory Committee on January 5, 2004;
- submitted a communication and work plan to the Telemedicine Advisory Committee in May of 2004;
- submitted a telemedicine article for publication in the July–August *Texas Medicaid Bulletin*;
- organized a Mental Health and Mental Retardation Telemedicine Sub-Workgroup responsible for implementing initiatives specifically geared toward mental health and mental retardation; and
- drafted a letter to medical associations to step up provider education on the use of telemedicine technology and Medicaid billing guidelines.

General Recruitment and Retention

The importance of recruitment and retention activities to ensuring a quality health workforce cannot be overstated. An adequate supply of quality health care providers is critical to the stability of medical services throughout the state and especially in rural and underserved urban areas, where ensuring an adequate supply has always been a challenge. During the last two years, the state's fragmented programs have made attempts to coordinate their efforts. However, many of these programs that were already underfunded face additional reduction of resources available to accomplish the task. The unfortunate result of this fragmentation and the cuts is Texas has fallen behind the national averages in the supply of many health professionals. This issue is discussed and detailed at length in Chapter 2 and in Appendix B.

Ensuring an adequate supply of health professionals is the product of three interrelated processes. Recruitment of the workforce is the first step. Strategies are currently being developed and acted upon by educational and professional organizations in order to expand the number of people who enter the health workforce. Numerous public and private agencies and organizations have made strides in the last decade to develop and expand the pool of young people who are ready to enter the health workforce. Unfortunately, in the nursing workforce within the last year, the number of qualified applicants has far exceeded the educational system's ability to admit

and graduate the students. The greatest reason is the lack of qualified nursing faculty. This is expected to worsen, as the average age of nursing faculty is even higher than the average age of the nursing workforce.

The second step to ensuring an adequate supply of health professionals is to guarantee that systems are in place to support those students who have chosen to enter a health profession. In order to accomplish this, it is necessary to address the shortage of faculty and educational infrastructure to support these students, as mentioned above. It is equally important to address and attempt to fulfill the financial, personal, and cultural needs of these persons. The Texas health workforce does not currently reflect the ethnicity of the state. All health professions fall short of having the optimal numbers of minority-group members represented in their ranks. Chapter 2 and Appendix B provide racial-ethnic data on various health professions where information is available. Several health professions still do not collect and report racial/ethnic data. However, it is imperative that these data be collected in the future to allow policy leaders and educators the information necessary to plan for a culturally representative and culturally competent workforce for Texas.

The third and final step to ensuring a quality health workforce is to guarantee systems are in place to retain health professionals to practice in Texas. To be effective in this three-step process, the state must accomplish the following: strengthen the systems for collecting and coordinating health workforce supply and demand data, faculty and enrollment data, migration study data, and retention data; improve the coordination efforts in health workforce development and in recruitment and retention; improve systems to increase minority recruitment and systems to guarantee success; and support community-level recruitment and retention efforts throughout the state.

The state's three Area Health Education Center (AHEC) programs continue to serve a vital role in the recruitment and retention of health professionals within the state. The AHECs cover mutually exclusive geographic service areas through 16 fully operational regional centers. Three additional centers are in development in West Texas.

This community-based network conducts extensive programming on health careers promotion and recruitment; community-based education for health professions students; practice entry and support for community health professionals; health literacy for residents of communities; and assessment and refinement of community health delivery systems.

Funding for graduate medical education (GME) was severely cut during the 78th and 79th Regular Legislative Sessions, negatively impacting the state's ability to attract physicians. The

cuts resulted in stress to existing GME providers and negatively impacted their ability to provide residency programs to medical graduates. Several of the current residency programs are at risk of closing due to these cuts. Many of our state's medical graduates are leaving Texas for their residency training, and many of them are choosing to remain in other states to practice, resulting in a huge financial burden and a huge loss of intellectual capital for our state's medical and educational system. Research indicates the location of the training program for residents and fellows is a major determining factor for where they ultimately establish a medical practice. According to a recent Texas Medical Association Committee on Physician Distribution and Health Care Access, those who graduated from a Texas medical school and completed residency or fellowship training in the state were close to three times as likely to remain in the state as medical school graduates from other states or countries.

Workforce for the Aging Texas Population

The issues impacting our state's ability to provide an economically feasible health workforce to provide quality care to the aging Texas population are compounding. A growing population of elderly combined with an increase in the incidence of obesity and the related increases in chronic disease associated with obesity, paint a very challenging picture for Texas and the nation as well. Recent program funding cuts have further reduced our state's ability to meet the future health workforce needs of our aging population.

All involved in Texas health workforce planning must consider alternative health care delivery systems that will concentrate on the prevention of chronic disease and the efficient management of chronic disease through evidence-based health care and proven treatment guidelines. Empowering individuals to accept responsibility for their own wellness through prevention and education programs is also critical. Determining the optimal type, mix, and number of health care providers, and the competencies desirable for those providers to possess are the critical challenges Texas must meet.

Ensuring a Quality Public Health Workforce

To ensure the health of all Texans, we must have a strong public health infrastructure; and a competent public health workforce is an essential component in meeting this challenge. As a result of the urgency surrounding bioterrorism preparedness, Texas continues to receive additional resources to build and improve the public health workforce capacity. The Texas public health infrastructure as a whole is stronger and more capable of meeting all public health challenges and emergencies as a result of this influx of funding related to bioterrorism preparedness.

Also, consideration must be given to the impact terrorism will have on the health professions workforce. First of all, the threat of terrorism will dictate the numbers and types of health professionals needed and the type of education and training they should receive. The demand for physicians and registered nurses in the acute care setting will be further exacerbated in the face of a large-scale disaster that results from an act of terrorism. The health professions workforce should be a part of regional planning efforts to prepare for an act of terrorism, so that they can prepare to fulfill their identified future role in managing an event.

The public health workforce will also continue to be an important partner in the effort to prevent and manage chronic disease in the population. Education and prevention efforts, which have long been the tools of the public health workforce, provide an avenue that can produce huge savings in the delivery of health care by teaching "wellness" to individuals in the community.

Nursing Shortage in Texas

Surveys, studies and demographic trends show the nursing shortage is due to the following factors:

- Increase in the state population growth along with an increased older population of Texas residents;
- Increase in uninsured and underinsured citizens with more health care needs;
- Increase in the level of care needed for those who are critically and chronically ill;
- Decrease pipeline of new students to nursing;
- Decline in RN earnings relative to other career options;
- Increase in the aging of the nursing workforce resulting in a majority of nurses retiring and leaving the nursing workforce; and
- Increase in vacancy and turnover rates.

The Texas Center for Nursing Workforce Studies (TCNWS) conducted two statewide surveys on hospital nurse staffing in 2004 and 2006. In 2004, 163 hospitals reported an average hospital RN vacancy rate of 8.6 percent and 15.6 percent RN turnover rate. It took 36 percent of the employers 60 days to fill an RN position, and up to 38 percent of the employers reported it took more than 90 days to fill RN positions for the 7 pm to 7 am, night and evening shifts.[1] In 2006, preliminary findings indicate 235 hospitals reported an average RN vacancy rate of 10.2 percent and 226 hospitals reported an average RN turnover rate of 18.2 percent.[2] The increase in the vacancy and turnover rates reflect the gap between supply and demand for nurses continues to widen.

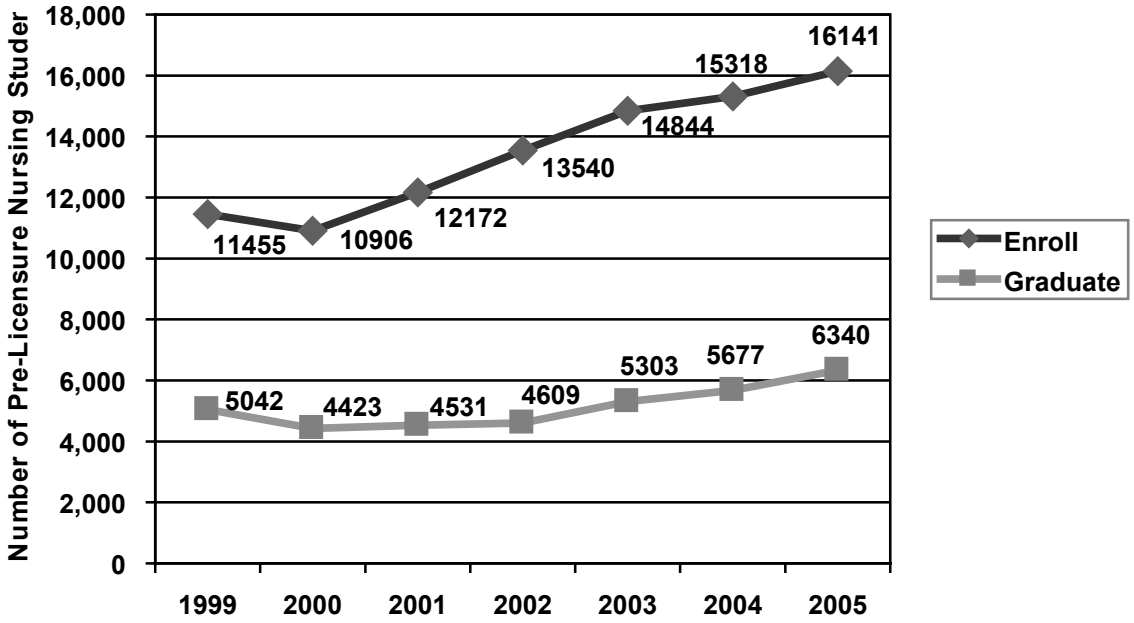
Some of the effects of the nursing shortage the hospitals reported in TCNWS' 2004 hospital nurse staffing study include: increased overcrowding of the emergency room, decreased patient satisfaction, increased patient complaints, increased waiting times for surgeries, discontinued programs and reduction in service hours, and greater difficulty in hiring RNs with two or more years of nursing experience.

Increasing Capacity and Graduation Rates in Texas Nursing Programs

The only feasible way to solve Texas' nursing shortage is to increase the number of nurses educated in Texas. The schools of nursing in Texas have been working hard to increase capacity in order to admit and graduate more students. Graduation trends from 1998 to 2004 show a 63.6 percent increase in graduates of Bachelor of Science degree nursing (BSN) programs and a 15.3 percent increase in graduates of associate degree nursing (ADN) programs. The total enrollment and graduation trends depicted in Figure 1.1 show the enrollment and graduation rates from 1999 through 2005. However, in a study done in 2005 by the Texas Higher Education Coordinating Board, approximately 4,220 qualified applicants were denied admission to the state's initial RN-licensure programs, which represented 34 percent of total applicants during academic year 2003.[3] This is an indication the demand exceeds the capacity of nursing schools to educate more students. Factors such as the shortfall of nursing professors created by an aging cohort of faculty (discussed in more depth in Chapter 2), non-competitive faculty salaries, and insufficient funds to hire more faculty members all impact the capacity of Texas schools of nursing to admit more students.

Figure 1.1.

Total Enrollment & Graduation Trends in Professional Nursing Programs in Texas 1999 – 2005



Data Source: Texas Board of Nurse Examiners
Prepared by: Texas Center for Nursing Workforce Studies, Center for Health Statistics, Department of State Health Services
Date: May 2006

Note: The enrollment and graduation numbers reflect the number of pre-RN licensure students (unlicensed students, paramedics and LVNs) who were enrolled and graduated from diploma, associate degree and baccalaureate degree nursing programs in Texas.

The Texas Center for Nursing Workforce Studies (TCNWS) conducted a statewide study in 2004 with 78 Texas schools of nursing that prepare entry-level RNs upon completion of the nursing program.[4] The 50 schools of nursing that participated in this study reported most applicants for faculty vacancies came from in state rather than out-of-state. The faculty vacancy rate in 2003 was six percent or 84 vacant budgeted FTE positions. The highest vacancy rate in Texas occurred in 2002 with 6.7 percent (97 vacant budgeted FTE positions). In the National League for Nursing's 2002 survey, the national vacancy rate was 5.6 percent. For Texas, this means if the vacant faculty FTE positions had been filled in 2002 and there were two admissions during that academic year, an additional 1,894 more pre-licensure students could have enrolled in professional nursing programs. In TCNWS' study, faculty positions remained vacant on the average from 37.5 - 39.2 weeks. This is equivalent to an academic year. In addition to the faculty vacancy rate, the overall faculty turnover rate from 1999 to 2003 for all the pre-licensure professional nursing programs in Texas ranged from 14.2 – 15.5 percent. The most frequent reason for the faculty resignations was to work in a clinical facility where salaries were higher. The most frequently cited reason applicants declined an offered faculty position in both ADN and BSN programs was insufficient salary. These findings reflect the impact salaries have on the recruitment and retention of nursing faculty.

In TCNWS' 2004 study, a comprehensive comparison analysis was done on Texas ADN and BSN faculty salaries with national average and median salaries reported for other nursing positions. The results reported in the 2004 TCNWS study and the 2004 Texas Higher Education Coordinating Board's report show median nursing faculty salaries in Texas are lower than the median salaries earned by nurses in clinical and administrative practice.

Another component that affects the faculty shortage is the number of master's and doctoral prepared nurses in the workforce. In 2004-05, there were 620 MSN and 24 doctoral graduates. Of the MSN graduates, 14 focused on nursing education. This reflects a decrease of 12 nursing education graduates when compared to 2003-04. With a large cohort of nursing faculty planning to retire within the next 12 years, there needs to be a larger pipeline of master's and doctorate prepared nurses prepared in nursing education.

When faced with a shortage of registered nurses, the obvious answer would seem to be to channel resources into the type of nursing education that produces RNs in the shortest period of time. That however neglects one vital fact. A larger percentage of baccalaureate prepared RNs go on to earn masters degrees and doctorates than ADN and diploma prepared RNs. In 2006, of the 13,492 masters prepared nurses actively practicing in nursing, 58.3 percent had initial education at the BSN level as compared to 18 percent of the diploma and 20 percent of the ADN prepared nurses. Of the 1,158 doctorate prepared nurses, 56 percent were initially educated at the BSN level as compared to 24 percent of the diploma and 18 percent of the ADN prepared nurses. It is these advanced degreed nurses who will be nursing managers from the unit-level to the top healthcare administrative levels, nursing specialists for advanced practice, and finally instructors who will educate the next generation of nurses. The American Organization of Nurse Executives, in light of the increasing complexity of health care, believes the nurse of the future is best prepared at the baccalaureate level.[5] This is supported by research studies such as Aiken, et al.'s study which showed with each 10 percent increase in the proportion of BSN prepared staff nurses, there was an associated five percent decline in mortality following common surgical procedures.[6] Thus, funding and resources are also needed for nursing programs to prepare more BSN and advanced degreed nurses.

In response to S.B. 132 in the 79th Regular Legislative session, the Texas Higher Education Coordinating Board (THECB) is conducting a statewide study to determine the graduation rate and to identify successful strategies to increase the graduation rate in professional nursing programs. The results of this study will be reported to the Texas Legislature by January 1, 2007. A statewide summit of all the professional nursing programs is also scheduled for 2007. In this summit, the results of the THECB study will be discussed along with how nursing programs can develop and implement strategies to increase capacity and graduation rates.

There are currently 94 professional nursing programs in Texas. Forty-three of the 56 ADN programs admit both pre-RN licensure students and licensed vocational nurses (LVNs) to their programs. There are six LVN-to-ADN track programs that only enroll LVNs. Thirteen of the 56 ADN programs also admit paramedics along with pre-RN licensure students and LVNs. Sixteen of the 25 BSN programs have an RN-BSN track, and there are four BSN-RN programs that only enroll RNs. There is one alternate entry/basic master's degree nursing program that offers an MSN degree to unlicensed students with degrees in other non-nursing areas. This reflects a number of nursing programs are offering opportunities for students to continue their education and progress up a nursing career ladder. Thus, it is important for state agencies such as the Texas Higher Education Coordinating Board and the Texas Board of Nurse Examiners to encourage educational institutions to add appropriate accelerated degree programs at all levels of nursing.

Many hospitals throughout the state have been valuable resources to nursing programs in such areas as providing scholarship funds, stipends and flexible work schedules for nursing students, clinical preceptors and instructors, and use of facilities and equipment for clinical learning for the nursing students. Through the Texas Hospital Association, hospitals have been effective advocates for more state funding for nursing education for the past three legislative sessions.

Innovations in Nursing Programs

The Texas Higher Education Coordinating Board (THECB) has been authorized to use some of the funds awarded to Texas as the result of the Tobacco lawsuit. The Nursing Innovative Grant Program provides competitive grants to professional nursing programs to encourage them to create innovative solutions to recruit and retain nursing students and faculty. The awarding of these grants have provided financial resources for some of the nursing programs to use computer and information technology to develop more meaningful educational and clinical experiences for the students, develop ways to help at-risk students to be more successful in their nursing education, and implement a system to make the nursing courses more accessible to students so they do not have to go to the main campus for their classes.

In 2004, two $300,000 - $2 million Nursing Innovation grants were awarded to the University of Texas Health Science Center-Houston (UTHSC-H) and Midwestern State University (MSU). The THECB was soliciting innovative educational initiatives that: 1) would increase enrollment capacity through creative and efficient use of existing and new faculty, 2) if successful, could be applied easily and cost effectively to other nursing programs on a statewide or regional basis, 3) have key collaborations with private and/or public entities including another nursing program that offered an initial RN-licensure at a different educational level, and 4) have strong research and evaluation components.

UTHSC-H is currently testing an alternative, broad-scale clinical preceptor model designed to use existing faculty resources, expand the clinical sites for nursing students to use and increase enrollments in nursing programs in the Houston/Gulf coast region. Computer and information technology is being used to train 200 clinical preceptors from 16 hospital partners and to serve as a resource for accessing course materials as well as Internet databases. They will evaluate if the following estimated outcomes occur: 1) prepare an estimated 160 – 170 initial RN-licensure students as well as or better than traditional clinical groups; 2) create a regional, standardized program for certification of 200+ Academic Preceptors eligible to serve the needs of any Gulf Coast area nursing program; 3) Increase by 160-170 the number of clinical slots provided by participating hospitals; 4) enroll 10 percent of the 200 preceptor nurses in an advanced degree or certification program; 5) improve retention of precepted nursing students versus traditional group students by 10 percent; 6) standardize electronic clinical paper work required of students among nursing programs in the Gulf Coast region; and 7) create a data base to manage student tracking and scheduling challenges inherent in this model.

MSU is developing a regional interdisciplinary simulation center that will be shared by a regional health care system and ADN and BSN programs in the North Texas area. A computerized simulation center will be developed to teach and validate competencies for nursing and allied health students and health care professionals. In this project, MSU plans to increase enrollment in the BSN program. They will conduct a research study to see: 1) if nursing faculty's time will decrease in teaching of basic nursing skills, health assessment skills and clinical decision making; 2) if the use of the regional simulation center will reduce the time requirement for validation of clinical competencies of the new graduate; 3) if students' perceptions of clinical competence differ before and after implementation of the regional simulation center; and 4) if there is evidence of cost effectiveness in teaching and validating competencies of nursing students by using the regional simulation center.

One of the components of these Nursing Innovative grants was to encourage collaboration and partnership between nursing programs and health care organizations. It supports the concept of developing regional nursing centers of educational excellence that facilitate the use and evaluation of best educational practices, new educational models and teaching strategies, innovative programs including the use of technology and information systems, and overall efficiencies of educational programs.

In 2005, the Texas Nurses Association appointed a task force to study how nursing education can be redesigned to meet future needs in Texas. One of the areas identified was the development of regional education centers that link professional nursing education programs, health care institutions and private stakeholders in a particular region of the state in order to increase recruitment and graduation of nursing students and increase capacity of the nursing programs. The Nursing Education Redesign Task Force envisioned these regional partnerships would promote the following:

- Strong communication between practice and education;
- Shared resources such as faculties and their expertise and shareware or shared information technology infrastructure;
- Shared basic core nursing content/curriculum based upon regional standards of care;
- Consistent collection of learner data by creation of a data repository for use in tracking workforce needs and in educational research in collaboration with the Texas Center for Nursing Workforce Studies;
- Strong and effective utilization of consistent preceptor/student relationships during the educational process where possible;
- Assurance of preceptor support/training/reimbursement for their contributions to the educational process;
- Transition support for new graduates built upon residency/internships similar to medicine;
- Shared resources and collaboration between practice and education for competency assessment of nursing students, new graduates and nurses in clinical practice; and
- Support from and collaboration with regional WorkSource Boards.[7]

Regional collaboration and partnership does exist in some parts of Texas such as in the Gulf Coast region and the Dallas/Fort Worth area. THECB has been facilitating more regional collaboration and partnership through their Nursing Innovative Grant Program. This program has also provided incentives and funding for nursing programs to develop creative, innovative strategies to increase the number of entry-level students that graduate from nursing programs and to recruit and retain nursing faculty. In order for nursing programs to continue to be innovative through the use of technology, preceptors, simulation, and partnerships with healthcare organizations and others, financial support such as with the Nursing Innovative Grant Program and auxiliary/capital funds, like the Health Education Auxiliary Funds, should continue to be available for nursing programs.

Patient Safety and Promoting a Healthy Workplace Environment

During the 79th Regular Legislative session, Texas S.B. 1525 was the first state legislation in the United States to become law requiring hospitals and nursing homes to implement a safe patient handling and movement program. This legislation became effective January 1, 2006. This legislation requires hospitals and nursing homes to develop and implement strategies including the use of assistive devices to control risk of injury to patients and nurses associated with the lifting, transferring, repositioning or movement of a patient.

In November 1999, the Institute of Medicine (IOM) released a report entitled *To Err Is Human: Building a Safer Health System*, which concluded that 44,000 – 98,000 people die each year in hospitals due to preventable medical errors. The report grabbed the attention of the American public and spurred public and private organizations to focus their attention on improving the quality of health care in the United States.[8] The Kaiser Family Foundation, the Agency for Healthcare Research and Quality and the Harvard School of Public Health conducted the National Survey on Consumers' Experiences With Patient Safety and Quality Information among a randomly selected nationally representative sample of 2,012 adults 18 years or older.[9] The following are some of the key findings reported as it pertains to patient safety, nurses and physicians, the healthcare environment and use of technology:

- Among the 34 percent of the people who had experienced medical errors, 72 percent reported physicians had a major responsibility for the error; 39 percent reported the institution had a major responsibility for the error; and 28 percent reported nurses had a major responsibility for the error;
- Among the 34 percent of the people who experienced medical errors, 11 percent indicated they sued a health care professional for malpractice and 14 percent who had experienced a medical error with serious health consequences reported they sued a health care professional for malpractice;
- The sample population perceived some of the following as very important causes of medical errors:
    - Overwork, stress or fatigue of health professionals (74% of participants reported as a very important cause),
    - Not enough nurses in hospitals (69%),
    - Health professionals not working together or not communicating as a team (68%),
    - Lack of computerized medical records (46%); and

- The sample population reported some of the following as very effective in reducing preventable medical errors:
    - Giving physicians more time to spend with patients (79% of participants reported as a very effective solution),
    - Requiring hospitals to develop systems to avoid medical errors (72%),
    - Increasing the number of hospital nurses (67%),
    - Reducing the work hours of physicians in training to avoid fatigue (66%),
    - More use of computerized medical records and computers instead of paper records for ordering drugs and medical tests (51%).

A study conducted by IOM was done to identify the key aspects of the work environment for nurses that likely have an impact on patient safety and potential improvements in health care working conditions that would likely increase patient safety. The findings of this study can be found in IOM's 2004 report on *Keeping Patients Safe: Transforming the Work Environment of Nurses*.[10] This report indicates that "2.8 million licensed nurses and 2.3 million nursing assistants providing patient care in the United States represents approximately 54 percent of all health care workers and provide patient care in virtually all locations in which health care is delivered… Nurses are the health care providers people are most likely to encounter; spend the greatest amount of time with; and, along with other health care providers, depend on for their recovery."[11] IOM reported several research studies that showed nursing actions, such as ongoing monitoring of patients' health status, are directly related to better patient outcomes including prevention of errors against patients. For example, a study of medication errors in two hospitals over a six month period found nurses were responsible for intercepting 86 percent of all medication errors made by physicians, pharmacists and others involved in providing medications for patients before the error reached the patient.[12] The 2004 IOM report cited several research studies that provided evidence leaner nurse staffing is associated with increased length of stay, nosocomial infections and pressure ulcers. Additional studies have also provided evidence of greater number of patient deaths are associated with fewer nurses to provide care,[13] and less nursing time provided to patients is associated with higher rates of infection, gastrointestinal bleeding, pneumonia, cardiac arrest and death.[14]

The 2004 IOM report indicates piecemeal approaches will not be successful in redesigning work practices and organizational systems in order to minimize errors. "Additional defenses against human errors can be developed and put in place only if nursing staff are not afraid of reporting these errors and involved in designing even stronger strategies to prevent occurrence of future errors." M.D. Anderson Hospital in Houston, Texas, is currently conducting a pilot project to create

a non-punitive environment for health professionals to be able to report errors. Their preliminary findings are showing many of the errors are due to organizational system-type problems and work processes; and by addressing these problems, future errors can be prevented. They have also found the use of information technology with their electronic health records and other work processes have had an impact on decreasing errors and promoting patient safety.[15]

Research studies were cited in the 2004 IOM report that showed a relationship between excessive hours worked by nurses with an increase in patient care errors. These research studies provided evidence prolonged work hours and fatigue negatively affected work performance. The research findings showed "the risks of making an error were significantly increased when work shifts were longer than 12 hours, when nurses worked overtime, or when they worked more than 40 hours per week."[16] In a more recent study done with critical care nurses, extended work hours significantly increased the risk of errors and near errors and supported the Institute of Medicine's (IOM) recommendation that limits should be placed on the hours nurses work.[17] The IOM recommended to minimize the use of 12-hour shifts and to limit nurses' work hours to no more than 12 consecutive hours during a 24-hour period and 60 hours in a seven-day period. This recommendation on limiting hours worked was directed to nurses involved in direct patient care, including clinical supervision.

The Texas Nurses Association (TNA) conducted a survey by email to 7,100 nurses of which 957 TNA members, 905 non-members, and an additional 1,000 nurses and nursing students responded. The results of the survey showed "broad consensus that there should be limits on the hours nurses can safely deliver care, and that nurses should not be permitted to work more than 16 hours per 24-hour period or 60 hours per seven-day period."[18] TNA's House of Delegates adopted a resolution that established limits on work hours for nurses and nursing students who provided direct patient care or exercised clinical judgment affecting direct patient care. In addition, TNA will advocate for nurses and nursing students to be educated about the dangers of fatigue and working excessive hours as a critical component of setting limits on hours worked.

Another issue that involves safety and the workplace environment is the issue of violence in the workplace. According to the Bureau of Labor Statistics in 2004, 11,790 health care and social service workers (or 10.7 per 10,000 full-time workers) reported work place assaults, and 19 were killed by homicide on the job.[19] The Bureau of Labor Statistics also reported among all American workers, health care and social service workers have the highest rates of non-fatal assault injuries in the workplace. In a 2004 study done with a 745 representative sampling of RNs in Texas, between 15 percent and 25 percent of the RNs reported an increase in workplace harassment by doctors, patients and other staff; and 13 percent of the RNs reported an increase in violence against nurses.[20]

This is an area where policies and strategies for preventing workplace violence toward health care workers as well as effective interventions need to be developed.

The Department of State Health Services is in the process of revising its hospital licensing rules. Section 241.029, Health and Safety Code, requires hospitals have policies relating to workplace violence and safety in the work environment for nurses. One of the areas being considered are rules that explicitly require hospitals to develop, implement and enforce such policies. There are also plans to develop rules that require hospitals to develop, implement and enforce the safe patient handling policies required by Section 256.002, Health and Safety Code.

Nursing Workforce Recruitment and Retention Strategies

All of the areas discussed in the Nursing Workforce section of this *2007-2008 Update* impact on recruitment and retention of individuals to the nursing workforce. To address the nursing shortage, complex strategies would need to be developed and implemented. The solutions need to be long-term and directed at both recruitment and retention of nurses.

Recruitment refers to the ability to continuously attract individuals into the nursing workforce. In order to increase the supply of nurses, some recruitment strategies include the following:

- Provide public service announcements, advertising campaigns and promotions to encourage more people to enter the nursing profession. The $20 million "Campaign for Nursing's Future" undertaken by Johnson & Johnson has been successful in increasing the number of people entering the nursing profession.
- Starting with elementary school-age children and continuing through all grade levels, inform children about nursing, what the benefits are to being a nurse, and what they need to do to prepare to be a nurse. Provide opportunities for school-age children to participate in health profession tracks in school, become prepared as nurse assistants, or be mentored by nurses.
- Target underrepresented and nontraditional groups, such as minorities and men.
- Address the issues confronting nursing programs that prevent these programs from increasing capacity, admitting and graduating more nursing students, and meeting the need for more qualified, competent nurses. One of the major areas that needs to be addressed is the recruitment and retention of qualified nursing faculty. Factors that impact the ability of nursing programs to increase their capacity and recommendations for addressing these issues can be found in the Texas Center for Nursing Workforce Studies' *Increasing RN Graduates: Admission, Progression, and Graduation in Texas Schools of Nursing 2004*. [21]

- Improve financial aid and help provide other sources for financial support in the form of scholarships, loans, and work opportunities as a student nurse, not only to cover for tuition, but also for other educational costs such as textbooks, uniforms, travel to school and clinical facilities, and child care.
- Encourage nursing programs to use successful strategies to increase the graduation rate in their programs.
- Provide resources to assess and help at-risk students prior to admission to a nursing program and to help at-risk students to be successful during their nursing educational preparation.
- Provide resources and regulatory support to allow nursing programs to create innovative solutions to increase the number of entry-level students that graduate from nursing programs.

Retention strategies focus on both retaining current nurses and encouraging those who have left nursing careers to reenter the workforce. Some retention strategies include the following:

- Continue to improve workplace conditions and enhance the education and professional development of nurses.
    - Programs such as Magnet Recognition of hospitals, who have established an infrastructure and met stringent standards to enhance recruitment and retention of nurses to their facility, need to continue to be sought by more hospitals. The Texas Nurses Association began a Nurse-Friendly™ designation program to help improve retention of nurses in rural hospitals and is now also providing this opportunity to metropolitan hospitals. A Nurse-Friendly™ designation program for long term care facilities will be established in the future.
- Provide safer working conditions for nurses, including maintaining appropriate staffing ratios, prohibiting long work hours that jeopardize the nurse's ability to provide safe patient care, and establishing policies and strategies to prevent and address harassment and violence in the workplace.
- Continue to increase wages for nurses to be adequate for the work and services they produce.

In the 2004 survey of Texas RNs conducted by the Regional Center for Health Workforce Studies, registered nurses indicated they:

> ...want to take care of patients safely and perform work that they find to be both satisfying and exhausting. The physical effort of tending an increasingly obese and demanding patient population, paired with extended shifts and limited assistive personnel interfere with their perceived mission and may overwhelm their enthusiasm for the profession. They are asking for assistance with and support for their work so that they may have the opportunity to deliver the highest quality of health care their skills can create. Finally, they are asking to be respected as professionals whose input is taken into serious consideration when decisions are made at the unit and organizational levels.[22]

II. UTILIZING TECHNOLOGY TO IMPROVE AND ENHANCE THE TRAINING AND COMPETENCIES OF THE HEALTH WORKFORCE

Introduction

The current healthcare workforce uses more technology now than in the past, but as more advanced systems are implemented, healthcare professionals must continue to adapt and be re-trained to take advantage of these new technologies. The education and training of new healthcare professionals must be modified to include more health information technology (HIT) to ensure they have the appropriate skills after graduation to practice safely and effectively in this new environment. A recent report states "a work force capable of innovating, implementing, and using health communications and information technology will be critical to healthcare's success. Conversely, without such a work force, implementations will fail or could even cause harm."[23]

America's medical research and diagnostic technology are the best in the world, but we lack the ability to get critical information to doctors and other health providers when they are treating patients. For example, handwritten medical records for one patient often exist in several different locations, and handwritten prescriptions may be misread by pharmacists or lost. Health information technology is increasingly hailed for its potential to reduce medical errors, save time for patients and providers, reduce duplication of medical procedures and administrative information, and provide more information for tracking public health problems. The federal government is one of the leaders of this effort, stating that, "we need to bring every doctor, outpatient office, hospital, and nursing home into the information age."[24]

The Institute of Medicine (IOM) noted "(i)nformation technology is poised to bring about a significant transformation in the nation's health system, with the Internet serving as a major agent

of change....(T)he automation of clinical, financial, and administrative transactions is essential to improving quality, preventing errors, enhancing consumer confidence in the health system, and improving efficiency."[25] The healthcare system in the United States is actually many separate healthcare systems, most of which are not integrated and do not communicate with each other, thus often leading to fragmented care and poorer outcomes for patients who switch between systems or could benefit from multidisciplinary care.[26] Information technology is the means for integrating these systems and improving care.

Information technology has changed and continues to change United States industries, but the healthcare field has not kept pace. In the late 1990s, most industries were investing an average of $8,000 per worker on IT, while the healthcare industry was spending only about $1,000 per worker. Implementation of health information technology could reduce healthcare costs by as much as 20 percent a year through reductions in duplication, waste, and inefficient use of time.[27]

The healthcare workforce includes many different types of providers and personnel such as physicians, physician assistants, nurses, dentists, pharmacists, chiropractors, physical therapists, home health workers, technicians, medical transcriptionists, and medical coders. Widespread use of HIT will change the way every healthcare job is performed, and the workforce will need to bridge the gap between current skills and skills needed for the future. Information will increasingly be digitized, and even direct care providers will need to know how to do new tasks, such as accessing and modifying patients' electronic medical records as well as knowing the laws and standards for keeping records secure.

Preparing the Nursing Workforce

In 2003, the Institute of Medicine (IOM) published a report on *Health Professions Education: A Bridge to Quality*. In this report, the following five core competencies were identified as needed for all health care professionals in the 21st century:

- Provide patient centered care;
- Work in interdisciplinary teams;
- Employ evidence-based practice;
- Apply quality improvement methods; and
- Utilize informatics to communicate, manage knowledge, mitigate error, and support decision making using information technology.[28]

The IOM reported medical schools were more likely to embrace informatics[29] than nursing and allied health schools, probably due to the differences in resources between academic medical schools and the community colleges and smaller schools where the majority of nursing programs and allied health programs are located. IOM emphasizes "interacting with computing resources in the educational processes is not the same as applying informatics to patient care. Informatics are not better integrated in health professions curriculum, in part due to the lack of understanding of informatics as a discipline, limited support from administrators and faculty, lack of easy access to local experts, insufficient time for faculty to develop new teaching skills, and no room in the existing curricula."[30]

The National League for Nursing (NLN) is currently conducting a national survey of nursing program administrators and faculty to determine how nurses are being prepared to practice in an ever increasing, informatics-rich, health care environment that requires the use of information technologies for clinical decision-making and the provision of safe, quality care. NLN's goal is to identify how nursing programs are preparing the next generation of nurses and to identify exemplars as well as gaps. The results will be shared with the academic community in a White Paper that will include recommendations and exemplars.

The National Advisory Council on Nursing Education and Practice advises the U.S. Department of Health and Human Services on developing the registered nurse workforce. This council convened a panel of nursing informatics specialists from around the country called the National Nursing Informatics Work Group. This work group developed the National Informatics Agenda for Nursing Education and Practice, which consists of the following five recommendations and goals for informatics and how the federal government can help:

1. ***Educate nursing students and practicing nurses in core informatics content.*** Federal resources should promote the inclusion of core informatics skills and knowledge leading to competency in nursing undergraduate, graduate, and continuing education programs.

2. ***Prepare nurses with specialized skills in informatics.*** Federal funds should support innovative nursing and health informatics programs that teach specialized informatics skills needed to develop information technology that supports the national health goals of providing accessible, high quality, and cost-effective care.

3. ***Enhance nursing practice and education through informatics projects.*** The Federal government should fund innovative, collaborative telecommunication projects that would enhance the quality of clinical practice for populations at risk and contribute to the education of health care providers.

4. ***Prepare nursing faculty in informatics.*** Federal resources should support increased nursing faculty preparation in informatics through the use of collaborative programs and technology.

5. ***Increase collaborative efforts in nursing informatics.*** Federal resources should support efforts to facilitate the advancement of informatics in nursing through collaboration among public and private organizations.[31]

Preparing the Primary Care Workforce

Although there is general agreement increased development and utilization of health information technology (HIT) could mitigate many problems with the U.S. health care system, there is less agreement about how the United States should organize and implement an HIT infrastructure.[32] Primary care may be the best place to start. Most office visits are to primary care providers, and primary care providers play an integrative role particularly well suited for demonstrating the usefulness of HIT. Indeed, other nations that have successfully implemented HIT have started with primary care.[33] While health care consumers are already accustomed to electronic commerce and are generally ready to embrace HIT, other stakeholders are still grappling with fundamental issues such as data standards, privacy, security, and costs. Many efforts are underway to address these issues, but full-scale implementation and usage of HIT by primary care providers in the United States is probably several years from realization.

Benefits

HIT can help with a variety of clinical and administrative activities typically conducted in physician practices. Patients and clinicians have described benefits including greater flexibility and efficiency in scheduling, communication, prescribing, disease management, chart review, and education.[34] Many of these benefits have the potential to produce cost savings or increased revenue. For example, implementation of HIT could lead to decreased costs in compensation for medical records and other support staff, decreases in transcription and paper supply costs, increased revenue from visits due to reduced provider time per visit, and higher payment from increased levels of coding for visits because electronic health records (EHRs) enable more complete documentation of visits.[35] EHRs can even help save space, because not as much space is needed for patient records.[36]

Patient satisfaction is another possible benefit of HIT. One study examined patient satisfaction with outpatient primary care visits after computers were introduced at the point-of-care (in the examination room). When patients were queried seven months after implementation, they were

more satisfied with physicians' familiarity with patients, communications about medical issues, and comprehension of decisions made during the visit. They were also more likely to report the computer helped the visit run in a more timely manner.[37]

Current Usage

Even though there are many possible benefits from using HIT in primary care settings, recent estimates indicate only approximately 27 percent of physicians in the United States currently use HIT in the form of electronic health records. This percentage is significant, but is low compared to many other industrialized countries.[38]

Practice size is one of the most important factors affecting utilization. In one study, 57 percent of physicians in practices with more than fifty physicians used an EHR, compared with only 13 percent of solo practitioners.[39] Another study found only 11.3 percent of practices with ten or fewer physicians had fully implemented EHRs.[40] Any successful strategy for deployment of EHRs on a large scale will have to address the factors affecting usage at these small practices, which account for four-fifths of all physicians and 88 percent of all outpatient visits.[41]

Barriers

Standards and Interoperability – Perhaps the most fundamental barrier to implementation of HIT is the lack of consistent data standards. Currently, most EHRs do not interoperate well with other applications, such as applications for laboratory or radiology results, medication lists, and other clinical information. Standardization of data formats is a key stepping stone.[42] Such standards must address "secure transport over the Internet and other networks, . . . secure connectivity, reliable authentication, and a suite of defined interchange formats for health care data."[43] Until standards are in place, vendors are at risk of developing systems that will soon be obsolete, and providers are at risk of implementing systems that will not be compatible with future requirements. Providers are also at risk of not being able to support their systems and not being able to move their data easily to another vendor if necessary. The possibility exists "hundreds of well-intentioned—and even locally successful—information networks will never be able to exchange information with each other."[44]

Privacy and Security – Other than the requirements of the Health Insurance Portability and Accountability Act (HIPAA), "there are no uniform agreements about security or privacy of health information across a network."[45] Privacy and security tend to be important issues for the public. While security may actually be better with EHRs than with paper records, breaches of security can

be more catastrophic with electronic records.[46] To address the concerns of the public, many models are premised on patient authorization and control, so patients are able to choose whether or not to participate in sharing personally identifiable information.[47]

Costs – HIT might already be widespread in primary care settings if not for barriers related to cost. Costs include "hardware, software, information systems staffing and external contractor services, installation, training, abstraction, productivity loss, and telecommunications."[48] In one study of physicians' practices that had implemented electronic medical record systems, initial costs ranged from $16,000 to $36,000 per physician.[49] In addition to hardware and other initial startup costs, there are temporary costs related to lost productivity as physicians and office staff learn the system. During this startup phase, the physician may not be able to see as many patients, and fewer patients means less revenue.[50] Technical support and training are needed in order to minimize lost productivity, but these create additional costs.

Most primary care is delivered in small practices, and startup costs hit primary care providers particularly hard because the cost of implementing an HIT system is much higher per full-time physician in small practices than in larger settings.[51] Because small practices often struggle financially, they may have a hard time justifying any investment, especially if the returns are uncertain.[52] In a study of 14 solo or small-group primary care providers using electronic health records, "the average practice paid for its EHR costs in 2.5 years and profited handsomely after that; however, some practices could not cover costs quickly, most providers spent more time at work initially, and some practices experienced substantial financial risks."[53]

Addressing Barriers

Common Framework – Systemic barriers related to standards, interoperability, privacy, and security require a large-scale, coordinated effort to establish a common framework for HIT. The benefit of a large-scale, coordinated effort is it can provide strong leadership, clear objectives, effective communication strategies, and proactive change management.[54] A large, multistakeholder collaborative called "Connecting for Health" is currently advancing this "Common Framework" approach. The collaborative recommends a public-private "Standards and Policy Entity (SPE)" be established to identify, interpret, and disseminate "policies and bundles of standards necessary for sharing electronic health information." The SPE would also promulgate "detailed implementation guides . . . to help users 'connect the dots' between the status quo and the desired outcomes."[55]

Local and Regional Development – A common framework with clear policies and interoperability data standards at the national level will provide the structure within which local and regional development can proceed. As with banking, the goal is not to create a single monolithic system

that serves as a repository for all health records in America. Rather, the goal is to allow "efficiency, flexibility, creativity, progress, [and] customer-benefiting service differentiation strategies" within the common framework.[56] An "incremental and decentralized approach" reduces the risk involved and allows patients and their physicians to have more control over their health records.[57]

Financial Incentives – The most important barriers for primary care physicians, especially those who have small practices, are related to cost. The federal government and other payers must consider ways to provide financial incentives or to cover some of the risk involved in adopting HIT systems. Because of its size and influence, Medicare could have the greatest opportunity to influence physician practices. Approximately 700,000 physicians participated in Medicare in 2004. A Medicare-sponsored HIT incentive and financing program could have tremendous influence on the uptake of HIT.[58] For example, Medicare could pay providers more if they use electronic health records, submit electronic data, or reach specific benchmarks for implementing HIT. The government could also support primary care providers by providing guarantees that a vendor is aligned with national standards.[59]

Conclusion

Primary care providers and members of the U.S. public seem ready to embrace HIT, but want to be assured necessary standards, incentives, and safeguards are in place. Primary care providers, especially those in small practices, face significant barriers related to the cost of implementing HIT systems, while members of the public have serious concerns about the privacy of their personal health information. A national, public-private collaborative effort is necessary to establish a "common framework" for data standards, interoperability, privacy, and security as well as to provide leadership and proactive change management. A well-organized national effort will provide a structure that supports creativity and flexibility at the local and regional levels. Meanwhile, the federal government and the Medicare Program can play a unique role in providing incentives to influence the wide-scale uptake of HIT across the nation.

Preparing the Physician Workforce

"*See one, do one, teach one*: This simple set of phrases has characterized medical education and training for over 4,000 years. Today's physician is largely the product of an apprenticeship program that uses patients in hospitals as the primary elements of the classroom. Little changed in the past century to affect this traditional process. During this same century, however, we saw both the invention of the airplane and the maturation of flight simulation as the primary training

tool for the aviator. Today, every commercial pilot masters a new aircraft in simulation. We have reached the point where the best flight simulators are virtually indistinguishable from the real thing."[60]

To address the emerging practicality of virtual simulations, the Association of American Medical Colleges (AAMC) established the Virtual Patients Reference Center to provide an inventory of virtual patient applications for their member schools. "Virtual Patients are computer-based simulations that use technology to bring patient cases to life. Because of their media-richness and complexity, virtual patients are expensive and resource-intensive to develop. As a result, few schools can afford to create these valuable learning tools. The AAMC has developed this Virtual Patients Reference Center to promote sharing so all member medical schools might benefit and educators might collaboratively create additional cases rather than duplicate efforts across institutions. For the purposes of the inventory, virtual patients are defined as interactive computer programs that simulate real-life clinical scenarios in which the learner acts as a health care professional obtaining a history and physical exam and making diagnostic and therapeutic decisions."[61]

Another example of addressing the "emerging practicality of virtual simulations" is the Virtual Patient Project at the Carl J. Shapiro Institute for Education and Research at Harvard Medical School and Beth Israel Deaconess Medical Center. The project has approximately 50 virtual patient cases that comprise the core curriculum of medicine. "The cases planned are the bread and butter of medicine, a full range of common disorders, and the diagnostic and management decision-making trees to deal with them. These are patients who will always be available when a student has the time. There's a lot we don't know about this approach. Is it effective? Is it worth the time and the expense to produce each case, about $150,000 to $250,000? Does it address the different learning styles of the students?"[62]

Dr. Michael Rosenblatt, Dean of Tufts University School of Medicine states managed care has removed the hospital as the superior location for clinical education. "The hospital has become a huge intensive care unit. Only the very sick or those with severe forms of diseases are in the hospital, and many arrive with the diagnosis already made. The rest are outpatients. There is no longer the luxury of time for a medical student to interview and examine a patient the day before surgery. Patients are admitted the same day as their surgery and often go home that day. In the hospital, there is little time to teach any but the most technical aspects of surgery. Certainly, there is not much time to connect to the patient as a human being. In the outpatient setting, the meter is running. You have 20 minutes to see a patient, during which time you have to take care of the patient, teach the student something about the pathophysiology of, say, diabetes and regulating blood sugar with insulin, and also serve as a role model for how to get information and connect

with the patient. It is impossible to do all that in 20 minutes. In 20 minutes, an experienced clinician can do a focused interview and targeted exam, but for students, it's like asking them to run before they can walk. We have to find some new ways to address the challenges. One way is to use technology through virtual patients and simulator programs."[63]

Studies have shown "physicians tend to generate only one question for every two to three patients encounters, only actively pursue answers to about 30% of questions generated, and use either a content expert or printed resource. Given further evidence traditional continuing medical education fails to alter behavior, and learners retain little from lecture formats and then only retain it if they use it immediately, the authors make a strong case for pursuing learning at the point of care. To investigate a hypothesis that current students, being more computer-oriented, might seek and use more computer-based data at the point of care, the authors monitored 116 students use of a digital textbook UpToDate. Previously, these students had received lectures and case-based learning exercises as part of their pre-clinical training. Their use of UpToDate was monitored for 12 months prior to their clerkships in which they continued to receive didactic instruction and also saw patients. After their first year of clerkships, they completed a questionnaire regarding their use of electronic resources. Results indicated students were using the electronic resources in conjunction with patient care rather than in preparation for didactic instruction exams. More than 85 percent of respondents identified electronic sources as their primary resource, that they used them daily, and they spent less than 15 minutes answering a clinical question.[64]

How does online continuing medical education (CME) activities compare to live, in-person CME activities? Authors of a study "compared the behavioral outcomes of two approaches to CME. Both approaches produce outcomes that were both positive and similar in terms of immediate change and 12-week-later change. They conclude appropriate-designed, evidence-based, online CME can produce objectively measured changes in behavior as well as sustained gains in knowledge that are comparable or superior to those realized from effective live activities."[65]

How can technology improve the day-to-day functions of medicine? Implementing electronic prescriptions is one major answer. "The number of medication prescriptions is expected to reach almost 4 billion in 2006. This figure is approximately 14 times the size of the U.S. population. Exposure to electronic prescription communications at the earliest levels of a future physician's education and training is a must. Electronic prescribing has the potential to reduce errors, in fact, medication errors could be cut by about 55 percent if physicians switched to writing electronic prescriptions, according to a report by the Institute of Safe Management Practices. The Institute of Medicine study, *To Err is Human*, reports medication errors alone, contribute to more than 7,000 deaths annually, exceeding those resulting from workplace injury. Physicians in training should be exposed to electronic prescribing in their hospital and ambulatory experience. Medical

schools and industry should mobilize resources to ensure ambulatory training sites for students and residents are equipped with up-to-date electronic tools so the trainees can see the benefits firsthand. When they leave their formal training, new physicians will carry the need for adequate technology into their eventual practice sites."[66]

Another major benefit of implementing electronic prescribing is "increased communication between physicians and pharmacists may help address patient compliance issues related to the more than 1 billion unfulfilled prescription renewals each year."[67]

"Physicians have long been tormented by gaps in information, because their ability to assist patients is directly related to the quality and quantity of information available. Their quest for instantaneous access to "all that is known," however, will soon no longer be quixotic. The explosive growth of information technologies will enable physicians to browse a limitless virtual library, which already includes links to every paper published in biomedical science during the past three decades. Scores of time-tested medical books are appearing online on a daily basis. The online availability of a patient's complete medical record is also being realized. Soon physicians will have electronic access to lab data, narratives of office visits, and visual material, such as electrocardiograms and X-rays. Terminals linking these vast databases will be in the private office setting, on the hospital floor, and even in the car or airplane. Physicians of the future will have fingertip access to an immense amount of information that will dramatically improve the practice of medicine. With the gift of information, however, comes the responsibility of knowing how to use it. The unwary user will drown in the deluge of data. Our future physicians must learn to navigate these potentially treacherous seas and develop skills in locating, evaluating, and correctly applying information."[68]

The College of Physicians and Surgeons has begun to implement a variety of curriculum changes to teach students how to maximize data/information searches. Equally important – this information curriculum will be taught by experts in information processing.[69]

Conclusion

Critical demands will be placed on the health care workforce and the health care delivery system due to the dramatic changes occurring in the population and in the increased incidence of disease associated with that change. Leaders in primary care urge a concerted, national effort to reconstruct primary care in order to care for our increasingly older, chronically ill, and diverse population. Technology can be applied in many circumstances across the health care continuum to improve patient outcomes, while at the same time improving cost effectiveness.

Health care must become patient centered and must serve the needs of the patient. The goal of primary care systems should be the delivery of the highest quality care as documented by measurable outcomes. Quality outcomes should be prefaced on evidence-based medicine and enhanced by the use of practice guidelines and clinical guidelines. Information technology will facilitate gathering the data required to determine the guidelines and to monitor the quality.

Technology can also be utilized to help manage patients in less expensive, non-traditional settings. Home monitoring devices, some interactive, can monitor activities, such as blood pressure, cognitive function, and medication administration for individuals living in their homes.

Telemedicine and telehealth networks can be utilized to increase access to underserved areas and populations, while simultaneously improving the recruitment and retention of health care providers in these areas. Distance education can facilitate the education and training of additional health care professionals.

Information technology should be used not only to increase provider reimbursement but also to better manage patient care over time and to improve access and decrease disparities in the delivery of health care. However, care should be given to identifying and implementing technology solutions that will enhance practice workflow and be minimally disruptive to the practice.

However, as technology is utilized throughout the health care delivery system, it is imperative our health professions' educational system be prepared to adapt existing curricula to prepare both new and current health professionals to practice safely and efficiently in a technology-rich environment.

III. RECOMMENDATIONS

Texas must take the necessary steps to achieve education and training in the health professions to ensure an appropriately skilled, sufficient, and experienced workforce becomes a reality for the state. Historically, the SHCC has included health workforce policy recommendations as part of each *Texas State Health Plan* and its biennial updates. Due to the passage of House Bill 916, 79th Regular Legislative Session, that mandates the Texas Health Workforce Planning Partnership coordinate all health care workforce planning activities within the state, the SHCC voted to forward the recommendations developed as part of the *2007-2008 Update* to that body for inclusion in their strategic plan on health workforce. The reports will be available online at the following websites: http://www.dshs.state.tx.us/chs/shcc/default.shtm and http://www.governor.state.tx.us/divisions/bpp/thcpc.

NOTES

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Chapter 2

STATUS OF THE HEALTH WORKFORCE IN TEXAS

INTRODUCTION

The importance of access to health care services cannot be overstated. Every person at some point in life will need access to one or more health providers. However, access to these providers could be adversely affected by factors beyond the person's control, such as provider acceptance of health plans, distance to the provider, and adequacy of the supply of providers. By reporting on demographic trends and the supply and distribution of health professionals by geographic region, researchers, legislators and state planners may better understand and influence access to health care services by Texans.

Statistics

The data in this chapter and Appendix B describe trends in the supply and distribution of various types of health care providers and compare these trends to national averages. The statistics are presented as narratives, tables, graphs, and maps. Most of the data are presented in the form of ratios: the number of providers in a given health profession divided by the population of the area being evaluated, multiplied by 100,000. These ratios were used to compare supply and distribution trends among various populations and areas over time. High ratios indicate there are more providers who are available to serve the population in an area; low ratios indicate there are not enough providers to serve the population. Although ratios are simplistic measures of provider supply adequacy, they are good indicators that, when observed over time, may be used to signal the need for conducting more extensive and comprehensive workforce studies.

Data and sources

Supply data for Texas were collected from state licensing boards. All statistics in this report were based on professionals who were actively practicing in Texas for a given year. U.S. supply data were obtained from the U.S. Bureau of Health Professions and some national professional organizations. U.S. data were not available for all professions, and for many professions, the most current U.S. data available were not as recent as the current Texas data. For both Texas and the United States, there were some years where supply data were not available. The years for which actual data were used in this report are indicated on the graphs by data markers.

The supply ratios for providers in each county for all available years may be found online at: http://www.dshs.state.tx.us/CHS/hprc/.

Texas population numbers used to calculate ratios were estimates provided by the Texas State Data Center at The University of Texas at San Antonio (TXSDC, http://txsdc.tamu.edu/). Population numbers for the census years 1990 and 2000 were actual counts. The estimates for a

given year may not necessarily match estimates in other reports or Web sites because estimates are revised periodically by the TXSDC. The population data used for national statistics were obtained from the U.S. Bureau of the Census.

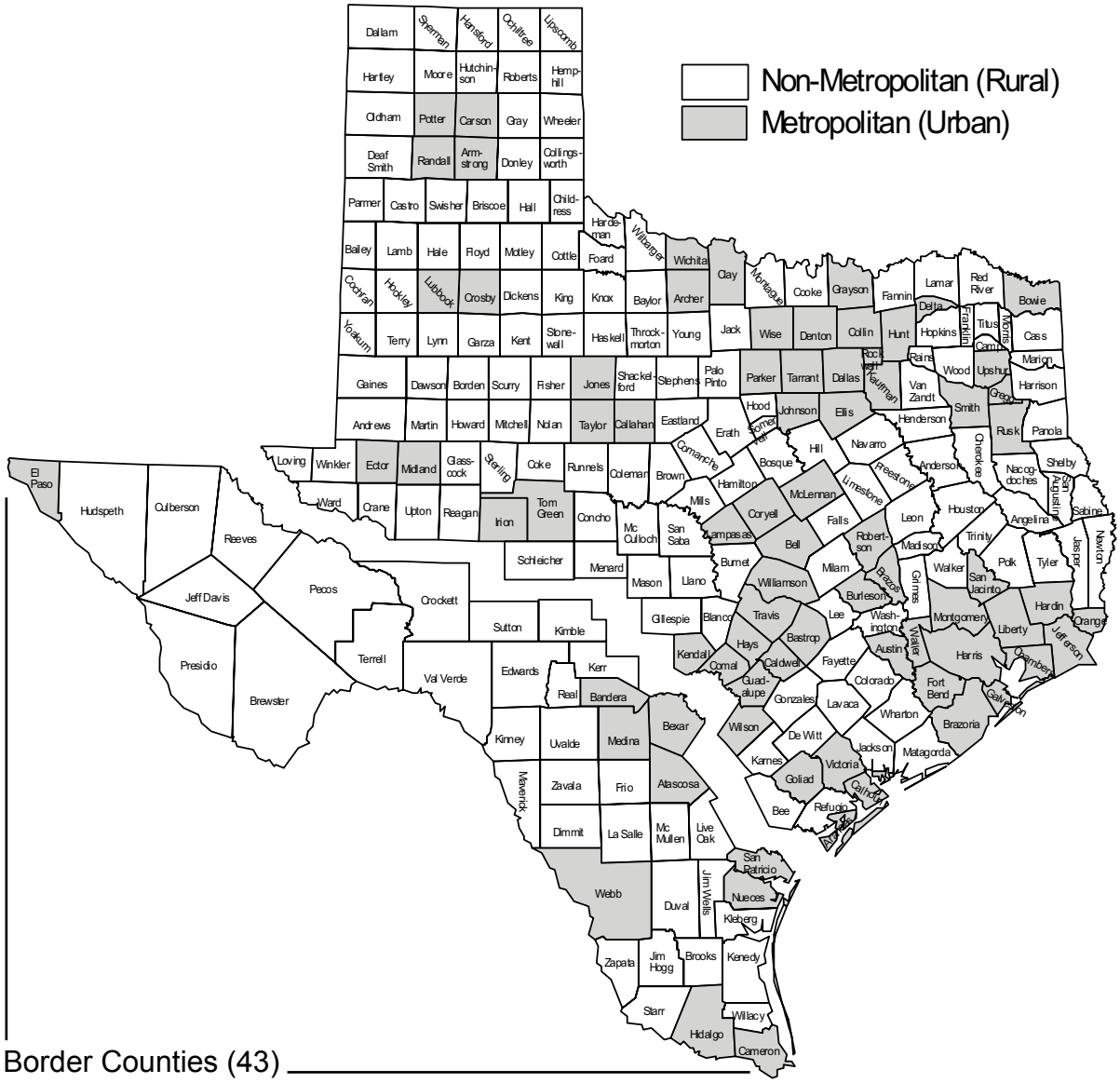
The classification of counties as either metropolitan (77 counties) or non-metropolitan (177 counties) was based on reports from the U.S. Office of Management and Budget. The identification of 43 Texas counties as border counties was based on SB 1378 of the 76th Texas Legislative Session (see Figure 2.1). For many of the analyses presented in this chapter or Appendix B, the 254 counties were aggregated as border metropolitan, non-border metropolitan, border non-metropolitan, and non-border non-metropolitan counties. In 2005, 86.7 percent of the Texas population lived in metropolitan counties and 13.3 percent in non-metropolitan counties. Also, 69.2 percent of the state population lived in non-border metropolitan counties, 17.5 percent in border metropolitan counties, 2.2 percent in border non-metropolitan counties, and 11.1 percent in non-border non-metropolitan counties. Overall, 19.7 percent of the Texas population lived in the 43-county border area.

Health Professional Shortage Areas (HPSAs)

The designation of a county as a Health Professional Shortage Area for primary medical care, dental care, or mental health care indicates the county has an inadequate number of specific health providers to serve the population in the county. There are several categories of HPSA designations: whole county, sub-county, facility, or special population. The Texas Primary Care Office administers the federal HPSA program in Texas in collaboration with the Health Professions Resource Center and the Shortage Designation Branch, Health Resources and Services Administration, Bureau of Health Professions, U.S. Department of Health and Human Services. Lists of designated areas can be found at http://www.dshs.state.tx.us/CHS/hprc/hpsa.shtm. Detailed information about HPSA designations is presented for primary care physicians, dentists, and psychiatrists in this chapter and Appendix B.

Figure 2.1.

Border and Metropolitan Counties in Texas, 2005



2005 Population Statistics:

211 Non-Border Counties — 80.3 percent of total Texas Population

69.2 percent in metropolitan non-border counties

11.1 percent in non-metropolitan non-border counties

43 Border Counties — 19.7 percent of total Texas Population

17.5 percent in metropolitan border counties

2.2 percent in non-metropolitan border counties

Prepared by: Health Professions Resource Center, Center for Health Statistics, Texas Department of State Health Services, February 7, 2006

MEDICAL PROFESSIONS

- **Physicians**
  - Direct patient care (DPC)
  - Primary care (PC)
  - Internal medicine
  - Pediatrics
  - Family practice
  - Obstetrics and Gynecology (Ob/Gyn)
  - Psychiatry — included in the section on Mental Health Professions
- Physician Assistants
- **Chiropractors**
- **Podiatrists**

DPC Physicians

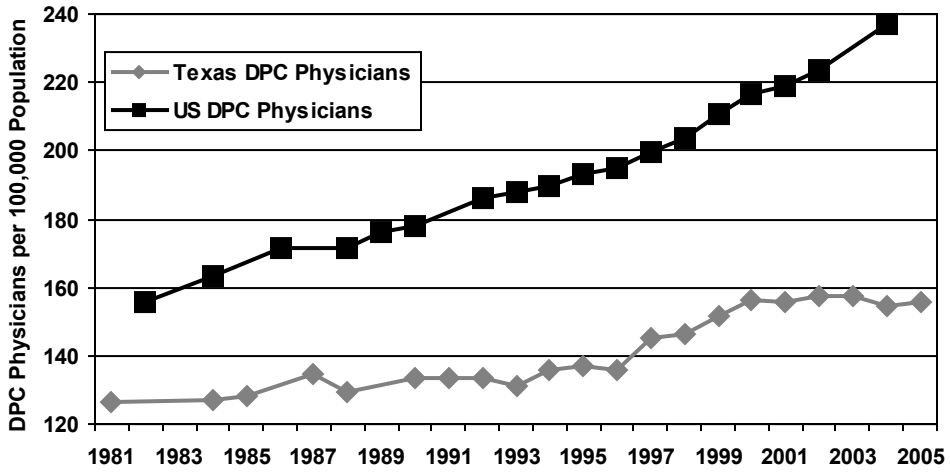
The term *DPC physician* includes both allopathic and osteopathic physicians who are licensed by the Texas Medical Board (TMB), but excludes physicians with a practice type of medical teaching, administration, research, or "not-in-practice." Other physicians who are excluded from the supply of DPC physicians in this report are those physicians who are affiliated with the federal government — including the armed forces, the Department of Veterans Affairs, or the U.S. Public Health Service — and fellows or residents in training. DPC physicians spend at least 50 percent of their time in the direct care of patients and are trained in one or more of the 70+ "general" or "specialist" specialties.

The supply of DPC physicians increased between 1996 and 2005 by an average of 1,094 per year. In October 2005, there were 35,811 DPC physicians actively practicing in Texas. However, over the years, Texas has consistently lagged behind the U.S. average in the ratio of DPC physician supply per 100,000 population, and the gap between the two appears to be increasing (Figure 2.2). The DPC physician supply ratios in Texas were fairly constant between 1981 and 1996. In 1997, the ratios for both metropolitan and non-metropolitan counties began to increase; however, they began to stabilize and decrease slightly after 2003 (Appendix B, item 1). Non-metropolitan counties in Texas have had much smaller supply ratios than metropolitan counties throughout these two decades.

In 2005, there were 23 counties with no DPC physicians; and, there were seven counties that did not have a DPC physician in 1996, but had at least one in 2005. DPC ratios decreased in 80 counties between 1996 and 2005. In general, the counties with the highest ratios were those in Central or East Texas. The counties with lower ratios were generally located in the 43-county border area, West Texas, South Texas, and the Panhandle. Almost all of the counties with no DPC physicians were in these areas. The median age of DPC physicians was 47 years in 2005, compared with 48 years in 2000.

Figure 2.2.

DPC Physicians per 100,000 Population, U.S. and Texas, 1981–2005



Sources: Texas Medical Board; HRSA, Bureau of Health Professions; American Medical Association

PC Physicians

The term *PC physician* includes physicians who are trained in one of six specialties of the more than 70+ specialties included under the umbrella of DPC — family practice, general practice, internal medicine, obstetrics and/or gynecology, general pediatrics, and geriatrics. Geriatrics was included as a primary care specialty starting in 2004, at the request of the Bureau of Shortage Designation's HPSA program. Of the 35,811 DPC physicians in Texas in 2005, 15,718 were PC physicians, an increase of 15.7 percent over the number practicing in Texas in 1999. In 2005, 13 percent of the over 23 million Texans were located in the 177 non-metropolitan counties and 87 percent in the 77 metropolitan counties. By comparison, only 10 percent of the PC physicians were practicing in non-metropolitan counties and 90 percent in metropolitan counties. Twenty-seven of the state's 254 counties had no PC physicians in 2005 and 16 counties had only one PC physician.

Sources of PC physicians

In 2005, less than one-half (47.3 percent) of the PC physicians practicing in Texas were trained in Texas schools. Supplementing this pool of Texas medical graduates were PC physicians who received their training in other states (25.8 percent) or other countries (26.9 percent). Due to the size of this in-migrating PC physician supply, this external source of physicians is very important to the health care delivery system in Texas.

Supply trends

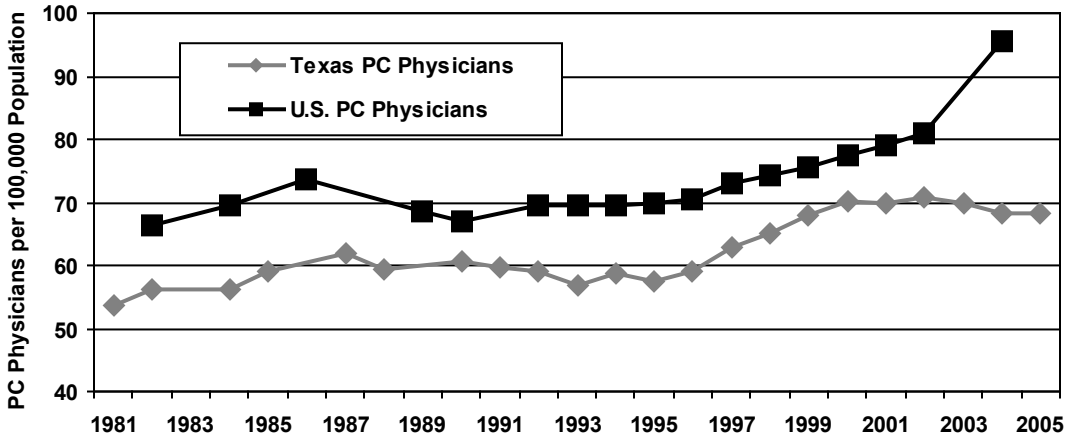
The PC physician supply increased by an average of 492 physicians per year between 1996 and 2005. Although the state's population also increased during this time, the PC physician ratios remained in the range of 59 to 70. Compared to a national benchmark ratio of 60 to 80, Texas remained in the lower range of the national benchmark; in 1996, Texas was even below the federal benchmark with a ratio of 59. The supply of PC physicians could be even more marginal since some of the physicians listed in the 2005 database practice only part-time. The total number of PC physicians available to some population groups could also be lower than the supply totals would suggest because some PC physicians limit their practices to paying or insured patients and others do not accept Medicaid patients. Thus, in some areas of the state, the "effective" physician supply is probably less than simple supply ratios would seem to indicate.

The PC physician average supply ratios in the U.S. (79.0 in 2000) have consistently exceeded the supply ratios in Texas (69.7 in 2000) for the past 20 years (Figure 2.3). Several years ago, the gap between the U.S. and Texas ratios began to widen, apparently due to stabilization in the Texas supply ratios.

The ratios in metropolitan and non-metropolitan counties were fairly constant between 1983 and 1996, with the non-metropolitan ratios being considerably smaller than the metropolitan ratios (Appendix B, item 2). Beginning in 1997, the ratios in both areas began to increase; however, the ratios in both the metropolitan counties and non-metropolitan counties appeared to stabilize about six years ago. In 2005, 27 counties had no PC physicians; and, eight counties did not have a PC physician in 1996, but had at least one in 2005. In general, the lowest supply ratios were associated with the 43 border counties, West Texas, and South Texas. Almost all of the counties with no PC physicians were in these areas. The highest ratios were in Central or East Texas.

Figure 2.3.

PC Physicians per 100,000 Population, U.S. and Texas, 1981–2005



Sources: Texas Medical Board; HRSA, Bureau of Health Professions; American Medical Association

Location

In 2005, there were fewer PC physicians per 100,000 people in non-metropolitan counties than in metropolitan counties. The ratio of 53 PC physicians per 100,000 population in non-metropolitan locations was well below the national benchmark of 60 to 80; however, the ratio in metropolitan areas (71) was in the mid-range of the national benchmark. This difference between metropolitan and non-metropolitan locations has been observed for years in Texas. The supply ratio also varied between border (63) and non-border areas (70), and very low PC physician supply ratios were observed in non-metropolitan non-border (54) and non-metropolitan border (45) locations (See Table 2.1).

Table 2.1.

PC Physician Ratios for Non-metropolitan, Metropolitan, Border, and Non-border Locations, Texas, 2005

Location	Population	PC Physicians Per 100,000 population
Statewide	23,002,555	68.3
Metropolitan border	4,026,681	64.7
Metropolitan non-border	15,915,213	72.2
Non-metropolitan border	511,389	45.0
Non-metropolitan non-border	2,549,272	54.4

Data Sources: Texas Medical Board, October 2005; Population data: Texas State Data Center, Population Estimates & Projection Program, University of Texas at San Antonio.

Practice settings

In 2005, 38 percent of the PC physicians were employed in solo practices, 48 percent in partnership or group practices, 13 percent in hospitals, and 1 percent in Health Maintenance Organizations (HMOs). A small number of PC physicians did not report their practice settings.

Primary care specialties

In 1991, 45 percent of the Direct Care Physicians were primary care physicians, and 55 percent were non-primary care specialists. In 2005, the ratio was 44 percent primary care to 56 percent specialists. Three-fourths of the PC physicians in non-metropolitan counties were either family practice physicians (51.2 percent) or internal medicine physicians (22.5 percent). However, in metropolitan counties, two-thirds of the PC physicians were trained in family practice (31.2 percent) or internal medicine (29.5 percent). See Table 2.2 for more information.

Table 2.2.

PC Physicians by Primary Specialty and Practice Location, Texas, 2005

PC Physicians by Specialty	2005 PC Physicians Total	% Metropolitan	% Non-Metropolitan
Family Practice	5,221	84.2	15.8
General Practice	792	80.8	19.2
Internal Medicine	4,524	92.0	8.0
General Pediatrics	2,884	95.0	5.0
Obstetrics and Gynecology	2,266	94.2	5.8
Geriatrics	31	100.0	0.0
Total Primary Care	15,718	89.7	10.3

Source: Texas Medical Board, 2005.

Age

The median age of PC physicians in 2005 was 46 years, the same as in 2000. Female physicians tend to be younger, with a median age of 41, than male physicians, with a median age of 49. The ages of PC physicians also differed based on whether the physicians were practicing in non-metropolitan or metropolitan counties. The median age for PC physicians in metropolitan counties was 46 years and, in non-metropolitan counties, 48 years. The median age for PC physicians in the border counties was 47 years, and in the non-border counties it was 46 years.

Gender

In 1995, 80.8 percent of the PC physicians were male; however, that percentage has steadily decreased to 68 percent in 2005. In 2005, one-third of the PC physicians in metropolitan and non-border counties (34 percent and 33 percent respectively) were female. However, only 18 percent of the PC physicians in non-metropolitan counties and 28 percent in border counties were female.

Male and female PC physicians also vary in their choice of a medical specialty. For example, a greater percentage of female PC physicians report pediatrics as their primary specialty (29.1 percent) than do male PC physicians (13.2 percent) (Table 2.3). The two most prevalent specialties in non-metropolitan counties, family practice and internal medicine (Table 2.2), are not as well represented among female PC physicians (51.7 percent of females are practicing in these two specialties) as among male PC physicians (66.9 percent).

Table 2.3.

PC Physicians by Primary Specialty and Gender, Texas, 2005

Physicians by Specialty	2005 PC Physician Total	% Male	% Female
Family Practice	5,221	35.9	27.7
General Practice	792	6.3	2.4
Internal Medicine	4,524	31.0	24.0
General Pediatrics	2,884	13.2	29.1
Obstetrics and Gynecology	2,266	13.4	16.6
Geriatrics	31	0.2	0.2
Total	15,718	100.0	100.0

Source: Texas Medical Board, 2005

Race-Ethnicity

In 2005, the majority (61.4 percent) of the state's PC physicians were white, down from 74.7 percent in 1995 (Table 2.4). Although Hispanics made up the largest minority population of PC physicians in 1995, Asian–Pacific Islanders were the largest in 2005. The PC physician workforce that was non-Hispanic African-American in 2005 was about six percent smaller than the percentage of this group in the general population, and the PC physician workforce that was Hispanic in 2005 was about 22 percent smaller than the percentage of Hispanics in the general population.

Table 2.4.

Race and Ethnicity Trends for PC Physicians, Texas, 1995 and 2005

Race/Ethnicity	1995		2005	
	PC Physicians (%)	Population (%)	PC Physicians (%)	Population (%)
White	74.7	58.6	61.4	49.4
Black	3.7	11.7	5.8	11.4
Hispanic	11.4	27.4	13.7	35.4
Asian / Pacific Islander	10.1	2.4	18.8	3.8
American Indian / Alaskan Native	0.2		0.3	

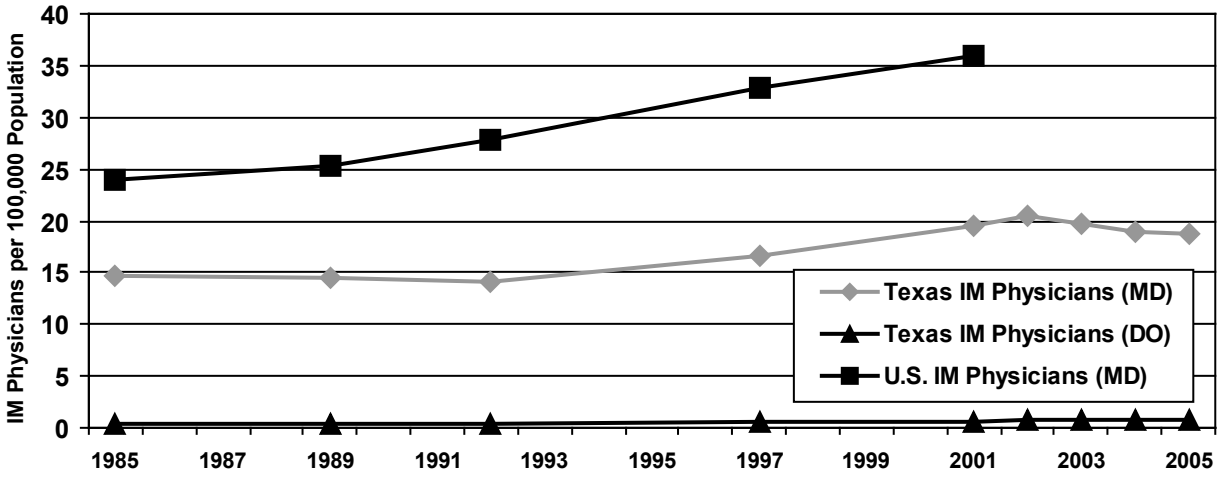
Data sources: Texas Medical Board, 1995 and 2005; Texas population: Texas State Data Center

Internal Medicine (IM)

In Figure 2.4, the supply of IM physicians in Texas is separated into Doctor of Osteopathy (DO) and Medical Doctor (MD) trend lines because national data were not available for DOs. As shown in the graph, the IM supply ratios for MDs in Texas have been lower than the U.S. average ratios for the past two decades. The ratios for DOs have remained stationary. The median age for IM physicians was 44 years in 2005, compared with 45 in 2000.

Figure 2.4.

Internal Medicine Physicians per 100,000 Population, U.S. and Texas, 1981–2005



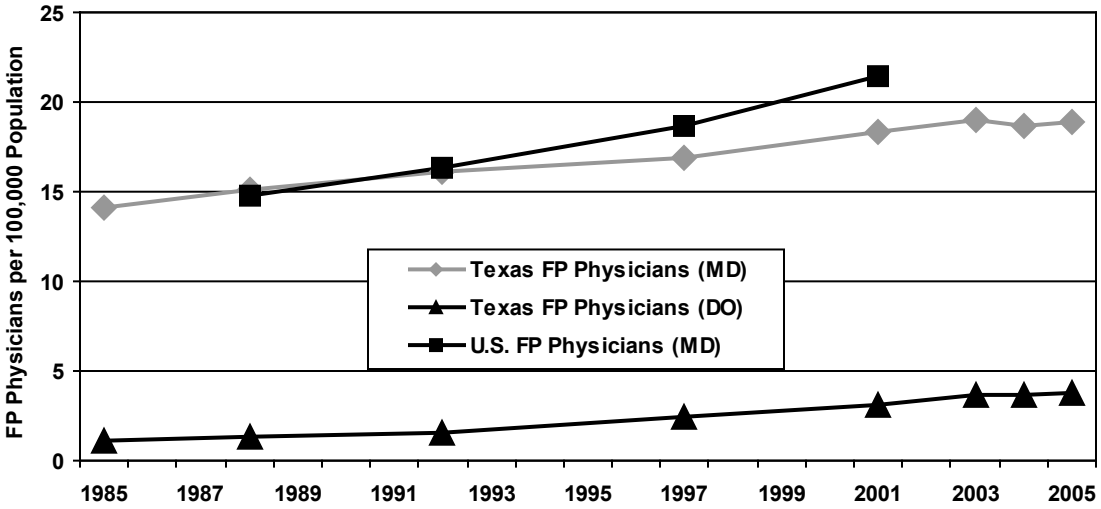
Sources: Texas Medical Board (MD and DO); American Medical Association (U.S. MD); HRSA, Bureau of Health Professions

Family Practice (FP)

In Figure 2.5, the supply of FP physicians in Texas is separated into DO and MD trend lines because national data were not available for DOs. Prior to 1992, the FP ratios in the United States and Texas were about the same; however, after 1992, the gap between the U.S. average ratios and the Texas ratios for FP physicians widened, with the Texas ratios consistently falling behind the U.S. ratios in magnitude. The FP ratios for MDs have increased about the same as the ratios for DOs. The median age for FP physicians was 46 years in 2005, the same as in 2000.

Figure 2.5.

Family Practice Physicians per 100,000 Population, U.S. and Texas, 1981–2005



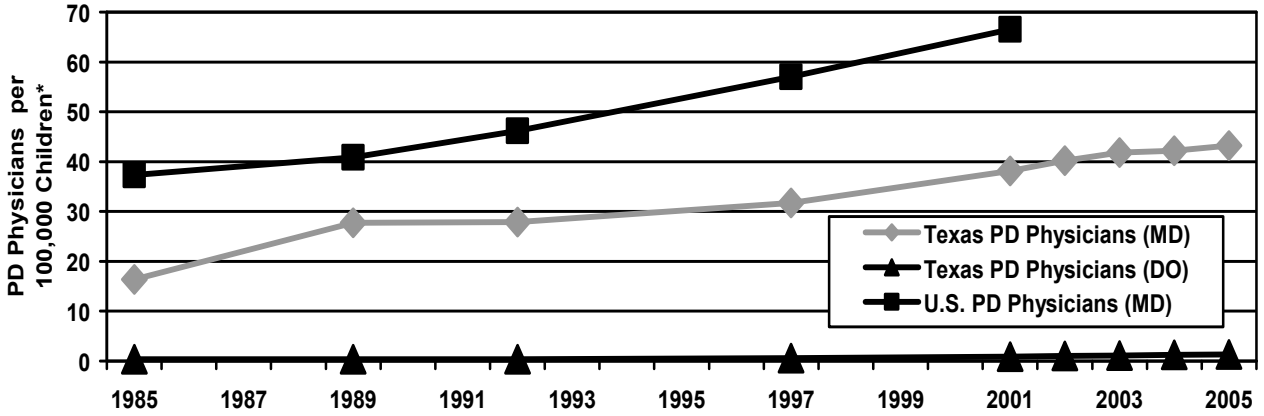
Sources: Texas Medical Board (MD and DO); American Medical Association (U.S. MD); HRSA, Bureau of Health Professions

Pediatrician (PD)

In Figure 2.6, the supply of PD physicians in Texas is separated into DO and MD trend lines because national data were not available for DOs. The PD supply ratios for MDs in Texas per 100,000 children have been lower than the U.S. average ratios for the past two decades, but have been increasing since the mid-'90s. The PD supply ratios for DOs have remained fairly constant. The median age for PD physicians was 44 in 2005, compared with 45 in 2000.

Figure 2.6.

PD Physicians per 100,000 Children (0–18 years), U.S. and Texas, 1985–2005



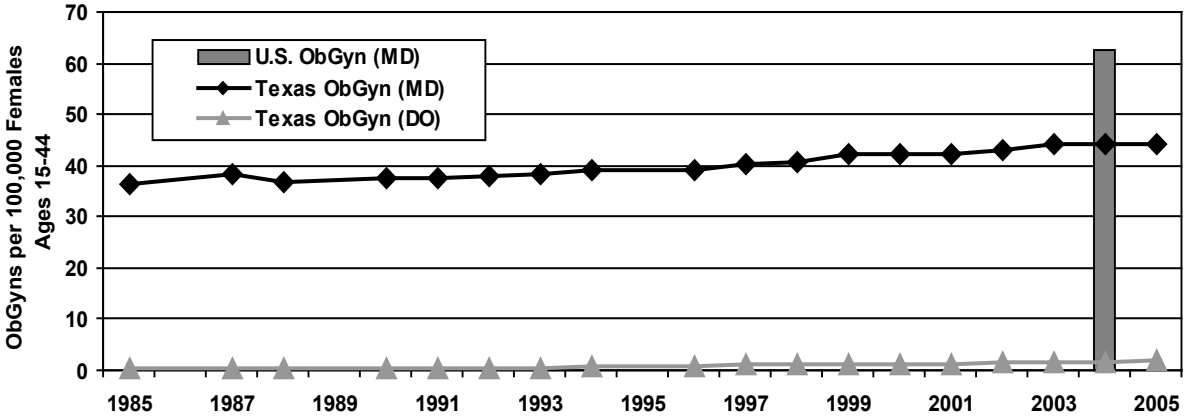
Sources: Texas Medical Board (MD and DO); American Medical Association (U.S. MD); HRSA, Bureau of Health Professions

Obstetrics and Gynecology (Ob/Gyn)

Physicians may have a specialty of Gynecology only, Obstetrics only, or Obstetrics and Gynecology. The data in this report reflect the total of those three specialties. In Figure 2.7, the supply of Ob/Gyns in Texas is separated into DO and MD trend lines to be consistent with previous graphs for FP, IM, and PD physicians. However, national Ob/Gyn supply ratio trends were not available for this graph, although the national ratio in 2004 was 62.5. Ob/Gyn supply ratios for MDs have increased slightly over the past two decades, but the ratios for DOs have remained fairly constant. The median age for Ob/Gyns was 47 years in 2005, compared with 48 in 2000.

Figure 2.7.

Ob/Gyn Physicians per 100,000 Females Ages 15–44, Texas, 1985–2005



Source: Texas Medical Board

HPSAs

PC physician ratios are the primary indicators used by the U.S. Department of Health and Human Services to determine if geographic areas or population groups are experiencing shortages of PC physicians and if they qualify as federal shortage areas. In February 2006, 69.7 percent of the counties in Texas had either whole (117) or partial-county/special population (60) HPSA designations (Appendix B, item 24). Fifty percent of the non-metropolitan counties had "whole county" HPSA designations, and 60 percent of the border counties were designated. Most of the partial-county HPSA designations were located in metropolitan counties. It should be noted many of these federally designated PC physician shortage areas are also experiencing shortages of other health professionals, such as nurses, allied health professionals, and mental health providers.

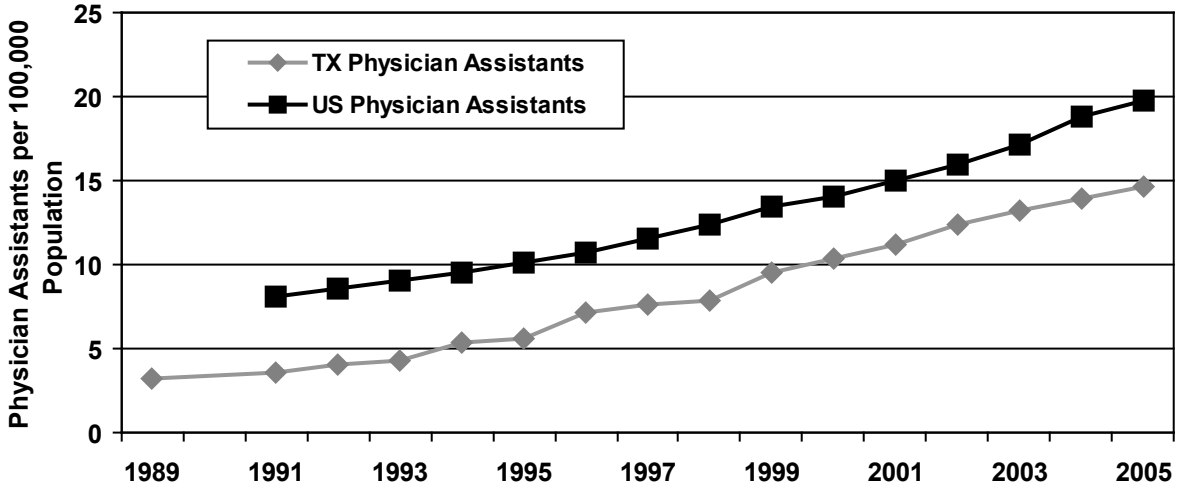
Physician Assistants (PAs)

According to the 2005 TMB licensure data, there were 3,375 PAs licensed to practice in Texas; 88 percent of them practiced in metropolitan counties; 22 percent practiced in border counties. The supply ratios of PAs per 100,000 population for the United States have been consistently higher than the ratios for Texas (for example, 14.1 vs. 10.4 respectively, in 2000). Both the U.S. and Texas ratios have been rising at a comparable rate (Figure 2.8). The ratios for the non-metropolitan areas were higher than those for the metropolitan areas from 1994 to 2002 (Appendix B, item 3); however, the metropolitan areas have sustained a steady increase since that time while the ratios for the non-metropolitan areas have fluctuated. In 2003, the ratios for the metropolitan areas surpassed those of the non-metropolitan areas.

Fifty-two counties that did not have a PA in 1995 had one or more in 2005. In 2005, the counties with the highest supply ratios were in West Texas and the Panhandle, and there were 58 counties with no PAs. Over the past decade, most of the counties with the greatest increase in supply ratios have been in East and Central Texas, with a few counties showing increases in South Texas and the Panhandle. Forty-nine counties experienced a decrease in their supply ratios during that time. In contrast with physicians, the average ratios in the border and non-border counties were similar to each other.

Figure 2.8.

Physician Assistants per 100,000 Population, U.S. and Texas, 1989–2005



Sources: Texas Medical Board, American Academy of Physician Assistants

Age, gender, and race-ethnicity

In 2005, three-fourths (76 percent) of the PAs were white, followed by Hispanic PAs at 12.7 percent of the total (Table 2.5). There were substantially more female PAs than male PAs in 2005, a reversal from 2000, when males slightly outnumbered females, 50.4 percent to 49.6 percent, respectively. The median age of PAs in the state in 2005 was 41 years, the same as in 2000. The median age of PAs in non-metropolitan counties was several years greater than the median age of PAs in metropolitan counties (47 years versus 40 years, respectively). The median age of PAs in border counties was 42 years, 2 years more than that of PAs in non-border counties. A disparity in age and gender exists among PAs based on their practice location: 56 percent of the PAs in metropolitan counties were female, but only 41 percent in non-metropolitan counties were female. In the border counties, only 40 percent of the PAs were female, compared to 58 percent in the non-border counties.

Table 2.5.

Distribution of PAs by Gender and Race-Ethnicity, Texas, 2005

Characteristic	Variable	Percent
Gender	Male	45.4
	Female	54.6
Race-Ethnicity	White, not Hispanic	76.0
	Black	5.3
	Hispanic	12.7
	Asian-Pacific Islander	5.4
	American Indian – Alaskan Native	0.7

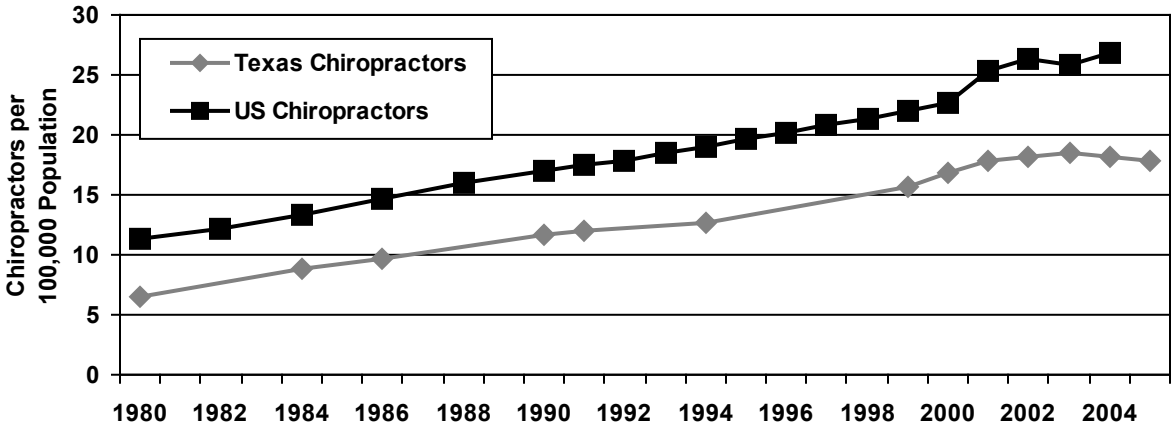
Source: Texas Medical Board, 2005.

Chiropractors

There were 4,091 chiropractors in Texas in 2005. The supply ratio of chiropractors per 100,000 population in the US has consistently exceeded the supply ratios in Texas (Figure 2.9). And, prior to the late 1980s, the ratio was higher in non-metropolitan counties than in metropolitan counties (Appendix B, item 4). Since that time, the ratios for chiropractors in metropolitan counties have greatly increased and have exceeded the rates for non-metropolitan counties. In 2005, there were 79 counties in the state that did not have a chiropractor. Nineteen counties that did not have a chiropractor in 1991 had at least one in 2005. However, 16 counties that had chiropractors in 1991 had no chiropractors in 2005. The highest supply ratios were concentrated in the central part of the state, and also around Dallas and Houston. The general trend appears to be a shift of chiropractors away from non-metropolitan counties to metropolitan counties.

Figure 2.9.

Chiropractors per 100,000 Population, U.S. and Texas, 1980–2005



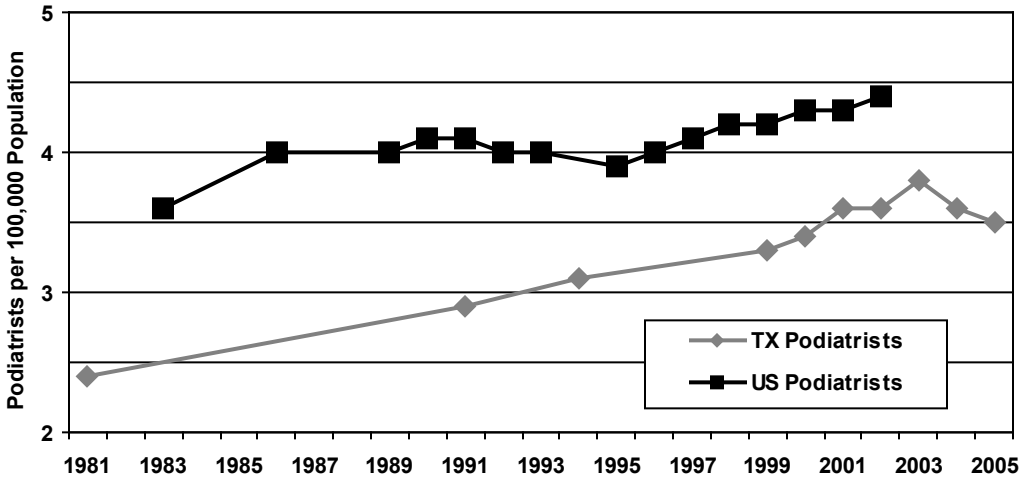
Sources: Texas Board of Chiropractic Examiners; HRSA, Bureau of Health Professions; Federation of Chiropractic Licensing Boards

Podiatrists

There were 814 podiatrists in Texas in 2005. There are no schools of podiatry in Texas and only eight accredited schools nationally. That may partially explain why Texas lags behind the United States in podiatrist supply ratios. The gap had decreased slightly in the last few years until 2004, when the ratios for Texas began to decrease (Figure 2.10). The ratios are greater in metropolitan areas than in non-metropolitan areas (Appendix B, item 5). The highest concentration of podiatrists is in the Central Texas area. There are very few podiatrists in West Texas, South Texas, and the Panhandle. The non-metropolitan border counties have higher average ratios than the non-metropolitan non-border counties. Central Texas experienced the largest growth rate in supply ratios over the last decade. Twenty-eight counties that did not have a podiatrist in 1994 had at least one in 2005, while only three counties lost all of their podiatrists over that time. In 2005, Texas had 167 counties without a podiatrist. The median age for podiatrists was 44 years in 2005, the same as in 2000.

Figure 2.10.

Podiatrists per 100,000 Population, U.S. and Texas, 1981–2005



Sources: Texas State Board of Podiatric Medical Examiners, 1981–2005; HRSA, Bureau of Health Professions

NURSING PROFESSIONS

- **Registered Nurses**
- **Advanced Practice Nurses**
  - Nurse practitioners
  - Certified nurse midwives
  - Nurse anesthetists
  - Clinical nurse specialists
- **Licensed Vocational Nurses**

Registered Nurses (RNs)

All of the RNs included in the statistics for this chapter and Appendix B held active licenses and were employed either part-time or full-time in nursing. Although some RNs were employed as teachers or administrators and may not provide direct patient care, they were included in the overall supply totals for Texas RNs.

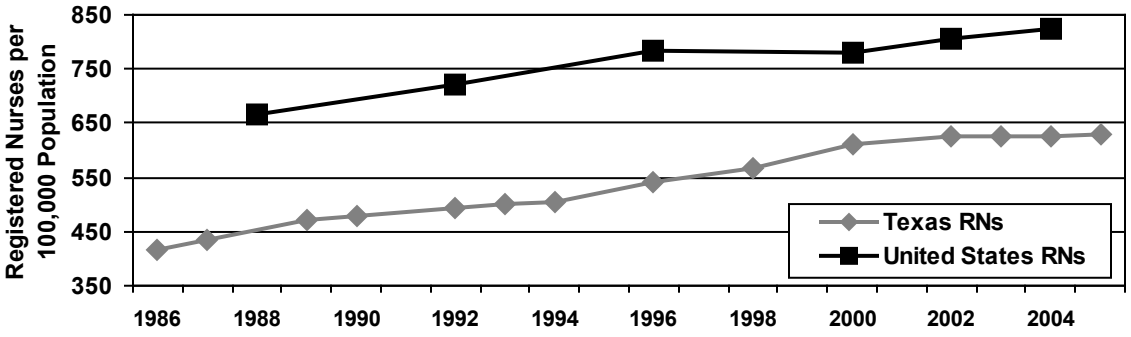
Supply

According to the Board of Nurse Examiners (BNE) licensure file for 2005, there were 144,602 active RNs practicing in Texas — 85.8 percent were employed full-time and 14.2 percent were employed part-time in nursing. The 144,602 RNs give Texas a supply ratio of 628.6 RNs per 100,000 population. The Texas supply ratios have been below the U.S. supply ratios for years (for example, 611.9 vs. 780.4 respectively in 2000). The gap between U.S. and Texas ratios has been slightly increasing in recent years (Figure 2.11).

Metropolitan counties have consistently had a much higher ratio of nurses than the non-metropolitan counties (Appendix B, item 6). There were only four counties that did not have an RN in 2005 but those four counties had a combined population of only 6,539 people. Since 1998, 123 of Texas' 254 counties have seen an increase in the supply ratio of RNs; only two counties did not have an RN in 1998, and neither of them had one in 2005. Although the border counties continue to have much lower supply ratios than the rest of Texas, the ratios in those counties are increasing at a rate comparable to the rest of the state.

Figure 2.11.

Registered Nurses per 100,000 Population, U.S. and Texas, 1986–2005



Sources: Texas Board of Nurse Examiners; HRSA, Bureau of Health Professions

Gender

In 2005, the RN workforce in Texas was predominantly female; only 9.5 percent of the nurses were male. This represents only a slight increase in the male representation in the RN workforce from 2000, when 8.4 percent of the RNs were male.

Position type and employment field

A majority (64.3 percent) of the RNs who were actively employed as nurses in Texas were working in hospitals — the others being primarily employed in home health (5.6 percent), physicians' or dentists' offices and clinics (4.7 percent), school or college health clinics (4.1 percent), nursing homes or extended care facilities (3.2 percent), business or industry (2.4 percent), community and public health (1.8 percent), freestanding clinics (2.1 percent), schools of nursing (1.6 percent), self-employed or in private practice (1.0 percent), temporary agencies (0.8 percent), military installations (0.7 percent), rural health clinics (0.3 percent) or in other employment fields (6.5 percent). Also, the employment field was unknown for 0.7 percent of the RNs.

Since the majority of RNs work in hospitals, in 2005 most were employed in hospital-related positions, such as head nurse, staff nurse, or general duty nurse (Table 2.6). Advanced practice nurses accounted for 4.8 percent of all nursing positions for active nurses in Texas.

Table 2.6.

Distribution of actively employed RNs in Texas by position type, 2005

Position Type	Number	%
Head Nurse, Staff Nurse, General Duty Nurse, or Assistant	93,839	64.9
Administrator/ Supervisory/ Assistant	15,029	10.4
School / Office Nurse	9,053	6.3
Nurse Practitioner	4,066	2.8
Faculty/Educator	3,229	2.2
Consultant	2,176	1.5
Nurse Anesthetist	1,701	1.2
In-service / Staff Development	934	0.6
Clinical Nurse Specialist	864	0.6
Certified Nurse Midwife	244	0.2
Other	12,282	8.5
Unknown	1,185	0.8

Source of data: Texas Board of Nurse Examiners, September 2005

Education — basic and highest degrees

In 2005, one-third (33.7 percent) of the active RNs listed as their *basic degree* the baccalaureate degree in nursing (BSN), 44.6 percent listed associate degree in nursing (ADN), and 21.2 percent listed diploma in nursing. Other RN degree types (masters in nursing, enroute to masters, RN undergraduate, and VN/VP program) accounted for 0.5 percent of the RNs, and a small number of nurses did not give their basic degree. The majority listed ADN as their *highest degree* (39.5 percent) followed by the BSN degree (35.6 percent), and the diploma in nursing (11.0 percent). Only 6.3 percent had a master of science in nursing and 0.3 percent, a doctorate in nursing. Some RNs had their highest degree in a field other than nursing (7.4 percent).

Of those nurses with a diploma degree, 19.7 percent had progressed to a BSN, 4.9 percent to an MSN, and 0.4 percent to a doctorate in nursing. Of those nurses with ADN as their basic degree, 9.3 percent progressed to a BSN, 2.6 percent to a MSN, and 0.1 percent to a doctorate in nursing. By comparison, of those nurses with a BSN as their basic degree, 11.2 percent advanced to MSN and 0.6 percent advanced to a doctorate in nursing.

Work area

The most common work areas for active RNs in Texas were medical-surgical (14.4 percent), intensive care–critical care (11.5 percent), obstetrics and gynecology (7.8 percent), and operating/ recovery care (7.7 percent) (Table 2.7).

Table 2.7.

Distribution of active RNs in Texas by their work area, 2005

Work Area	Number	%
Medical / Surgical	20,862	14.4
Intensive Care / Critical Care	16,612	11.5
Obstetrics and Gynecology	11,343	7.8
Operating / Recovery Care	11,174	7.7
Pediatrics	8,890	6.1
Emergency Care	8,571	5.9
Home Health	7,319	5.1
General Practice	6,220	4.6
Neonatology	5,672	3.9
Geriatrics	5,556	3.8
Psychiatric / Mental Health / Substance Abuse	4,602	3.2
Oncology	4,230	2.9
Community / Public Health	4,196	2.9
Rehabilitation	2,800	1.9
Anesthesia	1,748	1.2
Occupational/Environmental	934	0.6
Other	22,368	15.5
Missing	1,505	1.0

Source: Texas Board of Nurse Examiners, September 2005

Job satisfaction, retention, and re-entry into nursing

The Regional Center for Health Workforce Studies at the Center for Health Economics and Policy (CHEP) conducted a research study in 2004 on Registered Nurses (RNs) in Texas. The following reflects the results of the 2004 CHEP study of 1,012 RNs with some comparison to the 2002 study results on factors that affect retention and re-entry of nurses in the nursing workforce:

- While 73 percent of the RNs reported general satisfaction with their work, 69 percent reported exhaustion and 54 percent reported frustration.
- Almost 43 percent of the RNs reported that, on most days, they often have more work than they can safely handle.
- In Texas, 13 percent of the RNs reported an increase in violence against nurses, mostly from patients and to a lesser degree from non-MD staff. Twenty-eight percent of the Border RNs report an increase in harassment by patients.
- RNs see too little or no relief from paperwork. The issues of patient workload and patient acuity still remain areas of concern for RNs.
- Some of the factors that affect retention and re-entry of nurses in the workforce have to do with the nursing workload involved in caring for an increasingly aged, severely ill, and obese patient population along with increasing paperwork and physical and interpersonal stressors.
- In regard to the work environment, lifting was reported as the greatest risk. Only 34 percent of the RNs perceived that they have adequate help with physical demands in the workplace.
- Only 5.2 percent (a decrease of 7 percent in 2002) of the nurse managers reported that their employers have made changes in the workplace (e.g., part-time scheduling, reducing physical demands) to accommodate nurses over 55.[1]

Aging of the Registered Nurse Workforce

The aging of the RN workforce will have an impact on future nursing workforce trends. RNs from the baby boomer generation entered nursing in large numbers in the 1960s and 1970s and represent the largest cohort of RNs today. In conjunction with this, a declining percentage of young RNs are entering the workforce.

The overall RN workforce in Texas continues to age. The median age of RNs in 2000 was 44 years. The median age for nurses in both border counties and non-border counties was 46 years. In 2005, the median age of RNs in Texas was 46 years, with non-metropolitan nurses being slightly older on average (48 years) than metropolitan nurses (46 years). According to the Bureau of Labor Statistics, the national median age for RNs was 43 years.[2] These trends show that the median age of RNs continues to increase and that the Texas RN workforce is older than the national RN workforce.

Of the 144,602 RNs actively working in nursing in 2005, 38.6 percent of these nurses are 50 years of age or older. This means that 9.6 percent of these nurses can start retiring now and the remaining 29 percent will be retiring in the next three to twelve years. So that by the year 2020, there will be a loss of 56 percent of the current RN workforce due to a large cohort of nurses retiring. According to the Bureau of Health Professions (2005), "three factors contribute to this aging of the RN workforce: (1) the decline in number of nursing school graduates, (2) the higher average age of recent graduating classes, and (3) the aging of the existing pool of licensed nurses."[3]

In the 2004 CHEP study, the RNs who were surveyed indicated the following work plans:

- RNs age 46–55 intend to retire at age 62.
- RNs age 56 and above intend to retire at age 66.
- Approximately 6 percent of RNs 56 and above plan to retire within the next year.
- Over 4 percent of RNs planning to leave nursing for another type of work are in the "30 and below" and "46–55" age groups.
- Non-metropolitan RNs average age of intended retirement increased by more than one year, from age 63 in 2002 to age 64 in 2004.
- The percentage of border RNs intending to decrease work hours for next year decreased from 19 percent in 2002 to 16 percent in 2004.[4]

In the 2005 BNE master file, there were 3,229 RNs who held active licenses, were employed full- or part-time in nursing, and indicated "faculty or educator" as the position they held at the time of license renewal. Out of the 3,229 RN faculty or educators, there were 1,851 who worked in schools of nursing. The median age of faculty or educators who worked in schools of nursing was 54 years of age.

In a study done in 2004 on schools of nursing in Texas, the following age-related trends among faculty have an impact on the capacity of schools of nursing to produce more graduates over the next 20 years (Texas Center for Nursing Workforce Studies, 2005):

- Trends show an additional increase in the median age of nurse faculty, from 51 in 1999 to 54 in 2004.
- The nurse faculty workforce in Texas has a higher median age than the RN workforce as a whole.
- The median age of 54 for Texas nurse faculty in 2004 was higher than the national median age of 51.5 for RN faculty as reported in 2003 by the American Association of Colleges of Nursing.
- In 2004, there were only 136 faculty members in Texas who were under 40 years old. The trends over a ten-year period show that there has been no significant increase in recruitment of younger faculty members.

For 2004, there were a total of 1,264 faculty members, or 70.2 percent of the total faculty population, age 50 or older teaching in Texas schools of nursing. One-third of these faculty members could retire at any time because they are 60 and older. The remaining two-thirds of these faculty members could start retiring in the next 3-12 years.[5]

Advanced Practice Nurses (APNs)

The term APN includes all nurses recognized by the TBNE as nurse practitioners, nurse midwives, nurse anesthetists, and clinical nurse specialists. The APN specialties are based on the types of practice or target populations of the practice, such as pediatrics, family, school health, women's health, oncology, and psychiatry–mental health.

Nurse Practitioners (NPs)

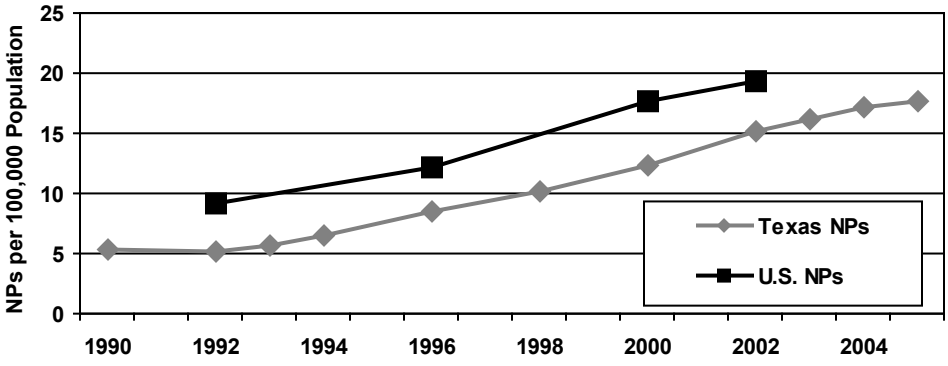
NPs have been granted authorization by the Board of Nurse Examiners to practice based on their advanced education and experience. NPs practice both under the authority of their nursing license and in collaboration with physicians. Some functions, such as prescribing medication, can be performed only in collaboration with a physician under written protocols.

The data for NPs were obtained from the 2005 RN master licensing file. The "position type" on the file has variables for *administrator, school nurse, researcher, nurse practitioner, clinical nurse specialist, nurse anesthetist,* and *nurse midwife,* among others. For this report, an RN record was selected as an NP record based on the position type of "nurse practitioner." Since an APN may be certified in multiple position types, but can only choose one position type when completing renewal forms, the totals presented in this report possibly undercount the exact number of NP recognitions in Texas. In 2005, there were 4,066 active NPs practicing in Texas. The importance of NPs in the delivery of health care is indicated by their increasing supply; the ratios increased by 74 percent between 1998 and 2005.

The supply ratios of NPs per 100,000 population in Texas have lagged behind the U.S. average supply ratios for decades (Figure 2.12). In contrast with the trends for many health professions in Texas, the highest NP supply ratios were in certain counties in the Panhandle and in areas west of Central Texas. However, most of the 66 counties that did not have an NP in 2005 were also in these areas. Overall, the average ratios of NPs in metropolitan counties were higher than in non-metropolitan counties, and the gap has been increasing (Appendix B, item 7). Forty-three counties that did not have an NP in 1998 had at least one in 2005. In 2005, the median age for NPs was 48 years, compared with 46 in 2000.

Figure 2.12.

Nurse Practitioners per 100,000 Population, U.S. and Texas, 1990–2005



Sources: Texas Board of Nurse Examiners; HRSA, Bureau of Health Professions

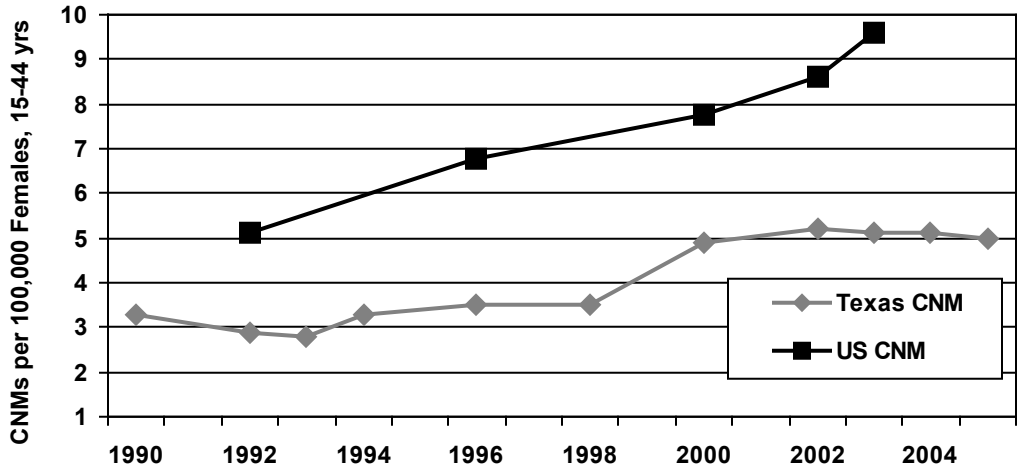
Certified Nurse-Midwives (CNMs)

CNMs have been granted authorization by the Board of Nurse Examiners to practice based on advanced education and experience. CNMs provide obstetrical and gynecological care for women during pregnancy, childbirth, and the postpartum period. In Texas, there are two types of midwives: Direct-entry Midwives and CNMs. Direct-entry Midwives are non-RNs who successfully complete a course on midwifery and successfully pass the state-approved comprehensive written exam as required by the Texas Midwifery Board. Certified Nurse Midwives' educational preparation requires an RN background. They are regulated by the Texas Board of Nurse Examiners.

In Texas, in 2005, there were 244 CNMs. The data for CNMs were obtained from the 2005 RN master licensing file (for position types, see "Nurse Practitioners," above). An RN record was selected as a CNM record based on the position type of "nurse midwife." Since an APN may be certified in multiple position types, but can only choose one position type when completing renewal forms, the totals presented in this report possibly undercount the exact number of CNM recognitions in Texas. CNMs were primarily located in the metropolitan areas of Texas and their ratios increased by 43 percent between 1998 and 2005 (see Figure 2.13). The Texas supply ratio of CNMs per 100,000 female population of childbearing age (ages 15 through 44) has lagged behind the U.S. supply ratio since 1992, when national statistics first became available. In 2005, there were 214 counties that did not have a CNM. In 2005, the median age of CNMs was 49 years, compared with 46 in 2000.

Figure 2.13.

Certified Nurse Midwives per 100,000 Females Ages 15–44, U.S. and Texas, 1990 –2005



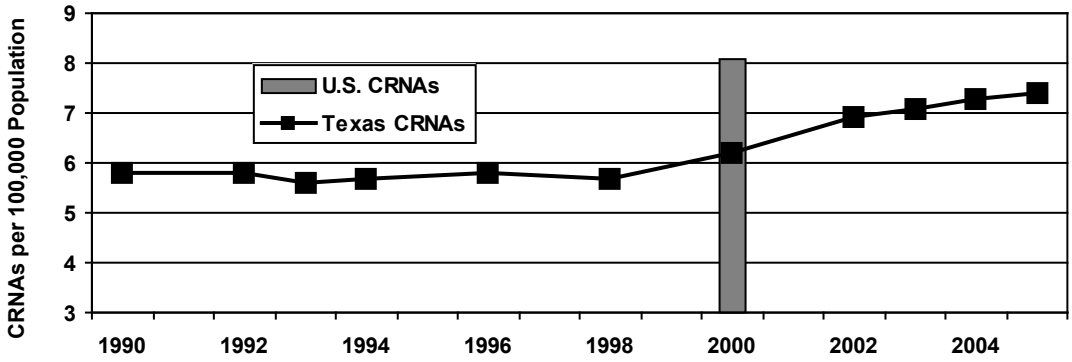
Sources: Texas Board of Nurse Examiners; HRSA, Bureau of Health Professions

Certified Registered Nurse Anesthetists (CRNAs)

In 2005, there were 1,701 CRNAs practicing in Texas. They were primarily located in the metropolitan areas of Texas (Appendix B, Item 9). Their ratios increased by 30 percent between 1998 and 2005 (see Figure 2.14). U.S. statistics for Figure 2.14 were available only for the year 2000. The Texas ratio in 2000 was below the national average. In 2005, there were 124 counties that did not have a CRNA. In 2005, the median age of CRNAs was 50 years, compared with 48 in 2000.

Figure 2.14.

Certified Registered Nurse Anesthetists per 100,000 Population, Texas, 1990–2005 (national statistics not available, except for 2000)



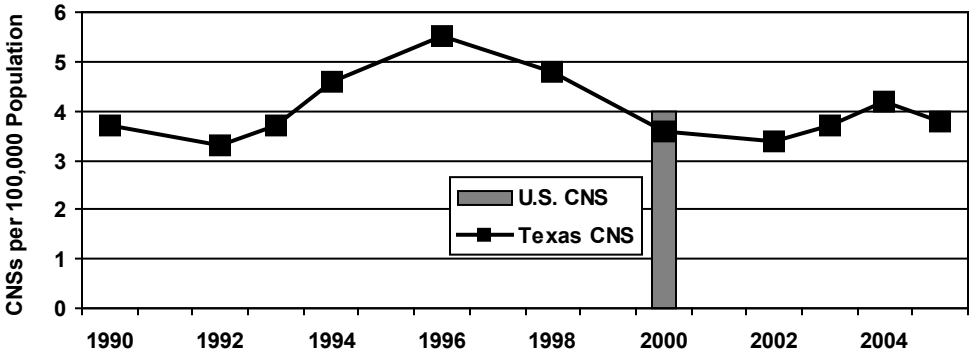
Sources: Texas Board of Nurse Examiners; HRSA, Bureau of Health Professions

Clinical Nurse Specialists (CNS)

There were 864 CNSs practicing in Texas in 2005. They were primarily located in the metropolitan areas of Texas. Their ratios decreased by 10 percent between 1998 and 2005 (see Figure 2.15). U.S. statistics were not available except for the year 2000; however, the Texas and U.S. supply ratios for that year were similar in magnitude. Twenty counties that did not have a CNS in 1998 had at least one in 2005. In 2005, there were 185 counties in Texas that did not have a CNS. In 2005, the median age for CNSs was 51 years, compared with 49 in 2000.

Figure 2.15.

Clinical Nurse Specialists per 100,000 Population, Texas, 1990–2005 (national statistics not available, except for 2000)



Sources: Texas Board of Nurse Examiners; HRSA, Bureau of Health Professions

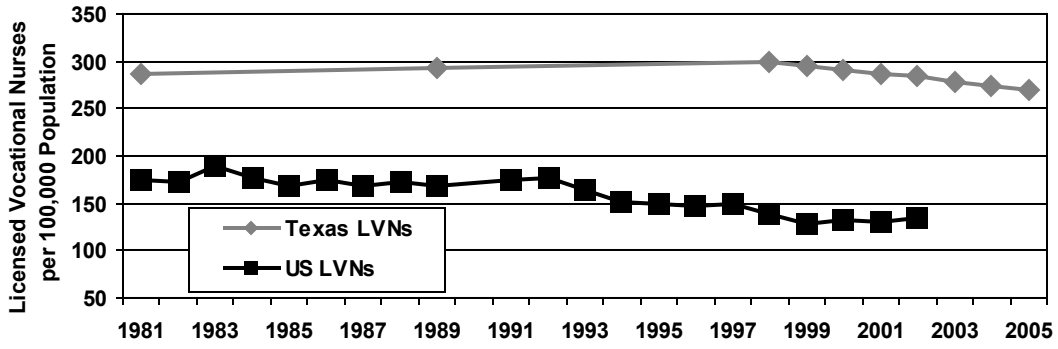
Licensed Vocational Nurses (LVNs)

LVNs provide nursing care under the direction of a registered nurse, a physician, or another authorized health care provider. According to the Texas Board of Nurse Examiners (BNE) licensure file, there were 61,886 active LVNs practicing in Texas in 2005, a supply ratio of 269.0 LVNs per 100,000 population. The LVN profession is among the few health professions in Texas where the supply ratios (290.2 in 2000) exceed the U.S. average ratios (132.6 in 2000) (Figure 2.16). However, the ratio for Texas has been declining slightly over the past seven years, while the U.S. ratios seemed to stabilize in the late 1990s and early 2000s. Current U.S. data were not available. The general trend in both the United States and Texas has been toward a decline in the supply of LVNs.

In contrast with most other professions, the ratios for LVNs are higher in non-metropolitan counties than metropolitan counties (Appendix B, item 11). The trend has been toward the increased use of LVNs in non-metropolitan counties relative to the use of RNs. The supply ratios of LVNs are lower in both the metropolitan border counties and the metropolitan non-border counties than in the rest of the state. None of the three counties that did not have an LVN in 1998 had one in 2005. In 2005, there were seven counties that did not have an LVN, and, since 1998, 66 counties have experienced growth in the supply of LVNs relative to the population; however, 185 counties experienced a decrease in the supply ratios. In 2005, the median age of LVNs was 46 years, compared with 44 in 2000.

Figure 2.16.

Licensed Vocational Nurses per 100,000 Population, U.S. and Texas, 1981–2005



Sources: Texas Board of Nurse Examiners; HRSA, Bureau of Health Professions

DENTAL PROFESSIONS

- **Dentists**
- **Dental Hygienists**

Dentists

Most dentists are general dentists, which would, using the physician analogy, be the equivalent to PC physicians. For the purpose of this report, the term *general dentists* will include dentists within the specialties of public health, pediatric, and general dentistry. Also, in this chapter, statistics are reported only for active general dentists who are non-federal, non-administrative, and who are not residents-in-training.

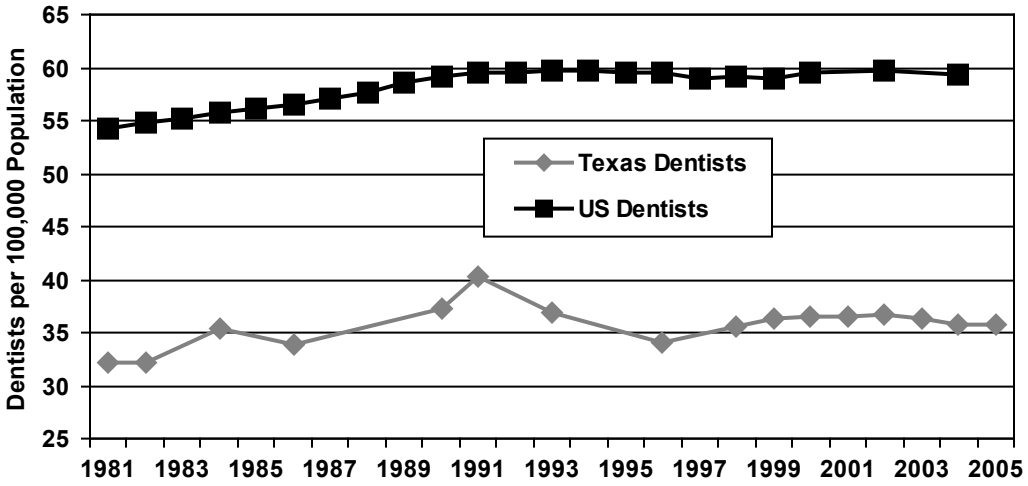
In 2005, there were 8,213 dentists in private practice in Texas. The supply ratios of dentists per 100,000 population have remained fairly constant over the last two decades and have lagged behind the U.S. average ratios (Figure 2.17).

In 2005, the average supply ratio for dentists in Texas was 35.7 per 100,000 population (Appendix B, item 12). There were more dentists employed in metropolitan counties (ratio of 37.5) than in non-metropolitan counties (ratio of 23.6). The average supply ratio of dentists in border counties fell far short of the ratio in non-border metropolitan counties, and the gap between metropolitan and non-metropolitan counties has been widening over the years. Between 1996 and 2005, 121 counties experienced a decline in their ratios, while only 16 counties experienced an increase in ratios of 50 percent or greater, which is considerably less than for most other health professions. Only one county that did not have a dentist in 1996 had gained one in 2005. In 2005, there were 49 counties with no dentists.

Age and Gender

In 2005, three-quarters (76.9 percent) of the dentists were males and 55 percent of the dentists statewide were below the age of 50 years. In 2005, the median age was 48 years, compared with 46 years in 2000. In 2005, the median age of a male dentist in Texas was 50 years, and of a female dentist, 39 years (Appendix B, item 12). In non-metropolitan counties, only one in ten dentists were females, compared to one out of four dentists in metropolitan counties**.** Twenty-one percent of the dentists in the border counties were female, while 24 percent in the non-border counties were female.

Figure 2.17.
Dentists per 100,000 Population, U.S. and Texas, 1981–2005



Sources: Texas State Board of Dental Examiners 1981–2005; HRSA, Bureau of Health Professions; American Dental Association

Dental HPSA

In January 2006, 110 counties in Texas had some type of HPSA designation, which indicated that the area or population group was experiencing a shortage of dentists. Seventy-nine of those designations were for whole counties (Appendix B, item 25).

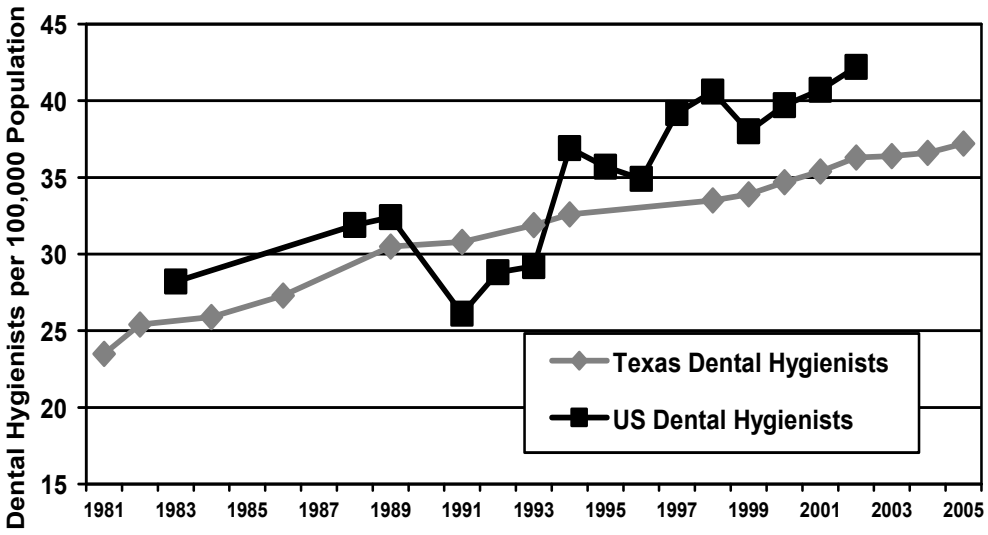
Dental Hygienists

"These health professionals perform services and procedures in the dental office of his/her supervising dentist or dentists who are legally engaged in the practice of dentistry in this state or under the supervision of a supervising dentist in an alternate setting" (Texas Occupations Code, Chapter 262). They are eligible for licensure after graduating from a community college (two-year program) or from a three-or four-year university program. The supply ratios of dental hygienists per 100,000 population have steadily increased in Texas since 1981 (Figure 2.18). The supply ratios for Texas have lagged behind the U.S. average ratios for most of the past two decades.

There were 8,548 dental hygienists practicing in Texas in 2005. Because dental hygienists often practice in combination with dentists in Texas, their geographic distribution is often linked to that of dentists. Thus, the ratios for dental hygienists were much higher in metropolitan than in non-metropolitan counties in 2005 (Appendix B, item 13). Most of the border counties have very low supply ratios. Between 1993 and 2005, 76 counties experienced a decline in their ratios, while the ratios for 38 counties more than doubled; this includes 20 counties that did not have a dental hygienist in 1993 but that had one in 2005. Between 1993 and 2005, 13 counties lost all of their dental hygienists, and 9 counties lost all of their dentists. In 2005, there were 58 counties with no dental hygienists, and 49 counties with no dentists. The median age of dental hygienists in 2005 was 41 years, compared to 40 in 2000.

Figure 2.18.

Dental Hygienists per 100,000 Population, U.S. and Texas, 1981–2005



Sources: Texas State Board of Dental Examiners, 1981–2005; HRSA, Bureau of Health Professions.

ALLIED HEALTH PROFESSIONS

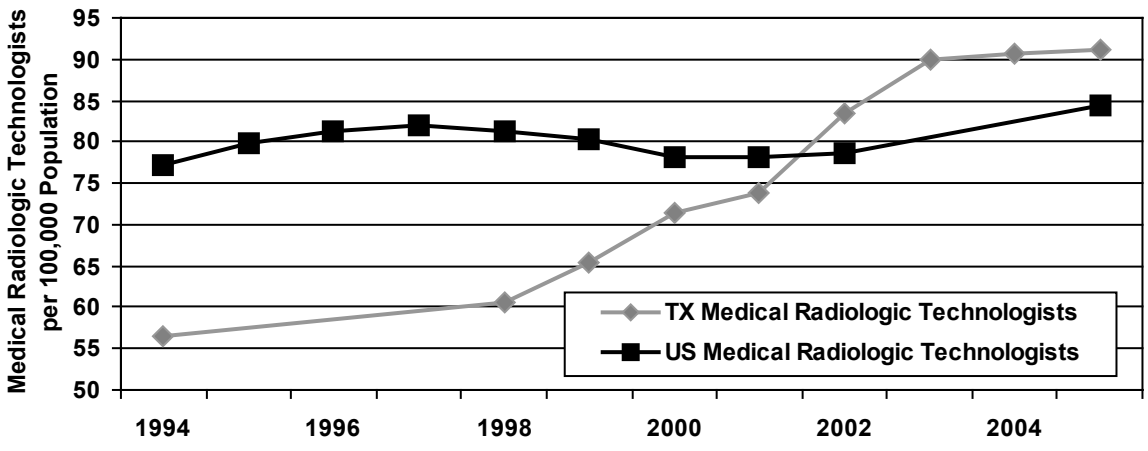
- **Medical Radiologic Technologists**
- **Occupational Therapists**
- **Optometrists**
- **Pharmacists**
- **Physical Therapists**
- **Respiratory Care Practitioners**

Medical Radiologic Technologist (MRT)

MRTs are certified by the Professional Licensing and Certification Unit at the Texas Department of State Health Services. They administer radiation to persons for medical purposes under the direction of a practitioner. The definition includes diagnostic radiography, nuclear medicine, and radiation therapy. There were 20,972 MRTs practicing in Texas in 2005. During the 1990s, the supply ratios of MRTs per 100,000 population in Texas lagged behind the U.S. average supply ratios; however, the gap between the two has been decreasing. In 2002, the Texas ratios surpassed those of the United States (Figure 2.19). Non-metropolitan counties had lower supply ratios than do metropolitan counties and, in general, the border counties had lower ratios (88.3 overall) than did the rest of the state (Appendix B, item 14). In particular, the counties in West Texas, with the exception of El Paso, had very low ratios. Since 1998, ratios have grown in counties distributed throughout the state, including the border counties, and eleven counties that did not have an MRT in 1998 had at least one in 2005. However, four counties that had MRTs in 1998 did not have any in 2005. In 2005, there were 34 counties with no MRTs. The median age of MRTs in 2005 was 43 years, compared with 41 in 2000.

Figure 2.19.

Medical Radiological Technologists per 100,000 Population, U.S. and Texas, 1994–2005



Sources: Texas Department of State Health Services, Professional Licensing and Certification Unit 1994–2005; American Registry of Radiologic Technologists

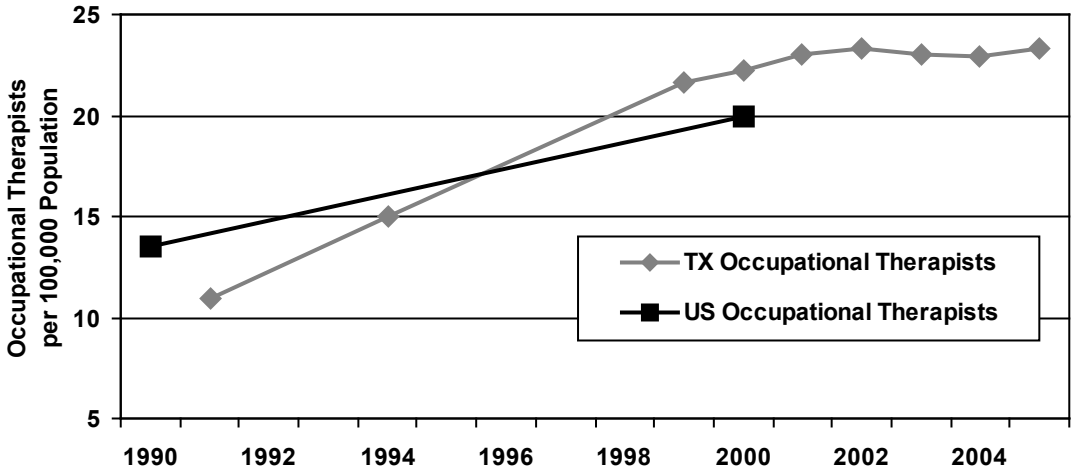
Occupational Therapists (OTs)

The supply ratios of OTs per 100,000 population in Texas have risen steadily over the last decade. And, since the mid-1990s, the state ratios have been higher than the U.S. average ratios (Figure 2.20).

There were 5,354 OTs practicing in Texas in 2005. The ratios for OTs were higher in the metropolitan areas than in the non-metropolitan areas, but the ratios were generally lower for the border counties than in the rest of the state (Appendix B, item 15). Since 1999, 100 counties have experienced an increase in their OT ratios; however, in 2005, there were 95 counties that did not have an OT. Twenty-three counties that did not have an OT in 1999 had at least one in 2005. The median age for OTs in 2005 was 39 years, compared with 37 in 2001.

Figure 2.20.

Occupational Therapists per 100,000 Population, U.S. and Texas, 1990–2005



Sources: The Executive Council of Physical Therapy & Occupational Therapy Examiners; HRSA, Bureau of Health Professions

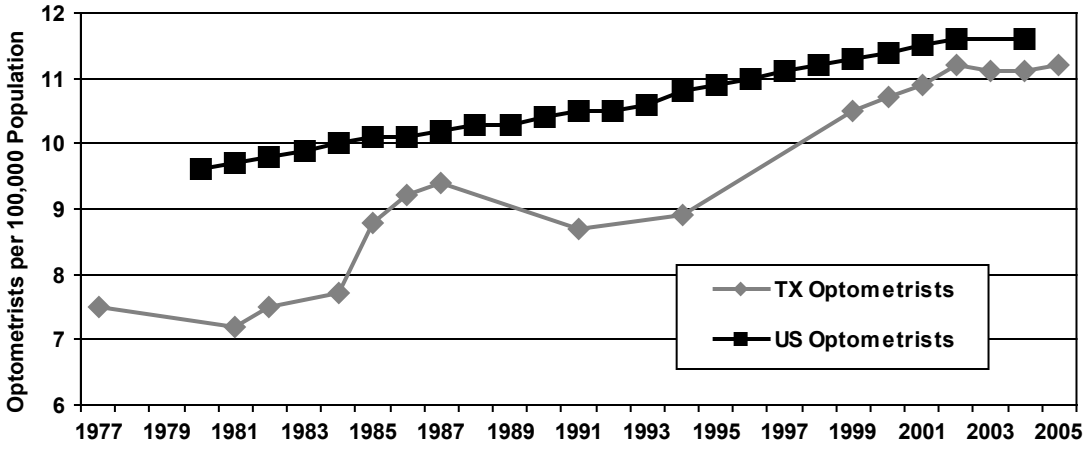
Optometrists

The University of Houston College of Optometry is the only accredited school of optometry in Texas. The ratios of optometrists per 100,000 population in Texas have lagged behind the U.S. supply ratios for over two decades, although the gap appears to be narrowing (Figure 2.21).

In 2005, there were 2,577 optometrists practicing in Texas. Optometrists are more likely to practice in metropolitan counties than non-metropolitan counties, but this hasn't always been the case (Appendix B, item 16). Prior to 1984, the ratios for non-metropolitan counties were higher than those for metropolitan counties. However, since that time, the metropolitan county ratios have surpassed those of the non-metropolitan counties and the gap between the two has been steadily widening. Fourteen counties that did not have an optometrist in 1999 had a least one in 2005; however, nine counties that had optometrists in 1999 did not have any in 2005. In 2005, there were 103 counties that did not have an optometrist. In several areas of Texas, notably the lower Panhandle area and portions of West Texas, a patient would have to travel through several counties to reach an optometrist. The border counties have very low supply ratios and several counties have no optometrists. The median age in 2005 was 42 years, the same as in 2000.

Figure 2.21.

Optometrists per 100,000 Population, U.S. and Texas, 1977–2005



Sources: Texas Department of State Health Services, Professional Licensing and Certification Unit; HRSA, Bureau of Health Professions; U.S. Department of Labor, Bureau of Labor Statistics

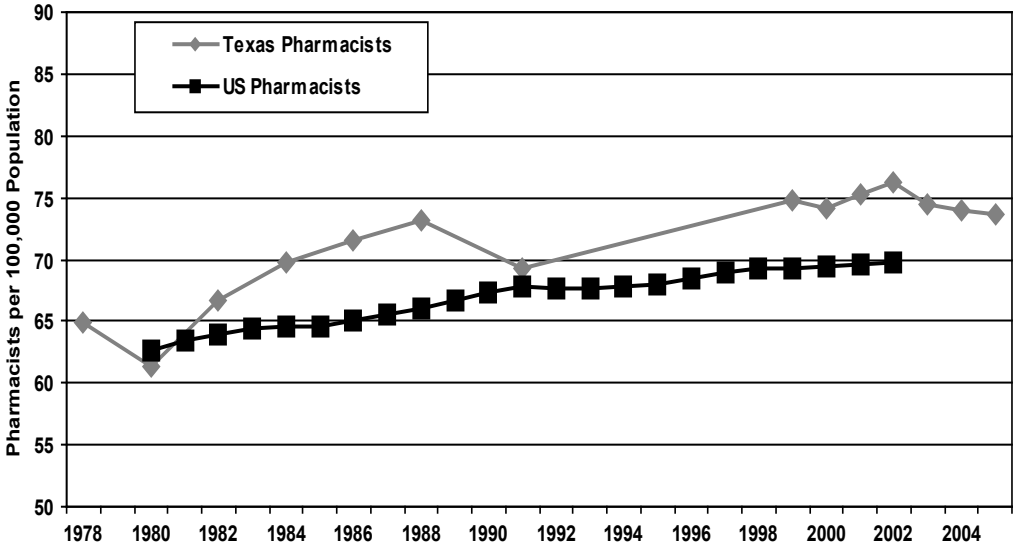
Pharmacists

The state ratio of pharmacists per 100,000 population has exceeded the U.S. average supply ratio for the past two decades. However, since the mid-1990s, the supply ratios for both the United States and Texas have been fairly static, although the Texas ratio has been decreasing slightly since 2003 (Figure 2.22).

The ratios for pharmacists are higher in the metropolitan counties than in the non-metropolitan counties (Appendix B, item 17). However, the ratios are the lowest for the border counties. Between 1999 and 2005, 95 counties in Texas have experienced a decline in the ratios. However, three counties that did not have a pharmacist in 1999 had at least one in 2005. In 2005, there were 23 counties that did not have a pharmacist. The median age in 2005 was 46 years, compared with 44 in 2000.

Figure 2.22.

Pharmacists per 100,000 Population, U.S. and Texas, 1978–2005



Sources: Texas State Board of Pharmacy; HRSA, Bureau of Health Professions

Physical Therapists (PTs)

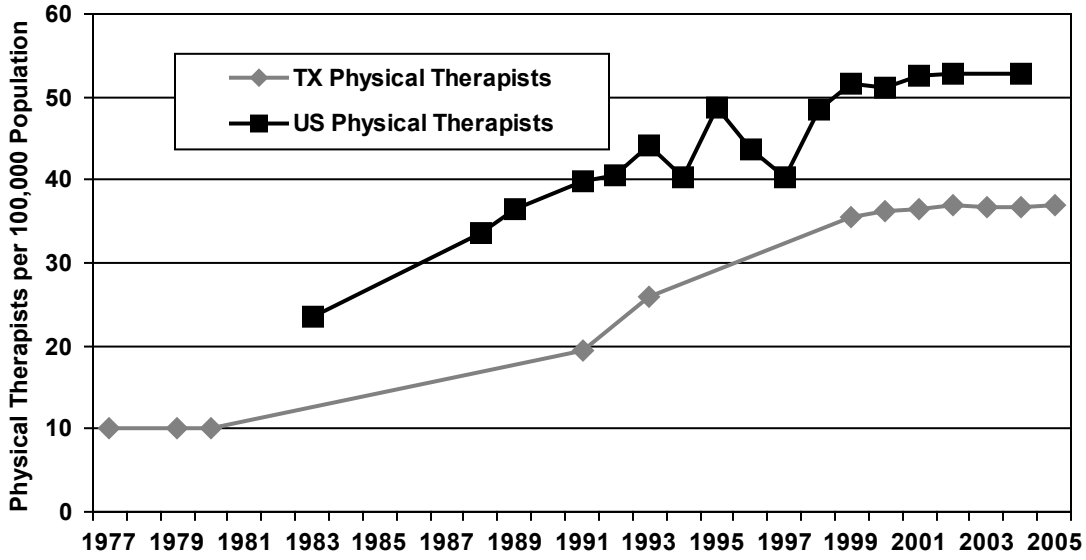
There are no bachelor's degree programs for PTs in the U.S.; the only entry level PT degree is a master's degree. The state requires that PTs hold a bachelor's degree in any major, and at least a master's degree from an accredited PT program; they must also pass a national exam administered by the Executive Council of Physical Therapy and Occupational Therapy Examiners. There are ten accredited PT educational programs in the state.

The supply ratios for PTs per 100,000 population in Texas have shown steady increases over the past 30 years; however, the Texas supply ratios have consistently lagged behind the U.S. average (Figure 2.23).

There were 8,511 physical therapists practicing in Texas in 2005. The supply ratios are generally higher in metropolitan counties, with the exception of the border counties, which generally have much lower ratios (Appendix B, item 18). Between 1999 and 2005, the ratios increased in 113 counties, scattered across the state. Although the border counties experienced an increase in ratios at a comparable rate to the rest of the state, the largest concentrations of counties experiencing the most growth in ratios were in an area from Central Texas to the Dallas metropolitan area in North Texas. Although some individual counties in the Panhandle were among those that had the highest increase in ratios, most of the counties in the Panhandle and West Texas either had a decline in ratios, or had no PTs at all. Twenty counties that did not have a PT in 1999 had at least one in 2005. In 2005, 59 counties did not have a PT. The median age in 2005 was 39 years, compared with 37 in 2001.

Figure 2.23.

Physical Therapists per 100,000 Population, U.S. and Texas, 1977–2005



Sources: The Executive Council of Physical Therapy & Occupational Therapy Examiners; HRSA, Bureau of Health Professions

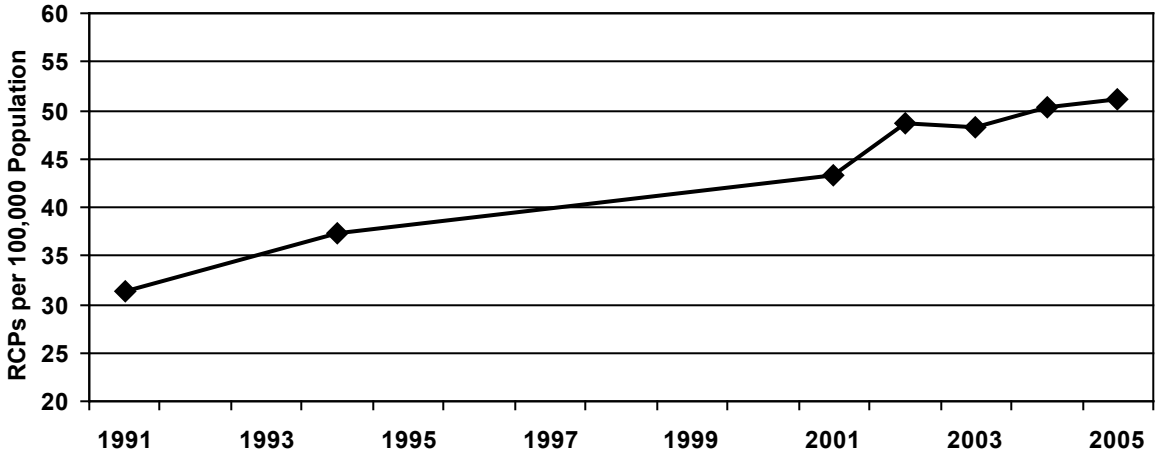
Respiratory Care Practitioners

The Professional Licensing and Certification Unit at the Texas Department of State Health Services issues licenses to respiratory care practitioners in Texas. The ratios of respiratory care practitioners per 100,000 population have risen steadily since 1991, except for a slight decrease in 2002 (Figure 2.24). The non-metropolitan counties had much lower ratios than the metropolitan counties, and the gap is increasing (Appendix B, item 19). Data on gender and race-ethnicity are not available.

In 2005, there were 11,768 respiratory care practitioners in Texas. While some areas of Texas have an adequate number of respiratory care practitioners, other areas - such as the non-metropolitan, West Texas, South Texas, and the Panhandle areas - had lower supply ratios. Most of the counties with no social workers were in these areas. In 2005, there were 69 counties with no social workers, compared to 59 in 1994. However, 20 counties that had social workers in 1994 did not have any in 2005, while ten counties that did not have social workers in 1994 had at least one in 2005. In 2005, the median age was 45 years, compared with 40 years in 2001. National supply ratios for respiratory care practitioners were not available.

Figure 2.24.

Respiratory Care Practitioners (RCPs) per 100,000 Population, Texas, 1991–2005



Source: Texas Department of State Health Services, Professional Licensing and Certification Unit

MENTAL HEALTH PROFESSIONS

- **Psychiatrists**
- **Psychologists**
- **Social Workers**
- **Licensed Professional Counselors**
- **Advanced Practice Nurses**

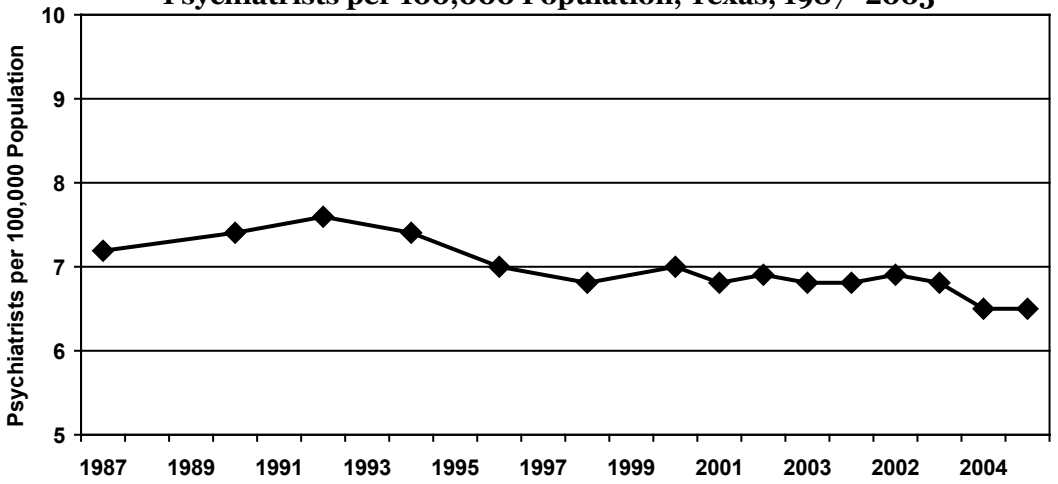
Psychiatrists

There were 1,488 psychiatrists licensed by the Texas Medical Board in October 2005. In addition to physicians practicing in the specialty of psychiatry, physicians with a specialty of child psychiatry (190 of the 1,488) were included in this report on "psychiatrists" to comply with the HPSA definition of "general" psychiatry. The ratio of psychiatrists per 100,000 population began to increase around 1986, stabilized for several years, then, in about 1992, began to decline. From 1996 to 2003, the ratios stabilized again, but in 2004 the ratios again began to decline (Figure 2.25). National supply ratios for psychiatrists were not available.

Two-thirds (67.0 percent) of Texas' psychiatrists were male in 2005; and, more than one-half of the psychiatrists were over 50 years of age; the median age was 51.5 years, compared with 52 in 2000. The supply ratios for psychiatrists per 100,000 population were the largest in metropolitan counties. Metropolitan border counties had lower supply ratios than did metropolitan non-border counties, but the non-metropolitan border counties had higher ratios than did the non-metropolitan non-border counties. (Appendix B, item 20).

Figure 2.25.

Psychiatrists per 100,000 Population, Texas, 1987–2005



Source: Texas Medical Board

Mental Health HPSAs

In January 2006, there were 184 whole counties designated by the U.S. Department of Health and Human Services as mental health HPSAs in Texas, and two counties designated as partial-county HPSAs. Two counties had a "low-income population" HPSA designation (Appendix B, item 26).

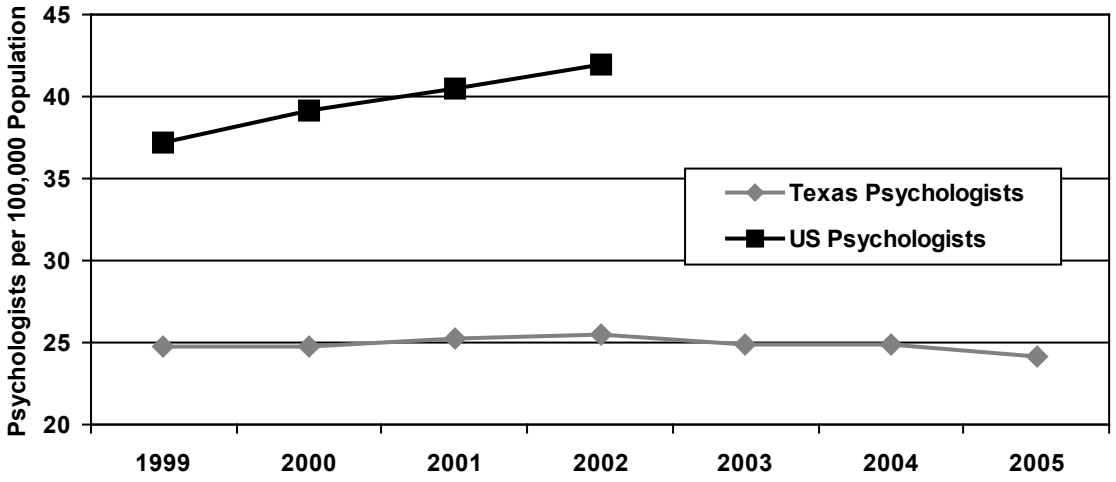
Psychologists

In Texas, there are four categories of licensees recognized by the Texas State Board of Examiners of Psychologists (TSBEP): Licensed Psychologist (LP), Provisionally Licensed Psychologist (PLP), Licensed Specialist in School Psychology (LSSP), and Licensed Psychological Associate (LPA). A psychologist may hold more than one of these licenses. The statistics in this report represent an unduplicated count of these four license types; therefore, there were 5,567 psychologists practicing in Texas in 2005. Only psychologists' license numbers and mailing address were available for analysis in 2005 because the TSBEP is one of only a few boards that does not collect age, gender and race-ethnicity data on its licensees. Of the four types, licensed psychologists were in greatest supply in 2005. Since 1999, the available data indicates that the psychologist supply ratios have been higher for the United States than for Texas (Figure 2.26).

The psychologist supply ratios have been decreasing slightly since 2002. The supply ratios have been greater in Texas metropolitan counties than in non-metropolitan counties over the past seven years (Appendix B, item 21). In 2005, the largest concentration of counties with high ratios was in Central Texas. The border counties and Panhandle counties had very low ratios; many of these counties did not even have a psychologist. Also, very few of these counties had an increase in supply ratios between 1999 and 2005. However, since 1999, the ratios have increased slightly in the non-metropolitan and border areas overall, while decreasing slightly in the metropolitan areas overall. Even so, most of the growth in supply ratios was in Central Texas. Between 1999 and 2005, 75 counties experienced an increase in ratios, while 81 experienced a decrease. Twenty-three counties that had no psychologists in 1999 had at least one in 2005. Despite these gains, 112 counties had no psychologists in 2005.

Figure 2.26.

Psychologists per 100,000 Population, U.S. and Texas, 1999–2005



Sources: Texas State Board of Examiners of Psychologists, 1999–2005; U.S. Bureau of the Census

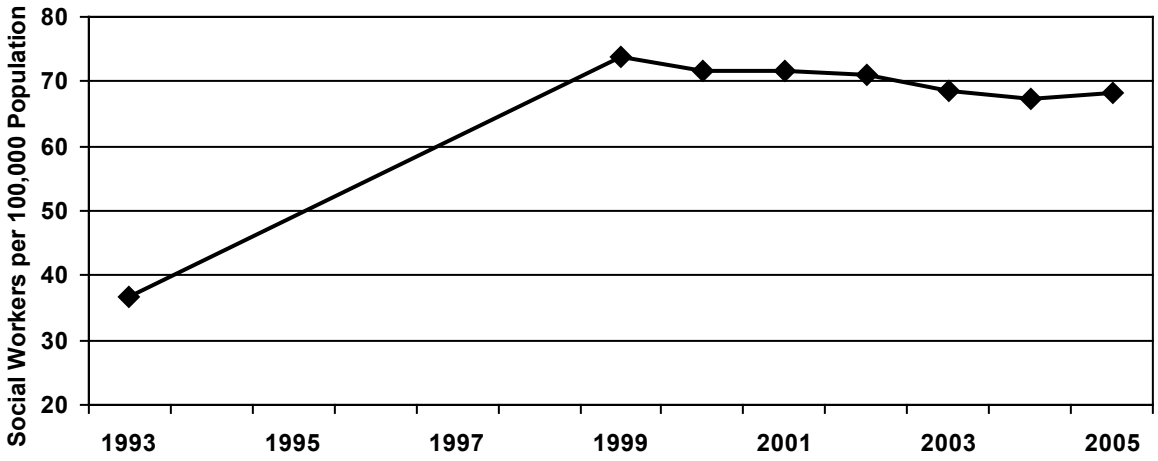
Social Workers

The Professional Licensing and Certification Unit at the Texas Department of State Health Services issues licenses to social workers in Texas. The ratios of social workers per 100,000 population over the last seven years have been fairly constant; however, the overall trend appears to be favoring a slight decline in the magnitude of the ratio (Figure 2.27). The non-metropolitan counties had much lower ratios than the metropolitan counties (Appendix B, item 22). Data on gender and race-ethnicity are not available.

In 2005, there were 15,687 social workers in Texas. While some areas of Texas have an adequate number of social workers, other areas - such as the non-metropolitan, West Texas, South Texas, and the Panhandle areas - had lower supply ratios. Most of the counties with no social workers were in these areas; only five counties with no social workers were located east of I-35. In 2005, there were 46 counties with no social workers, compared to 35 in 1999. However, 20 counties that had social workers in 1999 did not have any in 2005, while nine counties that did not have social workers in 1999 had at least one in 2005. In 2005, the median age was 47 years, compared with 45 years in 2001. National supply ratios for social workers were not available.

Figure 2.27.

Social Workers per 100,000 Population, Texas, 1993–2005



Source: Texas Department of State Health Services, Professional Licensing and Certification Unit

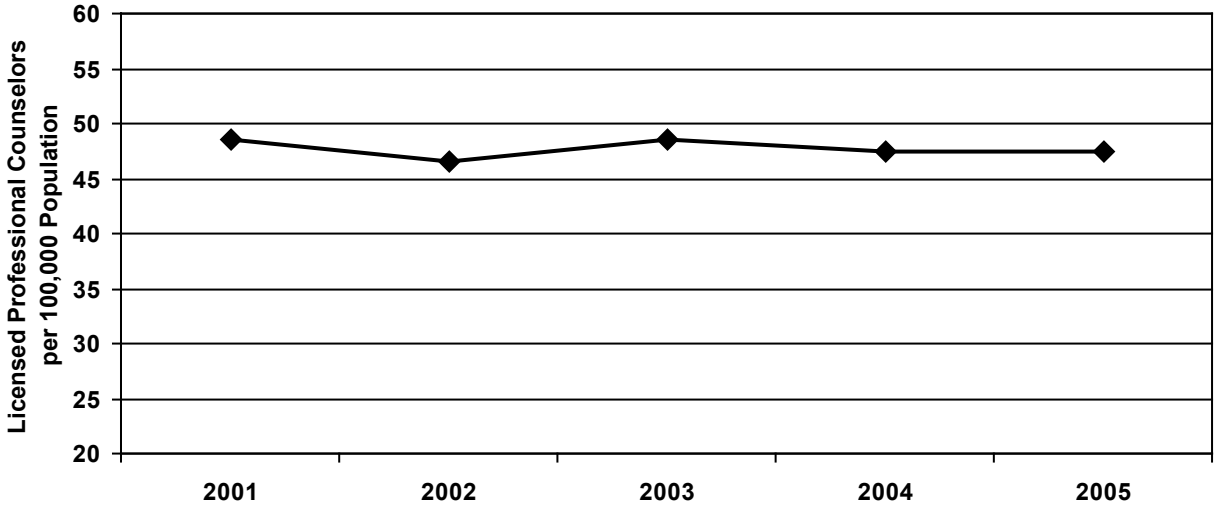
Licensed Professional Counselors

The Professional Licensing and Certification Unit at the Texas Department of State Health Services issues licenses to professional counselors in Texas. The ratios have remained stable for the past five years (Figure 2.28). The non-metropolitan counties had much lower ratios than the metropolitan counties (Appendix B, item 23).

In 2005, there were 10,896 Licensed Professional Counselors practicing in Texas. There were 54 counties with no Licensed Professional Counselors, compared to 49 in 2001. Between 2001 and 2005, the supply ratios for 121 counties declined and 13 of them lost all of their licensed professional counselors. Eight counties that did not have a counselor in 2001 had at least one in 2005. The median age in 2005 was 54 years, compared with 51 years in 2001.

Figure 2.28.

Licensed Professional Counselors per 100,000 Population, Texas, 2001–2005



Source: Texas Department of State Health Services, Professional Licensing and Certification Unit

Advanced Practice Nurses (APNs)

The Texas Board of Nurse Examiners recognizes APNs in various clinical practice areas. Nurse Practitioners (NPs) may be recognized in one of 12 clinical areas. In 2005, there were 107 NPs with Psychiatric / Mental Health / Substance Abuse recognitions, an increase from 2000, when there were 49 NPs with P/MH/SA recognitions. The median age of these nurses in 2005 was 51 years, compared with 48 years in 2000. Clinical Nurse Specialists may be recognized in one of 14 clinical areas. In 2005, there were 147 CNSs with P/MH/SA recognitions, a decrease from 2000, when there were 186 CNSs with P/MH recognitions. In 2005, the median age of these nurses was 56 years, compared with 52 years in 2000.

Notes

[1] Reineck C, Furino A, Lucke J, Martinez J and Wood R. 2005. In Their Own Words: 2004 Survey of Texas Registered Nurses. *Health and Nurses in Texas* 2(3):1-88. San Antonio, TX: Regional Center for Health Workforce Studies at the Center for Health Economics and Policy, The University of Texas Health Science Center at San Antonio. Available online at: http://www.uthscsa.edu/rchws/Reports/2004RN%20Survey%20of%20Texas.pdf. Accessed June 26, 2006.

[2] Center for Health Workforce Studies. 2005. *The Impact of the Aging Population on the Health Workforce in the United States*. Rensselaer, NY: Center for Health Workforce Studies, School of Public Health, SUNY Albany. Available online at: http://chws.albany.edu/index.php?aging . Accessed July 24, 2006.

[3] National Center for Health Workforce Analysis. 2002. *Projected Supply, Demand, and Shortages of Registered Nurses: 2000-2020*. Rockville, MD: National Center for Health Workforce Analysis, Bureau of Health Professions, Health Resources and Services Administration, U.S. Department of Health and Human Services. Available online at: http://www.ahca.org/research/rnsupply_demand.pdf . Accessed July 24, 2006.

[4] Reineck C, Furino A, Lucke J, Martinez J and Wood R. 2005. In Their Own Words: 2004 Survey of Texas Registered Nurses. *Health and Nurses in Texas* 2(3):1-88. San Antonio, TX: Regional Center for Health Workforce Studies at the Center for Health Economics and Policy, The University of Texas Health Science Center at San Antonio. Available online at: http://www.uthscsa.edu/rchws/Reports/2004RN%20Survey%20of%20Texas.pdf. Accessed June 26, 2006.

[5] Kishi A. 2005. *Increasing RN Graduates: Admission, Progression and Graduation in Texas Schools of Nursing 2004*. Austin, TX: Texas Center for Nursing Workforce Studies, Center for Health Statistics, Department of State Health Services. Available online at: http://www.dshs.state.tx.us/chs/cnws/nPublica.shtm. Accessed June 26, 2006.

Appendix A

2005-2010
TEXAS STATE HEALTH PLAN
RECOMMENDATIONS

NOTE: This document is taken from the *2005-2010 Texas State Health Plan* and is included for reference only. It has not been updated since it was originally published in November 2004.

2005-2010 Texas State Health Plan Recommendations

Texas must take the necessary steps to achieve education and training in the health professions that will ensure that an appropriately skilled, sufficient, and experienced workforce becomes a reality for the state. This will be achieved through effective and innovative models of education and practice that provide work-ready graduates, improve the participation of minorities in the health professions, and retain trained health professionals in the workforce.

The Statewide Health Coordinating Council believes that the following recommendations are essential to fulfill these workforce goals and thereby ensure a quality health workforce for Texas.

General Workforce Recommendations

1. The Legislature should require all health professions licensing boards to standardize the collection of critical data by implementing the Minimum Data Set developed by the Statewide Health Coordinating Council.
2. The Legislature and regulatory boards should allocate funds to support the collection of health workforce supply and demand data and to support needed research based on these data. (It would be desirable if other health professions could replicate the Nursing Workforce Data Section concept.)
3. The Legislature should realign health workforce licensure and regulatory agencies in a structure that is better able to collaborate and coordinate health workforce planning and data collection to enable Texas to be more responsive to potential funding opportunities.
4. The Legislature should pass legislation to require health professional licensees and applicants to disclose ethnicity information and should instruct regulatory boards and educational institutions to collect, compile and report it, using the U.S. Census ethnicity categories as the basis for collection.

5. The Legislature and the Texas Higher Education Coordinating Board should develop and implement positive financial incentives for schools that create innovative models in education for the health professions that will move toward shared or combined curricula, interdisciplinary classes across health programs, and the use of multidisciplinary faculty or interdisciplinary teams among the health programs.

6. The Legislature should continue to support the College for Texans Campaign administered by the Texas Higher Education Coordinating Board to ensure diversity and minority participation in higher education. (For information on the program, visit http://www.collegefortexans.com or http://www.thecb.state.tx.us/SAMC/overview/).

7. The Legislature should instruct the Texas Higher Education Coordinating Board to develop and implement field of study curricula for additional health profession programs and require adoption of these curricula by public educational institutions to encourage and promote a seamless transition and career mobility within the professions.

8. The Legislature should support initiatives that result in the creation of a representative and culturally competent health workforce for Texas. This could include items such as

    - programs that interest minority students in health careers,
    - curricula for preparing practitioners to recognize health disparities and to implement appropriate interventions,
    - new models for education in the health professions,
    - strategies for reducing the loss of intellectual capital across countries and regions, and
    - the addition of multilingual and technological competencies.

9. The Legislature should direct the regulatory boards for the health professions to permit exceptions to their regulations to facilitate the increase in innovative, outcome-oriented demonstration projects.

10. The Legislature should support initiatives that will promote the application of technology in all areas of health education and all areas of clinical care throughout the health care continuum. This should include applications for initial professional and continuing education, recruitment and retention efforts, health care practice, and community health education.

11. The Legislature should support funding of the Area Health Education Centers to guarantee that vital health career development efforts and recruitment and retention strategies are available in areas not provided through other means or agency efforts.

Nursing Workforce Recommendations

1. The Legislature should increase funding levels to nursing programs throughout the state to increase capacity to admit and graduate nursing students.

2. The Legislature should continue to support the Nursing Innovation Grant Program funded by tobacco earnings from the Permanent Fund for Higher Education Nursing, Allied Health, and other Health-Related Programs and administered by the Texas Higher Education Coordinating Board.

3. The Legislature should instruct health professions and other regulatory agencies and boards to support strategies that would incorporate the use of technology to reduce paperwork and streamline the process required by regulatory agencies to that which is truly necessary for quality patient care.

4. The Legislature should provide institutions with Special Item funding to support enrollment increases in nursing programs and stimulate graduate programs that prepare nursing faculty, and establish procedures that would confirm that these special allocations for nursing programs are spent for these purposes.

5. The Legislature and the Texas Higher Education Coordinating Board should create positive incentives for schools that develop and implement innovative solutions between schools that will result in an increase in the number of entry-level nursing students. This could include the sharing of faculty and classes among nursing degree programs.

6. The Legislature and the Texas Higher Education Coordinating Board should reinforce the implementation of the Field of Study Curriculum for nursing programs to facilitate a seamless, student-oriented articulation from ADN to BSN programs.

7. The Texas Higher Education Coordinating Board and the Texas Board of Nurse Examiners should encourage educational institutions to add appropriate accelerated degree programs at all levels of nursing.

8. The Texas Higher Education Coordinating Board and the Texas Board of Nurse Examiners should encourage institutions to use technology, preceptors, simulation, etc., to maximize the use of existing and new faculty, while ensuring quality outcomes and increasing student enrollments.

9. The Texas Higher Education Coordinating Board should encourage the development of regional "nursing centers of educational excellence" to consolidate redundant tasks performed by educators at individual institutions.

10. The Legislature should support initiatives that promote healthy workplace environments for nursing personnel.

11. The Legislature and the Texas Higher Education Coordinating Board should study avenues to expand nurse-midwifery educational programs.

Primary Care Recommendations

1. The Legislature should support initiatives that will support public health prevention and education programs in an effort to decrease the incidence and severity of chronic disease in the population by enabling individuals to take personal responsibility for their health.

2. The Legislature should reinstate general revenue funds in support of the Medicaid draw-down of federal funds for graduate medical education to 2002–03 biennial levels as a way of maintaining physician supply.

3. The governor and the Legislature should work with others to actively and urgently seek relief from the Centers for Medicare and Medicaid Services to eliminate the current outdated caps on funding graduate medical education training slots and to increase and to distribute the funds according to geographically equitable calculations.

4. The Legislature should restore general revenue funding for graduate medical education and the Family Practice Residency Program through the trustee funds to the Texas Higher Education Coordinating Board to the 2002–03 biennial levels.

5. The Legislature should provide the Texas Higher Education Coordinating Board new state funding to support 300 new resident positions, to be funded at $50,000 per position and phased in over a four-year period, and should contain fifth-year continuation funding.

6. The Legislature should increase funding levels for the Physician Education Loan Repayment Program by mandating that all Texas medical schools that receive state funds participate in the "two percent set aside."

7. The Legislature should provide Special Item funding to support enrollment increases at the state's pharmacy schools to help relieve the current shortage of pharmacists in the state.

8. The Legislature should continue to support the increase in the numbers of Federally Qualified Health Centers in Texas.

9. The Legislature should support methodologies for the development of innovative models for the delivery of primary care that would include physical, mental, and oral health.

10. Legislature should support demonstration projects that use interdisciplinary teams of health professionals for prevention and management of chronic disease and that utilize a new, correct mix of caregivers and responsibilities.

11. The Legislature should support changes in Medicaid, Children's Health Insurance Program, and Texas Vendor Drug Program rules and policies to trace outcomes and increase accountability by

    - identifying the practitioner that prescribed the drug instead of the delegating physician,
    - requiring all providers to bill services under their own names, and
    - increasing Medicaid and Children's Health Insurance Program reimbursement for advanced practice nurses to 92 percent of the physician's rate.

12. The Legislature should take steps to ensure cost savings by including Advanced Practice Nurses in state health care networks such as Employees Retirement System of Texas, Teacher Retirement System of Texas, and the Texas Workers' Compensation Commission.

13. The Legislature should direct its Office of State and Federal Relations to encourage federal legislation that allows Nurse Practitioners, Clinical Nurse Specialists, and Physician Assistants to order home health care services, and then change state regulations accordingly.

14. The Legislature should support legislation, regulation, and reimbursement methodologies that will support the training and use of state certified community-level health providers to assist in the cost-effective management of health care.

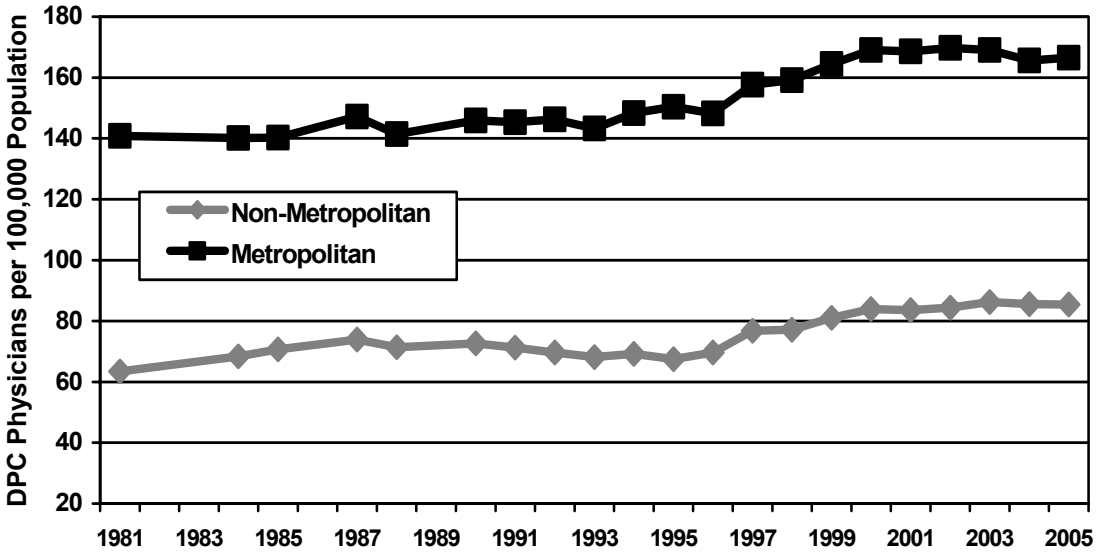
15. The Legislature should provide positive financial incentives for providers who implement the use of evidence-based health care and the use of outcome-based practice guidelines that have been approved by an agreed upon nationally recognized health association.

Appendix B

HEALTH WORKFORCE DATA

APPENDIX B-1
Direct Patient Care Physicians

DPC Physicians per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1981–2005



Source: Texas Medical Board
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, non-federal, non-resident in training physicians

2005 Texas Direct Patient Care Physician Facts:

White	67.8%	Male	76.2%	Median Age Male	49
Black	4.3%	Female	23.8%	Median Age Female	42
Hispanic	11.2%				
Other	16.7%				

Number of counties with no direct patient care physicians – 23

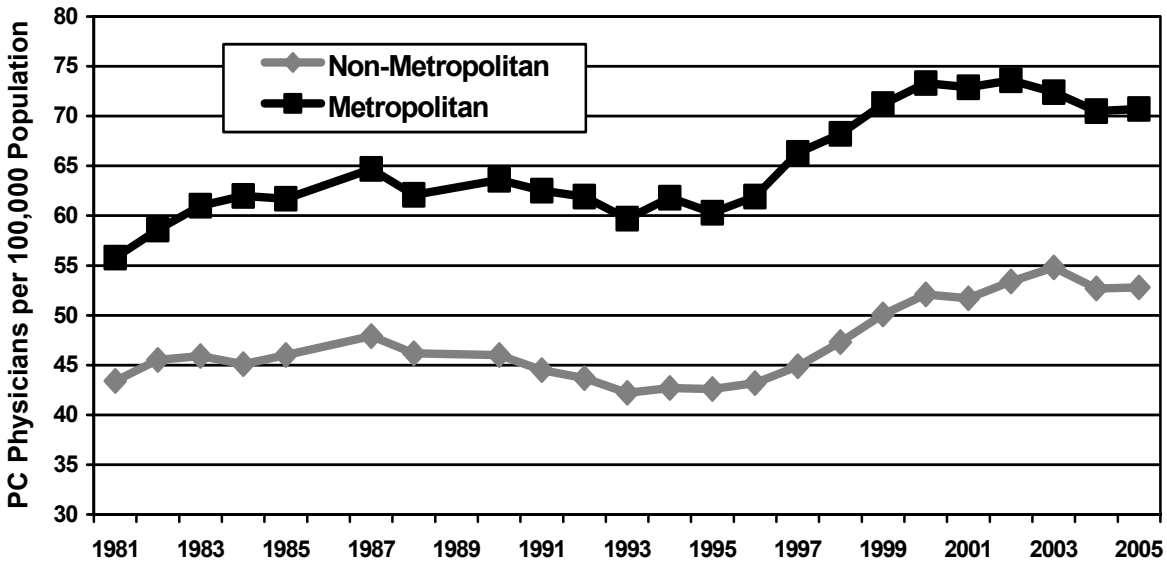
	Providers/100,000 Population
Border Metropolitan	146.3
Non-Border Metropolitan	171.6
Border Non-Metropolitan	74.1
Non-Border Non-Metropolitan	87.6

Trends:

Year	Number	Providers/100,000 Population
1990	22,711	133.7
1995	25,683	137.2
2000	31,769	156.2
2005	35,811	155.7

APPENDIX B-2
Primary Care Physicians

PC Physicians per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1981–2005



Source: Texas Medical Board
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, non-federal, non-resident in training physicians

2005 Texas Primary Care Physician Facts:

White	61.4%	Male	66.9%	Median Age Male	49
Black	5.8%	Female	33.1%	Median Age Female	41
Hispanic	13.7%				
Other	19.1%				

Number of counties with no primary care physicians – 27

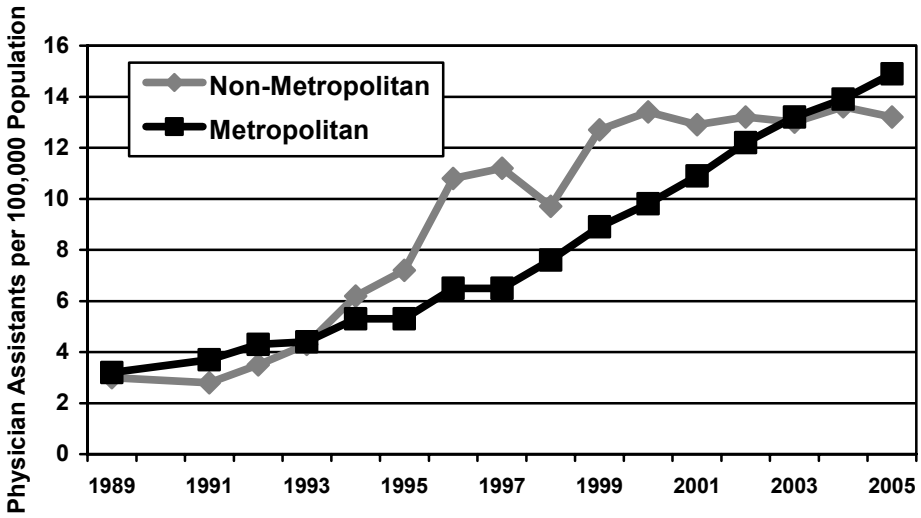
	Providers/100,000 Population
Border Metropolitan	64.7
Non-Border Metropolitan	72.2
Border Non-Metropolitan	45.0
Non-Border Non-Metropolitan	54.4

Trends:

Year	Number	Providers/100,000 Population
1990	10,308	60.7
1995	10,763	57.5
2000	14,268	70.1
2005	15,718	68.3

APPENDIX B-3
Physician Assistants

Physician Assistants per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1989–2005



Source: Texas Medical Board
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state physician assistants

2005 Texas Physician Assistant Facts:

White	76.0%	Male	45.4%	Median Age Male	45
Black	5.3%	Female	54.6%	Median Age Female	36
Hispanic	12.7%				
Other	6.0%				

Number of counties with no physician assistants – 58

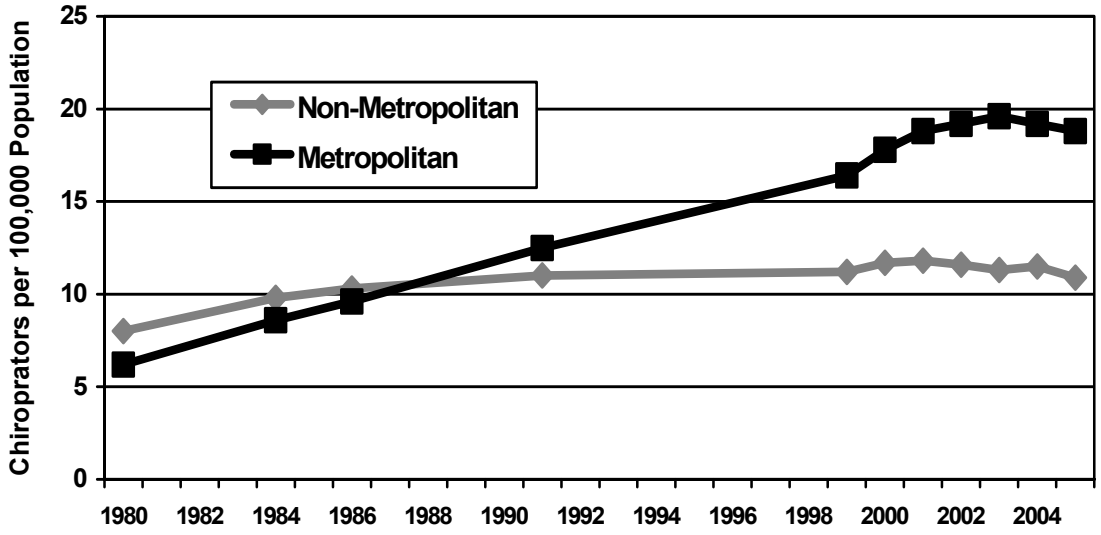
	Providers/100,000 Population
Border Metropolitan	15.5
Non-Border Metropolitan	14.8
Border Non-Metropolitan	15.4
Non-Border Non-Metropolitan	12.7

Trends:

Year	Number	Providers/100,000 Population
1991	622	3.6
1995	1,052	5.6
2000	2,106	10.4
2005	3,375	14.7

APPENDIX B-4
Chiropractors

Chiropractors per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1980–2005



Source: Texas Board of Chiropractic Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state chiropractors

2005 Texas Chiropractor Facts:

Race-ethnicity data not available

Date of birth and gender data were not available

Number of counties with no chiropractors – 79

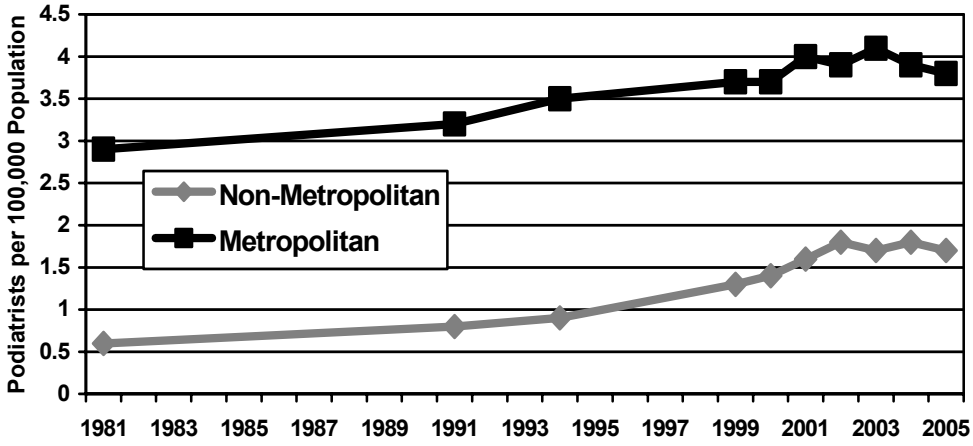
	Providers/100,000 Population
Border Metropolitan	10.8
Non-Border Metropolitan	20.9
Border Non-Metropolitan	6.5
Non-Border Non-Metropolitan	11.8

Trends:

Year	Number	Providers/100,000 Population
1990	1,972	11.6
1994	2,325	12.7
2000	3,426	16.8
2005	4,091	17.8

APPENDIX B-5
Podiatrists

Podiatrists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1981–2005



Source: Texas State Board of Podiatric Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state podiatrists

2005 Texas Podiatrists Facts:

White	80.6%	Male	82.1%	Median Age Male	46
Black	8.3%	Female	17.9%	Median Age Female	37
Hispanic	4.7%				
Other	6.3%				

Number of counties with no podiatrists – 167

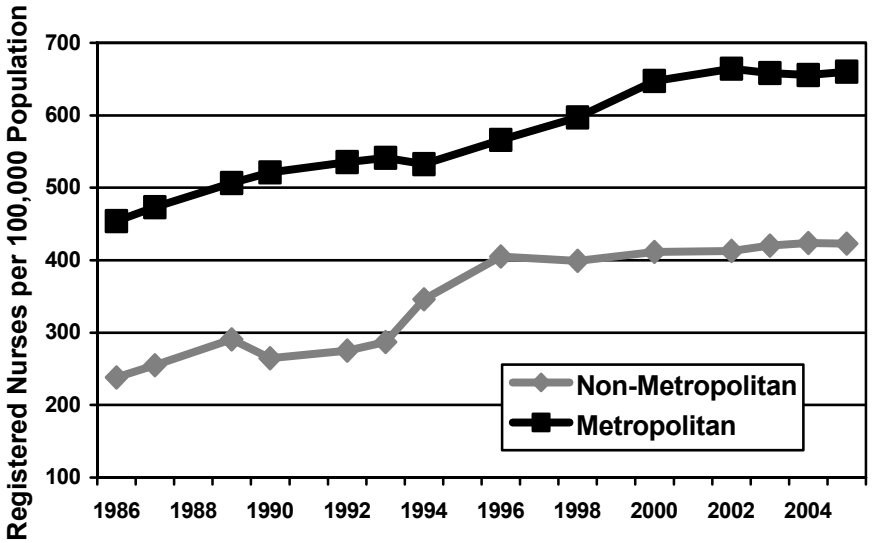
	Providers/100,000 Population
Border Metropolitan	4.0
Non-Border Metropolitan	3.8
Border Non-Metropolitan	2.0
Non-Border Non-Metropolitan	1.7

Trends:

Year	Number	Providers/100,000 Population
1991	496	2.9
1994	567	3.1
2000	682	3.4
2005	814	3.5

APPENDIX B-6
Registered Nurses

Registered Nurses per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1986–2005



Source: Texas Board of Nurse Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state registered nurses

2005 Texas Registered Nurse Facts:

White	74.6%	Male	9.5%	Median Age Male	43
Black	7.6%	Female	90.5%	Median Age Female	47
Hispanic	8.5%				
Other	9.3%				

Number of counties with no registered nurses – 4

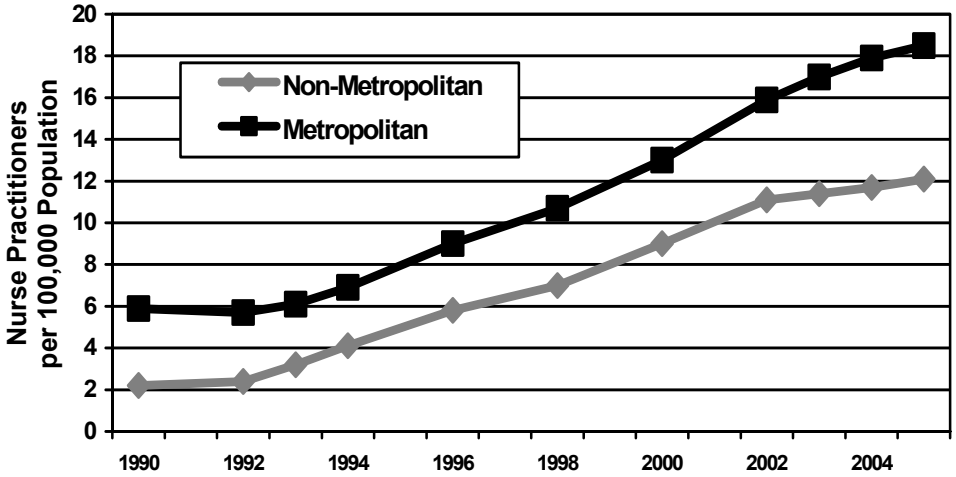
	Providers/100,000 Population
Border Metropolitan	606.6
Non-Border Metropolitan	673.7
Border Non-Metropolitan	308.6
Non-Border Non-Metropolitan	446.0

Trends:

Year	Number	Providers/100,000 Population
1990	81,320	478.7
1996	103,358	540.3
2000	124,495	611.9
2005	144,602	628.6

APPENDIX B-7
Nurse Practitioners

Nurse Practitioners per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1990–2005



Source: Texas Board of Nurse Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state nurse practitioners

2005 Texas Nurse Practitioner Facts:

White	83.3%	Male	8.1%	Median Age Male	43
Black	4.8%	Female	91.9%	Median Age Female	48
Hispanic	7.4%				
Other	4.5%				

Number of counties with no nurse practitioners – 66

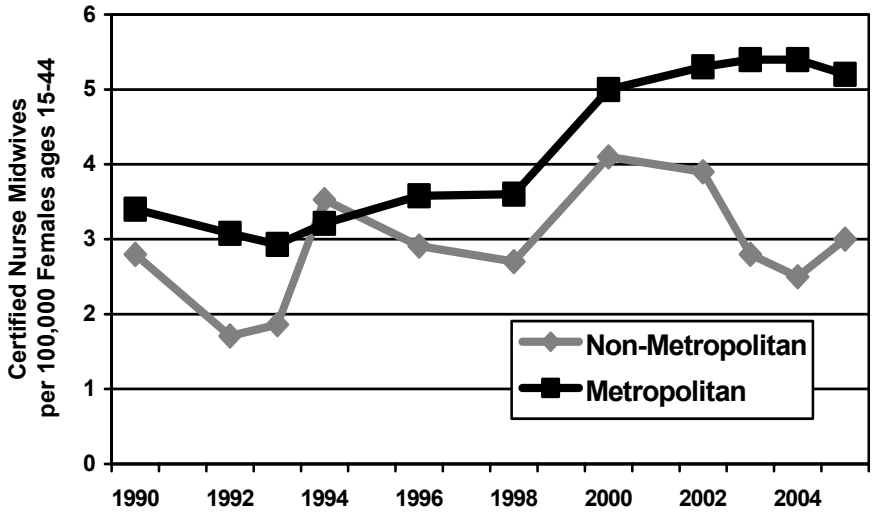
	Providers/100,000 Population
Border Metropolitan	14.5
Non-Border Metropolitan	19.6
Border Non-Metropolitan	9.4
Non-Border Non-Metropolitan	12.6

Trends:

Year	Number	Providers/100,000 Population
1991	964	5.6
1996	1,633	8.6
2000	2,517	12.4
2005	4,066	17.7

APPENDIX B-8
Certified Nurse Midwives

Certified Nurse Midwives per 100,000 Females ages 15–44, Metropolitan and Non-Metropolitan Counties, Texas, 1990–2005



Source: Texas Board of Nurse Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state certified nurse midwives

2005 Texas Certified Nurse Midwife Facts:

White	89.3%	Male	0.4%	Median Age Male	51
Black	6.1%	Female	99.6%	Median Age Female	49
Hispanic	2.9%				
Other	1.6%				

Number of counties with no certified nurse midwives – 214

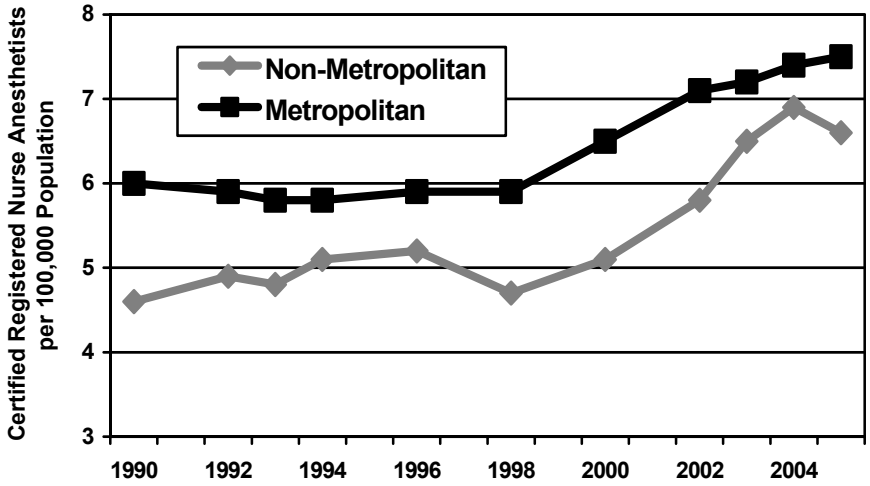
	Providers/100,000 Females Ages 15–44
Border Metropolitan	5.0
Non-Border Metropolitan	5.3
Border Non-Metropolitan	3.9
Non-Border Non-Metropolitan	2.8

Trends:

Year	Number	Providers/100,000 Females Ages 15–44
1990	135	3.3
1996	155	3.5
2000	231	4.9
2005	244	5.0

APPENDIX B-9
Certified Registered Nurse Anesthetists

Certified Registered Nurse Anesthetists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1990–2005



Source: Texas Board of Nurse Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state certified nurse anesthetists

2005 Texas Certified Registered Nurse Anesthetist Facts:

White	89.7%	Male	45.6%	Median Age Male	51
Black	3.6%	Female	54.4%	Median Age Female	49
Hispanic	3.2%				
Other	3.5%				

Number of counties with no certified registered nurse anesthetists – 124

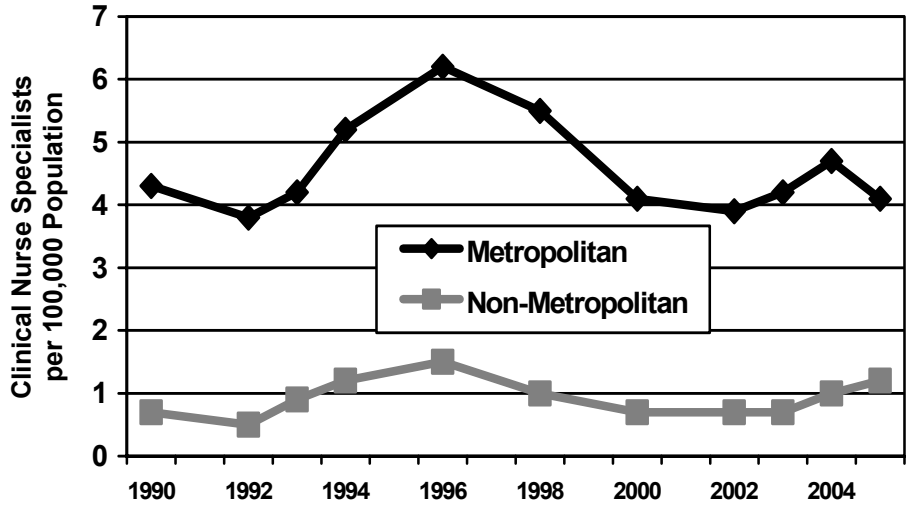
	Providers/100,000 Population
Border Metropolitan	5.8
Non-Border Metropolitan	7.9
Border Non-Metropolitan	4.7
Non-Border Non-Metropolitan	7.0

Trends:

Year	Number	Providers/100,000 Population
1990	983	5.8
1996	1,108	5.8
2000	1,274	6.2
2005	1,701	7.4

APPENDIX B-10
Clinical Nurse Specialists

Clinical Nurse Specialists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1990–2005



Source: Texas Board of Nurse Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state clinical nurse specialists

2005 Texas Clinical Nurse Specialist Facts:

White	82.8%	Male	10.3%	Median Age Male	49
Black	6.1%	Female	99.7%	Median Age Female	51
Hispanic	6.9%				
Other	4.2%				

Number of counties with no clinical nurse specialists – 185

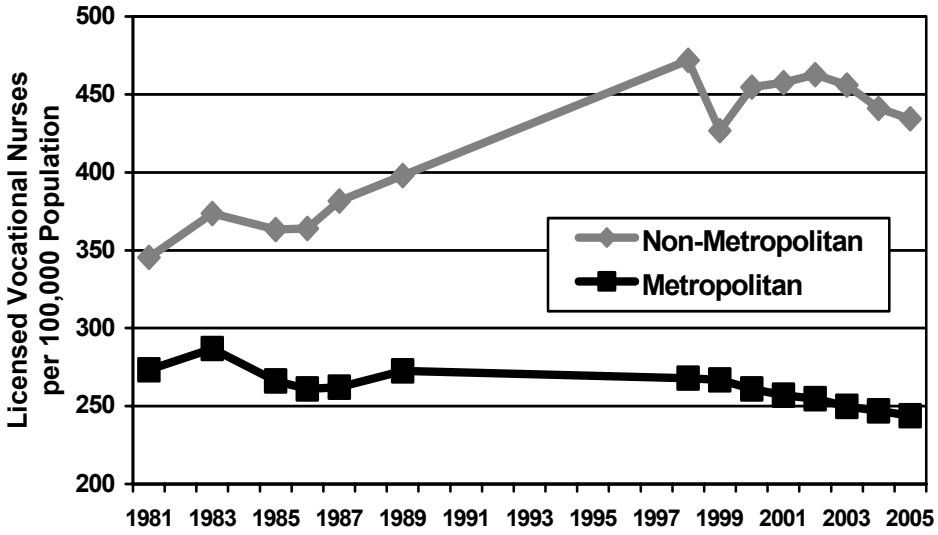
	Providers/100,000 Population
Border Metropolitan	4.2
Non-Border Metropolitan	4.1
Border Non-Metropolitan	1.6
Non-Border Non-Metropolitan	1.1

Trends:

Year	Number	Providers/100,000 Population
1990	631	3.7
1996	1,055	5.5
2000	724	3.6
2005	864	3.8

APPENDIX B-11
Licensed Vocational Nurses

Licensed Vocational Nurses per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1981–2005



Source: Texas Board of Nurse Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state licensed vocational nurses

2005 Texas Licensed Vocational Nurse Facts:

White	59.8%	Male	9.1%	Median Age Male	42
Black	18.9%	Female	90.9%	Median Age Female	46
Hispanic	18.6%				
Other	2.7%				

Number of counties with no licensed vocational nurses – 7

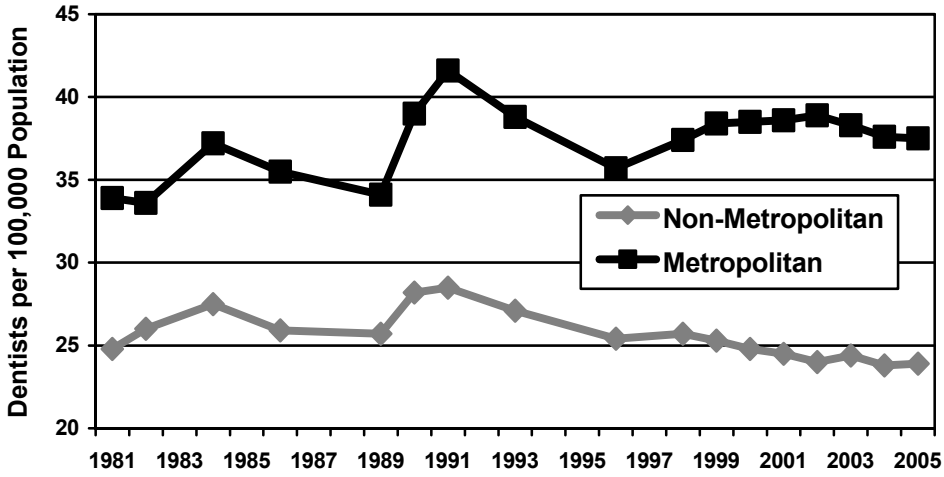
	Providers/100,000 Population
Border Metropolitan	269.8
Non-Border Metropolitan	237.0
Border Non-Metropolitan	365.5
Non-Border Non-Metropolitan	448.3

Trends:

Year	Number	Providers/100,000 Population
1989	49,389	293.9
1998	58,795	299.2
2000	59,034	290.2
2005	61,886	269.0

APPENDIX B-12
Dentists

Dentists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1981–2005



Source: Texas State Board of Dental Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state, non-federal dentists

2005 Texas Dentist Facts:

Race-ethnicity data not available

Male	76.9%	Median Age Male	50
Female	23.1%	Median Age Female	39

Number of counties with no dentists – 49

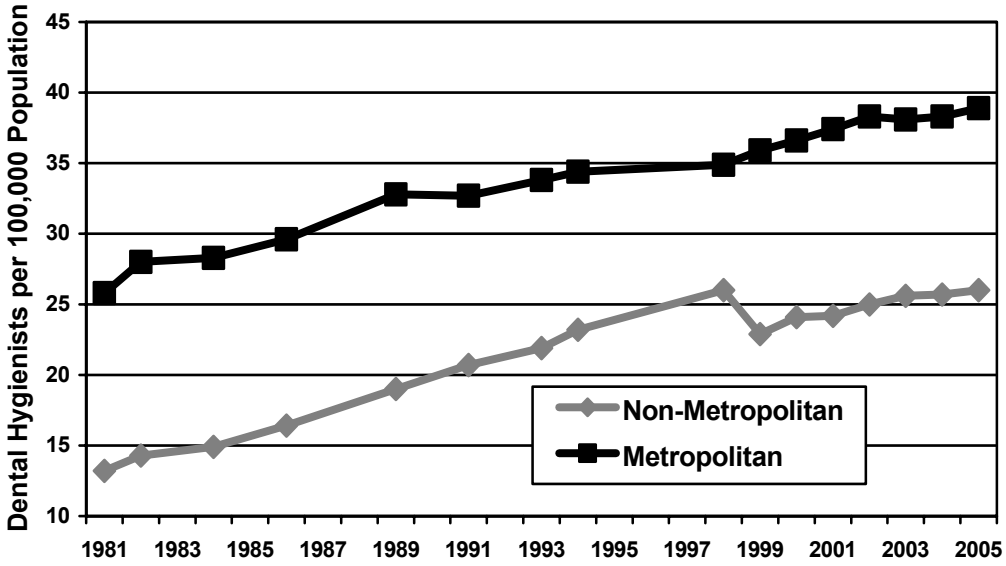
	Providers/100,000 Population
Border Metropolitan	27.6
Non-Border Metropolitan	40.0
Border Non-Metropolitan	16.6
Non-Border Non-Metropolitan	25.3

Trends:

Year	Number	Providers/100,000 Population
1990	6,320	37.2
1996	6,518	34.1
2000	7,417	36.5
2005	8,213	35.7

APPENDIX B-13
Dental Hygienists

Dental Hygienists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1981–2005



Source: Texas State Board of Dental Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state, dental hygienists

2005 Texas Dental Hygienist Facts:

Race-ethnicity data not available

Male	1.5%	Median Age Male	37
Female	98.5%	Median Age Female	41

Number of counties with no dental hygienists – ***58***

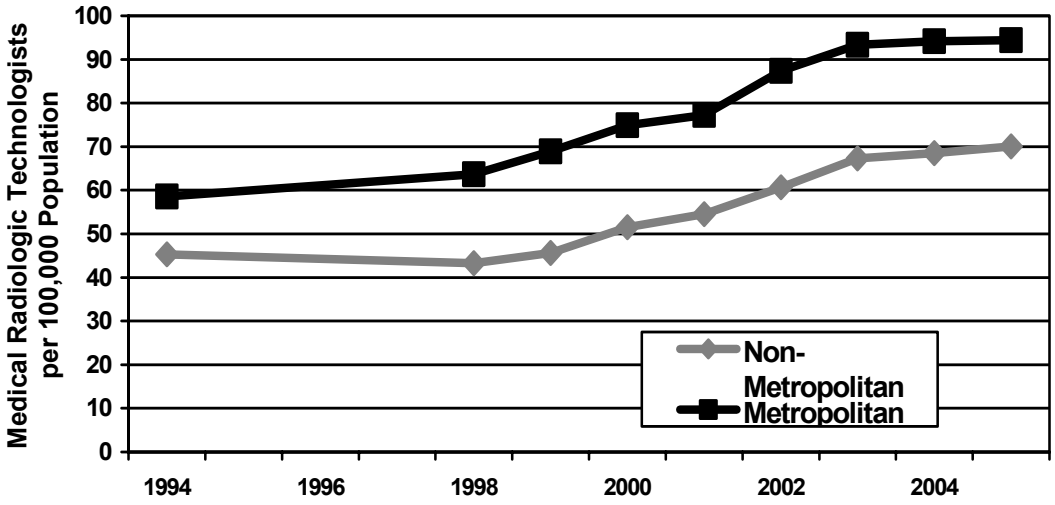
	Providers/100,000 Population
Border Metropolitan	29.1
Non-Border Metropolitan	41.4
Border Non-Metropolitan	15.3
Non-Border Non-Metropolitan	28.1

Trends:

Year	Number	Providers/100,000 Population
1991	5,338	30.8
1994	5,987	32.6
2000	7,057	34.7
2005	8,548	37.2

APPENDIX B-14
Medical Radiologic Technologists

Medical Radiologic Technologists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1994–2005



Source: Professional Licensing and Certification Unit, DSHS
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state medical radiologic technologists

2005 Texas Medical Radiologic Technologists Facts:

Race-ethnicity and gender data not available

Median Age 43

Number of counties with no medical radiologic technologists – 34

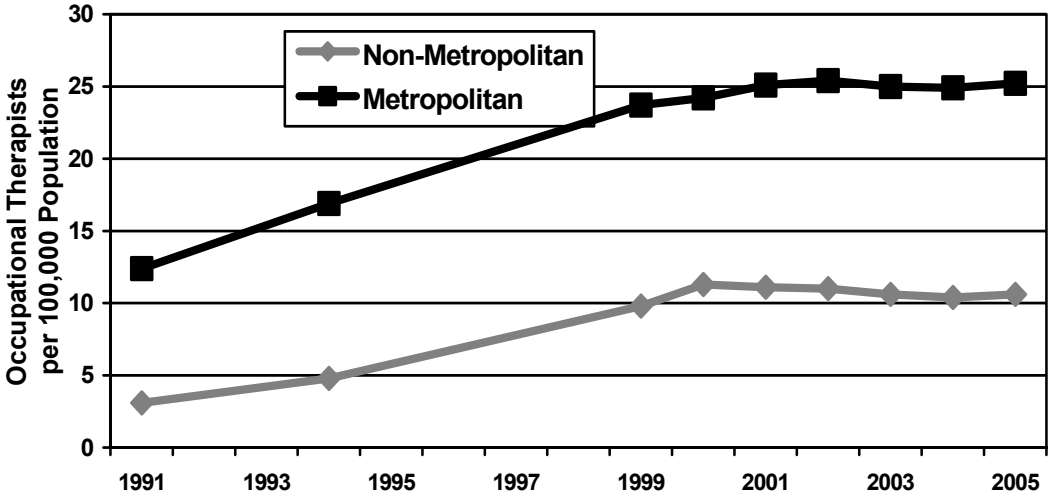
	Providers/100,000 Population
Border Metropolitan	93.1
Non-Border Metropolitan	94.7
Border Non-Metropolitan	50.5
Non-Border Non-Metropolitan	74.0

Trends:

Year	Number	Providers/100,000 Population
1994	10,385	56.5
1998	11,907	60.6
2000	14,517	71.4
2005	20,972	91.2

APPENDIX B-15
Occupational Therapists

Occupational Therapists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1991–2005



Source: The Executive Council of Physical Therapy & Occupational Therapy Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state occupational therapists

2005 Texas Occupational Therapist Facts:

White	75.0%	Male	12.0%	Median Age Male	38
Black	4.3%	Female	88.0%	Median Age Female	39
Hispanic	12.2%				
Other	8.5%				

Number of counties with no occupational therapists – 95

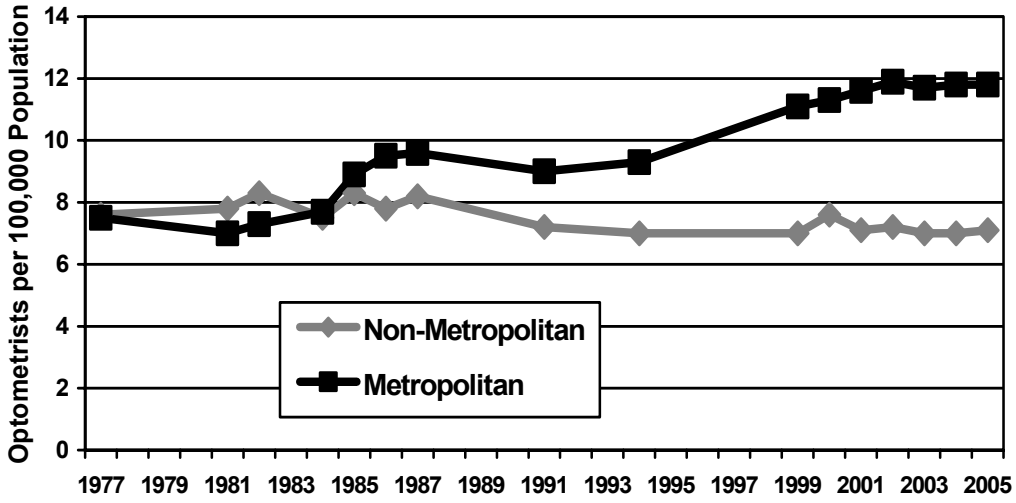
	Providers/100,000 Population
Border Metropolitan	21.5
Non-Border Metropolitan	26.2
Border Non-Metropolitan	8.0
Non-Border Non-Metropolitan	11.1

Trends:

Year	Number	Providers/100,000 Population
1991	1,894	10.9
1994	2,756	15.0
2000	4,526	22.2
2005	5,354	23.3

APPENDIX B-16
Optometrists

Optometrists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1977–2005



Source: Texas Optometry Board
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state optometrists

2005 Texas Optometrist Facts:

White	69.4%	Male	62.3%	Median Age Male	48
Black	2.6%	Female	37.7%	Median Age Female	35
Hispanic	8.5%				
Other	19.4%				

Number of counties with no optometrists – 103

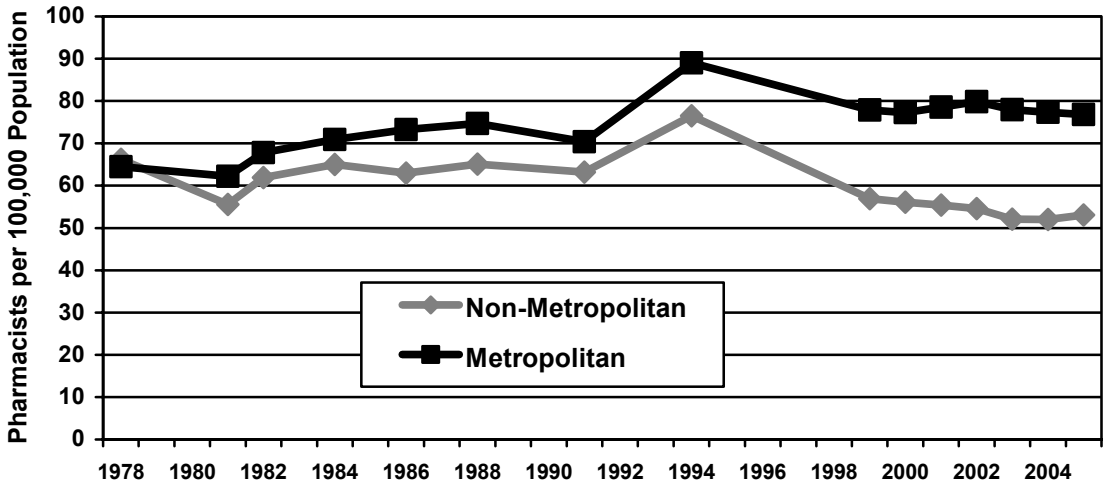
	Providers/100,000 Population
Border Metropolitan	8.7
Non-Border Metropolitan	12.6
Border Non-Metropolitan	6.1
Non-Border Non-Metropolitan	7.3

Trends:

Year	Number	Providers/100,000 Population
1991	1,513	8.7
1994	1,644	8.9
2000	2,177	10.7
2005	2,577	11.2

APPENDIX B-17
Pharmacists

Pharmacists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1978–2005



Source: Texas State Board of Pharmacy
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state pharmacists

2005 Texas Pharmacist Facts:

White	63.4%	Male	52.7%	Median Age Male	52
Black	12.7%	Female	47.3%	Median Age Female	40
Hispanic	8.7%				
Other	15.2%				

Number of counties with no pharmacists – 23

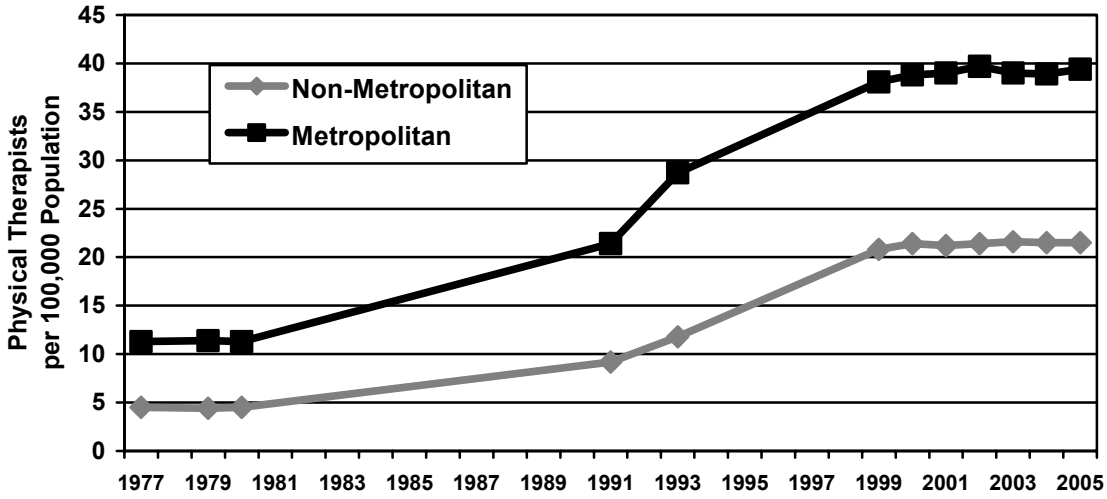
	Providers/100,000 Population
Border Metropolitan	60.1
Non-Border Metropolitan	81.0
Border Non-Metropolitan	41.5
Non-Border Non-Metropolitan	55.4

Trends:

Year	Number	Providers/100,000 Population
1991	12,020	69.2
1999	14,931	74.7
2000	15,071	74.1
2005	16,944	73.7

APPENDIX B-18
Physical Therapists

Physical Therapists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1977–2005



Source: The Executive Council of Physical Therapy & Occupational Therapy Examiners
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state physical therapists

2005 Texas Physical Therapist Facts:

White	78.7%	Male	28.8%	Median Age Male	39
Black	2.6%	Female	71.2%	Median Age Female	39
Hispanic	5.8%				
Other	12.9%				

Number of counties with no physical therapists – 59

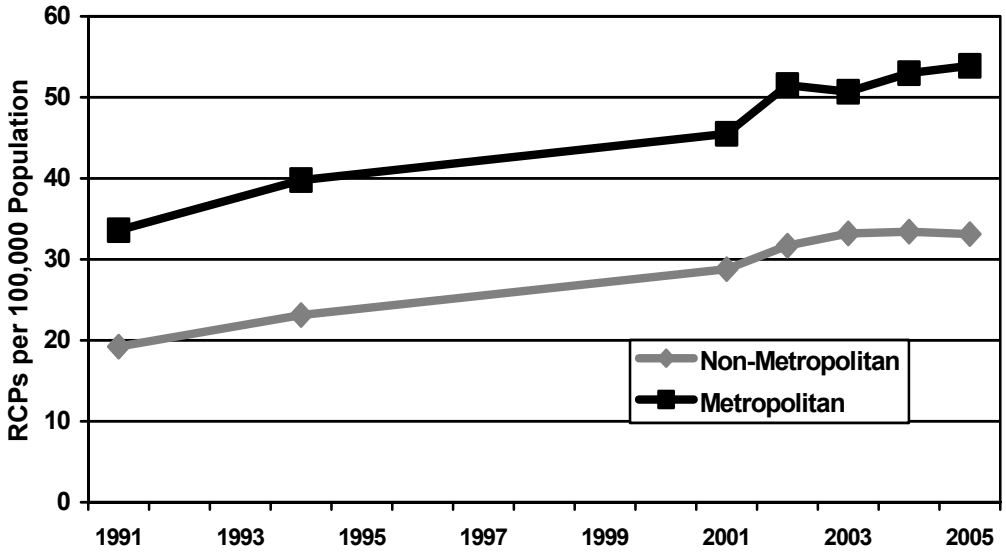
	Providers/100,000 Population
Border Metropolitan	31.0
Non-Border Metropolitan	41.5
Border Non-Metropolitan	18.8
Non-Border Non-Metropolitan	22.0

Trends:

Year	Number	Providers/100,000 Population
1991	3,373	19.4
1993	4,681	26.0
2000	7,358	36.2
2005	8,511	37.0

APPENDIX B-19
Respiratory Care Practitioners

Respiratory Care Practitioners (RCPs) per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1981–2005



Source: Texas Department of State Health Services, Professional Licensing and Certification Unit
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state respiratory care practitioners

2005 Texas Respiratory Care Practitioner Facts:

Race-ethnicity and gender data not available

Median Age 45

Number of counties with no respiratory care practitioners – 69

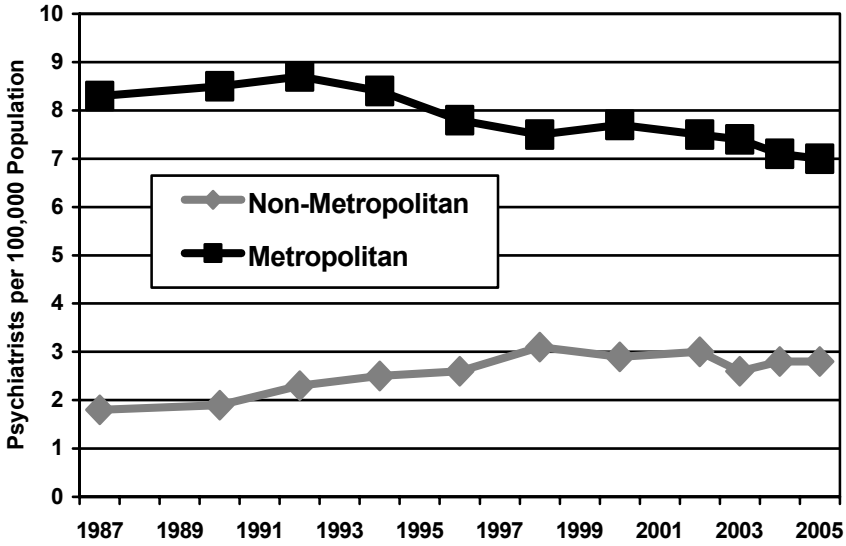
	Providers/100,000 Population
Border Metropolitan	53.5
Non-Border Metropolitan	54.0
Border Non-Metropolitan	19.8
Non-Border Non-Metropolitan	35.5

Trends:

Year	Number	Providers/100,000 Population
1991	5,446	31.4
1994	6,854	37.3
2001	8,941	43.2
2005	11,768	51.2

APPENDIX B-20
Psychiatrists

Psychiatrists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1987–2005



Source: Texas Medical Board
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, non-federal, non-resident in training psychiatrists and child psychiatrists

2005 Texas Psychiatrists Facts:

White	68.4%	Male	67.0%	Median Age Male	54
Black	3.8%	Female	33.0%	Median Age Female	47
Hispanic	12.8%				
Other	15.0%				

Number of counties with no psychiatrists – 179

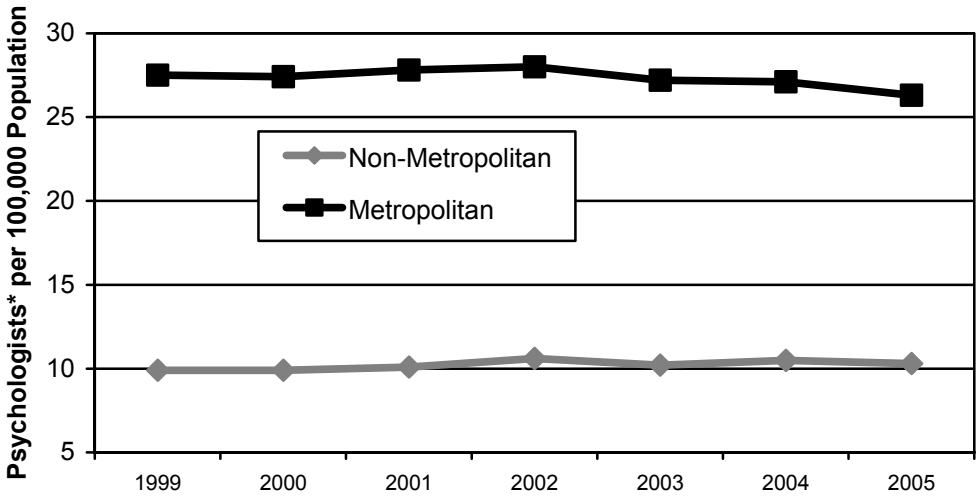
	Providers/100,000 Population
Border Metropolitan	6.2
Non-Border Metropolitan	7.2
Border Non-Metropolitan	4.1
Non-Border Non-Metropolitan	2.5

Trends:

Year	Number	Providers/100,000 Population
1990	1,264	7.4
1996	1,336	7.0
2000	1,422	7.0
2005	1,488	6.5

APPENDIX B-21
Psychologists

Psychologists per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1999–2005



Source: Texas State Board of Examiners of Psychologists
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state psychologists

2005 Texas Licensed Psychologist Facts:

Race-ethnicity, age, and gender data not available

Number of counties with no licensed psychologists – 112

	Providers/100,000 Population
Border Metropolitan	20.4
Non-Border Metropolitan	27.8
Border Non-Metropolitan	9.0
Non-Border Non-Metropolitan	10.6

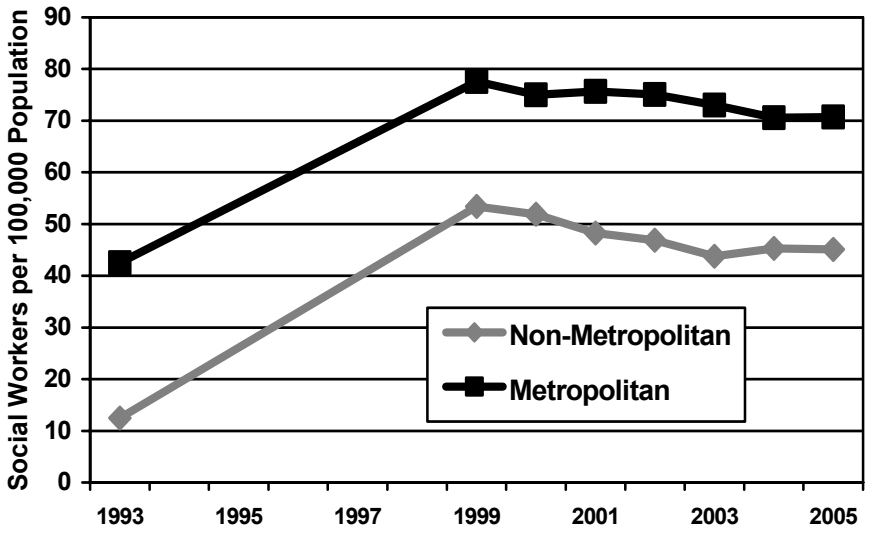
Trends:

Year	Number	Providers/100,000 Population
1999	4,955	24.8
2001	5,229	25.2
2003	5,432	24.9
2005	5,567	24.2

Note: There are four types of Psychologists in Texas: Licensed Psychologists (LP), Provisionally Licensed Psychologists (PLP), Licensed Psychological Associates (LPA), and Licensed Specialists in School Psychology (LSSP). An LP, PLP, or LPA may also be an LSSP. The data above were derived from an unduplicated count of the sum of all four professions.

APPENDIX B-22
Social Workers

Social Workers per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 1993–2005



Source: Professional Licensing and Certification Unit, DSHS
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state social workers

2005 Texas Social Worker Facts:

Race-ethnicity and gender data not available

Median Age 47

Number of counties with no social workers – 46

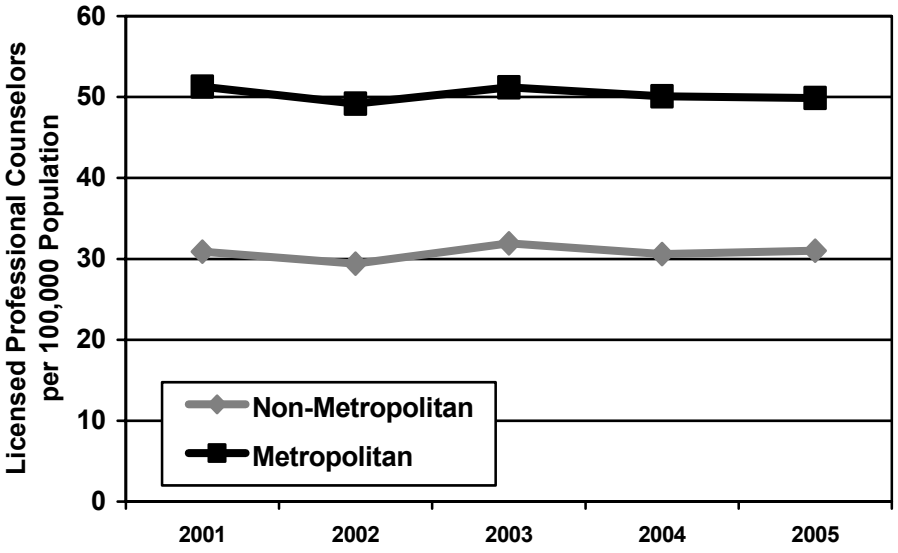
	Providers/100,000 Population
Border Metropolitan	64.3
Non-Border Metropolitan	73.6
Border Non-Metropolitan	34.8
Non-Border Non-Metropolitan	47.1

Trends:

Year	Number	Providers/100,000 Population
1993	6,783	37.6
2000	14,549	71.5
2003	15,003	68.7
2005	15,687	68.2

APPENDIX B-23
Licensed Professional Counselors

Licensed Professional Counselors per 100,000 Population, Metropolitan and Non-Metropolitan Counties, Texas, 2001–2005



Source: Professional Licensing and Certification Unit, DSHS
Source for *metropolitan–non-metropolitan* definition: Office of Management and Budget
Figures include all licensed, active, in-state licensed professional counselors

2005 Texas Licensed Professional Counselor Facts:

Race-ethnicity and gender data not available

Median Age 54

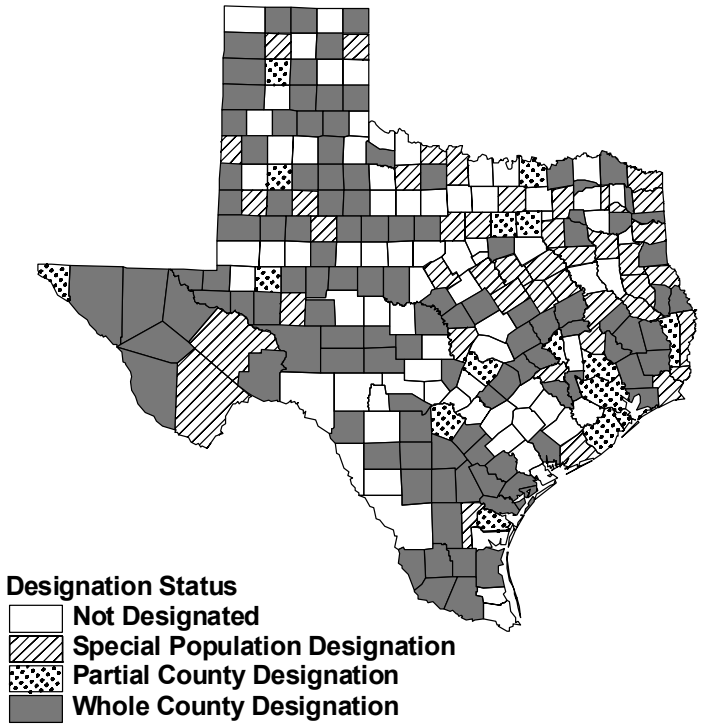
Number of counties with no licensed professional counselors – 54

	Providers/100,000 Population
Border Metropolitan	42.8
Non-Border Metropolitan	51.7
Border Non-Metropolitan	24.2
Non-Border Non-Metropolitan	32.4

Trends:

Year	Number	Providers/100,000 Population
2001	10,036	48.5
2003	10,596	48.5
2005	10,896	47.4

APPENDIX B-24
Federally Designated Primary Care Health Professional Shortage Areas in Texas, February 2006

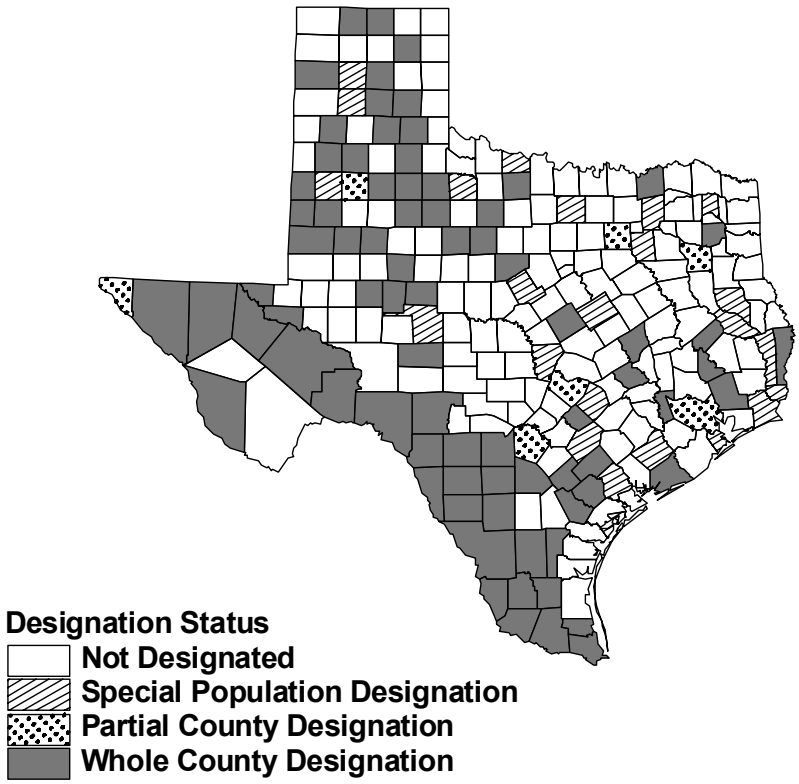


Prepared by:
Health Professions Resource Center
Center for Health Statistics
Texas Department of State Health Services
Data Source:
Shortage Designation Branch
United States Department of Health and Human Services
February 2006

Federal "Primary Medical Care" Health Professional Shortage Areas (HPSAs)

The U.S. Department of Health and Human Services HPSA designation program is administered in conjunction with the Health Professions Resource Center. The designation program uses population-to-PC physician ratios to identify counties having shortages of PC physicians. In February 2006, 69.7 percent of the counties in Texas (117 whole counties; 60 partial counties/special populations) had either whole or partial-county/special population HPSA designations. Seventy-five percent of the 117 "whole county" HPSAs were rural counties, and 22 percent were border counties. In addition to these designations, the HPSA designation program also provides for the designation of facilities under certain circumstances.

APPENDIX B-25
Federally Designated Dental Health Professional Shortage Areas in Texas, February 2006



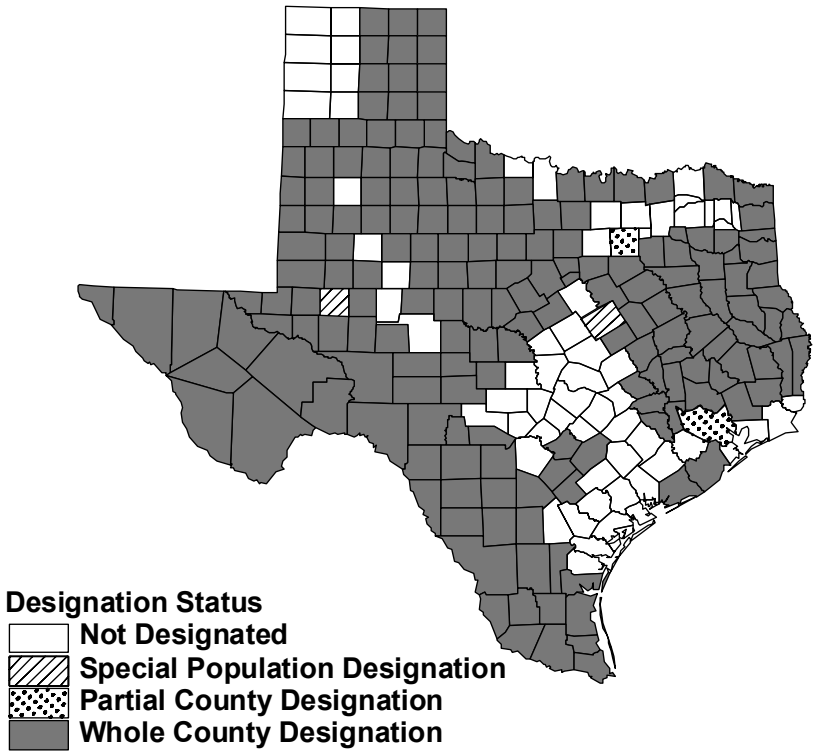
Prepared by:
Health Professions Resource Center
Center for Health Statistics
Texas Department of State Health Services
Data Source:
Shortage Designation Branch
United States Department of Health and Human Services
February 2006

Federal Dental Health Professional Shortage Areas (HPSAs)

The U.S. Department of Health and Human Services HPSA designation program uses population–to–general dentist ratios to identify counties with a shortage of dentists. In addition to geographic area designations, the HPSA designation program also provides for the designation of special population groups within geographic areas and for the designation of facilities under certain circumstances.

In January 2006, 110 counties in Texas had some type of designation by the U.S. Department of Health and Human Services as experiencing a shortage of dentists. Seventy-nine of these designations were for whole counties.

APPENDIX B-26
Federally Designated Mental Health Professional Shortage Areas in Texas, January 2006



Prepared by:
Health Professions Resource Center
Center for Health Statistics
Texas Department of State Health Services
Data Source:
Shortage Designation Branch
United States Department of Health and Human Services
January 2006

Mental Health Professional Shortage Areas (HPSAs)

The U.S. Department of Health and Human Services Health Professional Shortage Area designation program uses population-to-psychiatrist ratios to identify counties with a shortage of psychiatrists. In addition to geographic area designations, the HPSA designation program also provides for the designation of special population groups within geographic areas and for the designation of facilities under certain circumstances. In January 2006, there were 184 counties designated by the U.S. Department of Health and Human Services as whole-county mental-health HPSAs in Texas, two counties designated as partial-county mental-health HPSAs, and two counties designated as HPSAs for the low-income population.

Appendix C

79th REGULAR LEGISLATIVE SESSION BILL TRACKING

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 112		Wong	Relating to a tax credit for certain corporations for certain purchases that promote healthy living for employees.	11/10/04			House Ways and Means 1/31/05								
HB 122		Naishtat	Relating to services provided by certain mental health professionals under the Medicaid program.	11/12/04			House Public Health 1/31/05								
HB 123		Naishtat	Relating to a feasibility study regarding required forensic medical examination instruction for students enrolled in certain medical or nursing degree programs.	11/12/04			House Higher Education 1/31/05								
HB 130		Smith, Todd	Relating to undergraduate course credit granted by certain public institutions of higher education for completion of the international baccalaureate diploma program.	11/15/04			House Higher Education 1/31/05								
HB 133		Brown, Fred	Relating to the award of academic credit to a student at an institution of higher education for the completion of certain military training.	11/16/04			House Higher Education 1/31/05	Favor out 5/4/05 Report out 5/4/05							
HB 173		Hochberg	Relating to the licensing of Canadian pharmacies to sell prescription medicines to Texas residents.	11/29/04			House Public Health 1/31/05								
HB 241		Goolsby	Relating to professional liability insurance for certain retired physicians acting as volunteer health care providers.	12/16/04			House Insurance 2/1/05								
HB 242		Goolsby	Relating to medical liability insurance for certain retired physicians acting as volunteer health care providers.	12/16/04			House Insurance 2/1/05								
HB 298	SB 39	McClendon	Relating to forensic evidence training for students enrolled in certain medical or nursing degree programs.	01/05/05			House Higher Education 2/2/05								

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 310		McReynolds	Relating to faculty compensation policies at institutions of higher education.	01/05/05			House Higher Education 2/2/05								
HB 320		Hupp	Relating to the student enrollment required for the operation of Texas A&M University--Central Texas as an independent general teaching institution.	01/06/05			House Higher Education 2/2/05								
HB 423		Delisi	Relating to the online availability of certain state publications.	01/13/05			House Government Reform 2/3/05	2/21/2005 Report out 3/9/05 Report Out CS 3/9/05 CS adopted 3/21/05 Passed 3/22/05	3/22/05		Senate Government Organization 3/30/05	Favor out 4/18/05 Report out 4/20/05	4/28/05		sent 5/2/05
HB 542		Thompson	Relating to reimbursement under certain health benefit plans for services provided by licensed podiatrists.	01/24/05			House Insurance 2/7/05	Favor out CS 3/22/05							
HB 545		Naishtat	Relating to services provided by podiatrists under the Medicaid program.	01/24/05			House Human Services 2/7/05								

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 567		Branch	Relating to the deadline for passing the examination for a license to practice medicine in this state.	01/25/05			House Public Health 2/7/05	Favor out CS 3/30/05 Report out CS 4/12/05 Postponed on second reading until 10:00 a.m., April 27, 2005. Postponed on second reading UNTIL 10:00 a.m., Wednesday, May 4, 2005 4/27/05 Laid on the table - subject to call 5/4/05							
HB 584		Delisi	Relating to reimbursement under certain health benefit plans for services provided by licensed athletic trainers.	01/25/05			House Insurance 2/8/05	Favor out CS 4/21/05 Report out CS 4/27/05							
HB 589		Brown, Fred	Relating to prohibiting state agencies from collecting or storing racial information.	01/26/05			House Government Reform 2/8/05								
HB 605	SB 276	Berman	Relating to authorizing the University of Texas Health Science Center at Tyler to offer courses and degree programs in allied health and related fields.	01/26/05			House Higher Education 2/8/05	Favor out 3/15/05 Senate Proposed Amendment 3/16/05 Senate Subst 3/21/05	3/31/05						

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 606	SB 275	Berman	Relating to authorizing the University of Texas at Tyler to offer doctoral degree programs in nursing and human resources development.	01/26/05			House Higher Education 2/8/05								
HB 613		Castro	Relating to a survey to monitor the postsecondary education plans of seniors at public at public high schools.	01/26/05			House Public Education 2/8/05								
HB 634		Baxter	Relating to requiring public officials to receive training in the requirements of the open meetings and public information laws.	01/27/05			House State Affairs 2/8/05	Favor out CS 3/21/05 Report out CS 3/31/05 Postponed on second reading 4/18/05 Postponed on second reading 4/25/05 Postponed on second reading until Thursday, May 5, 2005. 5/2/05							
HB 654		Goolsby	Relating to professional liability insurance for volunteer health care providers.	01/28/05			House Insurance 2/8/05	Favor out CS 3/22/05 Report out CS 3/30/05	4/12/05		Senate State Affairs 4/14/05				

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 655		Goolsby	Relating to liability insurance for volunteer health care providers.	01/28/05			House Insurance 2/8/05	Favor out CS 3/22/05 Report out CS 3/30/05	1 Amend 4/13/05		Senate State Affairs 4/18/05				
HB 660		Chavez	Relating to training in gerontology for certain health care practitioners.	01/28/05			House Public Health 2/8/05								
HB 682		Solis	Relating to a dental services pilot program in border-region counties.	01/28/05			House Public Health 2/8/05								
HB 683		Solis	Relating to allowing the Texas State Board of Physician Assistant Examiners to hold telephonic hearings.	01/28/05			House Public Health 2/8/05								
HB 684		Giddings	Relating to the establishment of a school of pharmacy at the University of North Texas Health Sciences Center at Fort Worth.	01/28/05			House Higher Education 2/8/05								
HB 691		Villarreal	Relating to a Medicaid health literacy pilot program.	01/31/05			House Human Services 2/8/05	Favor out CS 4/21/05 Report out CS 4/26/05							
HB 734		Davis, Yvonne	Relating to infection rates at health-care facilities.	02/01/05			House Public Health 2/9/05								
HB 789		King	Relating to telecommunications.	02/02/05			House Regulated Industries 2/9/05	Favor out CS 3/17/05 Report out CS 3/21/05	Flr Amend 3/23/2005 3 Flr amend 3/29/05 3/30/05		Senate Business and Commerce 4/5/05				

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 794	SB 45	Delisi	Relating to the establishment of an advisory committee on health care information technology.	02/03/05			House Human Services 2/9/05	Favor out CS 2/23/05 Report out CS 3/8/2005	3/23/05		Senate Health and Human Services 3/30/05				
HB 916		Woolley	Relating to creating the Governor's Health Care Coordinating Council.	02/08/05			House State Affairs 2/14/05	Favor out 4/11/05 Report out 4/14/05 Passed to Third Reading 4/25/05	4/26/05	4/27/05	Senate Health and Human Services 4/29/05				
HB 938	SB 520	Farabee	Relating to liability of physicians assistants who provide certain emergency care.	02/09/05			House Civil Practices 2/14/05								
HB 952	SB 633	Delisi	Relating to a pilot program to provide health services to state employees in state office complexes.	02/09/05			House Public Health 2/14/05	Favor out CS 4/7/05 Report out CS 4/13/05	4/22/05	4/25/05	Senate Government Organization 4/26/05				
HB 972	SB 401	Solomons	Relating to the continuation and functions of the Board of Chiropractic Examiners.	02/09/05			House Public Health 2/17/05	Favor out 4/20/05 Report out 4/26/05							
HB 992		Martinez Armando	Relating to nursing degree requirements for a licensed paramedic.	02/10/05			House Higher Education 2/17/05								
HB 1028	SB 403	Truitt	Relating to the continuation and functions of the State Board of Examiners of Perfusionists.	02/10/05			House Public Health 2/17/05	Favor out CS 3/23/05 Report out Cs 4/6/05							

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 1040		Truitt	Relating to the continuation and functions of the State Board of Pharmacy.	02/11/05			House Public Health 2/17/05	Favor out CS 4/21/05 Report out CS 4/27/05							
HB 1064		Delisi	Relating to creating the Governor's Health Care Coordinating Council.	02/14/05			House State Affairs 2/16/05								
HB 1084		Martinez Fischer	Relating to charges for certain services or products provided in a hospital.	02/14/05			House Public Health 2/16/05								
HB 1155	SB 413	Truitt	Relating to the continuation and functions of the State Board of Examiners of Dieticians.	02/16/05			House Public Health 2/17/05	Favor out 3/30/05 Report out 4/6/05	4/19/05	4/20/05	Senate Government Organization 4/21/05	Favor out 5/3/05 Report out 5/4/05			
HB 1283	SB 414	Carona	Relating to the continuation and functions of the State Board of Examiners of Professional Counselors.	02/17/05			Human Services 2/21/05 House Public Health 3/11/05	Favor out CS 4/13/05 Report out CS 4/26/05							
HB 1298		Rodriguez	Relating to requiring hepatitis C training for nurses and physician assistants.	02/17/05			House Public Health 2/21/05								
HB 1311		Puente	Relating to requiring a course in multicultural or gender studies in baccalaureate degree programs at public institutions of higher education.	02/17/05			House Higher Education 2/21/05								
HB 1319	SB 586	Giddings	Relating to business entities and associations.	02/17/05			House Business and Industry 2/21/05	Favor Out 3/15/05 Report Out 3/21/05	3/30/05	3/30/05	Senate Business and Commerce 4/5/05	Favor out 4/21/05 Report out 4/25/05	5/3/05		

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 1366	SB 1053	Allen, Ray	Relating to the enforcement of the regulation of nursing.	02/21/05			House Public Health 2/22/05	Favor out 4/20/05 Report out CS 4/26/05							
HB 1432		Laubenberg	Relating to the regulation of dental assistants who make dental x-rays.	02/22/05			House Public Health 2/24/05								
HB 1435	SB 402	Hamric	Relating to the administration and functions of the State Board of Podiatric Medical Examiners.	02/22/05			House Public Health 2/24/05	Favor out 3/30/05 Report out 4/6/05 Postponed on second reading 4/18/05 Laid on the table - subject to call 4/25/05							
HB 1488	SB 64	Hughes	Relating to the minimum salary for public school teachers, librarians, counselors and nurses.	02/22/05			House Public Education 2/28/05								
HB 1535	SB 416	Truitt	Relating to the continuation and functions of the Midwifery Board.	02/23/05			House Public Health 2/28/05	Favor out CS 4/13/05 Report out CS 4/26/05							
HB 1621		Alonzo	Relating to a study and report concerning predicted faculty retirement at general academic teaching institutions.	02/24/05			House Pensions and Investments 3/1/05								

SHCC 79th Legislative Bills
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Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 1709		Alonzo	Relating to the licensing of health care practitioners from foreign jurisdictions.	02/28/05			House Public Health 3/2/05								
HB 1718		Zedler	Relating to the regulation of certain nursing practices.	02/28/05			House Public Health 3/2/05	Favor out CS 4/20/05 Report out CS 4/26/05 Passed to third reading 5/4/05							
HB 1725	SB 158	Casteel	Relating to the authority of another institution of higher education to conduct vocational or technical courses in the service area of a junior college	02/28/05			House Higher Education 3/2/05	Favor Out 4/11/05 Report out 4/15/05							
HB 1771		Delisi	Relating to the Medicaid managed care delivery system.	03/01/05			House Public Health 3/11/05	Favor out CS 3/30/05 Report out CS 4/7/05 Recommitted to House Pub Health 4/18/05 Favor out CS 4/18/05 Report out CS 4/20/05 Passed to third reading 4/26/05	4/27/05	4/28/05	Senate Finance 4/29/05				

SHCC 79th Legislative Bills
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Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 1924		Chavez	Relating to public entity qualified health centers located along the Texas-Mexico border.	03/02/05			House Border and International Affairs 3/14/05	Favor out CS 3/24/05 Report out CS 3/29/05 House Research	4/6/05		Senate International Relations and Trade 4/11/05				
HB 1944	SB 419	Solomons	Relating to the continuation and functions of the State Board of Medical Examiners.	03/03/05			House Public Health 3/14/05								
HB 1980		Coleman	Relating to the assignment of school nurses at public school campuses.	03/03/05			House Public Health 3/14/05								
HB 2007		Flores	Relating to a tuition and fee exemption for students earning semester credit hours through concurrent enrollment in high school and college-level	03/03/05			House Public Education 3/14/05								
HB 2018	SB 979	Swinford	Relating to nonsubstantive additions and corrections in enacted codes.	03/04/05			House State Affairs 3/14/05	Favor Out 4/4/05 Report out 4/14/05 Passed to third reading 5/3/05	5/4/05						
HB 2041		Campbell	Relating to a Pilot Project to provide additional capacity for higher education undergraduate education.	03/04/05			House Higher Education 3/14/05	Favor out CS 4/18/05 Report out CS 4/22/05							
HB 2074		Coleman	Relating to providing medical assistance for care in an assisted living facility.	03/04/05			House Human Services 3/14/05								

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 2153		Brown, Fred	Relating to the regulation of certain institutions that train acupuncturists.	03/07/05			Public Health 3/14/05 House Higher Education 3/16/05								
HB 2158		Delisi	Relating to an exemption from annual registration fees for a retired physician who provides volunteer medical services in a disaster.	03/07/05			House Public Health 3/14/05	Favor out 4/14/05 Report out 4/25/05							
HB 2184		Oliveira	Relating to the Academy of Mathematics and Science at the University of Texas at Brownsville.	03/07/05			House Higher Education 3/14/05								
HB 2242		Hupp	Relating to liability of physician assistants who provide certain emergency care.	03/08/05			House Civil Practices 3/14/05								
HB 2288		King, Tracy	Relating to the award of graduate, postgraduate, or professional degree program course credit by public institutions of higher education	03/08/05			House Higher Education 3/14/05								
HB 2367	SB 1643	Gallego	Relating to a strategy to ensure that public institutions of higher education employ faculty and staff who reflect the population of Texas.	03/11/05			House Higher Education 3/15/05								

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 2420		Chavez	Relating to the allocation of federal funds directed to be used to support graduate medical education in connection with the state Medicaid program.	03/09/05			House Public Health 3/15/05 House Border and International Affairs 3/21/05	Favor out 3/30/05 Report out 4/1/05 Withdrawn from Local Calendar 4/14/05 Postponed on second reading 5/3/05							
HB 2479		Delisi	Relating to health and human services.	03/09/05			House Public Health 3/15/05	Favor out CS 5/2/05							
HB 2493		Cook, Robby	Relating to access to certain obstetrical or gynecological care provided by family physicians.	03/09/05			House Insurance 3/15/05								
HB 2706		Delisi	Relating to the establishment of the Health Professions Scope of Practice Review Commission.	03/10/05			House Public Health 3/16/05	Favor out CS 5/3/05 Report out CS 5/4/05							
HB 3000		Morrison	Relating to the TEXAS grant and Texas B-On-time loan financial assistance programs for students in higher education.	03/11/05			House Higher Education 3/16/05								
HB 3003	SB 726	Zedler	Relating to the authority of a dental hygienist to prescribe and administer fluoride varnish.	03/11/05			House Public Health 3/17/05								

SHCC 79th Legislative Bills
9/26/2006

Bill	Companion	Author	Caption	1st-Chamber	SHCC Strategy	Companion 2	Referred to Com	Passed Out Com	Engrossed	2nd Chamber	Referred to Com 2	Passed Out	Enrolled	Joint Committee Conference	Signed/Veto
HB 3005		Zedler	Relating to providing incentives to recruit and retain professional nursing program facility.	03/11/05			House Higher Education 3/17/05	Favor out 5/4/05 Report out 5/4/05							
HB 3027	SB 1163	Rodriguez	Relating to the authority of a dental hygienist to provide services in certain facilities and schools.	03/11/05			House Public Health 3/17/05								
HB 3034		Solis	Relating to a program to reduce the shortage of professional and vocational nurses through financial assistance from the Enterprise Fund.	03/11/05			House Economic Developme nt 3/17/05								
HB 3075		Brown, Fred	Relating to the components of the core curriculum for public institutions of higher education.	03/11/05			House Higher Education 3/17/05								
HB 3100		McReynol ds	Relating to the regulation of the practice of nursing.	03/11/05			House Public Health 3/21/05	Favor out CS 4/20/05 Report out CS 4/26/05							
HB 3102		McReynol ds	Relating to the employment recruitement and retention of physicians by rural hospitals.	03/11/05			House Public Health 3/21/05								
HB 3223		Brown, Fred	Relating to admission to the Joint Admission Medical Program.	03/11/05			House Higher Education 3/21/05								
HB 3232	SB 1688	Uresti	Relating to the establishment of the Department of Health Professions Licensing.	03/11/05			House Governmen t Reform 3/21/05								

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HCR 1		McClendon	Urging Congress to eliminate the requirement that states implement as part of their Medicaid state plan an estate recovery program.	04/08/05			House Public Health 5/2/05								
HCR 133		Branch	Recognizing the importance of skilled medical care.	03/30/05			House Higher Education 4/4/05								
HCR 140		Branch	Honoring the medical students, medical schools, residents, and teaching hospitals of Texas.	04/05/05					4/5/05				4/5/05		Signed 4/11/05
HR 257		Villarreal	Requesting the speaker to provide for an interim study to explore how public health and medical care can be more effectively delivered through regional planning.	03/24/05			House Public Health 3/17/05	Favor out CS 4/7/05 Report out CS 4/12/05							
SB 35		Zaffirini	Relating to a study regarding credit hour requirements for undergraduate certificate and degree programs at public institutions of higher education.	11/08/04			Senate Education 1/31/05								
SB 39	HB 298	Zaffirini	Relating to forensic evidence training for students enrolled in certain medical or nursing degree programs.	11/08/04			Senate Education 1/31/05	Returned to full Comm 4/12/05 Favor out CS 4/19/05 Report out CS 4/20/05	4/26/05	4/26/05	House Higher Education 5/2/05				

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SB 42		Nelson	Relating to health education in public schools and to the improvement of children's health through daily physical activity in public schools.	11/08/04			Senate Education 1/31/05 Senate Health and Human Services 3/31/05	Favor out 4/12/05 Report out CS 4/19/05	4/21/05	4/21/05	House Public Educatio n 4/29/05				
SB 44		Nelson	Relating to the Indigent Health Care Advisory Committee.	11/08/04			Senate Health and Human Services 1/31/05	Favor Out 3/1/05 Report out as Senate CS 3/3/05	3/17/05		House Public Health 3/23/05				
SB 45	HB 794	Nelson	Relating to the establishment of an advisory committee on health care information technology.	11/08/04			Senate Health and Human Services 1/31/05	Favor out CS 3/29/05 Report out CS 4/4/05	4/14/05		House Human Services 4/18/05				
SB 52		Nelson	Relating to competitive grant programs for certain nursing institutions.	11/08/04			Senate Health and Human Services 1/31/05	Favor out CS 3/29/05 Report out CS 4/4/05	4/14/05		House Human Services 4/18/05				
SB 61		West	Relating to the teaching of foreign languages in public schools.	11/08/04			Senate Education 1/31/05								
SB 64	HB 1488	Staples	Relating to the minimum salary for public school teachers, librarians, counselors, and nurses.	11/08/04			Senate Education 1/31/05								
SB 67		Shapleigh	Relating to a program to promote the training and retention of health care professionals in this state.	11/09/04			Senate Education 1/31/05								
SB 68		Shapleigh	Relating to increasing the number of students in medical education in Texas.	11/09/04			Senate Education 1/31/05								

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SB 80		Shapleigh	Relating to the percentage of certain tuition set aside to fund financial assistance for resident undergraduate and graduate students at public institutions of higher education.	11/09/04			Senate Finance 1/31/05								
SB 81		Shapleigh	Relating to a joint partnership between the Texas Tech University Health Sciences Center and the University of Texas at El Paso.	11/09/04			Senate Subcommittee on Higher Education 1/31/05 Senate Subcommittee on Higher Education 2/21/05	Favor out CS 3/1/05 Report out CS 3/7/05 Committee substitute adopted 3/22/05	3/22/05		House Higher Education 3/30/05				
SB 95		Shapleigh	Relating to the establishment of an asthma research center at the Texas Tech University campus in El Paso.	11/16/04			Senate Education 1/31/05 subcommittee Senate Education 1/31/05 Amended return to Comm Senate Education 4/12/05	Favor out CS 4/14/05 Report out CS 4/18/05							
SB 111		Shapleigh	Relating to undergraduate course credit granted by certain public institutions of higher education for completion of the international baccalaureate diploma program.	11/22/04			Senate Education 2/1/05	Favor out 2/22/05 Report out CS 2/28/05	3/17/05		House Higher Education 3/23/05				

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SB 130		Nelson	Relating to the provision of health and human services.	12/22/04			Senate Health and Human Services 2/1/05	Favor out CS 3/29/05 Report out CS 4/4/05							
SB 132		Nelson	Relating to goals and strategies concerning the number of graduates from professional nursing education programs.	12/22/04			Senate Education 2/1/05	Favor out CS 4/5/05 Favor out CS 4/19/05 Report out CS 4/21/05	4/28/05	4/28/05	House Higher Educatio n 5/2/05				
SB 136		Nelson	Relating to the establishment of a school of pharmacy at the University of North Texas Health Science Center at Fort Worth.	12/22/04			Senate Subcommit tee on Higher Education 2/1/05								
SB 151		Zaffirini	Relating to students enrolled in courses for which students may receive both high school and higher education academic credit.	01/03/05			Senate Education 2/1/05	Favor Out CS 4/19/05 Report out CS 4/21/05	1 Amend 4/28/05	4/29/05	House Higher Educatio n 5/2/05				
SB 195		Nelson	Relating to a nurse or nurse aide employed by a temporary nursing service agency to provide hospice services to patients.	01/14/05			Senate Health and Human Services 2/1/05								
SB 196		Nelson	Relating to the provision of voluntary charity care by certain retired dentists	01/14/05			Senate Health and Human Services 2/1/05	Favor out 3/1/05 Report out 3/3/05	3/17/05		House Public Health 3/23/05				
SB 274		Barrientos	Relating to funding of the Communities in Schools program.	01/26/05			Senate Education 2/3/05	Favor out CS 3/15/05 Report out CS 3/21/05	4/11/05		House Public Educatio n 4/14/05				

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SB 275	HB 606	Staples	Relating to authorizing the University of Texas at Tyler to offer doctoral degree programs in nursing and human resource development.	01/26/05			Senate Subcommittee on Higher Education 2/3/05								
SB 276	HB 605	Staples	Relating to authorizing the University of Texas Health Science Center at Tyler to offer courses and degree programs in allied health and related fields.	01/26/05			Senate Subcommittee on Higher Education 2/3/05	Favor out as CS 3/15/05 Report out CS 3/21/05	3/31/05		House Higher Education 4/4/05				
SB 286		Wentworth	Relating to requiring public officials to receive training in the requirements of the open meetings and public information laws.	01/27/05			Senate Government Organization 2/7/05 subcommittee Senate Government Organization 2/28/05	Favor out CS 4/4/05 Report out CS 4/7/05 Withdrawn 4/13/05 1 Amend 4/14/05	4/18/05	4/19/05	House State Affairs 4/21/05	Favor out 5/2/05 Report out 5/4/05			
SB 296		Madla	Relating to the student enrollment required for the operation of Texas A&M University--San Antonio as an independent general academic teaching institution.	01/28/05			Senate Subcommittee on Higher Education 2/7/05	3/1/2005 Report out 3/7/05	CS amended 3/17/2005		House Higher Education 3/23/05				
SB 302		Ellis	Relating to reports of strategies for increasing minority participation in higher education.	01/31/05			Senate Subcommittee on Higher Education 2/24/05	Report Out CS 4/13/05	4/21/05	4/21/05	House Higher Education 4/29/05				
SB 357		Van de Putte	Relating to infection rates at hospitals.	02/04/05			Senate Health and Human Services 2/15/05								

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SB 401	HB 972	Nelson	Relating to the continuation and functions of the Board of Chiropractic Examiners.	02/09/05			Senate Government Organization								
SB 402	HB 1435	Nelson	Relating to the administration and functions of the State Board of Podiatric Medical Examiners.	02/09/05			Senate Government Organization 2/15/05	Favor out 3/14/2005 Report out CS 3/17/05	3/31/05	3/31/05	House Public Health 4/4/05	Favor Out 4/21/05 Report Out 4/22/05 Passed to third reading 4/25/05	4/26/05		Sent 4/28/05
SB 403	HB 1028	Nelson	Relating to the continuation and functions of the State Board of Examiners of Perfusionists.	02/09/05			Senate Government Organization 2/15/05	Favor out 3/14/2005 Report outCS 3/17/05	3/31/05	3/31/05	House Public Health 4/4/05	Favor out 4/20/05 Report out 4/25/05			
SB 410		Whitmire	Relating to the continuation and functions of the State Board of Pharmacy.	02/14/05			Senate Government Organization 2/15/05	Favor out CS 4/25/05 Report out CS 4/28/05							
SB 413	HB 1155	Shapleigh	Relating to the continuation and functions of the State Board of Examiners of Dietitians.	02/15/05			Senate Government Organization 2/22/05								
SB 414	HB 1283	Carona	Relating to the continuation and functions of the State Board of Examiners of Professional Counselors.	02/16/05			Senate Government Organization 2/22/05								

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SB 416	HB 1535	Shapleigh	Relating to the continuation and functions of the Midwifery Board.	02/22/05			Senate Government Organization 3/1/05								
SB 419	HB 1944	Nelson	Relating to the continuation and functions of the State Board of Medical Examiners.	03/03/05			Senate Government Organization 3/10/05	Report out CS 4/18/05	4/26/05	4/26/05	House Public Health 5/2/05				
SB 423		Carona	Relating to the issuance of a limited license to practice medicine to certain applicants.	02/08/05			Senate Health and Human Services 2/15/05	Favor out amended 3/15/05 Report out CS 3/17/05	3/29/05		House Public Health 3/30/05				
SB 470		Averitt	Relating to the portion of designated tuition set aside to fund financial assistance for resident undergraduate and graduate students at public institutions of higher education.	02/11/05			Senate Finance 2/22/05								
SB 502		West	Relating to common undergraduate admission application forms for public institutions of higher education in this state.	02/14/05			Senate Subcommittee on Higher Education 3/7/05 Substituted	Favor out 3/15/05 Report out CS 3/21/05	4/14/05		House Higher Education 4/18/05				
SB 518		Ellis	Relating to the licensing and regulation of Canadian pharmacies for the dispensing of prescription drugs in this state.	02/15/05			Health and Human Services 2/28/05								
SB 520	HB 938	Madla	Relating to liability of physician assistants who provide certain emergency care.	02/15/05			Senate State Affairs 2/28/05	Favor out CS 4/21/05 Report out CS 4/25/05	1 Amend 5/2/05	5/3/05					

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SB 563		Janek	Relating to the prevention of Medicaid fraud.	02/16/05			Senate Health and Human Services 2/28/05	Favor out 3/15/05 Report out 3/17/05	3/31/05		House Public Health 4/4/05				
SB 626		Zaffirini	Relating to medical assistance in certain alternative community-based care settings.	02/21/05			Senate Health and Human Services 3/1/05	Favor out CS 3/15/05 Report out CS 3/17/05	3/31/05		House Public Health 4/4/05				
SB 632		Nelson	Relating to dental assistant x-rays.	02/22/05			Senate Health and Human Services 3/1/05	Favor out CS 3/15/05 Report out CS 3/21/05	3/31/05		House Public Health 4/4/05				
SB 633	HB 952	Barrientos	Relating to a pilot program to provide health services to state employees in state office complexes.	02/22/05			Senate Government Organization 3/1/05								
SB 638		Barrientos	Relating to the award of a grant and reporting requirements under the Enterprise Fund.	02/22/05			Senate Subcommittee on Emerging Technologies 3/1/05								

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SB 676		West, Royce	Relating to identifying which public institutions of higher education in this state are comprehensive research universities of the first class.	02/23/05			Senate Subcommittee on Higher Education 3/2/05 Returned to Comm CS 4/12/05 Favor out CS 4/14/05 Report out CS 4/18/05								
SB 721		Lucio	Relating to establishing a health science center and medical school in the Rio Grande Valley.	02/24/05			Senate Subcommittee on Higher Education 3/2/05								
SB 722		Lucio	Relating to the creation of the TexasNextStep grant.	02/24/05			Senate Subcommittee on Higher Education 3/2/05								
SB 726	HB 3003	Deuell	Relating to the authority of a dental hygienist to prescribe and administer fluoride varnish.	02/24/05			Senate Health and Human Services 3/2/05	Favor out 3/29/05 Report Out 3/30/05	4/14/05		House Public Health 4/19/05				
SB 811		Deuell	Relating to services referred to podiatrists under the Medicaid program.	02/28/05			Senate Health and Human Services 3/10/05								
SB 814		Lucio	Relating to a dental services pilot program in border-regiona counties.	02/28/05			Senate Health and Human Services 3/10/05								

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SB 871		Nelson	Relating to the Medicaid managed delivery system.	03/02/05			Senate Finance 3/10/05								
SB 872		Nelson	Relating to a study regarding the impact of niche hospitals on other general hospitals and to certain disclosure requirements regarding niche hospitals.	03/02/05			Senate Health and Human Services 3/10/05	Favor out 3/29/05 Report Out 3/30/05	1 Flr Amend 4/12/05		House Public Health 4/14/05				
SB 873		Nelson	Relating to a medical information telephone hotline pilot program under the medical assistance program.	03/02/05			Senate Health and Human Services 3/10/05	Favor Out 3/22/05 Report out 3/23/05	3/31/05		House Public Health 4/4/05				
SB 930		Janek	Relating to the employment of surgical technologists by certain health care facilities.	03/03/05			Senate Health and Human Services 3/14/05								
SB 966		Lucio	Relating to programs to recruit, train, and license nurses and other health care professionals.	03/03/05			Senate Subcommittee on Higher Education 3/14/05								
SB 979	HB 2018	West	Relating to nonsubstantive additions to and corrections in enacted codes.	03/04/05			Senate Committee on Administration 3/14/05								
SB 1000		Madla	Relating to the regulation of the practice of nursing.	03/04/05			Senate Health and Human Services 3/14/05	Favor Out CS 4/19/05 Report out CS 4/21/05	4/28/05	4/28/05	House Public Health 5/2/05				
SB 1001		Madla	Relating to the provision of health care in medically underserved communities.	03/04/05			Senate Health and Human Services 3/14/05	Favor out CS 4/5/05 Report Out CS 4/6/05	4/12/05		House Public Health 4/14/05				

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SB 1025		Madla	Relating to the regulation of the practice of optometry and therapeutic optometry.	03/07/05			Senate State Affairs 3/14/05								
SB 1029	HB 2019	Harris	Relating to the nonsubstantive revision of certain local laws concerning special districts.	03/07/05			Senate Committee on Administration 3/14/05								
SB 1053	HB 1366	Van de Putte	Relating to the enforcement of the regulation of nursing.	03/07/05			Senate Health and Human Services 3/21/05	Favor out CS 4/5/05 Report out CS 4/7/05	4/14/05		House Public Health 4/18/05				
SB 1163		Lucio	Relating to the authority of a dental hygienist to provide services in certain facilities and schools.	03/08/05			Senate Health and Human Services 3/21/05								
SB 1167		Armbrister	Relating to the powers and duties of the State Board of Acupuncture Examiners.	03/08/05			Senate Health and Human Services 3/21/05								
SB 1209		Deuell	Relating to the licensing and regulation of the practice of dietetics and nutrition.	03/09/05			Senate Health and Human Services 3/21/05								
SB 1240		Madla	Relating to the employment of physicians by a rural hospital .	03/09/05			Senate Health and Human Services 3/21/05								
SB 1247		West, Royce	Relating to admission to the Joint Admission Medical Program.	03/09/05			Senate Subcommittee on Higher Education 3/21/05	Favor Out 4/5/05 Favor Out 4/14/05 Report out Sen. Educ 4/18/05	4/26/05	4/26/05	House Higher Education 5/2/05				

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SB 1340		Madla	Relating to the regulation and reimbursement of health care services provided through telemedicine or telepsychiatry under the state Medicaid program.	03/10/05			Senate Health and Human Services 3/21/05	Favor out CS 4/12/05 Report out CS 4/18/05	4/26/05	4/26/05	House Public Health 5/2/05				
SB 1500		Lucio	Relating to the allocation of federal funds directed to be used to support graduate medical education in connection with the state Medicaid program.	03/10/05			Senate Health and Human Services 3/21/05 Senate International Relations and Trade 3/31/05	Favor out 4/7/05 Report out 4/11/05 Withdrawn from Local Calendar 4/21/05 Withdrawn 5/2/05	1 Flr amend 5/3/05	5/3/05					
SB 1525		Zaffirini	Relating to safe patient handling and movement practices of nurses in hospitals and nursing homes.	03/10/05			Senate Health and Human Services 3/22/05	Favor out CS 4/12/05 Report out CS 4/18/05	4/20/05	4/20/05	House Public Health 4/21/05				
SB 1643	HB 2367	Hinojosa	Relating to a strategy to ensure that public institutions of higher education employ faculty and staff who reflect the population of Texas.	03/11/05											
SB 1688	HB 3232	Hinojosa	Relating to the establishment of the Texas Department of Health Professions Licensing and the transfer of the regulation of certain licensed health professions to that department.	03/11/05			Senate Health and Human Services 3/30/05								
SB 1749		Janek	Relating to creating a health workforce planning partnership.	03/11/05			Senate Health and Human Services 3/30/05	Favor Out CS 5/3/05							

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SCR 27		West, Royce	Encouraging Congress to elimintate caps on funded Medicare resident training positions.	04/06/05			Senate Subcommittee on Higher Education 4/7/05	Favor Out 4/19/05 Favor out 4/21/05 Report out 4/22/05	5/3/05						

Appendix D

2007-2008 TEXAS STATE HEALTH PLAN UPDATE

Statewide Health Coordinating Council Response to Public Comment

I. ARTHUR NELSON JR., R.PH., PH.D., DEAN, TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER SCHOOL OF PHARMACY

Comments:

The Statewide Health Coordinating Council (SHCC) should consider other roles pharmacists might fulfill, including prescribing medication and ordering laboratory tests. Pharmacists are the only Texas health professionals with more members than the national average; this group could have a big role with chronic diseases to help in shortage areas.

Did the SHCC consider the impact of Texas having the largest percentage of its population without health insurance? This would seem to be an important variable in explaining and influencing the number of jobs, and thus the number of providers staying in Texas. I believe we may have a greater percentage of medical graduates going into specialty practice that would impact the primary care numbers. Is there any existing analysis of this potential? We have such large health systems with multi-specialty residencies, more then in many states.

SHCC Response: No action required. Current document supports comment.

II. ELIZABETH SJOBERG, RN, J.D., ASSOCIATE GENERAL COUNSEL, TEXAS HOSPITAL ASSOCIATION (THA)

Comments:

THA is pleased with the overall tenor of the plan, and the current data will be invaluable to policymakers, as well as stakeholders. However, in discussions related to the nursing shortage, there are two negative, unsubstantiated statements presented as fact that demean hospitals and their leaders.

- "Low job satisfaction and poor working conditions resulting in high workforce attrition rates;" and

SHCC Response: Statement was revised as recommended.

- "High levels of job dissatisfaction related to scheduling, unrealistic workloads, long work hours, and hospital administrators' lack of responsiveness to nurses' concerns have resulted in high turnover and early retirement among RNs."

SHCC Response: Section was deleted.

If these statements are included, they should be properly cited.

More importantly, the report fails to recognize the significant role hospitals are playing in trying to reduce the nursing shortage. Hospitals across the state provide scholarship funds, stipends and flexible work schedules for nursing students. And, through THA, hospitals have been effective advocates for more state funding for nursing education for the past three legislative sessions. References to these activities could be included in Chapter 1, page 8 of the draft Update. Focusing solely on negative comments about the workplace portrays an incomplete, misleading impression of hospitals and their interest in and efforts to resolve the nursing shortage. THA requests clarification of these unsubstantiated statements and correction of the misleading portrayal of hospitals in the public release of SHCC's 2007-2008 Texas State Health Plan Update.

SHCC Response: A paragraph in support of Texas hospitals' positive role was added to the section. THA comments will also be forwarded to the Texas Health Care Policy Council and the Texas Health Workforce Planning Partnership for consideration.

III. JAMES WILLMANN, J.D., GENERAL COUNSEL AND DIRECTOR GOVERNMENTAL AFFAIRS, TEXAS NURSES ASSOCIATION (TNA)

Comments:

General Comment: TNA supports the general focus of the Draft Update and believes SHCC's approach of identifying the most critical health workforce issues that remain unresolved is most appropriate.

TNA also believes that use of state and national provider-to-population ratios is an effective way to portray Texas's workforce needs. As the draft report indicates, while not showing a shortage per se, the ratios are perhaps the best indicators of the adequacy (or inadequacy) of the Texas health care workforce.

SHCC Response: No action required. Current document supports comment.

Minorities in Health Care Workforce: TNA agrees that minorities are under-represented and that Texas must address this problem if it is to have an adequate health care workforce. However, from a policy-making perspective, TNA believes one has to look not only at total percentages of licensees,

but also percentages in the education pipeline and recent graduates. Otherwise, progress being made may not be evidenced. This is particularly true for professions that have very large numbers like nursing. In 2003, TNA helped work for passage of legislation that would permit the Texas Higher Education Coordinating Board (THECB) to consider ethnicity in making tuition grants.

SHCC Response: No action required in current document. Consideration will be given to changing the protocol in future surveys and studies.

TNA's 2004 Redesign of Nursing Practice and Education: The paragraph on page 17 of the Introduction relating to the two TNA initiatives on redesign of nursing practice and education is probably out of date since the TNA task forces involved have completed their work.

SHCC Response: Section was revised as recommended.

On pages 14-15 of Chapter 1, the Draft Update actually reports on some of the recommendations of the TNA Nursing Education Redesign Task Force. TNA recommends either deleting the paragraph on page 17 of the Introduction or revising it to reflect that the TNA task forces have completed their work and made recommendations.

SHCC Response: Statement in Introduction was revised. No additional revisions necessary.

Violence in the Workplace: On pages 18-19 of Chapter 1, the Draft Update address development of polices for prevention of workplace violence. Section 241.029, Health & Safety Code, requires that hospitals have polices relating to workplace violence and safety in the work environment for nurses. DSHS is in process of revising its hospital licensing rules and TNA understands that it is being proposed that the rules explicitly require that hospitals develop, implement and enforce such policies. TNA also understands that the rules will also require hospitals to develop, implement and enforce the safe patient handling polices required by Section 256.002, Health & Safety Code. SHCC may want to refer what DSHS is doing in this area.

SHCC Response: A paragraph was added to summarize the action being taken within the Department of State Health Services to revise the hospital licensing rules.

TNA Nurse-Friendly™ Designation Program: On page 20, Chapter 1, the Draft Update refers to the TNA Nurse-Friendly™ designation program for hospitals. The term "Nurse-Friendly" is an official certification mark of TNA and must be used only with the hyphen, i.e., "Nurse-Friendly."

SHCC Response: Section was revised as recommended.

Non-Punitive Environment for Reporting of Errors: On page 17, Chapter 1, of the Draft Report, there is a discussion of creating a non-punitive work environment that will better encourage the reporting of errors. TNA believes that creation of a regulatory environment that focuses more on identifying and correcting system errors rather than on identifying and blaming individual nurses is likely to create a safer health care system for patients. TNA currently has a task force looking at what changes might be made to the regulatory environment for nurses that would create an regulatory environment perceived as less punitive, less focused on individual blame and more focused on identification of system errors. TNA would be glad to share the work of that task force with SHCC.

SHCC Response: No changes were made. The current document supports this comment and the SHCC looks forward to receiving the TNA task force's findings and recommendations relating to this issue.

THECB Formula Funding Recommendations for 2008-09 Biennium: In its April, 2006 report, FORMULA FUNDING RECOMMENDATIONS FOR THE 2008-09 BIENNIUM, the Texas Higher Education Coordinating Board made a number of recommendations for funding of nursing education, including continued funding of the Nursing Shortage Reduction Program and increasing graduate nursing weight. Of particular interest is a recommendation for establishing a 10% bonus in formula funding for certain "critical fields" including nursing (and allied health). This concept of special formula for "critical fields" is a concept that TNA believes SHCC should consider supporting – not only for community colleges but expanding it to include general academics and, if appropriate, health-related institutions.

SHCC Response: No changes required to the current document. TNA comments will also be forwarded to the Texas Health Care Policy Council and the Texas Health Workforce Planning Partnership for consideration.

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