Texas Higher Education Coordinating Board
Task Force on Health Professions

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Acknowledgment

The Task Force gratefully acknowledges the hard work and conscientious deliberations of the subcommittees on Allied Health, chaired by Marilyn Harrington; Nursing, chaired by Nancy Ackley; and Medicine and Dentistry, chaired by Charles Mullins. The Task Force extends its appreciation to Texas Medical Association physician representatives Abel Rodriguez, David Fleeger, and Clifford Moy, and TMA staff Bridget Horton, Marcia Collins, and Denise Petronio, for providing valuable insights about medical education needs in Texas. The Task Force also thanks Suzanne Adair of the Texas Department of Health Statewide Health Coordinating Council and Kathy Thomas, Ann Garret, and Donna Carlin of the Texas State Board of Nurse Examiners for their participation and generous provision of information.
Executive Summary

This report presents the deliberations and recommendations of the Task Force on Health Professions, which was formed as part of the 1999-2000 strategic planning process of the Texas Higher Education Coordinating Board’s Planning Committee. The Task Force convened in late fall 1999 to consider the current issues important to health professions education and to draft recommendations about the higher educational goals for the health professions in Texas over the next five to ten years.

Coordinating Board staff analyzed the recommendations from the subcommittees and identified similar themes, which related to all health professions. The following final recommendations serve as a synthesis of the key themes of the subcommittees’ recommendations.

Final Recommendations:

C Recognize that the state has an adequate and appropriate number of health-related institutions and that the establishment of an additional health-related institution would weaken the academic capacity of the existing institutions and present a financial burden to the state.

C Provide increased financial state support to existing health-related institutions placed in financial jeopardy due to decreases in federal funding and decreases in revenues from managed care organizations because of cost containment strategies.

C Increase the state’s financial support of nursing programs to help allay the projected nursing shortage, anticipated to strain existing programs, and create a public relations effort to promote the field of nursing and raise the stature of nursing in the state.

C Provide financial support to automate state data collection, including information about the education of physicians, dentists, nurses, and allied health professionals. Direct health professional licensing and regulatory agencies to collect data using similar methods and timelines, defined as the minimum data set proposed by the Statewide Health Coordinating Council’s Ad Hoc Committee on Health Personnel Data. This would allow state agencies and institutions of higher education to more easily share data and information about health professionals, while protecting the integrity and confidentiality of individual records and information.

C Direct the Board to study and streamline the process of transferring credit between community colleges and universities, so that health professionals may be educated in the most efficient and streamlined manner available. Expand the use of new technologies to deliver health professions education via distance.

C Direct higher education institutions to be responsive and develop health professions programs that meet the needs of students, employers, and the changing health care environment of Texas.
Final Recommendations (continued):

C  Support and encourage regional planning efforts among secondary schools, health professional programs, and health care employers to develop strategies for recruitment and retention of students reflective of the state’s diverse population. Utilize existing models that work and increase efforts to duplicate effective programs.

C  Expand state support for teaching graduate medical education to Texas medical school graduates and other qualified medical residents.

The Task Force on Health Professions held three meetings in Austin, Texas, during the period November 1999 through March 2000. During the meetings, Task Force members were briefed on the current status and projected future of health professions education in Texas by leaders of health-related professional associations and state agencies involved in health care delivery and regulation. Additionally, the Task Force members served as key contacts to the consultants from the Council for Aid to Education Incorporated (CAE, Inc.), an independent subsidiary of the RAND Corporation, hired to conduct a priority and efficiency analysis of Texas higher education, with a focus on health professions education.

During the initial meeting of the Task Force, consensus was reached that a better understanding of the health professions would result from the establishment of subcommittees. Three subcommittees were formed: Nursing, Medicine and Dentistry, and Allied Health. Each of the three subcommittees drafted recommendations related to its field. The three subcommittees presented findings and recommendations to the March 6, 2000, meeting of the Task Force. Additionally, the recommendations of each of the subcommittees were presented to the Planning Committee by Charles Sprague, MD, Chair of the Task Force, on March 8, 2000.
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1 Background

In September 1999, the Texas Higher Education Coordinating Board began a major long-range strategic planning effort designed to identify a small number of goals that Texas higher education should pursue in the next five to ten years. Once a set of preliminary goals was identified, a process to prioritize the goals was initiated and strategies were developed to achieve the goals. The Planning Committee stated their commitment to utilizing existing state resources and focused their efforts on improving access to higher education. Equally important to the Planning Committee was increasing student retention and graduation rates, with an effort to maximize efficiency within the existing educational structures.

To guide and advise the Board in their strategic planning effort, the Chair of the Coordinating Board, Pam Willeford, appointed a Planning Committee, consisting of 20 higher education leaders from all areas of the state. The Planning Committee was chaired by Martin Basaldua, MD, Vice Chair of the Board.

The Planning Committee established four Task Forces to assist in the planning effort and the Board hired the Council for Aid to Education Incorporated (CAE, Inc.), an independent subsidiary of the RAND Corporation, to conduct a priority and efficiency analysis of higher education in Texas, with a targeted focus on health professions education. The Task Force on Health Professions Education was established by the Planning Committee and this document is their final report to the Planning Committee.

Charles Sprague, MD, Executive Director of the Southwestern Medical Foundation and former Coordinating Board member, served as Chair of the Task Force on Health Professions Education. Dolores Carruth, MD, a current Board member, served as Vice Chair. Task Force members included representatives from Texas higher education institutions including public health-related, general academic, and community and technical colleges. A roster of the Task Force is provided on the first page of this report.

The Task Force was charged by the Planning Committee to perform three tasks:

- Review information on the quality, accessibility, productivity, and cost of the health-related programs offered by Texas higher education institutions;
- Review information on the demand for health professions in Texas and its major regions over the next 10 years; and
- Identify the best strategies by which higher education can produce an adequate number of appropriately-trained health care professionals for Texas and its major regions.

The Task Force convened three meetings in Austin at the Coordinating Board on November 16, 1999 and February 3, 2000, and March 6, 2000. During the March 6, 2000, meeting, the Task Force participated in a conference held jointly with the RAND consultants. A list of persons who provided testimony to the Task Force is provided in Appendix A. The Task Force made their first findings during the November 16, 1999 meeting, which recognized the importance of health profession education to the Texas population and economy.

The education and training of an adequate health care workforce for Texas are essential to the future of Texas.
Additionally, during the meeting on November 16, 1999, the Task Force reached the consensus that forming subcommittees along the key health professional areas would best serve their development of recommendations and strategies. The Task Force members agreed to organize three subcommittees: Nursing, Medicine and Dentistry, and Allied Health. The establishment of these subcommittees allowed the Task Force to focus their efforts on the major areas within the health professions and obtain additional expert advice and input from national and in-state leaders.

Each subcommittee held meetings, and drafted recommendations specifically relevant to their field. Subcommittee recommendations were presented to the full Task Force during their final meeting on March 6, 2000, and to the Planning Committee on March 8, 2000.

Convening the subcommittees allowed for a greater focus on three key areas of the health professions, including nursing, medicine and dentistry, and allied health.
Present and projected demand for health professionals

The members of the Task Force and the subcommittees understood the complex and competing challenges facing the health professions. These challenges included rapidly changing state demographics, modifications to federal reimbursements for health care services under Medicare and Medicaid, increased penetration of managed care organizations, and greater demands by patients for better care and technology-based treatment. These influencing and external factors of the health care system were discussed during the initial November 16, 1999, meeting of the Task Force, as well as in subcommittee deliberations.

The Task Force members astutely observed that the changes in the state’s demographics, health care finance, managed care penetration, and demand for health care services were important factors in understanding the health care workforce. However, the Task Force members quickly concluded that the challenges of the health care system were outside the scope and purview of their work.

Based on the invited testimony and information provided, the Task Force concluded that the health care environment is complex, subject to rapid changing, and difficult to predict.

The Task Force focused on developing strategies to ensure that the health care education and training in Texas would lead to a health care system staffed by the most qualified health care professionals. While the Task Force members recognized the significance of the challenges facing the health care system, they realized that they would best serve the state by focusing on the education and training system of health care professionals.

In assessing the present and projected demand for physicians, nurses, and allied health workers, the Task Force heard testimony from several sources and reviewed recent publications. Presentations were made to the Task Force by the Texas Department of Health’s Statewide Health Coordinating Council, Texas Medical Association, Texas Nurses Foundation. Additional background material was also provided to the Task Force.

Because Texas is the second fastest growing state in the nation, with an estimated 20 million in population, the Task Force members recognized that the changing demographics would contribute to the need for certain types of health care providers and their education. During the November 16, 1999, meeting of the Task Force, Dr. Suzanne Adair, of the Texas Department of Health, Statewide Health Coordinating Council presented an overview of the Texas State Health Plan and reviewed projected demographic changes and health care delivery needs.

Dr. Adair serves as staff to the Council and provides guidance in the drafting and preparation of the Texas State Health Plan, a document prepared for the Texas Legislature on a six-year cycle, with biennial updates. The Texas State Health Plan serves as a guide for legislators and presents policy recommendations related to the health care workforce.

Dr. Adair explained that several Texas populations lack adequate access to health care services. She explained that Texas leads the nation in teen pregnancies, diabetes, and the number of uninsured. Dr. Adair also reminded the Task Force that Texas has regions of the state with rising birthrates and an increasing aging population in the metropolitan and suburban areas. She explained to the Task Force that future health care providers would have to be adequately prepared to address the unique challenges presented by these populations.
The health care workforce should receive appropriate and adequate training to meet the challenges of Texas’ rapidly changing demographics, especially the increases in the number of uninsured children and the aging populations.

During the November 16, 1999 meeting, the Task Force members also heard testimony on the status of nursing from Nancy Ackley of Texas Nurses Foundation and on physician supply from Dr. Clifford Moy and Marcia Collins of Texas Medical Association.

Based on the presentations and information presented, the Task Force members agreed that the best course of action was to convene subcommittees based on three key areas: nursing, medicine and dentistry, and allied health. The subcommittees were charged to formulate recommendations for addressing health professions education within specific disciplines and report their findings to the Task Force.

The Task Force found that national trends are found in Texas to some degree; however, Texas has greater difficulties given the changing demographics and population growth predicted.

Additionally, to understand the inherent complexities in assessing the need for health professionals, the Task Force members were provided background information on a model developed for the federal Department of Health and Human Services called the Integrated Requirements Model (IRM). This model was developed by Vector Research, Inc., of Ann Arbor, Michigan, to provide assistance in analyzing the possible effects of policy on future need for health-care providers. The model is able to predict future need for health professionals, primarily physicians, based on the following six scenarios:

1. **Status Quo** -- population growth is the only change assumed. Government and private spending are unchanged.

2. **Baseline Insurance Projections** -- Assumes population growth and changes the rates of insurance coverage for the urban and rural populations. This is the most likely scenario according the Department of Health and Human Services.

3. **High Managed Care** -- assumes an increasing percent of people will be enrolled in managed care insurance programs. This may result from new laws requiring managed care for those covered by public insurance or from increased participation in managed care by the privately insured population.

4. **Universal Coverage** -- similar to the high managed care scenario. This plan assumes a government mandate will make insurance coverage, particularly fee-for-service programs available to everyone.

5. **Equal Access Under Universal Care** -- takes the universal coverage scenario a step further by assuming government will be more active in providing access to health care services to underserved populations. This scenario represents significant government intervention in the health market, since establishing services in rural areas for instance is uneconomical for private providers.

6. **High physician assistant nurse practitioner and certified nurse midwife use** -- starting from the baseline insurance projections and incorporating a broad range of possibilities for change, assumes a higher percent of patients attended only by these types of practitioners, rather than the traditional physician with some type of assistant.
The previous information is from *Predicting Health-Care Employment* --
3 Subcommitte on Nursing
Conclusions and recommendations

Nancy Ackley, Director of the Texas Nurses Foundation, was appointed Chair of the Subcommitte on Nursing Education. The subcommitte members included representatives of community colleges, general academic and health-related institutions, and the Texas State Board of Nurse Examiners. The following members served on the subcommitte.

Members of the Subcommitte on Nursing Education

Nancy Ackley, Subcommittee Chair, Director, Texas Nurses Foundation Austin
Janet Allen, Dean, School of Nursing The University of Texas Health Science Center at San Antonio San Antonio
Lillian Bernard, Interim Dean College of Nursing Prairie View A&M University, Houston
Blanca R. Garcia, Chair Department of Nursing Del Mar College, Corpus Christi
Alexia Green, Chair Department of Nursing Lamar University, Beaumont
Charlotte Green, Interim Associate Dean El Centro College, Dallas
Carolyn Gunning, Dean College of Nursing Texas Woman’s University, Denton
Vivian Lilly, Associate Dean of Health Program Coordinator -- Health Sciences Division, Collin County Community College McKinney
Sue McGee, Chair, Nursing Division Amarillo College, Amarillo
Elizabeth Poster, Dean, School of Nursing The University of Texas at Arlington Arlington
Dolores Sands, Dean, School of Nursing The University of Texas at Austin Austin
Katherine Thomas, Executive Director Texas State Board of Nurse Examiners Austin
LeAnn Wagner Associate Degree Nursing Director Victoria
Pat Yoder Wise, Dean, School of Nursing Texas Tech University Health Sciences Center, Lubbock

The Subcommitte on Nursing Education held meetings in Austin and concluded that Texas was confronting a serious shortage of available nurses to meet the state’s needs. Additionally, the subcommitte found that the impending nursing shortage was not just a cyclical circumstance, but that the profession of nursing was facing some fundamental challenges. The subcommitte felt that the educational programs offered in Texas public community colleges, general academic, and health-related institutions could help solve the impending shortage and that strategic educational solution could be helpful to nursing as a profession.

The Texas Nurses Foundation presented recent findings related to the current nursing status in Texas. Additionally, the subcommitte heard presentations about coalitions formed in Dallas and Houston, initiated by the hospitals to forestall and deter the nursing shortage. The
Texas Nurses Foundation also brought in a nationally recognized leader in nursing workforce. Dr. Peter Buerhaus presented an overview of the national nursing shortage to the Task Force during the RAND conference on March 6, 2000.

Data presented to the Nursing Education Subcommittee indicated that Texas lagged in the number of nurses per 100,000 population, compared to the national average, and to achieve the national average of nurses per 100,000 population, Texas would need to employ 40,000 more registered nurses (RNs).

The subcommittee also heard testimony that suggested the demand for Texas RNs would exceed supply in the coming years. Based on a snapshot of data from 1994 to 1998, Texas registered nursing programs had received 37 percent fewer applications to RN programs and enrollment was on the decline as well, down 17 percent. Compounding the nursing shortage is the age of the Texas nurse workforce, which at an average age of 44, is older than the workforce at large.

Based on the data presented, the Subcommittee on Nursing Education found that Texas is facing a nursing shortage and is not educating an adequate number of registered nurses and cannot fill faculty vacancies with adequately prepared faculty.

To combat the nursing shortage and promote nursing education, the Task Force drafted the following recommendations and presented them to full Task Force on March 6, 2000.

Subcommittee on Nursing Education Recommendations

1. Support a moratorium on new nursing education programs until data indicate adequate number of qualified nurse faculty and clinical sites are available in the state.

2. Support increased funding to existing Texas schools of nursing, enabling those schools to:
   a. Increase the recruitment, retention, and graduation of professional nurses;
   b. Increase articulation from the licensed vocational nurse (LVN) to Advanced Degree Nurse (AND) to Bachelor of Science in Nursing (BSN), to Master of Science in Nursing (MSN) to doctoral degrees in nursing;
   c. Increase accessibility to nursing education programs by use of distance learning technologies;
   d. Develop collaborative programs and partnerships; and
   e. Increase faculty salaries to successfully recruit and retain qualified faculty.
3. Support multiple strategies for the recruitment and retention of culturally diverse students and faculty who reflect current and projected demographics. Examples include:

- C Creation of financial incentive plan to foster minority enrollment in nursing education
- C Creation of strategies to recruit into nursing beginning at the elementary and secondary school level
- C Establishment of traineeships for graduate education to recruit qualified minority faculty

4. Support the development of an identified funded entity to be responsible for centralized collection, analysis, and interpretation of nurse workforce data and the establishment of a predictive forecasting model for nurse supply and demand in Texas, so that policy decisions about nursing education are evidence-based.
4 Subcommittee on Medicine and Dentistry
Conclusions and recommendations

Charles Mullins, MD, Vice Chancellor of The University of Texas System, was appointed Chair of the Subcommittee on Medicine and Dentistry. The subcommittee included representatives of the state’s public medical and dental schools, practicing physicians, and Texas Medical Association. The following members served on the subcommittee.

Members of the Subcommittee on Medicine and Dentistry

Charles Mullins, MD, Subcommittee Chair
Vice Chancellor
The University of Texas System, Austin

Dolores Carruth, MD
Coordinating Board Member, Dallas

Maurice Click, MD
Family Physician, Laredo

Diana L. Fite, MD
Emergency Medicine Physician, Waller

Adela Gonzalez
Vice President, University of North Texas Health Science Center at Fort Worth

Roderick McCallum, MD
Vice President
Texas A&M University System Health Science Center, College Station

Clifford Moy, MD
Texas Department of Mental Health and Mental Retardation, Austin

Jay Noren, MD
President
Texas A&M University System Health Science Center, College Station

Patti Patterson, MD
Vice President
Texas Tech University Health Sciences Center, Lubbock

Glen Provost
Vice President
Texas Tech University Health Sciences Center, Lubbock

Ben Raimer, MD
Chair, Statewide Health Coordinating Council
The University of Texas Medical Branch at Galveston, Galveston

Charles Sprague, MD
Executive Director
Southwestern Medical Foundation, Dallas

David Smith, MD
President
Texas Tech University Health Sciences Center, Lubbock

The Subcommittee on Medicine and Dentistry met in Austin on February 3, 2000, and concluded that Texas medical and dental schools were facing severe financial reductions, largely due to decreases in federal financing under Medicare and Medicaid and decreases in revenues resulting from cost containment measures. The subcommittee concluded that while federal financing was outside the purview of their deliberations, the importance of the issue should be noted.

The Texas congressional delegation should be notified of the projected serious financial hardships that health-related institutions will face in the next five to ten years and work to positively change the federal financing that supports the academic health centers.
The subcommittee also found that Texas had an adequate number of public medical schools and that establishing new medical schools would have the unintended consequence of weakening existing academic structures, could jeopardize national accreditation, and would cost the state a significant amount of general revenue. The subcommittee overwhelmingly supported maintaining existing educational structures and felt strongly that adding a new medical school would not be in the best interest of higher education at this time.

Texas does not need a new medical or dental school in the next three to five years.

During the November 16, 1999 meeting, Clifford Moy, MD, an Austin psychiatrist representing Texas Medical Association presented information on the education of physicians and presented TMA’s 1998 physician education workforce data. Dr. Moy also presented the findings of the 1999 TMA survey of graduating medical students and provided national statistical information that suggested a national oversupply of physicians.

Dr. Moy told the Task Force that TMA had contracted with the Center for Health Workforce Studies of the State University of New York at Albany to compare the physician workforce of Texas to that of California and New York. Findings from the study were published in the report The Texas Workforce in Texas: A Comparative Analysis with California and Texas. Texas trained an appropriate number of medical students and that compared to New York and California, Texas was training a good number for the state. The comparative analysis showed that while Texas trained fewer medical students than California or New York, Texas exceeded those states in training medical students at public medical schools. In fact, Texas trained 2,000 more medical students in public institutions than did New York.

Much of the Task Force deliberation focused on the education of medical students and whether or not the state is currently enrolling and graduating an appropriate number of medical students. As depicted in Chart 1 and Table 1, enrollment in Texas medical schools has remained relatively flat for the last five-year period.
Additionally, the subcommittee concluded that nationally while applications to medical schools have decreased over the last few years, this could likely be attributed to the overall good health of the national economy.
The following themes and descriptions were provided to the subcommittee prior to their February 3, 2000 meeting. The subcommittee developed recommendations using the following themes as guidelines.

Participation -- providing the broadest array of students access to medical and dental education. This may include recommending ways to ensure that future medical and dental students receive quality secondary and undergraduate educations, which would adequately prepare them to enter medical or dental school. Participation may also include outreach programs to encourage students with diverse backgrounds to obtain a medical or dental education. Diverse backgrounds may include regional and geographic differences and first-generation college graduates.

Success -- ensuring that students who enter Texas medical and dental schools graduate, complete their medical training, and enter the health care profession with the technical and critical thinking skills required to deliver quality patient care. Success also includes encouraging students to remain in Texas to practice following their medical or dental training.

Workforce -- preparing and educating an appropriate and adequately-trained number of physicians and dentists. The Texas population will increase significantly in the next decade and ensuring that the state has enough physicians, appropriately distributed through-out the state, will become increasingly challenging.

Technology -- delivering high quality training opportunities for medical and dental students is essential. Advancements in high technology/telemedicine will continue to provide medical and dental students with greater access to patients in rural communities. Ensuring that medical and dental students have access, understanding, and appropriate training to utilize advances in technology will translate into better health care delivery for all Texans.

The subcommittee developed the following recommendations based on these areas.

Subcommittee on Medicine and Dentistry Recommendations

Participation

1. Seek additional state funding for programs from Kindergarten through undergraduate school to adequately prepare students for medical and dental schools.

2. Coordinate outreach programs for students interested in applying to medical and dental schools.

3. Coordinating Board should establish a formal competitive recognition process to identify the most successful medical and dental outreach programs and provide an opportunity for the outreach programs to be showcased at a regular meeting of the Board.

4. Coordinating Board should establish a recognition process to identify the efforts of the undergraduate health professions advising offices and provide an opportunity for the offices to convey their best practices to the Board.

5. Seek funds for scholarships for economically disadvantaged students.
6. Seek data to understand the flow of students from Texas who pursue medical education outside the U.S. (often because they were not admitted to a U.S. medical school), and who return to Texas for medical residency training and practice in Texas.

Success

1. Graduation rates of medical and dental schools are acceptable, but could be improved, the institutions should continue their efforts to provide mentoring and tutorial systems for their students.

Workforce

1. Seek increased federal and state funding of additional residency positions in all medical specialties for Texas medical school graduates.

2. Seek enhanced funding for faculty for graduate medical education.

3. Encourage cultural competencies in medical and dental education.

4. Encourage expansion and funding for combined medical and dental/PhD programs to provide an adequate workforce for research expansion.

5. Seeks funds for fellowship support for biotechnology and clinical research training.

6. Expand technology training programs in undergraduate schools.

Technology

1. TIF funds should be available to provide rural physicians access to consultative services via telehealth technology, to promote the use of telemedicine in rural and remote areas, and to provide cost breaks for telehealth technology and telemedicine for excessive line charges currently in place.

2. Encourage telemedicine reimbursement for patient care services.

3. Expand continuing education programs in all health professions disciplines.

4. Encourage graduate medical education for specific areas related to burns, trauma, and critical care.
5 Subcommittee on Allied Health
Conclusions and recommendations

Marilyn Harrington, Dean of Allied Health Sciences, was appointed Chair of the Subcommittee on Allied Health Education. As part of her work on the subcommittee, Dr. Harrington co-authored with Dr. Richard Rettig of the RAND corporation, a primer on Allied Health. The primer served as tool to begin to understand the complex, overlapping, and at times, conflicting allied health professions. The primer is included as Appendix D.

The subcommittee members included representatives of community colleges, general academic and health-related institutions. The following members served on the subcommittee.

Members of the Subcommittee on Allied Health

Marilyn S. Harrington, Chair
Dean of Allied Health Sciences
UT Health Science Center at San Antonio
San Antonio

Lanier Byrd, Vice President of Academic Affairs, St. Philip's College
San Antonio

Sylvia Ramos, President
Southeast College
Houston Community College System
Houston

Cecile Sanders, Dean of Health Sciences
Austin Community College, Austin

Sondra Fleming, Dean
Dallas County Community College District
Dallas

Paula Mitchell, Dean
El Paso Community College District
El Paso

Gordon Green, Dean, School of Allied Health Sciences, UT Southwestern Medical Center Dallas

Paul Brooke, Dean, School of Allied Health Texas Tech University Health Sciences Center, Lubbock

Juan Mejia, Assistant to the Vice President
South Texas Community College, McAllen

Lou Kuck, Dean
School of Health and Natural Science
Tyler Junior College, Tyler

Marilyn Morris, Victoria College
Victoria

Marilyn Childers, UTMB Galveston
Galveston

Rumaldo Juarez, Dean
School of Health Professions
Southwest Texas State University
San Marcos

The Subcommittee on Allied Health surveyed the community colleges, general academic, and health-related institutions to determine the issues of importance in allied health education. Using the results of the survey, the subcommittee developed recommendations and presented them to the Task Force. The subcommittee developed their recommendations with a focus on participation and success, workforce, and technology.
Subcommittee on Allied Health Recommendations

Participation and Success

1. Create incentives for institutions of higher education to form partnerships in the delivery of allied health education programs to improve student participation across the state. Examples of desired partnerships include the following:
   • improved articulation of courses from the community colleges to the universities and health science centers
   • sharing of resources including funding, faculty, and clinical sites
   • interdisciplinary programs
   • urban - rural collaborative efforts
   • public - private collaborative efforts
   • the provision of distance learning programs

2. Review the impact of formula funding policies that hinder the development and implementation of programs with respect to the following:
   • biennial funding lag
   • programs with small enrollments that are, nevertheless, important to society in their respective communities
   • cost of distance learning programs
   • cost of telemedicine technologies

3. Develop linkages from kindergarten through graduate and professional education with multiple exit points. Implied in this strategy are the following:
   • well-planned career paths to provide upward mobility
   • seamless articulation at all educational levels

4. Encourage allied health education programs to actively work toward development of faculty and student bodies reflective of the diverse population of Texas.

5. Review the barriers that limit participation in distance education programs, and encourage innovative strategies to overcome those barriers. Review the use of distance learning funding to be sure the funding benefits students.

6. Develop incentives and appropriate linkages to encourage graduates to become allied health faculty. Included in this are the following:
   • well-planned career paths that provide upward mobility
   • seamless articulation between different levels of education
   • encouragement of health professions students to pursue graduate work

Workforce

1. Provide timely response to the changing needs of industry. Examples of strategies include:
   • Continue to simplify and shorten the Coordinating Board approval process for instructional programs.
   • Encourage institutions of higher education to similarly review their approval procedures and improve response times to better meet the needs of industry in the state.
   • Provide flexible procedures to facilitate the development and implementation of new and changing allied health programs.
2. Refine the process for the collection, aggregation, and dissemination of data regarding allied health students and graduates. Examples of strategies would include:
   • improvement and refinement of the data collected and analyzed by the Coordinating Board
   • broader participation in data sharing with other state agencies

3. Encourage institutions of higher education to develop plans to actively market allied health education.

Technology

1. Encourage partnerships for the provision of programs by distance learning.

2. Review the impact of formula funding on distance learning and on the use of telemedicine technology in educational programs.

3. Provide incentives for allied health faculty to participate in discipline related or educational research.
Appendix

A  Persons providing testimony to the Task Force

The following persons provided testimony to the Task Force:

• Ms. Nancy Ackley, Texas Nurses Foundation
• Dr. Suzanne Adair, Texas Department of Health, Statewide Health Coordinating Council
• Dr. Carol Aschenbrenner, national consultant, physician workforce
• Dr. Peter Buerhaus, Harvard School of Public Health, nursing workforce
• Ms. Marcia Collins, Texas Medical Association, Division of Medical Education Studies
• Dr. John Crossley, Texas Medical Center, Houston
• Dr. Marilyn Harrington, The University of Texas Health Science Center at San Antonio
• Dr. Marshall Hill, Texas Higher Education Coordinating Board
• Dr. Julie Leidig, Texas Higher Education Coordinating Board
• Mr. Budge Mabry, The University of Texas System Office
• Dr. Clifford Moy, Texas Medical Association
• Dr. Ben Raimer, Texas Statewide Health Coordinating Council
• Dr. Richard Rettig, CAE, Inc. of the RAND Corporation
Appendix

B  Agendas

TEXAS HIGHER EDUCATION COORDINATING BOARD
TASK FORCE ON HEALTH PROFESSIONS EDUCATION

Tuesday, November 16, 1999
9:00 am – 1:00 pm

7745 Chevy Chase Drive
Building Four, Room 4.100
Austin, Texas 78752

AGENDA

I. Call to Order and Welcome
   Charles Sprague, MD, Chair

II. Charge to the Committee
    Dolores Carruth, MD, Vice Chair

III. Texas State Health Plan
     Texas Department of Health
     Statewide Health Coordinating Council
     Suzanne Adair, PhD

IV. Study of Texas Nurses Supply
    Texas Nurses Foundation
    Nancy Ackley, MSN

V. Texas Physician Workforce
   Texas Medical Association
   Clifford Moy, MD
   Marcia Collins

VI. Discussion of Future Meetings and Possible Dates

VII. Other Business

VIII. Adjournment
AGENDA

10:00 am       I. Welcome and Introductions
Charles Sprague, M.D.

10:15 am - 11:00 am       II. Update on Rand Corporation Study
Dick Rettig

11:10 am -- 1:30 pm                 III. Subcommittees Convene
Working Session and Lunch

C Medicine/Dentistry
Charles Mullins, M.D.

C Nursing
Nancy Ackley

C Allied Health
Marilyn Harrington

C Distance Learning
Glen Provost and Patti Patterson

1:40 pm -- 2:15 pm    IV. Reports on Working Session
Subcommittee Chairs

2:15 pm -- 2:45 pm     V. Discussion of Task Force Recommendations

2:45 pm -- 3:00 pm   VI. Other Business

3:00 pm    VII. Adjournment

LOOKING TO THE FUTURE:
HEALTH PROFESSIONS EDUCATION IN TEXAS
THE NEXT DECADE – OR TWO

CONFERENCE AGENDA

Monday, March 6, 2000

Texas Higher Education Coordinating Board
7700 Chevy Chase Drive
Building 1, Room 100
Austin, Texas

9:30 am Coffee

9:50 am WELCOME Richard A. Rettig, PhD

10:00 am – 12 Noon NURSING EDUCATION
Moderator Nancy L. Ackley, MTS, MRC, RN
Speaker Peter Buerhaus, PhD
Commentators John Crossly PhD, RN
Carolyn Gunning, PhD, RN
Paula Mitchell EdD, RN,

12 Noon – 1:00 pm LUNCH

1:00 pm – 3:00 pm MEDICAL EDUCATION
Moderator Charles B. Mullins, MD
Speaker Carol Aschenbrenner, MD
Commentators Patti Patterson, MD
Clifford Moy, MD

3:00 pm – 3:15 pm BREAK

3:15 pm – 5:00 pm THE COMPLEMENTARY PROFESSIONS: ALLIED HEALTH
Moderator Marilyn Harrington, PhD
Commentators Cecile M. Sanders, MEd, MT
Marshall Hill, PhD
Julie Leidig, PhD

5:00 pm ADJOURNMENT
Appendix

C  References

Reports:


Web Sites:

Association of American Medical Colleges  www.aamc.org
American Medical Association  www.ama-assn.org
Texas Medical Association  www.texmed.org
Texas Department of Health  www.tdh.state.tx.us
National Governor’s Association  www.nga.org
National Occupational Information Coordinating Committee  www.noicc.gov
Texas Healthcare and Biosciences Institute  www.thbi.org
Texas State Occupational Information Coordinating Council  www.soicc.state.tx.us
Predicting Health-care Employment  www.demographics.com
Appendix

Allied Health Professions Education: A Primer
By Marilyn S. Harrington and Richard A. Rettig

This (very basic) primer has been prepared for several reasons. It seeks to describe the allied health professions and their education for an audience outside this field. It aspires to raising policy issues through this description, both for those within allied health, in health education, and in health policy in general.

Definitions

The “definition” of allied health has evolved over a lengthy and complex history and reflects more than anything else the changing nature of health care in recent decades. The term “allied health” was apparently first used by staff of the Department of Health, Education and Welfare in the development of The Allied Health Professions Training Act of 1966.

The most recent definition of allied health is found in the Health Professions Education Amendments of 1992. It is worth quoting in full as it illustrates the definitional complexity of the term.

Section 799, E. “(5) The term ‘allied health professionals’ means a health professional "(A) who has received a certificate, an associate's degree, a bachelor's degree, a master's degree, a doctoral degree, or postbaccalaureate training, in a science relating to health care; "(B) who shares in the responsibility for the delivery of health care services or related services, including -- "(i) services relating to the identification, evaluation, and prevention of disease and disorders; "(ii) dietary and nutrition services; "(iii) health promotion services; "(iv) rehabilitation services; or "(v) health systems management services; and "(C) who has not received a degree of doctor of medicine, a degree of doctor of osteopathy, a degree of doctor of dentistry or an equivalent degree, a degree of doctor of veterinary medicine or an equivalent degree, a degree of doctor of optometry or an equivalent degree, a degree of doctor of podiatric medicine or an equivalent degree, a degree of bachelor of science in pharmacy or an equivalent degree, a degree of doctor of pharmacy or an equivalent degree, a graduate degree in public health or an equivalent degree, a degree of doctor of chiropractic or an equivalent degree, a graduate degree in health administration or an equivalent degree, a doctoral degree in clinical psychology or an equivalent degree, or a degree in social work or an equivalent degree."

Often, as the above language indicates, allied health is defined by what it is not. It is not medicine, dentistry, nursing, osteopathy, optometry, pharmacy, podiatry or veterinary medicine.

General

• Collectively, allied health professions are over 3 million people strong and comprise more than 60 percent of the entire health care work force. A rough calculation, based on the ratio of the population of Texas to that of the United States, yields an estimate of 279,000 allied health professionals in Texas.

• There are 200 distinct disciplinary groups in allied health making it the most complex group of health professions.

• However, a 1988 Institute of Medicine study on allied health, Allied Health Services: Avoiding Crises, chose ten of the largest, most well-know of these professions:
  • Clinical laboratory sciences
  • Dental hygiene
  • Dietetics
• Emergency medical personnel
• Medical records administration [now known as Health Information Management]
• Occupational therapy
• Physical therapy
• Radiologic technology
• Respiratory therapy
• Speech-language pathology/audiology

In Texas, using the same criteria as the IOM, the ten largest and most well-known allied health professions in 1998 were:
• Clinical Laboratory Scientists
• Radiologic Technology
• Emergency Medical Technology
• Physical Therapy
• Dental Hygiene
• Speech-Language Pathology and Audiology
• Respiratory Therapy
• Medical Records Technology
• Physician Assistants
• Occupational Therapy

The drivers of change in allied health

Three major factors are driving change in the workplace of allied health -- cost containment, technological change in health and medicine, and the need to address quality in health care. These drivers directly affect the demand for allied health professionals and indirectly impinge on the educational programs and institutions that train such individuals.

Cost containment has often been discussed in recent years as a primary characteristic of managed care. But it also characterizes state government actions to limit state Medicaid obligations, Congressional efforts to constrain the growth of Medicare as embodied in the Balanced Budget Amendments of 1997 (and amending legislation adopted in 1999), and private employer efforts to hold down health insurance premium costs or to abandon health insurance for employees entirely. Cost containment is a permanent feature of the health care landscape.

Concurrently, new technology continues to reshape medicine and health. Medical devices and equipment influence the work of allied health professions perhaps more strongly than new pharmaceuticals influence the practice of medicine. For example, the technologies of imaging the body – ultrasound, computed tomography, magnetic resonance imaging – have undergone continuous technical change over two full decades, reshaping the demands for skilled technicians.

The effect of cost containment and technical change on the allied health workforce has been and continues to be profound. Employers of allied health professionals, necessarily, are engaged in a continuous search for lower paid professionals, adequately trained and reasonably competent, on whom they can place increasing responsibility. Educating and training qualified personnel to meet these market demands is a challenging task.

Finally, the recent Institute of Medicine report titled To Error Is Human, has highlighted concerns about health professions practice and education. A complete review of how we teach our health care professionals is warranted and overdue. A new and invigorated look at how we teach and practice quality health care is now on the nation’s agenda.
**Allied Health Education**

There is no common educational level that best describes allied health’s formal preparation.
- Graduates receive degrees for associate, baccalaureate, masters and doctoral degree programs.
- Graduates also receive certificates for completion of short courses of study.
- Some allied health professions have career ladders for their students and graduates, others do not.
- Some professions have various exit points as students progress through career stages.

In 1998, among 12 of the most well known allied health professions, there were approximately 5,833 allied health programs in the United States with an enrollment of 140,000 students and 56,000 graduates per year. Four-year colleges and universities and community colleges produce almost 70% of all allied health professionals.

For Texas in 1997-98, there were 13,648 allied health students enrolled, and 7,209 graduates from 358 programs (representing 42 professions).

Allied health education programs are offered in many types of educational institutions, including high schools, vocational/technical schools, community colleges, four year colleges and universities, hospitals, academic health centers.

**Accredited Programs by Type of Sponsoring Institution, 1997-98**

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>Institutions</th>
<th>Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Academic Health Center</td>
<td>102</td>
<td>3.6</td>
</tr>
<tr>
<td>Community College</td>
<td>644</td>
<td>23.0</td>
</tr>
<tr>
<td>Hospital:100-299 beds</td>
<td>231</td>
<td>8.2</td>
</tr>
<tr>
<td>Hospital:300-499 beds</td>
<td>297</td>
<td>10.6</td>
</tr>
<tr>
<td>Hospital:500 or more beds</td>
<td>231</td>
<td>8.2</td>
</tr>
<tr>
<td>4-year College or Univ</td>
<td>673</td>
<td>24</td>
</tr>
<tr>
<td>Vocational/Technical</td>
<td>379</td>
<td>13.5</td>
</tr>
<tr>
<td>Other</td>
<td>247</td>
<td>8.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,804</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Change in Accredited Programs by Selected Occupation, 1985 – 1998**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>No. in 1985</th>
<th>No. in 1998</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLS/Med Tech</td>
<td>584</td>
<td>288</td>
<td>-50%</td>
</tr>
<tr>
<td>EMT/Paramedic</td>
<td>20</td>
<td>109</td>
<td>+445%</td>
</tr>
<tr>
<td>Health Info Tech</td>
<td>85</td>
<td>168</td>
<td>+98%</td>
</tr>
<tr>
<td>Medical Assistant</td>
<td>168</td>
<td>392</td>
<td>+133%</td>
</tr>
<tr>
<td>Nuclear Med Tech</td>
<td>141</td>
<td>95</td>
<td>-33%</td>
</tr>
<tr>
<td>Occupational Ther</td>
<td>61</td>
<td>121</td>
<td>+98%</td>
</tr>
<tr>
<td>OTA</td>
<td>60</td>
<td>157</td>
<td>+162%</td>
</tr>
<tr>
<td>Physician Assist.</td>
<td>52</td>
<td>109</td>
<td>+110%</td>
</tr>
<tr>
<td>Radiation Ther</td>
<td>101</td>
<td>84</td>
<td>-20%</td>
</tr>
<tr>
<td>Respiratory Ther</td>
<td>232</td>
<td>308</td>
<td>+33%</td>
</tr>
<tr>
<td><strong>Total all programs</strong></td>
<td><strong>4,326</strong></td>
<td><strong>5,833</strong></td>
<td><strong>+35%</strong></td>
</tr>
</tbody>
</table>

Almost all allied health professions are dependent on the health care industry for clinical sites to educate and prepare clinicians. The entire portion of clinical education usually takes place in
hospitals, clinics, doctor’s offices, nursing homes, etc that are under affiliation agreements with the educational institution. The clinical agencies do not receive payment for this service.

Allied health education programs have limited flexibility in meeting educational needs of the health care industry due to requirements of universities, their governing boards, The Coordinating Board, accrediting agencies, state licensing agencies and the state legislature.

- For example, during last year’s legislative session, the state legislature adopted a new regulation regarding bloodborne pathogen exposure control plan. The new policy requires the use of “engineered sharps injury protection,” which is an important issue for health care providers. The policy requires yet another compliance measure, the purchase of new equipment and supplies for materials for which little research evidence available, and imposition on our private clinical partners for adherence to this policy that is aimed at “government” agencies. There, of course, is not budgetary support for this new regulation.

- In order to add a new program or make a significant change in the curriculum of an existing program, the process begins in the department and school, goes to the university for approval by those most unfamiliar with allied health, sent to the registrar’s office for inspection, on to the Board of Regents, and then the Coordinating Board. This is, of course, after a need’s assessment has been completed and other colleges and universities in the region have been contacted and their support obtained. One may not implement a new program under a minimum of one year. An accreditation site visit from the specialized accrediting body may also be required. Then, implementation depends on the ability of the program head or dean to creatively fund a new program for at least three years without any state funding - a miracle in today’s health care environment. Jealousy forms when one thinks of the speed in which private universities can implement new programs.

- Scope of practice issues directly affect the curricula of allied health programs. For example, dental hygiene students and practitioners may not perform dental hygiene functions for which they are educated and licensed to provide without the supervision of a dentist. We have dental hygiene students who need experience in community-based settings and in placing pit and fissure sealants. In order to take a mobile van to an inner city elementary school to provide those preventive services, a dentist must be along in the van. There is the difficulty – finding a dentist who will give time away from his/her practice to serve in such capacity.

- Similar to higher education in general, there is an increase in the number of distance learning programs offered by allied health education programs. In Texas, there are issues of previously defined “service areas” and “state lines” and approval of other colleges and universities in the geographical region which have to be addressed before a distance education program can be in place. In some states, it is easier for a proprietary institution or another state university to offer programs within the state than it is for a university within the state. At the recent National Governors’ Association, the President of Washington State University said “It’s easier for me to offer a distance-education program in one of your states than in mine.” Distance education increases access to allied health education to the “geographically challenged” student while at the same time intensifies the competition among institutions for students in a formula/enrollment driven environment. Distance education and the virtual university are good things for many people and should be exploited in allied health education. We need policies that get quality information to students in all areas of Texas. We don’t necessarily need duplicative educational programs and buildings. Perhaps Texas needs to concentrate on the quality of those distance education and web-based offerings.

- The growth of proprietary schools is reshaping the postsecondary educational landscape, including that of allied health. Proprietary schools have greater flexibility in changing curricula, educate in a shorter amount of time, better meet the needs of the student customer, can meet the needs of the health care industry faster.
Historically, many allied health professionals have had to earn doctorates in a related field, such as education, administration or a basic science, and not their allied health field, primarily because there are very few programs at the doctoral level.

Programs at the master’s level are either entry or advanced study beyond the entry-level credential with emphasis in such areas as research and clinical expertise.

There has been a “degree creep” in allied health. With the explosion of knowledge, diverse practice acts, and exploding new technology, programs of study increasingly include requirements for higher level degrees. In some cases, the increased requirements are definitely needed, in other professions, it may be questionable.

Allied health faculty and research needs

There is a serious need for qualified faculty in allied health education. Faculty members are aging and few professionals are seeking education as a career choice.

There is a serious need for allied health professionals who can provide new scholarship and research in the allied health professions. There is a serious need for clinical researchers and researchers looking at clinical care outcomes.

The allied health “regulatory” world

There are different specialized accrediting bodies that evaluate allied health programs. One of them, the Commission on Accreditation of Allied Health Education Programs, is an umbrella agency that is responsible for 18 different professions affecting 2,000 programs at 1,100 institutions. The seventeen accrediting agencies in allied health are:

- Accreditation Council for Occupational Therapy Education
- American Art Therapy Association
- American Board of Genetic Counseling
- American Orthoptic Council
- Commission on Accreditation of Allied Health Education Programs
- Commission on Accreditation/Approval for Dietetics Education of the American Dietetic Association
- Commission on Dental Accreditation of the American Dental Association
- Commission on Academic Accreditation in Audiology and Speech-Language Pathology
- Commission on Accreditation in Physical Therapy Education
- Commission on Opticianry Accreditation
- Council for Accreditation of Counseling and Related Educational Programs
- Council on Accreditation of the National Recreation and Park Association
- Council on Rehabilitation Education
- Joint Review Committee on Education in Radiologic Technology
- Joint Review Committee on Educational Programs in Nuclear Medicine Technology
- National Accrediting Agency for Clinical Laboratory Sciences
- National Association for Schools of Music

Educational programs have extremely limited flexibility in responding to changing market conditions due to the specific educational and curriculum requirements placed on them by accreditation agencies, university bureaucracies, and The Coordinating Board.

Not all allied health professions require licensure for practice. Laws vary by state.
• State practice acts and scope of practice may vary by state. The dental hygiene practice act was used as an example previously.

• Most allied health professions require successful completion of a national examination.

• Level of supervision by a physician, dentist, or other professional varies by state.

• Reciprocity to gain licensure from state to state is not always available.

**The allied health marketplace**

• The employers of allied health professionals include: hospitals, clinics, laboratories, private offices and emergency medical systems.

• Although allied health represents 60% of the health care workforce, very few federal dollars are targeted for allied health.

• Some allied health professionals are providing greater access to primary health care, such as the Physician Assistant, while others are employed in hospitals, clinics, home health agencies, long-term care facilities, schools, government agencies, military, etc.

• Allied health professionals are increasingly accepting broader responsibilities in the workplace. Flexible career linkages across disciplines (multidisciplinary) are being designed and used in many patient care arenas.

• Changes in reimbursement and Medicare policies have had a severe, negative impact on most allied health professions, especially speech, occupational and physical therapy.

• In efforts to contain costs, lower trained personnel at lower salaries are often replacing some allied health professionals. For example, Physical Therapist Assistants are replacing Physical Therapists; Medical Laboratory Technicians are replacing the Clinical Laboratory Scientists, and Respiratory Therapists being replaced by Nurse’s Aides.

**Health Care Professions Error Management and Quality Improvement**

• Public attention has been directed to the IOM study indicating the number of errors made by physicians and others in the health care industry.

• In order to address error management and quality improvement in health care, a team approach needs to be taken and efforts not be limited to physicians only. The entire health care team creates a “chain” of events that can lead to human error or a “chain” of professionals who can prevent error and improve the quality of care. Examples are below:

• The Specialist in Blood Bank or the Clinical Laboratory Scientist (allied health professionals) cross matches, determine safety and compatibility of blood for transfusion on the order of the physician. The blood is typed and labeled by the Blood Bank Specialist and secured by a nurse or another health care professional to deliver to the bedside. By far, the majority of errors occurring in this chain of events are clerical.

• In a study at UTHSCSA to determine the value of laboratory tests to diagnose hypercoagulability (the tendency to make blood clots) it was found that one-third of the tests were ordered by the physician at the wrong time and the physician did not order the appropriate test in 88% of these cases. In 25% of the cases where a patient had a deficiency was there documentation made in the record. It is suggested that physicians consult with Clinical Laboratory Scientists on which
tests to use and when they should be administered. With the rapid development of new knowledge and new tests, it is impossible for the physician to be aware of all the new changes. Health care providers should work in teams and use the expertise of those involved.

- There is research indicating that the allied health professional can significantly improve the quality of patient care while reducing the cost of patient care both to the patient and to the payer. Examples include:
  - A study of data from the Health Care Financing and Administration (HCFA) show that Medicare beneficiaries who were treated by a Respiratory Therapist (RT) during their initial stay in a Skilled Nursing Facility had a 42% lower mortality rate at their next encounter with the Medicare system than a similar group of beneficiaries who received respiratory care from non-RT providers. The study indicated that RTs saved Medicare approximately $98 million in 1996. HCFA data point to shortened length of stay by 3.6 days when Medicare patients received respiratory care by RTs.
  - Results of a six-year case study in a nursing home in Georgia reported that after the introduction of the physician assistant, the number of annual hospital admissions fell by 38% and the total number of hospital days per 1000 patient years fell by 68.6% (from 4,170 in 1992 to 1,310 in 1997). The number of nursing home visits increased by 62%. Annual Medicare-allowed charges for MD and PA services increased by $22,304, but was more than offset by a decline in hospital DRG reimbursements of $96,043. The conclusion of the study was that introduction of regular visits to nursing home patients by a physician assistant can reduce hospitalization and medical costs of the frail elderly.
  - Data from a Pediatric In-Home Asthma Disease Management Program at UTHSCSA resulted in significant reductions in school days missed, number and cost of physician office visits, emergency department visits, hospitalizations and Health Care Utilization Index.
  - Another study at published by UTHSCSA found that baccalaureate degree respiratory therapy students are better prepared to identify and recommend appropriate treatment of lethal arrhythmias encountered in the clinical setting when compared with baccalaureate degree nursing students.
  - In a study to determine the appropriateness of basic respiratory care delivered at a 450 bed VA hospital during a three-month time interval, it was found that, on average, 25% of basic procedures ordered were not indicated and about 12% of patients reviewed were not receiving care that was indicated. Inappropriate utilization of respiratory care services may increase costs and produce undesirable outcomes in terms of morbidity, mortality and length of stay.
  - In a study entitled “Effectiveness of Manual Therapy and Exercise of Osteoarthritis of the Knee,” published in *Annals of Internal Medicine*, researchers at Brooke Army Medical Center found that a combination of manual physical therapy and supervised exercise by physical therapists is more effective than no treatment in improving walking distance and decreasing pain, dysfunction, and stiffness in patients with osteoarthritis of the knee. Such treatment may also defer or decrease the need for surgical intervention.
References


Harris, Mary Jane, Executive Director, Commission on Accreditation for Physical Therapy Education. Alexandria, VA. Phone 703-706-8563. Personal communication, March 1, 2000.

Health Professions Education Directory 1999-2000. American Medical Association. Previous annual editions were titled Allied Health and Rehabilitation Professions Education Directory or the Allied Health Education Directory.


76th Legislature, State of Texas, Article 26 of House Bill 2085, Bloodborne Pathogen Control, Section 81.305-Needleless Systems.