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An Assessment of the Characteristics and Attrition Rates of Physical Therapist Assistant Educational Programs

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AN ASSESSMENT OF THE CHARACTERISTICS AND ATTRITION RATES OF PHYSICAL THERAPIST ASSISTANT EDUCATIONAL PROGRAMS

by

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ABSTRACT

AN ASSESSMENT OF THE CHARACTERISTICS
AND ATTRITION RATES OF PHYSICAL
THERAPIST ASSISTANT EDUCATIONAL PROGRAMS

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The purpose of this study was to determine the student attrition rate in physical therapist assistant programs accredited by the American Physical Therapy Association (APTA) at the time of the study and to identify factors which may affect student attrition. The survey instrument was designed to gather data on student attrition rates for the classes which graduated in 1984, 1985, and 1986 and on program characteristics such as admission policies and curricular requirements. The mean student attrition rates were 32%, 28.6%, and 26.4% in 1984, 1985 and 1986, respectively. There were no significant differences identified via Chi Square ($p<.05$) between the student attrition rate and the program characteristics evaluated. An unexpected finding of this study was the diversity between programs identified in characteristics such as admissions policies and procedures and curricular requirements.

I wish to thank my family and friends for their encouragement and support during my travels down the long road which led to this production. Also, I would like to thank Greg Frazer for his patience and tenacity during these sometimes troubled but, overall, challenging and rewarding times. I guess I finally have made it.

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Chapter 1

Introduction

Members of the physical therapy profession, both physical therapists and physical therapist assistants, are subject to a high degree of physical and emotional stress as they attempt to rehabilitate individuals with physical disabilities. The demands of the profession have increased dramatically with the advent of more sophisticated treatment techniques and the rapidly increasing knowledge base required to effectively perform physical therapy treatments. Physical therapy educational programs must prepare their students for all aspects of patient care. Physical therapists and physical therapist assistants must not only be able to perform the treatment procedures appropriately, they must also be proficient in developing professional-patient relationships and in written, verbal, and non-verbal communication. Physical therapy practitioners must also keep informed of changing trends in health care and monitoring systems, such as quality assurance and utilization review, employed in the various types of health care facilities in which they may be employed. Students in physical therapy educational programs in the 1980's, therefore, have a significantly larger

amount of knowledge to absorb in a relatively short amount of time in order to prepare for practicing physical therapy. The intensity of the programs and the expectations placed on students have the potential to lead to a high rate of student attrition. This is especially true of the physical therapist assistant educational programs which are typically housed in two-year community colleges (American Physical Therapy Association [APTA], 1983), which attract a higher percentage of non-traditional students than four-year institutions.

During the 1960's training programs were developed for new types of health care personnel in an attempt to decrease the shortage of health care personnel. These new training programs were housed in educational settings which offered technical and vocational education at both secondary and post-secondary educational institutions. In response to this trend the APTA developed competencies for a technical health care worker who could assist the physical therapist in providing physical therapy services - the physical therapist assistant. Standards for the education at the associate-degree level of physical therapist assistants were developed by the APTA and the first physical therapist assistant educational programs began in 1969.

The purpose of this study is to determine the student attrition rate in accredited physical therapist assistant

programs in the United States and to identify factors which may affect student attrition. This study will primarily be concerned with physical therapist assistant program characteristics which impact on attrition rather than the student's personal circumstances which may cause the student to drop out of a physical therapist assistant program.

Assumptions

The following assumptions were identified in this study:

1) Program directors had access to the information requested on the survey.
2) Program directors responded honestly to the items on the survey.
3) Survey instrument measured relevant curricular issues and student attrition.
4) Responses on completed surveys were accurate.
5) Surveys which were completed by program directors and returned were received by researcher.
6) Program directors were able to interpret survey questions as intended by researcher.

Limitations

The following limitations were identified in this study:

1) Only 71 APTA accredited physical therapist assistant

programs existed at the time of the study.

2) Information maintenance and retrieval systems varied among programs.

3) No director was present in some accredited physical therapist assistant programs.

Delimitations

The following delimitations were identified in this study:

1) Program directors were only given one month to complete and return survey.

2) Survey tool was designed with primarily closed-ended items to facilitate data analysis.

3) Program characteristics versus student circumstances was the emphasis of study.

Definitions

The following definitions are provided to clarify terminology used in this report:

Accreditation is the process of evaluation according to accepted criteria or standards (Morris, 1981).

Attrition is a gradual decrease in number or strength due to constant stress (Morris, 1981).

Cardiovascular pertains to the heart and blood vessels (Miller & Keane, 1983).

Community college is an educational institution accredited

to award the associate in arts or science as its highest degree (Cohen & Brawer, 1982).

Electrotherapy is the treatment of disease through the use of electricity (Miller & Keane, 1983).

Hydrotherapy is the scientific application of water in the treatment of disease (Miller & Keane, 1983).

Joint mobility is the quantity of movement available at an articulation between two bones (Miller & Keane, 1983).

Kinesiology is the study of human movement (Miller & Keane, 1983).

Mechanotherapy is the use of a mechanical apparatus in the treatment of disease or its results, for example in conjunction with therapeutic exercise (Miller & Keane, 1983).

Musculoskeletal pertains to the muscles, structures within the body which have the power to contract and therefore produce movement, and to the skeleton, the body's framework of bones (Miller & Keane, 1983).

Neuromuscular pertains to the nerves, structures which convey impulses between the central nervous system (brain and spinal cord) and other parts of the body, and muscles (Miller & Keane, 1983).

Physical therapist is a practitioner of physical therapy who is skilled in physical and therapeutic techniques such as exercise, instruction in functional activities,

electrical stimulation, massage, and the application of heat and cold. A physical therapist must be licensed to practice in all 50 states, the District of Columbia and the Commonwealth of Puerto Rico. To become licensed a physical therapist must be a graduate of an accredited physical therapy program at the baccalaureate level or post-baccalaureate level (master's degree or post-baccalaureate certificate) and pass a state licensure examination (APTA, 1989).

Physical therapist assistant is a graduate of an accredited two-year associate degree physical therapist assistant program who may practice physical therapy under the supervision of a licensed physical therapist (APTA, 1989).

Physical therapy is defined by the APTA as the examination, treatment, and instruction of persons in order to detect, assess, prevent, correct, alleviate, and limit physical disability, movement dysfunction, bodily malfunction, and pain from injury and disease (APTA, 1989).

Rehabilitation is the process of restoring a person's ability to live and work as normally as possible after a disabling injury or illness (Miller & Keane, 1983).

Respiratory pertains to respiration, the act of breathing (Miller & Keane, 1983).

Therapeutic exercise is the scientific use of bodily

movement to restore normal function in diseased or injured tissues or to maintain a state of well-being (Miller & Keane, 1983).

Chapter 2

Review of Literature

The Birth and Growth of the Physical Therapy Profession

Although physical therapy had been a recognized discipline in Europe for some time, it was not until 1917 and the beginning of World War I that the need for rehabilitation of the physically disabled was recognized in the United States. The field of physical therapy originally was established in 1917 by the Office of the Surgeon General of the United States Army as part of the Division of Special Hospitals and Physical Reconstruction (APTA, 1979a). The first physical therapists were reconstruction aides in physical therapy who were trained in physical therapy techniques, primarily massage, electrotherapy, hydrotherapy, and corrective exercise, to treat the war-injured servicemen of World War I (APTA, 1979a).

In 1918, Mary McMillan, a British-trained therapist, was assigned to the reconstruction aide program by the Surgeon General. Later in 1918, Miss McMillan became the Head Reconstruction Aide and helped to organize short-term emergency training programs for reconstruction aides to meet the demand created by the war. Prior to World War I,

there were no schools of or courses in physical therapy. During the war, 14 educational institutions established short-term courses in physical therapy which met the requirements of the Surgeon General's Office for reconstruction aide training programs. These programs were primarily housed in physical education schools. Students who were accepted into these programs were primarily physical education teachers or graduates of schools of physical education because these students had some background in anatomy and other related subjects. The original physical therapy curriculum included coursework in anatomy, physiology, muscle training, kinesiology, corrective exercise, massage, electrotherapy, hydrotherapy, and mechanotherapy.

During World War I there were over 2,000 reconstruction aides in service assigned both in the United States and abroad (APTA, 1979a). These women were civilians who were assigned to military facilities. After the war the need for reconstruction aides in military facilities decreased so the majority of the reconstruction aides resigned from the service (APTA, 1979a). Due to the scarcity of civilian jobs in physical therapy many of the former reconstruction aides returned to former occupations. Those who remained in physical therapy generally remained at military facilities, were employed by physicians, or opened private clinics.

During the period directly after the war several separate attempts were made to organize a national association for physical therapists which would both satisfy the feeling of nostalgia and also promote the profession of physical therapy. In September 1920, Dr. Harold Corbusier, a physician in the U.S. Army who had worked with reconstruction aides, wrote to Miss McMillan to suggest that an organization be formed:

> To advertise to the physicians and surgeons of the country the importance of the various methods of treatment by physical means. To elevate and standardize the work and place it on a more substantial basis...To urge upon the various hospitals the importance of establishing departments of physiotherapy. To urge upon the Medical Department of the Army the necessity of creating a reserve force of trained workers and also to endeavor to obtain for the present and former aides recognition for the work which they have so conscientiously performed (APTA, 1979a, p. 63).

The most significant organizational meeting to date took place on January 15, 1921 in New York City. The organization which grew out of this meeting was then known as the American Women's Physical Therapeutic Association (AWPTA). The purpose of the AWPTA was defined in the 1921 constitution as follows:

> The purpose of this Association shall be to establish and maintain a professional and scientific standard for those engaged in the profession of Physical Therapeutics; to increase efficiency among its members by encouraging them to advance study; to disseminate information

> by the distribution of medical literature and articles of professional interest; to assist in securing positions for its members; to make available efficiently trained women to the medical profession; and to sustain social fellowship and intercourse upon grounds of mutual interest (APTA, 1979a, p. 56).

The first major undertaking of the AWPTA was the publishing of the P.T. Review to help disseminate information to the membership. The first issue was published in March 1921 and included the Association's first constitution and membership information (APTA, 1979a).

At first charter membership was open to reconstruction aides with at least one year of experience with the United States armed forces or with those of the allies. Active members were graduates of recognized schools of physiotherapy or physical education with training and experience in massage and therapeutic exercise and some knowledge of electrotherapy or hydrotherapy. In 1922 the name was changed to the American Physiotherapy Association (APA) so as to not exclude males as members. As the APA became more organized, membership requirements became more restrictive in order to maintain high standards within the profession. Between 1921 and 1925 membership requirements were changed to limit membership to those working only under the direction of a physician who met the previous requirements and to allow nurses with physical therapy training to join. In 1927 the APA required that new members have one year's practice in physical therapy

within two years of graduation from an approved school of physical therapy, or an approved school of physical education or nursing and satisfactory completion of an approved course in physical therapy (APTA, 1979a).

Even as the membership requirements became more restrictive the membership grew. In 1921 the Association began with 245 members; in 1932 there were 774 members; and in 1938, just before the beginning of World War II, there were 956 members. During World War II an overwhelming demand for physical therapists developed and by January 1946 the membership of the Association expanded to over 3,000 members (APTA, 1979a).

In 1947 the name of the association again became an issue. In the July 1947 meeting of the APA House of Delegates, the governing body of the APA, a resolution was proposed and accepted to change the name of the organization to the American Physical Therapy Association (APTA), the current name (APA, 1947).

Until the 1950's physical therapists had been registered in the American Registry of Physical Therapists (ARPT) of the American Congress of Physical Medicine and Rehabilitation as their credentialing mechanism (APTA, 1984). During the 1950's physical therapy legislation authorizing licensure was enacted by several states with the support of the APTA. By 1961 all states had licensure mechanisms in place for physical therapists and the APTA

officially discontinued its relationships with the ARPT as the agency responsible for national registry of physical therapists.

During the next three decades the profession and the APTA continued to grow. In the 1960's and 1970's the APTA became involved in developing policies on the training and utilization of supportive personnel. These policies were the impetus for the development of two-year associate degree educational programs for the physical therapist assistant. By 1988, the APTA Department of Information Central Archives reports, there are an estimated 65,000-70,000 physical therapists in the United States with a membership of about 37,000 physical therapists and 10,000 physical therapist assistants in the APTA (APTA, 1988b).

Physical Therapy Education

Soon after its creation in 1921 the standardization of physical therapy education became one of the Association's greatest concerns. As stated earlier the first physical therapists, reconstruction aides, were trained in short-term emergency training programs during World War I. The first standards for physical therapy education were developed by the Surgeon General's office. These programs generally accepted students with degrees in physical education. After the end of the war the type of education which was appropriate and the maintenance

of quality became a major issue within the profession.

In 1928, the first formalized study of the physical therapy profession was published in the Physiotherapy Review. In "A Study of Physiotherapy as a Vocation", Lucile Grunewald reported on the results of a mail survey of physical therapists in the United States (APTA, 1979a). Much of this report dealt with the concern for standardization of physical therapy education. The physical therapists surveyed were asked to answer questions on their own training and experience in physical therapy and also on their opinions on what education/training should be required for physical therapists.

The data in this study indicated that there was little consistency in the education and training reported by the physical therapists. The opinion of those who responded to this survey was that training in physical therapy could best be offered in a physical education school, in a department of physical education in a university, or in a university that offered a physical therapy major. The majority of these physical therapists felt that four years of training and education beyond high school were necessary. When asked: "What subjects are most essential in a course in physiotherapy" basic science courses such as anatomy, physiology, psychology, physics, and chemistry were listed as well as physical therapy subjects such as kinesiology, massage, therapeutic exercise, electrotherapy, pathology,

hydrotherapy, muscle re-education, and orthopedics. The conclusion of this study was that the physical therapy curriculum was best offered in a four-year degree program in a university (APTA, 1979a).

In June 1928 the APA published a suggested curriculum as a minimum standard for physical therapy educational programs (APTA, 1979a). The curriculum was based on clockhours of instruction with 1200 hours of theory and practice required over a nine-month period. Entrance requirements were graduation from recognized schools of physical education or nursing. Some members felt that a four-year course of study without the prerequisites of physical education or nursing education was more appropriate, but this was not viewed as a feasible option at that time.

After it established the minimal acceptable physical therapy curriculum the APA took on the tasks of listing approved schools of physical education and of evaluating and inspecting schools of physical therapy. Prior to this time approved physical therapy schools were those who met the requirements of the Surgeon General's Office established during World War I, and no effort was made to confirm compliance through on-site visits. In 1930 a special APA committee toured the United States inspecting physical therapy schools. In the July-August 1930 edition of the Physiotherapy Review a list of 11 approved schools of

physical therapy was published (APTA, 1979a).

Realizing its inadequacy to fulfill such a formidable responsibility, in 1933 the APA appealed to the American Medical Association (AMA) to assume the responsibility of accrediting physical therapy schools. With the cooperation of the APA, the Council on Medical Education and Hospitals of the AMA developed the "Essentials of an Acceptable School for Physical Therapy Technicians," and by 1936 the AMA Council on Medical Education and Hospitals had become the accrediting agency for physical therapy educational programs. In 1936, 13 physical therapy schools were approved by the Council (APTA, 1979a).

During World War II there was an overwhelming demand for physical therapists to treat the war-injured, and it became necessary to establish intensive accelerated courses in physical therapy to try to meet this demand. The APA and the AMA Council on Medical Education and Hospitals felt that the educational standards should be continued to be maintained even in this emergency although the curriculum requirements were revised to deal with the necessity for accelerated courses. After the end of the war the higher standards were reinstated (APTA, 1979a).

Following World War II, there was renewed interest in establishing a four-year course leading to a bachelors degree in physical therapy without the prerequisite of prior physical education or nursing education. Although

attempts had been made to locate physical therapy educational programs in colleges and universities, by 1944 only five programs offered academic credit. In 1946, 15 of 21 approved schools were planning to offer courses which led to a bachelor of science degree or to give credit toward an advanced degree. The APA continued to support this concept, and in 1956 for the first time baccalaureate programs comprised the majority of physical therapy educational programs. In 1960 the APTA House of Delegates adopted a resolution which established the baccalaureate degree as the minimum educational qualification for the physical therapist (APTA, 1960).

During the 1950's dissatisfaction with the AMA accreditation process increased. The AMA "Essentials of an Acceptable School for Physical Therapy Technicians" had not been revised or updated since 1936 despite changes in the field of physical therapy. Few site visits were made to physical therapy educational programs as part of the review process. There was little if any communication between the APTA and the AMA. In 1952 the APTA Executive Committee appointed a special committee to study current patterns in physical therapy education with the goal of developing a revised set of accreditation Essentials (APTA, 1984). These new Essentials were presented to the AMA, and in 1956 the AMA House of Delegates approved a revised version of the Essentials which allowed the APTA to be

actively involved with the AMA in the accreditation process (APTA, 1984). This, however, did not curb the dissatisfaction with the accreditation process.

Several issues in physical therapy education emerged in the 1960's. A major study of physical therapy education by Worthingham (1970) predicted that the profession was moving toward a four-year plus education program and away from certificate and hospital-based educational programs. Dissatisfaction with the AMA-APTA accreditation process continued to grow while support within the APTA was increasing for the development of an accreditation process independent of the AMA.

The utilization of physical therapist assistants and aides became an issue in the early 1960's primarily in response to the focus on the shortage of health care personnel during the Kennedy and Johnson administrations. The development of training programs for new types of health care personnel at the technical and vocational level was viewed by the federal government as one method of lessening the manpower shortage. In response to this trend the APTA developed standards for the training of physical therapist assistants at the associate-degree level, with the first physical therapist assistant programs accredited in 1969 (APTA, 1988a).

Graduate competencies for the physical therapist assistant, defined in the APTA Criteria for Accreditation

of Physical Therapy Educational Programs (APTA, 1978), include the abilities to:

1) prepare patient treatment areas and equipment
2) implement treatment programs that include therapeutic exercise, gait training, and activities of daily living training techniques
3) administration of physical therapy modalities such as therapeutic heat, cold, ultrasound, electric current, mechanical traction, pulmonary hygiene techniques, and application of external bandages, dressings, and supports
4) modifying treatment techniques as indicated in the plan of care
5) teach other health care providers, patients, and family members to perform selected treatment procedures and functional activities
6) interact with patients and family members in an appropriate manner
7) demonstrate appropriate and effective written, oral, and non-verbal communication
8) recognize his own strengths and limitations and interpret scope and function of physical therapist assistant for others
9) demonstrate safe, ethical, and legal practice
10) understand basic concepts related to the health care system and basic principles of management

The most significant events in physical therapy education in the 1970's were the development of the Standards of Basic Education by the APTA, which were approved in 1973, and the recognition of the APTA as an independent accrediting agency for physical therapy educational programs by the Council on Post-secondary Accreditation (COPA) in 1977 (APTA, 1984). The APTA Standards of Basic Education, which were to be used as the basis for accreditation, identified terminal competencies expected of physical therapy educational program graduates as they entered practice rather than evaluating educational programs on the basis of clock-hours of instruction. Although the AMA continued to accredit physical therapist education programs until 1982 the APTA was the only agency recognized by COPA to accredit both physical therapist and physical therapist assistant programs.

With its desire to become more involved, through the accreditation program, in quality assurance in physical therapy education, the APTA decided to re-evaluate the entry-level physical therapist education. The rapidly increasing number of educational programs and the three entry-level routes (baccalaureate, post-baccalaureate certificate, and master's level programs) available to students were factors which led the APTA to question whether new graduates were competent to function in the health

care system of the 1970's where technology was constantly changing and practice requirements were becoming more complex. In June 1976 the APTA Board of Directors appointed a task force to review and evaluate the education for entry-level preparation of physical therapists. The final report of the task force was to include but not be limited to an evaluation of the appropriateness of the current educational levels in regards to the competencies desired for entry-level into clinical practice (APTA, 1984).

The final report of this task force, submitted to the APTA Board of Directors in November 1978, recommended that entry-level educational programs for physical therapists should be developed at the post-baccalaureate level. In June 1979 the APTA House of Delegates voted to adopt a resolution, presented by the Board of Directors, that entry-level education for the physical therapist be at a post-baccalaureate level and that all educational programs for the physical therapist presently or subsequently accredited by the APTA comply with this policy by December 31, 1990 (APTA, 1979b).

During the 1980's the APTA has met with significant resistance to its policy on raising entry-level education of the physical therapist to the post-baccalaureate level. Clarification was made to the original policy which encourages educational programs to develop plans for the transition, but does not penalize programs which do not

plan to make the transition to the post-baccalaureate level by 1990 by jeopardizing their accreditation status. The development of new standards for educational programs to be implemented by 1990 has been a major task of the APTA, in addition to revising entry-level practice competencies for the physical therapist.

Physical therapy education has grown and matured significantly since the first emergency training programs for reconstruction aides were established in 1918. In January 1987 there were 109 physical therapist programs, the majority at the baccalaureate level, and 71 physical therapist assistant programs accredited by the APTA (APTA, 1987a, 1987b).

The American Community College

The community college has been defined as any educational institution accredited to award the associate in arts or science as its highest degree (Cohen and Brawer, 1982). The typical community college in the United States is a two-year post-secondary educational institution which is primarily funded by state and local funds. Although some are strictly technical institutions, two-year colleges often attempt to be comprehensive institutions with programs designed to meet the needs of the communities they serve. A fundamental ideal in community colleges is the open-door admissions policy. This is based on the belief that the

community college should have something to offer each individual in the community no matter what academic background or goals the individual has. In most community colleges three main areas of instruction are apparent: 1) academic transfer preparation, possibly pre-professional coursework found in four-year institutions designed to allow the student to transfer to a four-year institution as a junior; 2) occupational/technical education designed as a terminal degree; and 3) remedial/developmental coursework designed to help the student compensate for any deficiencies in high-school level coursework (Eaton, 1985). This concept of the comprehensive institution, and in fact the philosophy and purpose of the community college in the United States, has been questioned since the development of the two-year college or "junior college" in the early 1900's.

The concept of the two-year or junior college in the United States was developed by university administrators hoping to transform higher education in the United States into a system based on the German university model (Zwerling, 1976). The underlying purpose was to convert the American university into an educational institution for the intellectual elite who were interested in professions such as law or medicine or in a life of scholarship and research. To do this another type of educational institution had to be developed for students

in the first two years of post-secondary studies (Zwerling, 1976).

The President of the University of Chicago in the 1890's, William Rainey Harper, was an early advocate of the amputation of lower level coursework, but also recognized its impracticality. Instead of amputation he proposed, and in 1892 the University of Chicago implemented, an internal division of the University into two separate divisions, the "Academic College" and the "University College". In 1896 the names of the divisions were changed to "Junior College" and "Senior College", respectively. The University of Chicago's Junior College was the first institution to award the associate degree (Zwerling, 1976).

In addition to spearheading the drive for the internal division at the University of Chicago, Harper also worked to convince Chicago-area high schools to extend their course offerings to include college-level work. He proposed accepting students who had completed college-level coursework in the high school with advanced standing. This led to the establishment in 1902 of the first independent, public junior college in Joliet, Illinois, which was actually an expansion of the Joliet high school. The next two-year college, again an extension of local high schools, was established in 1910 in Fresno, California, largely through the support and efforts of Stanford University President David Stan Jordan and Alexis F. Lange

of the School of Education at University of California at Berkley. Prior to this, Jordan and Lange had lobbied for the 1907 California legislation that allowed high schools to offer post-graduate courses of study similar to coursework normally taken in the first two years of college (Zwerling, 1976). In 1917 the California legislature officially adopted the name "junior college" and added vocational programs to the previously approved courses of study to be offered at California junior colleges. This set the stage for the continuing debate over the purpose of the junior college/community college; to provide general education coursework, or technical coursework, or a combination. As the junior college movement grew in the twentieth century this debate continued.

Until the 1940's two-year colleges, whether private or public, were generally known as junior colleges. In the 1950's and 1960's the term "junior college" came to be used primarily for lower-division branches of private universities and for private two-year colleges while "community college" was applied primarily to comprehensive, public institutions (Cohen and Brawer, 1982). During the 1970's the term "community college" became the preferred designation for all two-year colleges. With the use of one term, "community college", to describe such a variety of educational institutions, there is somewhat of an

identification and image problem for the community college. Several institutional directions or missions have been proposed for the community college which further confuses the public's image (Cohen and Brawer, 1982).

Vaughan (1984) described three components of the community college mission: 1) open access; 2) comprehensive curriculum; and 3) community/local orientation. The components are reflected in the image of the community college as a student-oriented comprehensive institution which offers something for everyone including a second chance for people with poor academic records. To accomplish this mission the community college typically offers programs for career, transfer, and developmental/remedial education, for community service, and for counseling and guidance (Eaton, 1985).

This model of the comprehensive community college gives equal emphasis to academic (transfer), occupational/ technical, developmental/remedial and community service programs. Traditionally a dichotomy has been perceived between academic and occupational education, however the current trend is toward merging academic and occupational training to offer education for life (Eaton, 1985; Palmer, 1987-88). The value of academic education in the liberal arts has been recognized as an important component of career training to better prepare students not only for their specific careers but also for life. The concepts of

occupational education as terminal and academic education as transfer have also become obsolete with the increasing numbers of articulation agreements between community colleges and four-year institutions in the occupational areas and with the number of students in academic courses who are not pursuing transfer to a four-year institution.

In the 1980's the two key issues for community colleges are the balance between open-access and quality and the problem of attempting to provide comprehensive services to the community in a period of decreasing enrollments and decreased funding. Continued growth, and even survival, of the community college is dependent on how it handles these issues.

A foundation of the American community college has been its open-door admissions policy. This concept is tied closely with the philosophy of the community college to serve the needs of the community. Although open access appears to be a reflection of the American belief in democracy, the community college image has suffered for supporting it. A community college education is not as respected as an education from a four-year institution; it is thought to be second-class (Zwerling, 1976). This image may partially have developed from the attitudes of university faculty in the 1800's and 1900's that the first two years of post-secondary education are more a continuation of secondary-level coursework, rather than

true higher-education coursework, which would more appropriately be taught in secondary schools rather than universities. The inclusion of vocational/technical programs in community college curricula further substantiated the belief that the community college is designed to educate those students who are not academically qualified to attend a four-year institution. Some educators continue to feel that one function of the community college is to screen students prior to university admission (Vaughan, 1984). This attitude was especially prevalent in the 1960's and early 1970's when the number of college-aged individuals grew rapidly, and four-year colleges and universities were not prepared to deal with the number of people seeking a college education. According to Vaughan the community college functioned as a "safety valve" for higher education. During this period the community college experienced its most rapid growth. In the 1980's there has been a decline in the number of full-time college applicants (O'Keefe, 1985) and four-year educational institutions are competing directly with the community colleges for students rather than referring less-qualified students to the community colleges. As fewer students enter the community college with college-transfer as their goal the emphasis in community college education has subtly shifted towards vocational/technical education, especially the high tech programs such as computer science, engineering and allied

health. As more students attend community colleges with the goal of attaining the associate degree as a terminal degree the concept of a two-tiered post-secondary educational system is reinforced. In fact community colleges actually encourage this educational hierarchy by the "cooling-out" practice identified by Clark (1980), which encourages community college students to lower their aspirations from professional degrees to vocational/ technical programs.

Improving quality has become a major emphasis in education in the 1970's and 1980's. There is concern that educational standards have been lowered which interferes with providing quality education. Although terms such as quality and excellence have been discussed and written about extensively little has been done to define quality and even less effort has been made to assess it. Thompson (1985) defines quality as "the success of students in achieving their predetermined educational goals, i.e. minimal job skills, personal enrichment, a transfer baccalaureate degree, a terminal technical degree or a certificate." The accreditation process, supposedly the mechanism to assure quality education, is primarily geared to evaluation of educational institutions and programs based on number of faculty, faculty qualifications, physical resources and other measurements of educational resources or input variables (Benezet, 1981; Huffman, 1982; Millard,

1983). Until recently no emphasis has been placed on assessing educational quality through outcome assessment (Deegan and Tillery, 1987; Huffman, 1982). Without assessing student performance there is no way to determine if the educational institution or program is accomplishing its goals, and therefore no method of assessing quality. Hammons (1987) identifies two potholes in the road to community college excellence as being the failure to evaluate periodically and systematically courses and programs and the lack of an adequate data base for making decisions, including information on student outcomes.

The trend in higher education seems to be that by limiting access to only a select few, educational quality will increase (Thompson, 1985). The community college is susceptible to this trend as it attempts to legitimize its contribution to higher education. Community college leaders must recognize that educational quality is measured by how well students succeed in achieving their educational goals, no matter at what level, not by the qualifications of the students prior to entering the college. Students should be expected to meet educational standards, but to serve this population the community college must be prepared to assist students in the attainment of these standards. Community colleges must become more involved in outcome assessment in order to judge educational quality and make any necessary changes to promote excellence. The

abandonment of the philosophy of open-access will only serve to exclude certain populations from higher education, but will not affect the pursuit of quality. Educational quality and open-access are not contradictory terms. Community college educators can be committed to both ideals without sacrificing one for the other (Thompson, 1985).

The open-door admission philosophy and the comprehensive educational institution image of the community college are closely related. For the community college to serve the needs of the community it must continue to offer a variety of programs, i.e. something for everyone, or it will limit access by limiting services to only certain types of students. As stated earlier primary educational areas are in occupational/technical education, general education/transfer curricula, developmental/remedial education, community service, and counseling and guidance. If any of these areas are deleted the community college will be closing the door to education to one population of students, and yet, each of these areas has been challenged as to its future in the community college, primarily due to economic pressures. Changes in sources of revenue have threatened both the open access and comprehensive educational institution philosophies of the community college (Breneman and Nelson, 1980).

A study by Jenkins (1984) indicated that tuition has become more important in financing community colleges;

in fact greater than ten percent of a college's operating budget is often from tuition. Wattenbarger and Vader (1986) studied community college adaptations and strategies for dealing with problems associated with changes in sources of revenues and found that these changes were usually due to a decreased proportion of the operating budget from state sources. The most frequently implemented strategies identified by Wattenbarger and Vader included instituting a hiring freeze, reassigning faculty and staff, increasing recruitment efforts, and increasing the use of part-time faculty. It has also been projected that program and course review will be relied on more heavily in the future in determining resource allocation and reallocation (Mortimer and Tierney, 1979). These efforts tend to be oriented towards decreasing expenditures primarily rather than increasing revenue. The open-door admission policy may be threatened by increased tuition rates, enrollment limits due to cutbacks, and the elimination of some program areas (Demaree, 1986). This is a genuine concern when present enrollment trends are considered.

Until the 1980's higher education, including the community college, had experienced a rapid growth in enrollment of both full-time and part-time students (Evangelauf, 1985). Total enrollment in higher education increased from 11.6 million to almost 12.5 million from 1979 to 1984 surprising many educators who had predicted

an enrollment crash in the 1980's (O'Keefe, 1985). During this same period however, the number of 18 year olds decreased 14% and the number of high school graduates decreased from a high of 3.2 million in 1977 to 2.5 million in 1986. Although the expected enrollment crash never materialized, and total enrollments have increased in the 1980's (U.S. Department of Education, 1987), there is still cause for concern. The traditional 18-to-21 year old college student is typically a full-time student while the older student, the student population that is showing the more significant increases in enrollment, is more likely to be a part-time student (O'Keefe, 1985). The four-year colleges and universities, which previously marketed primarily the traditional-aged full-time student, have been adjusting their strategies and are competing more directly with the community college not only for full-time students, but also for part-time students of all ages. Changes in recruitment strategies may have helped prevent the predicted decline in enrollments (American Association of Collegiate Registrars and Admissions Officers, et al., 1986; Chronicle of Higher Education, 1986).

Although higher education has been spared from the enrollment crash the community college has suffered from enrollment problems. In 1983, according to data from the American Association of Community and Junior Colleges, enrollment in public two-year institutions decreased by

23,000 to 4.94 million students from 1982 reversing the growth trend seen previously (Watkins, 1984). This decrease involved both part-time and full-time students. Enrollment figures for community colleges continued to decrease in 1984, showing a four percent decrease (Meyer, 1984). These decreases in enrollment have been attributed to the decreased number of college-aged students, the improving economy that allows more students to choose to attend a residential four-year institution or return to work, and increased tuition at community colleges (Watkins, 1984; Meyer, 1984).

With an increased proportion of community college revenues dependent on tuition fees as discussed previously these enrollment decreases have had an impact on community college programming. Although most public community colleges receive state and/or local government financial support, these funds are generally calculated by an enrollment driven formula based on full-time equivalent student enrollment. With the trend towards decreasing numbers of full-time students the community colleges are especially prone to problems associated with decreased enrollment, and as stated earlier the tendency is for community college administrators to decrease expenditures through cut-backs in programming. These cut-backs may be a short-term solution to budget problems, however enrollment problems are expected to continue so

administrators must look for long-term solutions by attempting to increase revenues. The U.S. Department of Education Center for Education Statistics (1987) predicts that from 1987 to 1991 enrollments at four- and two-year colleges will decline by 0.8% and 0.9%, respectively, with the number of full-time students decreasing by 3.3% while the number of part-time students increases by 2.5%. An enrollment crash is again predicted for 1990 as the number of high school graduates begins to decrease after 1988 to a low in 1992 of 2.3 million (Evangelauf, 1985; Kraus, 1988).

Wattenbarger and Vader (1986) recommended that "a strong and clear sense of institutional mission and identity needs to be developed and affirmed" (p. 24) and that "the distinct role of the community college must be clearly articulated to the community and to legislators" (p. 24) to increase constituency and legislative support as a means of adjusting to revenue changes. The problem is that the community college has been undergoing an identity crisis (Young, 1977). Several different institutional directions or missions have been proposed (Townsend, 1986) including the comprehensive community college previously discussed that gives equal emphasis to academic, occupational/ technical and community service programs. A second alternative would be an academically-oriented, two-year college where resources are primarily committed to

degree-granting programs in both the academic and occupational/technical areas. Gleazer (1980) has theorized the transformation of the community college into a community-based learning center that de-emphasizes the formal structure of credit hours, courses, and specific curricula to function as a community learning network. Another alternative direction would be towards a post-secondary occupational training center with limited offerings in the humanities and social and natural sciences. Townsend's study (1985) of community college faculty and administrators' views indicated that they are content with the current comprehensiveness of the community college which supports the open-door philosophy.

With the enrollment problems experienced by the community colleges in recent years there has been pressure to abandon the costly comprehensive model. Community colleges have been criticized by government officials for offering developmental/remedial coursework which is actually high school coursework that is offered by lower-cost adult education programs sponsored by public school systems. There have been similar objections to the placement of occupational/technical programs at the certificate and diploma level in community colleges when these programs may be offered by locally supported vocational/technical centers which are also often part of the public school system (Davenport, 1981). In fact, in certain programs,

the community college may actually be competing with local vocational/technical centers for students. In addition to these areas of complaint there traditionally has been conflict between supporters of academic education and occupational/technical education although this conflict is lessening as the distinction between these two areas is becoming less clear by the integration of both areas in new curricula (Eaton, 1985).

Although there has been pressure to eliminate some program areas due to financial problems the community colleges of the 1980's and 1990's can not afford to close their doors to prospective students by decreasing the variety of offerings. Projections predict that the number of high school graduates will again begin to decline after 1988 (Evangelauf, 1985; Kraus, 1988) and that the number of full-time students will decrease while part-time students will continue to increase in number. The community college must be willing to meet the needs of the older part-time students, especially those in the 22-to-34 year age range which has been the most rapidly increasing age group in student population from 1979 to 1983 (O'Keefe, 1985). With the conventional three part-time to one full-time student ratio used to determine full-time equivalent student data for funding purposes (Brinkman, 1985) the community college must adjust its strategies to market this student population effectively.

As it prepares for the 1990's with projected enrollment declines and greater competition from four-year colleges and universities expected, the community college must re-examine its priorities and try to resolve the serious questions of philosophy, mission, and policy. Deegan and Tillery (1987) suggest that resolving conflicts over the comprehensive mission; obtaining information on educational outcomes; and effective planning, evaluation, and coordination of community college curriculum to improve quality and productivity are three priorities for the community college as it enters its fifth generation.

Student Attrition in Physical Therapy

The United States Bureau of Labor Statistics has projected an increased demand for physical therapists and physical therapist assistants at least through the year 2000. It is projected that there will be an 87.5% increase in employment opportunities for physical therapists from 1986 to 2000 and an increase of 81.6% for physical and corrective therapy assistants and aides (Silvestri and Lukasiewicz, 1987). Although the number of accredited physical therapist assistant programs is increasing, to a total of 81 in 1988 (APTA Department of Education, 1988a), each accredited program must be concerned with increasing its number of graduates to help meet the growing demand for physical therapist assistants. One method of

accomplishing this goal is to increase the percentage of students who begin a physical therapist assistant program and successfully complete the requirements for graduation. Factors which interfere with students completing a physical therapist assistant program need to be identified and, if possible without jeopardizing the quality of graduates, be altered to improve the percentage of successful completers.

In addition to the economic ramifications, concern must also be directed towards the effect on students who leave the program. Whether the student is forced to leave because of academic problems or leaves voluntarily because of personal reasons a feeling of failure is often the result (Nemko and Dutton, 1983). The relationship between recruitment and retention has been recognized as a significant influence on continued enrollment (Astin, 1975). The admission of students with academic and social characteristics which are appropriate for the educational institution may be one of the most effective methods of decreasing student attrition (Bean, 1986). Effective recruitment policies and procedures must be expanded to include more involvement in pre-admission educational counseling (Yess, 1980). Elements within a health care program which have a positive effect on student completion have been identified by Nemko's and Dutton's survey (1983) of California students enrolled in health career programs as: 1) competent

guidance and counseling; 2) pre-admission interviews; 3) organizational/study skills; 4) attendance.

The manpower shortage in physical therapy is only one concern in regard to student attrition. As higher education strives to cope with predicted enrollment crises due to the decline in the number of 18-to-25 year olds, the traditional-aged college student, the importance of student retention has been recognized as one method of positively influencing enrollments (Astin, 1975; Bean, 1986). Programs with high student attrition rates may be in danger of closure due to low enrollments. Students who might have completed the program may have been prevented from enrolling due to non-completers taking available spaces (Nemko and Dutton, 1983). These programs may be considered a poor use of resources due to the low number of students served and the inability to meet community needs (Nemko and Dutton, 1983).

Chapter 3

Methods

The purpose of this study was two-fold: 1) to obtain information on the rate of occurrence of student attrition in accredited physical therapist assistant programs in the United States; and 2) to determine which program characteristics were most related to the rate of student attrition in physical therapist assistant programs. In searching the literature, including the Department of Education of the APTA, no information was available on rate of student attrition in physical therapist assistant educational programs or on factors which influence attrition.

Research Questions

The following research questions were then formulated:

1. What is the rate of student attrition in physical therapist assistant programs accredited by the American Physical Therapy Association (APTA)?
2. Which are the most significant predictors of attrition?

Sample

To obtain the desired information, program directors

of physical therapist assistant programs were surveyed. Only programs accredited by the APTA, the accrediting agency for physical therapist assistant programs, were included in the survey. As of January 1987, the last list published by the APTA prior to the survey mailing date, there were 71 accredited physical therapist assistant programs (see Appendix B). Due to the relatively small number of programs involved, all 71 program directors were surveyed. A response rate of 50% was desired.

Instrumentation

The survey instrument (see Appendix A) was developed with primarily close-ended items to encourage uniformity of interpretation by respondents, to produce more uniform response patterns for easier tabulation, and to minimize misinterpretation of responses due to confusion between surveyor and respondents about vocabulary and definitions used in responses (Micek, Service, and Lee, 1975). Open-ended items relating to student information and program policies were included to allow more diversity in responses and to obtain greater accuracy in the data collection and recording by not limiting the respondents to certain categories of responses. For example an open-ended item at the end of the survey asked for the three most important reasons students give for dropping out of the physical therapist assistant program. This item allows respondents

to give input without the influence of forced selection. This question may well provide the impetus and direction for further study into student attrition from the student's viewpoint.

The survey tool was designed in four parts: general information, admissions process-physical therapist assistant program, physical therapist assistant program information, and student information. The first three parts of the survey were designed to gain information on program characteristics. The purpose of the fourth part, student information, was to obtain data on student attrition in the physical therapist assistant programs for the graduating classes of 1984, 1985, and 1986. Data were also requested on students with college coursework completed prior to entering the physical therapist assistant program.

Study Protocol

Once the survey was refined and approved by the researcher's thesis committee at Old Dominion University, the program directors of the allied health programs at Tidewater Community College completed the survey and were asked for comments/recommendations. The final draft of the survey, which included minor changes recommended by the program directors for clarification, was prepared in April 1987.

The surveys were mailed to the program directors on

April 15, 1987. To protect anonymity of the respondents, no identifying information, such as institution or program director's name, was requested. The respondents were given the opportunity to request a copy of the results by completing a pre-stamped enclosed postcard and returning it separately to the surveyor. A repeat mailing of the survey was sent out on May 1, 1987 to increase the rate of return of the completed surveys. By May 15, 1987, the deadline for returning the surveys, 40 of the 71 program directors had responded by returning the completed survey.

Statistical Analysis

Analysis of survey responses included calculations of frequency distributions and mean, median and mode values for survey questions concerning program faculty, student-to-faculty ratios, program length, and credit and contact hour requirements to learn more about program characteristics. Responses to open-ended questions regarding both program policies on probation and dismissal and the reasons students have given for dropping out of physical therapist assistant programs were compiled to determine trends and/or differences in programs.

Chapter 4

Results

Forty of the 71 physical therapist assistant program directors who were surveyed responded by returning completed survey forms. Table 1 demonstrates the distribution of size and type of educational institution in which the physical therapist assistant programs were housed. Two-year public educational institutions were the setting for 65% (N=26) of the physical therapist assistant programs. The size of the educational institutions were varied, with institutions with enrollments of 1,000 to 4,999 students and those with enrollments of over 20,000 students each housing 30% (N=12) of the physical therapist assistant programs.

The number of physical therapist assistant faculty members ranged from one to eight with a mean of 2.36 (SD=1.38). Part-time faculty ranged from zero to twelve with a mean of 2.54 (SD=2.38) (see Table 2). From this data it appears that the number of physical therapist assistant faculty are fairly small with many programs functioning with only two full time faculty members. In reviewing student-to-faculty ratios in lecture and laboratory sessions, the mean number of students per faculty

Table 1

Distribution of Size and Type of Educational Institution

Size of Institution	Type of Institution: 2-year Public	2-year Private	4-year Public	4-year Private	Missing	Total
<1,000	0	2	0	0	1	3
1,000- 4,999	7	1	1	2	1	12
5,000- 9,000	4	0	1	0	1	6
10,000-20,000	5	0	1	0	0	6
>20,000	9	0	1	1	1	12
Missing	1	0	0	0	0	1
Total	26	3	4	3	4	40

Table 2

Number of Faculty and Faculty-to-Student Ratios

	Mean	Range	Standard Deviation
Number of full-time faculty	2.36	1-8	1.38
Number of part-time faculty	2.54	0-12	2.38
Student-to-faculty ratio in lecture classes	23.18:1.0	2-40:1.0	6.00
Student-to-faculty ratio in laboratory classes	12:55:1.0	4-18:1.0	5.56

member are 23.18:1.0 (SD=6) and 12.55:1.0 (SD=5.56), respectively. For lecture sessions the median average was 24 students with 12.5% (N=5) of the responses given as 20 and 24 students each. In laboratory sessions the median was 12 students (N=11).

The admissions process in the physical therapist assistant programs were overwhelmingly selective. Of the 40 program directors, 92.5% (N=37) responded that students must meet certain criteria to be accepted into the physical therapist assistant program. All admissions data are based on a sample size of 37, those programs identified as having a selective admissions process. A pre-admission interview was required by 51.4% (N=19) of those programs with a selective admissions process. Admission into the program was determined by a single person or one single group of people in 56.8% (N=21) of the programs. Admissions committees which included non-faculty were utilized by 48.6% (N=18).

Prerequisites given for entry into the physical therapist assistant programs included high school and college coursework (see Table 3). High school level coursework only was required by 42.5% (N=17) of the respondents while 25% (N=10) required some college coursework prior to entering the program. The most common high school level prerequisite was biology (42.5%, N=17) followed by algebra (32.5%, N=13), English (30%, N=12),

Table 3

Program Prerequisites

	Number	%
High school coursework only	17	42.5
College coursework	10	25.0
High school biology	17	42.5
High school algebra	13	32.5
High school English	12	30.0
High school chemistry	9	22.5
College anatomy and physiology	9	22.5
Prior experience in a health care facility	4	10.0
Prior experience in a physical therapy department	13	32.5

and chemistry (22.5%, N=9). Previous college-level anatomy and physiology coursework was required by 22.5% (N=9) of the programs with selective admissions. Five programs (12.5%) indicated that the curriculum was structured as a one-plus-one curriculum with one year of general education coursework and one year of physical therapy technical coursework. Prior experience, either volunteer work or employment, in a health care facility was required by 10% (N=4) while prior experience in a physical therapy department was required by 32.5% (N=13). In addition, five program directors commented that prior experience in either a physical therapy department or a health care facility, although not required, was strongly recommended.

Prior to tabulating data on the program length and curricular requirements of the 40 programs the programs were divided by type of academic term, either semester or quarter. The academic year was based on the semester system for 67.5% (N=27) of the programs while the remaining 32.5% (N=13) of the programs were on the quarter system. Program length for those programs on the semester system ranged from 4-6 semesters with a mean average of 4.76 (SD=.59) and median and mode averages of 5 semesters (N=15). Although the range of the length of the program was narrow the range of semester credit hours required for completion ranged from 43 to 76 credit hours (see Table 4). The mean number of semester hours required was 66.7 (SD=7.03) with

Table 4

Credit Hour and Contact Hour Requirements

	Mean	Range	Standard Deviation
Total credit hours required by programs on semester system	66.7	43-76	7.03
Total credit hours required by programs on quarter system	106	91-118	8.35
Maximum number of contact hours per week required	30.65	15-40	9.3
Minimum number of contact hours per week required	16.03	2-40	7.88

a median average of 68 credit hours. The 13 programs using the quarter as their academic term had a mean program length of 6.58 quarters (SD=.66). The range of program length was from six to eight quarters with a median average of 6.5 and a mode of six (N=6). The quarter credit hours required for completion ranged from 91 to 118 quarter credit hours. The mean and median were both 106 quarter credit hours (SD=8.35). No two programs required exactly the same number of credits so there was no mode.

Table 5 represents the analysis of the responses concerning number of credit hours required in general education coursework. All 40 programs required some coursework in English. The mean number of credit hours in anatomy and physiology under the semester and quarter system were 8.70 (SD=4.38) and 9.33 (SD=3.92), respectively. Requirements in mathematics and physics were fairly low, with 23 programs requiring no coursework in physics and 17 programs requiring no coursework in mathematics.

The minimum and maximum number of clock hours per week the students were required to attend classes, whether lecture, laboratory, or clinical sessions, was requested on the survey to obtain data on how demanding the physical therapist assistant programs were of students' time. The maximum number of clock hours per week required of students ranged from 15 to 40 with a mean of 30.65 (SD=9.3) and a median of 33. Eleven programs required their students

Table 5

General Education Credit Hour Requirements

College Coursework	Semester Credits			Quarter Credits		
	Mean	Range	Standard Deviation	Mean	Range	Standard Deviation
English	5.26	4-9	1.53	8.58	4-15	2.94
Mathematics	1.67	0-6	1.73	2.83	0-9	2.66
Physics	1.23	0-6	1.90	2.17	0-8	2.59
Psychology	5.15	0-6	2.35	6.67	3-10	2.42
Anatomy & Physiology	8.70	6-30	4.38	9.33	0-16	3.92

to spend 40 hours per week in class at least part of one term at some point during the program. The mean average of the minimum number of clock hours students were expected to attend class, again either lecture, laboratory, or clinical sessions, was 16.03 (SD=7.88) with a range of 2 to 40 hours. The median average of minimal clock hours required per week was 18.

The program directors were asked to describe the probation and dismissal policy for the physical therapist assistant programs. Each of the 40 programs who responded described a policy specific to the physical therapist assistant program. Students were required to obtain a "C" grade or better in physical therapist assistant courses and science courses to continue in 25 of the programs. Fifteen programs required a cumulative grade point average of 2.0 for graduation. In four of the programs, a student was placed on probation for receiving a grade of "D" in one course and dismissed from the program for receiving either "D"s in two courses or an "F" in one course. Other responses included requiring a "C" in all courses in the curriculum; a 2.0 in all science courses and a cumulative grade point average of 3.0 for physical therapist assistant courses; and one response that the decision for dismissal depended on the situation.

Research Questions

The following research questions were generated by this study:

1. What is the rate of student attrition in physical therapist assistant programs accredited by the American Physical Therapy Association (APTA)?

The rate of student attrition for physical therapist assistant programs accredited by the APTA was calculated for the classes which graduated in the years 1984, 1985, and 1986. For the 1984 graduating classes data was available from 32 programs, and the mean student attrition rate was 32% (SD=20.4) with a median of 29.6%. The 1984 attrition rate values ranged from a low of 0.0% to a high of 69.2%. The mean averages for student attrition for the class which graduated in 1985 and 1986 for 33 programs were lower than in 1984, 28.6% (SD=18.6) and 26.4% (SD=18.5), respectively. The median average for the data from 1985 was equal to the median average of the 1984 data, 29.6%, and the median average from 1986 was 20.8%. The range of values for student attrition for 1985 and 1986 data was quite large as in 1984, 0.0% to 66.7% and 0.0% to 71.1%, respectively.

2. Which are the most significant predictors of attrition?

The mean averages of student attrition for 1984, 1985 and 1986 for each program were compared to responses regarding requirements for a pre-admission personal

interview, program prerequisites, and how important program directors rated certain factors in decreasing student attrition. The statistical analysis performed was a Chi Square (χ^2). The programs' mean attrition values for the three years requested were grouped into three categories, low (0-19%), moderate (20-39%), and high (40% and above) and these groupings were used to calculate the Chi Square (see Table 6).

A pre-admission interview was required by 51.35% (N=19) of the programs that responded. There were no significant differences identified via Chi Square between the student attrition rate and the requirement of a pre-admission interview [$\chi^2(2, N = 32) = 4.82, p>.05(5.991)$].

The program prerequisites used for analysis were high school biology; high school chemistry; high school algebra; high school English; college-level anatomy and physiology: high school biology or chemistry and college-level anatomy and physiology; high school biology, chemistry, and algebra; previous experience in physical therapy; previous experience in physical therapy and high school biology or chemistry or college-level coursework; and no prerequisites required. The program prerequisites were handled as an aggregate, with no significant differences in student attrition identified via Chi Square [$\chi^2(20, N = 86) = 18.031, p>.05(28.412)$].

Program directors were asked to rank eight factors

Table 6

Distribution of Program Factors and Student Attrition Rate

	Student Attrition Rate			
	Low (0-19%)	Medium (20-39%)	High (40% and above)	Total
Program Requirements				
High school algebra	5	2	4	11
High school biology	6	3	5	14
High school chemistry	1	1	4	6
High school English	4	2	4	10
College anatomy & physiology	3	3	1	7
High school algebra, biology & chemistry	1	1	4	6
High school biology or chemistry & college anatomy & physiology	1	0	0	1
College coursework other than anatomy & physiology	5	3	1	9
Experience in a P.T. department	5	2	2	9
Experience in a P.T. department & high school biology or chemistry or college coursework	5	0	2	7
Personal Interview	7	3	6	16

Table 6 (continued)

Distribution of Program Factors and Student Attrition Rate

	Student Attrition Rate			
	Low (0-19%)	Medium (20-39%)	High (40% and above)	Total
Priority ranking of program factors 1 or 2				
Career counseling	5	4	3	12
Admission criteria	9	4	3	16
Pre-admission interview	1	1	2	4
On-going academic counseling	3	7	3	13
Student-to-faculty ratio	0	2	1	3
P.T. assistant curriculum	4	1	2	7
Clinical education	0	0	0	0

from one to eight according to importance in decreasing student attrition where one is most important and eight is least important. The factors being ranked were pre-admission career counseling, admission criteria, pre-admission interview, on-going academic counseling, student-to-faculty ratio, physical therapist assistant curriculum, clinical education program, and other factors not listed. Each program's mean student attrition rate was then compared to which factors were ranked either one or two in priority through a performance of Chi Square statistical analysis. No significant differences were identified via Chi Square between student attrition and the ranking of the above listed factors either one or two by importance in decreasing student attrition [$\chi^2(10, N = 55) = 8.951, p>.05(18.307)$]

Summary

The rate of student attrition in physical therapist assistant programs was calculated for the classes which graduated in 1984, 1985, and 1986. The mean values for these years were 32%, 28.6%, and 26.4%, respectively. A Chi Square analysis was performed to attempt to determine predictors of student attrition using program prerequisites, requirement of a pre-admission interview, and program directors' rankings of program factors by their value in decreasing student attrition with no significant differences

Chapter 5

Summary, Conclusions, and Recommendations

Summary

The purpose of this study was to determine the student attrition rate in physical therapist assistant programs accredited by the American Physical Therapy Association (APTA) at the time of the study and to identify factors which may affect student attrition. The survey instrument was designed to gather data on student attrition rates for the classes which graduated in 1984, 1985, and 1986 and on program characteristics such as admission policies and curricular requirements. The mean student attrition rates were 32%, 28.6%, and 26.4% in 194, 1985 and 1986, respectively. There were no significant differences identified via Chi Square ($p<.05$) between the student attrition rate and the program characteristics evaluated. An unexpected finding of this study was the diversity between programs identified in characteristics such as admission policies and procedures and curricular requirements.

Conclusions

The results of this study provided information on

the student attrition rates of physical therapist assistant programs. The data suggest that significant differences in the rate of student attrition do exist between the programs which responded to the survey, but this study failed to identify a statistically significant relationship between the program characteristics studied and the rate of student attrition. Further study is necessary to obtain more insight into predictors of student attrition.

Although all the physical therapist assistant programs surveyed were accredited by the APTA, and therefore met established minimum standards, there was much diversity between the programs which responded to the survey. Admissions policies ranged from an unrestricted open-admissions policy to the much more restricted admissions policies of the programs with a one-plus-one curriculum in which students are required to complete a full year of general education coursework prior to entering the technical portion of the physical therapist assistant curriculum. The responses to items concerning the number of credit hours and the minimum and maximum number of clock hours required also indicated significant differences between the programs.

The differences identified by this study between these accredited physical therapist assistant programs raise several questions for future study. As the accreditation process in higher education concentrates more on the

measuring of outcomes to assess the quality and effectiveness of the education provided by an institution or program (Deegan and Tillery, 1987; Huffman, 1982) and as resources for higher education become more scarce (McGuire & Miller, 1986; Temple, 1986), educators must be concerned with determining the most appropriate and cost-effective means towards attaining successful outcomes. In occupational/technical programs, such as physical therapist assistant programs, outcomes are often assessed through scores on licensure or certification examinations and through reports on job placement and performance via graduate and employer surveys (Micek, Service, and Lee, 1975). A future study of physical therapist assistant education might attempt to assess the performance of a sample of graduates from several physical therapist assistant programs through performance on the national licensure examination and/or through job performance, and then attempt to relate graduate performance to the admissions and curricular requirements of the programs.

In conclusion, although this study was only able to answer one of the research questions which were to be addressed, this study has provided valuable data on physical therapist assistant educational programs. Perhaps its greatest contribution is the questions it raises and yet leaves unanswered for future researchers.

Recommendations

The results of this study led to the generation of the following recommendations:

1. A future study which obtained data from physical therapist assistant students would be beneficial. The study should be designed to obtain data from students who complete the program of study and from those who leave prior to completing program requirements.
2. A more in-depth study on physical therapist assistant curricula is needed which investigates the relationship between content areas covered, contact hours required in specific content areas such as therapeutic exercise, and outcome assessment.

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April 15, 1987

With the present concern in higher education on maintaining/ increasing student enrollment figures, student retention has become a priority at most colleges and universities. Since becoming Program Director of the Tidewater Community College Physical Therapist Assistant Program, one of my major concerns has been the premature loss of students through attrition. In searching the literature, including the APTA Department of Education, there is almost no information available specifically on student attrition in P.T. Assistant programs. To gain more understanding in this area, I decided to make student attrition the focus of my thesis research I am performing for the graduate program in Community Health Education at Old Dominion University.

I have developed the enclosed survey for directors of P.T. Assistant programs to study the relationship between certain program characteristics, such as admissions procedures and curriculum requirements and student attrition. All responses will remain confidential. I realize that completing this study will require research into student files; however, I hope you agree that the benefits of gaining more information on student attrition far outweigh the time and effort involved.

Confirmation that this survey is part of an approved research study may be obtained by calling the School of Community Health Professions at Old Dominion University (804) 440-4519 or (804) 440-4409. Please ask for one of the following members of my Research Committee: John Echternach,Ed.D; Gregory Frazer,Ph.D.; or George Mahaifer, M.S.,P.T.

If you would like a copy of the results of this study, please complete the enclosed post card and return it to me. I anticipate that the results will be available in September 1987.

over...

I have enclosed a postage-paid return addressed envelope for your convenience. Please return the questionnaire by May 1, 1987.

Thank you for your assistance in this research project.

Sincerely,

Pamela Bayliss PT

Pamela Bayliss, P.T.
Program Director
Physical Therapist Assistant Program

PB:jmw

Encls.

SURVEY OF PHYSICAL THERAPIST ASSISTANT PROGRAM DIRECTORS

Instructions:

There are four (4) parts to this survey: Part I: General Information, Part II: Admissions Process, Part III: Curriculum, and Part IV: Student Information. Please complete all parts as accurately as possible.

If the question is not applicable to your program, please put N/A in the blank provided for that item.

Please do not give your name, social security number, or any other identifying data so that this survey will remain anonymous.

PART I: General Information

1. Title (not name) of person completing survey:

   _____

2. Size and type of institution: (check one in each column)

_____ Less than 1,000 students	_____ 2-year public
_____ 1,000 - 4,999 students	_____ 2-year private
_____ 5,000 - 9,999 students	_____ 4-year public
_____ 10,000 - 20,000 students	_____ 4-year private
_____ More than 20,000 students	

3. Is the institution on the semester or quarter system?

   _____ Semester _____ Quarter

4. Number of physical therapist assistant faculty: (please differentiate between full time and part time)

   _____ Full-time faculty _____ Part-time faculty

5. Student to faculty ratio in physical therapist assistant lecture courses:

   _____ : 1.0

6. Student to faculty ratio in physical therapist assistant lab courses:

   _____ : 1.0

PART II: Admissions Process - P.T. Assistant Program

1. Is the admissions process:

_____ a. Selective (students must meet certain criteria to be accepted into P.T. Assistant Program)
_____ b. Open admission (no criteria established for entrance into P.T. Assistant Program)

If you answered "a" to Number 1, please continue.

If you answered "b" to Number 1, please go to Part III on Page 3.

2. Is a pre-admission interview required?

_____ Yes _____ No

3. Titles of those who participate in the pre-admission interview?

_____

_____

4. Admission to the program is determined by the recommendation of: (check all that apply)

_____ Program Director only
_____ Admissions Committee (including non faculty)
_____ Division Chairman
_____ Program Faculty
_____ Department Chairman
_____ Dean
_____ Others (please specify) _____

5. What are the program's pre-admission requirements? (check all that apply)

_____ High School Biology _____ High School Algebra
_____ High School Chemistry _____ High School English
_____ College Anatomy and Physiology
_____ Other College Coursework (please specify) _____

_____

_____ Experience (volunteer work or employment) in a health care facility
_____ Experience (volunteer work or employment) in a physical therapy department

PART III: Physical Therapist Assistant Program Information

1. Number of semesters/quarters required to complete program:

_____

2. Total credits required in curriculum: _____

3. Maximum number of contact hours per week required of students in one semester/quarter (including lecture, laboratory, and clinical)? _____

4. Minimum number of contact hours per week required of students in one semester/quarter (including lecture, laboratory, and clinical)? _____

5. Average number of contact hours per week required of students (including lecture, laboratory, and clinical)?

_____

6. Number of total clinical contact hours: _____

7. Please give the number of credit hours required in each of the following areas:

_____ English
_____ Mathematics
_____ Physics
_____ Psychology
_____ General Biology
_____ Anatomy and Physiology
_____ Other (please specify) _____

8. Do you have a 1 + 1 program? (1 year of general studies and 1 year of physical therapy technical courses)

_____ Yes _____ No

9. What type of faculty advising system is currently being used by the Physical Therapist Assistant Program? (check all that apply)

_____ Pre-admission academic counseling
_____ Mid-term counseling
_____ Open Advisement
_____ Other (please specify) _____

10. Describe the program's policy on academic probation and expulsion from the program: _____

_____

11. Rank the following factors from 1 to 8 according to their importance in decreasing student attrition (1 is most important, 8 is least important).

_____ Career counseling (pre-admission)
_____ Admission criteria
_____ Pre-admission interview
_____ On-going academic counseling by faculty
_____ Student-to-faculty ratio
_____ P.T. assistant curriculum
_____ Clinical education program (total hours and variety of facilities)
_____ Other (please specify) _____

PART IV: Student Information

If data requested is not known or not available, please put a question mark (?) in the space provided for the answer.

		Graduating Class Of: 1984	1985	1986
1.	Number of students originally admitted into this class	_____	_____	_____
2.	Number of returning students admitted after the first quarter/ semester who graduated with this class	_____	_____	_____
3.	Number of students at end of 1st year in this class	_____	_____	_____
4.	Number of graduates	_____	_____	_____
5.	Number of students with prior college coursework:			
	a. 1 - 12 credit hours	_____	_____	_____
	b. 13 - 24 credit hours	_____	_____	_____
	c. 25 of more credit hours	_____	_____	_____
6.	Number of students with previous college Anatomy and Physiology (C or better grade)	_____	_____	_____

7. What are the three most important reasons your students give for dropping out of the program (in priority order)?

   a. _____

   b. _____

   c. _____

   Have you collected data on this? _____ Yes _____ No

Thank you for completing this survey. Please fill in your name and address on the enclosed postcard if you would like a copy of the results.

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS

ALABAMA

University of Alabama at Birmingham
Sharon Shaw, M.A.
Assistant Professor & Program Director
University of Alabama at Birmingham
RTI Building, Rm. B-41
University Station, AL 35294
(205) 934-3566

ARKANSAS

University of Central Arkansas
Venita Lovelace-Chandler
Program Director
Physical Therapist Assistant Program
University of Central Arkansas
Educational Building, Room 235
12th and Marshall Streets
Little Rock, AR 72201
(501) 370-7520

CALIFORNIA

Cerritos College
Marijean Piorkowski, Chairperson
Physical Therapist Assistant Program
Cerritos College
Health Occupations Division
11110 East Alondra Boulevard
Norwalk, CA

DeAnza Community College
Francis Lupi-Williams, Coordinator
Physical Therapist Assistant Program
DeAnza Community College
21250 Stevens Creek Boulevard
Cupertino, CA 95014
(408) 996-4687

Los Angeles Pierce College
Keith E. Hopkins, Ph.D., Director
Physical Therapist Assistant Program
Los Angeles Pierce College
6201 Winnetka Avenue
Woodland Hills, CA 91371
(213) 347-0551, Ext. 261

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

CALIFORNIA (continued)

Mount St. Mary's College
Donna Redman Bentley, Ph.D., Director
Physical Therapist Assistant Program
Mount St. Mary's College
10 Chester Place
Los Angeles, CA 90007
(213) 746-0450, Ext. 2156

San Diego Mesa College
Judith Pautler, Director
Physical Therapist Assistant Program
San Diego Mesa College
7250 Mesa College Drive
San Diego, CA 92111
(619) 560-2600

FLORIDA

Broward Community College
Susan Edelstein, Department Head
Physical Therapist Assistant Program
Broward Community College
Allied Health Center Campus
3501 S.W. Davie Road
Fort Lauderdale, FL 33314
(305) 475-6780

Miami-Dade Community College
Robert Patterson, Ed.D., Chairperson
Physical Therapist Assistant Program
Miami-Dade Community College
Medical Center Campus
950 N.W. 20th Street
Miami, FL 33127
(305) 347-4104

St. Petersburg Junior College
David H. Erickson, Chairman
Physical Therapist Assistant Program
St. Petersburg Junior College
P.O. Box 13489
St. Petersburg, FL 33733
(813) 341-3611, Ext. 4685

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

GEORGIA

Medical College of Georgia
Karen J. Grube, Director
Physical Therapist Assistant Program
Medical College of Georgia
School of Allied Health Sciences
Department of Physical Therapy
Building #CH-100
Augusta, GA 30912
(404) 828-2141

ILLINOIS

Belleville Area College
Wallace Strittmatter, Coordinator
Physical Therapist Assistant Program
Belleville Area College
2500 Carlyle Road
Belleville, IL 62221
(618) 235-2700, Ext. 362 or 267

Illinois Central College
Jeanne Person
Physical Therapist Assistant Program
Illinois Central College
East Peoria, IL 61635
(309) 694-5250

Morton College
Dr. Jean Drukker Davis, Coordinator
Physical Therapist Assistant Program
Morton College
3801 South Central Avenue
Cicero, IL 60650
(312) 656-8000

Oakton Community College
Lee Boushie, Chairperson
Physical Therapist Assistant Program
Oakton Community College
1600 East Golf Road
Des Plaines, IL 60016
ATTN: Cluster 2
(312) 635-1857

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

ILLINOIS (continued)

Southern Illinois University
Ted Okita, Coordinator
Physical Therapist Assistant Program
Southern Illinois University
Clinical Center, WHAM 141
Carbondale, IL 62901
(618) 453-2361

INDIANA

University of Evansville
Cheryl Ann Griffith, Director
Physical Therapist Assistant Program
University of Evansville
P.O. Box 329
Evansville, IN 47714
(812) 479-2344

Vincennes University
Roger Schneider, Coordinator
Physical Therapist Assistant Program
Vincennes University
Health Occupations Department
Vincennes, IN 47591
(812) 882-3350

KANSAS

Colby Community College
Kurt Backstrom, Director
Physical Therapist Assistant Program
Colby Community College
1255 South Range
Colby, KS 67701
(913) 462-3984

Washburn University
Susan Hanrahan, Director
Physical Therapist Assistant Program
School of Applied and Continuing Education
Washburn University
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(913) 395-6619, Ext. 406

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

KENTUCKY

Jefferson Community College
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Jefferson Community College
P.O. Box 1036
Louisville, KY 40201
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MARYLAND

Community College of Baltimore
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Physical Therapist Assistant Program
Community College of Baltimore
2901 Liberty Heights Avenue
Baltimore, MD 21215
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MASSACHUSETTS

Becker Junior College
Lydia Deitrick, Program Coordinator
Physical Therapist Assistant Program
Becker Junior College
61 Sever Street
Worchester, MA 01609
(617) 791-9241, Ext. 38

Lasell Junior College
Nancy Cardinali, Director
Physical Therapist Assistant Program
Lasell Junior College
Newton, MA 02166
(617) 243-2000

Newbury College
Luis Vargas, Chairman
Department of Physical Therapy
Newbury College
100 Summer Street
Holliston, MA 01746
(617) 429-6910

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

MASSACHUSETTES (continued)

North Shore Community College
Shirley Needham, Director
Physical Therapist Assistant Program
North Shore Community College
215 Main Street
Beverly, MA 01915
(617) 927-4850

Springfield Technical Community College
Elizabeth Farquhar Burke, Program Director
Physical Therapist Assistant Program
Building 20
Springfield Technical Community College
One Armory Square
Springfield, MA 01105
(413) 781-7822, Ext. 3518

MICHIGAN

Delta College
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Physical Therapist Assistant Program
Delta College
F-56 Allied Health Building
University Center, MI 48710
(517) 686-9147

Kellogg Community College
Deborah Miller, Coordinator
Physical Therapy Assistant Program
Kellogg Community College
450 North Avenue
Battle Creek, MI 49016
(616) 965-3931, Ext. 422

Macomb Community College
Faye M. Cobb, Director
Physical Therapist Assistant Program
Macomb Community College
44575 Garfield Road
Mount Clemens, MI 48044-3179
(313) 286-2031

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

MINNESOTA

St. Mary's Junior College
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St. Mary's Junior College
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MISSOURI

Penn Valley Community College
Karen Wingert, Director
Physical Therapist Assistant Program
Penn Valley Community College
3201 Southwest Trafficway
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St. Louis Community College at Meramec
Dorothy J. Shelton, Director
Physical Therapist Assistant Program
St. Louis Community College at Meramec
11333 Big Bend Boulevard
St. Louis, MO 63122
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NEW HAMPSHIRE

New Hampshire Vocational-Tech College
Garrett Hull, M.Ed., Director
Physical Therapist Assistant Program
New Hampshire Vocational-Tech College
Hanover Street Extension
Claremont, NH 03743
(603) 542-7745

NEW JERSEY

Atlantic Community College
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Program Coordinator
Physical Therapist Assistant Program
Allied Health Division
Atlantic Community College
Mays Landing, NJ 08330
(609) 625-1111, Ext. 302

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

NEW JERSEY (continued)

Essex County College
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Essex County College
303 University Avenue
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Fairleigh-Dickinson University
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Fairleigh-Dickinson University
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Union County College
Ellen Price, Program Coordinator
Physical Therapist Assistant Program
Union County College
1033 Springfield Avenue
Cranford, NJ 07016
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NEW YORK

Institute of Rehabilitation Medicine
Jack Hofkosh, Director
Physical Therapist Assistant Program
Institute of Rehabilitation Medicine
New York University Medical Center
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Maria College
Linda Scheuer, Coordinator
Physical Therapist Assistant Program
Maria College
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ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

NEW YORK (continued)

Nassau Community College
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Physical Therapist Assistant Program
Nassau Community College
Garden City, NY 11530
(516) 222-7550/1/6

Orange County Community College
Roberta Bernstein, Chairperson
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Orange County Community College
115 South Street
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(914) 343-1121, Ext. 355

Suffolk County Community College
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Suffolk County Community College
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533 College Road
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NORTH CAROLINA

Central Piedmont Community College
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ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

OHIO

Cuyahoga Community College
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Sinclair Community College
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Stark Technical College
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University of Cincinnati
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University of Cincinnati
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OKLAHOMA

Oklahoma City Community College
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Oklahoma City Community College
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Oklahoma City, OK 73159
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ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

OKLAHOMA (continued)

Tulsa Junior College
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Physical Therapist Assistant Program
Tulsa Junior College
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OREGON

Mount Hood Community College
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Physical Therapist Assistant Program
Mount Hood Community College
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Gresham, OR 97030
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PENNSYLVANIA

Harcum Junior College
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Physical Therapist Assistant Program
Harcum Junior Collge
Bryn Mawr, PA 19010
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Leigh County Community College
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Physical Therapist Assistant Program
Lehigh County Community College
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Pennsylvania State University
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Pennsylvania State University
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ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

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SOUTH CAROLINA

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TENNESSEE

Chattanooga State Technical Community College
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Chattanooga State Technical Community College
Division of Life and Health Sciences
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(615) 697-4400

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

TENNESSEE (continued)

Shelby State Community College
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Division of Allied Health
Shelby State Community College
P.O. Box 40568
Memphs, TN 38174-0568
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Volunteer State Community College
Betty Hickman, Program Director
Physical Therapist Assistant Program
Volunteer State Community College
P-205, Nashville Pike
Gallatin, TN 37066
(615) 452-8600, Ext. 202

TEXAS

Amarillo College
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(806) 376-5111

Austin Community College
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Physical Therapist Assistant Program
Austin Community College
Health Sciences Center
707 E. 14th Street
Austin, TN 78701
(512) 495-7058

Community College of the Air Force
Major Daniel L. Runyan
Group Intermediate Supervisor, 913XO Course
Physical Therapist Assistant Program
School of Health Care Sciences
Community College of the Air Force
MSDB Stop 114
Sheppard Air Force Base, TX 76311
(817) 851-6232, Ext. 2886

ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

TEXAS (continued)

Houston Community College
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Physical Therapist Assistant Program
Houston Community College
3200 Shenandoah
Houston, TX 77021
(713) 748-8560

St. Philip's College
Joanne E. Fenninger, Chairman
Physical Therapist Assistant Program
St. Philip's College
2111 Nevada Street
San Antonio, TX 78203
(512) 531-3416

Tarrant County Junior College
Mary Jane Castellow, Coordinator
Physical Therapist Assistant Proram
Tarrant County Junior College
828 Harwood Road, Northeast Campus
Hurst, TX 76054
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VIRGINIA

Northern Virginia Community College
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Northern Virginia Community College
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ACCREDITED PHYSICAL THERAPIST ASSISTANT PROGRAMS (continued)

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