

The following article is of relevance to the current interest in advanced education for prosthetists/orthotists. The concept as put forth in the article is similar to the concept of the Academy College Fund. In brief, the authors advance the idea that prosthetists/orthotists receive an advanced degree in the areas of education, research or administration to prepare them for academic and research roles.

The general objective of the Academy College Fund is to provide advanced, graduate training for prosthetists/orthotists, leading to a doctorate in the field of prosthetics and/or orthotics. The graduate of the Academy College of Prosthetics and Orthotics, after serving in a residency program, will be able to prescribe prostheses and/or orthoses for patients in consultation with the referring physician or surgeon. The goals and purposes, while not mutually exclusive, are fundamentally different.

What do you think? The readers are invited to voice their opinions in letters to the editor. (The above description of the two programs is the editor's interpretation).

The Editor

A Model for Graduate Education in Orthotics and Prosthetics

by **Caroline C. Nielsen, Ph.D.**
Ronald F. Altman, C.P.O.
Patricia Gillespie, M.P.H.
Priscilla D. Douglas, Ph.D.

INTRODUCTION

The Education Accreditation Commission (EAC) of the American Board for Certification in Orthotics and Prosthetics (ABC) has recognized the need for specialized and advanced education in the field of orthotics and prosthetics.¹ To address this need, the School of Allied Health Professions at the University of Connecticut, in collaboration with the Department of Orthotics and Prosthetics at Newington Children's Hospital, has developed a program leading to the Master of Science in Allied Health. The program is designed to address both the increasing complexity of technological developments in the field of rehabilitation and the need to extend the education and training of the orthotist/prosthetist in comprehensive areas of contemporary practice including education, research, and management. As the orthotics and prosthetics field has progressed from the traditional cottage industry to the contemporary

role of a legitimate allied health profession, trained individuals possessing the education and research skills necessary to participate in clinical or academic environments are being sought with increased frequency. No mechanism currently exists that prepares these individuals for leadership positions.

In the special edition of the journal of the American Orthotic and Prosthetic Association², *Orthotics and Prosthetics*, devoted solely to educational issues and programs, the basic responsibilities of the professional practitioner and technician in orthotics and prosthetics, as required by the American Board for Certification, were fully delineated. One of the major ABC objectives is "to contribute to the progress and growth of the profession through research and development activities, contributing knowledge to the profession, exercising leadership, and recruiting and training new entrants into the field."³ However, current university based educational programs in the United

States do not offer advanced training in orthotics and prosthetics which integrates the education, research, and administrative aspects of the profession. As a result, administrative and faculty positions are now occupied by persons with years of experience or through international recruitment.⁴

This is the first program in the nation to address the recent policy statement of the Educational Accreditation Commission of the American Board for Certification in Orthotics and Prosthetics, recommending that:

“Universities with the appropriate capability develop master level degrees in these disciplines. Such majors as research, education and clinical administration are recommended. The development of such advanced degree programs will increase the capability of the field of orthotics and prosthetics to rehabilitate the orthopedically handicapped.”⁵

The Graduate Program of the School of Allied Health Professions was selected because the goals of this program are congruent with the needs of the orthotics/prosthetics profession. The program has been in existence since 1979, and was accredited by the Board of Higher Education in 1982.

THE PROGRAM

The program is designed for those individuals who have a Bachelor of Science degree from an ABC accredited practitioner program in orthotics and prosthetics and have completed a one year residency program in orthotics and prosthetics, or have a Bachelor of Science in a related field, have received a long-term certificate in orthotics and prosthetics from an ABC accredited program, and have a minimum of one year experience in orthotics and prosthetics. All candidates must be eligible for or have passed the ABC Practitioner Certification Examination.

Collaboration between the Newington Children's Hospital and the School of Allied Health Professions at the University of Connecticut provides a structured training program based within a university graduate program.[†] Placement of the program within an academic community insures stability, provides for utilization of existing faculty and courses, and allows the

orthotist/prosthetist to interact with other health care professionals in an academic environment.

Newington Children's Hospital has been a leader in orthotics and prosthetics practice for over 50 years. It is one of the largest accredited institutional practices in the United States specializing in orthotics and prosthetics and serves over 2,000 clients annually. In 1980, the first orthotics and prosthetics residency program was established at Newington Children's Hospital admitting two students a year with a Bachelor of Science in orthotics and prosthetics. Expansion of the existing residency program at Newington Children's Hospital and satellite facilities will provide a variety of didactic clinical experiences within a well developed teaching environment.

PROGRAM OBJECTIVES

The program is designed to facilitate the development of leaders in health care through an interdisciplinary approach. The curriculum goals are to provide the student with the opportunity to develop knowledge of the health care system and understanding of the future role of the orthotist/prosthetist as an integral part of the rehabilitation system. The Master of Science in Allied Health program, with emphasis in orthotics and prosthetics, has been designed to:

- prepare orthotists/prosthetists to fill roles as educators, applied researchers, and administrators;
- emphasize a multidisciplinary team approach to graduate education in the health professions;
- to acquaint the student with new facets of health care and maximize potential to work effectively and cooperatively as members of a health care team; and
- to build advanced skills in orthotics/prosthetics while providing an opportunity to select an elective area in education, applied research, or administration.

[†] The program has been developed with the assistance of the Pediatric Research and Training Center, University of Connecticut Health Center, under a grant from the National Institute for Handicapped Research.

CURRICULUM MODEL

The curriculum has been designed to utilize the resources of both institutions. The model⁶ has three components: 1) a required core of courses providing the student with a foundation in the health care delivery system and leadership development; 2) a tract of electives which provides the student with competencies in research, education, or management; and 3) a professional tract which provides opportunities for exploring selected areas of orthotics and prosthetics. These three components are synthesized with integrative seminars and a practicum.

Core Courses

The core courses in the School of Allied Health Professions have been designed and developed with an interdisciplinary focus to reflect issues, knowledge, and skills relevant to all health professionals. The core component consists of nine credits of course work related to the system in which the health professional works and interacts, role identity and conflict, the prevailing forces of contemporary society, and basic concepts of research in health care.

The core courses also offer an opportunity for interaction with other health colleagues and increased understanding of the role and function of the total health care team. Core courses include: "Health Care Processes and Systems," "The Allied Health Professional in Contemporary Society," and "Research Methods in Allied Health."

Elective Tract

The elective area provides an opportunity to gain further experience in education, research, or administration. The elective component consists of nine to twelve credits of course work in one of these areas of professional interest.

The **Education Elective** addresses the need to prepare health practitioners for teaching roles in clinical and academic settings. Course work focuses on learning theories, educational evaluation, and new instructional methods and media techniques.

The **Research Elective** offers considerable flexibility in design and course selection to meet the professional needs of the student. A course in statistics and computer application is

required. The student may select other courses related to a research topic. Independent studies are also available with individualized guidance on research projects.

The **Administrative Elective** provides the administrative knowledge and skills required for effective administration performance at the department and program levels.

In both the Education and Administrative Electives, students participate in a final seminar integrating and applying the learned concepts to their allied health specialties.

Professional Tract: Orthotics and Prosthetics

The technical discipline component of the advanced degree program is designed to expand the professional's knowledge base and technical competence. The professional tract consists of a three credit seminar, examining the psychosocial aspects of disability, and 12 credits of internship rotations at the Newington Children's Hospital and satellite affiliates.

Project and Practicum

The project and practicum are the culminating experiences in the graduate program, consisting of nine credits of practical and academic activities. These supervised experiences provide the opportunity to integrate the academic and clinical experiences of the graduate program.

The **Project** allows the student to utilize abilities gained in the program by developing and implementing a project relevant to his professional interests. The project provides tangible evidence of knowledge gained during graduate study. Examples of projects include curriculum guidelines, exercise guides for patients, instructive video tapes, and research studies.

The **Practicum** provides the opportunity for an orthotist/prosthetist to be an educator, researcher, or administrator in a supervised practicum experience with constant evaluation and feedback. In conjunction with the practicum, students also take part in a related seminar. The seminar provides an opportunity to discuss and analyze major issues relevant to contemporary health practices and trends, and to examine individual goals within an interdisciplinary set-

ting. The practicum and seminar consist of six credits. Both the project and the practicum are designed to develop problem solving skills and promote increased awareness of the applicability of research.

The program is designed to be a full-time two year program. However, the courses can accommodate students from other disciplines, as well as health care professionals, seeking continued development in orthotics and prosthetics. It is expected that this will improve the cost effectiveness of the program, as well as create a learning environment enhanced by the diversity of the student pool.

PROGRAM EVALUATION

Since this is the first advanced degree program in orthotics and prosthetics in the United States, evaluation procedures have been developed to assess both the short and long term outcomes of the program. The evaluation will be both formative and summative. Ongoing evaluations will monitor program implementation and achievement of objectives with the goal of bringing about any indicated modifications for the program's improvement. An evaluation conducted at the conclusion of the initial two year cycle will produce an accurate description of the program and a summary of its effects. Results of the evaluation will illustrate any problems in implementation, the successes of the program, and budget expenditures. The report will serve as a planning document for others who may wish to duplicate the program.

CONCLUSIONS

The Master of Science in Allied Health program with emphasis in orthotics and prosthetics has been developed to address the rapidly expanding need for professionally qualified orthotists and prosthetists with the advanced skills necessary to participate in educa-

tion and research. Collaboration between the Newington Children's Hospital and the School of Allied Health Professions at the University of Connecticut permits utilization of an established orthotics/prosthetics clinical teaching facility and an academic program within a university graduate school.

The interdisciplinary format of this graduate program addresses the stated needs of the profession to extend the education and training of the orthotist/prosthetist in education, research, and management to reflect the comprehensive scope of contemporary orthotic and prosthetic practice.

REFERENCES

- ¹ Educational Accreditation Commission of the American Board for Certification in Orthotics and Prosthetics, Inc., Policy Statement, November, 1984.
- ² *Orthotics and Prosthetics*, Vol. 38, No. 2, 1984.
- ³ "Orthotics/Prosthetics Education—A Guide to This Issue," *Orthotics and Prosthetics*, Vol. 38, No. 2, 1984, p. 14.
- ⁴ Personal Communication, Dept. of Orthotics and Prosthetics, Florida International University.
- ⁵ Op. Cit., Educational Accreditation Commission.
- ⁶ Douglas, Priscilla D. "An Interdisciplinary Model for Graduate Education in Allied Health," *Journal of Allied Health*, Vol. 11, No. 1, February, 1982, pp. 53-58.

AUTHORS

Caroline C. Nielsen is Academic Coordinator and Assistant Professor of the Graduate Program at the School of Allied Health Professions, Box U-101, 358 Mansfield Road, University of Connecticut, Storrs, CT 06268.

Ronald F. Altman, C.P.O., was Clinical Coordinator and Director, Department of Orthotics and Prosthetics, Newington Children's Hospital, Newington, CT. He is currently president of R. F. Altman Associates, Suite 404, 140 Woodland Street, Hartford, CT 06112.

Patricia Gillespie is Associate Dean for the School of Allied Health Professions at the University of Connecticut.

Priscilla D. Douglas is Professor and Director for the Graduate Program at the School of Allied Health Professions, University of Connecticut.