

PRIMER ON THE PRACTICE DOCTORATE FOR NEONATAL NURSE PRACTITIONERS

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ABSTRACT

Recent advances in technology, research, and knowledge have amplified the need for longer and more in-depth education for neonatal nurse practitioners (NNPs). In this article we will briefly review the history of NNP's role and education, define the Doctor of Nursing Practice (DNP), and propose that the practice doctorate is the primary mechanism to meet that need and thus is the future of our profession. Doctor of Nursing Practice programs are designed to prepare the practitioner as an expert clinical NNP. Graduates obtain the highest level of practice expertise integrated with the ability to translate scientific knowledge into complex clinical interventions tailored to meet individual, family, and community health and illness needs. Doctor of Nursing Practice education also expands the scientific basis for practice and clinical practice education, and provides organization and system management and leadership, quality improvement, analytic methods to evaluate practice and apply evidence to practice, enhanced skills in information technology, health policy development, and interdisciplinary collaboration for enhanced patient outcomes.

KEY WORDS: neonatal nurse practitioner (NNP), doctor of nursing practice (DNP), practice doctorate, nursing education, newborn intensive care, neonate, infant.

Neonatal nurse practitioners (NNPs) are an integral and important aspect of the interdisciplinary team providing expert, evidenced-based management and care for preterm and critically ill newborns. Since the inception of the role in the 1970s, NNPs have managed the smallest and sickest infants in neonatal intensive care units (NICUs) across the US. Initially, NNPs were educated and trained in relatively short (4 to 9 months) hospital-based certificate programs. As the NNP role evolved over the past several decades, the educational process also evolved. In the mid 1980s, master's preparation for entry-level practice was proposed. In 2000 this standard became a reality for NNPs, due in part to regulation of advanced-practice nursing (APN) at the state level, the application of national standards from national certification bodies, and strong recommendations from professional nursing societies including the National Association of Neonatal Nurses (NANN).¹ The National Council of State Boards of Nursing also issued a document requiring a master's degree for all new APNs graduating in or after 2003.²

In 2004, the American Association of Colleges of Nursing (AACN) proposed that all APN preparation should move to the practice doctorate level. This article focuses on the evolutionary changes in the practice of NNPs and the new initiatives for moving to doctoral level preparation for future graduates.

HISTORY OF THE NEONATAL NURSE PRACTITIONER ROLE

Neonatal nurse practitioner practice is historically intertwined with the development of NICUs. In 1960, Dr. Louis Gluck opened the first modern NICU at Yale-New Haven Hospital; however, the NICU concept was not readily accepted by the medical establishment.³ After Dr. Gluck demonstrated improved outcomes for ill and preterm newborns, and, concurrent with an exponential increase in knowledge and dramatic technological advances, by the late 1960s and early 1970s many large university-affiliated hospitals established NICUs.

As survival of preterm, sick newborns increased, neonatal mortality diminished and patient censuses increased dramatically, straining structural and physician capacity to provide optimal management and

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complex care.⁴ Nurses provided skilled and compassionate nursing care for tiny, sick newborns, and, as the number of patients increased, nurses began assuming some procedures that had traditionally been performed only by physicians. Examples included placing intravenous needles and catheters, emergency endotracheal intubation, and intrafacility transport of critically ill newborns to regional tertiary care centers. Neonatologists, motivated by the shortage of adequately trained physicians and an escalating census, recognized that with increased education and training nurses had the ability and the expertise to provide medical management for sick and preterm infants.⁴

To meet this urgent need for skilled critical care providers, continuing education programs were developed in the mid 1970s. These programs enrolled skilled bedside nurses, many of whom had been transport nurses, for the *nurse clinician* role.⁴ Later, the more universally acceptable term—*nurse practitioner*—was applied to these clinicians. These programs initially focused on educating and training NNPs to perform tasks and procedures; however, it became obvious to both NNPs and physicians that NNPs had the ability and motivation to increase their scope of practice and wanted a broader knowledge base and the expanded education to do so.

Over the past 30 years, NNP practice has evolved from a task-oriented role to the current practice of total patient management, including medical management, developmental care, technological expertise, transport, and family/infant care, and education, research, and advocacy for improved public policies for women, infants, and families at the local, regional, and national levels.

Technology, research, and information in the neonatal discipline have exploded over the past 10 years; consequently, the amount of knowledge required to practice at an expert level has increased dramatically. Many of the other disciplines involved in newborn intensive care have moved their educational preparation to the doctoral level. Examples include physicians, pharmacists (PharmD), physical therapists, and audiologists.⁵⁻⁷ Although functionally the NNP is frequently the team leader who devises a management plan based on input and recommendations from the other disciplines and presents this plan to the attending neonatologist, in some settings the NNP might be one of the only nondoctorally prepared team members.

HISTORY OF NEONATAL NURSE PRACTITIONER EDUCATION

The first NNP programs evolved from the need for a skilled nurse specialist who could perform specific tasks and procedures (e.g., umbilical catheter insertion, endotracheal intubation) and also manage the care of sick newborns. In 1975, the American Nurses Association published *Guidelines for Short-Term*

*Continuing Education Programs for the Nurse Clinician in Intensive Neonatal Care and the Nurse Clinician in Intensive Maternal-Fetal Care.*⁸ The guidelines were developed by the Blue Ribbon Commission comprising several professional organizations (including nursing organizations), and funded by the March of Dimes. The purpose of the guidelines was to develop programs that would expand the knowledge and skills of nurses in NICUs to equip them to provide more sophisticated care and management for high-risk newborns.

The initial NNP programs were 4 to 9 months long, and most were hospital-based; a few NNP programs were university-based or a hybrid mix of hospital- and university-based.⁴ None of the early programs incorporated NNP education into graduate-level programs in nursing⁴; all programs were nondegree certificate programs. Some offered graduate-level credits for specific courses.

Graduates of the early programs usually worked in the units where they were trained and often had difficulty obtaining jobs in other institutions or states because of lack of standardization in the NNP role. Educational requirements to enter the early programs were arbitrary and variable; the major requirements included RN status and some experience in a NICU; in many cases, a bachelor's degree was not required. After the shift in education standards to the master's level, these nurses were faced with completing both bachelor's and master's degrees.

Many reasons exist for the lack of graduate education for NNPs in the early years. These include skepticism by nursing educators and nursing leaders about the role of NNPs. Many nursing leaders thought that the NNP role was based on a medical model and therefore was not appropriate for nursing.⁴

Two major developments had a great impact on the development of NNP roles, functions, and education. These were:

- Establishment of a professional neonatal nursing organization in 1984 (NANN); and
- Development of a national certification examination in 1983.⁴

The National Association of Neonatal Nurses provided structure, support, and communications for neonatal nurses in general, and for NNPs more specifically, and established a collective voice for the profession. They published definitions of advanced roles of nurses in the NICU (including NNPs), and eventually developed specific guidelines for NNP education that called for graduate education for entry-level practice.^{1,9} The National Association of Neonatal Nurses also provided guidance for curriculum development in its published guidelines for educational standards and curriculum of master's level NNP programs.^{10,11}

In 1992 the American Academy of Pediatrics (AAP) issued a policy supporting the role of advanced

practice nursing in the NICU, and in 2003, the AAP published an updated statement that reinforced its ongoing support of the role of NNPs in the NICU.^{12,13}

The Nurses' Association of the American College of Obstetricians and Gynecologists Certification Corporation, currently known as the National Certification Corporation (NCC), developed certification examinations for NNPs in 1983. The first examinations were criticized by some nursing leaders for their untested validity and the variable educational criteria required to sit for the examination; however, they were soon psychometrically tested and refined.⁴ Currently, most state boards of nursing recognize NCC certification, and many state boards have established NCC certification as a requirement for practice. All but 5 states require national certification from a certifying body to qualify for licensure or registration as an NNP.¹⁴

By the mid 1980s, programs began moving to the master's level of education. This was challenging because few nursing schools had faculty with the necessary combination of neonatal specialty education, appropriate graduate credentials, and the relevant clinical experience to teach NNP students. The first master's programs relied on master's level neonatal clinicians and neonatologists to teach the highly technical knowledge required.

As of June 2006, NNP programs are offered at 45 universities throughout the U.S.; 36% are online, 18% are partially online, and 46% are traditional classroom-based programs.¹⁵ Most of these programs are small, with an average enrollment of 14 students (range, 1 to 75 students).¹⁵ Total enrollment for all NNP programs for 2006 was 603, a substantial increase from 2004 and 2005.¹⁵⁻¹⁷ In 2004, 199 NNP students graduated, and 258 students graduated in 2005.^{16,17}

NEED FOR ADVANCED EDUCATION BEYOND THE MASTER'S DEGREE

Currently, nursing offers 2 distinct types of doctoral programs. The research doctorate is designed to prepare graduates to pursue intellectual inquiry and conduct independent research for the primary purpose of new knowledge development. Universities typically offer the PhD for this program; other options include the Doctor of Nursing Science (DNSc or DSN).¹⁸ Research doctoral programs typically require a dissertation for graduation.

The other type of doctoral program is the practice doctorate; these programs are similar to other practice doctorates—MD, DDS, PharmD, DPT—and are designed to prepare the practitioner as an expert clinical NNP. Graduates obtain the highest level of practice expertise integrated with the ability to translate scientific knowledge into complex clinical interventions tailored to meet individual, family, and community health and illness needs.¹⁸ In addition, these professionals use advanced leadership knowledge and

skills to evaluate the translation of research into practice and collaborate with scientists on new health policy research opportunities that evolve from the translation and evaluation processes. Nurses with a practice doctorate are prepared to focus on the *evaluation and use of research* rather than *conducting or developing* a program of research.¹⁸

In March 2004 the AACN released its *Position Statement on the Practice Doctorate in Nursing*, calling for nursing education programs to move advanced practice nursing education to the doctoral level.¹⁹ In forming this recommendation, AACN argued that existing master's programs had 2 problems. First, the time required for completion of the program is not congruent with the degree (p. 7); i.e., current master's programs require more time than is typically warranted for a master's degree. Most NNP programs require at least 44 semester hours to complete a master's degree; in contrast, many other master's degree programs require only 30 to 35 semester hours. Examples include a master's in business, which requires 30 to 33 semester hours in some university programs; a master's in public health, which requires 35 semester hours; and a master's in accounting, which requires 30 semester hours.

The second problem with existing nursing master's degree programs is that there are gaps between what is taught and the knowledge that is actually required for advanced practice. In most cases, NNP graduates need 6 to 9 months of careful clinical supervision and mentoring before they can practice independently. Clearly, extending the existing master's program is not a viable solution because the time and education involved would be prohibitive for both students and faculty.

For the NNP of the future, the evolving practice environment will require new abilities that were identified by the AACN document. These include the following:

- Expansion of the scientific basis for practice;
- Enhanced analytic methods to evaluate practice and apply evidence to practice;
- Expansion of the clinical practice education, organization, and system management, and enhanced leadership skills;
- Increasingly sophisticated skills in quality improvement methods;
- Increased comfort with using information technology;
- Increased ability to develop and impact health policy;
- Enhanced training to promote interdisciplinary collaboration for improved patient outcomes.

These expanded abilities cannot be provided in current NNP programs without adding substantial length to them.

Table 1. National Organization of Nurse Practitioner Faculties Practice Doctorate Nurse Practitioner Entry-Level Competencies 2006**Preamble**

The practice doctorate for the nurse practitioner (NP) includes additional competencies that are to be combined with the existing Domains and Core Competencies of Nurse Practitioner Practice. The existing NP core competencies have guided educational programs in preparing the highly skilled nurse practitioner clinician to implement full scope of practice as a licensed independent practitioner. The competencies are essential behaviors of all nurse practitioners that are demonstrated upon graduation regardless of the specialty focus of program.

Nurse Practitioner graduates of a practice doctorate program have knowledge, skills, and abilities that are important to the NP's clinical practice including refined communication; scientific foundations; mentored patient care experience with emphasis on independent and interprofessional practice; analytic skills for evaluating and providing evidence-based, patient care across settings; and advanced knowledge of the health care delivery system. Areas of increased knowledge, skills, and expertise include clinical experience, leadership, and the business of health care.

Therefore, at completion of the program, the NP graduate of the nursing practice doctorate will possess the existing NONPF NP core competencies and the following competencies:

Competency Area: Independent Practice

1. Practices independently by assessing, diagnosing, treating, and managing undifferentiated patients.
2. Assumes full accountability for actions as a licensed independent practitioner.

Competency Area: Scientific Foundation

1. Critically analyzes data for practice by integrating knowledge from arts and sciences within the context of nursing's philosophical framework and scientific foundation.
2. Translates research and data to anticipate, predict, and explain variations in practice.

Competency Area: Leadership

1. Assumes increasingly complex leadership roles.
2. Provides leadership to foster interprofessional collaboration.
3. Demonstrates a leadership style that uses critical and reflective thinking.

Competency Area: Quality

1. Uses best available evidence to enhance quality in clinical practice.
2. Evaluates how organizational, structural, financial, marketing, and policy decisions impact cost, quality, and accessibility of health care.
3. Demonstrates skills in peer review that promote a culture of excellence.

Competency Area: Practice Inquiry

1. Applies clinical investigative skills for evaluation of health outcomes at the patient, family, population, clinical unit, systems, and/or community levels.
2. Provides leadership in the translation of new knowledge into practice.
3. Disseminates evidence from inquiry to diverse audiences using multiple methods.

Competency Area: Technology and Information Literacy

1. Demonstrates information literacy in complex decision making.
2. Translates technical and scientific health information appropriate for user need.
3. Participates in the development of clinical information systems.

Competency Area: Policy

1. Analyzes ethical, legal, and social factors in policy development.
2. Influences health policy.
3. Evaluates the impact of globalization on health care policy development.

Competency Area: Health Delivery System

1. Applies knowledge of organizational behavior and systems.
2. Demonstrates skills in negotiating, consensus-building, and partnering.
3. Manages risks to individuals, families, populations, and health care systems.
4. Facilitates development of culturally relevant health care systems.

Competency Area: Ethics

1. Applies ethically sound solutions to complex issues.

Prepared by the national panel for NP practice doctorate competencies. From National Organization of Nurse Practitioner Faculties. Reprinted with permission.

DEBATE ABOUT DNP ENTRY INTO PRACTICE FOR NNPs

The topic of entry into practice has plagued nursing for many years. The DNP NNP entry into practice has generated heated debates, and reasoned opinions have emerged on both sides of this issue. Many nursing leaders have already recognized the need for expanded educational opportunities for nurse practitioners.²⁰⁻²² Others believe the practice doctorate is the wrong degree for APNs; they believe clinical practice education should remain at the master's level, and research-focused degrees should be academic (PhD, DNSc).²³⁻²⁵ Opponents of the practice doctorate raise several pertinent questions such as:

- Will the term DNP confuse patients/families/communities?
- Will the practice doctorate be readily accepted at the university level?
- Will the practice doctorate contribute to the already critical shortage of APNs including NNPs?

- Will the practice doctorate further diminish the already small pool of nurse researchers, thereby limiting knowledge development and testing?

These are all important questions, and ongoing dialogue and study are needed. Several authors have addressed these concerns.²⁰⁻²² Because the practice doctorate is in its infancy, much like the NNP role in the 1970s, there are relatively few graduates and no formal data to answer these questions.

A recent article addressed the concept of the engaged university and the impetus driving the change status of universities around the country.²⁶ They define the engaged university as one that not only meets traditional scholarly goals but also strives to be responsive to, and respectful of, community-identified needs, opportunities, and goals in ways appropriate to its mission and academic strengths. These universities use collaborative models of scholarship and reward alternative means of scholarship.²⁶ The practice doctorate fits the model of engaged universities.

The National Organization of Nurse Practitioner Faculties has developed competencies for all nurse

Table 2. The University of Tennessee Health Science Center College of Nursing DNP Neonatal Schedule for Master's Prepared NNP

Year 1-Fall		
NSG 911	Philosophy of Science	3 (3-0)
BIOE 712	Principles of Epidemiology	3 (3-0)
NSG 924	Diversity and Social Issues	3 (3-0)
NSG 814	Biostatistics	3 (3-0)
	Total	12 (12-0)
Spring		
NSG 916	Concept and Theory Analysis	3 (3-0)
NSG 836	Methods for Evidence-Based Clinical Practice	3 (3-0)
HSA 811	Health Policy	3 (3-0)
NAPS_____	Nursing Advanced Practice Selective	4 (2-2)
	Total	13 (11-2)
Year 2-Fall		
HSA 877	Health Care Economics	3 (3-0)
NSG 914	Healthcare Leadership	3 (3-0)
NAPS_____	Nursing Advanced Practice Selective	4 (2-2)
	Total	10 (8-2)
Spring		
NSG 926	Resident Practicum	6 (0-6)
NSG 825	Examination of Practice	3 (3-0)
	Total	9 (3-6)
Year 3-Fall		
NSG 936	Resident Practicum	6 (0-6)
NSG 946	Residency Project	3 (3-0)
	Total	9 (3-6)
*NSG 960	DNP Directed Study or approved Elective *minimum number of hours - must be taken any term prior to N926 Resident Practicum	3 (3-0)
Total number of hours for this option		56 (40-16)

Table 3. Universities Offering DNP Programs²⁹

<p>Case Western Reserve University Doctor of Nursing Practice (DNP) http://fpb.cwru.edu/DNP/index.shtm</p>	<p>Donna Dowling, Program Director DNP Program 10900 Euclid Ave Cleveland, OH 44106-4904 Phone: 216-368-2529 or 800-825-2540, Ext. 2529 Fax: 216-368-3542</p>
<p>Columbia University Clinical Doctorate in Nursing (DrNP) http://cpmcnet.columbia.edu/dept/nursing/programs/drnp_approved.html</p>	<p>Columbia University School of Nursing 630 West 168th St New York, NY 10032 Phone: 212-305-5756 Fax: 212-305-3680 E-mail: nursing@columbia.edu</p>
<p>Drexel University Doctor of Nursing Practice (DrNP) A hybrid program combining the professional practice doctorate and the academic research doctorate. http://www.drexel.edu/cnhp/dmp_program/about.asp</p>	<p>Gloria F. Donnelly, PhD, RN, FAAN Dean, College of Nursing and Health Professions Drexel University College of Nursing and Health Professions Bellet Building 1505 Race St, Ms. 501 Philadelphia, PA 19102 Phone: 1-800-2-DREXEL</p>
<p>Medical College of Georgia Doctor of Nursing Practice (DNP) http://www.mcg.edu/son/dnp/index.htm School of Nursing</p>	<p>997 St. Sebastian Way Augusta, GA 30912 Phone: 706-721-3771</p>
<p>Oakland University Doctor of Nursing Practice (DNP) http://www2.oakland.edu/nursing/doctor_nursing_practice.cfm</p>	<p>Doctor of Nursing Practice DNP Degree Program School of Nursing 44 O'Dowd Hall Rochester, MI 48309-4401 Phone: 248-370-4253 E-mail: nrsingo@oakland.edu</p>
<p>Purdue University Doctor of Nursing Practice (DNP) http://www.nursing.purdue.edu/academics/graduate/dnp/</p>	<p>Jenny Franklin School of Nursing 502 N. University St West Lafayette, IN 47907-2069 Phone: 765-494-9248 Fax: 765-496-1800 E-mail: nursing@purdue.edu</p>
<p>Rush University Doctor of Nursing Practice (DNP) http://www.rushu.rush.edu/nursing/pos/doctor_nursing_nd.html</p>	<p>College of Nursing Rush University 600 S. Paulina St, Suite 440 Chicago, IL 60612 Phone: 312-942-7117</p>
<p>Tri-College University Nursing Consortium Doctor of Nursing Practice (DNP) http://www.ndsu.nodak.edu/tricollege/trinursing/DNP.htm</p>	<p>Tri-College University Nursing Consortium Graduate Program 1104 S. 7th Ave Moorhead, MN 56563 Phone: 218-477-5877 Fax: 218-477-5990 E-mail: sheldgl@mnstate.edu</p>
<p>University of Arizona, Tucson Doctor of Nursing Practice Program (DNP) http://nursing.arizona.edu/academics.htm</p>	<p>College of Nursing 1305 N. Martin, PO Box 210203 Tucson, AZ 85721-0203 Phone: 520-626-6154</p>

(Continued)

Table 3. (Cont'd)

<p>University of Colorado at Denver and Health Sciences Center Doctor of Nursing Practice (DNP) http://www2.uchsc.edu/son</p>	<p>Vicki Erickson, PhD, ARNP-BC, PNP Director, Doctor of Nursing Program School of Nursing, Room 1928 UCDHSC-Campus Box C288-6 4200 E. 9th Ave Denver, CO 80262 Phone: 303-315-5592 E-mail: son.oasis@uchsc.edu</p>
<p>University of Florida Doctor of Nursing Practice (DNP) http://www.nursing.ufl.edu/academics/academics.asp?ID=87</p>	<p>Cecile Kiley PO Box 100197 Gainesville, FL 32610-0197 Phone: 352-273-6331 E-mail: ckiley@nursing.ufl.edu</p>
<p>University of Kentucky Doctor of Nursing Practice (DNP) http://www.mc.uky.edu/nursing/academic/dnp/default.html</p>	<p>University of Kentucky College of Nursing Office of Student Services 309 College of Nursing Bldg. Lexington, KY 40536-0232 Phone: 859-323-5108 E-mail: conss@uky.edu</p>
<p>University of Maryland Doctor of Nursing Practice (DNP) http://nursing.umaryland.edu/programs/dnp/index.htm</p>	<p>Patricia G. Morton, PhD, RN, ACNP, FAAN University of Maryland School of Nursing 655 W. Lombard St Baltimore, MD 21201-1579 Phone: 410-706-4378 E-mail: Janar001@son.umaryland.edu</p>
<p>University of Massachusetts, Amherst Doctor of Nursing Practice (DNP) http://www.umass.edu/nursing/programs/pro_grad_MS/MastersApp.pdf</p>	<p>Karen Ayotte, Graduate Program Office School of Nursing 223 Arnold House, 715 N. Pleasant St Amherst, MA 01003-9304 Phone: 413-545-1302 Fax: 413-577-2550 E-mail: kayotte@nursing.umass.edu</p>
<p>University of Medicine and Dentistry of New Jersey Doctor of Nursing Practice (DNP) http://sn.umdj.edu/academics/dnp/</p>	<p>Debra Savage, RN University of Medicine and Dentistry of New Jersey 65 Bergen St Newark, NJ 07101 Phone: 973-972-9245 E-mail: savageda@umdj.edu</p>
<p>University of Pittsburgh Doctor of Nursing Practice (DNP) http://www.nursing.pitt.edu/</p>	<p>Carole Shimko Senter Associate Director of Graduate Programs University of Pittsburgh Victoria Building Pittsburgh, PA 15261 Phone: 412-624-2056 E-mail: senterc@pitt.edu</p>
<p>University of South Carolina Doctor of Nursing Practice (DNP) http://www.sc.edu/nursing/fs.DNP.pdf</p>	<p>College of Nursing 1601 Greene St Columbia, SC 29208-0001 Phone: 803-777-7576 Fax: 803-777-0616 E-mail: inquiry@gwm.sc.edu</p>

(Continued)

Table 3. (Cont'd)

University of South Florida Doctor of Nursing Practice (DNP) http://hsc.usf.edu/nocms/nursing/Programs_of_Study/dnp.html	University of South Florida 4202 E. Fowler Ave Tampa, FL 33620 Phone: 813-974-2011
University of Tennessee Health Science Center Doctor of Nursing Practice (DNP) http://www.utmem.edu/nursing/academic%20programs/DNP/index.php	Dr. Jim Pruett Assistant Dean, Student Affairs 877 Madison Ave Memphis, TN 38163 Phone: 901-448-6128 or 800-733-2498 Fax: 901-448-4121 E-mail: jpruett@utmem.edu
University of Texas Health Science Center at Houston Doctor of Nursing Practice (DNP) http://son.uth.tmc.edu/DNP/	Joanne V. Hickey, PhD, RN, ACNP, BC, FAAN, FCCM Professor and Coordinator of the DNP Program School of Nursing and Student Community Center (SONSCC) 6901 Bertner Houston, TX 77030 Phone: 713-500-2156 E-mail: Joanne.V.Hickey@uth.tmc.edu
University of Washington Doctor of Nursing Practice (DNP) http://www.son.washington.edu/eo/dnp.asp	School of Nursing Box 357260 University of Washington Seattle, WA 98195 Phone: 206-543-8736 or 1-800-759-NURS
Waynesburg College Doctor of Nursing Practice (DNP) http://www.waynesburg.edu/gradprof/DNP.html	Department of Nursing Suite 100, Summit Corporate Center 1001 Corporate Dr. Canonsburg, PA 15317

Last update: August 7, 2006. Although this information was deemed accurate at the time of publication, it represents what we believe is the best currently available list of programs; however, it might not be all inclusive.

practitioner education and, in April 2006, published additional competencies for the practice doctorate nurse practitioner (Table 1).²⁷ This organization has been at the forefront of developing guidelines for education of nurse practitioners including the practice doctorate and providing national and regional forums for ongoing discussion of the practice doctorate.

UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER COLLEGE OF NURSING PRACTICE DOCTORATE

Clinically focused, evidenced-based quality management and care for newborns is the goal of all NNPs. We contend that the nursing practice doctorate is the foremost way to meet that goal.

The University of Tennessee Health Science Center (UTHSC) College of Nursing developed a practice doctorate that began in 1998. This program had from the beginning an option for NNPs. The first 1.5 years mirror the Master's of Science in Nursing program and develops knowledge and skills in neonatal nursing. Years 2 and 3 provide additional courses that support

clinical practice, including clinical selective courses. The last year of the program is a full-time residency during which the student practices the new fully expanded role of a doctorally prepared clinician. This role includes the ability to integrate advanced practice abilities as an NNP with leadership in health policy, research utilization, and clinical quality improvement.

The first students in the program were already experienced NNPs. They were able to enter the program in the second year and move into the supportive courses along with the APN elective courses. Students designed their practice electives based on their specific interests and needs. Exposure to specific areas of practice such as infectious disease or high-risk obstetrics provided students opportunities to develop deeper expertise through immersion in their areas of interest.

Doctoral level statistics, research, healthcare economics, and healthcare policy courses expose students to areas of study not typically offered in master's-level course work. Table 2 provides a sample curriculum.

This article focuses on the practice doctorate program at UTHSC rather than all DNP programs, primarily because many of the current DNP programs are

new and changing. As National Organization of Nurse Practitioner Faculties publishes guidelines and recommendations for practice doctorate programs, many nursing programs are developing DNP programs.²⁸ The AACN has developed a list of current DNP programs; 21 programs are currently accepting students, and over 190 additional DNP programs are reportedly under development in nursing schools across the nation (Table 3).

LIMITATIONS AND CAUTIONS

Because DNP programs are new, with only 21 current programs, no rigorous studies have been published to document the outcomes of the students or the patients they care for. Research documenting practice outcomes including patient management, family satisfaction, and clinical cost are needed. Other research areas include student satisfaction with the DNP and jobs, community, and professional endeavors.

The experience at UTHSC College of Nursing is that enrollment in the PhD program has remained stable or increased (13 applicants in 1999 and 21 in 2006), and the number of applicants for the DNP program has increased dramatically during this same time period (40 in 1999 and 122 in 2006). Based on these data, we speculate that the applicants to the 2 programs are not from the same pool. The NNP students tell us that they are the team leaders for multidisciplinary teams providing management for ill and preterm infants, and they are often the 1 or 2 members without a doctorate; this disparity in education leads to feelings of inadequacy. The NNPs who enroll in the DNP program are seeking the depth and breadth that a practice doctorate will provide.

CONCLUSIONS

We believe that the move to the practice doctorate for NNPs is an important step in the evolution of education for NNPs, who are a vital link in caring for critically ill newborns. The practice doctorate is the future. Continued advances in science, especially those related to genetics and human development, indicate that more and more neonates will survive. Caring for these very small infants will increasingly be the responsibility of APNs. The NNP of the future will require more and different education than what is available in traditional existing programs. We believe that the practice doctorate provides an important way to obtain the new education that will be required to practice in this rapidly evolving specialty.

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