Article

Potential Crisis in Nurse Practitioner Preparation in the United States

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Mary O'Neil Mundinger, DrPH[1] and Michael A. Carter, DNSc, DNP[2]

Abstract

The Doctor of Nursing Practice (DNP) degree was established to expand nurse practitioner education by adding new competencies. In 2004, the American Association of Colleges of Nursing released a position statement that redefined practice from only clinical care of patients to include nonclinical care. This policy position likely contributed to the rapid growth of DNP programs. Historical background on the development of the DNP is provided. An analysis was conducted of the programs reported in the American Association of Colleges of Nursing list of accredited DNP programs between 2005 and 2018 to compare whether the programs prepared graduates for advanced clinical practice or administrative or leadership. During this time, 553 DNP programs were established, 15% ($n = 83$) are clinical, and 85% ($n = 470$) are nonclinical. The adequate production of nurse practitioners in the future may be in jeopardy with this imbalance in educational resources, especially with the nation's growing need for primary care clinicians.

Keywords

Doctor of Nursing Practice, nurse practitioner, nursing education, primary care

The American Association of Colleges of Nursing (AACN) recognized the Doctor of Nursing Practice (DNP) as the single model for advanced practice registered nurses (APRNs) in 2004 and published the required *Essentials* for the degree in 2006 (AACN, 2006). The Commission on Collegiate Nursing Education (2009) developed the accreditation standards for the DNP shortly thereafter. The AACN *Essentials* document stated that all APRN preparation at the master's level would transition to DNP by 2015 (AACN, 2006).

Establishing the first clinical doctorate in advanced practice nursing was a momentous step for the profession. Regulatory barriers for nurse practitioners (NPs) were being removed state-by-state during the 1980s (AANP, 2017; Petterson, Liaw, Tran, & Bazemore, 2015) while the shortage of physicians selecting primary care for their careers became more acute. During the 1980s, the number of nursing graduates in primary care grew substantially (Pohl, Thomas, Barksdale, & Warner, 2016). As the numbers of nursing graduates in primary care grew, the content of their education expanded to include more in-depth diagnostic and management competencies of both AACN (2006) and the National Organization of Nurse Practitioner Faculties (2006). It made sense to recognize the growing level of expertise, built on the well-recognized master's degree educational standards in clinical practice, and acknowledge these changes through conferral of a degree that more accurately reflected the state of NP practice. Thus, the DNP degree was established.

Twenty-Year History of DNP Program Development

In the 1980s and 1990s, in response to the changes described above, several U.S. nursing schools' faculties had begun constructing their plans for a new degree for advanced practitioners. In August 2000, these

[1]School of Nursing, Columbia University, New York, NY, USA
[2]College of Nursing, University of Tennessee Health Science Center, Memphis, TN, USA

Corresponding Author:
Michael A. Carter, College of Nursing, University of Tennessee Health Science Center, Memphis, TN, USA.
Email: mcarter@uthsc.edu

schools combined to establish the Council for the Advancement of Comprehensive Care (CACC) to develop curricular and clinical standards for the new degree (Mundinger, 2014). The University of Tennessee Health Science Center and the University of Texas Health Science Center, along with Columbia University, formulated similar curricula and competency requirements for the nursing practice doctoral degree in their schools and were among the first to graduate these newly advanced clinicians.

Since 1986, the faculty of Columbia University had been instrumental in fashioning and evaluating the content and competencies of this new level of practice (Mundinger, 2014). Faculty practice became part of university appointments; academic salaries were increased to be commensurate with APRNs in full-time practice; the Columbia Presbyterian Medical Center hospital approved admitting, management, and discharge authority for these nurse faculty. Major insurers including Aetna, Blue Cross and Blue Shield, and United Healthcare agreed to pay the nurse faculty practitioners on a par with primary care payments to Columbia University physicians at the school's NP-run primary care practice in Midtown Manhattan. Most importantly, nurse and physician faculty at Columbia conducted and published the results of a randomized controlled trial comparing these advanced practice nurses with primary care physicians. The outcomes of that study showed no difference in health outcomes or process of care. The broad authority which the medical center had granted the NPs strengthened the reliability of the comparisons (Mundinger, 2014; Mundinger et al., 2000). This was the first randomized controlled trial comparing NP and medical doctor practices where each group had similar practice authority. To our knowledge, no other such study has been conducted since then.

The results of this carefully constructed plan to build a clincial doctoral program should have lead to development of common standards for the DNP degree but did not. Two other players on the scene had a different idea about the DNP degree. In the late 1990s, while the schools interested in advancing a clinical doctorate were engaging in their efforts, another school—the University of Kentucky (n.d.)—was developing a new nursing doctorate in administration and leadership. This new program would be the first opportunity for nurses who were chief administrators of the nursing workforce in hospitals and large health care systems to earn a nursing doctorate in Executive Leadership in Health Care.

The Dean of the University of Kentucky School of Nursing also served as president of the AACN during late 2004 when Kentucky was developing its new degree. She and the AACN Executive Director were also members of CACC during its earliest deliberations (Mundinger, 2014). Kentucky decided to call its proposed degree the DNP but made no mention of this during any of the CACC meetings. Obviously, minutes of these meetings do not record what was not said but both authors were in attendance at these meetings. AACN's (2004) decision to permit two different types of programs to use the same degree designation (DNP) led to potential confusion about what "nursing practice" could mean. CACC decided to keep the original title (DNP) rather than create an additional new degree.

Changing the Definition of Practice

AACN created a compromise by promulgating a major policy change in the definition of practice applicable to nursing endeavors other than direct clinical care. The AACN position statement from 2004 stated the new definition:

> Nursing practice is any form of nursing intervention that influences health care outcomes for individuals or populations, including the direct care of individual patients, management of care for individuals and populations, administration of nursing and health care organizations, and the development and implementation of health care policy. (p. 3)

The AACN policy on nursing practice is deliberately vague about what the distinguishing essentials of DNP education are in each of the two types of curricula. Advanced *clinical* care is not listed as a DNP essential, and in both types of programs, there is simply a shared curriculum of support courses. Essential VIII does specify that graduates "should be prepared and eligible for national, advanced specialty certification when available" (AACN, 2004, p. 17).

Many schools wanted to be part of this exciting new era in nursing and offer a doctoral degree in nursing practice. Advanced clinical practice required faculty who were highly advanced practitioners, close collaboration with physicians, and clinical sites where DNP students could acquire additional expertise, such as admitting and discharging hospital patients, managing transitions across sites of care, and developing collaborative arrangements with specialists. Most nursing schools did not have those resources (National Task Force on Quality Nurse Practitioner Education, 2016). But many schools could and did mount degrees in areas such as administration or leadership. They quickly developed a broadly defined degree, in which their schools could participate.

Distinguishing Clinical DNP Graduates Through a New Certification

To correct the potential confusion of two very different programs with the same academic degree, CACC determined that a certification program for clinical graduates could provide a worthwhile distinction (Mundinger, 2014). The National Board of Medical Examiners (NBME) was engaged by CACC to develop a certification process that would cover the skills and competency unique to DNP clinical education (Mundinger, 2014).

CACC made this choice for several reasons. First, the existing nursing certification exams already cover the advanced practice knowledge of master's level NPs and other APRNs. What was needed next was an exam specific to the advanced clinical skills of NPs prepared in these new DNP programs. These clinical experts differ from other NPs in that they achieve more in-depth diagnostic and management skills and learn to practice seamlessly when their patients move between community and hospital sites. These additional skills were already a part the United States Medical Licensing Examination Step 3 (NBME, n.d.).

Second, the NBME had reliably tested and validated questions to develop the envisioned exam. If CACC had, instead, formulated the exam *de novo*, the test items would not have met the necessary tests of validity and reliability for several years. Third, CACC wanted an exam and certification that would provide the public—patients and physicians primarily—with confidence that these DNPs were as competent as licensed physicians. Because the NBME develops and tests candidates for MD licensure, and their test for DNPs would cover the same competencies in the same context (NBME, n.d.), this plan met CACC's requirements on all levels. The DNPs who successfully completed the exam are recognized as Diplomates of Comprehensive Care (DCC).

Over 100 DNPs have earned the DCC certification since 2007. An analysis of the practice of DNPs certified as DCCs or eligible to be certified as DCCs in 2017 showed that they are providing direct clinical care across settings to complex patients (Carter & Jones, 2017). The exam has been dormant for several years because there has not been enough demand for it to be updated and offered. This new exam created substantial national controversy in both the nursing and medical communities, but a full discussion of this topic is beyond the scope of this paper.

The number of nonclinical DNP programs (470) has greatly exceeded the number of clinical DNP programs (83). The DCC certification has not gained momentum or influence with payors or regulatory bodies and we argue that is because there are so few programs. Additional clinical programs and graduates are required for the development of more authority and reimbursement for advanced DNP clinicians to reach the tipping point, as discussed by Gladwell (2002). The only national certification programs for nonclinical graduate nursing programs are limited to the master's degree level and none exist for the doctoral level.

Analysis of the First 14 Years of DNP Programs

Over 400 schools have been accredited to offer DNP degrees during the first 14 years of DNP development. Yet, no comparison of the two different kinds of programs has been completed despite the rapid proliferation of DNP programs. To fill this gap, we used available evidence to take a closer look at the numbers of clinical and nonclinical programs, admission requirements, policies of professional organizations, and the new certification program to test the acumen of the clinical DNP graduates.

We analyzed the 2018 AACN list of accredited DNP programs to distinguish the two types of DNP programs clinical and nonclinical. Clinical programs were those that prepared APRNs for advanced clinical practice, and nonclinical programs were those with a focus on health systems in administration and leadership.

The AACN data are based on information provided by DNP programs as a part of the accreditation process by the Commission on Collegiate Nursing Education. A separate organization, the Accreditation Commission for Education in Nursing, also accredits DNP programs. However, only seven programs accredited by the Accreditation Commission for Education in Nursing had graduates as of 2017. Information about these programs was not available for analysis.

Both clinical and nonclinical DNP programs reported that they provided education in practice, but the primary difference was how practice was defined: clinical or nonclinical. We used two criteria to distinguish between the two types of programs.

The definition of a clinical DNP program was one that:

1. Self-identified by the school as clinical in content and focus and
2. Offered clinical practice education in both masters to DNP and baccalaureate to DNP programs.

The definition of a nonclinical DNP program was one that:

1. Self-identified by the school as administrative or leadership in content and focus and
2. Offered nonclinical administrative or leadership education in both the masters to DNP and baccalaureate to DNP programs.

Table 1 shows a dramatic trend in graduate nursing programs between 2005 and 2018; the number of clinical master's programs decreased from 310 to 297 and the number of clinical DNP programs increased from 0 to 83. Together, this yields an 8% growth in clinical programs. The growth in nonclinical graduate programs, however, far outpaced the clinical programs. In 2005, there were 72 nonclinical master's programs and no DNP programs. In 2018, there were 128 master's programs and 470 DNP programs, a growth of 88%. There are no analyses to explain the vast growth of nonclinical master's and DNP programs in the past 14 years.

Table 2 shows the clinical requirements for the DNP programs in 2018. There were 470 nonclinical DNP programs and 83 clinical programs. Eighty-two of the nonclinical programs require no additional clinical education beyond obtainment of the bachelor's degree to earn the DNP.

Limitations

The biggest limitation of this work is that we relied on the number of educational programs rather than enrollments or graduations. Programs may have small or large enrollments with variable numbers of graduates. We did not have an accessible data base that provides accurate numbers for analysis, however. Schools report enrollment numbers, but these data are difficult to interpret in that the meaning of terms like full-time or part-time students are often unique to the institution. Also, attrition data are not the same across programs, particularly graduate programs because some students take a leave of absence for one or more terms and then return or not.

Data on the number of graduates taking certification examinations do not yield needed information for the aim of this study either. Only the American Association of Nurse Practitioners reports the number of test-takers with doctoral degrees (not specified) and they do not record whether the doctoral degree was earned prior to attending the NP program or as a part of the program.

Table 1. Growth in Clinical and Nonclinical Degrees in Nursing Between 2005 and 2018.

Program type	2005	2018
Clinical master's programs	310	297
Clinical DNP programs	0	83
All clinical programs	310	380
Nonclinical master's programs	72	128
Nonclinical DNP programs	0	470
All nonclinical programs	72	598

Note. DNP = Doctor of Nursing Practice.
Source: Data retrieved from the American Association of Colleges of Nursing (2018).

The Future Production of NPs

Since their inception, primary care NPs have been educated by combining medical aspects of the role with a foundation of nursing knowledge. But it would be incorrect to view primary care by NPs as a subset of primary care medicine regardless of areas of overlap.

NPs are nurses first. In their earliest education, they come to learn the full scope of resources necessary for health maintenance, disease prevention, and managing acute and chronic health conditions. Often these outcomes depend on the ability of the patient to understand and adopt healthier habits and to secure adequate finances to pay for care including medicines. These are the foundational elements of the clinical practice of the primary care NP (National Organization of Nurse Practitioner Faculties, 2017).

Nurses have typically begun their clinical education in hospitals where they must constantly assess the needs of each patient for whom they are responsible. They spend long hours learning to oversee and give care to a discrete group of patients and must become attuned to the smallest change in each patient's condition, analyzing the nuances of how recovery is progressing, and finding ways to intervene to lessen the impact of illness.

Table 2. Clinical Skills Requirement in DNP Programs—2018.

	Clinical MSN to DNP	Clinical BSN to DNP	Nonclinical MSN to DNP	Nonclinical BSN to DNP
Require master's level clinical skills	58	25	183	77
Do not require master's level clinical skills	0	0	49	33
Total DNP programs	58	25	232	110
Percent requiring master's level skills	100%	100%	79%	70%

Note. DNP = Doctor of Nursing Practice; MSN = Master of Science in Nursing; BSN = Bachelor of Science in Nursing.
Source: Data retrieved from the American Association of Colleges of Nursing (2018).

The emerging health care system is now more focused on accountability and oversight for patients wherever they need care, with an eye toward outcomes and costs, rather than the more fragmented and sometimes uncoordinated single site of care in the past (Bannow, 2017). In today's NP practice, the clinically trained DNP possesses a broad array of experiences and perspectives that support the assessment and treatment of patients. These DNPs are a valuable resource.

The establishment of the clinical DNP degree over a decade ago held great promise as a new and more comprehensive pathway to primary care nursing practice. Primary care NP preparation has additional importance as physicians increasingly choose specialist careers (National Resident Matching Program, 2016; Pohl, Thomas, Bigley, & Kopanos, 2018). Designating the DNP as the required APRN degree appeared to be a movement that would benefit the public seeking primary care. This promise was not fulfilled by using the same degree for two different types of education.

The nation needs more primary care clinicians (Health Resources and Services Administration, 2016; Starfield & Fryer, 2007). Millions of individuals who lacked health insurance in the United States have obtained this coverage in the past few years. This insurance provides access to primary care instead of using emergency care for symptomatic illnesses (Hernandez-Boussard, Burns, Wang, Baker, & Goldstein, 2014). The proportion of new physicians selecting specialty positions continues to increase; they are deeply needed by patients with acute and complex illnesses. Benefits will accrue throughout the system and in society at large when a robust workforce of primary care NP generalists and physician specialists are available to provide expert, seamless care.

There are challenges ahead, however. The primary care preparation of NPs in the past was insufficient to meet the rapidly expanding demands for care not only in the United States but around the world (World Health Organization, 2008). The expanding demands include increased aging of the population, many of whom often have multiple chronic illnesses, a new focus on patient-centered care, and growing evidence about the importance of the social determinants of health on patient and population outcomes (Carter, Moore, & Sublette, 2018).

These new demands for care will require the expanded clinical education specified by CACC (Mundinger, 2014). This expansion requires more sophisticated clinical faculty, curricula, and clinical training sites. These sites include inpatient sites and the outpatient sites used by previous master's programs. Educating master's prepared NPs nonclinical DNP programs will not enable them to achieve the additional advanced clinical skills and perspectives required to meet the emerging demands for seamless accountable care. These are measurable additional skills in clinical DNP programs that are not a part of traditional clinical master's programs (Carter, 2013).

Confusion for the public can occur when the same DNP degree is used for two different types of programs, one clinical and one nonclinical, so that other methods are required to distinguish the clinical competence of the degree holders. In the past, this distinction was achieved by valid national specialty certification examinations, but these were specified only for master's level of clinical education and do not include the additional doctoral level competencies. The American Board of Comprehensive Care is the only exam that certifies the added competencies specified for the DNP prepared NP (Carter & Moore, 2015). The exam has been validated by two incumbent job analyses but is dormant at this time because of the paucity of clinical DNP programs and graduates (Carter & Jones, 2017).

An additional policy concern pertains to part-time versus full-time educational preparation for future practice. Current part-time master's programs require 3 to 4 years to complete. The new clinical Bachelor of Science in Nursing to DNP clinical programs require about 3 years of full-time study, expanding to 5 to 6 years if education is part time. The added time and costs to complete a part-time DNP program are substantial and may discourage potential students from enrolling.

The nursing profession must address the potential consequences of reducing the overall number of advanced practice nurse clinicians by eliminating the clinical master's degree programs without establishing a reasonable number of clinical doctoral programs. Schools are making rational decisions about their internal resources when they choose to formulate a nonclinical DNP as opposed to a clinical DNP. Great rigor and expense are entailed in developing a clinical degree program. A limited number of faculty are prepared for teaching DNP clinical practice, and state and national advancements in authority and reimbursement have not yet been forthcoming for the clinical DNP. These issues make it less likely for schools to invest in training advanced clinical NPs. However, our analysis documents that the short-term advantages of developing nonclinical programs is leading to a distortion in numbers between clinical and nonclinical DNP programs, which may lead to serious shortages of NPs in the future. Leaders of nursing education programs, and more broadly, of our profession, have a responsibility to improve the health of the public by making choices that serve the public's interest, not the short-term finances of the school. The potential remedies for this projected shortage of sophisticated nurse clinicians are political as well as educational. If nursing does not take the lead in solving this impending crisis, then who will?

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ORCID iD

Michael A. Carter http://orcid.org/0000-0002-1291-1050

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Author Biographies

Mary O'Neil Mundinger is the Edward M Kennedy professor of Health Policy at Columbia University School of Nursing, where she previously served as Dean for 25 years. She is a fellow in the American Academy of Nursing and a fellow in the National Academy of Medicine.

Michael A. Carter is distinguished professor emeritus at the University of Tennessee Health Science Center where he served as the Dean of the College of Nursing for 18 years. He is an Adjunct Clinical Professor of Geriatric Medicine at the University of Arkansas for Medical Sciences in Little Rock, Arkansas and an Adjunct Professor of Nursing and Midwifery at Curtin University, Perth, Western Australia.