

The Future of Oncology Nursing Science: Who Will Generate the Knowledge?

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The current system for doctoral education in nursing does not have the capacity to prepare the number of graduates necessary to replace retiring faculty, nor does it have a sufficient number of nurse researchers to generate knowledge for the discipline (Potempa, Redman, & Anderson, 2008). According to the Robert Wood Johnson Foundation (2007), a large percentage of senior nursing faculty members will retire by 2012, and nearly half the current nursing faculty is likely to retire by 2016. Many senior faculty members are PhD-prepared faculty as well as funded researchers. Therefore, in the United States, the nursing profession is at an important crossroads that could determine the direction of doctoral nursing education. Given the projections, doctoral nursing education will need to be re-evaluated, even with the introduction of the doctor of nursing practice (DNP) degree. The practice and research contexts of the nursing discipline will have to be reconnected, and focus will have to be placed on nursing knowledge development (Benner, Sutphen, Leonard, & Day, 2009).

Many forces influence doctoral education and knowledge development: (a) the nursing faculty shortage; (b) the older age of individuals who complete their PhDs, many on a lengthy part-time basis; and (c) the creation of the nonresearch DNP degree, a professional practice doctorate. In reports by the American Association of Colleges of Nursing (AACN), student enrollment in DNP programs has increased 176% ($N = 3,291$), from 1,874 students in 2007 to 5,165 students in 2009 (Fang, Tracy, & Bednash, 2010; Raines, 2010). The extraordinary growth of DNP student enrollment is related to the surge of new DNP programs in that period, 53 in 2007 to 119 in 2009. However, PhD programs have remained stagnant, with an increase in student enrollment of only 5% ($N = 204$), from 3,973 students in 2007

to 4,177 in 2009 (AACN, 2009; Fang et al., 2010). In 2010, the number of DNP programs is predicted to surpass the number of PhD programs, which began in 1934 (Glasgow, Dreher, Cornelius, & Bhattacharya, 2009). Considering that the profession is poised to lose half of its faculty workforce by 2016 because of retirements and that the number of PhD graduates entering the faculty workforce is insufficient to replace retiring faculty or expand capacity, the question remains as to who will build the discipline through the conduct of nursing research in the future (Potempa et al., 2008). In addition, larger concerns for nursing education exist. First, with the current U.S. faculty shortage projections, will sufficient PhD-prepared doctoral-level nursing faculty be available? Second, what must be done to prepare enough nurse scientists to generate nursing knowledge and evidence needed by the nursing discipline? Third, in what way does the DNP degree compete for prospective PhD students? And finally, what impact will these forces have on oncology nursing science and practice?

Impact on Oncology Nursing Science and Practice

Advances in cancer care resulting from discoveries in chemoprevention, genetics, molecular biology, and supportive care, as well as changes in healthcare systems, demand new and vital contributions from nursing research (Given, 2009). Nurses need guidance on how care should be altered in light of new treatment modalities, as well as innovative ways to improve the quality and safety of cancer care. Research that guides oncology practice ultimately produces evidence-based nursing interventions, resulting in safer, more effective care (Given, 2009). The 2009–2013 Oncology Nursing Society (ONS) Research Agenda highlights the following priorities: (a)

health promotion, (b) cancer symptoms and side effects, (c) late effects of cancer treatment and long-term survivorship issues, (d) end-of-life issues, (e) psychological and family issues, (f) nursing-sensitive patient outcomes, and (g) translational science. The current state of the science and gaps in oncology nursing evidence are emphasized to stimulate continued knowledge generation and to promote translation of evidence into oncology nursing practice (The 2009–2013 ONS Research Agenda Team, 2009). For example, only a few intervention studies have been conducted that included partners or other family caregivers, despite the documentation of the stressful effects of cancer on partners and family caregivers (Cochrane & Lewis, 2005; Kim & Given, 2008). The growing number of anticancer agents delivered orally and the shift of responsibility from inpatient to outpatient settings highlight the continuing importance of treatment adherence as an oncology nursing-sensitive patient outcome (Given, 2009). Without a critical mass of oncology nurse researchers, who will generate the evidence base for cancer care?

The next generation of oncology nursing knowledge, in particular, will be harmed if retiring nurse scientists are not replaced. If most future doctorally prepared nurses acquire a DNP degree rather than a PhD degree and do not engage in learning the basic tools of empirical clinical research, the evidence base for cancer nursing care will remain stagnant. The DNP in its current form, without any focus on empirical knowledge development, is detrimental for nursing science; therefore, a need exists to expand the capability of nurses to engage in clinical scholarship. Furthermore, the current system does not encourage young men and women to enter doctoral programs early in their careers or embrace the faculty role or the conduct of research (Potempa et al., 2008).

The Doctor of Nursing Practice Degree and Knowledge Generation

In Europe, the United Kingdom, Australia, and New Zealand, for example, awarding someone a doctorate who did not have the basic tools to engage in research would be unorthodox (Stew, 2009). In the United Kingdom, PhD graduates are described as “professional researchers” and graduates of professional or practice doctorate programs as “researching professionals” (Stew, 2009). Unfortunately, the DNP degree in its current form does not prepare “researching professionals” unless the student is matriculated in a “hybrid” professional doctorate program or is enrolled in one of a few DNP programs that require or permit a clinical dissertation or clinical research project as a standard part of the curriculum. Given the faculty workforce projections, the profession needs doctorally prepared faculty to be equipped with the knowledge and tools to conduct research. The nursing profession would be wise to expand the hybrid practice doctorate and/or re-engineer the DNP toward more practice knowledge development. With the appropriate education and training on the conduct of research, both DNP and PhD nursing graduates would have the potential to contribute to the empirical evidence base of nursing. Figure 1 identifies doctorates that are duly research intensive, hybrid professional doctorates that emphasize both practice and research, and professional doctorates that are nonresearch oriented and emphasize practice.

To date, research-focused and practice-focused doctoral programs in nursing share a scholarly approach to the discipline and a commitment to the advancement of the profession. Both are terminal degrees. However, the two programs have distinct differences. Generally, practice-focused programs place greater emphasis on clinical practice competencies and less emphasis on research competencies than research-focused programs do. All research-focused programs emphasize research methodology competencies and require an extensive research study that is reported in a dissertation or publication format. Practice-focused doctoral programs generally include integrative clinical immersion experiences. In most DNP programs, rather than conducting a research project and completing a dissertation, the student in a practice-focused program generally carries out a practice-oriented “final DNP project”

Academic Research Doctorates (research-intensive emphasis)

- DNS: doctor of nursing science
- DNSc: doctor of nursing science
- DSN: doctor of science in nursing
- PhD: doctor of philosophy
- ScD: doctor of science

“Hybrid” Professional Doctorates (practice and research emphasis)

- DrPH: doctor of public health
- DSc: doctor of science
- DScPT: doctor of science in physical therapy
- DSW: doctor of social work
- DrNP: doctor of nursing practice
- DrOT: doctor of occupational therapy
- PsyD: doctor of psychology

Professional Doctorates (practice, nonresearch emphasis)

- DDS: doctor of dental science
- DNP: doctor of nursing practice
- DOT, OTD: doctor of occupational therapy, occupational therapy doctorate
- DPT: doctor of physical therapy
- DVM: doctor of veterinary medicine
- MD: doctor of medicine
- PharmD: doctor of pharmacy

Figure 1. Types of Doctorates for Health Profession Disciplines in the United States

(AACN, 2006). Presumably, most DNP students will not generate traditional empirical or interpretive research for the discipline. However, some DNP programs do indicate that students should focus on the evaluation of outcomes or outcomes research, but what precisely is meant by such terms operationally is unclear. The authors suggest that DNP faculty develop “practice dissertation formats” that would allow small-scale, but rigorous, empirical or interpretive research methods and possibly other well-defined knowledge-generating formats to critically examine practical questions most relevant to contemporary nursing practice. This model of the “practice dissertation” would allow for an emphasis more on mode 2 knowledge development (Gibbons et al., 1994). A noted nursing scholar has described mode 2 knowledge development as an epistemologic or methodologic approach where “knowledge evolves close to the *context of application* and in fact, knowledge is legitimized by its use” (Reed, 2006, p. 37). Mode 2 knowledge is transdisciplinary in its nature; because it can be derived only from precise, embedded links to practice, DNP students have an advantage in its

use and its methods of discovery. In contrast, mode 1 knowledge is characterized by the traditional philosophy of the objectivity of knowledge: Knowledge development is discipline based, produced in universities or traditional research institutes, subject to peer review, and considered more theoretical in nature. The authors believe that an opportunity will be missed if the discipline of nursing clings to the notion that the DNP degree must exclude the conduct of research. In addition, the linguistic use of “practice dissertation” instead of “doctoral project” would give DNP graduates more prestige with the degree.

The Effect of the Doctor of Nursing Practice Degree on the Nursing Discipline

The DNP degree was designed to focus on leadership in implementation of evidence-based practice, which requires competence in translating research into practice, evaluating evidence, and implementing viable clinical innovations to change practice. Furthermore, considerable emphasis is placed on how to obtain assessment data on populations, how to use data to make programmatic decisions, and how to conduct program evaluation (AACN, 2006). However, without a sufficient number of PhD-prepared nursing professionals, who will create the evidence? Will nursing rely on other professions to do so? Furthermore, to say “the PhD must first create the evidence and then the DNP will translate and disseminate it” is divisive and an oversimplification. Within the historical context of the discipline, a doctorate degree should stand for advancing and translating knowledge. Practice should drive knowledge development. In fact, clinical practice is the quintessence of the discipline of nursing. Nursing science is the body of evidence that answers the critical questions about the nursing discipline. Developing and supporting a cadre of doctorally prepared advanced clinicians without a research focus will impede knowledge development in the nursing discipline. Additionally, separating nursing practice and research missions could undermine the profession’s ability to be equal partners in universities, as well as diminish the profession’s effectiveness in establishing evidence for high-quality and safe health care (Meleis & Dracup, 2005). Florcza (2010) wrote “the uncoupling of theory, research, and practice [with the DNP degree] would result in disastrous scholarship” (p. 17).

PhD-prepared researchers should not be the only ones who generate empirical knowledge for the discipline. Doctorally prepared “researching professionals” can pose relevant and practical clinical questions and contribute substantial knowledge to advance the nursing discipline. The stagnant numbers of new PhD graduates, impending retirements of a large cadre of nurse scientists, and rising numbers of DNP graduates without basic clinical research skills are all factors likely to impede the production of nursing knowledge. Thus, the profession must revisit the DNP curriculum in the United States and its lack of emphasis on research.

The Effect of the Doctor of Nursing Practice Degree on Nursing Education

“If nurse leaders are to enhance nurses’ interest in scientific development and use, the academic environment needs to foster greater connectivity of students at all levels of education with the scientific enterprise” (Potempa & Tilden, 2004, p. 502). In other words, doctorally prepared research faculty should teach undergraduate as well as graduate students and expose them to the research process. In a national study of doctoral nursing faculty (N = 621), 57% (n = 350) of U.S. nursing doctoral faculty taught exclusively graduate students (Glasgow et al., 2009). Having research-focused faculty teach graduate students exclusively does not foster the desire of young undergraduate students to obtain a research doctorate and conduct research. Potempa and Tilden (2004) stressed the critical importance of undergraduate students participating in faculty research, quality-assurance projects, and senior capstone projects that require data analyses and synthesis. Faculty members should create an expectation that students can advance the science of the nursing discipline. Furthermore, academics need more BSN to PhD programs that can integrate clinical inquiry, encouraging students to initiate research-intensive doctoral study at younger ages. In that way, students can have a longer career span as educators and researchers (Potempa et al., 2008).

The Essentials for Doctoral Education for Advanced Nursing Practice

In the context of the practice doctorate, advanced practice nursing is defined as “any form of nursing intervention

that influences healthcare outcomes for individuals or populations, including the direct care of individual patients, management of care for individuals and populations, administration of nursing and healthcare organizations, and the development and implementation of health policy” (AACN, 2004, p. 2).

Although *The Essentials of Doctoral Education for Advanced Nursing Practice* (AACN, 2006) explicitly included clinical executive “practice,” too, the practice of the educator is not similarly recognized. Instead, if desired, practice hours in nursing education settings may be offered *in addition to* the required 1,000 clinical hours. DNP programs are encouraged to offer electives or a minor with focus on the education-related content in addition to the DNP practice content for individuals interested in the faculty role (AACN, 2006). A critical nursing faculty shortage is looming and will affect the entire profession; the profession needs to let go of time-honored traditions such as the current undergraduate clinical instruction model, the need for extensive clinical practice before matriculating in doctoral programs, and the heavy teaching and service requirements of research-intensive doctorally prepared faculty to move the discipline forward (Tilden & Potempa, 2003). Lastly, the profession needs to create an environment that fosters the mission of scholarly productivity and knowledge development for nursing faculty. This requires a change in expectations related to workload, faculty investment, research start-up funds, and a requisite reward system for scholarly productivity.

Nursing Faculty Shortage

The lack of nurses with doctoral preparation has major implications for the growing faculty shortage and the need for ongoing knowledge development (Potempa et al., 2008). Will these DNP graduates really be prepared to assume competent nurse educator roles, particularly in graduate nursing education? In addition, a larger number of doctoral-level nurses are seeking positions in nonacademic positions because academic settings are associated with lower salaries (Redman & Chenoweth, 2005). One partial solution for the faculty shortage is to recognize that most hybrid health profession degrees were specifically designed for academic positions. Because many DNP graduate programs may not substantively contribute to the knowledge base of the discipline, perhaps more hybrid DNP

programs should be developed. The field of occupational therapy has announced a new hybrid professional doctorate—the DrOT, or doctor of occupational therapy degree. With rising enrollments in the relatively new professional occupational therapy doctorate programs (the OTD and DOT degrees are both nonresearch degrees), that discipline recognized it also needed a clinical knowledge-generating doctorate as an alternative to the PhD and ScD degrees in occupational therapy (American Occupational Therapy Association, 2009). With so many DNP programs, the authors contend that programs at research-intensive universities in particular ought to embrace more formal scientific inquiry and replace the DNP final project with a practice dissertation. As Potempa and Tilden (2004) identified, the role of the “nurse scientist” is critical to the discipline. However, with flat PhD enrollments, nursing may need to capitalize more creatively on the global rush to professional doctorates. Nursing deans (and provosts) also need to find ways to better support research-intensive nursing faculty, perhaps with more realistic teaching loads and service obligations in return for high scholarly productivity. In addition, nursing faculty salaries must be re-evaluated to compete with nonacademic positions available to doctoral-level nursing professionals. Nursing leaders must look to their academic colleagues in business, engineering, and law to seek solutions related to faculty compensation.

Summary

The authors assert that the nursing profession needs to transform doctoral education and the nursing faculty role so that students can enter research-intensive doctoral study at younger ages, complete research-intensive doctoral study in a shorter time period, and assume “nurse scientist” faculty positions, rather than the traditional tripartite role (Potempa et al., 2008). Furthermore, a DNP degree that combines an intense clinical focus and the conduct of practical, clinically oriented research derived from practice is the most effective approach for advanced practice nurses who wish to serve as leaders, clinical experts, and research professionals. The United States may be well served to emulate the professional doctorate movement in the United Kingdom and Australia and require DNP students to learn the conduct of empirical research to generate a cadre of future researchers and clinicians capable of posing research questions. Both DNP

and PhD nursing graduates have the potential to contribute to the empirical evidence base of nursing. After all, nursing science can raise clinical standards, influence health policy, inform citizens, improve the health and well-being of the public, and possibly transform cancer care (Tilden & Potempa, 2003). Oncology nurses would do well to reflect on this very important issue and ask who will generate knowledge in the future if insufficient numbers of nurses are attaining research doctorates and conducting nursing research. This serious challenge confronting the profession—the rise of the DNP; a plethora of retiring nursing faculty, especially funded oncology nurse scientists; and an urgent need for more evidence for the discipline—means that doctoral nursing education, particularly its impact on oncology nursing science, must be recognized and addressed.

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References

- The 2009–2013 Oncology Nursing Society Research Agenda Team. (2009). The 2009–2013 research agenda for oncology nursing. *Oncology Nursing Forum*, 36, E274–E282. doi: 10.1188/09.ONF.E274-E282
- American Association of Colleges of Nursing. (2004). *AACN position statement on the practice doctorate in nursing*. Washington, DC: Author.
- American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. Retrieved from <http://www.aacn.nche.edu/DNP/pdf/Essentials.pdf>
- American Association of Colleges of Nursing. (2009). Despite surge of interest in nursing careers, new AACN data confirm that too few nurses are entering the healthcare workforce. Retrieved from <http://www.aacn.nche.edu/media/NewsReleases/2009/workforcedata.html>
- American Occupational Therapy Association. (2009). Postprofessional programs in OT—Doctoral level programs. Retrieved from <http://www.aota.org/Educate/Schools/PostprofOT/35484.aspx>
- Benner, P., Sutphen, M., Leonard, V., & Day, L. (2009). *Educating nurses: A call for radical transformation*. Stanford, CA: Carnegie Foundation for the Advancement of Teaching.
- Cochrane, B.B., & Lewis, F.M. (2005). Partner's adjustment to breast cancer: A critical analysis of intervention studies. *Health Psychology*, 24, 327–332. doi: 10.1037/0278-6133.24.3.327
- Fang, D., Tracy, C., & Bednash, G.D. (2010). 2009–2010 enrollment and graduations in baccalaureate and graduate programs in nursing. Washington, DC: American Association of Colleges of Nursing.
- Florczak, K.L. (2010). Research and the doctor of nursing practice: A cause for consternation. *Nursing Science Quarterly*, 23, 13–17. doi: 10.1177/0894318409353801
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The new production of knowledge: The dynamics of science and research in contemporary societies*. Thousand Oaks, CA: Sage.
- Given, B.A. (2009). 2009–2013 Oncology Nursing Society Research Agenda: Why is it important? [Guest editorial]. *Oncology Nursing Forum*, 36, 487–488. doi: 10.1188/09.ONF.487-488
- Glasgow, M.E., Dreher, H.M., Cornelius, F., & Bhattacharya, A. (2009). A preliminary report on a national study of doctoral faculty (both PhD and DNP) and succession planning. Paper presented at the Second National Conference on the Doctor of Nursing Practice: The Dialogue Continues, Hilton Head Island, SC, March 24–27, 2009.
- Kim, Y., & Given, B.A. (2008). Quality of life of family caregivers of cancer survivors: Across the trajectory of the illness. *Cancer*, 112(11, Suppl.), 2556–2568. doi: 10.1002/cncr.23449
- Meleis, A.I., & Dracup, K. (2005). The case against the DNP: History, timing, substance, and marginalization. Retrieved from [http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/ TableofContents/Volume102005/ No3Sept05/tpc28_216026.aspx](http://www.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume102005/No3Sept05/tpc28_216026.aspx)
- Potempa, K.M., Redman, R.W., & Anderson, C.A. (2008). Capacity for the advancement of nursing science: Issues and challenges. *Journal of Professional Nursing*, 24, 329–336. doi: 10.1016/j.profnurs.2007.10.010
- Potempa, K.M., & Tilden, V. (2004). Building high-impact science: The dean as innovator. *Journal of Nursing Education*, 43, 502–505.
- Raines, C.F. (2010). *The doctor of nursing practice: A report on progress*. Retrieved from <http://www.aacn.nche.edu/dnp/pdf/DNPForum3-10.pdf>
- Redman, R., & Chenoweth, L. (2005). Doctoral education in nursing: Opportunities and dynamic in the marketplace. In S. Ketefian & H. McKenna (Eds.), *Current issues in nursing* (5th ed., pp. 160–169). St. Louis, MO: Mosby-Yearbook.
- Reed, P.G. (2006). The practice turn in nursing epistemology. *Nursing Science Quarterly*, 19, 36–38. doi: 10.1177/0894318405283545
- Robert Wood Johnson Foundation. (2007). *Charting nursing's future*. Retrieved from <http://www.rwjf.org/files/publications/other/nursingfuture4.pdf>
- Stew, G. (2009). *The professional/practice nursing doctorate in the United Kingdom*. Paper presented at the Second National Conference on the Doctor of Nursing Practice: The Dialogue Continues, Hilton Head Island, SC, March 24–27, 2009.
- Tilden, V., & Potempa, K. (2003). The impact of nursing science: A litmus test. *Nursing Research*, 52, 275.

Leadership & Professional Development

This feature provides a platform for oncology nurses to illustrate the many ways that leadership may be realized and professional practice may transform cancer care. Possible submissions include, but are not limited to, overviews of projects, accounts of the application of leadership principles or theories to practice, and interviews with nurse leaders. Descriptions of activities, projects, or action plans that are ongoing or completed are welcome. Manuscripts should clearly link the content to the impact on cancer care. Manuscripts should be six to eight double-spaced pages, exclusive of references and tables, and accompanied by a cover letter requesting consideration for this feature. For more information, contact Associate Editor Mary Ellen Smith Glasgow, PhD, RN, ACNS-BC, at Maryellen.smith.glasgow@drexel.edu or Associate Editor Judy Schreiber, RN, PhD, at judy.schreiber@louisville.edu.

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