

# Critical Issues in Dental Hygiene

## Doctoral Dental Hygiene Education: Insights from a Review of Nursing Literature and Program Websites

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### Introduction

Dental hygiene, like nursing, has had a challenging path to professional recognition. Both professions have experienced conflict and controversy, yet they both represent unique disciplines.<sup>1,2</sup> The dental hygiene discipline is unique because its conceptual models focus on oral disease prevention and health promotion, and advocacy. This focus results in clients who are empowered, chronic conditions that are improved, enhanced quality of life and ultimately reductions in needed care and associated costs.<sup>2,3</sup>

Dental hygiene initially developed solely as a dental auxiliary health care profession. With the growing complexity of the field and the development of dental hygiene graduate education, however, dental hygiene has become a nascent academic discipline, building its own body of knowledge out of necessity, because it asks questions no other discipline explores. With a critical mass of dental hygienists with masters' degrees, the dental hygiene discipline is poised to move forward with doctoral education to maximize its potential to benefit the public's oral health.

Dental hygiene education is on a similar trajectory as nursing education was in the last century.<sup>3,4</sup> Currently, dental hygiene dedicates associate and baccalaureate degree-programs to developing bio-medically-oriented, patient-centered clinicians, and master degree programs to developing educators and thought leaders.

Although there are currently no dental hygiene

### Abstract

**Purpose:** Because dental hygiene education has had a similar trajectory as nursing education, this critical review addressed the question "What can the dental hygiene discipline learn from the nursing experience in their development of doctoral education?" Information on admission and degree requirements, modes of instruction, and program length and cost was collected from the websites associated with 112 of 125 PhD nursing programs nationally, and 174 of 184 Doctor of Nursing Practice (DNP) programs. In addition, searches of PubMed, Cumulative Index Nursing Allied Health Literature (CINAHL) and the Web of Science were utilized to identify key articles and books. The following 4 insights relevant to future dental hygiene doctoral education emerged from a review of nursing doctoral education: First, nursing doctoral education offers 2 main doctoral degrees, the research-focused PhD degree and the practice-focused DNP degree. Second, there is a well-documented need for doctoral prepared nurses to teach in nursing programs at all levels in managing client-care settings. Third, curricula quality and consistency is a priority in nursing education. Fourth, there are numerous templates on nursing doctoral education available. The historical background of nursing doctoral education was also reviewed, with the assumption that it can be used to inform the dental hygiene discipline when establishing doctoral dental hygiene education. The authors recommend that with the current changes toward medically and socially compromised patient populations, impending changes in health care policies and the available critical mass of master degree- prepared dental hygiene scholars ready to advance the discipline, now is the time for the dental hygiene discipline to establish doctoral education.

**Keywords:** nursing doctoral degree, PhD, DNP, scholarship, nursing degrees

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doctoral programs, this topic has been discussed recently in dental hygiene scholarly communities. For example, the 2012 American Dental Education Association (ADEA) Scientific Session held a special panel on future doctoral dental hygiene education. Moreover, in 2008, the American Dental Hygienists'

Association (ADHA) reported on their website findings from a 2006 national survey of graduate dental hygiene program directors indicating that up to 25% of the dental hygiene master-degree students at that time were interested in pursuing doctoral education.<sup>5</sup> In addition, unpublished data from a survey of 724 baccalaureate dental hygiene graduates from one program<sup>6</sup> found that 20% of the responders (n=387) said they would be interested in enrolling in a dental hygiene doctoral program (Rowe, personal communication, July 2012). No other reports or related studies were found in the dental hygiene literature. The question arises: What can the dental hygiene discipline learn from the nursing experience in their development of doctoral education? This paper reports the insights learned from reviewing nursing doctoral program websites, and the nursing literature related to doctoral nursing education.

## Methods and Materials

This study used a 2-phased approach. First, a list of U.S. schools that offer a doctoral degree in nursing was obtained from the American Association of Colleges of Nursing (AACN) website. Information from these schools' websites was organized around the following themes for analysis: type of doctoral degree offered, admission and degree requirements, program duration, and modes of instruction (onsite programs vs. online programs vs. hybrid programs).

Secondly, a review of the nursing literature was performed, related to the nursing doctoral education history beginning with the last half of the twentieth century to the present in the U.S. and Canada. Key words used were Doctor of Philosophy ("PhD"), Doctor of Nursing Practice ("DNP"), "nursing doctorate education," "graduate education," "nursing degrees" and "scholarship." The databases searched were PubMed, the University of California, San Francisco, Cumulative Index Nursing Allied Health Literature and the Web of Science. Based on initial abstract review, articles relevant to the study question were read and organized into 3 categories: nursing doctoral education, nursing PhD education and DNP education. Articles were re-read for common themes. In addition, nursing education-history books, dental hygiene text books, the Journal of Dental Hygiene and the ADHA website were used as primary references to identify nursing and dental hygiene perspectives on doctoral education.

### Data Analysis

For website data, the percentage and number of nursing schools offering doctoral degrees by type of degree, specific admission and degree requirements, program duration, and instruction modes was calcu-

lated. In published articles, strategies for developing doctoral nursing programs were identified using a yellow marker to highlight major concepts and key terms. The concepts and key terms that reoccurred in 5 or more articles were identified as major themes for analysis.

## Results

### The Nursing Literature

In addressing the question about nursing doctoral education, 70 articles were identified based on key words. Of these articles, 36 dating from the 1980s were identified from abstract review. The 2 most referenced journals were Nursing Outlook, currently the official journal of the American Academy of Nursing and the Journal of Professional Nursing, published by the AACN. Four insights were identified as relevant to future doctoral dental hygiene education. First, nursing doctoral education offers 2 main doctoral degrees, the PhD and the DNP. Second, there is a need for doctoral prepared nurses to teach in nursing programs at all levels and in management of client-care settings. This theme was revealed in 15 of the 36 articles reviewed (42%). A third insight related to the need for standardization of the quality and content of nursing doctoral curricula across all doctoral programs. This theme was highlighted in 14 of the 36 articles reviewed (39%). Finally, the fourth insight, derived from 7 of the 36 articles, was there are templates available in the literature for nursing doctoral curriculum development and faculty and student program evaluation as a possible resource for dental hygiene.

### Nursing Schools' Websites

A primary insight revealed by the website review was that the nursing profession has 2 main doctoral degrees, the PhD and the DNP. Currently there are 125 nursing PhD programs in the U.S.<sup>7</sup> Figure 1 shows the number and distribution of nursing PhD programs by state. Regionally, the East Coast states have the greatest number of programs. Most states have at least one PhD nursing program, with the exception of a few northwestern states.

Currently, there are 184 DNP programs.<sup>7</sup> Figure 2 shows the number and distribution of DNP programs by state. Similarly, the East Coast states have the greatest number of programs, and states such as Michigan, Indiana, Illinois, Wisconsin, Minnesota and Alabama have more DNP programs than PhD programs available.

Table I shows that most nursing PhD or DNP programs (94% or higher) require a master's degree for

entry. However, more than half the schools have a BSN entry-level track that requires only a bachelor degree for admission. More than half of the schools require interviews, English writing proficiency and RN licensure as admission criteria. Less than half of the PhD programs and at least half of the DNP program require prerequisite statistic and/or computer courses. Although not shown in Table I, most PhD program websites provided a list of research topics and available mentors to contact if there was a match in research interests. DNP admission websites, however, usually only described the programs' areas of practice focus from which the candidate could choose a field of study.

Table II shows the degree requirements for most PhD and DNP programs as listed on the schools' websites for post master students. The PhD curriculum model consisted of 2 to 3 initial years of specific course work in theory and research design, a candidacy qualifying exam, usually oral, followed by a dissertation. Some programs offered paid residencies in teaching and research while completing their dissertation.

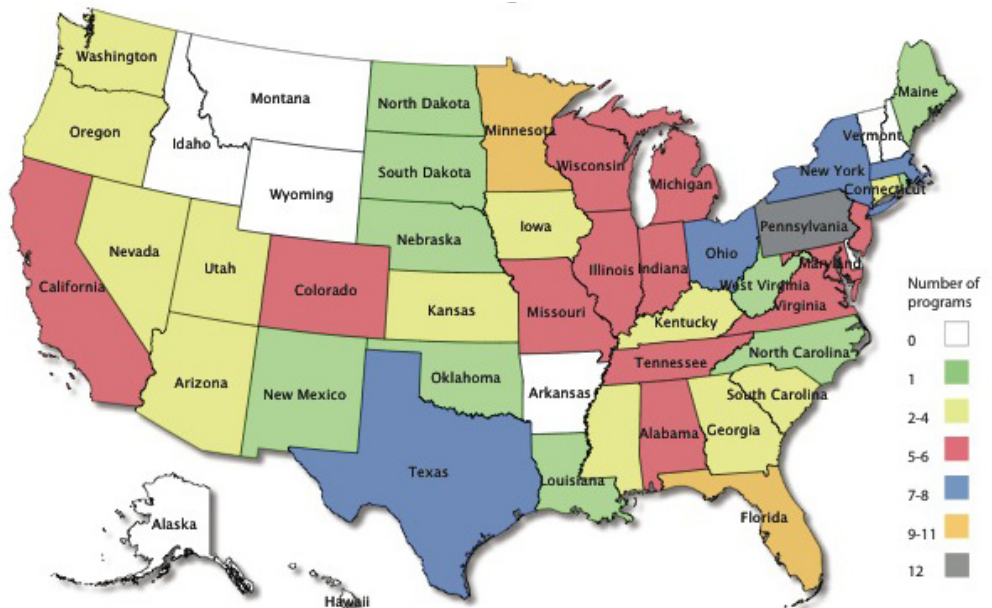
The DNP curriculum model involved a capstone project and required a minimum of 500 clinical residency hours. Enrolling part time in a DNP program is possible and allows students to work part time and in some instances full time.

Websites described 3 possible modes of instruction: in classroom instruction, online instruction, and hybrid instruction (part on campus and part online). Table III shows that PhD programs use classroom

Figure 1: PhD Programs in Nursing



Figure 2: DNP Programs in Nursing



mode of instruction more than DNP programs, and DNP programs use more online and hybrid modes of instruction than PhD programs.

Website data indicated 45% of the PhD programs required 3-plus years to complete the degree, whereas 38% were completed in less than 3 years. Of the DNP programs, 42% required 2 to 3 years, 6% took longer than 3 years to complete and 13% could be completed in 1 to 2 years.

Tuition ranged in cost depending on fee systems and whether the institution was private or public. Most programs charged by units (credit hours) or

Table I: Admission Requirements for PhD and DNP Nursing Degrees by Percentage and Number of Nursing Schools in the U.S. as Listed on Specific Nursing School Websites

	MSN	BSN	GRE	GPA 3.0	GPA 3.5	Interview	Statistics and/ or Computer Course	English Writing Proficiency	Current RN license
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
PhD n=112	95 (106)	68 (76)	82 (92)	35 (39)	32 (36)	63 (71)	45 (50)	91 (102)	76 (85)
DNP n=175	94 (165)	54 (95)	31 (55)	51 (90)	15 (27)	68 (119)	58 (102)	88 (154)	92 (161)

MSN=Master of Science in Nursing  
 BSN=Bachelor of Science in Nursing  
 GRE=Graduate Record Examination  
 GPA=Grade Point Average

by semesters. Few websites listed the overall cost of the program. The fees for a PhD degree ranged from a low of \$456.00 per credit hour to a high of \$1,000.00 per credit hour. The lowest fee per semester was \$2,800.00 compared to the highest fee of near \$10,000.00 per semester.

For the DNP degree, cost for credit hour ranged from \$173.00 to \$1,200.00. DNP semester rates ranged from \$2,200.00 to \$11,000. For both degrees, non-residents attending a publically supported institution generally paid double that of residents.

## Discussion

This study found that nursing doctoral education is rich and abundant with information for dental hygiene scholars to contemplate as the dental hygiene discipline moves forward in developing doctoral education. We identified from the nursing schools' websites and the nursing literature 4 main insights related to potential dental hygiene academic strategies.

The first insight is that nursing has 2 main doctoral degrees, the PhD, which is research focused, and the DNP, which is practice focused.<sup>8-11</sup> These 2 doctoral nursing degrees parallel the 2 main categories of degrees in academia: academic and professional. Academic degrees focus on knowledge development through research.<sup>12</sup> The master of arts (MA) and the master of science (MS) and the PhD are names given to academic degrees. Professional degrees focus on the application of knowledge to professional practice. For example, professional masters-level degree names, such as master of business administration (MBA), master of social work (MSW), doctor of education (EdD), doctor of medicine (MD), doctor of dental medicine (DMD) and doctor of dental surgery (DDS), are well known and highly regarded. Both academic and professional doctoral degrees

Table II: Degree Requirements for PhD and DNP Nursing Degrees by Percentage and Number of Nursing Schools in the U.S. as Listed on Specific Nursing School Websites

Requirements	Percentage	n
PhD Core Courses	40	45
PhD Dissertation	100	43
DNP Capstone or Scholarly Project	62	109
DNP Clinical Residency	54	94

Table III: Modes of Instruction for PhD and DNP Nursing Programs by Percentage and Number of Nursing Schools in the U.S. as Listed on Specific Nursing School Websites

	Percentage	n
PhD Classroom Instruction Only	68	76
PhD Online Instruction Only	18	20
PhD Hybrid Program	14	16
DNP Classroom Instruction Only	39	69
DNP Online Instruction Only	29	50
DNP Hybrid Program	32	56

need to be considered as the highest level degrees in dental hygiene as the discipline moves forward in developing doctoral dental hygiene education.

A second insight into nursing doctoral education gained from the literature review is the need for doctoral-prepared nurses to meet the frequently referenced shortage of nursing faculty.<sup>10-20</sup> In an AACN survey of 603 nursing schools with graduate programs nationally, a total of 1,088 faculty vacancies were identified.<sup>18</sup> Most of the vacancies (91.4%) were faculty positions requiring or preferring a doctoral degree.<sup>18</sup> As asserted by one 2008 paper: "The

current system for doctoral education in nursing does not prepare the number of graduates necessary to either replace retiring faculty or expand capacity for nursing education at any level."<sup>19</sup>

Dental hygiene education shares similar faculty shortage statistics as the nursing profession. The growing need for dental hygiene educators and administrators is well documented.<sup>21,22</sup> A 2002 to 2003 survey of 264 U.S. entry-level dental hygiene programs conducted by ADEA concluded that "there is in fact not only a current faculty shortage, particularly in the area of culturally diverse educators, but the dearth of qualified faculty will likely be of critical proportions in the very near future."<sup>22</sup> The same survey reported that 38% of the dental hygiene programs responding had unfilled faculty vacancies due to a lack of qualified applicants. In addition, 68% of dental hygiene program directors indicated a need to replace fulltime faculty within the next 5 years due to projected retirements.<sup>21,22</sup> Compounding the problems associated with the very small number of dental hygienists entering academic careers is the aging of the current faculty and the potential leadership vacuum in the near future caused by the retirement of the current dental hygiene educators.<sup>22</sup> And as the population grows older and more medically complex, capacity building is needed to ensure quality dental hygiene faculty to prepare the dental hygiene workforce.<sup>23</sup> Doctoral prepared dental hygienists will be needed to teach masters-level graduate dental hygiene learners and to engage in administrative and leadership roles in health care organizations with impending changes in health care policies. There is evidence that with higher levels of education there is a correlation with better patient outcomes.<sup>13</sup>

The third insight into nursing doctoral education with implication for dental hygiene is the need for standardization to ensure quality and consistency among doctoral programs.<sup>24-37</sup> This need is reflected in a quote from a 1993 nursing paper: "There is a general concern that doctoral programs be of high quality because of their pivotal position in knowledge development for the discipline of nursing."<sup>38</sup> A reoccurring theme, also applicable to dental hygiene, is the need for the curriculum to address and reinforce nursing theory, concept development and nursing's distinct knowledge.<sup>36</sup> Of articles reviewed, a representative quote is: "Doctoral programs remain the most logical place in which to educate future scholars regarding nursing's unique philosophical foundations and their implications for scientific inquiry."<sup>36</sup> The need for quality and consistency among nursing doctoral programs is relevant as well for dental hygiene's development of doctoral programs. Insight gained from the nursing litera-

ture, informs dental hygiene that each discipline's paradigm concepts should be the thread that unifies all doctoral programs in the discipline to promote quality and consistency among the discipline's doctoral programs. These concepts define the core of the discipline, making it unique from other disciplines, and defining the discipline's boundaries.<sup>3</sup> As in nursing, the definition of the discipline of dental hygiene and its paradigm concepts should be the guiding principle for dental hygiene doctoral curriculum development.

The fourth insight gained from this review relates to actual steps and procedures used in developing and evaluating doctoral programs.<sup>37-43</sup> Evidence was provided from the perspective of faculty who presented concrete examples, models and perceptions about doctoral education along with student feedback from surveys.<sup>38,40,41</sup> Many of these articles included a detailed description of the steps involved in setting up a doctoral program from creating an exploratory task force to survey questions when evaluating a program five years post-graduation.<sup>40</sup> In addition, a variety of topics are discussed such as, student recruitment, online program development, quality assurance through systematic monitoring, creating budgets, getting buy-in from faculty, time tables, and general recommendations on what works and what does not work.

Finally, briefly reviewing the historical background of nursing doctoral education has important implications for the dental hygiene discipline because the current dental hygiene educational context resembles that of nursing at mid-twentieth century. Like some dental hygiene scholars today, in the 1950s, nursing educators strategically focused on developing nursing doctoral programs to educate masters-level nurses who would teach in the rapidly developing nursing baccalaureate programs.<sup>4</sup> In addition, nursing doctoral programs were needed to prepare faculty to do research that would target nursing actions and create a body of knowledge specifically for the discipline.<sup>2</sup>

Prior to 1980, the PhD degree was given primary consideration by nursing scholars to promote the development of the knowledge base for the discipline. However, the programs awarding professional nursing doctoral degrees (i.e. the Doctor of Nursing Science, i.e., DNSc/DNS) and academic nursing doctoral degrees (the PhD) were very similar in their objectives and end products.<sup>4</sup> Reasons for this similarity were threefold:

1. Doctoral degree granting institutions were skeptical that nursing was, or ever could be, an academic discipline, so the professional degree was

the only one possible, whether it was structured as a research-training degree or a more practice-oriented degree

2. Doctoral faculty in nursing were eager to build the nursing body of knowledge rather than the fields in which they had earned their degrees
3. Conceptual clarity about the relationship of the academic and practice elements of the discipline only gradually emerged (Flood, personal communication, May 2012)

The movement toward establishing the DNP began at the turn of the twenty-first century. The DNP was envisioned as a practice-focused degree for generalist MSN-prepared nurses, though currently for a transitional period a defined pathway for BSN-prepared nurses with advanced practice preparation, i.e. the specialist MSN, will also lead to the DNP degree.<sup>44</sup> Additionally, the AACN 2004 Position paper on the DNP put forth recommendations to establish the degree title of DNP as the title "to represent practice-focused doctoral programs that prepare graduates for the highest level of nursing practice." Although at present dental hygiene has no doctoral degree, currently, dental hygiene does have the academic master's degree (the MS in dental hygiene) and the professional master's degree (the MDH) but no clear distinctions between these degrees have been established in the discipline.

Currently, the 2 major doctoral degrees granted in the nursing profession are the PhD (the research-focused degree) and the DNP (the practice-focused degree). The dental hygiene discipline needs to look at the appropriateness of these 2 types of doctoral degrees when designing doctoral education programs. There is clearly a need to expand the knowledge of the dental hygiene discipline so the PhD degree seems a natural choice; however, there also could be an important benefit to developing a professional degree and both need to be considered carefully.

This study has several limitations. First, the articles available for our review fell into the 2 lowest levels of evidence (i.e., ideas, editorials and opinions, and case reports) based on ability to control for bias and to demonstrate cause and effect.<sup>45</sup> Secondly, the majority of articles found came from the Journal of Professional Nursing the publication of the

AACN. Their membership includes over 700 nursing schools, and their mission is to promote and support higher education for nursing and so presents a bias towards higher education. A third limitation is that websites may be incomplete due to the priorities or oversights of the site's designers. For example, some PhD programs did not post information that was easily found about a dissertation requirement on the website, yet the dissertation, or a comparable published report of original research, is an integral part of all PhD education. Further research into the curriculum via college catalogues, academic calendars, and alternative web searches were necessary to learn about the dissertation requirements.

## Conclusion

This website and literature review identified 4 insights and strategies for consideration by the dental hygiene discipline when establishing doctoral dental hygiene programs. With the current changes toward medically and socially compromised client populations, impending changes in health care policies, and the critical mass of master degree- prepared dental hygiene scholars ready to advance the discipline, now is the time for the profession of dental hygiene to establish doctoral education.

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