Parallels between the Development of the Nurse Practitioner and the Advancement of the Dental Hygienist

CRITICAL ISSUES IN DENTAL HYGIENE

Heather Taylor, MPH, LDH

Abstract:

Dental hygienists have often been described as the registered nurses of the dental field. Similar parallels also exist between the development of the nurse practitioner from the nursing profession and the evolution of the dental hygiene practice and profession. This article explores three major similarities between the two professions of nurse practitioners and dental hygienists. Public health issues, educational constructs, and the social and political environments shaping each profession are discussed to inform dental hygienists of their potential career options for future expanded therapeutic care roles.

Key Words: Dental Hygiene, Nurse Practitioners, Mid-Level Provider, Public Health

NDHRA: Professional Education and Development

Final published article available at Taylor, H. (2016). Parallels between the development of the nurse practitioner and the advancement of the dental hygienist. *American Dental Hygienists' Association*, *90*(1), 6-11.
https://jdh.adha.org/content/jdenthyg/90/1/6.full.pdf

"Study the past if you would define the future." - Confucius

INTRODUCTION

Dental hygienists have often been described as the registered nurses (RN) of the dental field. Today there are many more advanced nursing roles beyond that of the RN. For example, nurses have expanded their education and career options through the introduction of the nurse practitioner.[1] The political, social, and educational environments that existed when nurse practitioners were first introduced to the United States health care system have striking similarities to the environment that dental hygienists find themselves in today as they work toward advancing their profession. Although there is constant change in healthcare, the public health issues driving changes have remained the same over the last 50 years and across all health professions (e.g., access to care, lack of affordable care, provider shortages).[2] Political, educational, and social issues were key in the development of the nurse practitioner and will continue to be paramount in the advancement of the dental hygienist.[1] Understanding how the nursing profession addressed public health issues, expanded their education, and confronted political and social challenges through the introduction of the nurse practitioner will help dental hygienists gain perspective about their role in healthcare.[1-3] Recognizing the pathways of progress and the historical background of the nurse practitioner may allow dental hygienists to better direct their own expanded roles in therapeutic healthcare. This critical issues paper evaluates similarities between the two professions as related to historic and current public health issues, the educational constructs for both healthcare providers, and the social and political environment that continues shaping both professions.[1-37] Growth potential for the dental hygiene profession can be further examined.

SIMILARITIES

1.) PUBLIC HEALTH ISSUES

Nurse practitioners were introduced into the U.S. health system in the 1960s in response to the public's concern over physician shortages as well as the demand for affordable primary health care services to underserved populations and groups.[1-4] At the time, the number of primary care providers was insufficient to support the demand and need for medical care. Physician specialization contributed to a decrease in the number of primary care providers.[2] Vulnerable populations, including rural and poor urban populations, women, children, and the elderly had the greatest difficulty accessing medical care.[2] A real public health need for a new workforce model emerged as a result of access issues. The evolution of the independent nurse practitioner from existing nursing educational models was the result.[1]

Just as in the 1960s when medical care concerns focused on physician shortage and rising costs, dentistry faces similar issues. According to the U.S. Department of Health and Human Services, the number of traditional Dental Health Professional Shortage Areas has tripled in the last 25 years.[5] Currently about 5,000 areas in the United States are designated as Dental Health Professional Shortage areas (A ratio of 5,000 or more people to one dentist in the area). Reportedly, it would require roughly 7,300 more dentists to eliminate the designation of these shortage areas.[6] Approximately 5,200 students graduated from dental schools across the U.S. in 2013, but 3,500 dentists retired last year and that number is expected to rise with the aging workforce population.[7,8] Health Resources and Services Administration (HRSA) released a report in February of 2015 concluding that all 50 states in the U.S. will experience a shortage of dentists by 2025.[9] The shortage of primary dental care providers is clearly evident in epidemiologic data.[5-9]

Dental health shortage areas typically are populated by some of the most vulnerable populations.[6] Disproportionally distributed dentists coupled with the low numbers of dentists who participate in Medicaid, equates to millions of low-income children with inadequate dental care.[10] The PEW Charitable Trusts reported that in 2011, less than half of the Medicaid-enrolled children received dental care in 22 states.[10] These facts are significant since lower income children are twice as likely to develop cavities as their affluent counterparts.[10] Low provider numbers and unmet needs of the underserved are two substantial parallels between the development of nurse practitioners and the future expansion of the dental hygienist's roles.[1-3-6,9] Low numbers of direct access dental care providers and underserved populations are now also prompting discussions about expanding roles for dental hygienists, educating more mid-level providers, and making legislative changes to treat underserved populations.[9]

Rising dental costs also parallel the rising health care costs that occurred during the introduction of the nurse practitioner.[11-13] During World War II, health care expenditures accounted for 0.38% of the nation's Gross Domestic Product (GDP).[11] By 1961, it had risen to 1%, and resulted in concern over the lack of affordable care for the elderly, children, and women.[11] This encouraged the development of a different workforce model in primary care, the nurse practitioner.[11] Economic costs are significantly higher today. In 2012, health care expenditures accounted for 17.2% of the GDP, meaning that, on average $8,915.00 is spent per person for healthcare.[12] Cost of dental services reached $110.9 billion dollars in 2012 and continues to increase.[13] Ultimately much like the introduction of the nurse practitioner, the introduction of new dental hygiene-based workforce models across the nation are being driven by similar public health issues (e.g., insufficient dental care providers, lack of dental care for vulnerable populations, and rising dental care costs).[9,10,13]

2) CONSTRUCTS OF EDUCATION

Registered nurses must obtain a master's or doctoral degree and then seek additional licensure in order to become a nurse practitioner.[14] Today, there are over 350 academic nurse practitioner programs in the United States.[15] These programs started when nursing pioneers Loretta Ford and Henry Silver responded to demands for more healthcare access.[2] Ford and Silver recognized the need for nurses to have additional education and training to allow for more patient responsibility in expanded roles of care.[2] The new program would prepare nurses to assume more responsibility in treating underserved populations.[2,3] To fulfill such roles, these pioneers understood that education of the nurse practitioner needed to go beyond a bachelor's degree.[16]

State licensing boards for nurses recognize both the associate and baccalaureate entry points.[1] The same is true of dental hygiene, thus adding to educational inconsistency among practicing professionals. Such inconsistency can adversely influence graduate education for advanced-practice dental hygienists because there can be "no expectations for a student's consistent knowledge and skill level on admission or after program completion."[1] The American Dental Education Association (ADEA) recognized the implications of varying entry-level programs in dental hygiene back in 2011. A brief entitled: "*Bracing for The Future: Opening Up Pathways to the Bachelor's Degree for Dental Hygienists*" stressed the value of a bachelor's degree so that dental hygienists could enter master's-level programs to ensure safe provision of services in expanded roles.[17]

Economically, it is most feasible to train mid-level or advanced providers by supplementing the education of licensed dental hygienists just as nurses did with the nurse practitioner model. Advanced dental hygiene roles would require more education, and

consequently the American Dental Hygiene Association (ADHA) and dental hygiene educators are establishing accreditation standards for advanced practice dental hygiene educational programs and new workforce models. The Commission on Dental Accreditation (CODA) assigned a task force to recommend standards for educating dental therapists, that is, mid-level providers. Initially, however, it did not seem that the standards recommended by the task force in December of 2013 were inclusive of dental hygiene-track advanced providers. The response, provided by the dental community, ADHA, and the Federal Trade Commission, encouraged revisions to these recommendations. [18] As of February 2015, CODA approved standards that allow for accreditation of dental hygiene-track advanced providers.[19] Just like pioneers in nursing responded in 1965 with the introduction of the nurse practitioner model, so too today, the American Dental Hygiene Association (ADHA) and dental hygiene educators are supporting new workforce models and accreditation standards addressing the shortage of dental providers and concerns over rising dental care costs. [4,16,20] With expanded roles for dental hygienists, educational paths and specialized graduate degree programs must be established. [16]

3) SOCIAL AND POLITICAL ENVIRONMENTS

The introduction of the new nurse practitioner workforce model to primary medical care did not come without substantial battles. As the profession grew, nurse practitioners faced restrictions on practice, resources, and reimbursement. [1,14] These legal and political barriers were often driven by physicians' territorialism, needs for status, and culture. [1,2] Organized medicine viewed this new type of workforce model with suspicion, and expressed concerns about nurses practicing without direct supervision of a physician. [2]

Despite opposition, nurse practitioners documented expertise in disease prevention, public health promotion, the ability to increase access to care, and patient satisfaction. [1]

Substantial literature exists documenting that primary care outcomes do not differ between the delivery of care offered by a nurse practitioner and a physician.[21-25] Despite this, nurse practitioners are hindered by "inconsistent state laws, insurance reimbursement practices, and a medical community that clings to outmoded notions of a physician-nurse hierarchy."[14] Continued research in areas of patient satisfaction and care documenting further beneficial outcomes may assist nurses to move forward in practice and acceptance.[2]

Similar to the nurse practitioner, the expansion of roles and education for dental hygienists has received resistance. Since regulations and scope of practice definitions fall under state laws, there are a variety of differences regarding how dental hygienists can practice within each state.[26] For instance, in Colorado dental hygienists are legally able to perform several dental preventive procedures independently, without the supervision of a dentist.[27] These procedures include dental prophylaxis, exposure of radiographs, topical anesthesia, fluoride application, sealants, and dental hygiene diagnosis and treatment planning. In contrast, Indiana is one of five states where dental hygienists cannot perform a simple non-invasive procedure such as placing a caries-preventive sealant on a patient's tooth without the direct supervision of a dentist.[26,28] Despite the evidence of patient safety and satisfaction with direct access dental hygiene care, there are many states with restrictive practice acts.[29-32]

As the profession of dental hygiene advances into the future, research will be needed to document quality care and satisfaction achieved under new dental hygiene workforce models. Such data could validate the continued development of new oral healthcare delivery models. Just as equivalency of many outcomes has been documented between nurse practitioners and physicians, outcome assessments will compare the care provided by dentists and dental hygienists.

DISCUSSION

Table 1 provides additional parallels between the professional advancement of nurses and dental hygienists. These key advancements in both the nursing and dental hygiene professions allow health care providers to see similarities and the benefits of strategically moving the profession forward in education, political, social, and public health arenas.

Notably, however, it is crucial for the profession of dental hygiene to recognize that unlike the nursing profession, which is self-regulated, dental hygienists are primarily regulated by their employers, dentists.[33] Nursing first established self-regulation in 1903 and later outlined the practice of registered nurses between the 1930s and 1950s through state Nurse Practice Acts (NPAs).[34] These NPAs define nursing practice, independent of physicians, and allow state boards controlled by nurses to determine licensure requirements and codes of ethics for the profession.[34]

Unlike nurses, the profession of dental hygiene does not have autonomy, which allows state legislators and dental boards to suppress dental hygienists from practicing to the fullest extent of their training. Wanchek suggested that by expanding educational opportunities and reducing scope of practice restrictions on dental hygienists, states could reduce oral disparities and increase access to dental care.[33] As with other health professionals who are self-regulated, "dental hygienists possess the knowledge, skill, and judgment to best regulate the profession."[35] Therefore, self-regulation will be important for the profession of dental hygiene to obtain to further develop advanced workforce models and greater scope of practice nationwide. Conducting and publishing additional research documenting quality of care and patient safety, along with dental cost savings, should also encourage new regulation standards and advanced practice models in dental hygiene, as has happened in nursing.[26,36] The development of

advanced educational models is currently moving forward so that the profession is adequately educated and capable of delivering care in expanded practice settings treating underserved populations.[16,19] Advanced dental care practitioners can help address the complex dental public health problems in the United States, just as nurse practitioners have done for the nursing profession.[26,36]

CONCLUSION

Dental hygiene is facing a paradigm shift for changing and advancing professional education and practice. The profession can learn from studying the history of the nurse practitioner, including the fact that although nurses faced opposition, they were able to establish higher educational levels within nursing to educate nurse practitioners adequately for expanded roles.[1] The progress of the nursing profession via the development of the nurse practitioner within public health, education, and social and political environments illustrates the potential growth of the dental hygiene profession by way of advanced education and practice models.

Table 1: Key Advancements within the Nursing and Dental Hygiene Professions of the United States [2,25,26,36-41]

Advancement	Year	Nursing Profession	Year	Dental Hygiene Profession
Education	**1873**	First nursing educational program opens - Bellevue School of Nursing, New York	**1913**	First school for dental hygiene opens - Fones School of Dental Hygiene, Connecticut
Political and Social	**1896**	Formation of professional association representing nurses known today as the American Nurses Association (ANA)	**1923**	Formation of the American Dental Hygienists' Association (ADHA)
Education	**1900**	Publication of the journal, *American Journal of Nursing* – 1900	**1927**	First publication of what is known today as *Journal of Dental Hygiene*
Political and Social	**1938**	New York becomes the first state to require licensure for nursing practice	**1920**	Six states have established licensure for dental hygienists
Education	**1965**	First nurse practitioner program created at the University of Colorado	**1947**	American Dental Association (ADA) and ADHA set accreditation standards for dental hygiene educational programs
Education	**1973**	ANA published accreditation standards for nursing education	**1951**	ADA Council on Dental Education establishes accreditation standards for dental hygiene education
Political and Social/ Public Health	**1977-1983**	Multiple studies published comparing nurse practitioner care to that of physicians Institute of Medicine documents cost reductions and economic feasibility of care provided by nurse practitioners	**1996-1997**	Studies published on independently practicing dental hygienists show safety and high quality of care
	1992	*Yale Journal of Regulation* publishes journal issue on cost-effective and high quality care of nurse practitioners – a call is made to eliminate regulatory restrictions	**2014**	National Governors Association publishes article on increased access to care by dental hygienists –a call is made to allow dental hygienists to be reimbursed by Medicaid and to decrease practice and supervision restrictions

Final published article available at Taylor, H. (2016). Parallels between the development of the nurse practitioner and the advancement of the dental hygienist. *American Dental Hygienists' Association*, *90*(1), 6-11. https://jdh.adha.org/content/jdenthyg/90/1/6.full.pdf

References:

1. Sullivan-Marx EM, McGivern DO, Fairman JA, Greenberg SA. Nurse Practitioners: The Evolution and Future of Advanced Practice. Fifth ed: Springer Publishing Company, LLC; 2010. 432p.
2. O'Brien JM. How nurse practitioners obtained provider status: lessons for pharmacists. *Am J Health Syst Pharm*. 2003;60(22):2301-7.
3. Savrin C. Growth and development of the nurse practitioner role around the globe. *J Pediatr Health Care*. 2009;23(5):310-4.
4. Berry KE, Nathe CN. Historical review of the commissioning of health care disciplines in the USPHS. *J Dent Hyg*. 2011;85(1):29-38.
5. Oral Health Workforce. Health Resources and Services Administration U.S. Department of Health and Human Services [Internet] 2014 [cited 2014 July 31]. Available from: http://www.hrsa.gov/publichealth/clinical/oralhealth/workforce.html
6. Shortage Designation: Health Professional Shortage Areas & Medically Underserved Areas/Populations. Health Resources and Services Administration: U.S. Department of Health and Human Services [Internet]. 2014 [updated June 19; cited 2014 July 31]. Available from: http://www.hrsa.gov/shortage/index.html.
7. Collier R. United States faces dentist shortage. *Can Med Assoc J*. 2009;181(11):E253-4.
8. Total U.S. Dental School Graduates: 1960-61 to 2012-13. Health Policy Resources Center: American Dental Association [Internet]. 2014. [cited 2014 July 31]. Available from: http://www.adea.org/publications-and-data/data-analysis-and-research/applicants-enrollees-and-graduates.aspx
9. National and State-Level Projections of Dentists and Dental Hygienists in the U.S., 2012-2025. National Center for Health Workforce Analysis. [Internet] 2015. [cited 2015 March 31]. Available from: http://bhw.hrsa.gov/healthworkforce/supplydemand/dentistry/nationalstatelevelprojectionsdentists.pdf
10. In Search of Dental Care: Two Types of Dentist Shortages Limit Children's Access to Care. The PEW Charitable Trusts. [Internet]. 2013. [updated June 23; cited 2014 July 31]. Available from: http://www.pewtrusts.org/en/research-and-analysis/reports/2013/06/23/in-search-of-dental-care.
11. Chantrill C. US Health Care Spending History from 1900. usgovernmentspending.com. [Internet] 2014. [cited 2014 July 30]. Available from: http://www.usgovernmentspending.com/healthcare_spending.
12. National Health Expenditure Data. Centers for Medicare and Medicaid Services. [Internet]. 2014. [updated May 5; cited 2014 July 30]. Available from: http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html.

Final published article available at Taylor, H. (2016). Parallels between the development of the nurse practitioner and the advancement of the dental hygienist. *American Dental Hygienists' Association*, *90*(1), 6-11.
https://jdh.adha.org/content/jdenthyg/90/1/6.full.pdf

13. National Health Expenditures 2012 Highlights. Centers for Medicare and Medicaid Services. [Internet]. 2014. [cited 2014 July 30]. Available from: http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/downloads/highlights.pdf.

14. Hansen-Turton, T., J. Ware, and F. McClellan, *Nurse Practitioners in Primary Care*, in *Temple Law Review*. 2010. p. 1236-1262.

15. Education. American Association of Nurse Practitioners [Internet]. 2013. [cited 2014 August 25]. Available from: http://www.aanp.org/education/61-education/faq-np-prep/306-how-many-np-programs-are-there

16. Darby ML. The Advanced Dental Hygiene Practitioner at the master's-degree level: is it necessary? *J Dent Hyg*. 2009;83(2):92-5.

17. Bracing for The Future: Opening Up Pathways to the Bachelor's Degree for Dental Hygienists: American Dental Education Association. [Internet]. 2011. [cited 2014 July 31]. Available from: file:///C:/Users/hhavens/Downloads/IHEP2011.pdf.

18. Bowers D. Making an Impact. *Access Magazine*. 2014 March.

19. Accreditation News. Commission on Dental Accreditation, American Dental Association. [Internet]. 2015. [cited 2015 March 30]. Available from: http://www.ada.org/en/coda/accreditation/accreditation-news

20. Stolberg RL, Brickle CM, Darby MM. Development and status of the advanced dental hygiene practitioner. *J Dent Hyg*. 2011;85(2):83-91.

21. Lambing AY, Adams DL, Fox DH, Divine G. Nurse practitioners' and physicians' care activities and clinical outcomes with an inpatient geriatric population. *J Am Acad Nurse Pract.* 2004;16(8):343-52.

22. Sox HC, Jr. Quality of patient care by nurse practitioners and physician's assistants: a ten-year perspective. *Ann Intern Med.* 1979;91(3):459-68.

23. Mundinger MO, Kane RL, Lenz ER, Totten AM, Tsai WY, Cleary PD, et al. Primary care outcomes in patients treated by nurse practitioners or physicians: a randomized trial. *J Am Med Assoc*. 2000;283(1):59-68.

24. Lenz ER, Mundinger MO, Kane RL, Hopkins SC, Lin SX. Primary care outcomes in patients treated by nurse practitioners or physicians: two-year follow-up. *Med Care Res Rev*. 2004;61(3):332-51.

25. Martinez-Gonzalez NA, Tandjung R, Djalali S, Huber-Geismann F, Markun S, Rosemann T. Effects of physician-nurse substitution on clinical parameters: a systematic review and meta-analysis. *PloS one*. 2014;9(2):e89181.

26. The Role of Dental Hygienists in Providing Access to Oral Health Care. National Governors Association. [Internet]. 2014. [cited 2014 July 1]. Available from: http://www.nga.org/files/live/sites/NGA/files/pdf/2014/1401DentalHealthCare.pdf

27. Direct Access States. American Dental Hygienists' Association. [Internet]. 2014. [cited 2014 July 31]. Available from: https://www.adha.org/resources-docs/7513_Direct_Access_to_Care_from_DH.pdf

28. Dental Hygiene Practice Act Overview: Permitted Functions and Supervision Levels by State. American Dental Hygienists' Association. [Internet]. 2013. [cited 2015 April 2]. Available from: http://www.adha.org/resources-docs/7511_Permitted_Services_Supervision_Levels_by_State.pdf

29. Astroth DB, Cross-Poline GN. Pilot study of six Colorado dental hygiene independent practices. *J Dent Hyg*. 1998;72(1):13-22.

30. Battrell AM, Gadbury-Amyot CC, Overman PR. A qualitative study of limited access permit dental hygienists in Oregon. *J Dent Educ*. 2008;72(3):329-43.

31. Perry DA, Freed JR, Kushman JE. Characteristics of patients seeking care from independent dental hygienist practices. *J Public Health Dent*. 1997;57(2):76-81.

32. Kushman JE, Perry DA, Freed JR. Practice characteristics of dental hygienists operating independently of dentist supervision. *J Dent Hyg*. 1996;70(5):194-205.

33. Wanchek T. Dental Hygiene Regulation and Access to Oral Healthcare: Assessing the Variation across the US States. *British Journal of Industrial Relations*. 2010;48(4):706-25.

34. Hartigan C. APRN regulation: the licensure-certification interface. *AACN Adv Crit Care*. 2011;22(1):50-65; quiz 7.

35. Johnson PM. Dental hygiene regulation: a global perspective. *Int J Dent Hyg*. 2008;6(3):221-8.

36. Safriet, Barbara J. Health Care Dollars and Regulatory Sense: The Role of Advanced Practice Nursing. *Faculty Scholarship Series.* Paper 4423. [Internet] 1992. [cited 2014 July 31]. Available from: http://digitalcommons.law.yale.edu/fss_papers/4423

37. Institute of Medicine Division of Health Care Services. Nursing and Nursing Education: Public Policies and Private Actions. Washington (DC): National Academies Press (US); 1983.

38. Matthews JH. Role of professional organizations in advocating for the nursing profession. *Online J Issues Nurs*. 2012;17(1):3.

39. Historical Timeline. American Association of Nurse Practitioners. [Internet]. 2014 [cited 2014 November 26]. Available from: http://www.aanp.org/about-aanp/historical-timeline.

40. 100 Years of Dental Hygiene. American Dental Hygiene Association. [Internet]. 2013 [cited 2014 November 26]. Available from: http://www.adha.org/timeline.

41. Historical Review. American Nurses Association. [Internet]. 2014 [cited 2014 November 26]. Available from: http://www.nursingworld.org/FunctionalMenuCategories/AboutANA/History/BasicHistoricalReview.pdf

42.