

Practicing Dental Hygienists' Attitudes toward the Proposed Advanced Dental Hygiene
Practitioner: A Pilot Study

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ABSTRACT

Douglas L. Lambert: Practicing Dental Hygienists' Attitudes toward the Proposed Advanced Dental Hygiene Practitioner: A Pilot Study
(Under the direction of Mary George)

The purpose of this pilot study was to assess the attitudes of active registered dental hygienists toward the proposed Advanced Dental Hygiene Practitioner (ADHP). Factors of support/interest in the ADHP concept, level of practice, and socio-demographics were examined.

A self-administered questionnaire was mailed to 1562 active registered dental hygienists in Colorado, Kentucky, and North Carolina. Both quantitative and qualitative analyses were performed.

The response rate was 29% ($n = 442$). Overall level of support/interest for the ADHP, indicated by cumulative totals of very and somewhat supportive/interested, was respectively 87%/74% in Colorado, 82%/71% in Kentucky, and 92%/81% in North Carolina. A significant difference was found among respondents interested in becoming an ADHP and those not interested ($p < 0.05$).

The overall level of support/interest in the proposed ADHP does not differ among the three states. A revised questionnaire and survey procedures could further improve measurement of dental hygienists' attitudes regarding the ADHP program.

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CHAPTER 1

INTRODUCTION

The *Oral Health in America: A Report of the Surgeon General*, which described oral health disparities among certain populations, stressed the important relationship between oral health to the overall general health of all Americans. Although the majority of Americans have benefited from the safe and effective means of maintaining oral health, many still experience needless pain and suffering, complications that devastate overall health and well-being, and financial and social costs that diminish the quality of life and burden American society¹. The *Report* described “a silent epidemic” of oral diseases that is affecting the most vulnerable citizens including poor children, the elderly, and many members of racial and ethnic minority groups and suggested that many Americans are unable to achieve optimal oral health due to barriers including lack of access to care ¹. Following this *Report*, the *National Call to Action to Promote Oral Health (Call to Action)* described five principal actions and implementation strategies to promote oral health and prevent disease, especially to reduce the health disparities that affect members of racial and ethnic groups, poor people, many who are geographically isolated, and others who are vulnerable because of special oral health care needs ². The goals of the *Call to Action* reflected those of *Healthy People 2010* that included: to promote oral health, to improve quality of life, and to eliminate oral health disparities².

To help address these disparities, the American Dental Hygienists’ Association (ADHA) began an initiative in 2004 to develop a curriculum for an advanced dental hygiene practitioner (ADHP). Comparable to the nurse practitioner model, the ADHP was proposed as a cost-effective response to help address the lack of access to dental care of many Americans. This response also illustrated support to the *Surgeon General’s Report on Oral*

Health and the Call to Action. The proposed clinical responsibilities of an ADHP include advanced preventive therapies, diagnosis, restorative procedures, and referrals. Working in a variety of settings, this professional would be part of a multi-disciplinary team that would offer a well-rounded approach to health care service. The education of a practicing ADHP would be at the master's level following completion of a baccalaureate degree in dental hygiene or related field. Further development of the master's curriculum, supported by course descriptions of 37 credit hours, was completed by the ADHA in June 2007.

In creating a new allied health position, a significant part of the assessment involves identifying potential applicants who would be willing to obtain this new credential. A review of the literature shows numerous studies that describe preadmission characteristics of allied health undergraduate students. However, studies that describe preadmission traits and attitudes of potential advanced degree students are limited. Currently, no data exists that examines such factors for the proposed ADHP.

The original specific aims for an in-depth study included: 1) to determine the prevalence of support/interest of the ADHP model among active registered dental hygienists; 2) to examine the differences of support/interest among active registered dental hygienists in the different states with varying dental practice laws; 3) to examine factors associated with support/interest of the ADHP model including level of training, practice and socio-demographic characteristics; and 4) to conclude how many active registered dental hygienists would be interested in becoming an ADHP. However after developing the questionnaire and initiating the study, we discovered a design limitation that precluded us from conducting a follow-up with the non-respondents. Therefore, given the relatively low response rate and the concern about possible non-response bias, we elected to re-characterize the study as a pilot and modify the specific aims and associated analyses.

The purpose of this pilot study was to assess the attitudes of a random sample of active registered dental hygienists toward the proposed Advanced Dental Hygiene

Practitioner (ADHP). The factors of support/interest in the ADHP concept, level of practice, and socio-demographics were examined. The revised specific aims are as follows: 1) to determine the prevalence of support/interest of the ADHP model among active registered dental hygienists; 2) to examine factors associated with support/ interest of the ADHP model including level of training, practice and socio-demographic characteristics; 3) to make recommendations for improving a self-administered, mailed questionnaire.

Literature Review

Creation of the ADHP

In June 2004, the ADHA House of Delegates adopted the development of an ADHP. This new mid-level practitioner is being proposed as a cost-effective response to the oral health crisis of the underserved populations in the United States. In addition, this effort reflects ADHA's commitment to the 2000 *Surgeon General's Report on Oral Health* and the *National Call to Action to Promote Oral Health*. The *Report* describes the development of a National Oral Health Plan to improve quality of life and eliminate health disparities. A component of this Plan states that an effective health infrastructure needs to be built which meets the oral health needs of all Americans and is able to integrate oral health effectively into overall health¹. Available trained public health practitioners who are knowledgeable about oral health are needed to implement disease prevention programs for underserved populations. Action 4 of the *Call to Action* states strategies to enhance the oral health workforce capacity by increasing recruitment and improving the distribution of care providers. It also suggests that changes in state practice acts, such as alternative models of delivery of needed care for underserved populations, would allow a more flexible and efficient workforce².

The Report's emphasis on access to oral health care and the *Call to Action's* attention to enhance the oral health workforce provided a foundation for the ADHA to pursue development of this new practitioner. The ADHP concept would parallel the successful

advanced practice models already established in the nursing profession. The ADHA has defined the professional responsibilities of an ADHP to be the provision of primary oral health care that includes advanced preventive therapies, diagnosis, and treatment such as restorative procedures to populations with limited access to oral health care³. An ADHP could work in a variety of settings such as in hospitals, public health, and nursing homes. This practitioner could form collaborative working partnerships with dentists and other health professionals that would offer patients a well-rounded approach to health care service.

Advocacy efforts to address oral health care disparities

Advocacy efforts for new workforce models in oral health care are appearing at both the federal and state levels. Contemporary responses from policymakers to address access to care and dental workforce issues are occurring mostly at the state level⁴. States have implemented various plans, such as workforce contingent financial aid (WCFA) and modifications in state practice acts, to improve access to care and reduce health care disparities. In 2006, state legislatures in 31 states encountered proposed expansions to the scope of practice of a variety of allied health professions⁴. For example, a common proposal was to allow registered dental hygienists to work independently in public health settings without a dentist's supervision. In the past five years, nine states (Arizona, California, Iowa, Kansas, Montana, New York, Oklahoma, Pennsylvania, and Rhode Island) have revised the scope of dental practice to allow dental hygienists to initiate treatment based their assessment of a patient's needs without the specific authorization of a dentist, treat the patient without the presence of a dentist, and maintain a provider-patient relationship⁴.

The ADHA started to advocate for the ADHP at the federal level, specifically seeking federal support for a pilot project that would field-test the ADHP⁴. The United States Senate Appropriations Committee report in December 2005 stated that new ways of bringing oral health care to rural and underserved populations are needed⁵. The Committee encouraged

the Human Resources and Service Administration (HRSA) to explore alternative methods of delivering preventive and restorative oral health services in rural America, specifically to explore development of an advanced dental hygiene practitioner⁵. This language has received no action from HRSA and the FY 2006 Budget reflects no funding from Congress. The following groups have written to HRSA “urging exploration” of the ADHP: American Public Health Association, Special Care Dentistry Association, National Rural Education Association, and National Rural Health Association⁴.

In February 2008, the Minnesota state legislature became the first state to consider legislation to create the ADHP⁶. An omnibus health care appropriations bill contains wording supporting an ADHP pilot project and renaming of the ADHP to an Oral Health Practitioner (OHP). The pilot project is limited to no more than 15 mid-level practitioners entering practice in 2011 and an additional 15 in 2012⁶. Normandale Community College and Metropolitan State University are preparing to pilot the ADHP program. Subsequently, in April 2008, the Minnesota State Senate passed an amended Omnibus Higher Education Bill that contained a provision to put language in the statute that creates the OHP and convenes a workgroup to make recommendations and proposed legislation to define the scope, supervision, and education of the provider⁷. The licensed OHP will work under the supervision of a dentist with a collaborative management agreement, must practice in underserved areas, and cannot begin lawful practice prior to 2011⁷. The workgroup will consist of 6 dentists, 2 dental hygienists, 2 state government employees, and 3 discretionary members assigned by the group. January 2009 is the expected date to draft proposed legislation of recommendations by the workgroup before it is acted upon by the Minnesota House of Representatives.

In 2004, the ADA House of Delegates created a task force to study relevant issues with access to oral health care and the dental workforce. In 2006, The ADA House of Delegates approved the task force report and enacted Resolutions 3H-2006 and 25H-2006,

which created two new dental team members, oral preventive assistant (OPA) and community dental health coordinator (CDHC), and offered a guide that states can use to expand duties for allied dental professionals⁴. The OPA model would include competencies similar to a dental assistant, but would add scaling for Periodontal Type I (gingivitis) patients. The competencies of the CDHC model parallel the current scope of practice of dental hygienists, but would be trained under a new academic program. Under dentist supervision, a CDHC would be employed by federally qualified community health centers, the Indian Health Service, state or county public health clinics, or private practitioners serving dentally underserved areas⁴. The proposed curriculum program for a CDHC is 18 months. The CDHC model was introduced in the U.S. House of Representatives as H.R. 2472, the “Essential Oral Health Care Act of 2007”, which provides such funds as necessary for six sites to test the CDHC model from 2008-2012⁴. The CDHC is referred to in the legislation as “a new midlevel allied dental practitioner who will work in underserved communities where residents have no or limited access to oral health care.”⁴

The Proposed ADHP Curriculum

The ADHA Council of Education developed a curriculum in three phases. Phase I consisted of a preliminary ADHP curriculum framework that was completed in June 2005. The curriculum included ten course titles: Issues in Health Care Delivery, Professional Development and Leadership, Practice Management, Populations with Special Needs, Pain Management, Restorative and Uncomplicated Extractions, Advanced Diagnosis and Medicine, Research and Grantsmanship, Community Planning and Externships, and Health Promotion, Disease Prevention, and Epidemiology⁸. Examples of course content and objectives were outlined for each course title. One year later, phase II of a revised curriculum draft described five general themes (domains) and specific behaviors (competencies). The five domains, representing general professional roles and skills, were Provision of Primary Oral Health Care, Health Care Policy and Advocacy, Management of

Oral Care Delivery, Transitional Research, and Professionalism and Ethics³. Each domain was supported by several competencies that described expected knowledge and skills of an ADHP. An important aspect of phase II involved the wording that this curriculum was designed for a master's level of education. In June 2007, phase III included a sample curriculum of course guidelines for program development; listing didactic courses (21 credits) and advanced practice clinical courses (16 credits). The educational competencies for the ADHP were adopted by the ADHA Board of Trustees in March 2008.

Other models of advanced mid-level oral health care providers

Other countries have previously introduced and implemented an allied dental care provider, the dental therapist, to address access to care issues. Currently, 53 countries utilize dental therapists, with over 14,000 existing world-wide⁹. New Zealand began a two-year program in 1921 where 30 students were trained to become school dental nurses. The implementation of school dental nurses transformed the oral health of the children of a country and laid the basis for what was to become an international movement¹⁰. By the 1970's New Zealand's School Dental Service (SDS) had grown to approximately 1,350 school dental nurses who worked in schools throughout New Zealand¹⁰. School dental nurses were employees of the federal health care system and were certified to perform oral examinations; develop treatment plans; provide preventive services, including prophylaxis; administer local anesthesia; prepare and restore primary and young permanent teeth; and extract primary teeth, all under the general supervision of a Ministry of Health dentist¹⁰. The school dental nurses voted in 1988 to change their name to school dental therapists. They practice under the supervision of a principal dental officer of the district health boards. School dental therapists provide free treatment to all children ages 2 1/2 through 13 in their school clinics. Currently, over 97% of children under age 13 and 56% of preschoolers participate in the SDS with the virtual elimination of permanent tooth loss⁹.

In 2006, Auckland University of Technology became the first university in New Zealand to offer the degree the Bachelor of Health Science in Oral Health that prepares graduates to practice as dental therapists and dental hygienists. After completing three years of study, graduates can work in schools, hospitals, community clinics, and private practice. They are able to independently prescribe and administer oral health care to patients up to 18 years of age and provide periodontal care for adult patients in consultation with dentists¹¹. The key skills of an oral health therapist include: examination of oral tissues, diagnosis of dental caries and recognition of other oral disease processes; preparation of an oral care plan; administration of local anesthetic; preparation of cavities and restoration of primary and permanent teeth; preventative care; interpersonal skills; and oral health education and health promotion¹¹. Another school in New Zealand, The University of Otago School of Dentistry has replaced the programs of dental hygiene and dental therapy with a new program, the Bachelor of Oral Health. The length of this program is three years of full-time study. An oral health professional has skills in dental therapy, dental hygiene, and health promotion. This professional can be registered to practice as a dental hygienist, a dental therapist, or both¹².

In the United States, with attention to only Alaska, categories of dental health aides have been developed in response to the prevalence of dental disease and shortage of dentists. The Dental Health Aide Therapist Program was created to augment the dental team under the auspices of the Community Health Aide Program (CHAP) authorized by section 121 of the Indian Health Care Improvement Act (IHCIA), 25 U.S.C. § 1616⁴. In 2003, the Alaska Native Tribal Health Consortium (ANTHC), with the support of the Indian Health Service (IHS), sent six Alaskans in to be trained in dental therapy at The University of Otago⁹. In 2006, the ANTHC and the University of Washington School of Medicine's MEDEX Northwest received major grants to develop a program to train dental therapists. Graduates from the program are members of the rural Alaskan communities and will be

placed in local villages to provide oral health care. Irreversible procedures will only be taught by tribal health organizations, not by UW. The University stated that it plans to continue its involvement in the program despite controversy from the American Dental Association (ADA)¹³. After a lawsuit from the American Dental Association (ADA) and the Alaska Dental Society (ADS), part of the settlement stated the ANTHC agreed to work with the ADA to preserve the language in the Indian Health Care Improvement Act that limits the scope of dental therapy practice and confines it to the state of Alaska⁴. Dental therapists are currently allowed to practice in the ANTHC clinics.

In the 1970s, a two-year program, modeled after the New Zealand dental therapist, began for dental nurses in Canada to address the oral health needs of the remote First Nation (aboriginal Indians) and Inuit (Eskimo) villagers of Canadian North, where dental care was virtually inaccessible¹⁰. The present dental therapy program at The First Nations University of Canada's National School of Dental Therapy prepares students to provide dental cleanings, routine fillings and extractions. In the second year, they become familiar with Aboriginal culture and values and have an opportunity to work eight weeks in the First Nations and Inuit communities¹⁴. The annual enrollment is 15-20 students. Currently, 106 dental therapists from The National School of Dental Therapy work either directly for First Nations and Inuit Health Branch (FNIHB) or directly for First Nations or territorial governments in the Regions and Territories and serve approximately 170 First Nations and Inuit communities¹⁵.

Dental hygiene education started in Scotland at Edinburgh Dental Hospital (1962), Dundee Dental Hospital (1976), and Glasgow Dental Hospital (1989). The University of Dundee School of Dentistry is currently the only university in Scotland to offer the Bachelor of Science degree in Oral Health Sciences which allows dual-qualification as a dental hygienist and therapist¹⁶. The three-year curriculum provides training in oral hygiene care, periodontal therapy, radiographs, impressions, and restorative procedures; additionally

treatment for children includes extractions, pulp therapy, and stainless steel crowns¹⁶. Ten students are accepted each year.

Over the years, the allied dental profession in both New Zealand and the U.K. has experienced change in program curriculums and fluctuations in student enrollments. Some changes such as the expansion of clinical skills have occurred in response to access to care issues. In 1993, The Nuffield Report summarized the need for a new workforce that would allow increased access to care for the entire population¹⁷. In more recent years, legislative, regulatory, and policy changes have expanded the range of duties that can be performed by dental hygienists and therapists, in where they are allowed to work and the degree of direct supervision required¹⁸. The scope of practice for dental hygienists and therapists in the U.K. has increased, for instance, passed legislation in 2002 permits dental therapists to be employed in general dental practices. Previously, dental therapists were only allowed to practice in the Community or Hospital Dental Services.

Given the apparent shortage of dentists throughout the U.K., dually-qualified hygienists-therapists would make a significant contribution to the treatment and maintenance of oral health in the population^{19,20}. The General Dental Council (GDC) issued a recent document that proposes further reform of the role of the dental therapists and the dental hygienists and proposes future expansion of the curriculum that would result in more clinical duties and enable direct patient access¹⁸. In the new model, a dentist could perform a full mouth assessment or this task could be assigned to a dually-qualified hygienist-therapist (dental care professional – DCP). A patient could take the proposed treatment plan to any registered dental professional to receive care. Recall visits could be provided by therapists who would have the option of determining future recall intervals or referral for a full mouth re-assessment with a suitable practitioner¹⁸. Such developments mirror changes in medical care where the last decade in the U.K. has seen significant delegation of duties previously performed by doctors to nurse practitioners¹⁸.

Studies examining existing mid-level oral health care practitioners

In a 2006 study, Ross and colleagues examined the knowledge of general dental practitioners regarding the clinical roles of jointly qualified hygienist-therapists and their willingness to employ this type of professional. A self-administered questionnaire was sent to 616 National Health Service (NHS) registered dentists in South-East Scotland resulting in a 50% response rate (n=310) after two mailings¹⁹. Sixteen survey questions addressed the dentists' knowledge on specific duties allowed by a dually qualified hygienist-therapist. Fifty-two percent of the responding dentists considered the following six procedures were allowed: placing temporary fillings, re-cementing crowns, restoring deciduous teeth, undertaking multiple surface restorations in deciduous teeth, taking impression, and administering inferior dental block analgesia¹⁹. Only 25% correctly identified multiple surface restoration in permanent teeth or treat patients under conscious sedation; 60% incorrectly believed that a hygienist-therapist could only treat patients if the dentist was on the premises¹⁹. Of 287 respondents, 64% (n=183) indicated that they would consider employing a hygienists-therapists¹⁹. The acceptability of a hygienist-therapist was higher for dentists who were already working with a hygienist. The authors stressed that both dentists and the public need to be more informed about the permitted duties of this professional. They suggested a new title of 'Oral Health Practitioner' to help increase acceptability, recognize educational and expanded skills, and improve identity on the dental team.

In another study by Ross and colleagues, the authors investigated the educational needs and employment status of registered dental hygienists in Scotland. In 2002, a self-administered questionnaire was mailed to 381 dental hygienists in Scotland resulting in a 76% response rate (n=290) after two mailings²¹. The socio-demographic characteristics revealed that the majority of the respondents were female 98% (n=285); of 276, 52% (n=144) received 12-17 months of training; approximately 70% (n=198) of the hygienists completed their training over 10 years ago; and of 271, 50% (n=136) held additional

qualifications²¹. Practice characteristics indicated that the majority of respondents worked in a general dental practice with both National Health Service and private lists; for geographic practice setting, most worked in the central belt with a small number in the Highlands and Islands; and of 272, 43% (n=116) were full-time²¹. With regard to training for extended duties, 86% (n=244) indicated that they had received formal training in the administration of local anesthesia and of 270, 56% (n=150) had completed training in the placement of temporary restorations²¹. Of 275, 59% (n=161) indicated that they would be interested in additional training to become qualified as dental therapists²¹. The authors propose that additional training in dental therapy would allow these individuals to join forces with dentists in addressing the unacceptable levels of oral disease in many part of the U.K.²¹.

One of the educational recommendations stated in the 2005 ADHA report, *Dental Hygiene: Focus on Advancing the Profession*, was to implement the baccalaureate degree as the entry point for dental hygiene practice within five years²². Shortly after, a research study by Monson and Engeswick, included a specific aim to assess and analyze associate degree dental hygiene students' interest in baccalaureate degree completion²³. A 55-item self-administered questionnaire was distributed to first and second year dental hygiene students by faculty at eight associate degree-granting institutions in Minnesota. Seven schools participated yielding a 69% response rate (n=204); 94 first-years and 110 second-years²³. Sixty-six percent of students identified they were currently interested in completing a Bachelor of Science degree in dental hygiene²³. Of those interested, 58% intended to take two classes per semester, 27% intended to take three to four classes per semester, almost 40% were willing to commit as many years as needed to achieve their degree, and about 32% were willing to commit two years²³. Of the students interested in degree completion, 50% were very interested in evening classes held in off-site locations near their home communities, 36% were very interesting in online-only coursework, 29% were very interested in a mixture of face-to-face and online coursework, and 13% were very interested

in completing coursework during traditional day time hours at Minnesota State University²³. This same group of interested students was asked to determine interest in 29 different educational topics for degree completion courses. Technology (58%), advanced clinical hand instrumentation (56%), and restorative functions (52%) received the most interest; whereas, research topics (8%) were identified with the least interest²³. The authors referenced a 2002 Canadian research study by Cobban and Clovis that listed the need for flexibility in scheduling and family and work obligations as barriers for dental hygienists to complete their baccalaureate degree²³. In conjunction, the authors suggested that degree-completion programs need to recognize these barriers and enable students to enroll part time²³.

The ADHP concept parallels other mid-level health professions

In nursing, a certified nurse midwife, nurse practitioner, clinical nurse specialist, and certified registered nurse anesthetist have been established. Post-graduate education started over 100 years ago for public health nursing. Nurse anesthetists followed closely behind the public health nurses, instituting educational programs sometime between 1909 and 1912²⁴. In 1965, the first certificate program for nurse practitioners (NP) began at the University of Colorado which prepared public health nurses to deliver primary health care in rural areas²⁵. At the same time, the physician assistant (PA) was introduced. Both roles were initiated in response to the uneven geographic distribution of physicians and primary care services, particularly in rural and inner-city areas²⁶. The acceptance and success of these roles set the stage for federal legislation regarding the funding of PA and NP education, such as Title VII and Title VIII of the Public Health Service Act²⁶. The apparent shortage of primary care physicians in the mid 1990s resulted in an increase number of PAs and NPs which correlated to help address access to care issues. This suggests that NPs and PAs are providing services (especially primary care) to populations that otherwise would be managed by a physician or would not receive services²⁶.

Physician assistants graduate from accredited programs, receive certification by a national exam, and are licensed to practice medicine with physician supervision. Data from a 2001 study revealed that 132 PA educational programs were offered at universities and colleges (90%), community colleges, hospitals, and the military²⁶. The length of these programs ranged from 15 to 36 months and all students were enrolled full-time. The number of graduates from August 2000 to July 2001 was 4,287; 48% graduated with a master's degree²⁶. Almost 73% were white/non-Hispanic, 10% Asian, Native Hawaiian, Pacific Islander, and 7% black/African American²⁶. Select demographics of the PA workforce in 2001 showed 46% male and 54% female, mean age of 42 years, and a practice mean of 9 years²⁶. The primary practice setting was 41% urban, 34% suburban, and 23% rural²⁶.

Nurse practitioners graduate from accredited programs and receive certification by a national or state examination. In most states, NPs who pass the national exam receive state authority to practice; however, some states grant NPs "certification," "authorization," "licensure," or "recognition" to practice in lieu of or in addition to the national certification²⁶. Data from the study above showed that 97% of the 337 NP educational programs were offered in universities and colleges with schools of nursing²⁶. The programs ranged from 12-43 months and the student enrollment was 40% full-time. From August 2000 to July 2001, the number of graduates was 7,298; 88% graduating with a master's degree²⁶. Eighty-two percent were white/non-Hispanic with black/African American making up the largest percentage of the others (6%)²⁶. Select demographics of the NP workforce in 2001 showed a female majority (96%), mean age of 46 years, and a practice mean of 9 years²⁶. Similar to the PA distribution, the NP primary practice setting was 41% urban, 37% suburban, and 23% rural²⁶.

Accelerated, nontraditional, advanced practice nursing programs provide an alternative way to increase the supply of nurse practitioners. Yale University pioneered the

innovation of accepting non-nurse college graduates into a combined undergraduate-graduate program in 1974²⁷. Since then, this program has been effective in graduating advanced practice nurses (APNs) in three years of full-time study. In the past 20 years, at least 18 nursing schools have developed similar programs, including The Virginia Commonwealth University School of Nursing in 1992²⁷. In 1998, White and colleagues conducted a study which profiled the demographic and job characteristics of second degree, non-nurse college graduates from this school who pursued graduate degrees in nursing. Using a 25-item self-administered questionnaire, the first mailing included all graduates (n=28) from December 1995 through August 1998 with a response rate of 68% and a second mailing included graduates (n=23) from December 1998 through August 1999 with a response rate of 43%²⁷. The socio-demographic characteristics revealed 25 women and 4 men; age range of 24 to 54 (over half were between the ages of 26 and 35); all 29 were Caucasian and obtained non-nursing baccalaureate degrees; and one held a master's degree²⁷. This study revealed that the socio-demographic profile of APNs in this case study is similar to the sociodemographic characteristics of other accelerated second degree program graduates²⁷. Consistent with previous reports, respondents in this study believe that other NPs, nurses, and nursing students view the nontraditional APN path with skepticism; in contrast, anecdotal experiences describe a greater perceived acceptance by physicians²⁷.

Saint Louis University School of Nursing began an accelerated baccalaureate nursing (BSN) program in 1971. The program's objective was to increase the supply of baccalaureate-prepared nurses by recruiting individuals with non-nursing baccalaureate or higher degrees into a nursing program requiring less time to complete than a traditional baccalaureate program²⁸. According to a 2004 survey by the American Association of Colleges of Nursing (AACN), 129 accelerated BSN programs represented a total enrollment of 4,794 students in 2003²⁸. Although many programs have started since 1971, there is little

reported research on the students who enter these programs. Three published studies, Diers (1987), Feldman and Jordet (1989), and Wu and Connelly (1992), described the type of students enrolled in accelerated BSN programs during the 1980s. These studies reported a mean age for students of 27 to 30²⁸. Wu and Connelly found that students decided to return to school within 3 to 7 years after earning their first college degree²⁸. Students' reasons for entering the accelerated BSN programs included employment opportunities, the length of the program, opportunity for upward mobility, and the desire to be part of a caring profession²⁸.

In 2004, Meyer and colleagues conducted a descriptive study on graduating students with a baccalaureate degree or higher at the time of enrollment in the accelerated BSN program at Saint Louis University. In May 2004, the program graduated 67 students of which 53 had previous college degrees and 14 did not²⁸. Data collection from archival records revealed the following demographic data of the 53 graduates: a mean age of 28; 77% (n=41) were women; 89% (n=47) were Caucasian; and 79% (n=42) listed hometowns with a 50-mile radius of the University²⁸. The mean time since completion of their last degree was 3.7 years; 17% (n=9) graduated 10 or more years prior to program enrollment; 38% (n=20) had graduated one year or less before starting the program; and 7 of the 20 had graduated with their first baccalaureate degree within one month of starting the accelerated BSN program²⁸. A survey using open-ended questions yielded an 85% response rate. Some reasons stated by the graduating students for choosing an accelerated BSN program included: opportunities available in the field of nursing and dissatisfaction with their previous career (58%); duration of the program (100%); identified program's reputation at Saint Louis University (51%); and location of program (36%)²⁸. Students used more than one method for financing their nursing education which were reported as follows: student loans (89%), family support and personal savings (58%), and tuition support from a health care agency

(31%)²⁸. Eight-two percent of the students stated that they planned to return for graduate study in one year (most common) following by three years or less (69%)²⁸.

Use of surveys in health services research

Surveys are used to collect information from or about people to describe, compare, or explain their knowledge, feelings, values, and behavior²⁹. A survey can be self-administered (mailed, on-site, or online) or can be conducted by an interview (face to face or telephone). Each type of survey has advantages, disadvantages, particular needs, and costs. Regardless of the survey type, it is important that the researcher decide on the survey's main purpose and select appropriate questions. A reliable survey yields consistent information and a valid survey gives accurate information. A well-designed, easy-to-use survey always contributes to reliability and validity²⁹.

Self-administered questionnaires require much preparation and attention in order to yield a good response rate. Pilot testing can help improve the response rate by eliminating poor or confusing questions and can assist with reliability and validity. Helpful suggestions for self-administered surveys include: sending the respondents an advance letter alerting them of the future survey, keeping the surveys short, considering incentives, and being prepared to follow-up with reminders²⁹.

A large body of literature exists on the wording and formatting of survey questions. Open-ended survey questions allow respondents to answer the question in their own words which can offer valuable insight into people's beliefs. Their answers can expand beyond what the researcher might have selected for a closed-ended question; however, the diversity of answers can make the results difficult to analyze. Closed-ended survey questions are more common and form the basis of most standardized measures³⁰. These questions can be dichotomous or can use Likert scales. The responses are easier to analyze and are more reliable. Closed-ended questions allow the respondent to understand what type of answer the researcher is seeking³¹.

Survey questions can be designed to gather factual data or to measure subjective states. Questions that ask respondents to report their age, gender, occupation, or how much they exercise are examples of obtaining factual data. An important step in designing these questions is to define the objective. The objective defines the kind of information that is needed³². For example, with the objective of age, a very common way to ask this question is “How old are you?” or “Please indicate your age.” Respondents’ answers can sometimes vary with rounding and approximations or can be left blank due to sensitivity. The question could be reworded to ask “On what date were you born?” which might yield more exact answers³².

Questions that ask respondents about their knowledge and perceptions, or their attitudes and feelings are attempting to measure their subjective state. The basic task of most questions in this category is to place answers on a single, well-defined continuum, generally from positive to negative³². A common format used is the “very satisfied, somewhat satisfied, satisfied, or not satisfied.” Some respondents might say that “somewhat satisfied” is a lower, more negative category than satisfied³². If a respondent answered in this manner, then this interpretation would decrease reliability in the measurement process. Another similar format used is the “strongly agree, agree, disagree, and strongly disagree.” These answers are not ideal because they contain two dimensions. The term “strongly” suggests an emotional component, a degree of conviction or caring about the answer over and above the cognitive task that is the central question³². An alternative response could be “completely agree.”

Agree/disagree formats are typically not easy for respondents. Four cognitive steps are involved: first, they must read the statement and understand its literal meaning; second, they must look deeper into the statement to discern the underlying dimension of interest to the researcher; third, they must place themselves on the dimension of interest; lastly, they must translate this judgment into the agree/disagree response options appropriately³³.

Many papers have been written about the issue that respondents may have a tendency to simplify their task and to answer all questions in the same way which is defined as response set or acquiescence³³. Agree/disagree formats many times offer a middle category such as undecided or neutral. This category appeals to some respondents, but it probably does not hurt to make respondents commit themselves³³.

Survey questions may be worded so that one event precedes another event. These are defined as conditional clauses and they restrict the content of the request to the specific condition or event³³. For instance, "If you finish your studies in some years, are you planning to work in the field of study?"³³ Using words such as if, suppose, and imagine, represent hypothetical situations in which case the respondents may have never considered until the survey. In that case they have not premeditated their answer, and it is questionable if these responses have any stability³³. To the extent that questions about the future can build on relevant past experiences and direct knowledge, the answers will be more accurate³³.

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CHAPTER 2

METHODS

A study protocol was developed that outlined probable questions for the study to address and to state reasons why these questions would be significant. From the outline, appropriate domains were chosen to guide development of the survey questions. The domains included: support/interest in the ADHP, practice demographics, and socio-demographics/level of training. Upon the premise that unique differences in state dental laws, such as duty regulations and supervision levels, would be a predictor in the first domain, the states of Colorado, Kentucky, and North Carolina were selected.

Based on the domains, the original specific aims were designed as follows: 1) to determine the prevalence of support/interest of the ADHP model among active registered dental hygienists; 2) to examine the differences of support/interest among active registered dental hygienists in the different states with varying dental practice laws; 3) to examine factors associated with support/interest of the ADHP model including level of training, practice and socio-demographic characteristics; and 4) to conclude how many active registered dental hygienists would be interested in becoming an ADHP. The specific aims further contributed to the development of the survey questions that would provide good measures for these objectives. The null hypothesis stated that there is no difference among active practicing dental hygienists, who work in states with diverse supervision and duty regulations, in the number of individuals interested in becoming an ADHP compared to those who are not interested.

A 32-item questionnaire was designed using closed-ended questions with the formats of fill-in, Likert-scale, and multiple choice. These questions were derived from previously developed and tested questionnaires found in the literature. After several

revisions, the final questionnaire contained 23 total items; 22 closed-ended questions using the similar formats above and one open-ended question. The questionnaire was categorized as: support/interest in the ADHP (12 questions), practice demographics (3 questions), and socio-demographics/ level of training (7 questions).

The primary outcome was measured by question #7 which addressed the overall opinion of both level of support and interest among active registered dental hygienists in the proposed ADHP. The secondary outcomes were represented by questions #2-6. Questions #1 and #8-12 represented respondent characteristics. The explanatory variables were questions #13-22 which covered the domains of practice demographics and socio-demographics/level of training. The majority of all the variables were categorical. The quantitative survey data was manually entered into an Excel Spreadsheet then transferred to SAS Statistical Software Package. Data analysis included the standard alpha (0.05) and beta (0.20), logistic regression models, and multivariate analysis to test the hypothesis.

Since no previous studies on this subject had been conducted using this sample, the effect size was uncertain. Using previous literature reviews, the sample size was estimated at 15% (n=1562) of the total 10,416 active registered dental hygienists in the three states. Suggested average return rates of 55% for mailed surveys were found; this correlated to an expected 859 returned surveys for this study. Mailing lists were obtained from the Dental Boards of each state. A systematic sample (every 7th name) yielded: 555 from Colorado, 305 from Kentucky, and 702 from North Carolina.

A cover letter introduced the proposed ADHP concept, stated the purpose of the survey, and informed the sample that their participation was voluntary and would remain anonymous. Only a brief description of the ADHP concept was placed in the cover letter with the intention to avoid possible biased responses in the survey. After approval from the University of North Carolina's Institutional Review Board (IRB), the cover letter and survey were pre- tested in April 2007 using a convenience sample (n=18) of registered dental

hygienists in North Carolina. The respondents were asked to provide written remarks on the content and construction of the survey material. A response rate of 89% (n=16) was achieved. In May 2007, the pre-test results were used to produce a revised final cover letter and survey that received a second IRB approval.

In preparing the initial mailing, questionnaires for each state were color-coded which eliminated the question of having the sample indicate their state of practice. The cover letter, questionnaire, and a postage-paid business reply envelope were mailed in June 2007. The participants were asked to return the completed surveys approximately one week after the survey was mailed. Soon after the mailing, a design limitation was discovered that would not allow a follow-up with the non-respondents. Nevertheless, the data from the incoming surveys was manually entered into an Excel Spreadsheet as planned and was completed in August 2007. For quality control, all of the data entry was rechecked and verified by the principle investigator. In addition, the responses of random surveys were selected and compared again to the Excel Spreadsheet.

The design limitation presented a challenge in the study which required changes in the design and procedures. One alternative was to re-define the initial mailing as a pilot, make necessary revisions, and prepare for a repeat mailing to the entire sample. A second option was to re-classify the study as a pilot with no additional contact with the sample. Coinciding with the low response rate and concern about possible non-response bias, the study was re-characterized as a pilot with supportive changes in the purpose, specific aims, and data analysis. These proposals, as two separate submissions, were approved by the IRB in October 2007 and March 2008.

The null hypothesis could no longer be used due to the low response rate. The new purpose stated: to conduct a pilot study that examines the factors of support/interest, level of practice, and socio-demographics associated with the proposed ADHP. The revised specific aims were as follows: 1) to determine the prevalence of support/interest of the

ADHP model among active registered dental hygienists; 2) to examine factors associated with support/interest of the ADHP model including level of training, practice and socio-demographic characteristics; 3) to make recommendations for improving a self-administered, mailed questionnaire. The study was designed with the standard alpha of 0.05. Quantitative analysis, including descriptive statistics, Mantel Haenszel, and chi-square, was used for the first and second specific aims. The data for Likert-scaled questions #2-7 was analyzed by Mantel-Haenszel and both the continuous responses of question #8 and the nominal responses of questions #9-12 were analyzed by chi-square. Specifically, the responses for questions #10-12 were analyzed as mutually exclusive. For the last specific aim, qualitative analysis was conducted on all of the questions; gathering factual data and measuring subjective states. The design and evaluation of the survey questions was compared to suggested principles and survey examples in the literature. Analysis of the raw frequencies provided information on possible question interpretation and missing rates. These two methods, as basis for the qualitative analysis, were used to make recommendations for improving a self-administered questionnaire.

The primary outcome measure for the first specific aim was determined by question #7 as the dependent variable. Secondary outcomes (questions #2-6) and sample characteristics (questions #8-12) also supported this specific aim. The second specific aim was measured by questions #13-22 as explanatory variables. All of the questions contributed to the measurement of the last specific aim.

CHAPTER 3

RESULTS

Quantitative analysis

The cover letter and self-administered questionnaire were mailed to a random sample of 1562 active registered dental hygienists in June 2007. The returned surveys yielded an overall 29% response rate (n=442). The number of returned surveys by state was 33% (n=148) from Colorado, 18% (n=80) from Kentucky, and 48% (n=214) from North Carolina. The surveys for each state were printed on different colors of paper which eliminated the need to ask a state question. Although 7% (n=30) of the respondents did not complete page 2 (questions #8-17), these surveys were included in the descriptive data.

Over 96% of the respondents in all three states were females. White, non-Hispanics comprised 91% (n=135) in Colorado, 96% (n=77) in Kentucky, and 92% (n=196) in North Carolina (Table 1). In Colorado, Asians and Hispanics were represented in a very small percentage; whereas, American Indian/Alaskan Natives and African Americans made up the largest proportion of the others in North Carolina. The mean age in years of the respondents was 44 in Colorado, 41 in Kentucky, and 43 in North Carolina.

Table 2 shows that respondents in both Colorado and Kentucky shared similar means for years of active practice (17,16); whereas, the respondents in North Carolina were slightly longer with 18 years. The mean number of hours that the respondents worked each week providing patient care was similar (28,28,27) for the three states. General practice was the most selected as the primary practice setting for each state; in contrast, hospital practice was the least. Both Kentucky and North Carolina shared higher percentages for

specialty practice. A suburban geographic practice setting was represented by 55% in Colorado and 38% in North Carolina; whereas, a rural setting was indicated by 37% in Kentucky.

Table 1: Frequency by state of gender, ethnicity, current primary practice setting, and geographic setting of primary practice

N = 442	Colorado		Kentucky		North Carolina	
Variable	N	%	N	%	N	%
Gender						
• Female	130	96.30	78	98.73	193	97.47
• Male	5	3.70	1	1.27	5	2.53
Ethnicity						
• White, non-Hispanic	135	91.22	77	96.25	196	92.02
• Others	13	8.78	3	3.75	17	7.98
Practice Setting						
• General practice	112	82.96	61	77.22	145	73.23
• Specialty practice	8	5.93	10	12.66	18	9.09
• Hospital practice	0	0	0	0	3	1.52
• Public Health	3	2.22	3	3.80	12	6.06
• Education	2	1.48	1	1.27	6	3.03
• Other	10	7.41	4	5.06	14	7.07
Geographic Setting						
• Rural	17	12.59	29	37.18	47	23.98
• Suburban	75	55.56	26	33.33	74	37.76
• Urban	38	28.15	21	26.92	59	30.10
• Other	5	3.70	2	2.56	16	8.16

Frequency missing excludes the 30 respondents who did not complete page 2 (q #8-17): ethnicity (1), geographic setting (3)

Table 2: Comparison by state of years of active practice, hours/week in providing patient care, and age

N = 442	Years of Active Practice			Hours/week of Work			Age		
State	N	Mean	SD	N	Mean	SD	N	Mean	SD
Colorado	147	16.72	10.12	130	27.94	9.90	135	43.84	10.19
Kentucky	80	16.48	10.87	77	27.62	10.44	79	41.33	10.15
N. Carolina	213	18.02	10.79	191	27.09	10.93	198	43.47	10.54

Frequency missing excludes the 30 respondents who did not complete page 2 (q #8-17): years of active practice (2), hours/week of work (14)

The distribution of respondents who indicated their highest degree as an Associate Degree in Dental Hygiene was 54% (n=80) in Colorado, 66% (n=53) in Kentucky, and 72% (n=155) in North Carolina. Colorado showed 41% (n=61), followed by 24% (n=52) in North Carolina, and 26% (n=21) in Kentucky of respondents who earned a Bachelors Degree.

Table 3: Frequency by state of highest educational degree, year of graduation, and type of institution

N = 442	Colorado		Kentucky		North Carolina	
Level of training	N	%	N	%	N	%
Highest educational degree						
• Associate in Dental Hygiene	80	54.05	53	66.25	155	72.43
• Certificate in Dental Hygiene	3	2.03	3	3.75	2	0.93
• Bachelors degree	61	41.22	21	26.25	52	24.30
• Master's degree and above; others	4	2.71	3	3.75	5	2.34
Year of graduation						
• 1958-1970	5	3.62	1	1.35	13	6.28
• 1971-1980	37	26.81	17	22.97	52	25.12
• 1981-1990	30	21.74	17	22.97	55	26.57
• 1991-2000	42	30.43	19	25.68	49	23.67
• 2001-2007	24	17.39	20	27.03	38	18.36
Type of Institution						
• Comm/tech college	81	54.73	30	37.50	159	74.30
• College/univ. without dental school	22	14.86	20	25.00	14	6.54
• College/univ. with dental school	45	30.41	30	37.50	41	19.16

Frequency missing: year of graduation (23)

The most common Bachelors Degree among all three states was in Dental Hygiene (59%) with smaller percentages in Biology (4%), Psychology (3%), and University Studies (3%). The year of graduation of the final dental hygiene degree ranged from 1958 to 2007. The number of respondents for each ten year group (1971-2000) was similar among the three states (Table 3). Graduation from a community/technical college was indicated by 74% (n=159) in North Carolina and 55% (n=81) in Colorado. In Kentucky, graduation from a community/technical college and college/university with a dental school was similar (38%, n=30).

Forty-five percent (n=196) of the respondents indicated that they had not heard of the proposed ADHP prior to receiving this survey. Table 4 illustrates the comparison by state of level of support of the five general themes and overall opinion of the ADHP. The statistical analysis revealed no significant differences. For all three states, Theme V (Professionalism and Ethics) received the most support; whereas, Theme I (Provision of Primary Oral Health Care) was least supported. The respondents selected the neutral category more often for Theme III (Management of Oral Care Delivery). Overall level of

support for the proposed ADHP as indicated by both very supportive and somewhat supportive responses was 87% (n=129) in Colorado, 82% (n=64) in Kentucky, and 92% (n=196) in North Carolina.

Table 4: Frequency by state of level of support of the five general themes describing the proposed professional responsibilities, knowledge, and skills of an ADHP and of the overall opinion of the ADHP

N = 442	Very Supportive		Somewhat Supportive		Neutral		Not Supportive		Strongly Against		
Outcomes	N	%	N	%	N	%	N	%	N	%	p-value
<i>Theme I</i>											0.40
• Colorado	82	55.41	41	27.70	11	7.43	5	3.38	9	6.08	
• Kentucky	43	54.43	13	16.46	10	12.66	7	8.86	6	7.59	
• North Carolina	114	53.77	45	21.23	26	12.26	18	8.49	9	4.25	
<i>Theme II</i>											0.46
• Colorado	102	68.92	30	20.27	14	9.46	1	0.68	1	0.68	
• Kentucky	53	67.09	17	21.52	7	8.86	1	1.27	1	1.27	
• North Carolina	160	75.47	32	15.09	16	7.55	2	0.94	2	0.94	
<i>Theme III</i>											0.56
• Colorado	78	52.70	38	25.68	28	18.92	1	0.68	3	2.03	
• Kentucky	46	58.23	15	18.99	12	15.19	4	5.06	2	2.53	
• North Carolina	127	59.62	48	22.54	28	13.15	7	3.29	3	1.41	
<i>Theme IV</i>											0.16
• Colorado	112	75.68	25	16.89	10	6.76	0	0.00	1	0.68	
• Kentucky	53	66.25	16	20.00	8	10.00	2	2.50	1	1.25	
• North Carolina	163	76.89	29	13.68	13	6.13	6	2.83	1	0.47	
<i>Theme V</i>											0.27
• Colorado	124	83.78	15	10.14	8	5.41	0	0.00	1	0.68	
• Kentucky	65	81.25	8	10.00	6	7.50	1	1.25	0	0.00	
• North Carolina	189	88.73	16	7.51	6	2.82	0	0.00	2	0.94	
<i>Overall Opinion</i>											0.26
• Colorado	97	65.54	32	21.62	12	8.11	3	2.03	4	2.70	
• Kentucky	51	65.38	13	16.67	9	11.54	4	5.13	1	1.28	
• North Carolina	147	69.34	49	23.11	10	4.72	1	0.47	5	2.36	

Theme I (Provision of primary oral health care), Theme II (Health care policy and advocacy), Theme III (Management of oral care delivery), Theme IV (Translational research), Theme V (Professionalism and ethics); Frequency missing \leq (4); Mantel-Haenszel (row mean scores differ)

Comparison by state of level of interest of the five general themes and overall opinion of the ADHP is shown in Table 5. Theme II (Health Care Policy and Advocacy) revealed the only significant difference ($p=0.02$). Theme V (Professionalism and Ethics) received the most interest; in contrast, Themes I (Provision of Primary Oral Health Care) and III (Management of Oral Care Delivery) were selected with the least interest. Similar to the responses to the question about support, the neutral category was most chosen with

Theme III. Overall level of interest for the proposed ADHP as indicated by both very interested and somewhat interested responses was 74% (n=109) in Colorado, 71% (n=55) in Kentucky, and 81% (n=170) in North Carolina.

Table 5: Frequency by state of level of interest of the five general themes describing the proposed professional responsibilities, knowledge, and skills of an ADHP and of the overall opinion of the ADHP

N = 442	Very Interested		Somewhat Interested		Neutral		Slightly Interested		Not Interested		
Outcomes	N	%	N	%	N	%	N	%	N	%	p-value
<i>Theme I</i>											0.56
• Colorado	65	43.92	34	22.97	21	14.19	10	6.76	18	12.16	
• Kentucky	31	38.75	17	21.25	15	18.75	5	6.25	12	15.00	
• North Carolina	99	46.92	31	14.69	26	12.32	16	7.58	39	18.48	
<i>Theme II</i>											0.02
• Colorado	61	41.22	34	22.97	29	19.59	12	8.11	12	8.11	
• Kentucky	35	43.75	18	22.50	16	20.00	4	5.00	7	8.75	
• North Carolina	117	55.45	39	18.48	36	17.06	8	3.79	11	5.21	
<i>Theme III</i>											0.06
• Colorado	36	24.32	29	19.59	46	31.08	12	8.11	25	16.89	
• Kentucky	24	30.00	16	20.00	18	22.50	10	12.50	12	15.00	
• North Carolina	82	38.68	40	18.87	46	21.70	14	6.60	30	14.15	
<i>Theme IV</i>											0.44
• Colorado	89	60.14	24	16.22	22	14.86	4	2.70	9	6.08	
• Kentucky	43	53.75	13	16.25	13	16.25	5	6.25	6	7.50	
• North Carolina	128	60.66	35	16.59	25	11.85	11	5.21	12	5.69	
<i>Theme V</i>											0.31
• Colorado	103	69.59	21	14.19	14	9.46	3	2.03	7	4.73	
• Kentucky	58	72.50	10	12.50	8	10.00	0	0.00	4	5.00	
• North Carolina	165	77.83	25	11.79	11	5.19	2	0.94	9	4.25	
<i>Overall Opinion</i>											0.56
• Colorado	72	48.65	37	25.00	22	14.86	5	3.38	12	8.11	
• Kentucky	38	48.72	17	21.79	15	19.23	4	5.13	4	5.13	
• North Carolina	116	54.98	54	25.59	16	7.58	8	3.79	17	8.06	

Theme I (Provision of primary oral health care), Theme II (Health care policy and advocacy), Theme III (Management of oral care delivery), Theme IV (Translational research), Theme V (Professionalism and ethics); Frequency missing \leq (5); Mantel-Haenszel (row mean scores differ)

Table 6: Frequency by state of interest in becoming an ADHP and additional years of education to obtain the proposed ADHP degree

N = 442	Colorado		Kentucky		North Carolina		
Variable	N	%	N	%	N	%	p-value
Becoming an ADHP							0.04
• Interested	94	69.93	52	67.53	156	79.59	
• Not interested	41	30.37	25	32.47	40	20.41	
Education for ADHP							
• 2 years or less	76	56.30	41	53.25	117	59.69	
• 3 years	12	8.89	9	11.69	23	11.73	
• 4 years or more	6	4.44	2	2.60	16	8.16	

Frequency missing excludes the 30 respondents who did not complete page 2 (q #8-17): (4)

Table 7: Frequency by state of preferences to become an ADHP, most appealing teaching format, main challenge in becoming an ADHP, and most likely practice setting as an ADHP

	Colorado		Kentucky		North Carolina		
Characteristics	N	%	N	%	N	%	p-value
*Willing to obtain ADHP (N = 306)							
• Relocate to area	11	11.58	2	3.70	18	11.46	0.23
• Take courses online	84	88.42	49	90.74	146	92.99	0.46
• Use student loans	43	45.26	20	37.04	70	44.59	0.57
• Full-time student	21	22.11	9	16.67	28	17.83	0.63
• Part-time student	67	70.53	41	75.93	124	78.98	0.32
+Teaching format (N = 304)							0.04
• In class lectures only	11	11.83	4	7.41	13	8.28	
• In class lectures with online	33	35.48	23	42.59	71	45.22	
• Online/instructor on campus	24	25.81	17	31.48	56	35.67	
• Online/instructor off campus	25	26.88	10	18.52	17	10.83	
+Main challenge (N = 280)							0.46
• Age	20	23.26	13	25.49	32	22.38	
• Finances	28	32.56	11	21.57	44	30.77	
• Family obligations	26	30.23	16	31.37	52	36.36	
• Reluctance return to school	12	13.95	11	21.57	15	10.49	
+Practice setting (N = 285)							0.21
• Hospital	14	16.09	8	15.69	20	13.61	
• Public Health	14	16.09	12	23.53	45	30.61	
• Rural dental clinic	23	26.44	16	31.37	43	29.25	
• Suburban dental clinic	26	29.89	8	15.69	26	17.69	
• Urban dental clinic	10	11.49	7	13.73	13	8.84	

Frequency missing excludes the 30 respondents who did not complete page 2 (q #8-17) and the 106 respondents who were not interested in becoming an ADHP: teaching format (2), main challenge (26), practice setting (21)

*Respondents could select more than one answer

+Responses were mutually exclusive

Pursuit of the proposed ADHP degree with formal education indicated that 302 respondents were interested and 106 were not interested (Table 6). There was a significant difference ($p=0.04$) among the interested respondents by state with 80% in North Carolina compared to 70% in Colorado and 68% in Kentucky. Of the 302, a majority indicated that they would be willing to spend two years or less of additional education to earn this degree (Table 5). The interested respondents suggested that they would be most willing to enroll as a part-time student and take courses online (Table 7). The most appealing teaching format was in class lectures supplemented with online material followed by online/internet with instructor available on campus ($p=0.04$). In comparison to Kentucky and North Carolina, 27% ($n=25$) of the Colorado respondents indicated interest in the online/internet

with the instructor off campus. The distribution of respondents selecting finances and family obligations was fairly consistent among the three states except for finances among Kentucky respondents (22%). Thirty percent (n=26) of the Colorado respondents marked interest in practicing in a suburban dental clinic, 32% (n=16) in Kentucky chose practicing in a rural dental clinic, and 31% (n=45) in North Carolina expressed interest in a public health setting. Practice in an urban dental clinic was least selected among the three states.

Qualitative analysis

The 29% (n=442) response rate indicated that revisions could be made to the design and administration of the survey. The content of the survey questions supported the specific aims and the suggested ten minutes to complete the survey was appropriate. Although the general format of the survey appeared easy to follow, the results may suggest that a few questions were designed asking the respondents to perform multiple cognitive steps to arrive at an answer; thus, making parts of the survey difficult. Survey questions #8-17, printed on the back of page one, were skipped by 30 respondents. In the first question, 38% (n=165) indicated that they did not know about the proposed ADHP and 20% (n=88) wrote comments in the “other source.” Almost 37% of these comments mentioned that the survey cover letter was the initial form of contact. For the last question (open-ended), 57% (n=250) of the respondents shared various comments regarding the proposed ADHP.

Questions #13-15 addressed practice demographics. Although the random sample of registered dental hygienists was selected from an active list, employment status can change from the time of the annual license renewal. Sixteen respondents indicated in question #13 (current primary practice setting) that they were not practicing at this time. As a result, most of these respondents answered question #14 (geographic setting of primary practice) with a written comment in “other setting” and indicated a zero or no answer for question #15 (number of hours/week providing patient care). In question #14, eight respondents provided various descriptions of a small town for “other setting.” With question

#15, 44 respondents missed this question, 21 recorded a zero, and 4 indicated hours and a half. Question #22 (years of active practice) initially asked the respondent for two numbers, years of active practice and years of maintained licensure with no clinical practice, then to perform a calculation to arrive at the answer. Thirteen respondents answered this question with years and a half.

Questions #19-21 asked the respondent to write in specific information about level of training. For question #19 (highest educational degree), 134 respondents indicated a Bachelors Degree for response (3); however, nine did not record their major. Nineteen respondents marked response (1), but did not write in the year of graduation for question #20. Forty-five respondents provided year of graduation for both responses (1) and (2). Nine respondents were current students and indicated their anticipated year of graduation. All of the respondents answered question #21 (type of institution).

Level of support/interest in the proposed ADHP was addressed in questions #2-7. Although all of these questions had a very small missing rate, five respondents did not complete both columns for level of support and level of interest. Questions #8-12 asked for characteristics of an interested student of the proposed ADHP. Each question included specific instructions such as please select all that apply or select best choice. Some of the respondents indicated multiple responses on questions which only asked for one answer. As a result, the data for these questions, except #9 (preferences to become an ADHP), was entered as mutually exclusive. Thirty-three respondents wrote comments for “other challenge” in question #11 (main challenge in becoming an ADHP). Shared themes were time restraints, current employment, and location of school. In question #12 (likely want to practice as an ADHP), 26 respondents suggested alternative settings in the “other” of which 27% indicated interest to practice in nursing homes.

CHAPTER 4

DISCUSSION

Quantitative analysis

The purpose of this pilot study was to examine the factors of support/interest, level of practice, and socio-demographics associated with the proposed ADHP. A random sample of active registered dental hygienists was selected in Colorado, Kentucky, and North Carolina. These three states were chosen based on unique differences in the state practice acts and levels of supervision. It was proposed that these differences might be a factor in determining the overall level of support/interest of the ADHP. The low response rate (29%) was inadequate to support any significant differences among the three states and limited any generalizations to the population. However, the descriptive data yielded points of interest in comparing responses among the three states and contributed to recommendations for improving a self-administered, mailed questionnaire.

Although the total number of active registered dental hygienists varied for each state, the mean response rate was 28%. Forty-five percent (n=196) of the respondents indicated that they had not heard of the proposed ADHP prior to receiving this survey. If this same percentage was applied to the total sample (1,562), then one could speculate that approximately 700 dental hygienists knew about the ADHP at the time of the survey. The unawareness and/or lack of interest of the ADHP topic could be contributing factor(s) to the low response rate and support possible non-response bias. Printed and televised news of the recent legislative effort by the ADHA to establish the ADHP (or Oral Health Practitioner) in Minnesota has probably increased the general knowledge. Nevertheless, if a revised survey was administered, a larger sample size may improve the response rate.

Although the demographic data could not be directly correlated to the actual number of respondents interested in obtaining the proposed ADHP degree, the descriptive data yielded similar characteristics that were found in other studies. The percentage of females who responded (over 96%) was proportionate to the total random sample and reflects the gender distribution of the profession. Survey results by Ross and colleagues on dental hygienists in Scotland revealed 98% females and 2% males¹. The majority of the respondents for all three states were white, non-Hispanic. Both Colorado and North Carolina revealed higher percentages for the others. This ethnicity distribution should be considered as ADHP programs are proposed. Recruitment measures should include strategies to increase student diversity. Action 4 of *The National Call to Action to Promote Oral Health* states that increased diversity in the oral health workforce would help meet the patient and community needs². The recruitment process in dental hygiene has been described as self-recruiting and as recruitment by reputation. Recruitment for ADHP programs may be different. Trends of recruitment strategies when new advanced degrees were started in other health professions need to be evaluated with attention to gender and minorities.

The mean age in years (43) and the mean years of active practice (17) was similar among the three states. Studies have shown trends where individuals will work a number of years in their chosen profession and then decide to seek additional education. Rasmussen and colleagues conducted a pilot study on nurses' interest in the neonatal nurse practitioner (NNP) role. Thirty six percent indicated interest in becoming an NNP and the mean time since graduation from a nursing program was 16 years for the entire sample³. In another study by Andrusyszyn and colleagues, a convenience sample of students enrolled in a primary health care nurse practitioner program revealed ages between 31 and 50 and a mean number of 11 years since completing their highest level of education⁴. Completion programs have served as a solution to prepare more nurses with a baccalaureate degree.

The RN who enroll in these programs are adult learners who also bring to the academic arena a repertoire of clinical knowledge and skills, a structured background of educational preparation, and employment experiences⁵. This experienced cohort is interested in seeking advanced degrees and should be part of the applicant pool as non-traditional students.

An Associates Degree in Dental Hygiene was the most common highest educational degree in Colorado (54%), Kentucky (66%), and North Carolina (72%). Similar percentages were found among respondents in Kentucky (26%) and North Carolina (24%) with a Bachelors Degree. These percentages varied from the 2001 workforce profile of dental hygienists in all states that reported an approximate 49% have a baccalaureate degree, 44% have an associate degree, and 7% have completed a certificate program⁶. ADHA's report, *Dental Hygiene: Focus on Advancing the Profession*, states the goal of advancing the baccalaureate degree as entry-level for dental hygiene in the next five years. Requiring a baccalaureate degree as an entry point provides opportunity to prepare graduates for alternative career opportunities in education, administration, public health, and research⁷. Pursuit of this goal would provide support for successful implementation of the ADHP with qualified applicants. As stated in the nursing literature, the pipeline of future nurse practitioners is dependent primarily on graduates from baccalaureate nursing programs⁸. One supportive measure would include revised articulation agreements between community colleges offering associate degrees in dental hygiene and universities offering degree completion programs. In 2006, 56 dental hygiene degree completion programs existed with seven programs offering 100% course content online⁷. An increase in the number of programs offering online courses would correlate to possible increases in enrollment.

Theme V (Professionalism and Ethics) received the highest level of support and interest among the three states. These results were expected as these behaviors of professionalism and ethics are familiar principles to current dental hygienists. The least

level of support was found in Theme I (Provision of Primary Oral Health Care). The results of combining the responses of “very supportive” and “somewhat supportive” for this theme were represented by 83% in Colorado, 71% in Kentucky, and 75% in North Carolina. In addition, Colorado showed the highest level of interest at 67%. The level of support and interest in Colorado could correlate to advanced midlevel duties currently allowed in that state. Both Colorado and Kentucky shared similar expanded duties; however, Colorado is the only state with unlimited unsupervised dental hygiene practice. The least level of interest was revealed in Theme III (Management of Oral Care Delivery). Combined responses of “very interested” and “somewhat interested” were the lowest in Colorado (44%), followed by Kentucky (50%) and North Carolina (58%). Dental hygienists in Colorado may be more familiar with the business management skills in business due to the unsupervised dental hygiene practice and optional independent practice. The lower level of interest could reflect probable dislike of this part of dental hygiene practice. A significant difference was only determined for level of interest for Theme II (Health Care Policy and Advocacy). North Carolina revealed the higher percentages of very supportive (75%) and very interested (55%) for this theme. Access to care and providing oral health care to the underserved are prominent issues in this state. Dental hygienists are restricted in many ways due to the current state practice acts. The combination of these conditions may explain the interests of dental hygienists to advocate for changes in health care policy and legislative changes in North Carolina. In addition, this could contribute for the respondents in North Carolina to exhibit the highest overall opinion of level of support and interest for the ADHP.

A significant difference was observed among the states of those interested in becoming an ADHP and those who were not interested. The largest percentage of interest was North Carolina (80%) and largest percentage of not interested was Kentucky (32%). Of those interested, a majority of the respondents (mean 56%) indicated that they would be

willing to spend two years or less to obtain the proposed ADHP credential. The length of a program has been an important factor suggested by students in accelerated BSN programs and master of physical therapy programs^{9,10}. Respondents among the three states indicated the most interest in returning to school as a part-time student and taking courses online. A significant difference was found in preferred teaching formats with the selection of “in class lectures supplemented with online/internet material” being the most favored. In contrast, very few respondents indicated an interest to relocate to area where the college is offering the ADHP curriculum. Studies have shown that many students (nurse practitioner, accelerated BSN, and master of physical therapy) attend schools that are less than 50 miles from home^{4,9,10}. Students earning a second degree may be less mobile due to family ties⁹. The main challenges in becoming an ADHP were age, finances, and family obligations. These challenges are consistent themes as it is found that graduate students appear to be more influenced by spouse, family, and work considerations than undergraduates¹⁰. Despite these challenges, many dental hygienists have flexible schedules and half of all dental hygienists work part-time (less than 35 hours per week)⁶. Furthermore, very few respondents indicated a reluctance to go back to school. The respondents also showed interest to practice as an ADHP in areas to address the oral health needs of the underserved. These results indicate favorable characteristics that describe a potential pool of interested students. ADHP programs will need to carefully evaluate these factors and provide appropriate options such as with distance learning methods and course scheduling.

Qualitative analysis

In order to improve the response rate for future mailings, the following recommendations in the survey administration, design, and content could be considered. Prior to mailing the survey, a mailed postcard could notify the sample that they would soon be receiving a written survey. The mailed survey could include a type of incentive. The survey could be re-formatted and printed on three separate pages to reduce the possibility

of any missed questions. Printing the surveys on different colors of paper for each state eliminated a survey question and was beneficial during the initial analysis. The content of the present survey supported the specific aims; however, minor changes to the questions could improve the reliability and validity of the answers.

Although the first question provided an introduction to the survey, it provided a poor measurement of the current knowledge about the ADHP particularly with the “other source” responses. This question could be changed to, “Excluding this survey, have you initially heard about the proposed ADHP?” - yes or no. Question #16 asked the age of the respondent. To eliminate rounding, the revised question could state, “In what year were you born?”

Practice demographics were asked in questions #13-15. Question #13 (current primary practice setting) did not provide an adequate response for changes in employment. In a new response, if the respondent wrote “not working at this time,” then a skip pattern could be used which would direct the respondent to question #16 (indicate your age). This skip pattern could further help improve the data for questions #14 (geographic setting of primary practice) and #15 (number of hours/week providing patient care). For question #14, brief definitions for rural, suburban, and urban could have eliminated the “other setting” remarks about small towns. Question #15 could be modified with additional instructions that stated, “please round up the nearest whole hour.” Question #22 (years of active practice) asked the respondent to perform a cognitive calculation. First, they had to determine how many years they have maintained licensure, second, determine how many years they have not actively practiced, and then subtract the two numbers to arrive at the answer. This question could be divided into two separate questions.

Questions #19-21 were concerned with level of training. In question #19 (highest educational degree), the fill-in responses for the Bachelors degree and above had a relatively high missing rate and could be omitted. Question #20 (year of graduation), as a

multi-task question, could be separated into two questions. The new format could encourage all respondents to write in the year of graduation. In addition, this question could be eliminated, and data from question #22 (years of active practice) could become a main predictor of determining years of actual engagement in the profession. No changes would be suggested for question #21 (type of institution).

A common Likert scale was provided to rate the level of support/interest for the five general themes. To improve the measurement of the respondents' subjective states, the Likert scale could reflect only a cognitive manner and remain one dimensional. For example, the new terms for level of interest could be; "completely interested, generally interested, generally uninterested, and completely uninterested." Some authors suggest that the middle category, neutral, should not be used. The highest percentages among the five neutral categories were found in both levels of support and interest for Theme III (Management of Oral Care Delivery).

The five general themes along with the specific descriptions provided a concise, but comprehensive outline of the proposed roles of an ADHP. As stated in the results, Theme I had at least five concepts relating to the "Provision of Primary Oral Health Care." It is difficult to imagine that all of these concepts could receive the same level of support/interest; therefore, the respondent might have "averaged" these concepts to arrive at a particular answer. In addition, the complexity of this table could have lead respondents to answer many of the questions with the same level of support/interest. This section could be revised in which multiple questions are asked for each theme.

Characteristics of the potential student were addressed in questions #8-12. All of these questions share conditional clauses by creating hypothetical scenarios concerning the ADHP. These questions could be revised so that potential decisions about the ADHP can be based on past experiences. For instance, question #10 could ask, "Which of the

following teaching formats is the MOST appealing to you?” This wording would better measure the respondents’ preferred teaching format.

The “please check all that apply” for question #9 (preferences to become an ADHP) resulted in running a separate chi-square for each response. This question could be improved by removing this option and divide the context into two separate questions. In questions #8 (additional years to obtain ADHP degree), and #10-12 (preferred teaching format, main challenge in becoming an ADHP, likely want to practice), specific terms were either underlined and/or capitalized emphasizing the response selection; however, some respondents answered these questions using more than one answer. As a result, these responses were analyzed as mutually exclusive. Similar to question #14 (geographic setting of primary practice), brief definitions could follow rural, suburban, and urban for question #12.

ENDNOTES

- ¹Ross, Margaret, et al. "Educational Needs and Employment Status of Scottish Dental Hygienists." British Dental Journal 198 (2004): 105-109.
- ²U.S. Department of Health and Human Services. *National Call to Action to Promote Oral Health*. Rockville, MD. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Dental and Craniofacial Research. NIH
- ³Rasmussen, Lynn, et al. "Pilot Survey of NICU Nurses' Interest in the Neonatal Nurse Practitioner Role." Advances in Neonatal Care 5.1 (2005): 28-38.
- ⁴Andrusyszyn, Mary-Anne. "Nurse Practitioner Preferences for Distance Education Methods Related to Learning Style, Course Content, and Achievement." Journal of Nursing Education 40.4 (2001): 163-170.
- ⁵Cangelosi, Pamela. "RN-to BSN Education: Creating a Context that Uncovers New Possibilities." Journal of Nursing Education 45.5 (2006) 177-181.
- ⁶McKinnon, Monette, et al. "Emerging Allied Dental Workforce Models: Considerations for Academic Dental Institutions." Journal of Dental Education 71.11 (2007): 1476-1491.
- ⁷Monson, Angela, et al. "ADHA's Focus on Advancing the Profession: Minnesota's Dental Hygiene Educators' Response." Journal of Dental Hygiene 81.2 (2007): 1-12.
- ⁸Hooker, Roderick, and Linda Berlin. "Trends in the Supply of Physician Assistants and Nurse Practitioners in the United States." Health Affairs 21.5 (2002): 174-181.
- ⁹Meyer, GERALYN, et al. "A Profile of Accelerated BSN Graduates, 2004." Journal of Nursing Education 45.8 (2006): 324-327.
- ¹⁰Johanson, Marie. "Factors Influencing Professional Master of Physical Therapy and Doctor of Physical Therapy Students' Program Selection." Journal of Physical Therapy Education 18.2 (2004): 9-21.

CHAPTER 5

CONCLUSION

The ADHA proposed the ADHP model as a cost-effective response to help address the lack of access to dental care of many Americans. Development of this model has paralleled features in the nursing profession with its successful implementation of the nurse practitioner. The opportunity for nurses to obtain this advanced degree has been available for over forty years. During this time, roles of nurse practitioners have included care to underserved populations and have gained acceptance by the public. Programs for “school dental nurses” date back to 1921 and have undergone several transitions. Currently, The Bachelor of Oral Health degree, offered by two universities in New Zealand, prepares graduates with expanded duties of both a dental hygienist and dental therapist. Meanwhile, other allied dental workforce models, such as Community Dental Health Coordinator, are being proposed as alternative solutions to address the underserved populations.

The purpose of this pilot study was to examine the factors of support/interest, level of practice, and socio-demographics associated with the proposed ADHP. A random sample of active registered dental hygienists was selected in Colorado, Kentucky, and North Carolina. The low response rate (29%) was inadequate to support any significant differences among the three states and limited any generalizations to the population. However, the descriptive data yielded points of interest in comparing responses among the three states and contributed to the suggested recommendations.

The ADHA initiated curriculum development three years prior to the administration of this survey and almost 50% of the respondents had not heard of the proposed ADHP. Therefore, the ADHA should develop alternative strategies to improve the flow of communication from the association to all dental hygienists. The number of ADHA members

remains a low representation to the total number of dental hygienists. The ADHA should creatively market and promote the advantages of membership. Efforts are being made to encourage the transition of membership from SADHA to ADHA; however, post-graduates with years of practicing experience need to be contacted. Membership in the ADHA would likely increase the awareness and knowledge of pertinent issues like the ADHP model. Members would hopefully become more engaged in advocacy efforts and legislative issues.

ADHA's report, *Dental Hygiene: Focus on Advancing the Profession*, states the goal of advancing the baccalaureate degree in dental hygiene as entry-level in the next five years. Achievement of this goal would better prepare graduates for alternative career opportunities and would enhance the number of qualified applicants who are interested in becoming an ADHP. Sixty-five percent of the respondents in this study held an Associate Degree in Dental Hygiene. Respondents in this group who are interested in obtaining the proposed ADHP credential need to first complete a Bachelors Degree. Community/technical colleges need to encourage more graduates to pursue a baccalaureate degree. Likewise, dental hygiene degree completion programs need to modify their recruitment efforts to include recent graduates and non-traditional students. Furthermore, to increase enrollment, these programs should consider changes with course scheduling and online teaching methods to accommodate the various needs of students.

A significant difference was observed among the states of those interested in becoming an ADHP and those who were not interested. Of those interested, a majority of the respondents (mean 56%) indicated that they would be willing to spend two years or less to obtain the proposed ADHP credential. Many indicated that they would be willing to enroll as a part-time student and take courses online with the preferred teaching format of "in class lectures supplemented with online material." The results may suggest that practicing dental hygienists with years of experience will make up a large percentage of the applicant pool. A profile of these interested respondents reveals similar trends with other students who

pursued advanced degrees. Assessment of this data should be beneficial to ADHP programs with regards to planning school locations, recruitment efforts, course scheduling, delivery methods, and teaching formats. Programs will need to develop strategies to overcome challenges and best meet the needs of a varied applicant pool of recent graduates and non-traditional students.

Self-administered surveys require much preparation and attention to receive a good response rate. Both design and wording of questions contribute to the reliability and validity of a survey. Pilot testing questions can support these factors and provide guidance in survey revisions. The results of this pilot study denote that certain questions could be modified to improve measurement of the specific aims. Recommendations found in the literature would aid in the development of a revised survey.

Among the three states, a higher overall level of support for the proposed ADHP was indicated as compared to the overall level of interest. However, the 302 respondents interested in obtaining the proposed ADHP credential indicated specific preferences to support their interest. Although this pilot study is limited with generalizations to the population, these characteristics may be beneficial in the progress of the ADHP. Utilization of this pilot study along with the recommendations for a revised survey may help future researchers find additional trends and characteristics of potential students regarding the ADHP.

APPENDIX A

Cover Letter



The University of North Carolina at Chapel Hill
School of Dentistry
Department of Dental Ecology
Graduate Dental Hygiene Education Program
CB# 7450, 3320 Old Dental Building
Chapel Hill, NC 27599-7450

June 19, 2007

Dear Colleague,

The American Dental Hygienists' Association (ADHA) is proposing the concept of an Advanced Dental Hygiene Practitioner (ADHP) to help address the oral health needs of the underserved populations. The curriculum draft for this new practitioner is to prepare dental hygienists to practice at an advanced level. I am conducting a research study entitled, "Practicing Dental Hygienists' Attitudes toward the Proposed Advanced Dental Hygiene Practitioner." This study is using a survey instrument that will assess the support/interest of the ADHP concept and characteristics of individual dental hygienists who would be attracted to the ADHP program.

Active registered dental hygienists in Colorado, Kentucky, and North Carolina have been randomly selected to receive this survey. **You are one of 1,562 dental hygienists selected** out of over 10,000 to participate in this study.

This research study has been approved by the UNC-CH Institutional Review Board (IRB). Your participation is completely voluntary and will remain anonymous. You do not have to sign the survey. Each survey will have an identifying code and only the study researchers and the IRB will have access to the study information. Future reports will not contain your personal identifiers or information. There are no penalties for choosing not to participate. You will not be compensated for your participation. Completion of the survey should only take approximately 10 minutes. Please return the completed survey by **June 30, 2007** in the enclosed stamped business reply envelope.

Thank you for taking the time to complete this important survey. Your participation will provide valuable insight to the support/interest of the ADHP concept and to the understanding of the types of individuals who would be interested in this new program.

Sincerely,

Douglas L. Lambert, RDH, BA
Masters of Dental Hygiene Education Degree Candidate

Thesis Committee Members:
Mary George, RDH, MEd
Alice Curran, DMD, MS

Jessica Lee, DDS, MPH, PhD
Daniel Shugars, DDS, MPH, PhD

*Enclosures: Survey
Business reply envelope*

APPENDIX B

Questionnaire

Box for Internal Use	
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“Practicing Dental Hygienists’ Attitudes toward the Proposed Advanced Dental Hygiene Practitioner”

Thank you for participating in this research study by completing this survey regarding the proposed Advanced Dental Hygiene Practitioner (ADHP). Please read each question carefully and record your most appropriate response directly on the survey.

Your Support and Interest in ADHP

1. Which one of the following BEST describes how you initially heard about the proposed ADHP?

- | | |
|--------------------------------------|---|
| 1. <input type="checkbox"/> Work | 4. <input type="checkbox"/> Professional journal |
| 2. <input type="checkbox"/> Friend | 5. <input type="checkbox"/> Other source _____ |
| 3. <input type="checkbox"/> Internet | 6. <input type="checkbox"/> Do not know about the proposed ADHP |

The ADHP curriculum draft from ADHA lists five general themes with specific descriptions. For questions 2–6, please rate **both your level of support AND your level of interest** regarding the proposed professional responsibilities, knowledge, and skills of an ADHP. For example, for Theme I, how would you describe your level of support for an ADHP performing these advanced skills (left column), and how would you describe your own level of interest performing such advanced skills (right column)?

Your Level of Support

- 5 ⇒ Very Supportive
4 ⇒ Somewhat Supportive
3 ⇒ Neutral
2 ⇒ Not Supportive
1 ⇒ Strongly Against

Please use this scale as reference

Your Level of Interest

- 5 ⇒ Very Interested
4 ⇒ Somewhat Interested
3 ⇒ Neutral
2 ⇒ Slightly Interested
1 ⇒ Not Interested

	Your Level of Support	Proposed Professional Responsibilities, Knowledge, and Skills of an ADHP	Your Level of Interest
2.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	Theme I - Provision of Primary Oral Health Care Diagnose, treat, and/or refer for oral diseases; prescribe medications; provide basic restorative procedures; extract simple/uncomplicated teeth; collaborate with health professionals in the provision of evidence-based care using a multi-disciplinary approach.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1
3.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	Theme II - Health Care Policy and Advocacy Support and supply health policies and advocate change for the underserved; advocate for access to quality, cost-effective oral health care for the underserved; support legislative and regulatory efforts to enhance the availability of cost-effective oral health care.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1
4.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	Theme III - Management of Oral Care Delivery Create a business plan for oral health care delivery; know legal regulations for reimbursement of services; apply administrative and managerial skills; establish fee schedules; utilize insurance pre-authorization, coding, and third party systems.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1
5.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	Theme IV - Translational Research Use sound scientific methods and access evidence-based research in making clinical decisions and providing patient care.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1

6.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	Theme V - Professionalism and Ethics Demonstrate values and exhibit behaviors that promote service to the public; demonstrate professional, legal, and ethical behaviors; assume accountability and attain highest standards of practice; apply the ADHA Code of Ethics to situations in the healthcare setting; foster lifelong professional development.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1
7.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1	Your Overall Opinion Using the scale above, please rate both your level of support AND your level of interest regarding your overall opinion of the proposed ADHP.	<input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1

8. The master's level education of the proposed ADHP is based on the foundation of existing dental hygiene education. Please indicate how many additional years of formal education you would be willing to spend to obtain the proposed ADHP degree.

1. ☐ 2 years or less

2. ☐ 3 years

3. ☐ 4 years

4. ☐ 5 years

5. ☐ Not interested in becoming an ADHP (PLEASE SKIP TO QUESTION 13) ----->

9. If you are interested in obtaining the proposed ADHP credential, which of the following would you be willing to do? (Please check all that apply)

1. ☐ Relocate to an area where the college is offering the ADHP curriculum

2. ☐ Take courses online/internet from a college offering the ADHP curriculum

3. ☐ Use student loans to finance education

4. ☐ Enroll as a full-time student

5. ☐ Enroll as a part-time student

10. If you pursue the ADHP education, which one of the following teaching formats is the MOST appealing to you? (Please select only one)

1. ☐ In-class lectures only

2. ☐ In-class lectures supplemented with online/internet material

3. ☐ Online/internet (instructor available on campus)

4. ☐ Online/internet (instructor off campus, only available via the internet)

11. What would be your main challenge in becoming an ADHP?

1. ☐ Age

4. ☐ Reluctance to go back to school

2. ☐ Finances

5. ☐ Other challenge _____

3. ☐ Family obligations

12. If you become an ADHP, where would you MOST likely want to practice?

1. ☐ Hospital

4. ☐ Dental clinic in suburban area

2. ☐ Public Health

5. ☐ Dental clinic in urban area

3. ☐ Dental clinic in rural area

6. ☐ Other (specify) _____

Practice Demographics

13. Which one of the following BEST describes your current primary practice setting? ----->

1. ☐ General Practice

2. ☐ Specialty Practice, indicate type _____

3. ☐ Hospital Practice

4. ☐ Public Health

5. ☐ Education

6. ☐ Other setting _____

14. In reference to question 13, which of the following describes the geographic setting of your primary practice?
- | | |
|--------------------------------------|---|
| 1. <input type="checkbox"/> Rural | 3. <input type="checkbox"/> Urban |
| 2. <input type="checkbox"/> Suburban | 4. <input type="checkbox"/> Other setting _____ |
15. Please indicate the number of hours that you typically work each week in providing patient care.
_____ hours per week

Sociodemographics/Level of Training

16. Please indicate your age.
_____ years old
17. Please indicate your gender.
- | |
|------------------------------------|
| 1. <input type="checkbox"/> Female |
| 2. <input type="checkbox"/> Male |
18. Please indicate your ethnicity.
- | |
|--|
| 1. <input type="checkbox"/> American Indian or Alaskan Native |
| 2. <input type="checkbox"/> Asian/Pacific Islander/East Indian |
| 3. <input type="checkbox"/> Black or African-American |
| 4. <input type="checkbox"/> White, non-Hispanic |
| 5. <input type="checkbox"/> Hispanic/Latino |
| 6. <input type="checkbox"/> Not listed/other |
| 7. <input type="checkbox"/> Do not wish to report ethnic data |
19. Please indicate your highest educational degree.
- | |
|--|
| 1. <input type="checkbox"/> Associate Degree in Dental Hygiene |
| 2. <input type="checkbox"/> Certificate in Dental Hygiene |
| 3. <input type="checkbox"/> Bachelors Degree, state major _____ |
| 4. <input type="checkbox"/> Master's Degree, state program of study _____ |
| 5. <input type="checkbox"/> Doctorate Degree, state program of study _____ |
| 6. <input type="checkbox"/> Other (specify) _____ |
20. Please indicate your year of graduation for the following:
- | |
|---|
| 1. <input type="checkbox"/> Final dental hygiene degree (associate and/or bachelors) or certificate _____ |
| 2. <input type="checkbox"/> Highest educational degree _____ |
| 3. <input type="checkbox"/> If a current student, please indicate the anticipated year of the completion of your highest educational degree _____ |
21. At what type of institution did you receive your final dental hygiene degree or certificate?
- | |
|--|
| 1. <input type="checkbox"/> Community/technical college |
| 2. <input type="checkbox"/> College/University without a dental school |
| 3. <input type="checkbox"/> College/University with a dental school |
| 4. <input type="checkbox"/> Other (specify) _____ |
22. Please indicate the number of years you have actively practiced as a registered dental hygienist. (If applicable, please *exclude* the years of maintained licensure with no clinical practice)
_____ years
23. In the below space, please share any comments you have regarding the proposed ADHP.

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