TOBACCO CESSATION EDUCATION IN NORTH CAROLINA DENTAL HYGIENE PROGRAMS

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ABSTRACT

Joanna L. Harris: Tobacco Cessation Education in North Carolina Dental Hygiene Programs
(Under the direction of Lauren L. Patton)

The purpose of the research project was to identify the practices and perceptions of senior dental hygiene students (SDHS) in North Carolina (NC) regarding their didactic training in tobacco cessation education (TCE) and integration of TCE into their clinical dental hygiene curricula. A pilot-tested questionnaire was administered to 241 graduating SDHS enrolled in all 12 NC dental hygiene programs via mail (n=180) or email via *SurveyMonkey* (n=61). Response rate was 65% (n=156). Of respondents, 99% agreed that hygienists should be trained to provide TCE. Nearly all SDHS (99%) had one or more patients who smoked and 81% had one or more patients who used spit tobacco. Eighty-nine percent had one or more patients that expressed a desire to quit. Most SDHS were comfortable providing TCE to both smokers (92%) and spit tobacco users (93%). Enhancements to TCE in dental hygiene curricula may increase incorporation of TCE by hygienists' in future practice.

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LIST OF ABBREVIATIONS

ADA	American Dental Association
ADEA	American Dental Education Association
ADHA	American Dental Hygienists' Association
CE	Continuing Education
CODA	Commission on Dental Accreditation
DH	Dental Hygiene
IRB	Institutional Review Board
NC	North Carolina
SDHS	Senior Dental Hygiene Students
TCC	Tobacco Cessation Counseling
TCE	Tobacco Cessation Education
URL	Uniform Resource Locator
U.S.	United States

CHAPTER I

INTRODUCTION

Tobacco use is the leading preventable cause of disease and death in the United States (U.S.).[1] Tobacco use results in approximately 440 thousand deaths each year and costs the nation approximately $157 billion annually in health related economic losses.[1] Tobacco use is a causative factor in numerous detrimental effects upon systemic and oral health.[1-4] The major diseases caused by tobacco and tobacco smoke include lung cancer and other cancers, coronary heart disease, other cardiovascular diseases, chronic respiratory diseases, pregnancy complications, and respiratory diseases in children.[1, 5] Smoking is strongly associated with periodontal disease, and both smoking and smokeless tobacco use have been significantly linked to the occurrence of oral cancer.[2, 6-8] Currently, 20.8% of adults smoke cigarettes[9] and an estimated 3% of adults use smokeless tobacco in the U.S.[10]

Despite the negative health consequences associated with smoking and smokeless tobacco use, health care providers are failing to intervene with this population and provide tobacco cessation counseling (TCC). An estimated 70% of adult smokers report that they want to quit completely.[2] According to the U.S. Department of Health and Human Services, *Treating Tobacco Use and Dependence: Clinical Guideline*, if health care providers deliver brief clinical interventions, the chance of successful tobacco cessation will be increased.[2]

Several studies in dentistry have evaluated TCC interventions delivered by dentists and dental hygienists.[11-13] Results suggest that dental professionals may be an effective resource for helping tobacco users quit since more than 50% of smokers visit a dentist annually.[2, 11] For smokers, it can take 2 or 3 tries to successfully quit.[2] According to a Cochrane Collaboration review of six studies, dental patients who received TCC in the dental office were 1.4 times more likely quit tobacco and remain abstinent after 12 months than patients who received no counseling.[11] However, it still seems that health care providers "believe that they are ineffective in providing counseling to patients who use tobacco."[2]

In the dental setting, the primary person to intervene and modify the behaviors of a patient is the dental hygienist.[11] Yet with tobacco cessation, as of 1997, only 25% of dental hygienists were providing TCC to patients.[12] In a recent survey conducted by the ADHA, 71% of dental hygienists reported following the 5A's of tobacco cessation with high risk patients; however, not all of the recommended steps of tobacco intervention (5A's) were utilized with all tobacco-using patients.[14] Although hygienists have the great opportunity to assess and intervene with tobacco users, dental hygienists face a multitude of barriers that limit their involvement in implementing TCC to all tobacco-using patients. Two major barriers for implementation are lack of training and lack of resource materials for patient education.[13-19]

In 2005, two studies were published that focused upon TCC within the dental hygiene (DH) curricula. Each study concluded that the DH curriculum lacked complete integration of TCE.[19, 20] Additionally, from the student perspective as

opposed to the faculty and DH program perspective, it is unknown how many schools integrate TCE into the classroom and clinical setting.

Therefore, the objective of this project was to determine if DH programs in NC are integrating TCE into the curriculum to address the reported barrier of inadequate training of TCC from the student perspective opposed to faculty perspective. To achieve this objective, the project focused upon pre-graduation SDHS in NC and aimed to assess their preparedness for assuming a role in providing tobacco cessation services to their future private practice patients. Assessment included: 1) placement of TCE within the dental hygiene curricula; 2) student recall of classroom instruction in the 5A's or *Ask.Advise.Refer*; 3) student application of the 5A's in their clinical practices; 4) clinical competency requirements for providing TCE to patients; 5) student attitudes toward their own ability to provide tobacco cessation services; and 6) student opinions regarding TCE.

CHAPTER II

REVIEW OF THE LITERATURE

Tobacco use is the leading preventable cause of disease and death in the U.S.[1] As reported by the U.S. Surgeon General, "an increasingly disturbing picture of widespread organ damage in active smokers is emerging, likely reflecting the systemic distribution of tobacco smoke components and their high level of toxicity."[1] Smoking is a causative factor associated with respiratory diseases, cardiovascular diseases, cancers afflicting multiple body organs, reproductive complications, and has numerous other detrimental effects upon the body.[1, 5] Concerning oral health, smoking is strongly associated with periodontal disease and oral cancer.[6-8] Additionally, smokeless tobacco has also been significantly linked to the occurrence of oral cancer.[2, 7] In 2008, according to cancer statistics, it is estimated that over 35,000 people will be diagnosed and 7,000 will die as a result of oral and pharyngeal cancers.[21] Other detrimental effects of smokeless tobacco use on oral health include: gingival recession, leukoplakia, and tooth abrasion.[2-4] Furthermore, tobacco use results in approximately 440 thousand deaths each year and costs the nation approximately $157 billion annually in health-related economic losses.[1] The economic impact of tobacco use would be lessened if tobacco use declined. One of the most cost-effective means of treating tobacco use are cessation interventions.[2] The treatment of tobacco use "is particularly

important economically in that it can prevent a variety of costly chronic diseases, including heart disease, cancer, and pulmonary disease."[2]

Reducing tobacco use in the U.S. requires an intervention focused upon comprehensive TCE. The U.S. Public Health Service created tobacco cessation intervention guidelines, titled *Treating Tobacco Use and Dependence: Clinical Guideline,* to help decrease tobacco use in the U.S.[2] These guidelines report a "strong dose-response relation between the intensity of tobacco dependence counseling" by clinicians "and its effectiveness" for successful quitting by patients.[2] According to these guidelines, the likelihood of a tobacco-user to quit increased with as little as 3 minutes of contact time.[2] In addition, greater numbers of intervention sessions with a clinician significantly increased the abstinence rate of tobacco-users.[2] These guidelines report that 70% of smokers want to quit and more than 50% of smokers visit a dentist annually.[2] Although smokers regularly visit the dentist, the proportion of dentists who provide TCE to patients does not meet the target of 85% set by the *Healthy People 2010* objectives.[22] Besides addressing tobacco cessation, *Healthy People 2010* has objectives focused upon decreasing tobacco use.[2] Data compiled from the clinical guidelines suggest a greater decrease in tobacco use would occur if clinicians capitalized on the opportunity to provide TCC because of their frequency of interaction with tobacco users.[22] Although the majority of studies focus on smoking cessation, any form of tobacco use by patients requires appropriate TCE.

Recognition of the Importance of Tobacco Cessation Education

To address the issue of increasing TCE within the dental health care community, three professional organizations have acknowledged the importance of expanding this capability by the DH profession. The American Dental Education Association (ADEA) revised its policies regarding DH competencies which indirectly relate to the topic of TCC. In 2004, ADEA established basic core competencies for entry into the DH profession.[23] The second core competency addresses health promotion / disease prevention as a component of health care provided by the dental hygienist. It states that the dental hygienist should "…have a general knowledge of wellness, health determinants, and…needs to emphasize both prevention of disease and effective health care delivery".[23] Although the competency does not specifically mandate inclusion of tobacco cessation strategies, the competency does cover an understanding of tobacco use as a determinant of general and oral health and emphasizes disease prevention.

Additionally, the Commission on Dental Accreditation (CODA) of the American Dental Association (ADA) has addressed the overall health care competence of the dental hygienist. Within the Patient Care Competencies of the ADA's CODA, Accreditation Standards for Dental Hygiene Education Programs (1998) objective 2-19 states that "graduates must be competent in providing the dental hygiene process of care which includes…risk assessments (i.e., tobacco, systemic, caries)".[24] Additional competencies within the Accreditation Standards, such as oral pathology, pharmacology, and periodontology, help to ensure an

educational foundation for the dental hygienists' ability to provide comprehensive TCC to patients.

In November 2003, the American Dental Hygienists' Association (ADHA) established a tobacco initiative with a grant received from the Robert Wood Johnson Foundation's Smoking Cessation Leadership Center at the University of California at San Francisco. This initiative was a nationwide effort to promote tobacco cessation by dental hygienists through the tobacco cessation intervention of *Ask Advise Refer*.[25] In response, this initiative was acknowledged by the former President of the ADHA Tammi O. Byrd who stated, "Oral health screenings provide a unique opportunity to give patients information that could save their lives and to place dental hygiene on the front line of smoking cessation intervention. The advice of a dental hygienist can be a major motivation for a quit attempt by a patient who smokes."[25] This philosophy is also reinforced by the clinical guidelines.[2] These organizations have acknowledged that dental hygienists should be able to provide TCC upon entry into the profession. Dental hygienists are in a unique position to educate patients about tobacco cessation. As of 1997, only 25% of dental hygienists provided TCC.[12] In a recent survey conducted by the ADHA, 71% of dental hygienists reported following the 5A's of tobacco cessation with "higher risk" patients; however, not all of the tobacco interventions (5A's) were utilized with all tobacco-using patients.[14]

Dental Hygienists' Attitude toward Tobacco Cessation Education

Overall, the attitudes of dental hygienists are positive towards tobacco cessation as a component of their profession. According to a study by Fried and colleagues who examined the attitudes of health profession students, 100% of DH

students and 90.6% of dental students agreed that it is their professional responsibility to help smokers and spit tobacco users quit.[26] These findings are similar to those in a study by Victoroff and colleagues in which 81% of dental students agreed that it is the dental professional's responsibility to encourage patients to quit using tobacco.[27] Ninety-nine percent agreed that dental professionals should educate patients about the oral health risks of tobacco use.[27] Eighty-eight percent of DH graduates agree that they would be an effective source to help patients stop smoking.[19] Although these students conclude that TCC is an integral component of their profession and implementation should regularly occur with patients using tobacco, these efforts are thwarted by multiple barriers that impede implementation.

Barriers to Tobacco Cessation Education

The lack of intervention by the dental hygienist has been attributed to numerous barriers within the educational setting as well as in private practices. Barriers to the incorporation of TCE into the DH curricula are lack of time, allowance for additional course work, teaching resources for tobacco education, and faculty confidence relating to students overcoming obstacles for implementation in private practice.[20, 28, 29] Additionally, several published papers point to the need for inclusion of more training for dental hygienists and other clinicians about TCC during their formative years of education.[19, 20, 30] From the student perspective, barriers faced by students during their DH program were patient resistance or disinterest, lack of knowledge or confidence, and lack of time.[16, 27, 31] Boyd and colleagues reported that TCC was not performed with patients because 75% of dental hygiene students

lacked the knowledge or confidence in tobacco cessation techniques.[31] Barriers faced by dental hygienists in private practices, ranged from lack of educational materials and / or referral resources for patients, time constraints, frustrations with negative feedback from patients, patient resistance or lack of patient interest, and lack of training.[13-19, 30, 32]

The recognized barriers in the educational setting may contribute to the lack of universal and full integration of TCE in DH curricula. According to Barker and Williams, 110 of 200 surveyed DH programs had integrated tobacco cessation into clinical activities as of 1999.[28] Davis and colleagues report that the "majority of faculty… [do] not cover other tobacco-related issues in their didactic courses" except as tobacco use relates to general and oral diseases, with specific emphasis toward periodontal disease.[20] They also report that the most important topic areas regarding tobacco cessation and prevention were covered for only about 25-33 minutes within didactic courses.[20] Moreover, the clinical guidelines suggest that failure to intervene with tobacco users results from "inadequate clinic or institutional support for routine assessment and treatment of tobacco use…".[2]

Within DH curricula, there may be a gap between what is actually integrated into the clinical curriculum regarding tobacco cessation and the faculty's perception of what is integrated. Since the first survey on the tobacco curriculum within DH programs in 1989, there has been an increased effort to incorporate cessation strategies.[30] According to Ramseier and colleagues, dental hygiene programs need to incorporate TCE into the curriculum, and the deans and department chairs should be reminded of the dental professions' key role in tobacco cessation.[33] The attitudes

and beliefs of administrative personnel regarding their role in facilitating integration of TCE may need to be addressed. Barker and Williams noted that one program director in their study commented that "students cannot put a plan into effect to assist patients in curtailing habits…[TCE was] outside the scope of [DH] practice".[28] Furthermore, solutions requiring behavioral changes occur less quickly than becoming aware of a problem. This seems to apply directly to the trend with incorporating TCC into DH program curricula.

Need for Dental Hygiene Tobacco Cessation Clinical Competency

A review of the studies of TCE and TCC in DH reveals a need for enhancement of TCE in program curricula.[15, 16, 20, 33] Without adequate instruction and opportunities to develop competence, those students who graduate without the confidence to provide TCC are less likely to provide regular TCE and TCC to patients in private practice.[19, 30, 32] Competence with any patient education task intended to influence behavior is cultivated with time and practice. Careful analysis of current teaching methods used for TCE will be critical to success in establishing a model DH curriculum that will optimally and fully integrate TCE in the didactic and clinical settings. The model should allow for development of high levels of student confidence in providing TCC upon graduation and entry in private practice.

CHAPTER III

INTRODUCTION AND LITERATURE REVIEW

Tobacco use is the leading preventable cause of disease and death in the U.S. and results in approximately 440 thousand deaths each year.[1] Tobacco use is a causative factor in numerous detrimental effects upon systemic and oral health.[1-4] Smoking is strongly associated with periodontal disease, and both smoking and smokeless tobacco use have been significantly linked to the occurrence of oral caner.[2, 6-8] Currently in the U.S., 20.8% of adults smoke cigarettes[9] and an estimated 3% of adults use smokeless tobacco.[10] As of 2006, NC had the 16th highest smoking rate at 22.1%[34] and the 18th highest smokeless tobacco rate at 2.5%.[35] In NC, 25.6% of men smoke versus 19.8% of women[34] and 4.2% of men use smokeless tobacco versus 1.0% of women.[35]

Despite the negative health consequences associated with smoking and smokeless tobacco use, health care providers are failing to intervene with this population and provide TCC. In the dental profession, several studies have evaluated TCC interventions by dentists and dental hygienists.[11-13] Results suggests that dental professionals may be an effective resource for helping tobacco users quit since more than 50% of smokers visit a dentist annually.[2, 11] According to a Cochrane Collaborative review of six studies, dental patients who received TCC in the dental office were 1.4 times more likely to quit tobacco and remain abstinent after 12 months than patients who received no counseling.[11] Additionally, the

likelihood of a tobacco-user to quit increases with as little as 3 minutes of contact time.[2] Data compiled suggest a greater decrease in tobacco use would occur if clinicians capitalized on their opportunity to provide TCC because of their frequency of interaction with tobacco users.[22]

Regarding DH, ADEA and the ADA have revised policies regarding DH competencies which indirectly relates to the topic of TCC. In 2004, ADEA established basic core competencies for entry into the DH profession.[23] The second core competency addresses health promotion / disease prevention as a component of health care provided by the dental hygienist.[23] Although the competency does not specifically mandate inclusion of tobacco cessation strategies, the competency does cover an understanding of tobacco use as a determinant of general and oral health and emphasizes disease prevention. Besides ADEA, ADA's CODA has also addressed the overall health care competence of the dental hygienist. Within the Patient Care Competencies of the ADA's CODA, Accreditation Standards for Dental Hygiene Education Programs (1998) objective 2-19 states that "graduates must be competent in providing the dental hygiene process of care which includes…risk assessments (i.e., tobacco, systemic, caries)".[24] These standards help to ensure an educational foundation for dental hygienists to provide comprehensive TCC to patients and have acknowledged that dental hygienists should be able to provide TCC upon entry into the profession.

According to a study by Fried and colleagues who examined the attitudes of health profession students, 100% of DH students and 90.6% of dental students agreed that it is their professional responsibility to help smokers and spit tobacco

users quit.[26] These findings are similar to those in a study by Victoroff and colleagues in which 81% of dental students agreed that it is the dental professional's responsibility to encourage patients to quit using tobacco.[27] Ninety-nine percent agreed that dental professionals should education patients about the oral health risks of tobacco use.[27] Eighty-eight percent of DH graduates agree that they would be an effective source to help patients stop smoking.[19]

As of 1997, only 25 percent of dental hygienists provided TCC.[12] Yet, a recent survey conducted by the ADHA reported that 71% of dental hygienists followed the 5A's of tobacco cessation with "higher risk" patients; however, not all of the tobacco interventions (5A's) were utilized for all tobacco-using patients.[14] The lack of intervention by the dental hygienist has been attributed to numerous barriers within the educational setting as well as private practice. In private practice, these barriers range from lack of educational materials or referral sources for patients, time constraints, frustrations with negative feedback from patients, and patient resistance or lack of patient interest.[13-19, 30, 32] The consensus in the literature is that the major barrier for implementation is lack of training.[13, 16, 17] Other studies point to the need for more inclusion of training for dental hygienists and other clinicians about TCC during their formative years of education.[19, 20, 30]

In 2005, two studies were published that focused upon TCC and aspects of dental hygiene curricula content. Each study concluded that DH curricula lacked complete integration of TCE.[19, 20] According to Barker and Williams, 110 of 200 surveyed DH programs had integrated tobacco cessation into clinical activities as of 1999.[28] Barriers to the incorporation of TCE into the DH curricula are attributed to

lack of time, allowance for additional course work, teaching resources for tobacco education, and faculty confidence relating to students overcoming obstacles for implementation in private practice.[20, 28, 29] Also within the education setting, student's have reported the barriers of patient resistance or disinterest, lack of knowledge or confidence, and lack of time.[16, 27, 31] Additionally, those students who graduate without the confidence to provide TCC are less likely to educate their patients about tobacco use in private practice.[19, 30, 32]

DH curricula need enhancement of TCE provided to students both didactically and clinically. Without adequate instruction and opportunities to develop competence, students are less likely to provide regular TCE and TCC to patients. Competence with any patient education task that aims to influence behavior is cultivated with time and practice. Therefore, the objective of this study was to determine if DH programs in NC were integrating TCE into the curriculum to address the recognized barrier of inadequate training of TCC from the student perspective opposed to faculty perspective. The goal was to identify the knowledge and practices of NC SDHS regarding their training and integration of TCE. The aim was to assess 1) placement of TCE within the dental hygiene curricula; 2) student recall of classroom instruction in the 5A's or *Ask.Advise.Refer*; 3) student application of the 5A's in their clinical practices; 4) clinical competency requirements for providing TCE to patients; 5) student attitudes toward their own ability to provide tobacco cessation services; and 6) student opinions regarding TCE.

CHAPTER IV

METHODS AND MATERIALS

A twenty-six item questionnaire was developed and approved by the Institutional Review Board (IRB) at the University of North Carolina at Chapel Hill. Prior to submission to the IRB, the questionnaire was reviewed by a survey specialist at the H.W. Odum Institute for Research in Social Science at the University of North Carolina at Chapel Hill. Modifications were made based on feedback from the survey specialist.

After IRB approval, the survey was pilot tested with five graduate dental hygiene students. No modifications were necessary therefore the survey did not need to be resubmitted to the IRB. Following the pilot test, the electronic version of the survey was posted on *Survey Monkey*, an online survey website engine. *Survey Monkey* provided a Uniform Resource Locator (URL) for the survey. The paper version of the survey was also mailed to the dental hygiene program directors who had requested the paper version.

The questionnaire was subdivided into three domains: tobacco cessation education in the classroom; tobacco cessation education for patients in the teaching clinics; and opinions. Demographic information was also collected. The questionnaire contained close-ended and Likert scale questions. The survey population was a non-random, convenience sample of SDHS in accredited NC DH programs. A list of accredited DH programs was obtained from the ADHA website.

To determine the approximate size of the survey population, DH program websites were utilized to determine the maximum number of students enrolled in the individual DH programs. The maximum total sample size was estimated to be 284 DH students based on enrollment figures.

The DH program directors' email addresses were obtained from the list of accredited DH programs in NC on the ADHA's website. An email was sent to DH program directors for all twelve NC DH programs in April 2007. The email informed the directors of the planned survey involving graduating SDHS and requested their participation with the administration of the survey. The DH program directors were asked to either provide a list of student email addresses or to provide their assistance with distribution, collection, and return of the paper surveys.

For the electronic survey, two emails with a link to the survey's URL were sent two weeks apart to encourage participation in the research study. For the paper survey, two weeks after the initial mailing, an email was sent to program directors to encourage their participation with administration, collection, and return of the surveys. Participants were informed that participation was voluntary, all responses were anonymous, and that there were no incentives for participating.

Data were entered into an Excel spreadsheet then imported into the statistical analysis software, JMP version 6.0.2. Data analyses included percentages, frequency distributions, tests of chi-square, and unpaired t-tests were generated with nominal and continuous variables in JMP 6.0.2.

CHAPTER V

RESULTS

A total of 156 questionnaires were received, yielding a response rate of 65% from the 241 students actually enrolled as seniors in all twelve DH programs in NC. Of the 241 questionnaires, 61 were distributed electronically and 180 were sent via mail. The response rate for mailed paper questionnaires was 87% (n=139) and electronic questionnaires was 28% (n=17).

Demographics: Respondents were predominately female (98%), Caucasian (84%), and were between 18 and 24 years old (52%). Forty-six percent of respondents had no college education prior to enrolling into their DH program. The majority (82%) of respondents do not currently use tobacco, with 59% never having used tobacco. Responses were collected from all twelve DH programs in NC. The majority of responses (93.6%) were from associate degree programs at NC community colleges with only 6.4% from the single bachelor's degree program in NC. (Table 1) A significant difference was observed between age and education with respondents older than 25 years being 2.96 times more likely to have some college education than respondents between ages 18 and 25 years. (p=0.001; 95% CI 1.5 to 5.7)

Didactic Exposure to Tobacco Cessation Education

Ninety-six percent of respondents first learned about tobacco cessation during the first year of their DH program. Sixty-eight and 73% of respondents

recalled classroom instructors providing information on the 5 A's of tobacco cessation and the ADHA's smoking cessation initiative *Ask.Advise.Refer*, respectively. During their DH program, the majority of respondents learned about tobacco cessation in five to eight courses (60%). Almost one-third of respondents, (29%) learned about tobacco cessation in one to four courses and 11% in greater than nine courses. The main forms of instruction about tobacco cessation were lecture (99%), health organization pamphlets (63%), case studies (54%), and in-class audiovisual slides/video (42%). Dental hygiene textbooks and journal articles were the main resources used for instruction of TCE (99% and 54%, respectively).

Clinical Practices and Educational Experiences with Patient Tobacco Cessation Education

Eighty-two percent of respondents reported that their clinic's medical history form asked patients if they used tobacco products. Almost 100% of respondents reported treating patients that smoked and 81% reported treating patients that used spit tobacco. There was no significant difference between respondent exposure and the two types of patient tobacco use, smoked vs. smokeless. Of those patients who used tobacco, 89% of respondents reported having at least one patient that expressed a desire to quit tobacco use.

For all tobacco-using patients, the majority of respondents always discussed the oral health effects of tobacco use (67%), encouraged their patients to quit (66%), discussed potential benefits of quitting (63%), discussed the general health effects of tobacco (58%), and talked with their patients about the patient's tobacco use (58%). For at least half of their clinic patients, 68% of respondents reported that they

tailored cessation messages, 56% helped the patient identify barriers to quitting, 53% provided tobacco cessation handouts, 53% repeated messages to patients unwilling to quit, 43% followed up on the progress of a patient's quit attempt, 40% recommended over-the-counter nicotine replacement products, and 30% created a quit plan. However, 26% of respondents reported never creating a quit plan with a patient, 23% never following up on the progress of a patient's quit attempt, and 19% never recommending over-the-counter nicotine replacement products to their patients. (Figure 1)

Relationship between Extent of Didactic Education and Clinical Experiences in Implementation of Tobacco Cessation

Respondents' self-reported experience in performing tobacco cessation interventions with patients in the student clinics was compared to the number of courses in which they had received classroom instruction about TCE. A significant difference was observed between several elements of the application of patient TCE in the clinical setting and the number of didactic courses that included information about tobacco cessation. Those elements of tobacco cessation intervention were: creating a quit plan with patients; tailoring cessation messages to patients; providing patients with tobacco cessation handouts; and recommending over-the-counter nicotine replacement products to patients. (Table 2) Seventy-four percent of respondents did not recall having a clinical evaluation or assessment of their TCE skills learned in the classroom with a tobacco-using patient. However, 69% of respondents reported that clinical instructors did reinforce classroom material in the clinical setting.

Respondents' Comfort Level with Patient Tobacco Cessation Education

All respondents (100%) reported that they were more comfortable asking patients if they used tobacco, discussing potential benefits of quitting, and discussing the oral health effects of tobacco than with repeating quit messages to patients unwilling to quit (74%). (Table 3) Those respondents with some college education prior to enrollment into their DH program were 2.2 times more likely to disagree that they were comfortable providing quit messages to patients unwilling to quit ($p=0.0428$; 95% CI 1.01 to 4.9). Also, there was a significant difference between respondent interest in taking a continuing education (CE) course and their comfort level with providing patient TCE. Respondents were more likely to express interest in attending a CE course if they agreed that they were comfortable with: discussing the potential benefits of quitting; discussing the oral health effects of tobacco use; identifying barriers to quitting tobacco; and providing quit messages to patients who were unwilling to quit. (Table 4)

Respondent Tobacco Use Impacts Patient Tobacco Cessation Education Practices

Respondent's personal history of tobacco use was related to how they interacted with their patients who used tobacco. (Table 5) Compared to their counterparts who use tobacco, respondents who did not use tobacco were 2.96 times more likely to encourage patients using tobacco to quit, 2.9 times more likely to discuss with the patient potential benefits of quitting, and 2.7 times more likely to discuss general adverse health effects of tobacco with the patient. Respondents who use tobacco are 3.3 times less likely to tailor cessation messages to the patient

who is trying to quit and 3.6 times less likely to help the patient identify barriers to quitting tobacco use. Respondent tobacco use was also associated with one comfort level aspect with providing TCE to patients. Respondents who did not use tobacco were 2.7 times more likely to strongly agree with being comfortable discussing the benefits of quitting than respondents who use tobacco ($p=0.0231$; 95% CI 1.2 to 6.4).

The study also assessed student opinions about providing TCE to patients. The vast majority of respondents agreed that dental hygienists should be trained to provide TCE (99%). Ninety-one percent of respondents stated that they knew how to obtain patient TCE materials in private practice and 90% stated they were adequately trained to provide TCE. (Figure 2) There was a 91% agreement among respondents that TCE was adequately addressed in their DH curriculum and that they were adequately prepared to provide TCE ($p<0.0001$).

CHAPTER VI

DISCUSSION

This study assessed North Carolina's senior DH student's impressions of their didactic and clinical training in TCE, and the adequacy of their preparedness to provide TCC in private practice. It examined school-based practices, clinical competency, student opinions, and comfort level with providing TCE to patients. In addition, the study also addressed the influence of self-reported tobacco use as an indicator of willingness to provide TCE, student preparedness to use the 5 A's or *Ask.Advise.Refer.*, and knowledge of patient education materials on tobacco cessation.

The demographics of the respondents were representative of the DH profession in general, with the vast majority being Caucasian females. The majority of respondents were also representative of the typical college-aged student range of 18-24 years old and correspondingly, their previous education involved no college courses prior to enrollment into their DH program. Respondent low usage rate of tobacco is also representative of the dental health care profession.[26, 36, 37] Interestingly, the respondent percentage of current tobacco use (18%) corresponds with both the national (18%) and NC (19.8%) tobacco use levels for smoking among women.[9, 35] Also, the respondent percentage is similar to the findings of Cruz and colleagues, which reported that 22% of dental hygienists were current tobacco

users.[37] However, assessment of respondent tobacco use did not differentiate between smoking and smokeless tobacco use.

Regarding the assessment of didactic education in TCE, the majority of respondents reported receiving exposure to TCE in the classroom setting during their first year of their DH program. This encouraging response indicates DH programs in NC are beginning to address the barrier of lack of education during the formative years of dental hygiene education.[19, 20, 30] The integration of TCE within several courses throughout the curriculum increased the number of elements of a TCE intervention that were provided to tobacco-using patients by the DH student. Interestingly, the DH pharmacology course, which has the potential to directly address pharmacotherapeutic approaches and support for tobacco cessation, was reported as one of the courses least likely to include TCE content (27%). This could explain why a low number of respondents reported recommending over-the-counter nicotine replacement products to all their tobacco-using clinic patients. This finding is comparable to a study of freshman dental students who ranked prescribing nicotine gum (45%) or transdermal patch (42%) lowest in the hierarchy of elements in the scope of dental practice for tobacco cessation services.[27]

While it is encouraging that the vast majority of respondents reported that they receive TCE through didactic lecture, fewer reported being instructed by other forms. Within DH programs, students are constantly practicing DH skills, including interaction and discussion of health with their patients. If classroom instruction had included more role-modeling of dialogue between the clinician and patient, respondents may have reported higher rates of clinic experience with patients in

applying all steps of the 5A's and *Ask.Advise.Refer.* One of the barriers to providing TCE to patients is lack of adequate training.[13, 16, 17] Adding more hands-on training to the curriculum may help to address this major barrier to providing TCE to patients. This notion seems to be supported with findings from another study where "more one-to-one time with trained expert faculty [was] an effective means to enhance student confidence in assimilating skills necessary for sensitive patient-related issues, such as tobacco cessation."[38]

When we attempted to assess the issue of a clinical competency requirement for providing TCE to patients, surprisingly one-fourth (26%) of respondents indicated having this requirement. This percentage was higher than we had expected due to our hypothesis that there would be no clinical competency evaluations of TCE interventions within NC DH program curricula. Therefore, we theorized that our question was flawed. Possible reasons for this flaw could have been poor wording of the question or placement of the question within the questionnaire. To help resolve this issue, the DH program directors were contacted via email and asked to respond to the question for their program. Eight of the eleven directors responded. The twelfth director was not contacted due to the author's knowledge of the program's competency requirements for DH students. Seven of the eight directors confirmed that there was not a clinical competency for providing TCE. Taking this into account, the percentage rate of programs having a clinical competency requirement for TCE reported by program directors who responded would be 12% lower or 14%. Even with the reported, non-adjusted percentage of 26% having a clinical competency evaluation, the 74% rate of programs without a clinical

competency requirement for TCE still reinforces the lack of clinical competency as a potentially contributing barrier to TCC in practice.[13, 16, 17] This low rate of clinical competency assessment in NC DH programs may contribute to the continued presence of "inadequate clinic or institutional support for routine assessment and treatment of tobacco use" as stated in the U.S. Department of Health and Human Services *Treating Tobacco Use and Dependence: Clinical Practice Guideline*.[2] In addition, graduates of NC DH programs may not be fully competent with tobacco risk assessments as stated in the ADA CODA's Accreditation Standards for Dental Hygiene Education Programs.[24]

Assessment of comfort level and other opinions revealed that the majority of respondents were comfortable providing TCE to both smokers and spit tobacco users. This may help to address a barrier identified as lack of confidence by future NC dental hygienists.[19, 30, 32] However, when confronted with a patient identified as "unwilling to quit", confidence levels dropped to much lower levels. This is consistent with other studies that have reported patient resistance and lack of patient interest encountered by hygienists in private practice which are reported to be barriers to delivery of TCE.[13, 15, 18] Positively, the majority of respondents indicated that they were adequately trained to provide TCE, which is a drastic improvement above the reported percentage of 36% by NC practicing dental hygienists who felt adequately trained in a study by Patton and colleagues.[39] This level of respondent confidence indicates improvement in the lack of education in TCE as a barrier.[19, 20, 30] The literature also reveals lack of educational materials for patients is a barrier for dental hygienists.[15, 16, 18] Encouragingly, our respondents indicated that they would know

how to obtain TCE materials in private practice. However, the study did not assess the resources where students would obtain tobacco cessation materials for patients.

A high percentage of respondents agreed that they were being adequately trained in TCE and that their programs addressed this topic in the curricula. However, fewer respondents reported receiving classroom instruction in the 5 A's and/or *Ask.Advise.Refer*. This implies that students may recognize the correlation between tobacco use and its negative effects on oral and systemic health from the incorporation of TCE into their courses, but possibly lack awareness of the concept of TCC implementation using the 5A's or *Ask.Advise.Refer*.

Respondents seemed to appreciate the need for CE in tobacco cessation for themselves by indicating their interest in future attendance at CE courses about this topic. This sentiment is also reinforced by dental students in the study by Victoroff and colleagues.[27] Perhaps if DH program curricula increased their incorporation of TCE, then there would be an increased demand by dental hygienists for CE courses on tobacco prevention and cessation. Consequently, these CE courses might begin to address the lack of education in TCE barrier acknowledged by experienced dental hygienists.

Interestingly, respondent use or non-use of tobacco had an influence on their interaction with tobacco-using patients. This raises the question about the level of tobacco education a patient may or may not receive from their dental hygienist, including the adverse health effects of tobacco and assistance with quitting tobacco, if the hygienist is herself a tobacco-user. However, this question was not explored further in this study. Since dental hygienists are primary health care providers, it is

encouraging to report that the majority of the respondents were non-tobacco users. Dental hygienists are role-models for their patients regarding oral health and those habits that may impact the oral and systemic health of the individual.

This study recognizes limitations of the results and applicability of the results to other curricula and institutions. Results cannot be generalized to DH students outside of NC nor to students attending a four-year university and receiving a bachelor's degree in DH. We also cannot generalize information about non-respondents. The majority of participants in the current study attended a community college. Future investigators could improve the survey tool and expand the research population to incorporate a more diversified and equal distribution of institutions across geographic locations. In retrospect, another limitation to this study is it did not assess how students felt about the way they received TCE instruction. The survey did not directly address student perception about classroom instruction in tobacco cessation nor did it address sources of patient education materials.

Another possible limitation could be the survey response rate. The survey methodology allowed for an adequate overall response rate, but there were wide variations among response rates per school. This is most likely a result of the use of two questionnaire administration methods: *Survey Monkey* (online survey engine) versus paper questionnaire. The low percentage of email respondents is consistent with the findings by Paolo and colleagues of a bimodal survey study involving medical students.[40] Emailed surveys were concluded to be a faster method of data collection, however with a lower response rate than mailed surveys.[40, 41, 42] Also, a lower email response rate could be dependent upon the population being surveyed

as reported by Akl and colleagues involving medical residents and faculty.[42] In addition, the low electronic response rate could also be attributed to the time of year in which the survey was administered. Due to the questionnaire being administered at the end of the last semester of dental hygiene school, respondents could have been more preoccupied with graduation requirements. For those schools that had a low response rate either with paper or electronic, we cannot make generalizations about these individual school's curricula involving tobacco cessation.

Further research is needed to explore and characterize the extent of inclusion and impact on practice of TCE content and methods in DH curricula in NC and the U.S. Barriers continue to exist within DH programs in NC. This study assessed students impressions of their educational training in TCE within the DH curricula and results revealed that specific barriers related to TCE may still exist. These barriers include lack of adequate clinical training with tobacco-using patients, lack of complete assessment of patient tobacco use, and lack of confidence with patients unwilling to quit. In addition, more research is needed to evaluate a system involving clinical competency of student ability to provide TCE to patients following the guidelines of the 5 A's or *Ask.Advise.Refer*. Besides cross-sectional research involving a class of students currently completing their DH programs, longitudinal assessment of these DH programs graduates regarding their private practice behaviors of TCE with patients and a future reassessment of their impressions of adequacy of their program's inclusion of TCE after they have engaged in TCE experiences with patients in practice would add to our knowledge of effectiveness of their initial TCE training. Another research theme that would advance this area

could involve a pilot test and evaluation of a specific TCE curriculum design, employing interactive techniques of role-playing, standardized patients, or virtual clinical simulations within DH programs. Other areas for research involving TCE could address if the tobacco use habits of health care providers influence their patient's willingness to quit and quit attempt successes, and if earlier exposure and student perception of being responsible for providing TCE to their patients influences their personal use of tobacco.

CHAPTER VII

CONCLUSION

The opinions of respondents in this study supplement previous studies that recognize the need for dental hygienists to provide TCE and TCC to their patients. Respondents indicate that they have been exposed to TCE and TCC and are prepared to face this issue in private practice. However, there are obvious improvements that might be made to enhance the DH curricula in TCE. It is important for improved educational methods and competencies to be incorporated in the DH curricula in order to enhance the health promotion efforts of dental hygienists in private practice. DH curricula are addressing student confidence demonstrated by the increase of DH student comfort level with discussing all aspects of TCE with patients. DH programs are exposing future dental hygienists to the 5A's or *Ask.Advise.Refer* tobacco cessation activities; however there is a need for more integration of patient tobacco interventions into the clinical setting. DH program curricula still need to address complete assessment of patient tobacco use by students, and to evaluate student ability to provide TCE to patients through a clinical competency requirement.

TABLES

Table 1 – Respondent demographics

	n	(%)
Age in years		
18-24	80	(52)
25-34	58	(38)
35+	16	(10)
Gender		
Female	151	(98)
Program		
Asheville-Buncombe Technical Community College	6	(3.9)
Cape Fear Community College	3	(1.9)
Catawba Valley Community College	4	(2.6)
Central Piedmont Community College	19	(12.2)
Coastal Carolina Community College	20	(12.8)
Fayetteville Technical Community College	15	(9.6)
Forsyth Technical Community College	10	(6.4)
Guilford Technical Community College	15	(9.6)
Halifax Community College	14	(9.0)
University of North Carolina at Chapel Hill	10	(6.4)
Wake Technical Community College	20	(12.8)
Wayne Community College	20	(12.8)
Use of Tobacco Products		
Never used tobacco	90	(59)
Previous tobacco user	35	(23)
Current tobacco user, plans to quit	13	(8)
Social tobacco user	15	(10)

Table 2 – Respondent practice associated with courses involving tobacco cessation education

		Courses involving TCE			
Practice Always (1=yes, 2=no)	**Yes No**	**Confidence Interval†**	**Mean (Std Err)**		**p-value**
Talk to your patients about their tobacco use	1 2	5.5 to 6.4 5.03 to 6.1	5.9 5.6	(0.23) (0.28)	0.3409
Encourage patients using tobacco to quit	1 2	5.4 to 6.3 5.02 to 6.3	5.9 5.6	(0.21) (0.31)	0.589
Discuss with the patient potential benefits of quitting	1 2	5.5 to 6.3 4.9 to 6.2	5.9 5.6	(0.21) (0.32)	0.3657
Discuss oral health effects of tobacco with the patient	1 2	5.4 to 6.2 5.1 to 6.4	5.8 5.8	(0.21) (0.33)	0.9712
Create a quit plan with the patient	1 2	5.9 to 8.6 5.3 to 5.97	7.3 5.6	(0.62) (0.18)	0.0219*
Tailor cessation messages to the patient who is trying to quit	1 2	5.8 to 7.1 5.1 to 5.9	6.5 5.5	(0.33) (0.2)	0.0129*
Discuss general health effects of tobacco with the patient	1 2	5.4 to 6.3 5.2 to 6.2	5.8 5.7	(0.24) (0.27)	0.7346
Help the patient identify barriers to quitting tobacco use	1 2	5.5 to 6.9 5.2 to 6.02	6.2 5.6	(0.34) (0.21)	0.1359
Follow up on the progress of the patient's quit attempt	1 2	5.4 to 7.3 5.2 to 6.02	6.3 5.7	(0.47) (0.19)	0.1868
Provide tobacco cessation handouts (pamphlets) to your patients	1 2	5.8 to 7.5 5.1 to 5.9	6.7 5.5	(0.4) (0.18)	0.0136*
Recommend over-the-counter (OTC) nicotine replacement products to help the patient quit	1 2	5.6 to 7.6 5.2 to 5.9	6.6 5.6	(0.49) (0.18)	0.0463*
Repeat your quit message for patients unwilling to quit	1 2	5.4 to 6.8 5.2 to 6.1	6.1 5.6	(0.34) (0.21)	0.2221

*Indicates statistical significance; set at >0.05
†Confidence Interval set at 95%

Table 3 – Respondent comfort level with tobacco-using patients

Opinion Dental hygiene student respondents are comfortable with:	Strongly Agree or Agree		Disagree or Strongly Disagree	
	n	%	n	%
Asking patients if they use tobacco.	154	100	0	0
Discussing with the patient potential benefits of quitting.	154	100	0	0
Discussing the oral health effects of tobacco use with the patient.	153	100	0	0
Discussing the general health effects of tobacco use with the patient.	152	99	1	1
Providing referral resources to patients.	147	95	7	5
Providing tobacco cessation education to spit tobacco users.	143	93	11	7
Providing tobacco cessation education to smokers.	142	92	12	8
Providing tailored cessation messages to patients who want to quit tobacco.	140	91	14	9
Identifying barriers that the patient may face while quitting tobacco use.	136	89	17	11
Providing quit messages to patients who are unwilling to quit.	114	74	40	26

Table 4 – Respondent comfort level and CE course interest

	CE Course Interest		
Dental hygiene students are comfortable with:	**Odds Ratio**	**Confidence Interval†**	**p-value**
Asking patients if they use tobacco.	1.5	0.6 to 3.5	0.3552
Discussing with the patient potential benefits of quitting.	2.6	1.2 to 5.6	0.0191*
Discussing the oral health effects of tobacco use with the patient.	3.5	1.5 to 7.9	0.0033*
Providing tailored cessation messages to patients who want to quit tobacco.	2.8	0.9 to 8.5	0.0951
Discussing the general health effects of tobacco use with the patient.	---	------	0.0877
Identifying barriers that the patient may face while quitting tobacco use.	3.4	1.2 to 9.7	0.0233*
Providing quit messages to patients who are unwilling to quit.	3.1	1.4 to 6.9	0.0053*
Providing referral resources to patients.	4.8	1.02 to 22.5	0.0523
Providing tobacco cessation education to smokers.	2.6	0.8 to 8.6	0.1527
Providing tobacco cessation education to spit tobacco users.	3.0	0.9 to 10.5	0.1301

*Indicates statistical significance; set at >0.05
†Confidence Interval set at 95%

Table 5 – Respondent practice associated personal tobacco use

		Tobacco Use				
Practice Always (1=yes, 2=no)	**Yes No**	**Non-User n**	**(%)**	**User n**	**(%)**	**Total n (p-value)**
Talk to your patients about their tobacco use	1	74	(49)	16	(11)	152
	2	50	(33)	12	(8)	(0.8057)
Encourage patients using tobacco to quit	1	90	(56)	13	(9)	153
	2	35	(23)	15	(10)	(0.0111*)
Discuss with the patient potential benefits of quitting	1	86	(56)	12	(8)	153
	2	39	(25)	16	(10)	(0.0112*)
Discuss oral health effects of tobacco with the patient	1	88	(58)	16	(11)	152
	2	36	(24)	12	(8)	(0.1633)
Create a quit plan with the patient	1	15	(10)	1	(1)	152
	2	109	(72)	27	(18)	(0.1387)
Tailor cessation messages to the patient who is trying to quit	1	44	(29)	4	(3)	152
	2	80	(53)	24	(16)	(0.0210*)
Discuss general health effects of tobacco with the patient	1	79	(52)	11	(7)	153
	2	46	(30)	17	(11)	(0.0211*)
Help the patient identify barriers to quitting tobacco use	1	39	(26)	3	(2)	152
	2	86	(57)	24	(16)	(0.0228*)
Follow up on the progress of the patient's quit attempt	1	27	(18)	3	(2)	153
	2	98	(64)	25	(16)	(0.1651)
Provide tobacco cessation handouts (pamphlets) to your patients	1	33	(22)	3	(2)	152
	2	92	(61)	24	(16)	(0.0703)
Recommend over-the-counter (OTC) nicotine replacement products to help the patient quit	1	24	(16)	3	(2)	149
	2	100	(67)	22	(15)	(0.3640)
Repeat your quit message for patients unwilling to quit	1	38	(25)	5	(3)	153
	2	87	(57)	23	(15)	(0.1664)

*Indicates statistical significance; set at >0.05

FIGURES

Figure 1

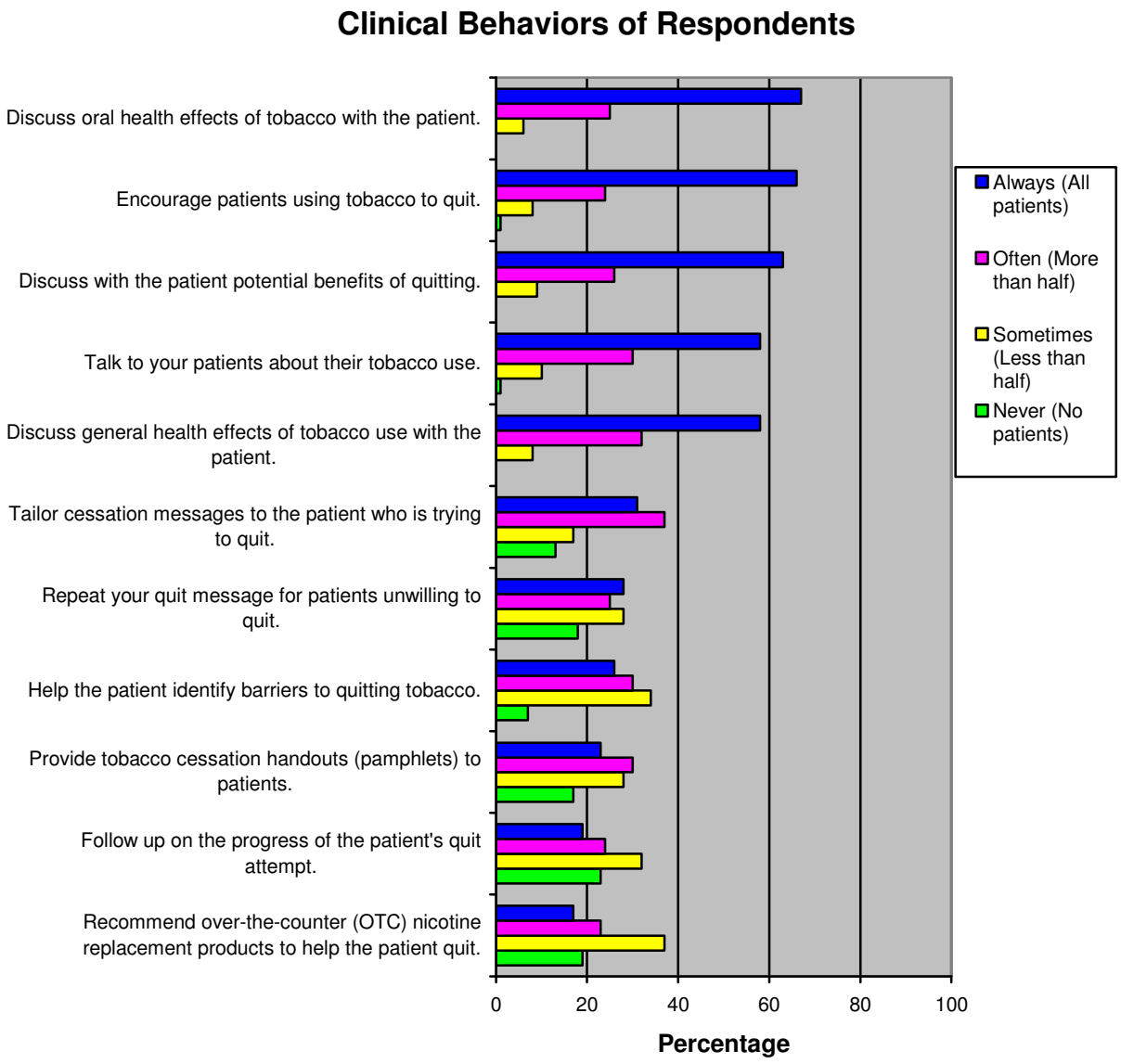
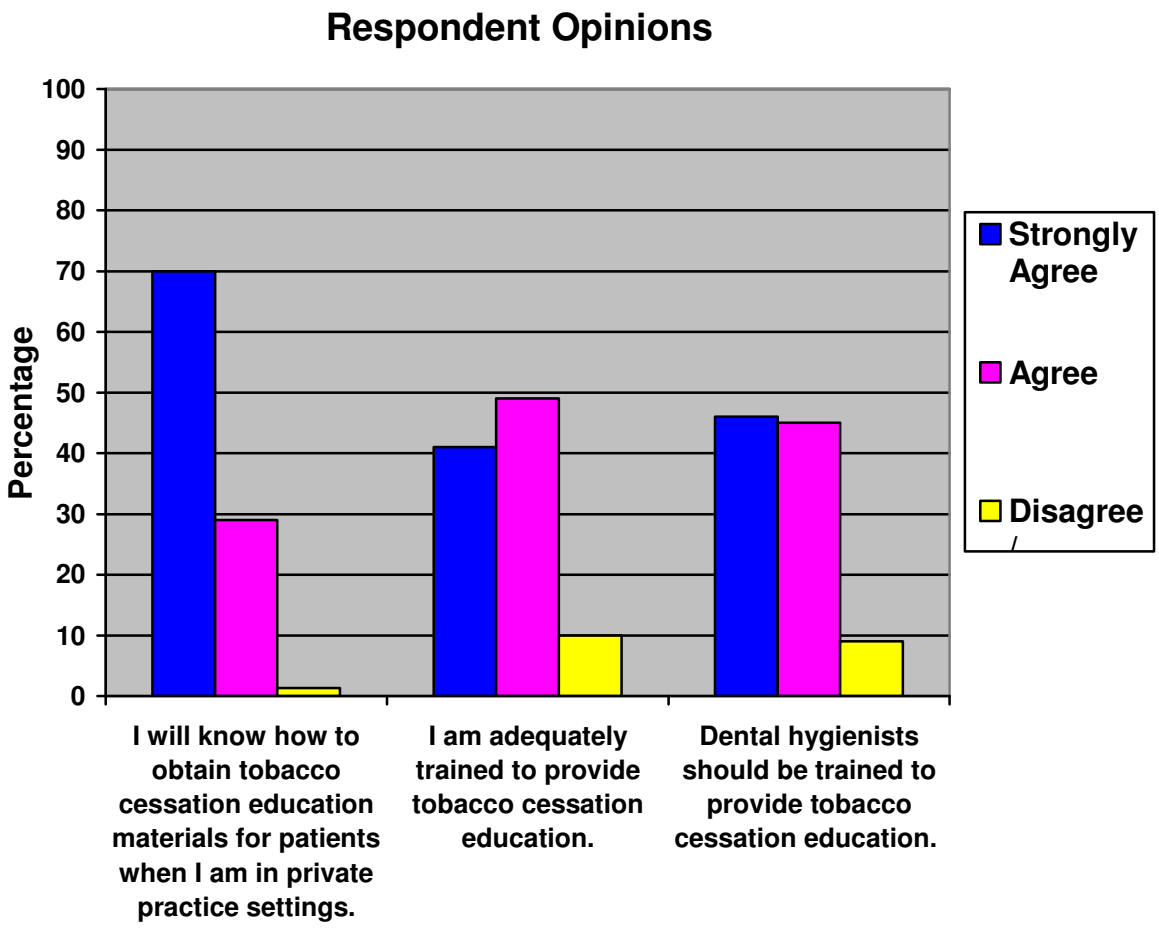


Figure 2


Respondent Opinions
Percentage
100
90
80
70
60
50
40
30
20
10
0
I will know how to obtain tobacco cessation education materials for patients when I am in private practice settings.
I am adequately trained to provide tobacco cessation education.
Dental hygienists should be trained to provide tobacco cessation education.
Strongly Agree
Agree
Disagree

North Carolina State Survey of Dental Hygiene Programs: Tobacco Cessation Education

Thank you for taking the time to complete this important survey and for providing your comments. Feel free to write directly on the survey. Additional space is provided on the back of the last page.

If you do not want to complete the survey, please return the survey to your program director. This action will help account for all surveys distributed.

Please read each question carefully and provide your most appropriate response.

A. Tobacco Cessation Education in the Classroom

1. In what semester did you first learn about providing tobacco cessation information to patients who use tobacco? **(check one only)**

- ○ 1st year Fall semester
- ○ 1st year Spring semester
- ○ 1st year Summer semester
- ○ 2nd year Fall semester
- ○ 2nd year Spring semester
- ○ Did not receive any information

2. What courses included information about tobacco cessation? **(check all that apply)**

- ☐ Community Dental Health/Public Health
- ☐ Dental Anatomy
- ☐ Dental Radiology
- ☐ Dental Health Education
- ☐ General and Oral Pathology
- ☐ Nutrition
- ☐ Pharmacology
- ☐ Periodontology
- ☐ Dental Hygiene Theory
- ☐ Ethics
- ☐ Clinical Dental Hygiene
- ☐ Other (please specify) _____

3. Did your classroom instructor(s) provide information about the 5 A's of tobacco cessation? **(check one only)**

- ○ Yes
- ○ No
- ○ Don't recall

4. Did your classroom instructor(s) provide information about the ADHA's smoking cessation initiative (Ask Advise Refer)? **(check one only)**

- ○ Yes
- ○ No
- ○ Don't recall

5. What forms of instruction did your classroom instructor(s) use to teach you about tobacco cessation? **(check all that apply)**

- ☐ Lecture
- ☐ Case studies
- ☐ Role play / modeling
- ☐ Health organization pamphlets or other materials
- ☐ In-class audiovisual slides / video
- ☐ Web-based teaching module
- ☐ I-pod training module
- ☐ CD training module
- ☐ Did not receive any instruction
- ☐ Other (please specify)_____

6. What resources did your course instructor(s) use for teaching you tobacco cessation? **(check all that apply)**

- ☐ Dental hygiene textbooks
- ☐ Dental textbooks
- ☐ Medical/Nursing textbooks
- ☐ Journal articles
- ☐ Internet sites from Corporate manufacturers
- ☐ Internet sites from National Healthcare Agencies
- ☐ Other (please specify) _____

B. Clinical Patient Tobacco Cessation Education

7. Does your school's patient medical history form ask patients if they use tobacco products? **(check one only)**

- ○ Yes
- ○ No
- ○ Don't know

8. Are you required to document patient's tobacco use in your health history treatment notes? **(check one only)**

- ○ Yes
- ○ No
- ○ Don't know

9. During your program, in your dental hygiene clinic, how many patients have you seen that smoke? **(check one only)**

- ○ 1 – 5
- ○ 6 – 9
- ○ 10 – 15
- ○ more than 15
- ○ None

10. During your program, in your dental hygiene clinic, how many patients have you seen that use spit (smokeless) tobacco? **(check one only)**

- ○ 1 – 5
- ○ 6 – 9
- ○ 10 – 15
- ○ more than 15
- ○ None

11. How many of these patients using tobacco expressed a desire to quit? **(check one only)**

- ○ 1 – 5
- ○ 6 – 9
- ○ 10 – 15
- ○ more than 15
- ○ None

12. Did your clinical instructors reinforce tobacco cessation material that you were taught in classroom courses? **(check one only)**

- ○ Yes
- ○ No
- ○ Sometimes
- ○ N/A

13. Please select **one choice** for each of the following:

How often do you:	**Always** (All patients)	**Often** (More than half)	**Sometimes** (Less than half)	**Never** (No patients)
13.1 …talk to your patients about their tobacco use?	☐	☐	☐	☐
13.2 …encourage patients using tobacco to quit?	☐	☐	☐	☐
13.3 …discuss with the patient potential benefits of quitting?	☐	☐	☐	☐
13.4 …discuss oral health effects of tobacco with the patient?	☐	☐	☐	☐
13.5 …create a quit plan with the patient?	☐	☐	☐	☐
13.6 …tailor cessation messages to the patient who is trying to quit?	☐	☐	☐	☐
13.7 …discuss general health effects of tobacco with the patient?	☐	☐	☐	☐
13.8. …help the patient identify barriers to quitting tobacco use?	☐	☐	☐	☐
13.9. …follow up on the progress of the patient's quit attempt?	☐	☐	☐	☐
13.10 …provide tobacco cessation handouts (pamphlets) to your patients?	☐	☐	☐	☐
13.11 …recommend over-the-counter (OTC) nicotine replacement products to help the patient quit?	☐	☐	☐	☐
13.12 …repeat your quit message for patients unwilling to quit?	☐	☐	☐	☐

14. For clinic requirements, how many times during your program did you have a clinical assessment (evaluation) of your ability to provide tobacco cessation education to a tobacco using patient? **(check one only)**

- ○ None
- ○ Once
- ○ Twice
- ○ Three or more times

C. Opinions

15. Please indicate the extent to which you agree or disagree with each of the following statements: (**check one response per line)**

I am comfortable with:	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
15.1 …asking patients if they use tobacco	☐	☐	☐	☐
15.2 …discussing with the patient potential benefits of quitting.	☐	☐	☐	☐
15.3 …discussing the oral health effects of tobacco use with the patient.	☐	☐	☐	☐
15.4 …providing tailored cessation messages to patients who want to quit tobacco.	☐	☐	☐	☐
15.5 …discussing the general health effects of tobacco use with the patient.	☐	☐	☐	☐
15.6 …identifying barriers that the patient may face while quitting tobacco use.	☐	☐	☐	☐
15.7 …providing quit messages to patients who are unwilling to quit.	☐	☐	☐	☐
15.8 …providing referral resources to patients.	☐	☐	☐	☐
15.9 …providing tobacco cessation education to smokers.	☐	☐	☐	☐
15.10 …providing tobacco cessation education to spit tobacco users.	☐	☐	☐	☐

16. Please indicate the extent to which you agree or disagree with each of the following statements: **(check one response per line)**

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
16.1 I will know how to obtain tobacco cessation education materials for patients when I am in private practice settings.	☐	☐	☐	☐
16.2 I am adequately trained to provide tobacco cessation education.	☐	☐	☐	☐
16.3 Dental hygienists should be trained to provide tobacco cessation education.	☐	☐	☐	☐

17. In your opinion, did your dental hygiene program adequately address tobacco cessation education in the curriculum? **(check one only)**

- ○ Yes
- ○ No
- ○ Don't know

18. How would you rate your dental hygiene education in preparing you to provide tobacco cessation education? **(check one only)**

- ○ Very Good
- ○ Good
- ○ Fair
- ○ Poor
- ○ Very Poor

19. Are you interested in attending continuing education courses relating to providing patient tobacco cessation education in the future? **(check one only)**

- ○ Yes
- ○ No
- ○ Not sure / undecided

D. Personal Demographics

Please select **one choice** for each item below:

20. Your age:

- ○ 18 - 24 years old
- ○ 25 - 34 years old
- ○ 35 years old and older

21. Your gender:

- ○ Male
- ○ Female

22 Your race:

- ○ Asian
- ○ Black/African American
- ○ Native Hawaiian or other Pacific Islander
- ○ Native American/Alaskan
- ○ White/Caucasian
- ○ Other (please specify)_____

23. Your ethnicity:

- ○ Hispanic
- ○ Non-Hispanic

24. Select your dental hygiene program/school:

- ○ Asheville-Buncombe Technical
- ○ Community College
- ○ Cape Fear Community College
- ○ Catawba Valley Community College
- ○ Central Piedmont Community College
- ○ Coastal Carolina Community College
- ○ Fayetteville Technical Community College
- ○ Forsyth Technical Community College
- ○ Guilford Technical Community College
- ○ Halifax Community College
- ○ University of North Carolina at Chapel Hill
- ○ Wake Technical Community College
- ○ Wayne Community College

25. What was your HIGHEST degree or level of education prior to enrollment in your current program:

- ○ High School diploma or equivalent
- ○ Associate Degree or equivalent
- ○ Baccalaureate
- ○ Masters
- ○ Doctorate
- ○ Other (please specify) _____

26. What is your current status of tobacco use? **(check one only)**

- ○ Never used tobacco
- ○ Previous tobacco user
- ○ Current, regular tobacco user, plans to quit
- ○ Current, regular tobacco user, does not plan to quit
- ○ Social tobacco user (only use tobacco in certain settings)

We appreciate your cooperation and support with this state project!

APPENDIX B

North Carolina State Survey of Dental Hygiene Programs:
Tobacco Cessation Education

I. Tobacco Cessation Education in the Classroom

I am a graduate student in the Master of Science Degree Dental Hygiene Education program at the University of North Carolina at Chapel Hill. I am conducting a survey to assess the integration of tobacco cessation education within the curriculum of North Carolina dental hygiene programs. Tobacco cessation education addresses smoking, spit tobacco (also called smokeless), and any other form of tobacco use.

You have been selected to receive this survey because you are a second year dental hygiene student in North Carolina. The questionnaire should take 10 - 12 minutes to complete.

There is no direct benefit to you; however, the results may benefit the dental hygiene profession and North Carolinians by initiating positive change within the dental hygiene curriculum. The questionnaire asks for your demographic information, your education in patient tobacco cessation, and your opinions regarding your tobacco cessation education. The results only will be valid if questions are answered truthfully and to the best of your ability. You are free to answer or not answer any particular question and have no obligation to complete answering the questions once you begin.

There are no anticipated financial risks or obligations to you for participating in this survey. Complete confidentiality/anonymity is assured as no individual can or will be identified in the study. Access to the data is limited to the thesis committee members and me, and the statistical analysis personnel. The results will be published and shared with dental hygiene professional associations.

Please respond to this survey by May 8, 2007. Non-respondents will be sent another questionnaire in two weeks. The computer will track responses for mailing purposes and will remove your email from the mailing list when your survey is submitted.

I would be happy to answer any questions you may have about the study; my contact information is listed below. Thank you in advance for your participation!

Sincerely,

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1. In what semester did you first learn about providing tobacco cessation information to patients who use tobacco?

- ○ 1st year Fall semester
- ○ 1st year Spring semester
- ○ 1st year Summer semester
- ○ 2nd year Fall semester
- ○ 2nd year Spring semester
- ○ Did not receive any information

2. What courses included information about tobacco cessation? (check all that apply)

- ○ Dental Anatomy
- ○ Community Dental Health/Public Health
- ○ Dental Health Education
- ○ Ethics
- ○ Pharmacology
- ○ Nutrition
- ○ Clinical Dental Hygiene
- ○ Periodontology
- ○ Dental Hygiene Theory
- ○ Dental Radiology
- ○ General and Oral Pathology

Other (please specify)

3. Did your classroom instructor(s) provide information about the 5 A's of tobacco cessation?

○ Yes ○ No ○ Don't recall

4. Did your classroom instructor(s) provide information about the ADHA's smoking cessation initiative (Ask Advise Refer)?

○ Yes ○ No ○ Don't recall

5. What forms of instruction did your classroom instructor(s) use to teach you about tobacco cessation? (check all that apply)

- ○ Lecture
- ○ Case studies
- ○ Role play / modeling
- ○ Health organization pamphlets or other materials
- ○ In-class audiovisual slides / video
- ○ Web-based teaching module
- ○ I-pod training module
- ○ CD training module
- ○ Did not receive any instruction
- ○ Other (please specify)

6. What resources did your course instructor(s) use for teaching you tobacco cessation?(check all that apply)

- ○ Dental hygiene textbooks
- ○ Dental textbooks
- ○ Medical/Nursing textbooks
- ○ Journal articles
- ○ Internet sites from Corporate manufacturers
- ○ Internet sites from National Healthcare Agencies
- ○ Other (please specify)

II. Clinical Patient Tobacco Cessation Education

7. Does your school's patient medical history form ask patients if they use tobacco products?

○ Yes ○ No ○ Don't know

8. Are you required to document patient's tobacco use in your health history treatment notes?

○ Yes ○ No ○ Don't know

9. During your program, in your dental hygiene clinic, how many patients have you seen that smoke?

○ 1 - 5

○ 6 - 9

○ 10 - 15

○ more than 15

○ None

10. During your program, in your dental hygiene clinic, how many patients have you seen that use spit (smokeless) tobacco?

○ 1 - 5

○ 6 - 9

○ 10 - 15

○ more than 15

○ None

11. How many of these patients using tobacco expressed a desire to quit?

- ○ 1 - 5
- ○ 6 - 9
- ○ 10 - 15
- ○ more than 15
- ○ None

12. Did your clinical instructors reinforce tobacco cessation material that you were taught in classroom courses?

○ Yes ○ No ○ Sometimes ○ N/A

13. Please select one choice for each question:

How often do you:	Always (All patients)	Often (More than half)	Sometimes (Less than half)	Never (No patients)
13.1 ...talk to your patients about their tobacco use?	○	○	○	○
13.2 ...encourage patients using tobacco to quit?	○	○	○	○
13.3 ...discuss with the patient potential benefits of quitting?	○	○	○	○
13.4 ...discuss oral health effects of tobacco with the patient?	○	○	○	○
13.5 ...create a quit plan with the patient?	○	○	○	○
13.6 ...tailor cessation messages to the patient who is trying to quit?	○	○	○	○
13.7 ...discuss general health effects of tobacco with the patient?	○	○	○	○
13.8 ...help the patient identify barriers to quitting tobacco use?	○	○	○	○
13.9 ...follow up on the progress of the patient's quit attempt?	○	○	○	○
13.10 ...provide tobacco cessation handouts (pamphlets) to your patients?	○	○	○	○

How often do you:	Always (All patients)	Often (More than half)	Sometimes (Less than half)	Never (No patients)
13.11 ...recommend over-the-counter (OTC) nicotine replacement products to help the patient quit?	○	○	○	○
13.12 ...repeat your quit message for patients unwilling to quit?	○	○	○	○

14. For clinic requirements, how many times during your program did you have a clinical assessment (evaluation) of your ability to provide tobacco cessation education to a tobacco using patient?

- ○ None
- ○ Once
- ○ Twice
- ○ Three or more times

III. Opinions

15. Please indicate the extent to which you agree or disagree with each of the following statements: (check one response per line)

I am comfortable with:

	Strongly Agree	Agree	Disagree	Strongly Disagree
15.1 …asking patients if they use tobacco	○	○	○	○
15.2 …discussing with the patient potential benefits of quitting.	○	○	○	○
15.3 …discussing the oral health effects of tobacco use with the patient.	○	○	○	○
15.4 …providing tailored cessation messages to patients who want to quit tobacco.	○	○	○	○
15.5 …discussing the general health effects of tobacco use with the patient.	○	○	○	○
15.6 …identifying barriers that the patient may face while quitting tobacco use.	○	○	○	○
15.7 …providing quit messages to patients who are unwilling to quit.	○	○	○	○
15.8 …providing referral resources to patients.	○	○	○	○
15.9 ...providing tobacco cessation education to smokers.	○	○	○	○
15.10 ...providing tobacco cessation education to spit tobacco users.	○	○	○	○

16. Please indicate the extent to which you agree or disagree with each of the following statements: (check one response per line)

	Strongly Agree	Agree	Disagree	Strongly Disagree
16.1 I will know how to obtain tobacco cessation education materials for patients when I am in private practice settings.	○	○	○	○
16.2 I am adequately trained to provide tobacco cessation education.	○	○	○	○
16.3 Dental hygienists should be trained to provide tobacco cessation education.	○	○	○	○

17. In your opinion, did your dental hygiene program adequately address tobacco cessation education in the curriculum?

○ Yes ○ No ○ Don't know

18. How would you rate your dental hygiene education in preparing you to provide tobacco cessation education?

○ Very Good

○ Good

○ Fair

○ Poor

○ Very poor

19. Are you interested in attending continuing education courses relating to providing patient tobacco cessation education in the future?

○ Yes ○ No ○ Not sure / undecided

IV. Personal Demographics

Please select one choice for each item below:

20. Your age:

- ○ 18 - 24 years old
- ○ 25 - 34 years old
- ○ 35 years old or older

21. Your gender:

- ○ Male
- ○ Female

22. Your race:

- ○ Native Hawaiian or other Pacific Islander
- ○ Black/African American
- ○ Native American/Alaskan
- ○ Asian
- ○ White/Caucasian
- ○ Other (please specify)

23. Your ethnicity:

- ○ Non-Hispanic
- ○ Hispanic

24. Select your dental hygiene program/school:

- ○ Asheville-Buncombe Technical Community College
- ○ Cape Fear Community College
- ○ Catawba Valley Community College
- ○ Central Piedmont Community College
- ○ Coastal Carolina Community College
- ○ Fayetteville Technical Community College
- ○ Forsyth Technical Community College
- ○ Guilford Technical Community College
- ○ Halifax Community College
- ○ University of North Carolina at Chapel Hill
- ○ Wake Technical Community College
- ○ Wayne Community College

25. What was your HIGHEST degree or level of education prior to enrollment in your current program?

- ○ High School diploma or equivalent
- ○ Associate Degree or equivalent
- ○ Baccalaureate
- ○ Masters
- ○ Doctorate
- ○ Other (please specify)

26. What is your current status of tobacco use?

- ○ Never used tobacco
- ○ Previous tobacco user
- ○ Current, regular tobacco user, plans to quit
- ○ Current, regular tobacco user, does not plan to quit
- ○ Social tobacco user (only use tobacco in certain settings)

5. Thank You

Thank you so much for your time and cooperation with this online survey!

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