

The Effects of Standardized Patient Training on Dental Hygiene Students Confidence in  
Delivering Tobacco Cessation Counseling

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## ABSTRACT

J. Robbyne Adkins: The Effects of Standardized Patient Training on Dental Hygiene Students Confidence in Delivering Tobacco Cessation Counseling  
(Under the direction of Dr. Alice E. Curran)

The purpose of this study was to determine if the confidence of dental hygienists in providing Tobacco Cessation Counseling can be increased by incorporating Standardized Patient (SP) training into the dental hygiene Tobacco Cessation Counseling (TCC) curriculum. Dental hygienists report lack of confidence in initiating Tobacco Cessation Counseling with their patients who smoke.

A two-parallel group randomized design was used to compare the self-reported confidence of students (N = 27) attending a TCC lecture followed by Standardized Patient (SP) training to the confidence of students attending the same TCC lecture without SP training. There was no statistically significant difference in posttest Knowledge between the groups ( $p=.08$ ). However, there was a statistically significant difference ( $p=.02$ ) in mean self-reported Confidence between the Test ( $X= 34.57$ , SD 22.93) and Control ( $X=14.19$ , SD 14.51) groups. These results may translate into DHs being more willing and able to provide TCC to their patients.

## DEDICATION

I would like to dedicate this thesis to my close friends and family who have supported me throughout this project. Thank you for your continued love and support. I would like to give special thanks to my daughter Kristin, and my sister Rebecca Jill, for your encouragement and strength.

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## LIST OF ABBREVIATIONS

5 A's:	Ask, Advise, Assess, Assist, Arrange
ADEA:	American Dental Education Association
ADHA	American Dental Hygiene Association
ADHA SC:	American Dental Hygiene Association -National Smoking Cessation Initiative
COPD:	Chronic Obstructive Pulmonary Disease
CPX:	Clinical Performance Exam
IUSD:	Indiana University School of Dentistry
JABFM:	Journal of the American Board of Family Medicine
SOC:	Stages of Change as defined by Prochaska and DiClemente
SP:	Standardized Patients
TCC:	Tobacco Cessation Counseling
TCE:	Tobacco Cessation Education
UNC-CH:	University of North Carolina – Chapel Hill
UNC-SOD:	University of North Carolina School of Dentistry
USPH:	United States Public Health
USPHS:	United States Public Health Service

## INTRODUCTION

Tobacco use is the leading cause of preventable death in this country and is responsible for over 400,000 deaths a year.<sup>1</sup> Dental Hygienists, as oral health care providers, are in a position to detect some of the most visible and potentially life threatening oral conditions that result from tobacco use and in turn, provide their patients with necessary information and motivation to stop smoking.<sup>1,2</sup> Most health care providers agree that they have a professional responsibility to provide Tobacco Cessation Counseling (TCC) to patients who use tobacco. Because a dental patient is often seen several times a year in a dental office (as compared to a physician, the dental office provides the perfect setting to offer TCC to the patient. Many patients require more than one TCC session. Repeated visits provide that opportunity for reinforcement of quit messages.<sup>3</sup> Studies have also shown that as many as 40% of these patients have attempted to quit smoking in response to brief interventions offered by their dental professional, with almost one-half of those attempts ending with successful quit attempts.<sup>2</sup>

Although hygienists generally agree that TCC is the professional responsibility of the dental care professional, a study of Minnesota Dental Hygiene graduates reported that hygienists report a greater likelihood of providing TCC to their patients only when there was a correlation of severe periodontal disease and smoking.<sup>4</sup>

In a study of medical, dental, dental hygiene, pharmacy and physical therapy students by Fried and colleagues, it was determined that when health care providers felt more prepared, they were more likely to provide in TCC. The majority of the students



agreed that it was their professional responsibility to assist their patients in smoking cessation attempts, yet less than half of them reported they felt prepared to do so.<sup>5</sup>

A recent study by Roof and colleagues reported that although the students felt confident to approach patients that were willing to quit (100%) about 25% them felt uncomfortable addressing those patients that were not willing to quit. Also the providers almost never followed through with helping that patient to set a plan in motion to help them quit smoking.<sup>6</sup>

Preparation in the classroom may include instruction includes the 5A's, (Ask, Advise, Assess, Assist, Refer) or Ask, Advise, Refer, in most Dental Hygiene schools, which are two methods of brief intervention. The definition of a brief intervention is one that ideally lasts three minutes or less.<sup>5</sup> TCC skills are an important component to the dental hygiene education curriculum that still lack integration throughout the dental hygiene curriculum.

It is suggested that when health care students have the opportunity to apply the TCC knowledge they receive in the classroom in the clinical setting, they demonstrate an increase in knowledge and gain confidence in providing tobacco cessation interventions.<sup>7</sup> However, very few schools follow didactic instruction with clinical application and TCC proficiencies.<sup>8,9</sup>

TCC is a skill that must be applied after the academic concepts are presented in the classroom. A theory of instruction that addresses the development of academic knowledge from abstract concepts into skills that are mastered by the learner is Experiential Learning. Brookfield states that experiential learning involves a direct encounter with that which is being studied, rather than just "considering the possibility of doing something about it"<sup>10, 11</sup> This may help to explain the difficulty some students have making a connection between the knowledge that they are presented with in the classroom and the lack of ability to implement that knowledge even if mastery of concepts has been achieved.

One form of experiential learning is the use of Standardized Patients. At the University of Louisville, School of Dentistry, Standardized Patients (SP) was used to train the dental students to provide TCC. In order to determine if the experience would lead to an increase in student confidence in their TCC skills, a pilot study involving dental, dental hygiene, and OB/GYN students questioned subjects regarding their attitudes, comfort level, skills and knowledge in TCC prior to three training sessions with SPs. Following the SP training, it was concluded that SP training led to both an increase in knowledge in TCC and confidence.<sup>11</sup>

The effectiveness of Standardized Patient training is well documented in many small studies involving a variety of health professions students. However, it is not known if this type of training will benefit dental hygiene students. Studies involving the efficacy of Standardized Patient training and dental hygiene students TCC have not been reported. It is hypothesized that Standardized Patient training may lead to dental hygiene students being more confident in their ability to provide TCC and further hypothesized that more confidence DH program graduates will provide more TCC interventions for their dental patients.

The purpose of this study was to determine if SP training increases dental hygiene student confidence in providing Tobacco Cessation Counseling to their patients. Also, it determined if SP training increases dental hygiene student knowledge in Tobacco Cessation.

## **REVIEW OF THE LITERATURE**

### **Tobacco Use in the United States**

Tobacco use is widely recognized as the single most preventable cause of premature death in the United States. Tobacco causes more than 440,000 deaths a year and over 157 billion dollars to society in health care costs and missed time from work and reduced productivity.<sup>12</sup> Medical research has determined that tobacco smoking causes lung cancer, emphysema, and cardiovascular disease among other health problems. The main health risks in tobacco pertain to diseases of the cardiovascular system, in particular myocardial infarction (heart attack), cardiovascular disease, diseases of the respiratory tract such as Chronic Obstructive Pulmonary Disease (COPD), asthma, emphysema, and cancer, particularly lung cancer and cancers of the larynx and tongue.<sup>1</sup> Many of tobacco's health effects can be minimized through smoking cessation. The British doctors study "mortality in relation to smoking :50 years' observations on male British doctors"<sup>13</sup> showed that those who stopped smoking before they reached 30 years of age lived almost as long as those who never smoked. Smokers wanting to quit smoking can use a variety of nicotine-containing tobacco substitutes, or nicotine replacement therapy products to temporarily lessen the physical withdrawal symptoms.

### **Educational Methods Used to Teach Tobacco Cessation to Health Care Professionals**

Despite the fact that tobacco is the leading cause of preventable premature death in this country and the availability of cessation aids, there is a general lack of training among health care professionals in prevention and cessation counseling (TCC).<sup>8, 9,14,15,16</sup>

Educational methods used to teach health care professionals include (5) the United States Public Health Service (USPHS) practice guideline referred to as the "5 A's". These

guidelines resulted from the review and evaluation of over 6,000 research studies by the USPHS.<sup>17</sup> The 5 A's are steps that can be utilized in office-based intervention tobacco-cessation interventions and are appropriate for brief interventions when the tobacco user is approached by a health care professional. The 5 A's are ASK, (the patients at every appropriate opportunity about their tobacco behaviors), ADVISE (all tobacco users to stop); ASSESS (the patients' willingness to make a quit attempt); ASSIST (the patient in stopping); and ARRANGE (for follow up support for the patient that makes a quit attempt).<sup>18</sup>

While there is a genuine interest in TCE in the health care professions, there is little standardization of curriculum. The students often feel unprepared by their curriculum content to implement tobacco-use interventions upon graduation.<sup>5,19</sup> Primary-care doctors in Chapel Hill, North Carolina UNC School of Medicine were followed in what is believed to be the first long-term study of the effect of implementation of classroom + residency education vs. classroom instruction only to address tobacco cessation in the behavior of physicians. This study followed the resident doctors who had received training from faculty trained at the National Cancer Institute's "Train the Trainer" workshops. This training is considered the 'gold standard'<sup>20</sup> for smoking cessation intervention training. Eight years after residency, Forty-two percent reported they continued using the 'best practices' such as identifying smokers, advising cessation, and assisting with a plan for a follow up with these patients when compared to those who had not received training. This study confirms that it takes more than classroom training to make sure a doctor will give the best help to smokers that is something that medical schools, public health officials and health-care administrators can do something about. These findings are consistent with those of Fried and colleagues, who found that health care providers were more likely to intervene (in TCE) when they felt more prepared.

Health care professionals generally believe that TCE should be provided to all patients. However, studies show they do not routinely offer these interventions.<sup>4, 9, 21, 22</sup>

Opinions offered by a focus group showed five major themes identified as barriers to the provision of smoking cessation services: 1) lack of time in their schedule, 2) patient lack of readiness to change, 3) inadequate patient resources, 4) inadequate provider resources, and 5) inadequate clinical counseling skills.<sup>23</sup>

### **Dental Health Care Providers Assume Role in TCC**

Since the latter half of the 20th century, dental professionals have been educated in the hazards of tobacco. Since the 1970's, dental professionals have known of the signs and symptoms related to tobacco use and periodontal health, delayed wound healing, discoloration of teeth and restorative materials, leukoplakia, hairy tongue, and oral cancers. There were occasional published reports in the dental literature that focused on tobacco use and cessation, but dentists were not typically involved in the cessation and it was not typically linked to the practice of dentistry. In 1970, the first guidelines for dental office TCE were drafted.<sup>2</sup> By the late 1970's and early 1980's, some studies and reports were found in dental journals, but tobacco cessation wasn't truly linked to dentistry at that time.<sup>1,2</sup>

### **Tobacco Cessation Education in Dental and Dental Hygiene Education**

The American Dental Education Association (ADEA) has embraced the oral health professional's role in tobacco intervention.<sup>4</sup> In the 1980's, TCE was introduced into the dental profession and much later into the realm of dental hygiene education (DHE) curricula in the United States.<sup>25</sup>

In the 1980's, the University Of Indiana School Of Dentistry (IUSD) first developed a teaching manual for dental professionals to assist them in establishing a TCC program for their office that would not cause disruption or require large expenditures of time. From the development of this manual, a seven hour lecture series in TCE has been developed for undergraduate, graduate and dental hygiene students of IUSD. This program closely follows the National Cancer Institute (NCI) guidelines for smoking cessation strategies' and is continually updated as the NCI updates recommendations. This plan helps staff, faculty,

students, patients, and dental professionals to benefit from Tobacco Cessation Education.<sup>4</sup> A study by Davis and colleagues found that although tobacco cessation and prevention in dental and dental hygiene schools have increased in recent years, dental professionals often feel unprepared to present patients with cessation messages.<sup>20</sup> As of 1999, there were eleven dental schools and sixty-five dental hygiene programs that include formal TCE in their curriculum.<sup>4</sup> However, the training still lacks integration throughout the curriculum or assessment of students' clinical competency in this domain.<sup>2,26,27</sup> In one study, most dentists and dental hygienists reported that more time needs to be devoted to TCE in educational programs including mentoring.<sup>5</sup>

Although hygienists are receiving didactic training while in school, both dentists and hygienists who ask the patient about smoking agree that they are not following through with the 5 A's. They cite many of the reasons mentioned above and report a need for revision of the current curricula to help students of tomorrow overcome these barriers. It was further reported that some of the educators might have had their own reasons for not making changes in the programs,<sup>2,22,27</sup> including little integration between the didactic content and the clinical practice, combined with a failure to provide supportive intervention skills. Other missing elements of the curricula included pharmacotherapy options and ways to help patients to deal with relapses.<sup>2,27</sup> When Fried and colleagues compared students from different health care professions, students were asked if they had at least some professional responsibility to help their patients that were smokers to quit. At least 79 % of all of those surveyed agreed it was their responsibility to help their patients to quit, with a positive response rate of 90% from the dental hygiene student. When asked how many of them had had course content that helped them to intervene with their patients, the medical and dental students reported feelings of being unprepared, despite their willingness in being able to help a user quit tobacco.<sup>5</sup>

Current methods used in dental hygiene schools of frequently include teaching the USPHS intervention guidelines for tobacco cessation, the “5 A’s” There are also the five R’s for the patient that is not willing to make a quit attempt. These include identifying why quitting is personally relevant, the risks of continued tobacco use, the potential rewards associated with quitting, and roadblocks that may impede potential quit attempts. The fifth R stands for repetition, because the motivational intervention should be repeated at every patient encounter.

Freid, Reid, and DeVore reported that health professions students view TCE as a vital part of their education, yet many students state they feel unprepared to intervene with their patients upon completion of their education. Cost effectiveness is an issue and perhaps a unified effort among health professionals is needed in order to increase the effectiveness with TCE. <sup>5</sup>

Many schools are exploring various avenues to discover the best methods to deliver TCE. Indiana University Nicotine Dependence Program is a trail blazer with faculty-developed workshops that are routinely held at annual ADEA meetings. Several U.S. dental schools have established highly organized outpatient therapy programs utilizing nicotine replacement therapies and many other universities are following suit. In 2006, Ramseier at the University of Michigan stated that TCE might best be delivered through a multidisciplinary approach involving “the entire schools’ teaching personnel and experts”. In other words, a full complement of instruction, including but not limited to didactic and clinical instruction, reinforced with competencies and practice and online, or e- learning, as well as problem-based learning all provide a knowledge base required to deliver TCE to our health care students.<sup>2,27</sup>

Practicing dental hygienists and students can use the American Dental Hygiene Association (ADHA) as a resource for their continuing education on TCC after graduation. The ADHA established a program in 2003 with the help of a grant from the Robert Wood

Johnson Foundation to promote the ADHA's National Smoking Cessation Initiative (ADHA SCI). This program adapted the five A's concept from the USPHS and modified it with their own 'Ask, Advise, Refer' approach. This nationwide campaign to promote smoking cessation through the efforts of registered dental hygienists across the U.S is designed to promote tobacco cessation intervention by dental hygienists. In this program the hygienist is also instructed to refer their patients to telephone quit lines and/or web-based and local tobacco cessation programs, and the ADHA developed their own web pages, instructional materials and cessation information materials for other dental hygienists. When questioned on preference regarding resources available to patients, the USPHS reports that quit lines have been shown to be more desired by patients following intervention by health care professionals.<sup>1</sup> It is suggested that when health care students have the opportunity to apply the TCC knowledge they receive in the classroom in the clinical setting, they demonstrate an increase in knowledge and gain confidence in providing tobacco cessation interventions.<sup>7, 28</sup>

A theory of instruction that addresses the development of academic knowledge from abstract concepts into skills that are mastered by the learner is Experiential Learning. Brookfield states that experiential learning involves a direct encounter with that which is being studied, rather than just "considering the possibility of doing something about it"<sup>10</sup>.

Further consideration to the theory of Experiential Learning (EL) is offered by Kolb and Fry, who explain the learning process begins with performing a task by going through the motions, without giving real thought or emotion to it. After the task is performed, the learner would reflect, or look back on the task to understand what would need to be done the next time the task is performed. This reflection leads to the realization that in a learning situation, given the same situation with the same circumstances and applying the same principles, it would be reasonable to expect a similar outcome or result. Active experimentation is the fourth stage of Kolb's EL cycle and is achieved when the learner has



reached an understanding regarding these principles by gaining experience over a broad range of circumstances and is now able to apply them to new circumstances. Kolb also notes that the use of “here and now” experiences to test ideas; and use of feedback to change practices and theories (reference) are vital to this process.<sup>29</sup> This interpretation of Experiential Learning may help to explain the difficulty some students have making a connection between the knowledge that they are presented with in the classroom and the lack of ability to implement that knowledge even if mastery of concepts has been achieved.

### **Use of Standardized Patients to Teach TCC for Health Professionals**

Standardized Patients (SPs) are used to improve effectiveness of health care student performance.<sup>22,28,30,31</sup> Introducing Standardized Patients into the health professions education has been reported to be very effective, especially when used following the classic didactic lecture. Students report positive feedback from the experiences which they find to be valuable. There is substantial research demonstrating that the SP's are educational, effective and reliable in the teaching and learning environment.<sup>22,28,30,31,32</sup> SPs are actor/educators that are trained to portray patients in varying clinical situations as needed by the current clinical situation that is being presented to the students. They provide students with non-threatening experiences in interviewing and patient assessment of clinical symptoms and diagnosis. The SPs are trained to present with symptoms as prescribed by the instructors who have trained them for specific student encounters. They are trained to evaluate the students' performance in patient interaction skills for which they provide constructive feedback. These interactions also can be videotaped which gives the student and instructor the opportunity to review the performance for learning opportunities following the training. The exam rooms are accessible via a master control room allowing access to all live interactions as they occur.<sup>11</sup>

Standardized Patients can be integrated into virtually any learning scenario and are adaptable to a variety of testing methods based on the skill that is being evaluated. For

example, in medical school settings, many students use the SP for Clinical Performance Examination (CPX), a requirement that must be satisfied by the student before graduation. These exams are graded objectively with computerized programs designed specifically for each exam.<sup>31</sup>

### **Standardized Patients have been shown to be Effective in Dental Education**

Dental schools have employed Standardized Patients various aspects of training including TCC to enhance their educational curriculum. There are pioneers in dental education that are utilizing 'actors' to train the dental professional students in attempts to enhance their skills and knowledge in TCC. For example, The University of Louisville implemented the use of Standardized Patients in TCC by utilizing 'actors' to train the dental and dental hygiene students after they received lectures addressing the counseling strategies of the 5 A's and 5 R's and pharmacotherapy.<sup>2,27</sup> Response was very positive and the use of the Standardized Patients is one strategy for training in the tobacco counseling patients in the TCE counseling.

### **Stages of Change Counseling for Behavior Modification**

The Stages of Change Model was developed by James Prochaska and Carlo DiClemente in the late 1970's. They are behaviorists who theorize that understanding and identifying the Stage of Change a patient is in when attempting to change or stop a negative behavior will increase the success rate of the quit attempt. These Stages are identified as follows: PRE-CONTEMPLATION ( where the individual is not contemplating changing - often identified with continuing denial; CONTEMPLATION ( beginning awareness that change is necessary without any actions to change yet); PREPARATION (deciding to commit to make changes in the near future); ACTION (where change in behavior has actually occurred for less than six months); MAINTENANCE (when the change in behavior has been in effect for greater than six months); relapse prevention is important here, and

RELAPSE, not always considered a stage of change, but identified as a stage to consider if the individual were to revert to the habit again for any length of time.<sup>33</sup>

### **Measuring Self-Efficacy (Confidence)**

Perceived self-efficacy is a measurement of what one 'can' do, not what one 'will' do. Student perception of self-efficacy in delivering Tobacco Cessation Counseling (TCC) to their patient is a skill set that can be measured by the use of a visual analog scale to measure self-efficacy. In the standard for measuring self-efficacy beliefs, individuals are asked to rate the strength of their self-efficacy beliefs by completing the questions task on a 100 point scale ranging from 0 "cannot do" to 100 "highly certain to do" or something similar. This scale is a line of a pre-determined, finite length that separates the extreme boundaries of the data being measured. This scale allows for a more infinite range in response than a conventional Likert scale with limited responses. However, some researchers argue that with the infinite possibilities of response also come the increased possibilities for error.<sup>34,35</sup>

### **Conclusion**

In conclusion, studies continue to show that tobacco is the leading cause of preventable premature deaths in this country. Perceptions of both students and faculty reveal that more classroom and clinic hours of TCE training for our healthcare professionals is required. "We know that when health care students receive both didactic instruction and the opportunity to practice their skills, they consistently demonstrate an increase in knowledge and they gain confidence in providing tobacco cessation interventions"<sup>36</sup> We know that TCE intervention is a responsibility of the dental hygienist whose goal is to achieve the best results for the patient. We know that increased knowledge and confidence will aid in this goal and ways to increase this knowledge, skills and confidence levels are needed. We already have learned that "it takes more than classroom training" to improve these skills.<sup>5</sup>

More research is needed to assess whether the utilization of Standardized Patients improves confidence and, thereby increases the frequency of the dental hygiene graduates TCC intervention in clinical practice following graduation. Remember, “The more prepared our students feel, the more likely they are to intervene”.<sup>37</sup>

## **INTRODUCTION AND REVIEW OF THE LITERATURE**

Tobacco use is widely recognized as the single most preventable cause of premature death in the United States and is associated with more than 440,000 deaths a year.<sup>1,2</sup> Many of tobacco's health effects can be minimized through smoking cessation.<sup>1</sup> A general lack of training among our health care professionals in prevention and cessation counseling (TCC) has been documented<sup>3,4,5,6,7</sup> In a study of medical students, Fried and colleagues found that when health care providers felt more prepared, they were more likely to provide TCC. However, students often feel unprepared to implement TCC upon graduation.<sup>8,9</sup>

Health care professionals generally believe that TCC should be provided to all patients. However, studies show they do not routinely offer these interventions.<sup>10,11,12</sup> Since the 1970's, dental professionals have known of the signs and symptoms related to tobacco use and periodontal health, delayed wound healing, discoloration of teeth and restorative materials, leukoplakia, hairy tongue, and oral cancers. Dental health care professionals have been effective in helping their patients quit. Studies have shown that among patients who have made quit attempts in response to quit messages from their dental professional, almost half of those attempts have been successful.<sup>13</sup> Methods to help improve health professionals' skills in TCC include The Stages of Change Model developed by James Prochaska and Carlo Di Clemente which theorizes when the patient's Stage of Change is recognized, the success of the quit attempt will increase.<sup>14</sup> Also, Standardized Patients (SPs) have been used to improve health care student performance in a variety of clinical encounters.<sup>11,15,16,17</sup> Dental schools have employed Standardized Patients various aspects of training including TCC.<sup>8</sup>

When dental hygiene students have been included in studies using SPs in TCC, they have been combined with other student groups so no data on DH students alone are available.<sup>19</sup> There are no studies that report the use of SPs in dental hygiene TCC curriculum. Therefore, it is not known to what degree DH students benefit from SP training or if there are special circumstances that DH education must consider when using SPs for TCC training.

The purpose of this study was to determine if the confidence of dental hygiene students in providing Tobacco Cessation Counseling can be increased by Standardized Patient training. DH students' feedback on SP training also was examined.

## **METHODS AND MATERIALS**

### **Pretest and Group Randomization**

Following IRB approval, 36 senior DH students in the 2009 class at the University of North Carolina at Chapel Hill received a TCC lecture that addressed use of both Prochaska and DiClemente's Transtheoretical Stages of Change and behavior modification interviewing techniques. Following the lecture, 31 students volunteered for the study and provided Informed Consent.

A pre-test was administered to all volunteers that contained both Confidence and Knowledge measures. The test was assessed for readability only; no validity measures were performed. The term "test" was not used with the subjects in order to reduce any "test-anxiety" among the subjects. The pretest was referred to as "baseline assessment" and the subsequent post-test was referred to as "follow-up assessment". Subjects used a Visual Analog Scale (VAS) that ranged from 0-10 to rate their Confidence in performing a series of sixteen TCC-related tasks. Confidence was assessed in three domains:

- a. Initiating a dialogue with patients on smoking
- b. Identifying the Stage of Change the patient is in
- c. Ability to follow up on the patient's progress

To measure Knowledge of TCC, subjects were given a series of four scenarios involving smokers in various Stages of Change. They asked a series of fifteen multiple choice questions to assess their knowledge in three domains:

- a. Identification of Stages of Change characteristics
- b. TCC Referral and follow-up procedures
- c. Cessation resources available to the patient

Following the scoring of the pre-test, the subjects were ranked by Knowledge scores. To remove Knowledge as a possible confounder for high confidence scores, the Test and Control groups were randomized using equal numbers of subjects scoring above and below the median. This method assured that each group was comprised of equal numbers of high and low scorers on Knowledge (Table 1). The resulting Test Group had 16 subjects and Control Group had 15 subjects. The Test Group was assigned to participate in Standardized Patient (SP) training.

### **Standardized Patient Training**

The 4 SPs in this study were trained to portray patients returning to their hygienist for a second visit following an initial exam as a new patient with identical histories that included medical history, radiographs showing moderate periodontitis and intraoral photograph of a suspicious lesion on the lateral border of the tongue. The patient had a history of smoking 1.5 packs/day for 11 years and reported shortness of breath. The SPs were trained to portray a patient in the “Contemplation” Stage of Change in which they were ready to make plans to begin a cessation attempt. The SPs were provided with a list of learning objectives for the exercise. A mock session was conducted by the study investigators prior to initiation of the study to identify any possible concerns or flaws of the SP training session design.

An orientation to the SP training session was given to all subjects immediately prior to the SP encounter. Subjects were randomly assigned to one of 4 SPs by the SP Center staff. The training session was limited to 15 minutes. Following the session, the SPs provided written feedback on student performance of session objectives.

### **Post Test**

Six days following the SP training session, the post-test was administered to all subjects to determine changes in self-reported confidence and knowledge of counseling and intervention skills between groups. One week later, a debriefing session was conducted with both groups to gather subjects' perceptions of their experience with lecture and SP



training components of the study. They provided both verbal and anonymous written comments regarding their experience.

## RESULTS

Each VAS was scored by 2 calibrated examiners using a 10mm ruler. ANCOVA was used to compare the average post-scores of the two groups after adjusting for effect of the baseline scores. Knowledge score were calculated as percent correct of 15 multiple choice questions.

Post test scores showed a statistically significant difference between the test and control groups in overall confidence scores (Table 2). Confidence scores of the test group showed an overall mean change of 34.57/SD 22.93 (out of 100 points) with a S/D of 22.93 while the control group showed an overall mean change of 14.19 (out of 100 points) with a S/D of 14.51 ( $p=.02$ )

The test group showed increase Confidence in all three domains (Table 3), with the greatest increase in the Confidence to Initiate Dialogue with their patients regarding tobacco use, with a mean score of 2.24/1.29SD compared to .83/1.20SD.

There was no statistically significant difference in post-test Knowledge scores between the test and control groups (Table 4). The test group showed an overall mean change of 12.92 and S/D of 1.72 (range of 0 –16) and the control group showed a mean change of 11.50 with a S/D of 2.03 (range of 0 –16) ( $p=.08$ ).

### Debriefing

Debriefing did not include a formal qualitative assessment. Informal results included:

1. Study subjects concluded that they were more comfortable providing TCC to Standardized Patients than they anticipated.
2. All would participate in this study if they had the opportunity to do it again.
3. SP training would be a more authentic in a dental operator

4. They would have benefitted from the opportunity for self-assessment and would have opted to be videotaped for self-assessment purposes if they had been more confident.
5. The Control group was disappointed at not being able to participate in the SP training
6. TCC didactic information received during their dental hygiene education adequately included a thorough background in oral pathology and the ways tobacco affects the periodontium and overall health of the user. Suggest improvements to their included more information and guidance regarding patient counseling and intervention, patient education literature to dispense to clinic patients, and increased experience in hands-on TCC with clinic patients including ways to approach the patient regarding tobacco use and how to advise them to quit.

## **DISCUSSION**

Dental hygienists are more likely to provide TCC when they felt prepared and confident in their TCC skills.<sup>8</sup> Standardized Patients have been reported to be helpful in increasing the student confidence during training in TCC. In this study, students who participated in a TCC lecture followed by a Standardized Patient training session with a 'smoking' patient in the Contemplation Stage of Change experienced a statistically significant increase in overall self-reported confidence in their ability to deliver TCC when compared to their classmates who had the lecture alone. These findings are consistent with earlier studies that report an increase in self-reported confidence following the delivery of TCC in lecture format and Standardized Patient training of a combined group of medical residents, dental students, nursing students and dental hygienists. However, data specific to the dental hygiene students was not reported.<sup>18</sup>

### **Knowledge**

In the Standardized Patient study by Walsh and colleagues, a statistically significant increase in subjective knowledge in TCC was reported.<sup>18</sup> The authors theorized that as knowledge increases, confidence increases. However, in the present study, a significant increase in overall knowledge was not found as would have been predicted based on the experiential learning theories of Kolb.<sup>20</sup> In Kolb's four-stage learning cycle, experience is translated through reflection into concepts, which in turn are used as guides for active experimentation and the choice of new experiences. In concrete experience, the learner actively experiences an activity such as a lab session; in reflective observation, the learner consciously reflects back on that experience; in abstract conceptualization, the learner

attempts to conceptualize a theory or model of what is observed and in active experimentation the learner plans how to test a model or theory or plan for a forthcoming experience. Perhaps the brief duration of our study did not allow for adequate development of these stages in our subjects.

Alternately, according to Roger's theory of experiential learning,<sup>21</sup> learning is facilitated when: (1) the student participates completely in the learning process and has control over its nature and direction, (2) it is primarily based upon direct confrontation with practical, social, personal or research problems, and (3) self-evaluation is the principal method of assessing progress or success.<sup>20</sup> Perhaps our subjects' knowledge scores would have been enhanced by the opportunity for self-evaluation.

SP training did not produce a statistically significant difference on our subjects' TCC Knowledge. One possible explanation for the small but less than significant change in the Knowledge scores of the control group was information bias, that there was additional didactic focus given to their instruction on TCC.

In our Knowledge assessment, all subjects were aware of 1-800 quit line numbers (100%) and 97% know how to refer patients for further counseling. TCC instruction in the schools of dental hygiene often includes ADHA's Ask, Advise, Refer counseling strategies, and generally incorporate Stages of Change behavior modification techniques.<sup>22</sup> On the knowledge portion of the pre and post-tests of our study, the subjects were not specifically asked to define or list the 5 A's or the Ask, Advise, Refer protocol, but they given scenarios in which knowledge of these actions steps were.

In the Standardized Patient study by Walsh and colleagues, subjects revealed a statistically significant increase in subjective knowledge in TCC regarding specific practice guidelines that were being monitored in the study.<sup>18</sup> It is theorized that as knowledge increases, confidence increases. However, we did not find a significant increase in overall knowledge in subjects who reported an increase in confidence as would have been

predicted based on the experiential learning theories of Kolb.<sup>20</sup> In Kolb's four-stage learning cycle, experience is translated through reflection into concepts, which in turn are used as guides for active experimentation and the choice of new experiences. In concrete experience the learner actively experiences an activity such as a lab session; in reflective observation, the learner consciously reflects back on that experience; in abstract conceptualization, the learner attempts to conceptualize a theory or model of what is observed and in active experimentation the learner plan how to test a model or theory or plan for a forthcoming experience. Perhaps the brief duration of our study did not allow for adequate development of these stages in our subjects.

### **Confidence**

While the Ask, Advise, Refer is a very good method of brief intervention, faculty and students continue to cite lack of training and confidence as barriers to providing TCC.<sup>8</sup> Ramseier and colleagues reported that dental hygiene educators lack of integration between the didactic content and the clinical practice, combined with a failure to provide supportive intervention skills and lack of faculty expertise in teaching TCC as reported barriers to providing tobacco interventions. We therefore, hypothesized that confidence in TCC could be improved by integrating didactic content and clinical practice by offering a method of integrating the didactic information and clinical application for the DH student. This study supported the hypothesis that those subjects that received SP training reported an increase in self perceived confidence when dealing with patients in a clinical setting as compared to those subjects that did not have the SP experience.

### **Student Feedback on SP Training**

This study is the first to report on dental hygiene student feedback on SP training. SP training gives the students the opportunity to learn in safe, non-threatening environments.<sup>23</sup> During the debriefing, the majority of our subjects reported feeling anxious when meeting the SP but were soon comfortable, and felt the overall encounter was much

more comfortable than TCC with 'real' patient that they might encounter in the 'clinic'. They also reported that they would have appreciated the opportunity for self-assessment.

### **Study Limitations**

Small sample size is one limitation to this study. Other biases inherent in a study of this type included attention bias that occurs because people who are part of a study are aware of their involvement, and may, as a result give more favorable responses or perform better than people who are unaware of the study's intent. Contamination bias occurs when members of the 'control' group inadvertently receive the treatment or are exposed to the intervention, thus potentially minimizing the difference in outcomes between the two groups. We attempted to control this bias by minimizing the time between the pretest and posttest. We also controlled contamination during the SP training session by requiring subjects to leave the facility without contacting subjects who had not completed the training. Withdrawal bias occurs when subjects who leave the study (drop-outs) differ significantly from those that remain. Our study had 4 drop-outs in the test group for reasons that included schedule conflict and personal health. Proficiency bias occurs when the interventions or treatments are not applied equally to subjects due to skill or training differences among personnel. We attempted to reduce this bias by conducting a mock training session to calibrate the SPs to help assure they each were proficient in portraying the dental patient scenario.

## **CONCLUSIONS**

This study showed that dental hygiene students' confidence in providing TCC increases with SP training. However, it is unknown if this confidence will translate into increased confidence in practice or leading to an increase in TCC among practicing DHs. Future studies of SP training for TCC that include long-term following graduates are also needed to determine if the increased self-confidence gained while in school will translate into an increase in TCC interventions in practice. We plan to survey our subjects at graduation and again in one year to determine if the confidence gained in this study is maintained or extinguished and to determine factors that lead to loss of confidence.

Cost may impact the feasibility of implementing a Standardized Patient program into a curriculum. The cost for implementing this study was approximately \$2000. Although initial costs are high due to training of the SPs, the benefits of keeping the course in the curriculum would have to be weighed against the costs of the additional fees.

The results of this study may help dental hygiene educators who continually search for innovative ways to enhance student learning with the overall objective of graduating competent and confident practitioners. We anticipate the SP training will help improve confidence in providing TCC that may translate into higher levels of TCC in private practice.



**TABLES**  
**Table 1**

<b>Pretest Knowledge</b>		
	Mean	SD
Control Group	10.00	0.85
Test Group	10.19	1.42
	P=0.08	

There was no statistically significant difference in the baseline Knowledge Scores between the Test and Control Groups <sup>2</sup>

Table 2

## Change in Self-Reported Confidence

	Pre-Test Scores*		Post-Test Scores*		Difference between Pre-Test and Post Test Scores	
Control Group (A)	Mean 5.9	S/D 2.09	Mean 7.0	S/D 2.14	Mean 1.1	S/D 0.94
Test Group (B)	Mean 6.1	S/D 1.38	Mean 8.3	S/D 1.17	Mean 2.2	S/D 0.68

\*The average post test score showed a statistically significant difference between the two groups ( $p = .02$ ) using an ANCOVA with group and pretest score as explanatory variables.

\*Each item was measured on a visual analog scale from 0 – 10 with 0 representing no confidence and 10 representing very confident. Confidence Score = sum of 15 item score / number of items.

Table 3

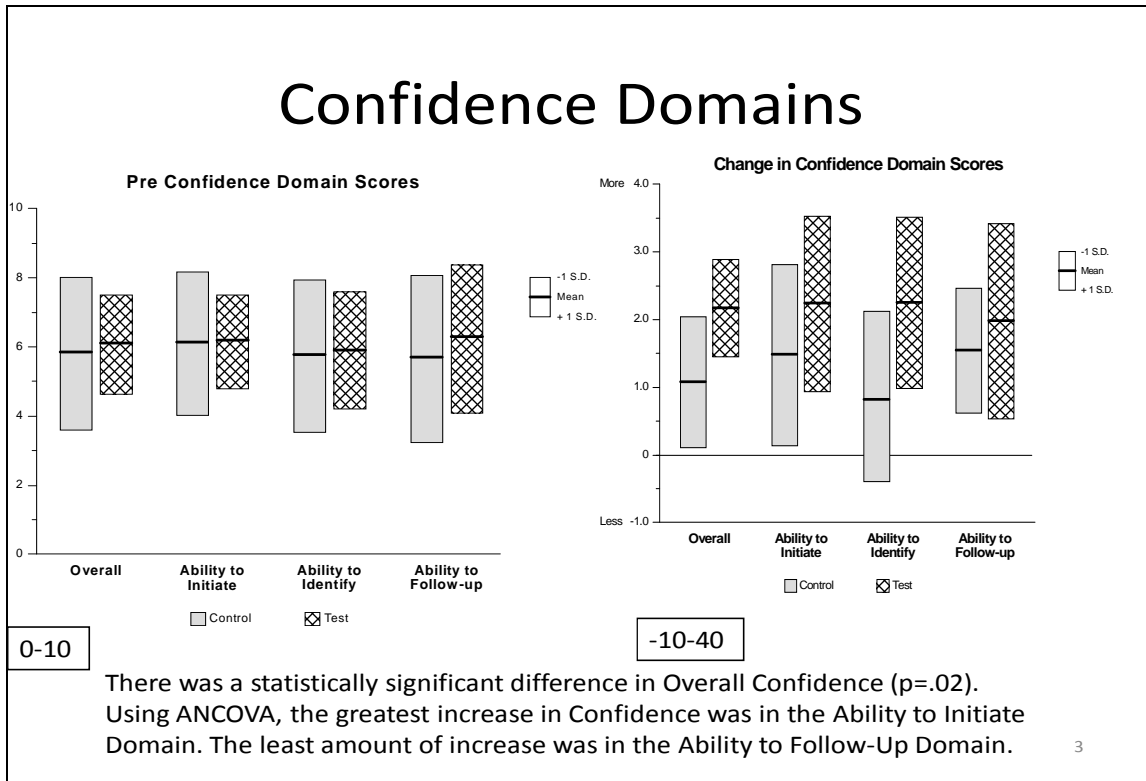


Table 4

## TCC Knowledge Assessment

	Pre-Test Scores*	Post-Test Scores*	Difference between Pre-Test and Post Test-Scores
Control Group (A)	Mean (SD) 67.9 6.87	Mean (SD) 72.8 10.86	Mean (SD) 4.9 12.05
Test Group	Mean (SD) 72.1 9.99	Mean (SD) 78.4 9.06	Mean (SD) 6.4 11.70

The average post test score showed no statistically significant difference between the two groups ( $p = .08$ ) using ANCOVA with group and pretest score as explanatory variables. Scores are percent correct on multiple choice questions of TCC Knowledge.

### Appendix 1

Pretest

**The Effects of Standardized Patient Training on Dental Hygiene Students  
Confidence in Delivering Tobacco Cessation Counseling**

DO NOT WRITE YOUR NAME

Study ID Number \_\_\_\_\_

Directions:

You will be asked a series of questions about your confidence in providing smoking cessation counseling.

Place an X along the line that corresponds to your confidence TODAY. Use the entire scale. Use these 2 examples as a guide:

**Example:**

How confident are you in your ability to floss your teeth?

  X   \_\_\_\_\_  
Highly Confident Not confident at all

How confident are you in your ability to swim the English Channel alone?

\_\_\_\_\_ Not confident at all  
Highly Confident

**PART 1**

How confident do you feel in your ability do the following?

1. Ask your patient at every visit if he/she is a smoker.

\_\_\_\_\_ Not confident at all  
Highly Confident

2. Ask your patient who currently smokes if they want to quit smoking.

\_\_\_\_\_ Not confident at all  
Highly Confident

3. Educate your patients about the adverse effects that smoking can have on their periodontal health.

\_\_\_\_\_ Not confident at all  
Highly Confident

Place an X along the line that corresponds to your confidence TODAY.

4. Help your patient assess whether or not they are physically addicted to nicotine.

---

Highly  
Confident

Not confident  
at all

5. Answer patients' questions about dental and general health-related problems associated with smoking.

---

Highly  
Confident

Not confident  
at all

6. Assess the Stage of Change of smoking your patient is in.

---

Highly  
Confident

Not confident  
at all

7. Personalize your quit message to coincide with a patient's Stage of Change of readiness to quit.

---

Highly  
Confident

Not confident  
at all

8. Offer assistance to your patient who acknowledges that they would like to stop smoking by providing them with appropriate counseling quit lines and websites.

---

Highly  
Confident

Not confident  
at all

9. Recognize and use the 'teachable moment' by linking oral findings such as leukoplakia and fibrotic gingival tissues with cessation advice.

---

Highly  
Confident

Not confident  
at all

10. Help your patient to develop a complete quit plan with a start date, necessary pharmacotherapy aids and support counseling.

---

Highly  
Confident

Not confident  
at all

Place an X along the line that corresponds to your confidence TODAY..

11. Resist badgering patients in the Pre-Contemplation Stage of change.

---

Highly Confident	Not confident at all
---------------------	-------------------------

12. Remind your patient who is in the Contemplation Stage of smoking cessation of the positive aspects that accompany smoking cessation that they should expect when he/she stops smoking.

---

Highly Confident	Not confident at all
---------------------	-------------------------

13. Follow up with your patient in the 'Action' Stage of Change with a 1 week phone call.

---

Highly Confident	Not confident at all
---------------------	-------------------------

14. Reinforce the benefits of being a non-smoker to your patient who is in the Maintenance Stage of Change of smoking cessation.

---

Highly Confident	Not confident at all
---------------------	-------------------------

15. Implement a smoking cessation program once you enter private practice.

---

Highly Confident	Not confident at all
---------------------	-------------------------

Proceed to the next page.

## Part II.

Please read each of the following four scenarios. Then circle  one response for each question.

### **Scenario 1:**

Your 38 year-old patient, David, presents with advanced localized periodontal disease and heavy tobacco stain. You ask him about his smoking history. He gets agitated and says "I like my cigarettes. Why does everyone want me to quit? I don't want to quit. My grandpa has smoked for 67 years and he is still alive."

1. What stage of change is David in?
  - a. Pre-contemplation
  - b. Contemplation
  - c. Maintenance
  
2. Which one of the following describes the appropriate response based on his Stage of Change?
  - a. Don't try to talk to the patient about stopping smoking.
  - b. Discuss smoker's feelings about the idea of quitting.
  - c. Help the smoker to decide on a plan of action.

David returns for his six month re-care visit and relates that his grandpa has been diagnosed with congestive heart failure. He is hospitalized and is not expected to return home. He is obviously very upset. David relates to you that maybe it is time to start thinking about quitting smoking, but now is not the time. He is under too much stress right now, but when things 'calm down' he wants to talk to you about it.

3. How can you best help him right now?
  - a. Listen to him and give him some information to read when he is ready, including the referral numbers and websites for additional information.
  - b. Say nothing, because you don't want to say the wrong thing.
  - c. Agree with him and tell him to keep on smoking until the stress goes away.

### **Scenario 2:**

Your 47 year-old patient Meredith is considering dental implants. Her periodontist has advised her that she has a much better chance for success if she is a non-smoker. She had tried to stop smoking this past January 1, but after two weeks, a family crisis caused her to start smoking again. Her dentist refuses to consider the surgery unless she has stopped smoking for at least 6 months prior to the surgery. She has decided that she wants to quit smoking and asks you for guidance.

4. What Stage of Change is Meredith in?
  - a. Preparation
  - b. Action
  - c. Contemplation
  
5. What would **not** be a part of the planning for Meredith?
  - a. Setting a quit date
  - b. Smoke as many cigarettes as you can to 'get them out of your system'.
  - c. Decide on a plan of action



**Scenario 3:**

Your 32 year-old patient Mark is a newlywed and has smoked for 10 years. His wife is a non-smoker and he is 'thinking about' stopping smoking 'for her'.

6. What Stage of Change is Mark in?
  - a. Pre-contemplation
  - b. Contemplation
  - c. Action
  
7. To help this patient be successful in his quit attempt, setting a quit date is vital to success. More patients are successful if this quit date is within:
  - a. 1 month of the decision to quit smoking
  - b. 2 weeks of the decision to quit smoking
  - c. The next 6 months (before the next dental hygiene visit)
  
8. Which of the following **would not** be a part of planning based on the Stage of Change Mark is in?
  - a. Assure him that advantages of quitting will be more significant than inconveniences.
  - b. Encourage the smoker to picture life as an ex smoker
  - c. Counsel about risks of smoking. This patient has already acknowledged the risks of smoking and has made the decision to stop smoking.
  
9. Mark has returned for his 6-month recare visit with you and has successfully maintained his non-smoking status. At this time you:
  - a. No longer have to worry about him smoking any more
  - b. Continue to reinforce his reasons for quitting
  - c. Don't mention smoking, because it may cause him to want to smoke
  
10. Mark is now in what Stage of Change of cessation?
  - a. Maintenance
  - b. Action
  - c. Termination
  
11. What is the Department of Health and Human Services Quitline for smoking cessation?
  - a. 1-800-tobacco
  - b. 1-800-stopnow
  - c. 1-800-quitnow
  
12. What method of smoking cessation has been shown to be the most successful?
  - a. Behavioral modification
  - b. Cold turkey
  - c. Pharmacotherapy and behavioral support

**Scenario 4:**

You are treating 35-year-old Beth in the clinic. She volunteers to you that she would like to stop smoking. She has tried to stop smoking several times and can't seem to do it alone. She is asking for help.

13. First, you may want to determine if Beth is physically addicted to the nicotine. Which one of the following questions will help determine this?

- a. How many cigarettes a day do you smoke?
- b. How long after you awaken do you want to have a cigarette?
- c. Do you associate certain activities with smoking?

14. You have determined that Beth is physically addicted. In helping this patient to quit smoking, you decide nicotine replacement therapy would be helpful in making the quit attempt successful. What is the best source of information on this subject for you?

- a. The library
- b. The ADHA website
- c. Refer the patient to their physician

15. Now that you have given Beth the tools to plan a quit date and acquire nicotine replacement therapy, what Stage of Change is this patient moving into?

- a. Preparation
- b. Contemplation
- c. Action

16. The appointment is coming to an end. Beth now has a quit date and a plan. What is now your role in her smoking cessation attempt?

- a. You are done- the rest is up to her.
- b. You will continue to follow up with her at each visit.
- c. The counselors at the 1-800 number will provide follow-up for her.

**Almost Finished!**  
**Please proceed to the last page.**

**The Effects of Standardized Patient Training on Dental Hygiene Students' Confidence in Delivering Tobacco Cessation Counseling**

**Please answer the following questions about yourself.**

1. Your age:

**Place an X inside the box.**

2. Your Gender:

Female

Male

3. Your highest level of education

High School

Associate's degree

Bachelor's degree

4. What is your smoking history?

I have never smoked.

I smoked briefly in the past (for less than 6 months).  
I quit \_\_\_\_ years ago.

I smoked for many years but I quit.  
I quit \_\_\_\_ years ago.

I am a current smoker.  
I have smoked for \_\_\_\_ years.  
I smoke \_\_\_\_\_ cigarettes a day.

5. Have you ever participated in a Standardized Patient Training program before this one?

Yes. If Yes, state type of program \_\_\_\_\_

No

**Thank you very much for your participation!**

Appendix 2  
Post-Test

**. The Effects of Standardized Patient Training on Dental Hygiene Students  
Confidence in Delivering Tobacco Cessation Counseling  
Follow up Assessment**

DO NOT WRITE YOUR NAME  
Study ID Number \_\_\_\_\_

Directions:

You will be asked a series of questions about your confidence in providing smoking cessation counseling.

Place an X along the line that corresponds to your confidence TODAY. Use the entire scale. Use these 2 examples as a guide:

**Example:**

*How confident are you in your ability to floss your teeth?*

**X**

---

Highly Confident \_\_\_\_\_ Not confident at all

*How confident are you in your ability to swim the English Channel alone?*

\_\_\_\_\_ **X**

---

Highly Confident \_\_\_\_\_ Not confident at all

**PART 1**

How confident do you feel in your ability do the following?

1. Ask your patient if he/she is a smoker.

Highly Confident \_\_\_\_\_ Not confident at all

2. Ask a patient who tells you they are now a smoker if they want to quit smoking.

Highly Confident \_\_\_\_\_ Not confident at all

3. Teach your patients about the negative effects that smoking can have on their periodontal health.

---

Highly Confident Not confident at all

*Place an X along the line that corresponds to your confidence TODAY.*

4. Help your patient determine if they are physically addicted to nicotine.

---

Highly Confident Not confident at all

5. Respond to patients' questions about general health-related problems associated with smoking in addition to oral health problems related to smoking.

---

Highly Confident Not confident at all

6. Figure out what Stage of Change of your patient who smokes is in.

---

Highly Confident Not confident at all

7. Tailor your quit message to go along with a patient's Stage of Change of readiness to quit.

---

Highly Confident Not confident at all

8. Provide your patient with the appropriate counseling quit lines and websites when they tell you they are ready to stop smoking.

---

Highly Confident Not confident at all

9. Incorporate oral findings such as leukoplakia and fibrotic gingival tissues and use them as a link to cessation advice.

---

Highly Confident Not confident at all

10. Assist your patient to develop a comprehensive quit plan that includes a quit date, appropriate pharmacotherapy aids and supportive counseling.

---

---

Highly  
Confident

Not confident  
at all

*Place an X along the line that corresponds to your confidence TODAY..*

11. Resist pestering patients in the Pre-Contemplation Stage of change to get them to quit.

---

Highly  
Confident

Not confident  
at all

12. Remind your patient who is in the Contemplation Stage of smoking cessation of the positive changes that they may anticipate to experience when he/she stops smoking.

---

Highly  
Confident

Not confident  
at all

13. Once your patient enters the 'Action' Stage of Change, follow-up with a phone call after one week.

---

Highly  
Confident

Not confident  
at all

14. Reinforce the advantages of being an ex-smoker to your patient who is in the Maintenance Stage of Change of smoking cessation.

---

Highly  
Confident

Not confident  
at all

15. Once you start working after graduation, participate in a smoking cessation program in your office.

---

Highly  
Confident

Not confident  
at all

Proceed to the next page.

## Part II.

Please read each of the following four scenarios. Then circle  one response for each question.

## Part II.

Please read each of the following four scenarios. Then circle  one response for each question.

### **Scenario 1:**

Your 44 year-old patient, Margie, presents with increasing probing depths and heavy tobacco stain. You ask her about her smoking history. She gets agitated and says "I only smoke socially! I don't see what smoking has to do with my teeth. My mother has smoked all of her life, and she never had any problems with her teeth!

1. What stage of change is Margie in?
  - a. Pre-contemplation
  - b. Contemplation
  - c. Maintenance
2. Which one of the following describes the appropriate response based on his Stage of Change?
  - a. Don't try to talk to the patient about stopping smoking.
  - b. Discuss smoker's feelings about the idea of quitting.
  - c. Help the smoker to decide on a plan of action.

Margie returns for his six month re-care visit and relates that her mother has been diagnosed with COPD and this has made her think about stopping smoking, but now is not the time. She is under too much stress right now, but when things 'calm down' she wants to talk to you about it.

3. How can you best help him right now?
  - a. Listen to her and give her some information to read when she is ready, including the referral numbers and websites for additional information.
  - b. Say nothing, because you don't want to say the wrong thing.
  - c. Agree with her and tell her to keep on smoking until the stress goes away.

### **Scenario 2:**

Your 50 year-old patient Bryan presents for his new patient visit. Bryan relates that he has a history of a pack a day smoker for 17 years. He tells you that everyone has always told him that he should quit smoking and every time he leaves the dentist office, he thinks he is really going to quit. During his I/O E/O exam, you notice a 5x5x.05mm dark purple area with irregular borders. The lesion is on the posterior ventral surface of the tongue, adjacent to # 18. The margin is irregular and there is no history of trauma to the area. Bryan says this is the first time he has ever been told about it. He is visibly shaken.

Your doctor advises a referral to the oral surgeon for a biopsy of the area, and of course, advises Bryan that he should stop smoking. Today, after hearing the news of this lesion, he decides he is really ready to stop smoking.

4. What Stage of Change is Meredith in?
  - a. Preparation

- b. Action
  - c. Contemplation
5. What would **not** be a part of the planning for Bryan?
- a. Setting a quit date
  - b. Smoke as many cigarettes as you can to 'get them out of your system'.
  - c. Decide on a plan of action

**Scenario 3:**

Your 28 year-old patient Sally thinks she has met the 'love of her life'. Sally has smoked for 10 years and the new man in her life is a non-smoker. Sally is 'thinking about' stopping smoking 'for her'.

6. What Stage of Change is Sally in?
- a. Pre-contemplation
  - b. Contemplation
  - c. Action
7. To help this patient be successful in his quit attempt, setting a quit date is vital to success. More patients are successful if this quit date is within:
- a. 1 month of the decision to quit smoking
  - b. 2 weeks of the decision to quit smoking
  - c. The next 6 months (before the next dental hygiene visit)
8. Which of the following **would not** be a part of planning based on the Stage of Change Sally is in?
- a. Assure him that advantages of quitting will be more significant than inconveniences.
  - b. Encourage the smoker to picture life as an ex smoker
  - c. Counsel about risks of smoking. This patient has already acknowledged the risks of smoking and has made the decision to stop smoking.
9. Sally has returned for his 6-month recare visit with you and has successfully maintained his non-smoking status. At this time you:
- a. No longer have to worry about him smoking any more
  - b. Continue to reinforce his reasons for quitting
  - c. Don't mention smoking, because it may cause him to want to smoke
10. Sally is now in what Stage of Change of cessation?
- a. Maintenance
  - b. Action
  - c. Termination
11. What is the Department of Health and Human Services Quitline for smoking cessation?
- a. 1-800-tobacco
  - b. 1-800-stopnow
  - c. 1-800-quitnow
12. What method of smoking cessation has been shown to be the most successful?



- a. Behavioral modification
- b. Cold turkey
- c. Pharmacotherapy and behavioral support

**Scenario 4:**

You are treating 35-year-old Carlos in the clinic. During the appointment, he tells you that he is a smoker and would like to stop smoking. He has tried to stop smoking several times and can't seem to do it alone. He is asking for help.

13. First, you may want to determine if Carlos is physically addicted to the nicotine. Which one of the following questions will help determine this?

- a. How many cigarettes a day do you smoke?
- b. How long after you awaken do you want to have a cigarette?
- c. Do you associate certain activities with smoking?

14. Together, you have determined that Carlos is physically addicted. In helping this patient to quit smoking, you decide nicotine replacement therapy would be helpful in making the quit attempt successful. Where would the best source of information on this subject be for you as a Dental Hygienist?

- a. The library
- b. The ADHA website
- c. Refer the patient to their physician

15. Now that you have provided Carlos with the proper referral numbers and helped him to set a quit date and acquire the necessary nicotine replacement therapy, what Stage of Change is he patient moving into?

- a. Preparation
- b. Contemplation
- c. Action

16. The appointment is coming to an end. You and Carlos have worked together to set a quit date and a plan. What is now your role in her smoking cessation attempt?

- a. You are done- the rest is up to her.
- b. You will continue to follow up with her at each visit.
- c. The counselors at the 1-800 number will provide follow-up for her.

Appendix 3  
Standardized Patient Scripting

This patient is 38 y/o and has advanced localized periodontal disease (maxillary molars) and heavy tobacco stain. There is a 3 mm white lesion with red borders on the posterior left lateral border of the tongue.

This patient has smoked cigarettes for 11 years, and smokes 1-1.5 packs a day. He has a slight cough but not very noticeable, and is noticing that he is growing shorter of breath lately.

This patient's mother had ½ of her tongue removed as a result of oral cancer. When you first meet this patient, he may not be ready to hear your quit message.

Questions for the student hygienist to ask this patient. (the SP)

1. Do you currently smoke cigarettes?
2. How long have you been smoking?
3. How much do you smoke a day?
4. Do you want to quit smoking?
5. Have you ever tried to stop smoking before?
6. Do you understand how much improvement you may see on your periodontal disease if you stop smoking cigarettes?
7. How long have you been coughing? Short of breath?
8. Did your mother smoke cigarettes?
9. Do you know what age she was when she lost part of her tongue to cancer?
10. Have you noticed or been told about the lesion on your tongue before?
11. Let's look at the picture together. We are concerned about this today.
12. Do you think you are addicted to nicotine, or do you think smoking is more of a difficult behavioral habit for you?
13. Did you know that there are nicotine replacement options available over the counter if you are addicted to nicotine that will help you in your efforts to stop smoking?
14. Can I give you some information on support with a 1800 number and a website for additional follow-up and support?
15. Do you have any more questions for me today?

Appendix 4  
IRB Approval

A paper copy of the approval memo and any relevant documents are being mailed today.

To: Judy Martin

7450

From: Biomedical IRB

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Authorized signature on behalf of IRB

Approval Date: 8/22/2008  
Expiration Date of Approval: 8/18/2009

RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)  
Submission Type: Modification  
Expedited Category: Minor Change to Previously Reviewed Research  
Study #: 08-1195

Study Title: The Effects of Standardized Patient Experience on Dental Hygiene Students  
Confidence in Delivering Tobacco Cessation Counseling

This submission has been approved by the above IRB for the period indicated. It has been determined that the risk involved in this modification is no more than minimal. Unless otherwise noted, regulatory and other findings made previously for this study continue to be applicable.

Submission Description:

This amendment dated 8/19/08 changes study personnel, makes revisions to subject questionnaires and to subject training guide. A minor incentive for participation has been added (food coupon).

Investigator's Responsibilities:

When applicable, enclosed are stamped copies of approved consent documents and other recruitment materials. You must copy the stamped consent forms for use with subjects unless you have approval to do otherwise.

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

CC: Alice Curran, Diagnostic Sci  
Tabita Tavoc, Dental Ecology Dept

IRB Informational Message—please do not use email REPLY to this address

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