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# Smoking and Tobacco Cessation Education

Leslie D. Bolin  
*Gardner-Webb University*

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SMOKING AND TOBACCO CESSATION EDUCATION

by

Leslie D. Bolin

A thesis submitted to the faculty of  
Gardner-Webb University School of Nursing  
in partial fulfillment of the requirements for the  
Degree of Master of Science in Nursing.

Boiling Springs

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Submitted by:

\_\_\_\_\_  
Leslie D. Bolin, RN, BSN

\_\_\_\_\_  
Date

Approved by:

\_\_\_\_\_  
Dr. Rebecca Beck-Little, RN, PhD

\_\_\_\_\_  
Date

## Abstract

The purpose of this study was to evaluate the impact of a brief computer-based learning module on nurses' self-efficacy regarding tobacco cessation counseling. Twelve registered nurses practicing in an acute care hospital system participated in the one-group pretest-posttest study. At registration, participants completed a demographical tool and the Modified "5 A's" Training Program Survey. The Modified "5 A's" Training Program Survey was completed again immediately after the training program. Descriptive statistics were used to analyze the demographic data. Statistical analysis did not reveal significant changes in the dependent variables for self-efficacy for smoking cessation counseling. Results of this study support further research and the identification of effective smoking cessation education training programs for nurses.

*Keywords:* cessation, computer-based learning, practice, role playing, Rx for Change, self-efficacy, smoking, Synergy model, tobacco



## Table of Contents

Abstract	
List of Appendices	
List of Tables	
Chapter I: Introduction.....	1
Problem and Prevalence .....	1
Purpose .....	2
Conceptual Framework .....	2
Significance to Nursing.....	5
Hypothesis .....	6
Chapter II: Literature Review .....	7
Training and Smoking Cessation Education .....	7
Synergy Model for Patient Care .....	10
Self-Efficacy.....	11
Conclusion.....	12
Chapter III: Method .....	14
Setting.....	14
Subjects .....	14
Instrument.....	15
Procedures .....	16
Intervention .....	16
Data Collection.....	17
Dissemination of Results.....	17
Ethical Considerations.....	18
Chapter IV: Statistical Presentation .....	19
Sample characteristics .....	19
Impact of Intervention on Nurse Self-Efficacy .....	20
Chapter V: Discussion .....	24
Interpretation of Findings.....	24
Limitations.....	26
Implications for Nursing .....	26
Implications for Future Research .....	27
Conclusion.....	27
References	
Appendices	

## **List of Appendices**

- Appendix A: Approval from CaroMont Health Institutional Review Board
- Appendix B: Approval from Gardner-Webb University Institutional Review Board
- Appendix C: Informed Consent Form
- Appendix D: Modified “5 A’s” Training Program Survey
- Appendix E: Permission to Use the Clinical Practice Guideline
- Appendix F: Permission to Use the Modified “5 A’s” Training Program Survey
- Appendix G: Permission to Use the Starting the Conversation Tool
- Appendix H: Pre-training Survey Demographical Information
- Appendix I: Promotional Flyer

### **List of Tables**

- Table 1. Synergy Patient Characteristics and Associated Definitions
- Table 2. Synergy Nurse Characteristics and Associated Definitions
- Table 3. Descriptive Statistics of Demographic Variables
- Table 4. Means and Standard Deviations for Variables Related to Self-Efficacy in Conducting Smoking Cessation Interventions
- Table 5. Wilcoxon Signed Rank Test Results

## **Chapter I: Introduction**

In 1982, the former Surgeon General C. Everett Koop stated, “Cigarette smoking is the chief, single, avoidable cause of death in our society and the most important public health issue of our time (United States Department of Health and Human Services [DHHS], 1982, p. xi).” More than two decades later this statement remains true and the list of diseases caused by smoking has been expanded (DHHS, 2004). Nurses can have an important public health impact by helping to counter tobacco use. Educational programs are needed to improve nurses’ skills and effectiveness in counseling patients about smoking cessation.

### **Problem and Prevalence**

Although the prevalence of tobacco use among adults in the United States is less than half the rate observed in the 1960s, tobacco use remains an enormous health threat and precursor for cardiovascular disease (DHHS, 2008). The Centers for Disease Control and Prevention (2010) reported a national smoking rate for adults in 2010 of 17.3%. In 2004, the DHHS reported that tobacco use causes more deaths each year than human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders combined.

Tobacco use is the chief avoidable cause of illness and death in our society and accounts for more than 435,000 deaths each year in the United States (DHHS, 2008). Tobacco use presents a rare combination of circumstances: a highly significant health threat, the presence of effective interventions, and a lack of consistent intervention by clinicians (DHHS, 2008). The practice guideline concludes that the most effective way to encourage clinicians to provide tobacco dependence interventions is to provide them with



information regarding multiple effective treatment options and institutional support to use those options (DHHS, 2008).

### **Purpose**

The purpose of this study was to evaluate the impact of a brief computer-based learning module on nurses' self-efficacy regarding tobacco cessation counseling.

### **Conceptual Framework**

**Synergy Model for Patient Care.** The American Association of Critical Care Nurses (AACN) Synergy Model for Patient Care provides a helpful framework for the multifaceted role of the nurse in taking care of tobacco dependent patients. According to Kaplow (2003), the AACN Model for Patient Care links practice and outcomes. Synergy occurs and optimal outcomes are produced when the competencies of the nurse complement the needs of the patient (Becker, Kaplow, Muenzen, & Hartigan, 2006). The synergy resulting from the alignment of the characteristics of the patient who is willing to attempt to quit tobacco and the competencies of the nurse with the training and expertise to offer clinically effective and cost-effective tobacco dependence treatments can increase the rates of long-term abstinence and optimize outcomes for the patient, the nurse, and the health care system.

Acute care nurses should promote healthy behaviors and be knowledgeable of the preventable complications associated with tobacco use. This study will evaluate the effect of a brief computer-based learning (CBL) module to assist nurses in developing self-efficacy in counseling patients in tobacco cessation measures. Table 1 illustrates the relationship of the patient related concepts of the Synergy Model to the study of tobacco cessation counseling. Table 2 illustrates the relationship of the nurse related concepts of

the Synergy Model to the study of the effect of CBL training on registered nurses' self-efficacy related to tobacco cessation counseling. Curley (1998) listed conceptual definitions for these characteristics. Facilitator of Learning is listed as a key nurse competency in the Synergy Model. Terms and interventions associated with multi-component smoking cessation therapy can be directly correlated with these characteristics. Self-efficacy will be measured by scores on the Modified "5 A's" Training Program Survey. This 7-item instrument was developed by Stacy and Sharma (2002) to evaluate the degree of self-efficacy for smoking cessation counseling by nurses.

Table 1

*Synergy Patient Characteristics and Associated Definitions*

Synergy Patient Characteristic	Conceptual definition	Theoretical definition	Empirical definition
Predictability	Summative patient characteristics implying a certain illness trajectory	Assess use of tobacco	Answers "yes" when asked, "Do you use any form of tobacco?"
Participation in decision-making	Patient and family engagement in decision-making	Assess willingness to attempt to quit using tobacco	Answers the question, "Are you willing to give quitting a try?"
Resource availability	Personal, psychological, social, technical, and fiscal resources brought to a care situation	Arrange follow-up	Has ability to buy medications, a support person, and a phone for follow-up.

Table 2

*Synergy Nurse Characteristics and Associated Definitions*

Synergy Nurse Characteristic	Conceptual definition	Theoretical definition	Empirical definition
Caring practices	Creates a compassionate and therapeutic environment	Assistance in the attempt to quit	Helps with a quit plan. Instructs to set a quit date, remove tobacco from environment, and tell people about efforts. Anticipates and discusses challenges.
Facilitator of learning	Use of self to facilitate learning.	Intense advice to quit smoking	In a clear, strong and personalized manner, urges every tobacco user to quit.
Systems thinking	Knowledge and tools that allow the nurse to manage environmental and system resources	Arrange follow-up	Provides appropriate educational materials. FAX, phone or self-referral to 1-800-QUIT-NOW
Clinical inquiry	Engages in the ongoing process of questioning and evaluating practice	Seeks knowledge of evidence-based multi-component tobacco cessation treatment	Attends training related to tobacco cessation interventions.

**Self-efficacy.** Self-efficacy was first identified in Albert Bandura's Social Learning Theory in the late 1970's (Mowat & Laschinger, 1994). This theory is based on the idea that behaviors are determined through continuous, reciprocal interactions between cognitive, behavioral, and environmental factors. An important finding of research surrounding this learning theory for health care professionals is that self-efficacy promotes learning and productive human function (McEwen & Wills, 2011). Bandura maintains that regardless of the amount of knowledge that people have, their motivation and ultimate behavior is ultimately determined by how they judge their own capabilities

or their self-efficacy. Terms related to three defining attributes consistently appear when self-efficacy is defined.

1. Confidence- The person must believe that they can successfully perform the behavior to achieve the expected outcome. Given a stressful situation, it is a person's perception of confidence in their ability to complete a specific task or behavior successfully that links the individual's knowledge of how to cope with the situation with his/her actual attempt to do so (Mowat & Laschinger, 1994).
2. Strength- Effort and energy is directed towards the demands of the situation. This strength varies with the individual's level of confidence in their ability to succeed. Those individuals with a lower level of confidence will tend to dwell on perceptions of inadequacy and view the demands of the situation as overwhelming (Mowat & Laschinger, 1994).
3. Productiveness- The person must believe that the behavior will lead to a given outcome. Confidence is more likely to be enhanced if outcome expectations are positive (Mowat & Laschinger, 1994).

### **Significance to Nursing**

The Joint Commission reports the development of a set of performance measures to address the assessment and treatment of tobacco dependence for all hospitalized patients with release planned for 2012 (2011). Tobacco cessation interventions allow the nurse opportunities to decrease the loss of life and health caused by tobacco use. An effective approach to engage nurses in a smoking cessation intervention is to provide them with information on the effective treatment options and institutional support available (DHHS, 2008, p. ix). The Clinical Guideline developed by the United States

Department of Health and Human Services Public Health Service identifies the need for future research regarding the effectiveness of training programs for nursing and the elements of successful training programs (DHHS, 2008, p. 134). There is a need to evaluate programs for effectiveness in tobacco cessation within the hospital setting.

### **Hypothesis**

This study was designed to evaluate the impact of computer-based smoking cessation education on nurses' self-efficacy. Data collection and analysis were necessary to test the following hypothesis: Smoking cessation training utilizing a computer-based learning module will increase registered nurses' self-efficacy in the provision of smoking cessation counseling. Effective educational programs for nurses are needed to promote self-efficacy towards the provision of smoking cessation counseling. As the assessment and treatment of tobacco dependence is incorporated into hospital performance measures, hospitals need to find efficient programs to promote evidence-based practice in this area.

## **Chapter II: Literature Review**

A review of current literature utilizing the Cumulative Index to Nursing and Allied Health Literature (CINAHL) database confirmed the importance of training in the promotion of smoking cessation interventions. Only a few studies were found that investigated training provided specifically for nursing staff. The Synergy Model for Patient Care and the concept of self-efficacy have been utilized in many studies surrounding smoking cessation interventions.

### **Training and Smoking Cessation Practice**

Evidence indicates that health care providers who receive training are more likely than those who do not to intervene with patients who use tobacco. Sinclair et al. (1998) evaluated a training workshop for community pharmacy personnel in Scotland to improve their counseling in smoking cessation based on the stage-of-change model. The study measured the perceptions of 492 customers and staff of 62 pharmacies of the support provided in the pharmacy and self-reported smoking cessation rates of customers at one, four, and nine months. The 133 pharmacy staff members who attended the two hour training and their 224 customers formed the intervention group. This group reported more smoking cessation discussions and these customers rated the discussions more highly as compared with the control group. The control group consisted of 159 pharmacy staff members who provided standard care to 263 recruited customers. The customers of the personnel who had attended the training also reported higher rates of continuous abstinence at all three intervals. A limitation of this study is that pharmacy personnel in both the control and the intervention groups were aware in advance that their performance would be evaluated. Another limitation is that city pharmacies were

excluded to separate the sample from a similar training initiative being implemented for physicians and nurses and few pharmacies from large chains participated. The findings indicated that community pharmacy staff has the potential to make a significant contribution to smoking cessation targets.

A cluster randomized, controlled trial by Cornuz et al. (2002) sought to assess the efficacy of an educational program based on behavioral theory, active learning, and practice in helping patients abstain from smoking and changing physicians' counseling practices. Thirty-five residents were randomly assigned to an intervention group which was trained in smoking cessation or a control group which was trained in the management of dyslipidemia. This research utilized interviews, questionnaires, and the measurement of exhaled carbon monoxide to calculate rates of abstinence from smoking at one year among 251 patients attended by both groups. Researchers found that the training program significantly increased the quality of physicians counseling, smokers' motivation to quit, and rates of abstinence from smoking at one year.

A multi-center study examined the knowledge, attitudes, and behaviors of 287 emergency physicians treating 1168 patients (Bernstein et al., 2009). This study used a pre-/post- design and found that the physicians were more likely to ask, arrange follow-up, and document smoking counseling after one hour training and the provision of Quitline cards. This study was not randomized and only measured the effects for two weeks after the intervention. Diversity of geography and training formats were involved, however, because it involved emergency medicine residencies at eight academic medical centers throughout the United States.

A cross-sectional survey study by Wetta-Hall et al. (2005) sought to identify predictors of tobacco use assessment and cessation intervention by office-based nurses. This study found that nurses were more likely to assess patient tobacco use, assess patient interest in tobacco cessation, and provide tobacco cessation counseling if they believed they had the skills, and had attended tobacco-related continuing education in the previous year. Surveys were completed by 415 office-based nurses employed in private physician practices in Kansas. Limitations of this study included the use of self-report surveys only and the possibility that the sampling of those nurses who were willing to return the mailed survey may have introduced selection bias. This was the only study identified that assessed the smoking cessation practices of office-based nurses. The researchers concluded that many nurses feel unprepared for the tobacco cessation counseling role and that the results clearly indicated a need for additional education programs.

A cross-sectional survey of 193 licensed advanced registered nurse practitioners in Kentucky conducted by Studts et al. (2010) aimed to describe knowledge, attitudes, and clinical practices regarding treatment of tobacco use and dependence and to explore associations between background characteristics, knowledge, and attitudes with clinical tobacco cessation practices. The surveys were completed by participants who had requested a self-study training program about tobacco cessation strategies using the “5 A’s” evidence-based practice treatment. The data was based on self-reports and collected from a nonrandom sample of participants participating in a training program in evidence-based tobacco cessation strategies. The results of this study indicated that although nurse practitioners have ample opportunities to counsel patients about tobacco cessation, more education and training is needed to achieve full implementation of the “5 A’s.”



The literature search revealed little research specific to the training of acute care nurses in evidence-based smoking cessation counseling. One study by Barta and Stacy (2005) found that a theory-based smoking cessation training session was somewhat effective in increasing self-efficacy among hospital nurses. This gap in knowledge is particularly significant because hospital visits have been identified as the "window of opportunity" with high quitting motivation for smokers (Barta & Stacy, 2005) and because epidemiological data suggest that more than 70 percent of the 45 million smokers in the United States report that they want to quit (DHHS, 2008). In addition, stronger recommendations for tobacco cessation measures by the Joint Commission for all hospital inpatients beginning in 2012 will create a growing need for effective training programs for acute care nurses.

### **Synergy Model and Smoking Cessation Education**

The Synergy Model for Patient Care has been utilized as the theoretical framework for literature regarding health promotion activities of nurses. Yellen (2007) applied the Synergy Model to the nurse's pivotal role in health promotion teaching including smoking cessation assistance for hospitalized patients undergoing percutaneous transluminal angioplasty. The researcher found the model useful in the development of a relationship between the patient and the nurse that promotes a lifestyle change. In outlining the characteristics of the patient undergoing peripheral percutaneous transluminal angioplasty and the nurse characteristics, Yellen demonstrates that the Synergy Model lends itself to the framing of a short, intense hospital stay inclusive of thorough, patient-centered teaching.

A case study by Graham-Garcia, George-Gay, Heater, Butts, and Heath (2006) illustrated the use of the Synergy Model as an ideal framework to optimize positive outcomes for tobacco-dependent patients requiring surgery. This study discusses the complexity of caring for today's tobacco-dependent patients and the requirement of complex and competent skills sets for the nurse to help promote optimal pulmonary, cardiovascular and wound healing outcomes. The study describes the application of each of the Synergy Model's nurse competencies in making a positive impact in the lives of tobacco-dependent patients and their families and optimizing positive outcomes.

### **Self-Efficacy**

Multiple studies have assessed the self-efficacy of health care providers in investigations surrounding smoking cessation treatment. Heath et al. (2007) identified higher perceived effectiveness in teaching tobacco cessation among nurse practitioner faculty after an educational program. In this study, thirty nursing faculty members completed baseline and twelve month follow-up surveys after participating in a train-the-trainer program. Perceived effectiveness in teaching tobacco cessation was assessed by using a twelve item scale. For each content area, perceived effectiveness scores were significantly higher at follow-up than at baseline. Follow-up surveys also revealed significant increases in the perceived value of using an evidence-based national guideline and the percentage of faculty members who devoted at least three hours to tobacco education.

Barta and Stacy (2005) found that a theory-based smoking cessation training session produced several statistically significant changes in the dependent variables for self-efficacy and behavior for smoking cessation counseling. This study used a repeated

measures design to determine the effectiveness of the training program. This study of 20 nurses who attended a smoking cessation training session experienced a 25 percent rate of non-completion of follow-up surveys and several of the participants had no opportunity to provide interventions related to the short duration of the study. The results indicated that nurses are not fully prepared for counseling and indicated a need for the development and support of continuing education that teaches hospital-based smoking programs.

A study performed by Bolman, de Vries, and Mesters (2002) showed a strong correlation between nurses' self-efficacy and intentions to continue using a smoking cessation protocol. This cross-sectional survey of 85 nurses from cardiology units in five hospitals sought to analyze the psychosocial differences between nurses who intend to continue using a newly introduced smoking cessation protocol and those who do not. The results indicated that the protocol's simplicity, perceived advantages, and stronger self-efficacy were associated with nurses' intentions to continue using the protocol. The researchers recognized several limitations for this study including its short duration, biased self-reports affected by job expectations, and possible selection bias.

## **Conclusion**

Meta-analyses by the DHHS (2008) support the finding that clinician training including the elements of didactic material presentation, group discussions, and role playing increases the delivery of effective tobacco use treatments. The "5 A's" approach to smoking cessation treatment which includes five steps, ask, advise, assess, assist, and arrange, has been utilized in extensive research (Aboyans, Thomas & Lacroix, 2010; Barta & Stacy, 2005; Heath et al., 2007; Studts et al., 2010) and is recommended by the

Clinical Practice Guideline (DHHS, 2008). Factors identified to promote clinician training of tobacco prevention activities include: inclusion in required curricula of all clinical disciplines, evaluation of tobacco treatment knowledge in licensing and certification exams for all clinical disciplines, and the adoption of a uniform standard of competence by medical specialty societies. The Clinical Practice Guideline states a need for research regarding the effectiveness of training programs for other health disciplines including nursing (DHHS, 2008). With new tobacco dependence care standards required by the Joint Commission, departments of nursing need to educate large numbers of nurses regarding effective tobacco cessation interventions rapidly.

No published studies have evaluated the efficacy of brief computer-based training completed by nurses during working hours on the nurses' self-efficacy of smoking cessation interventions. This form of education is frequently used by employers to educate nurses. This lack of research represents a gap in knowledge of the effectiveness of this form of training in increasing nurses' self-efficacy in providing smoking cessation interventions. This study evaluated the effectiveness of a very brief, computer-based learning module on nurses' self-efficacy in providing tobacco cessation and prevention care.

### **Chapter III: Method**

This one-group pretest-posttest investigation used survey results to determine the effect of a brief computer-based learning module intervention on nurses' self-efficacy regarding smoking cessation interventions. Twelve registered nurses employed in a healthcare system consisting of an acute care hospital and physician offices completed The Modified "5 A's" Training Program Survey both before and after receiving the computer-based training.

#### **Setting**

This study to determine the effect of a brief computer-based learning module intervention on nurses' self-efficacy regarding smoking cessation interventions was conducted at a 435-bed, not-for-profit general and acute care facility in the piedmont of North Carolina. The acute care facility employs 1050 nurses on predominantly twelve hour shifts with a medical-surgical nurse to patient ratio of one to six. The participants completed the registration, training and surveys on computers in their area of practice during work hours.

#### **Subjects**

The subjects in this study to determine the effect of a brief computer-based learning module intervention on nurses' self-efficacy regarding smoking cessation interventions were registered nurses employed in a general and acute care facility. The convenience sample consisted of volunteers who were recruited through posted fliers and through e-mail notices through the company intranet. The notices were issued as invitations through company e-mails to all registered nurses and were also posted in break rooms in clinical areas (Appendix I). The invitation appealed to nurses' need for

continuing education hours, interest in evidence-based practice, and desire to participate in nursing research. All registered nurses employed at the study facility were eligible to participate.

### **Instruments**

This study to determine the effect of a brief computer-based learning module intervention on nurses' self-efficacy regarding smoking cessation interventions used The Modified "5 A's" Training Program Survey, a 7-item instrument designed to evaluate the degree of self-efficacy for smoking cessation counseling by nurses, which was developed by Stacy and Sharma (2002) (Appendix D). Permission for use of the instrument has been granted by Dr. R. S. Stacy, Professor of Public Health Education at the University of Nebraska at Omaha (Appendix F). Tobacco Quitline was added to the sources of follow-up support in the instrument consistent with current practice recommendations. The instrument has been assessed for content validity through pilot-testing using people drawn from the original population to be studied and a panel of experts from the University of Nebraska at Omaha (Barta & Stacy, 2005). The pretest and posttest survey consisted of seven items on a 5-point Likert scale. The data was treated as interval level for the statistical analyses. The responses for the seven items ranged from not at all confident (1) to extremely confident (5).

A demographical survey (Appendix H), developed by the researcher, was attached to the pretest. In addition to common demographical data, the survey requests descriptive information regarding area of nursing practice, smoking history, and past smoking cessation education.

## **Procedures**

Registered nurses at the hospital and its affiliates were notified of the study to determine the effect of a brief computer-based learning module intervention on nurses' self-efficacy regarding smoking cessation interventions through fliers and emails. When interested nurses registered on the hospital's internal employee education software, consent information about the study was presented. When a nurse gave the consent electronically, the demographic questions and pre-training survey were assigned and completed on the intranet. The consent was forwarded to an intranet address and the participant was assigned the computer-based learning (CBL) module through the facility's educational services department. Nurses completed the module in their work areas during regular working hours. The researcher used this setting because it comprises the environment in which nurses complete CBL modules required by employers. The post-training survey was completed as a posttest at the end of the training session via the intranet employee education software.

## **Intervention**

The brief computer-based learning module was developed by the researcher utilizing information from two brochures: *Helping Smokers Quit: A Guide for Clinicians* (USDHHS, 2008) and *Starting the Conversation: Quit Tobacco* (NC Prevention Partners, 2007). *Helping Smokers Quit: A Guide for Clinicians* (Appendix E) was developed with the support of the Agency for Health Care Policy and Research (AHCPR). This guide was developed using an explicit, science-based methodology and expert clinical judgment. The recommendations are primarily based on published, evidence-based research and are designed particularly for clinical settings (USDHHS, 2008). The *Starting*

*the Conversation: Quit Tobacco* (Appendix G) is a unique brief screening, counseling and referral tool designed to help healthcare and other professionals counsel their patients about healthy behavior changes. This brochure is distributed by North Carolina Prevention Partners (NCP), which is a statewide leader in reducing preventable illness and early death caused by tobacco use.

### **Data Collection and Analysis**

Each participant completed demographical information before the brief computer-based learning module training and the Modified “5 A’s” Training Program Survey before and after the brief computer-based learning module training. Data was collected from the intranet submissions, entered into a code sheet utilizing Microsoft Excel 2007, and analyzed utilizing the Statistical Package for the Social Sciences (SPSS) version 19. This statistical package supports descriptive statistics and identifies significant differences between groups. Demographic variables were analyzed utilizing descriptive statistics to describe the sample. The Wilcoxon signed-rank test was conducted to compare the change between pretest and posttest scores for the seven self-efficacy scores in conducting smoking cessation interventions.

### **Dissemination of Results**

The results of the study to determine the effect of a brief computer-based learning module intervention on nurses’ self-efficacy regarding smoking cessation interventions will be submitted to the Tobacco Cessation Task Force which is planning nursing practice changes to comply with the new Joint Commission recommendations. The study results will also be disseminated through poster presentations and submission for journal publication.



**Ethical Considerations**

The Institutional Review Boards of both the health care system and university granted approval for this study to determine the effect of a brief computer-based learning module intervention on nurses' self-efficacy regarding smoking cessation interventions (Appendices A and B). Informed consent (Appendix C) for participation includes a description of the purpose of the research, the volunteer nature of participation, and the fact that participation will not affect employment. All documents with identifying information were stored in a locked office drawer and the investigators worked with the documents in that office. Data stored on computers was protected by software and password security standard for the educational program.

## **Chapter IV: Statistical Presentation**

### **Sample Characteristics**

A total of twelve (86%) of the fourteen registered nurses who consented to participate in the study completed the brief computer-based learning module and the Modified “5 A’s” Training Program Surveys. One participant did not provide demographical information. All eleven participants who provided demographical information were female Caucasians. The majority of the study sample was educational prepared with associate’s degrees (54.5%) and bachelor’s degrees (36.4%). The study sample was representative of the nurses employed by the facility in 2010 with 46.0 % associate prepared nurses and 39.5% bachelor prepared nurses. The majority of the study sample was aged 44-56 years (54.5%). The study sample’s age was representative of the 42 years mean age of nursing staff at the facility. Only two (18.2%) of the study sample reported having received smoking education in the past. Three nurses (30%) reported the inclusion of smoking cessation education in their nursing curricula. No participants reported current tobacco use. None of the five former tobacco users (45.5%) in the study reported receiving tobacco cessation counseling. Six nurses (54.5%) had never used tobacco. Four of the nurses (36.4%) practiced in critical care, three (27.3%) practiced in an outpatient area, and four (36.4%) reported unlisted areas of practice. Table 3 summarizes the demographic characteristics of the sample.

Table 3

*Descriptive Statistics of Demographic Variables*

Demographic Variable		N	%
<b>Gender</b>			
	Male	0	0
	Female	11	100
<b>Highest Level of Education in Nursing</b>			
	Associate's Degree in Nursing	6	54.5
	Baccalaureate in Nursing	4	36.4
	Master's in Nursing	1	9.1
<b>Age Category on Present Day</b>			
	31-43	2	18.2
	44-56	6	54.5
	Over 56	3	27.3
<b>Smoking Cessation Education in the Past</b>			
	Yes	2	18.2
	No	9	81.8
<b>Smoking Cessation Education in Nursing Curricula</b>			
	Yes	3	30
	No	7	70
<b>Tobacco Use Status</b>			
	Former user who did not receive tobacco cessation counseling	5	45.5
	Never used	6	54.5
<b>Ethnicity</b>			
	White/Caucasian	11	100
<b>Area of Practice</b>			
	Critical care	4	36.4
	Outpatient	3	27.3
	Other	4	36.4

**Impact of Interventions on Nurse Self-Efficacy**

A paired-samples *t*-test was considered to evaluate whether completion of a brief computer-based learning module increased nurses' self-efficacy concerning smoking

interventions. The assumptions of the paired-samples *t*-test include normal distribution of the differences between scores and data measured at least at the interval level. The scale represents an interval level. However, skewness and kurtosis with z scores revealed non normal distribution of the scores on the Modified “5 A’s” Training Program Survey. Due to the failure of the data to meet the assumptions of the paired-samples *t*-test, the effects of a brief computer-based learning module intervention on nurses’ self-efficacy regarding smoking cessation interventions was determined by the Wilcoxon signed-rank test, a non-parametric test that does not assume normality. Table 4 summarizes the obtained means for self-efficacy between pretest and posttest scores on the Modified “5 A’s” Training Program Survey.

Table 5 reports the results of the Wilcoxon signed rank test which confirms that the posttest scores are not significantly higher than the pretest scores without the assumption of normality. The confidence to ask was not significantly greater after the intervention (Mdn=4.5) than before the intervention (Mdn=4.0),  $z=-.557$ ,  $p=.577$ ,  $r=-.12$ . The confidence to advise scores did not change significantly from before training (Mdn=4.0) to after (Mdn=4.0),  $z=-.302$ ,  $p=.763$ ,  $r=-.06$ . The increase in the confidence to assess score from baseline (Mdn=2.5) to post-training (Mdn=3.0),  $z=-1.732$ ,  $p=.083$ ,  $r=-.35$  was not statistically significant. The item regarding confidence to assist to set a quit date increased from baseline (Mdn=3.0) to after the intervention (Mdn=4.0),  $z=-1.354$ ,  $p=.176$ ,  $r=-0.28$  but the increase was not significant. The median scores for providing literature did not change from before (Mdn=4.0) to after intervention (Mdn=4.0),  $z=-1.342$ ,  $p=.180$ ,  $r=-.27$ . The nurses’ confidence to recommend nicotine patches had similar median scores both before (Mdn=4.0) and after the intervention (Mdn=4.0),  $z=-.707$ ,

$p=.480$ ,  $r=-.147$  and did not represent significant change. The scores regarding the confidence to arrange follow-up were not significantly higher after the training (Mdn=3.5) than before (Mdn=3.0),  $z=-1.611$ ,  $p=.107$ ,  $r=-.33$ . The effect size estimates,  $r$ , were calculated using the z-scores and the number of observations. The calculations for the confidence to assess and arrange follow-up indicate a medium to large change after the intervention using Cohen's criteria of .3 and .5 for a medium and large effect respectively. The training had a small to medium effect on the confidence to assist to set a quit date and provide literature, and small effects on the confidence to ask, advise, and recommend nicotine patches. These results suggest that completion of this brief computer-based learning module was not effective in increasing the self-efficacy of nurses in providing smoking cessation intervention.

Table 4

*Means and Standard Deviations for Variables Related to Self-Efficacy in Conducting Smoking Cessation Interventions (N=12)*

Variable	Pretest		Post-training	
	Means	SD	Means	SD
Ask if smokes	4.17	.937	4.33	.778
Advise to quit	3.75	.965	3.83	.937
Assess readiness	2.67	.985	3.33	.985
Assist to set quit date	2.92	1.311	3.50	1.087
Provide literature	3.83	.718	4.08	.669
Recommend medication	3.55	1.128	3.91	.831
Arrange follow-up	2.83	1.030	3.58	.900

Table 5

*Wilcoxon Signed Rank Test Results*

Variable	Median Before	Median After	z-score	Probability	r
Ask if smokes	4	4.5	-0.557	0.577	-0.114
Advise to quit	4	4	-0.302	0.763	-0.062
Assess readiness	2.5	3	-1.732	0.083	-0.354
Assist to set quit date	3	4	-1.354	0.176	-0.276
Provide literature	4	4	-1.342	0.18	-0.274
Recommend medication	4	4	-0.707	0.48	-0.147
Arrange follow-up	3	3.5	-1.611	0.107	-0.329

## Chapter V: Discussion

### Interpretation of Findings

The Clinical Practice Guideline concludes that the most effective way to move clinicians to intervene is to provide them with information regarding multiple effective treatment options and to ensure that they have ample institutional support to use these options (DHHS, 2008). This study was conducted to evaluate the effectiveness of a brief, computer-based educational module in providing this information.

**Study population.** The eleven participants who provided demographical information were representative of the registered nurse population at the facility regarding educational preparation. Although the most common age category of participants reflected the mean age of nursing staff at the hospital, it is interesting that none of the participants were younger than 31 years of age. This could be related to the continuing education and nursing research requirements at the upper levels of the facility's clinical career ladder, populated by veteran nurses. Male and minority nurses were not represented in the sample.

**Ask and advise.** Standard practice already included asking every patient at admission regarding tobacco use, advising every patient against tobacco use at discharge, and providing a brochure outlining the health risks associated with tobacco use. Given these current practices and the high baseline self-efficacy scores for the scale questions regarding "ask" (mean 4.17, SD 0.937), "advise" (mean 3.75, SD 0.965), and "provide literature" (mean 3.83, SD 0.718), the lack of significant change in these scores following the intervention was not surprising. The effect size for "ask" and "advise" was small and for "provide literature" was small to medium.

**Assess, assist, and arrange.** Existing practice for staff nurses did not include the final three steps of the “5 A’s.” As expected, the pre-training scores for were lower for “assess” (mean 2.67, SD 0.985), “assist” (mean 2.92, SD 1.311), and “arrange” (mean 2.83, SD 1.030). Although the scores for each of these items did increase, the mean follow-up scores for “assess” (mean 3.33, SD 0.985), “assist” (mean 3.50, SD1.087), and “arrange” (mean 3.58, SD 0.900) did not represent statistically significant increases. Effect size for “assist” was small to medium, and for recommending medication was small. It is interesting that although the change in scores was not statistically significant, the effect size for “assess” and “arrange,” which were new practices for most staff, was calculated in the medium to large range. It is expected that the CBL training had a larger effect in those areas where staff had the least knowledge and experience. The medium to large effect size in a measurement which is not statistically significant may be related to the small sample size. These results need to be confirmed with a larger sample.

**Discussion.** The results of this study suggest that a brief, computer-based learning module completed by nurses in the work setting is not effective in increasing self-efficacy regarding smoking cessation interventions. Previous research has revealed the multi-faceted role of the nurse in providing smoking cessation counseling and interventions. Self-efficacy requires both confidence, the individual’s belief that they can perform the behavior, and productiveness, the belief that the behavior will lead to the desired outcome (Mowat & Laschinger, 1994). This complex behavior which requires the nurse to simultaneously practice the Synergy characteristics of caring practices, facilitator of learning, systems thinking, and clinical inquiry may be better suited to a learning



experience which provides opportunity for practice and modeling, as well as, feedback and positive experiences which are difficult to address through this learning method.

### **Limitations**

Several limitations of this study need to be addressed. The sample was small. The population was limited to one clinical setting. The duration was short. The use of volunteers who responded to emails and flyers could also limit generalizability. Inclusion of participants younger than 31 years may have influenced the results as computer based learning might yield different results with this population. The work area setting introduces variability between subjects; however this variability is inherent in the current use of computer-based learning modules by employer. Additional replication drawing larger samples from a wider population are needed. Strengths of the study include standardization of the intervention made possible by educational software and the use of educational information previously developed and published for use by clinicians.

### **Implications for nursing**

Tobacco use remains an enormous health threat and precursor for many disease processes. Effective interventions are available to help the 70% of tobacco users who express a desire to quit. Previous research has suggested that the best ways to engage nurses in smoking cessation interventions is to provide them with information and institutional support (DHHS, 2008). This study suggests that brief CBL modules may not be an effective way to provide this information. Nursing leaders must evaluate the effectiveness of training methods and apply learning methods appropriate to the learners, the subject, and the setting. The inclusion of smoking cessation interventions in nursing curricula warrants consideration.

**Implications for future research**

Hospitals need to find efficient programs to promote evidence-based practice in the area of tobacco cessation interventions. Brief CBL modules are a common and cost-effective training method used for hospital nurses. The effectiveness of CBL modules in educating nurses in different types of content, levels of difficulty and length of lessons is poorly defined in nursing literature and should be evaluated. The impact of this form of education on work flow, employee satisfaction, and patient care in the work environment should also be investigated.

Although effective smoking cessation training programs have been identified, they have often involved disciplines other than nursing, formal learning environments, active learning, and practice. Further research is needed to find the most effective and efficient training programs for nurses. Future research is also needed to measure lasting changes in attitudes, self-efficacy, and behavior resulting from the education.

**Conclusion**

Smoking cessation counseling and intervention allow the nurse to help prevent loss of health and life through evidence-based and cost-effective actions. Hospitalization is often a time when perceived vulnerability and health behavior motivation is high. The findings of this study have important implications for nurses, nurse educators, and nurse leaders as they strive cultivate competencies which promote positive outcomes for patients, nurses, and health care systems.

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**Appendix A**  
**Approval from CaroMont Health Institutional Review Board**



August 1, 2011

Leslie Bolin,  
2525 Court Dr.  
Gastonia, NC 28054

**IRB# 2011-08-001**

**Study title:** Smoking and Tobacco Cessation Education Project

Dear Ms. Bolin,

The Chair of the CaroMont Health Institutional Review Board determined that this project be designated as exempt research per 45 CFR 46.101(1). This action will be reported to the IRB at the 8/18/2011 IRB meeting.

Items Reviewed:

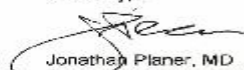
- Exempt application, dated July 21, 2011
- Abstract: Smoking and Tobacco Cessation Education Project, dated July 21, 2011
- Study protocol, dated July 21, 2011
- Consent form, dated July 15, 2011
- Pre-training survey, dated July 21, 2011
- Procedures and Information, dated July 21, 2011
- Email for permission to use tool, dated March 3, 2011

**Designated as EXEMPT RESEARCH on: 8/1/2011**

It is the Principal Investigator's responsibility to notify the CaroMont Health IRB if this project should change in anyway. The CaroMont Health IRB shall review such changes to assess whether the changes alter the exempt status and requires further IRB review and approval.

If you have any questions or concerns, please call Michelle Cook, IRB Administrator at 704-834-3891 or email at [cookmi@caromonthealth.org](mailto:cookmi@caromonthealth.org).

Sincerely,

  
Jonathan Ploner, MD  
Chair, Institutional Review Board

## Appendix B

## Approval from Gardner-Webb University Institutional Review Board



THE INSTITUTIONAL REVIEW BOARD  
of  
GARDNER-WEBB UNIVERSITY

This is to certify that the research project titled  
**Smoking and Tobacco Cessation Education Project**

being conducted by Leslie Boiin

has received approval by the Gardner-Webb University IRB.

Date 8/26/11

**Exempt Research**

Signed Leslie Boiin  
Department/School/Program IRB Representative  
Leslie Boiin  
Department/School/Program IRB Member

**Expedited Research**

Signed \_\_\_\_\_  
Department/School/Program IRB Representative  
\_\_\_\_\_  
Department/School/Program IRB Member  
\_\_\_\_\_  
IRB Administrator or Chair or Institutional Officer

**Non-Exempt (Full Review)**

Signed \_\_\_\_\_  
IRB Administrator  
\_\_\_\_\_  
IRB Chair  
\_\_\_\_\_  
IRB Institutional Officer

Expiration date \_\_\_\_\_

IRB Approval:

Exempt  Expedited  Non-Exempt (Full Review)



## Appendix C

### Informed Consent Form

Consent to Participate in Research  
Smoking and Tobacco Cessation Education Project (STEP1)

Subject's Agreement:

I have read the information provided below. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study. By registering for this class in net-learning, I authorize the researchers to use information as described in this form. Principal Investigator: Leslie Bolin W(704)834-2910, H(704)739-7806

What you should know about this research study:

You are being asked to participate in a research study. To join the study is voluntary.

You may refuse to join, or you may withdraw from participation, for any reason. Research studies are designed to obtain new knowledge that may help other people in the future. You may not receive any direct benefit from being in the research study. There may also be risks to being in research studies.

Deciding not to be in the study or leaving the study before it is done will not affect your relationship with the researcher or CaroMont Health.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study. You may print a copy of this letter. You should ask the researchers named above any questions you have about this study at any time.

What is the purpose of this study?

The purpose of this study is to evaluate and compare the impact on nurses' self-efficacy and practice of tobacco cessation counseling of a brief computer-based learning module and a classroom training session. All nurses employed by CaroMont Health are eligible to participate.

How many people will take part in this study?

You will be one of approximately 84 people in this study.

What will happen if you take part in this study?

*Overall design:* Nurses responding to flyers or e-mail invitations will be assigned to 1 of 2 groups. One group will complete a brief CBL about tobacco cessation counseling and one group will attend a two hour class. Each participant will fill out a brief survey before, after, and at four weeks following the learning activity.

You may refuse to answer any survey question for any reason. You may withdraw from the study at any time for any reason.

For randomization: Participants will be assigned to groups by chance, like flipping a coin.

What are the possible risks or discomforts involved with being in this study?

No risks have been identified.

What are the possible benefits from being in this study?

Research is designed to benefit society by gaining new knowledge. The benefits to you from being in this study may be: the acquisition of new nursing knowledge and continuing education credits. We cannot and do not guarantee or promise that you will receive any benefits from this research.

What if you want to stop before your part in the study is complete?

You may withdraw from this study at any time, without penalty. The researchers also have the right to stop your participation at any time. This could be because you have failed to follow instructions, or because the entire study has been stopped.

Will you receive anything for being in this study?

You will be receiving continuing education credits and educational materials about tobacco cessation.

Will it cost you anything to be in this study?

If you enroll in this study, you will have to be at Gaston Memorial Hospital for the training sessions. You must arrange and provide your own transportation.

Voluntary Participation and What if you want to stop before your part in the study is complete?

Taking part in this study is voluntary. You can withdraw from this study at any time, without penalty. The researchers also have the right to stop your participation at any time. This could be because you have failed to follow the instructions, or because the entire study has been stopped. If you decide not to participate or to discontinue participation, your decision will not affect your future relations with CaroMont Health.

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this research. If you have questions, complaints, or concerns, you should contact the researchers listed on the first page of this form.

What if you have questions about your rights as a research subject?

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject, or if you would like to obtain information or offer input, you may contact the Institutional Review Board at (704)834-3891.

## Appendix D

### Modified “5 A’s” Training Program Survey

**Pre-training Survey**

Date \_\_\_\_\_ Name \_\_\_\_\_

IRB# \_\_\_\_\_ Version date \_\_\_\_\_

Below are a number of questions about your confidence and actions. Please mark the response that best describes your degree of self-confidence and actions for each of the following statements:

**How confident are you right now that you would be able to:**

	<b>1</b> Not at All Confident	<b>2</b> Somewhat Confident	<b>3</b> Moderately Confident	<b>4</b> Very Confident	<b>5</b> Extremely Confident
1. Ask your pt. on admission if they use tobacco.					
2. Advise your pt. to quit.					
3. Assess your pt.'s readiness to quit tobacco in the next 30 days.					
4. Assist your pt. who is ready to quit to set a quit date in the next 30 days.					
5. Assist your pt. by providing tobacco cessation literature.					
6. Assist your pt. who wants to quit by encouraging medication.					
7. Help your pt. who has set a quit date to arrange follow-up support with a quit-line fax referral.					

**Post-training Survey**

Date \_\_\_\_\_ Name \_\_\_\_\_

IRB# \_\_\_\_\_ Version date \_\_\_\_\_

Below are a number of questions about your confidence and actions. Please mark the response that best describes your degree of self-confidence and actions for each of the following statements:

**How confident are you right now that you would be able to:**

	<b>1</b> Not at All Confident	<b>2</b> Somewhat Confident	<b>3</b> Moderately Confident	<b>4</b> Very Confident	<b>5</b> Extremely Confident

1. Ask your pt. on admission if they use tobacco.					
2. Advise your pt. to quit.					
3. Assess your pt.'s readiness to quit tobacco in the next 30 days.					
4. Assist your pt. who is ready to quit to set a quit date in the next 30 days.					
5. Assist your pt. by providing tobacco cessation literature.					
6. Assist your pt. who wants to quit by encouraging medication.					
7. Help your pt. who has set a quit date to arrange follow-up support with a quit-line fax referral.					

## Appendix E

### Permission to Use the Clinical Practice Guideline

# Guideline User Policies for Electronic Versions

## Copyright

Much of the contents of these Clinical Practice Guidelines are in the public domain within the United States only and may be used and reproduced without special permission. Citation as to source is required. Foreign countries and users who want to make electronic versions resident to their Web sites with global access need to request specific permission to reproduce any part or whole of any Guideline product because the public domain does not extend outside of the United States. Send your requests to <https://info.ahrq.gov>.

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## Appendix F

### Permission to Use the Modified “5 A’s” Training Program Survey

**From:** Richard Stacy [mailto:stacy@mail.unomaha.edu]  
**Sent:** Thursday, March 03, 2011 10:47 AM  
**To:** Leslie Bolin  
**Subject:** Re: Permission to use tool

Yes you may. I lived in Raleigh and worked for the NC Division of Health from 1974-78. Where is King Mountain?

Richard D. Stacy, M.P.H., Ed.D.  
Professor of Public Health Education  
School of HPER  
University of Nebraska at Omaha  
Omaha, NE 68182-0216

Work Phone 402 554-3235  
Home Phone 402 932-6153  
Work Fax 402 554-3693

**From:** Leslie Bolin [mailto:ldbolin@carolina.rr.com]  
**Sent:** Wednesday, March 02, 2011 9:28 PM  
**To:** 'Stacy@mail.unomaha.edu'  
**Subject:** Permission to use tool

Hi Dr. Stacy,  
A colleague and I are planning a research project regarding the effectiveness of training for smoking cessation counseling. We have reviewed your study that was published in The Journal of Continuing Education in Nursing in 2005. We would like to use your instrument, The Modified “5 A’s” Training Program Survey. Would you grant us permission to use the survey? Do you recall any difficulties from your study that we might try to avoid?

Thank you so much! Leslie D. Bolin, RN, BSN  
115 Bolin Dr.  
Kings Mountain, NC 28086  
[ldbolin@carolina.rr.com](mailto:ldbolin@carolina.rr.com)  
(704)739-7806

## Appendix G

### Permission to Use the *Starting the Conversation* Tool

**From:** Melva Fager Okun [mailto:melva@ncpreventionpartners.org]

**Sent:** Thursday, April 07, 2011 9:43 AM

**To:** 'ldbolin@carolina.rr.com'

**Cc:** Gia Branciforte; Heather Mountz

**Subject:** use of questions - upcoming Joint Commission Webinar on Tobacco Screening

Dear Leslie,

I am glad that you find the questions in the Starting the Conversation tools useful. Feel free to use them and just credit their source. I also hope you will use the tools in your tobacco cessation work. They can be graded and so you can quantify as people make improvements – often times it is a process moving toward the quit.

Also wanted to let you know that on **April 19<sup>th</sup> from 11-12:00**, NCPP will be doing a webinar with the **Joint Commission about the new Measure Set for Tobacco Screening and Follow-up**. I hope you and others can join us for this important session. Here is the [registration info](#).

Sincerely,

Melva Fager Okun

Melva Fager Okun, DrPH

Senior Program Manager

[NC Prevention Partners](#)

88 Vilcom Circle Suite 110



## Appendix H

### Pre-training Survey Demographical Information

#### Pre-training Survey Demographical Information

IRB# \_\_\_\_\_ Version date \_\_\_\_\_

Name \_\_\_\_\_ Email address \_\_\_\_\_

Phone #(\_\_\_\_)\_\_\_\_-\_\_\_\_\_ Best time to call \_\_9a-12p \_\_12p-3p \_\_3p-6p \_\_6p-9p  
\_\_9p-12a

Interdepartmental mail location  
\_\_\_\_\_

15. Gender: \_\_ Male \_\_ Female

16. Highest level of Education in Nursing: \_\_ADN \_\_BSN \_\_MSN \_\_PhD

17. Age category on the present day: \_\_18-30 \_\_31-43 \_\_44-56 \_\_over 56

18. Have you participated in smoking cessation education in the past? \_\_Yes \_\_No

19. Did you have smoking cessation education in your nursing curricula? \_\_Yes  
\_\_No

20. What is your tobacco use status? \_\_Current user \_\_Ex-user \_\_Have never used

21. What is your ethnicity? \_\_White/Caucasian \_\_African-American \_\_Hispanic  
\_\_Other

22. What is your area of practice?

\_\_Pediatrics      \_\_Critical Care      \_\_Med-surg      \_\_Psych  
\_\_Obstetrics      \_\_Oncology      \_\_Out-patient      \_\_Other

## Appendix I

*An invitation for all registered nurses*



If you

Need **continuing education** hours?

Are interested in providing **evidence based patient education** to your patients  
who use tobacco?

Would like to participate in **nursing research**?



Please enroll to participate in the STEP1 Project.

Go to NetLearning- Enroll in CBL- Consent to Participate in Nursing  
**Research: The Smoking and Tobacco Cessation Education Project.**