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Smoking Cessation Education: A Prescription and Opportunity for Change

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SMOKING CESSATION EDUCATION: A PRESCRIPTION AND

OPPORTUNITY FOR CHANGE

by

AMANDA AUST

EVIDENCE-BASED PRACTICE PROJECT REPORT

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DEDICATION

This paper is dedicated to my family, especially my parents. Thank you for your support, guidance, love, and for always believing in me. Thank you for always pushing me to excel at whatever I do and for always helping me to aspire to accomplish more than what I could have ever dreamed of.

ACKNOWLEDGMENTS

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ABSTRACT

Tobacco usage is the second leading cause of death worldwide. Smoking claims the lives of people more than acquired immunodeficiency syndrome, alcohol, accidents, homicides, suicides, fires, and drugs combined (Green & Briggs, 2006). In 2009, 46 million people in the United States were estimated to be smokers (Regents of the University of California, 2011). Despite the availability of guidelines to assess and provide smoking cessation interventions to patients, a disconnect exists in nurses being able to implement these guidelines. The purpose of this evidence-based practice project was to determine if an educational intervention for nurses about smoking cessation, as compared to current practice, increased nurses' knowledge, skills, and confidence to counsel patients who smoke. Rogers' Diffusion of Innovation and the Stetler model were used to guide the implementation of this project at a moderately sized acute care hospital in Northwest Indiana. During a four month period, 22 nurses participated in a 30 to 45 minute educational session on general smoking information and assisting patients with quitting smoking. Participants completed pre- and post-tests. These tests included a 20 question knowledge test, the Skill and Confidence for Smoking Cessation Counseling tool, and a three item assessment of nurses' interactions and providing counseling with patients'. Paired-sample t tests were conducted to analyze and compare the mean pre-tests to the mean post-tests scores. The paired- sample t tests demonstrated that the education intervention significantly increased participants' knowledge, skills, and confidence immediately after the intervention ($p < 0.5$). There was no statistically significant increase in knowledge, skills, and confidence two to three months after the intervention was conducted ($p > 0.5$). However, a statistically significant increase in interaction with patients was noted after the educational intervention ($p > 0.5$). The findings suggest that the smoking cessation education intervention resulted in increasing meaningful interactions by nurses with patients who smoke.

CHAPTER 1

INTRODUCTION

Background

Worldwide tobacco usage is the second leading cause of death. Smoking claims the lives of people more than acquired immunodeficiency syndrome, alcohol, accidents, homicides, suicides, fires, and drugs combined (Green & Briggs, 2006). In 2009, 46 million people in the United States (U.S.) were estimated to be smokers. Linked to potential harm to every organ in the body, smoking increases not only mortality, but also worsens health and increases morbidity (e.g. cancer, cardiovascular and pulmonary diseases, reproductive issues, cataracts, osteoporosis, and poor surgical outcomes) (Regents of the University of California, 2011). "For every person who dies from tobacco use, another 20 suffer with at least one serious tobacco-related illness" (Centers for Disease Control and Prevention, 2010, p. 1).

Not only is cigarette smoking deadly, but it also places economic and health burdens on all members of society. Expenses from smoking have reached $157 billion each year in medical costs and lost productivity in the United States (Hudmon et al., 2006). In addition to the economic burden, exposure to secondhand smoke affects the health of society by increasing the risk for diseases and medical conditions (e.g. lung and nasal sinus cancer, cardiovascular effects, asthma, sudden infant death syndrome, and respiratory and middle ear infections) (Hudmon et al., 2006).

While individual states provide cessation assistance to individual smokers to help decrease these burdens and improve overall health, the tobacco industry has become an opponent of these health promotion initiatives. As states spend money to campaign against tobacco and provide assistance for smoking cessation, the tobacco industry is outspending individual states in funding the promotion of their products. The tobacco industry spent a total of $13.5 billion or $35.9 million a day on advertising in 2005. For every $1 spent by states to

promote smoking cessation, $18 is spent by the tobacco industry in advertising and promoting their products. Thus, resulting in further economic burden and strain on states funding and efforts in the fight against tobacco use (Regents of the University of California, 2011). This is demonstrated in the prevalence rates of smoking in the United States. Healthy People 2010's goal was to decrease smoking prevalence rates by 12%, but unfortunately, from 1997 to 2009, prevalence rates only decreased by 4.1%. From the years 2004 to 2009, prevalence rates were consistently at 20.6% in comparison to 1997, when prevalence rates were at 24.7% (Centers from Disease Control and Prevention, 2009). Statistically, with 1 out 5 tobacco users dying, the U.S. Surgeon General, C. Everett Koop's statement in 1982 still applies today, as he stated, "cigarette smoking is 'the chief, single avoidable cause of death in our society and the most important public health issue of our time'" (Hudmon et al., 2006, p. 1; Centers for Disease Control and Prevention, 2009).

Statement of the Problem

Despite the availability of guidelines to assess and provide smoking cessation interventions to patients, there is a disconnect that exists in nurses being able to implement these guidelines with patients who are smokers. According to Whyte, Watson, and McIntosh (2006), nurses use opportunistic health education experiences during their nursing care, but unfortunately, they lack the knowledge and confidence to effectively assess patient's readiness to learn, have decreased communication skills, and lack knowledge regarding smoking. This reduces their ability to provide health promotion education to patients, and ultimately prevents patients from making informed decisions regarding their smoking status. With nurses utilizing opportunities to provide health promotion and education, Gomm, Lincoln, Egeland, & Rosenberg (2002) studied how rural Australian nurses practices and perceived skills, behaviors, needs, support and barriers. Within the survey, nurses believed it was their duty to help patients quit smoking. Despite this belief, nurses still lacked knowledge, confidence, and training to help patients quit, to ask patients if they were willing to quit, and the ablity to discuss options for

cessation. In a pilot project to educate nurses to provide smoking cessation teaching to patients, 49% of 49 the nursing participants noted that they did not know how to assess patients' smoking status (Bryant, 2008). This inability to assess patients' status decreased the nurses ability to provide education or even assist patients who wanted more information on cessation. Even nurses who are smokers themselves lacked knowledge about nicotine addiction and withdrawal and strategies for cessation (Bialous, Sarna, Wewers, Froelicher, & Danao, 2004). Despite the responsibility that nurses feel to counsel patients, only a small majority have the knowledge to do so (Scanlon, Clark, & McGuiness, 2008). Consequently, a need exists to provide nurses with training in smoking cessation counseling in order to increase their confidence and ability to provide information, during their encounters with patients (Merill, Gagon, Harmon, & Milovic, 2010).

In Indiana, 1,247,000 adults are smokers. Smokers were defined as someone who smokes at least 100 cigarettes during their lifetime on at least some days to every day. Indiana ranks 50th out of all of the states with the greatest prevelance of adult smokers and 43rd out of 50 for states in regards to smoking related deaths. With these statistics, only 0.6% of smokers in Indiana call the state's Quitline for smoking cessation help, despite the national average of 2.8%. This makes the state ranked 47 out of the 50 states for the use of the Quitline (Centers for Disease Control and Prevention, 2010). These statistics are indicative of the need for smoking cessation training for nurses within the hospital at the proposed clinical agency. As nurses encounter patients in their daily care, they have an opportunity to assess patients' smoking status and provide them with information and counseling.

In 1992, the Joint Commission promoted smoke-free hospitals as the standard and in 2003, along with the Centers for Medicare and Medicaid recommended smoking cessation counseling for patients with myocardial infarctions, pneumonia, and heart failure. Additionally, the Department of Health and Human Services recommended "that clinicians use hospitalization as 'an opportunity to promote smoking cessation'" (Gadomski, Gavett, Krupa, Tallman, &

Jenkins, 2011, p. E1). Meeting the Joint Commission's 1992 recommendation, the proposed clinical agency for this project became a smoke free hospital in 2010. This has resulted in a sudden stop to patients' smoking habits upon admission to the facility, resulting in withdrawal and cravings. Patients wanting to smoke must sign out against medical advice. Moreover, upon admission to the agency, the admission process requires that nurses ask about the patient's smoking status and provide them with preprinted material on smoking cessation facts, tips for quitting, and resources to contact for further information, if the patient prefers them. Unfortunately, patients are not always offered any further support beyond the preprinted information. It has also been noted within this agency that patients often refuse nicotine replacement options and may lack knowledge regarding replacement therapy. This creates a problem as patients are often noncompliant with the smoking policy. They may sneak to smoke cigarettes within their room because of the severity of their nicotine cravings. Despite these challenges, smoking abstinence during hospitalization may be considered a positive experience by providing patients with a situation which may lead them to quit smoking (Rigotti et al., 2000). By providing nurses with smoking cessation training they will be equipped to assess patient's smoking status, have an increased understanding of nicotine replacement to help patients in a smoke-free hospital, and advise and refer patients to resources to seek additional information regarding tobacco use.

Purpose of the Evidence-Based Practice Project

The purpose of this evidence-based practice project was to educate nurses on smoking cessation so they could take advantage of health promotion opportunities in their daily nursing care and during the admission process at the clinical agency. The set objectives for the educational project are based on the aforementioned findings within the literature regarding nurses' lack of knowledge, skills, and confidence in assessing and providing smoking cessation. As part of the evidence-based practice process the first step according to Melynk and Fineout-Overholt (2005) is to identify the clinical question. Therefore, the compelling clinical question is:

What educational intervention would be effective in meeting the established objectives? Utilizing the recommended PICOT format (patient population of interest, intervention of interest, comparison of interest, outcome of interest, timeframe), provides further structure to the clinical question in order to establish the clinical question, define the clinical standards, and define the components for inquiry. The establishment of the PICOT question helps to facilitate the research process to answer the clinical question (Nollan, Fineout-Overholt, & Stephenson, 2005). Thus, the clinical question in the PICOT format is: For staff nurses in the hospital, what is the effect of the Doctor of Nursing Practice student using the Ask-Advise-Refer curriculum on nurses' knowledge, skills, confidence, and interactions with patients in providing smoking cessation counseling over a four month period compared to current practice?

Significance of the Project

Hospitalization provides nurses with an opportunity to engage patients regarding their health. With continual interaction and contact with patients during hospitalization, nurses have a unique opportunity to affect patients' health through assessing, discussing, and tailoring a plan of care regarding their smoking status. Researchers have found that 80% of smokers have a desire to quit with 40-60% attempting to quit each year. With most attempts at smoking cessation unassisted by healthcare providers, only 3-5% is successful in quitting (Sheffer, Barone, & Anders, 2010). Those that receive assistance from clinicians are 1.7 to 2.2 times more likely to remain abstinent at five months (Regents of the University of California, 2011). Despite this opportunity, researchers have found that healthcare workers fail to take advantage of this opportunity due to barriers encountered, especially on general medical floors where only 17% of patients who smoke receive smoking cessation counseling. The barriers noted frequently by nurses include lack of motivation to quit by patients, lack of time, and lack of knowledge regarding smoking. As a result, nurses were less likely to counsel patients, provide advice, and assess patients' readiness to quit. In a survey of 397 nurses in the hospital setting, 37% did not counsel patients regarding their smoking status, while 7% always provided brief

advice about tobacco cessation for those that replied. Providing nurses with smoking cessation education, will help to remove the noted barriers. Educating nurses allows them to understand how to assess, advise, and provide information to patients about smoking during the admission process and during routine nursing care (Ginn, Cox, & Heath, 2008; Green & Briggs, 2006). Ultimately, this allows nurses to provide patients with smoking cessation interventions, which have found to be successful with even brief and intensive nurse led interventions (Sheffer et al., 2010).

"It is reported that the number of smokers would decrease by an additional 2 million per year if 100 000 healthcare providers were to help only 10% of their patients to stop smoking" (Ginn et al., 2008). When nurses are knowledgeable about smoking cessation, they will be more likely to provide information on smoking (Lancaster & Fowler, 2008). In turn, this allows nurses to impact the poor health outcomes of smokers in the U.S., "…who contribute to $157 billion of healthcare costs annually" (Heath & Andrews, 2006, p. S44). Therefore, education increases nurses' opportunities to provide smoking cessation information to patients and improve patients' knowledge and health.

CHAPTER 2

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

Theoretical Framework

With over 5,200 publications based on topics such as educational curricula, health promotion programs, policy innovations, and more, Rogers' Diffusion of Innovation (DOI) served as the theoretical framework for the design and implementation of the evidence-based practice project (Oldenburg & Glanz, 2008). "The history of innovations teaches us that usually it takes far too long for proven concepts and programs to become part of practice" (Oldenburg & Glanz, 2008, p. 313). This is a common problem that people and organizations face (Rogers, 2003). For example, nurses are expected to and believe that it is their duty to provide health promotion education on smoking. Despite this expectation and duty, researchers have found that nurses do not take advantage of the opportunities given to them to approach patients (Scanlon et al., 2008). With this lengthy process, the DOI describes the process of adoption, provides insight into the stages of process, and provides a framework to affect the status quo of current nursing practice in order to create change. A description of the DOI theory will be provided in order to understand the context of the theoretical framework for this evidence-based practice project.

The theoretical framework offers a lens through which to view the change from status quo to the diffusion of the innovation. Diffusion can be defined as "the process in which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 2003, p. 11). Forming the foundation of the definition, four key elements exist, which includes innovation, communication channels, time, and social system. An innovation can be defined as new ideas, projects, or practices. Innovations are communicated in order to be made explicit to a social system. With this, a social change occurs, as the result of the fluctuation in the structure and function of the social system. The social system will either adopt or reject the innovation or new idea. Adoption of innovations by individuals occurs over a period

of time, forming a distribution based on the rate of adoption. The distribution forms the classic S-shaped curve, which begins to form at 10 to 20% adoption rate with a critical mass being achieved. Within this curve, individuals are slow to adopt the change, then more gradually adopt it, and eventually adoption levels off. Adoption and the rate of adoption are based on the perception of the characteristics of the innovation by the social system and the individuals. Innovations are perceived by its relative advantage, compatibility, complexity, trialability, and observability. Moreover, both opinion leaders and change agents influence adoption (Rogers, 2003). Change agents influence the view of the social system by trying to create a desire to adopt the innovation, while opinion leaders "…provide information and advice about innovations to many other individuals in the system" (Rogers, 2003, p. 26). The opinion leaders and change agents are influential in the innovation-diffusion process. The innovation-diffusion process involves five stages: knowledge, persuasion, decision, implementation, and confirmation. These five stages are based on a process. In the knowledge stage, individuals obtain knowledge of the innovation and progress to the persuasion stage, where a judgment and attitude is formed regarding the innovation. This then leads to the decision stage. In this stage, adoption or rejection of an innovation is considered. Implementation of the innovation occurs, and the decision stage is confirmed in the confirmation stage. Therefore, these elements and process of diffusion creates an environment of change within the social system, lending itself to the adoption or rejection of an innovation (Rogers, 2003).

Application of the Theoretical Framework

Rogers' DOI served as the theoretical framework for this evidence-based practice project. As the theoretical framework, the DOI guided the development of the design and implementation of the project. The five stages of the innovation-diffusion process of this project provided an avenue for the adoption of the innovation and will create a change within the social system. The application of the framework will be discussed and an analysis of the strengths and

limitations will be provided in order to understand how the theory fits within the context of this evidence-based practice project.

The first stage of the innovation-diffusion process begins with the knowledge stage. With the innovation being defined as a new idea, practice, information, or object to the person or organization that will adopt or reject it, the innovation for this evidence-based practice project was defined as the educational intervention of smoking cessation, which provided new and additional information to the staff nurses. In order to begin the process of the innovation-diffusion process, the unit directors of two medical-surgical units were contacted through e-mail at the hospital, and nurses were orientated to the project prior to starting the innovation. At the hospital, the admission process requires that nurses ask patients about their smoking status and offer them a smoking cessation information sheets upon admission. Current standards at the hospital do not include educating nurses during orientation regarding smoking cessation resources and information, orientation to the smoking cessation information sheets offered to patients, and current resources available within the hospital. Additionally, no standards exist to communicate the patients smoking status or preference regarding the smoking cessation information sheets to the nursing staff. The innovation proposal was made aware of to the unit directors and assistant nursing officer through communication by e-mails.

The second stage, the persuasion stage, occurred in order for this project manager to gain approval for the innovation with the unit managers. As an opinion leader within the agency, meetings were set up to discuss the proposed project and gain approval. In order to persuade the unit managers, a discussion was held to let them know of a disconnect that exists in nursing knowledge about smoking cessation and how the innovation helped to fill the void, creating potential benefits within practice and patient care. As a result of the discussion, one unit manager expressed that she had never reviewed the smoking cessation information sheets provided to patients and did not know any information or services provided by the Indiana Quitline for smokers wanting to quit. During these meetings, questions were answered and

information was provided in order to further persuade the unit managers. In regards to the nurses, who received the intervention, they were provided with an explanation of the purpose of the innovation and the identified gaps in current practice. This occurred prior to the innovation. These steps were taken in order to persuade and gain approval from the staff.

      The last three stages of the innovation-decision process are further discussed in detail in Chapter 5. The decision phase, where decisions are made regarding adoption of the innovation, occurred with the nurses after they received the educational intervention. The goal of this phase was for the nurses to gain knowledge, skills, and confidence in being able to discuss smoking cessation with patients and to have an understanding of available resources to refer patients to. A secondary goal was for the nurses to change their practice and increase their interactions with patients regarding their smoking status. The implementation phase, occurs when the innovation is adopted and actions are taken to put the innovation into practice. The goal for this phase was for the nurses to change their practice and increase their interactions with patients regarding their smoking status. The last phase, the confirmation phase, is defined by the decision of whether to continue with the innovation. The impact of the innovation on nursing activities was assessed and the decision to continue with the innovation was revisited. Nurses made the decision to continue or not to continue to use the knowledge, skills, and confidence gained from the educational intervention. These three stages of the innovation-decision process will have implications for the future and for future evidence-based practice projects.

      Rogers' DOI provided the underpinnings for this project. With opinion leaders influencing behaviors and attitudes toward innovations, the unit managers, as respected leaders, played a necessary role in nurses participating in the educational intervention and adopting the educational material into practice. These opinion leaders have displayed enthusiasm for the evidence-based practice project, as both showed a desire to participate in the education intervention and helped to facilitate advertisement and discussion of the project with the nurses.

Tailoring the educational intervention to meet the needs of the units helped to create a desirable intervention that increased chances of adoption. Providing an explanation and benefit to nursing practice and patient care created incentives for implementation of the project and early adoption. Therefore, Rogers' DOI provided a solid framework and foundation for implementing this project.

Strengths and Limitations

Applying Rogers' DOI was beneficial to this project. First, researchers have indicated that nurses lack knowledge of how to approach providing smoking cessation information to patients. Rogers' DOI provided a framework for introducing the innovation of smoking cessation information to nurses at the clinical agency. This then allowed for smoking cessation information to be made known to nurses and allowed for a change in nursing knowledge and a change in practice through adoption of smoking cessation education. Second, Rogers offered strategies for how to reach critical mass and achieve the classic s-shaped curve of adoption. These strategies were practical and were used at the clinical agency for the innovation to be adopted. Third, unit managers have been supportive of the educational endeavor at the beginning stages of development. Lastly, Rogers recognized the influence of opinion leaders on individuals within the social system. With the influence exerted by opinion leaders such as the unit managers, this increased the potential of adoption of the innovation through positive reinforcement of the educational innovation. The DOI provided an excellent framework for this project, because of the strengths in influencing individuals in adoption of the innovation.

Despite the strengths of the theoretical framework, limitations existed. The first limitation as mentioned by Rogers is the idea of pro-innovation bias. Pro-innovation bias is based on the idea that the diffusion of the innovation must occur quickly, the innovation must be adopted by all individuals within a social system, and the innovation cannot be rejected or reinvented. As with any innovation, resistance may occur and not all individuals will adopt a change, including the nurses. The second limitation is the individual blame bias, which occurs when an individual

is held responsible for problems rather than the social system. This may occur with the adoption of the innovation, as Rogers stated "an individual-blame orientation implies that 'If the shoe doesn't fit, there's something wrong with the foot'" (Rogers, 2003, p. 19). Third, with the limited time able to monitor nurses' adoption of smoking cessation education into practice for this project, time may not play as significant a role, despite being an essential element. However, time will play a role in nurses' adoption of knowledge, skills, and confidence while receiving the smoking cessation education. Thereby, recall bias may cause an effect, as nurses might not be able to recall the particular moment of their adoption of the innovation. Lastly, the DOI may not address all areas of the change process that occurred with the implementation of this project. Although limitations were noted, the DOI provided a framework for this project in order to create change.

Evidence-Based Practice Model of Implementation

The Stetler model provides individual practitioners with a guide to adopt research findings in daily nursing practice. Because the model is prescriptively designed to explore the product and the process of research, it is valuable in helping to integrate research findings in order to create a change within practice. In comparison to other models, the Stetler model offers a comprehensive guide to critically contemplate at each stage in regards to identifying issues in clinical practice, analyzing evidence to ensure sufficient and credible research, deciding if there is enough reliable evidence to continue with the process, applying the research findings to practice, and evaluating the outcomes of the research findings in practice, using an individual practitioner approach. (Ciliska, DiCenso, Melynk, & Stetler, 2005; Fineout-Overholt, Cox III, Robbins, & Gray, 2005). At each stage, the individual practitioner uses critical thinking and decision making to determine the applicability of research findings to practice. Therefore, the individualized steps of the model create a process for application of knowledge and research findings to organizations through evaluation in order to provide scientific based care (Brown & Rodger, 1999).

The Stetler model was appropriate for the purpose of educating nurses, using the Ask-Advise-Refer curriculum. Romp and Kiehl (2009), discussing the Stetler model, explained that "using a model for the utilization of research can aid and direct staff development educators in the appropriate application of existing research-based knowledge and help prevent the pitfalls of using research inaccurately" (p. 278). The Stetler model provided a framework to utilize research-based knowledge in order to increase nurses' knowledge of smoking cessation. Despite the various publications that describe how the model has been used, specific applications involve education of nurses. For example, nurses at birth centers were educated on how to interpret infant behaviors, cues, and states for parents in order to increase quality of interactions. In another research study, preceptors were educated on how to orient new nurses at a hospital, which resulted in improved satisfaction and decreased turnover of the new nurses (Stetler, 2010). Therefore, application of the model guided this project manager with implementing the evidence-based practice intervention.

Application of the Model

The Stetler model provided a framework to integrate research findings into practice. In phase one, the preparation phase, a need for smoking cessation education for nurses was determined to be a priority. Establishing the PICOT formatted question helped to further identify stakeholders and the outcome of the intervention. During the validation phase, 22 articles were noted to be valuable in the application of the student's project. The articles will be critiqued later to describe reliability and credibility. The comparative evaluation/decision making phase focused on synthesizing findings in the literature and determining the feasibility of applying these findings to practice. Considerations included analyzing the risks, the resources, and the readiness of the staff nurses. For example, analysis of the nursing unit to ensure proper fit, identification of resources such as time and space, constraints to nurses' time, and the willingness of the staff to participate were considered to determine the desirability and the feasibility of the project. In the translation/application phase of the model, the project was

implemented. Based on the defined plan for the project, nurses were educated about tobacco and smoking cessation, utilizing the Ask-Advise-Refer curriculum. The final phase, the evaluation phase, allowed for change to be evaluated based on the outcomes and goals set for the project (Cilisk et al., 2005; Young, 2009). The Stetler model further allowed the process to occur within the allotted time period without the implementation of a pilot study before translation into practice. Overall, the model provided a framework for which to guide change in clinical practice, based on the applicability of research and critical thinking (Brown & Rodger, 1999).

Literature Search

With the PICOT question identified as the first step in the evolution of establishing evidence-based practice, the search for relevant evidence became the next step in order to answer the clinical question (Melnyk & Fineout-Overholt, 2005). Searching for relevant evidence occurred through various means and resources. Utilizing databases, this project manager searched the following: CINAHL, Cochrane database of Systematic Reviews, Proquest, Medline, and Joanna Briggs. Search terms included: nursing, smoking cessation education, tobacco education, tobacco dependence curriculum, and Rx for change. These search terms were used in various combinations in order to yield the most results in the databases. While searching the databases, searches were limited to those that were English language and included nursing subsets. Search results were not limited extensively due to the restricted number of significant results yielded with the key search terms. Upon searching the databases, abstracts were reviewed to determine relevance to the evidence-based practice project. Once reviewed, hard copies of the articles were obtained to determine if they met the established inclusion criteria. Moreover, references from articles obtained in the databases were hand searched for additional resources. Inclusion criteria for the articles included being published after January 1999, population within the study consisted of either health care providers or nurses, interventions were specific to education or training regarding smoking cessation, and

explored knowledge regarding smoking. Articles were excluded if they were not available in English, were older than 1999, did not offer quality information, or did not focus on smoking cessation or improving knowledge on smoking cessation. Sources of evidence considered were evidence-based practice articles, expert opinions, clinical guidelines, systematic reviews, qualitative studies, quantitative studies, and descriptive studies.

Searching the literature yielded relevant articles to be used for this project. In CINAHL, using the various search terms, resulted in 567 articles. Of these, 37 potential articles were reviewed. Articles were excluded due to being centered on integrating smoking cessation education into baccalaureate nursing programs or not having any significance to education of nursing staff. The total number of articles was narrowed to 18. ProQuest had 545 total articles that fit with the keywords of "smoking cessation", "tobacco cessation", "education", and "nursing," which were reduced to ten. These articles fit the keywords and addressed the clinical question, but were duplicate articles that were retrieved from CINAHL. Articles retrieved from Joanna Briggs included 29 results. Although these articles were considered for inclusion, recommendations within the evidence-based practice articles focused on clinical guidelines for providing smoking cessation advice to patients. Thereby, no articles were considered. Within the Conchrane database, 64 total articles were found that fit with the keywords utilized. Only one article had a focus on education of health care providers. Medline had a total of 607 articles. With duplicate articles from CINAHL and ProQuest, only one met the inclusion criteria. After meeting with Porter County's Tobacco Coordinator, this project manager explored the Tobacco Free Nurses website and found references to 29 articles that focused on providing smoking cessation training to health care providers. Eliminating duplicate articles and articles that did not meet the inclusion criteria, one additional clinical guideline article was found. Also, five articles were found through hand searching. One article met the inclusion criteria. In summation, the literature search yielded a total number of 22 articles to be used for this project.

Levels of Evidence

As the second step of evidence-based practice, articles were reviewed to determine the level of evidence. Levels of evidence for included articles were rated based on the rating system for the hierarchy of evidence as defined by Melnyk and Fineout-Overholt (2005). The 22 articles were reviewed and rated. Levels of evidence varied from a Level I to a Level VI. More specifically, there was one Level I, two Level IIs, one level III, one level IV, one level V,14 Level VIs, and two Level VIIs. Although levels of evidence were considered high, most of the evidence is on the lower end of the spectrum. In Table 2.1, the levels are presented.

Appraisal of Relevant Evidence

Researchers and authors have addressed providing smoking cessation education and training to health care providers and barriers encountered in providing smoking cessation advice. Evaluation of training and education has revealed the effects and impact on health care providers and their practice. Appraisal of the articles occurred in the following presented material.

Barriers to counseling smokers. Within clinical practice, nurses encounter daily barriers to providing smoking cessation advice to patients. Sarna, Wewers, Brown, Lillington, & Brecht (2001) explored the number and types of barriers that were perceived by nurses through a self-reported survey. Their primary goals also included understanding personal, professional, and institutional characteristics, noting the frequency of interventions provided to smokers, and comparing the nurses that encountered barriers in their clinical practice. Samples consisted of random members of nurses of the Oncology Nursing Society. A total of 1,508 nurses answered the questionnaires. Sarna et al. (2001) found that the average number of barriers that nurses encountered in their clinical practice to provide smoking cessation advice averaged 3.6. Those that perceived only one variable were categorized in the low barrier group, while those who reported five or more barriers were in the high barrier group. Significant differences were noted between the low and high barrier groups in regards to age, years in nursing, education level,

certification as an oncology nurse, clinical setting (i.e. inpatient and outpatient), and clinical position (i.e. staff nurse, nurse practitioner, administrator, and educator/clinical specialist). In regards to clinical encounters, 85% of patients encountered smoked cigarettes. Sixty-one percent of nurses assessed patients' tobacco status, and 60% of nurses charted this information, but only 23% provided counseling, 34% assessed the patient's readiness to quit smoking, 28% provided cessation advice, and 14% discussed relapse prevention techniques to patients. More specifically, the high barrier group was less likely to encounter patients that smoked weekly, and they also were less likely to engage patients in the aforementioned activities. Additionally, the high barrier group noted that they lacked self-confidence in being able to provide cessation interventions and advice. Overall, 10 statistically significant barriers were reported by the nurses and included the following: lack of patient motivation, lack of time, lack of smoking cessation skills, lack of knowledge of how to help patients quit, lack of general smoking knowledge, lack of confidence in cessation, lack of recognition/rewards, perception of intervening would increase patients' stress and cause patients to feel guilty, and the belief that intervening will not make a difference. Limitations of this study were noted. First, nurses reported their perceived barriers to smoking cessation, which may not be an accurate reflection or true description of their smoking cessation activities. Second, many within the sample are certified as oncology nurses. This certification may decrease the potential for being able to generalize to nurses who care for smokers. Third, characteristics of those who did not respond are unknown. Thereby, a potential for selection bias exists. Despite these limitations, barriers are encountered by nurses in their interaction with patients who are smokers. Consequentially, skills, education, and training need to be provided to oncology nurses and all nurses in general, due to the noted barriers, lack of knowledge, and perceptions of the nurses.

Table 2.1

Levels of Evidence

Author (s)	Levels of Evidence
Lancaster & Fowler (2008)	I
Registered Nurses Association of Ontario (2007)	I
Borrelli et al. (2008)	II
McDaniel et al. (2009)	V
Barta & Stacy (2005)	IV
Gordon & Mahabee-Gittens (2011)	VI
Merrill et al. (2010)	VI
Bryant (2008)	VI
Mitchell et al. (2008)	VI
Sheffer et al. (2010)	VI
Sheffer et al. (2008)	VI
Sarna et al. (2001)	VI
Moffat (2009)	VI
Corelli et al. (2005)	VI
Hudmon et al. (2005)	VI
Matten et al. (2011)	VI

(Continued)

Table 2.1

Levels of Evidence

Author (s)	Levels of Evidence
Pelkonen & Kankkunen (2001)	VI
Scanlon et al. (2008)	VI
Svavarsdottir & Hallgrimsdottir (2008)	VI
Whyte et al. (2006)	VI
Gomm et al. (2002)	VI
Preechawong et al. (2011)	VI

Competence and perception of smoking cessation counseling. Evidence-based practice recommendations provide practitioners with quality and best evidence to be utilized in daily practice. Guidelines were developed by the Registered Nurses Association of Ontario to provide nurses with recommendations about smoking cessation interventions, education, and advice, which stemmed from a systematic search of electronic databases, hand-searches of published literature, and searches of unpublished literature. The search focused on the topic of smoking cessation. Eighty-three abstracts of systematic reviews, randomized controlled trials, and clinical guidelines were retrieved. The literature was appraised using the Appraisal of Guidelines for Research and Evaluation and was rated by the strength of the evidence. After analyzing the literature, expert consensus from nurses in a panel in 2006 was utilized to develop and update previous recommendations. These recommendations were scrutinized by external stakeholders, and the final recommendations were piloted for nine months. Overall, recommendations for nurses included providing minimal and intensive tobacco interventions to all patients. In order to do this, the panel recognized that nurses needed to be knowledgeable about resources for referral and follow-up, which occurs through education of nurses in nursing curricula and training programs offered by hospitals. The objective of providing tobacco interventions to patients cannot occur without the support from organizations and administrators. These guidelines provide a foundation for the development of policies, programs, protocols, educational programs, assessments, and documentation for tobacco interventions by nurses (Registered Nurses Association of Ontario, 2007).

Nurses have a responsibility to readily utilize opportunities to provide patients with health education on smoking. With the aim of identifying nurses' sense of responsibility and willingness to provide smoking cessation options to patients and nurses' knowledge regarding smoking cessation interventions, Scanlon et al. (2008) conducted a descriptive study to survey 162 staff nurses in an acute care unit at a large metropolitan hospital in Australia. The researchers discovered that 87% of the participants believed that nurses had a responsibility to provide

patients with information on health-related issues, and 62% were ready to provide smoking cessation to patients. In regards to willingness, 22% percent of nurses were already providing smoking cessation to patients, while 57% were ready to counsel patients, but required assistance in being able to do so. Although nurses were ready to counsel patients, only 22% of them passed the Index of Smoking Knowledge test to determine their knowledge regarding smoking cessation information. Nurses were willing to provide smoking cessation counseling, however their lack of knowledge lead to decreased willingness to provide interventions.

Focusing on the health education practices of 12 nurses, Whyte et al. (2006) conducted a qualitative case study in acute care wards in three hospitals in Scotland. Collecting data through observation, semi-structured interviews, and recordings of nurse-patient interactions, Whyte et al. (2006) discovered four themes, which included teachable moments, readiness to learn, provision of health information, and oral communication. Correlating with these themes, nurses have adopted opportunistic approaches in discussing smoking information with patients during nursing care. Despite this opportunity, nurses were unable to communicate information about smoking beyond smoking habits of patients due to poor communication skills, inadequate knowledge, and improper use of opportunities. Patients are willing to discuss their smoking habits and are willing to learn about smoking cessation, but nurses need to be adequately prepared to provide smoking cessation education to patients (Whyte et al., 2006).

Nurses need the competence and training to counsel patients. Pelkonen and Kankkunen (2001) studied 882 responses to a questionnaire provided to Finnish nurses. Using a Likert-scale, the questionnaire focused on measuring the nurses' competence in advising smokers and offering support through addressing the following variables: motivation, encouragement, nurses' beliefs in giving patients smoking advice and support, their ability to create a trustful atmosphere, knowledge of cessation resources, knowledge of nicotine substitutes, and knowledge of positive consequences. The researchers found that 67% of the nurses always discussed the patients' smoking habits with the patient, while 33% of the nurses discussed

smoking habits with a patient who had a related disease. Additionally, nurses considered themselves fairly competent in their ability to identify the motivation of the patient to quit smoking, ability to create a trustful atmosphere, and encourage patients to quit smoking. Half of the nurses did not belief in the effectiveness of smoking cessation advice. Those nurses who were public health nurses and those with a personal history of smoking rated their competency as high for being able to advise and support patients. Education of nurses also influenced nurses' knowledge of smoking cessation. Those with a basic nursing education had the best smoking cessation knowledge, but unfortunately, they did not believe in the positive effects of smoking cessation programs in being able to help patients quit smoking. Pelkonen and Knakkunen's (2001) research study has implications for smoking cessation advice being provided to patients. These include instructing nurses who are ex-smokers that they can use their own smoking cessation experiences to help patients quit smoking, training nurses about smoking cessation, and encouraging nurses to be involved in smoking cessation advice and support.

Gomm, Lincoln, Egeland, and Rosenberg (2002) conducted a researched studied that consisted of 127 nurses in Australia, who completed self-questionnaires. These questionnaires were based on assessing nurses' attitudes and behaviors toward the U.S. Clinical Practice Guidelines on Smoking Cessation and the nurses' own smoking behavior. The researchers noted that 88% of the nurses were aware of their patients' smoking status, 52.8% of the nurses did not advise patients to quit due to the decision of quitting smoking to be a personal decision, not wanting to stress patients, and lack of time. The majority of nurses (94.5%) felt confident in their ability to assess their patients' smoking status. However, only 47.3% assisted patients with quitting, and 53% believed that it was part of their responsibility to assist patients to quit. This may be due to the lack of training, as 89% of the nurses never had formal training on helping patients quit smoking. Therefore, these nurses appear to lack the confidence to actively help patients.

Effects off tobacco cessation education. Tobacco cessation education and training offers health care providers benefits that influence their ability to provide tobacco interventions to patients. Focusing on tobacco dependence treatment, McDaniel, Stratton, and Britain (2009) searched the electronic databases to identify relevant articles. After limiting results and reviewing articles to ensure that they met inclusion criteria, 38 articles were identified. Four categories of articles were included: tobacco use identification systems, education and training nursing staff to deliver tobacco intervention, dedicated staff for tobacco dependence treatment, and institutional policies to support tobacco interventions. McDaniel et al. (2009) found that nurses wanted to provide smoking cessation education to patients, but perceived barriers and a feeling of inadequate skills were cited. Reasons for the lack of skill sets included lack of training, lack of health care organizations providing continuing education and in-service opportunities, and insufficient content within nursing curricula. Nurses who received continuing education on tobacco information were found to provide more tobacco cessation advice to patients than those who have not received training. Additionally, advanced practice nurses and psychiatrists had increased knowledge and attitudes toward tobacco counseling, after smoking education was provided. McDaniel et al. (2009) found that educational interventions had a positive effective on nurses.

Sheffer, Barone, and Anders (2009) conducted a one hour training session for 1,286 health care providers (185 physicians, 359 nurses, 75 dental providers, and 667 related health care providers) in Arkansas. The objectives of the training program were to educate health care providers on the Public Health Service Clinical Practice Guidelines (the 5 A's: ask, advise, assess, assist, and arrange), medications for tobacco cessation, and available resources and cessation programs for patient referral. A pre- and post-test assessment was conducted. The pretest consisted of a Likert-scale to determine the frequency of engaging patients with tobacco cessation advice, using the Public Health Service Clinical Practice Guidelines, observing the effects of tobacco on patients' health, and perceived success of interventions. Additionally,

levels of knowledge and attitudes of motivation, perceived knowledge of cessation interventions, self-efficacy, perceived importance of tobacco cessation interventions, perceived effectiveness of interventions, importance of barriers, and perceived preparedness to interact with patients was assessed. The post-test measured the attitudes and knowledge of health care providers and the levels of knowledge and attitudes found in the pretest and also assessed the objectives and quality of the training program. The researchers noted from the assessment tests that "providers saw the effects of tobacco use in their tobacco-using patients about two-thirds of the time, were moderately proactive with addressing tobacco use, and felt minimally successful in helping patients quit" (Sheffer et al., 2009, p. 609). Further, the health care providers did not readily utilize the clinical guidelines as recommended by the Public Health Service. In regards to provider knowledge and attitudes, physicians had a higher score on the levels of knowledge and attitudes of motivation Likert-scale, valued tobacco cessation more often, and noted the importance of barriers more than nurses. Differences were observed after the health care providers received training. First, physicians, nurses, and dental providers noted that they had more motivation, knowledge, importance, and preparedness on the knowledge and attitudes Likert-scale. Second, nurses and dental providers perceived the importance of barriers in interacting with patients, while physicians were reported to perceive treatment as less effective. In addition to the results, limitations were noted with this study. Limitations included that the data may not truly reflect health care providers self-reported results on the knowledge and attitudes Likert-scale, the researchers did not study the long term effect of training on health care providers' interactions with patients, and the frequency of their interactions. Despite the limitations, the results of the study have implications for training health care providers. Because of the significant increase from minimal/moderate to high levels on the pre- and post-test for all health care providers, training should be provided to health care providers, including dentists and nurses due to their significant increase on the tests.

In a similar study by Sheffer et al. (2010), a one hour training program on treatment of tobacco use and dependence was provided to 54 advanced practice nurses, 250 registered nurses, and 55 licensed practical nurses to determine how it affected their knowledge and attitudes towards tobacco interventions. With the same objectives and pre- and post-test assessment as the aforementioned research study, similar results were also noted. "In general, nurses saw the effects of tobacco use on their patients more than three-quarters of the time, were moderately proactive in addressing tobacco use, and felt minimally successful in helping patients quit" (Sheffer et al., 2010, p. 179). A significant increase occurred from the pre- and post-test for the study participants.

Gordon and Mahabee-Gittens (2010) developed a web-based training program for 33 pediatric nurses and 17 respiratory therapists as a children's hospital, which focused on how to educate, motivate and assists parents of patients who smoke. Establishing a website called WeBreathe, the site consisted of a training program, available resources, and continuing education tests. Each section was divided into text, graphics, videos, and quizzes. After the website was reviewed for ease of use, content, and usefulness for health care providers, the training program was evaluated using a pre- and post-test to measure how it affected knowledge about tobacco cessation interventions, the health effect of tobacco use and exposure, and how to intervene with smokers. Reported results from the study included significant changes in the nurses' and respiratory therapists' knowledge of intervention techniques, attitudes, decreased perceived barriers to provide advice and assistance, and self-efficacy in providing smoking cessation interventions to parents who are smokers. Therefore, training nurses is an effective tool to help them provide tobacco interventions and advice to patients due to increasing nurses' motivation, knowledge, confidence, perceived importance, perceived effectiveness, and perceived importance of barriers and preparedness (Sheffer et al., 2010).

Training nurses in smoking cessation also increases the confidence of nurses in being able to intervene with patients who are smokers. An online survey of nurses in Great Britain was conducted. Sixty five percent of nurses who responded indicated that they had received some form of smoking cessation training. Thirty six percent of respondents indicated that their confidence level in being able to provide providing smoking cessation counseling to patients was rated a 4 out of 5, with five being the most confident. Those respondents who had received smoking cessation training were more confident from their training, which ultimately benefits their patients. This was demonstrated by one nurse stating "'I have done two comprehensive courses related to smoking cessation and feel this have given me the skills needed to help people make a quit attempt'" (Moffat, 2009).

Another study conducted by Borrelli, Lee, and Novak (2007) explored if smoking cessation training changed home health care nurses attitudes and counseling interventions for patients who are smokers. Ninety eight nurses from the Visiting Nurses Association of Rhode Island were randomized into two groups. The first group consisted of nurses who received training on the standard clinical guidelines for smoking cessation interventions, while the second groups of nurses received the motivational enhancement intervention. Both groups received one day of didactic lectures and role-playing. Information included prevalence of smoking, risks of smoking, benefits of quitting, withdrawal, cognitive and behavioral techniques for smoking cessation, and pharmacology. In addition to the mentioned training, the motivational group received training, which included motivational strategies and communication techniques. Booster sessions were provided every month. Assessments of the nurses' attitudes (self-efficacy, importance of counseling, perceived effectiveness, outcome expectations, patient motivation, patient perceived risk, and perception of organizational support) and counseling behaviors (amount of time discussing tobacco use, consistency of counseling, and *5 A's* of cessation counseling) were conducted prior to, immediately after, and six months after training was received. In regards to changes in attitudes for results in the pre- to post-test, there was a

significant increase in nurses' self-efficacy to counsel patients, perceived value in counseling patients to nurses and to organizations, perceived importance of smokers quitting, and greater optimism for patients to be motivated and remain adherent to smoking cessation. At six months follow up, no significant changes occurred from the post-test results. Changes in nurses counseling behaviors increased significantly from pre-training to the six month mark. Nurses increased their counseling time with patients. For those that spent less than five minutes counseling patients, they increased their time to an average of 12.8, for those that spent 5 to 10 minutes counseling, they increased their time to 19.7 minutes, and for those that spent 10 to 30 minutes counseling, they increased their time to 22.5 minutes. Nurses also significantly increased their counseling with patients using the 5 A's post-training and at six months. Behavioral outcomes of nurses at the end of training saw significant increases in organizational support for smoking cessation counseling and perceived importance of counseling patients. Unfortunately, data at the six month mark was difficult to obtain due to major layoffs with the Visiting Nurses Association, creating limitations in the analysis of data. In summation, the researchers found that training nurses improved their attitudes and their behaviors regarding smoking cessation.

  Smoking prevalence, attitudes, and perceived patient counseling responsibilities were assessed through a cross-sectional survey of 230 nurses in Serbia. Nurses that were 18 years and older and practiced in public health care facilities received a questionnaire that focused on questions about cigarette smoking, appropriateness of smoking in front of patients, attitudes toward the health effects of smoking, nurses' role in smoking prevention and cessation, perceived effectiveness of counseling and smoking cessation training, whether the nurses smoked in front of patients, and smoking policies in the workplace. Merrill, Gangon, Harmon, and Milovic (2010) found that the majority of the sample included female nurses who were current smokers that believed it was wrong to smoke in front of the patients, despite the fact that 74% of them had smoked in front of patients. The majority of respondents indicated that

employees were not permitted to smoke in the building or worked in a smoke free workplace. Of those current smokers, 45% were contemplating quitting, and 14% were ready to stop. Fifteen percent of nurses reported that they regularly counseled patients and only 16% percent received tobacco cessation training. "Overall, 23% of nurses considered themselves well prepared to assist patients to quit smoking, 27% felt somewhat prepared, and 50% reported feeling unprepared" (Merrill et al., 2010, p. 94). Although the nurses felt unprepared to provide tobacco cessation counseling, nurses rated the effectiveness of counseling patients on a Likert-scale from one to five with one being very effective and five as not effective. For those that received training on the *5 A*'s, they rated counseling as 3.6 and those that had not received training as 4.0. Also, nurses rated the effectiveness of nursing counseling to prevent patients from smoking. Nurses who smoked rated the effectiveness of counseling as 3.9, and nonsmokers rated the effectiveness of counseling as 3.6. In essence, nurses served as role models to patients in quitting smoking, and smoking cessation training increased the likelihood of nurses providing regular smoking cessation counseling to patients.

Another study examined the effectiveness of tobacco cessation counseling training and counseling practices of Thai nurses. Preechawong, Vathesathogkit, and Suwanratsamee (2011) conducted a quasi-experimental one-group pre-test post-test among a sample of 76 nurses in three smoke-free hospitals. A convenience sample of nurses participated in a six hour, one day training program based on the Public Health Service Clinical Practice Guidelines (5 A's approach) within the context of Bandura's self-efficacy theory. Content included the harmful effects of tobacco use, smoking cessation interventions and counseling, and motivational interviewing techniques. Nurses answered the distributed questionnaires prior to the program and three months and six months after the program. The researchers found that self-efficacy in providing counseling significantly increased from baseline (mean of 22.34), three months (mean 24.40), and six months after (mean 28.04), while tobacco cessation counseling practices significantly increased from baseline (mean 19.08) to three months (22.57) and a slight increase

from three months to six months (mean 23.28). These results are indicative of increased self-efficacy due to tobacco cessation counseling training and time to develop tobacco cessation counseling skills. In a similar study, using a quasi-experimental design, 15 female nurses (two licensed practice nurses, five diploma nurses, seven bachelorette nurses, and one graduate nurse) received two hours of training on the Clinical Practice Guidelines at a hospital in Nebraska in order to improve their smoking cessation counseling behaviors and self-efficacy in smoking cessation interventions. A pre-test, post-test, and follow up questionnaire were administered to determine the nurses' self-efficacy and smoking cessation intervention practices. Not all nurses answered all three questionnaires, creating a limitation for this study. Barta and Stacy (2005) found that an increase in smoking cessation training and self-efficacy increased slightly from the pre-test to post-test. They recognized that only a slight increase occurred for tasks that nurses performed in their daily practice, such as asking about smoking status during the admission process. This study has important implications for nurses, as they did not possess all the necessary skills to provide smoking cessation counseling. Providing smoking cessation training and education can positively influence nurses' self-efficacy and behavioral skills for smoking cessation interventions with patients (Barta & Stacy, 2005).

As well as the increase in self-efficacy, nurses have demonstrated an increase in knowledge, as a result of smoking cessation training and education. A survey of 868 nurses in Iceland was used to understand the attitudes, knowledge, and participation of nurses in smoking cessation counseling and noted barriers to providing interventions to patients. Using a four and five point ordinal scale, questions included topics such as the frequency of assessing patients' smoking status, advising patients about the importance of smoking cessation, smoking knowledge of nurses and knowledge of resources, support provided to patients, reducing second hand smoke to children, education/training, and attitudes and knowledge towards smoking cessation. With 80% of the nurses recognizing that it was their duty to provide smoking cessation information to patients and less than 26% believed smoking cessation advice would

have a negative effect on patients, less than 50% of nurses provided advice to patients if the patient experienced effects from smoking. Only 22.2% helped actively assist patients to stop smoking, and 55.3% never helped assist patients. This may be due to the fact that 54.5% of nurses found it difficult or rather difficult to assist patients with quitting smoking. Since only 25.7% of nurses received smoking cessation education during nursing school and 47.3% had not increased their knowledge on the topic, this made it difficult to provide advice to patients. The majority of nurses always or almost always provided interventions to families with children who smoked. Commonly reported barriers to smoking cessation advice and interventions provided by nurses included the following: no time, lack of interest, insufficient knowledge, insufficient training, not part of job description, and a difficult task to perform. Although limitations of the study were a low response rate, use of self-reported data, and potential of bias from those that did not respond to the survey, this study has implications for nurses. Since nurses care for patients who are smokers, nurses must participate in smoking cessation counseling, but these barriers need to be addressed. Therefore, training should be provided to nurses in order to increase their knowledge and ability to provide counseling to patients (Svavarsdottir & Hallgrimsdottir, 2007).

Bryant (2008) discussed a pilot educational project for nurses in a community hospital with the purpose of providing nurses with strategies to use when educating patients about smoking cessation, understanding how to assess smoking status, and how to document patients' smoking status. Using the Public Health Service's Clinical Practice Guidelines and the stages of change model, a convenience sample of registered nurses, 18 years and older within various clinical areas (i.e. emergency, outpatient procedures, gynecology/obstetrics, medical-surgical, and progressive care) attended an in-service class. A pre-test and post-test with a Likert-scale was used to measure the nurses' perceived knowledge in smoking cessation assessment, strategies to assist in smoking cessation, and documentation of smoking cessation assessment. The researchers discovered in the pre-test that "…49% of the nurses did not know

or were unsure of how to assess patients, 53% did not know or were unsure of strategies to assist in smoking cessation, and 64% did not know or were unsure how to document" (Bryant, 2008, p. 34). In comparison to the pre-test, there was a significant increase in the results on the post-test. Researchers found that 98% of the nurses knew how to assess smoking status, 96% of the nurses were familiar with strategies to assist patients with smoking cessation, and 100% knew how to document patients' smoking status. Researchers recommended that even a short in-service provided nurses with increased knowledge that may improve patients' health (Bryant, 2008).

Another study conducted at the NSW Department of Health developed competencies for smoking cessation in order to help 300 health care providers increase their knowledge on smoking cessation. Because NSW health care providers are limited in their knowledge, skills, and confidence to provide smoking cessation interventions, training was provided to them at 27 rural and remote outreach clinics and metropolitan hospitals using video-conferencing technology. As a result of the smoking cessation education via video-conferencing technology, Mitchell et al. (2008) noted that the health care professionals indicated increased knowledge and skills from the training through the delivery method. Smoking cessation education offers nurses with an opportunity to increase their knowledge about smoking cessation information and interventions.

Because nurses lack knowledge and behavioral skills about smoking cessation, an educational curriculum based on the U.S. Public Health Service Clinical Practice Guidelines for Treating Tobacco Use and Dependence fills the gap in knowledge and provides tools that nurses may use in their current practice. The Rx for Change curriculum, designed for pharmacy students and adopted for health care professionals, was based on these Clinical Practice Guidelines. Hudmon et al. (2003) performed a post-training survey of 546 pharmacy students after completion of the Rx for Change curriculum at four California schools of pharmacy. Lecture content included: epidemiology of tobacco use, forms of tobacco, pharmacology of nicotine and

principles of addiction, drug interactions with smoking, assisting patients with quitting, pathophysiology of tobacco-related diseases, genes and tobacco use, how to get involved in anti-tobacco efforts, and a history of tobacco control efforts. Pre- and post- training scores from a Likert-scale questionnaire significantly increased from 1.62 to 3.44, indicating that students' knowledge and abilities to help patients quit using tobacco increased. Eighty six percent reported that their skills were good, very good, or excellent using the 5 A's of ask, advise, assess, assist, and arrange. Seventy three percent of students reported that the material learned was new, and 93% believed that the material would allow them to provide quality counseling to patients. A comparison group was not provided to compare the results to.

In a similar study, Corelli et al. (2004) studied the Rx for Change curriculum with 493 Doctor of Pharmacy students at four universities in California, who received seven to eight hours of training. The purpose of the study was to evaluate the students' abilities, skills, and self-efficacy for smoking cessation counseling, using the 5 A's. Students' pre- and post- training scores increased from 1.89 to 3.53, and students found that 77.4% of the material was new to them. Ninety two percent of students rated their post-training skills as improved along with 97% indicating that this curriculum would increase the quality of counseling provided to patients. In regards to self-efficacy, 84% of students reported moderate to extreme confidence in providing counseling to patients after completing the curriculum. The Rx for Change curriculum is also applicable to nurses. At a 500 bed community hospital in California, Matten et al. (2011) conducted a program evaluation design with 107 nurses at a hospital in California to determine the effectiveness of an adapted three hour Rx for Change curriculum. Utilizing a pre- and post-test, measures include a nine item knowledge test, the Skill and Confidence for Smoking Cessation Counseling tool, which uses a Likert-scale to determine nurses' ability to use the 5 A's, and the post education survey for nurses to estimate the number of patient referrals. The post-test was conducted immediately after the attending educational session, three, six, and 12 months after. Nurses had a significant increase in knowledge from 5.4 to 7.37, demonstrating a

20% increase. Ability to provide smoking cessation counseling increased from 24% to 81% after completing the curriculum. Nurses were more confident in advising patients to quit, assessing patient readiness to quit, and providing assistance to patients. Limitations noted by the researchers included lacking a comparison group to compare the results to, no demographic information was obtained, which limits the ability to generalize the results to nurses, the tools used to measure knowledge were new, and attrition of participants. Therefore, the Rx for Change curriculum has shown to be effective in increasing knowledge and competence in providing smoking cessation counseling.

Lancaster and Fowler (2000) assessed the effectiveness of training health care providers to provide smoking cessation interventions to patients along with the use of prompts and reminders. They searched the Cochrane Tobacco Addiction Group to find articles that included the following topics: participants that were healthcare practitioners or practice and the effects on patients who were smokers, types of outcome measures, including "…the number of smokers who were counseled, asked to set a date for stopping (quit date), given a follow up appointment, given self help materials, offered nicotine gum, or prescribed a quit date" along with the rates of abstinence and changes in long term smoking of patients. Randomized trials were critiqued by two independent reviewers using cluster randomization. Ten studies, which met the inclusion criteria, were included in the review. Eight studies compared trained verses untrained professionals, two studies examined all health care providers who received training along with the use of prompts, eight examined medical practitioners, and all 10 studies occurred in primary care settings. Minimal contact strategies were part of the training in addition to emphasizing the importance of setting quit dates and offering to follow-up with patients. Overall, Lancaster and Fowler (2000) found that health care providers who were trained were more apt to perform smoking cessation than untrained health care providers, especially when prompts and reminders were used.

Construct Evidence-Based Practice

With the foundation of the appraised literature, the proposed evidenced-based practice project formed the foundation of the best practice model recommendation. Further, the appraised literature provided a basis to answer the clinical question. These components will be discussed more extensively in the following sections.

Synthesis of Critically Appraised Literature

Summarizing the appraised literature, these study findings contribute to the need for health care professionals, including nurses to be counseled in providing patients with smoking cessation information. "This lack of training results in the licensure of practitioners who likely are poorly equipped to assist their patients with quitting" (Hudmon et al., 2003, p. 146). With nurses being on the forefront of patient care and being poorly equipped to provide smoking cessation counseling to a captive audience, education becomes a key component for nurses.

Because nurses are expected to be involved in health promotion activities for their patients, education offers a means to fill the void of being poorly equipped to intervene with patients, who are smokers (Scanlon et al., 2008). Moreover, nurses encounter smokers in daily practice, making it pertinent that nurses are prepared to perform health promotion activities. Education increases nurses' knowledge, self-efficacy, attitudes, motivation, and preparedness toward smoking cessation interventions, increases counseling of patients, and decreases nurses' perception of barriers in providing smoking cessation interventions. Basing education and training of nurses on the recommended U.S. Public Health Service Clinical Practice Guidelines for Treating Tobacco Use and Dependence, utilization of the Rx for Change curriculum increases nurses' ability to provide patients with proper information regarding smoking. Therefore, education provides a means for developing smoking cessation skills for nurses.

Best Practice Recommendations

As a result of the synthesis of the literature, the best practice recommendation was to provide nurses with education and training on tobacco use and smoking cessation. Education should be based on the U.S. Public Health Service Clinical Practice Guidelines for Treating Tobacco Use and Dependence. The goal of the intervention was to increases nurses' knowledge, skills, and confidence in providing smoking cessation education and counseling to patients so that patients can make educated decisions regarding their health. Thus, the education of each nurse, using the Rx for Change curriculum, afforded them with the opportunity to meet the established goals.

Answering the Clinical Question

The best practice recommendation helped to answer the clinical question: What educational intervention would be effective in meeting the established objectives? By developing an education program based on the needs of nurses, which was indicated and supported in the literature, the project manager worked towards answering the clinical question through the implementation of the evidence-based practice project. Furthermore, addressing the needs of the clinical agency and working with the unit directors to establish an educational program moved the project manager toward answering the clinical question. Measuring the pre- and post-test results from the educational initiative provided data that determined the effectiveness of the educational intervention, which ultimately determined if the best practice recommendation supported the clinical question.

CHAPTER 3

IMPLEMENTATION OF PRACTICE CHANGE

Method

Methods provide a blueprint or outline of how to implement a specific evidence-based practice project in order to be replicated again and ensure validity. This chapter focuses on providing information on the implementation of the intervention, recruitment of subjects, management of data, and protection of human subjects for this evidence-based practice project.

Sample and Setting

The setting for this project was a moderately sized acute care hospital with over 250 beds. Providing over 60 years of care to a small Midwestern town, this hospital has four extension campuses. These extension campuses serve the local county and provide care to thousands of patients each year.

Participants for this educational project included staff nurses (i.e. registered nurses and licensed practical nurses), who are regularly employed on two units within the hospital. These units are busy medical-surgical floors. Although both serve as medical-surgical floors, unit A additionally provides care for detoxifying patients and those with ventilators, while the other unit, unit B, has a specialty focus on colon and urology surgeries.

Outcomes

Four outcomes were expected to occur as a result of the educational intervention: 1) an increase in knowledge levels of nurses on smoking information and cessation as demonstrated in the pre- to post-tests, 2) a perceived increase of skills sets by the nurses to be able to provide smoking information to patients, 3) a perceived increase in confidence of nurses to provide patients with smoking information and cessation, and 4) perceived interaction of educating patients who smoke. These four outcomes allowed nurses to be able to communicate better with patients about smoking, properly assess patients' smoking status, enhance general

smoking knowledge, and allow nurses to feel confident in facilitating a conversation on smoking cessation. The latter outcomes were measured based on the nurses' perception, but were not measured in actual daily clinical practice.

Intervention

Few published tobacco cessation training programs exist for health care providers (Matten et al., 2011). The Rx for Change: Clinician-Assisted Tobacco Cessation program began to be developed in 1999. With the goal of integrating tobacco information into the curriculum of pharmacy schools, the Rx for Change program was eventually designed for first and second year health care professional students. Reviewed by tobacco cessation experts, piloted in 2000 with pharmacy students, and reviewed again by external reviewers after being piloted, the Rx for Change program has been used to train over 100,000 health care providers since the year 2000 (Hudmon et al., 2003; University of California San Francisco, 2011).

The Rx for Change program reflects the U.S Public Health Service Guideline for Treatment of Tobacco Use and Dependence. The program is based on teaching health care providers (i.e. nurses, medical assistants, dental providers, pharmacists, and physicians) and health professional students the principles of the U.S. Public Health Service Guideline and providing behavioral interventions to patients who are smokers. The program consists of five core modules: 1) an introduction and epidemiology of tobacco use, 2) nicotine pharmacology and principles of addictions, 3) drug interactions with smoking, 4) assisting patients with smoking, and 5) aids for cessation. However, this project manager used an abbreviated version of the program that was been developed for busy clinicians, such as nurses, medical assistants, and pharmacy technicians who have brief times during care to interact and educate patients. This curriculum, Ask-Advise-Refer, is based on the same content of the five core modules, but emphasizes pertinent information and resources that are applicable to non-prescribing clinicians. The average time required for the Ask-Advise-Refer curriculum is between 90 to 120 minutes. Optional supplemental material is provided in the form of ancillary handouts, video

segments, case scenarios, and recommended readings (The Regents of the University of California, 2011).

Implementation

      Initial Meeting. Prior to the initiation of the educational intervention, each unit manager received an e-mail about this project manager attending a unit meeting. The purpose of the project manager attending the meetings was to provide an overview and explanation of the project, allow the nurses to meet this project manager, and answer questions. The unit manager of unit A and B was met in person to discuss the dates and times. A scheduled meeting on unit A was conducted with time allowed for an explanation of the project, but a unit meeting was never scheduled with unit B. This was due to the unit director taking a short leave of absence, causing the project to continue as scheduled. A brief description of the educational intervention and of the core modules of the Rx for Change program was provided at unit A's meeting. Potential benefits of the program were further discussed with the participants and participants were provided with time to discuss any questions or provide feedback. Participants were notified that a schedule of the dates of each educational session would be supplied to them in their mailbox along with a detailed description of the project. Unit B also received the same scheduled dates and a detailed description of the project in their mailboxes (see Appendix A). The unit manager discussed with individual nurses on the unit about the project to make them aware of this opportunity.

      Rx for Change Program. Flyers reminding the nurses of the upcoming educational sessions were provided on the two participating units (See Appendix B). Unit directors personally talked to the nurses on each unit to remind them of the sessions. To help create a social change and encourage attendance, these unit directors, as opinion leaders within the chosen clinical site, created a sense of enthusiasm on the units through their interactions with nurses.

During a two month period, this researcher held a total of seven session educational sessions on each unit. The Ask-Advise-Refer curriculum was initially divided into two sessions, averaging 60 minutes each of PowerPoint slides and personal interactions. However, on the first day of implementation, it was noted that nurses were unable to attend two 60 minute sessions on their busy unit. Therefore, the curriculum was adjusted to one 30 to 45 minute session. Unnecessary detail of the epidemiology of tobacco and excessive pharmacology of nicotine replacement was decreased in order to accommodate the nurses. After this adjustment, this project manager was able to recruit participants to attend the education sessions.

For each education session, informed consent was received from the participants (see Appendix C). Upon receipt of informed consent, the demographic information forms were obtained (see Appendix D). These forms remained confidential, as this project manager assigned a code number to each participant, which appeared on the top portion of the form. A master list of the nurses' names and code numbers was created and stored in a locked secure location.

The knowledge pre-test and the Skills and Confidence for Smoking Cessation tool pre-test were provided to each participant at the educational session. A PowerPoint © presentation on the Ask-Advise-Refer curriculum was reviewed and discussed with each participant. Copies of the educational slides and additional ancillary references were also provided at these sessions to reinforce information and for the participants to follow along with the presentation. The PowerPoint© presentation and ancillary references for this evidence-based practice project was obtained through creating an account on the Rx for Change website (The Regents of the University of California, 2011). Also, a poster was made to display the goals of the each session and to summarize the main points of the education curriculum. This poster was displayed during the sessions for the participants to review and was pointed out by this project manager throughout the session (see Appendix E). After the completion of the session, a question and answer time was offered by this project manager to answer any questions of the participants or

to discuss topics further. Once questions were answered, post-tests evaluating the knowledge of nurses were provided to each participant to complete in addition to the Skills and Confidence for Smoking Cessation tool post-test. Approximately two to three months after the participants received the education, the aforementioned post-tests and an additional post-test along with instructions were put in the participants' mailboxes to be completed (see Appendix F). Flyers were sent out to remind participants to complete the post-tests during the three weeks that were provided for completion.

This project manager made herself available to answer questions or to address concerns of the participants. Her telephone number and e-mail address were provided on the flyer describing the project and on the informed consent forms. She also reinforced this at the educational sessions.

During the implementation of the project, this researcher periodically e-mailed and met in person with the unit directors to discuss the educational sessions, seek feedback, and provide an update on the progress of the sessions. Further, these meetings helped to elicit feedback in order to ensure that the educational sessions were meeting the needs of the unit, to determine what was working well and what was not, and to address any of their questions or concerns. With this knowledge, this project manager was able to monitor and make adjustments to the curriculum and recruit further participants.

Planning

Planning for the educational intervention required collaboration with the unit directors of each unit. Permission was sought and obtained from the two unit directors to conduct the intervention. A discussion took place with the unit directors to decide on the appropriate number of educational sessions to be held on each unit, to coordinate times for the sessions, and to schedule the use of the break rooms. This discussion helped to ensure the cooperation of the unit directors and make certain that the learning needs of the nurses were met.

Although this project manager had not received training on smoking cessation, she gained knowledge and expertise about smoking cessation through three means. One strategy was to obtain continuing education credits on tobacco cessation information, including the U.S Public Health Service Guideline for Treatment of Tobacco Use and Dependence. The second strategy focused on reviewing the Rx for Change program. The Rx for Change program offers instructors information and notes to help those wanting to implement the program at local institutions. Third, this project manager met with Porter County's Tobacco Control and Prevention Coordinator to discuss available resources and content to increase this project manager's knowledge and education strategies. These strategies provided this project manager with the appropriate knowledge to be able to instruct the nurses.

Recruiting Sample

Nurses were recruited using a convenience sample. The initial meeting with the nurses and by providing flyers allowed this project manager to recruit participants to be part of the sample. Inclusion criteria of the sample include nurses (e.g. registered nurses and licensed practical nurses) 18 years and older, who work at the clinical agency on the medical-surgical floors of unit A and unit B. Exclusion criteria included non-nursing staff and those nurses who are staffed from other departments/floors.

Data

Measures. With the goal of measuring data for analysis, the following instruments were utilized: a pre- and post- knowledge test, a pre- and post-test using the Skill and Confidence for Smoking Cessation tool, and the follow-up interaction questionnaire. The pre- and post-knowledge test is a 20 question survey based on the content of the Ask-Advise-Refer curriculum (see Appendix G). The knowledge test was also reviewed by Porter County's Tobacco Control and Prevention Coordinator for validity. Suggestions were offered to improve the test. The foundation of the Skill and Confidence for Smoking Cessation Counseling tool comes from tools used with the Rx for Change classes (see Appendix H). This tool was validated and reviewed by

the nurse investigators and two pharmacists in the Matten et al. (2011) research study and had

a reliability score of 0.81. Permission was sought and retrieved to use this tool for this evidence-

based practice project (see Appendix I). The final survey provided pre- and post- assessment of

how often the nurses' assessed their patient's smoking status and provided smoking cessation

education and the preprinted smoking education packets (see Appendix J). It consisted of three

total questions. This survey was provided two to three months after the educational intervention

and was assessed to determine internal consistency.

  Collection. Data was collected through various means. Records were kept of the group

of nurses who attended each educational session through sign-in sheets and informed consent

forms. This researcher collected this information from each nurse. Pre- and post-tests were also

be completed with the educational sessions. However, one nurse finished the post-tests after

her shift due to lack of time. All data was coded, and this researcher maintained a record of the

coded data to allow information to be matched with each other. All information and records were

kept in a secure location.

  Management and Analysis. The impact of the educational intervention and the

knowledge, skills, and confidence of the nurses were measured using pre- and post-tests. The

measurement of the data allowed for this researcher to compare the results before and after the

intervention to decipher if a change has occurred. Descriptive statistics and frequencies were

utilized to analyze the data obtained from the demographic forms. Paired *t*-test allowed for a

comparison to occur of the pre- and post-tests for each participant.

Protection of human subjects

  Multiple methods were utilized to protect the subjects and their rights. Prior to

implementing the intervention, approval from the Institutional Review Boards at Valparaiso

University and the clinical agency was obtained. Informed consent was obtained from all

participants and an explanation that no penalties would be incurred from declining to participate

or to stop participating at any point during the project. This explanation emphasized that their

employment status would not be affected due to their decision. Participants were encouraged to contact this project manager if they had any questions or concerns. They had access to this project manager's e-mail and phone number. Confidentially was minimized by coding the demographic forms and tests. The key for the coded names were kept in a locked drawer in a secure location with no access to an outside party. These methods were utilized to minimize risks to participants.

CHAPTER 4

FINDINGS

The purpose of this evidence-based practice project was to implement an educational intervention to improve the knowledge, skills, and confidence of nurses who interact daily with patients who smoke. The education intervention helped to answer the clinical question and to understand the impact of smoking cessation education training on nurses. The findings from the intervention will be discussed in this chapter.

With a total of 14 sessions offered between the two nursing units, 22 nurses volunteered to attend the sessions. One participant was excluded, since she was a nursing student. All nurses attended the entire session. However, not all nurses completed the questionnaires. The demographic form and the pre-tests were completed by the 22 participants. Only one participant did not complete the immediate post-tests. Eleven participants completed the post-tests two to three months after the education sessions were offered.

Sample Characteristics

The sample characteristics are described in the following section (see Table 4.1; Table 4.2). All participants were Caucasian with a mean age of 40.82 years (*sd*= 14.39). Twenty females (90.9%) nurses participated along with two male (9.1%) nurses. The years of experience for the nurses on both units ranged from less than one year to over 40 years. The majority of nurses (45.5%) had one to five years of experience. The education level of the nurses included diploma graduates (9.1%), associate degrees (45.5%), and baccalaureate degrees (45.5%). One participant was a licensed practical nurse (4.5%), while the rest of the participants were licensed registered nurses (95.5%). Eighteen participants (81.8%) reported their primary shift was the day shift, while three (13.6%) worked the afternoon shift and only one (4.5%) worked midnights. Employment status of the participants ranged from an as needed basis to full time. The majority of participants were considered full time, working 64 hours or

more in a two week period. Three participants (13.6%) had an employment status of 1.0,

working 80 hours in a two week period, 8 (36.4%) had an employment status of 0.9, working 72

hours in a two week period, and four had an employment status of 0.4 (18.2%), working 32

hours in a two week period.

In addition to basic demographic data, participants were asked to report their smoking

status and their exposure to formal smoking cessation education and training (see Table 4.3).

Thirteen (59.1%) had never smoked, eight (36.4%) were previous smokers, and one (4.5%) was

a current smoker. Those that reported a history of smoking smoked less than one to 40 years.

Four (18.2%) had tried smoking, one (4.5%) smoked less than one year, one (4.5%) smoked for

one to five years, two (9.1%) smoked for six to 10 years, one (4.5%) for 16 to 20 years, and one

(4.5) for 36 to 40 years. In regards to smoking cessation education, 16 (72.7%) reported that

they had never received formal smoking education. For those six (27.3%) that received

education, one (4.5%) reported receiving it during nursing orientation, four (18.2%) received

education by continuing education, and only one (4.5%) received education during nursing

school.

Statistical Testing

Further, statistical analysis was performed to answer the PICO question. An analysis

was conducted in order to make comparisons between pre- and post-test scores for the three

questionnaires, Cronbach's alpha was conducted to measure internal consistency of the

questionnaires, and bivariate correlations using Pearson correlation coefficient were

determined. A more comprehensive analysis of the implications of the educational intervention

will be discussed in Chapter 5.

Table 4.1

Sample Characteristics

Trait	Range	Mean	SD
Age	23-65	40.81	14.39

Table 4.2

Sample Characteristics

Trait	Frequency (n) Results
Race	100% (n=22) Caucasian
Gender	90.9% (n=20) Female
	9.1% (n=2) Male
Nursing Level	95.5% (n=21) RN
	4.5% (n=1) LPN
Highest Degree	9.1% (n=2) Diploma
	45.5% (n=10) Associates
	45.5% (n=10) BSN
Years of Experience in Nursing	4.5% (n=1) <1 Year
	45.5% (n=10) 1-5 Years
	4.5% (n=1) 6-10 Years
	13.6% (n=3) 11-15 Years
	9.1% (n=2) 16-20 Years
	4.5% (n=1) 21-25 Years
	4.5% (n=1) 26-30 Years
	9.1% (n=2) 31-35 Years
	4.5% (n=1) >40 Years
Shift	81.8% (n=18) Days
	13.6% (n=3) Afternoons
	4.5% (n=1) Midnights
Employment Status*	18.2% (n=4) PRN
	4.5% (n=1) 0.5
	4.5% (n=1) 0.6
	4.5% (n=1) 0.7
	18.2% (n=4) 0.8
	36.4% (n=8) 0.9
	13.6% (n=3) 1.0

Note: * Employment status of 0.7 or greater is considered full time

Table 4.3

Sample Characteristics

Trait	Frequency (n) Results
Smoking Status	59.1% (n=13) Never Smoked
	36.4% (n=8) Previous History
	4.5% (n=1) Current Smoker
Number of Years Smoking	54.5% (n=12) Never
	18.2% (n=4) Tried it
	4.5% (n=1) <1 Year
	4.5% (n=1) 1-5 Years
	9.1% (n=2) 6-10 Years
	4.5% (n=1) 16-20 Years
	4.5% (n=1) 36-40 Years
Previous Formal Smoking Cessation Education and Training	27.3% (n=6) Yes
	72.7% (n=16) No
Type of Education	72.7% (n=16) No Education
	4.5% (n=1) Nursing Orientation
	13.6% (n=3) Continuing Education
	4.5% (n=1) Nursing School

In order to understand the effect of the education intervention on nurses' knowledge, paired-sample t tests were conducted to analyze and compare the pre-test and post-tests knowledge scores (see Table 4.4). The knowledge questionnaire consisted of 20 questions with fill in the blank, true or false, and multiple choice testing methods. The highest total score that participants were able to achieve was 20. The mean on the pre-test was 11.52 (sd=1.94), and the mean on the post-test was 16.86 (sd=1.68). A statistically significant increase in nurses knowledge occurred after participants received the education intervention (t (20) = -10.79, p <.05). The results for the mean on the post-test and the mean on the follow up post-test two to three months later were also analyzed. The mean post-test was 17.00 (sd=1.63), while the mean post-test follow up was 13.30 (sd=1.70). These results showed a statistically significant difference from the post-test to the follow up (t (9) = 4.86, p < .05), as participants knowledge decreased two to three months after the educational intervention.

The results from the Skills and Confidence for Smoking Cessation tool were analyzed using the paired-sample t tests on the pre-test and post-tests scores (see Table 4.5). Mean scores were obtained for the pre-test, post-test, and two to three months follow up post-test. For the Skills and Confidence for Smoking Cessation tool, participants rated their skills and confidence on a continuum. Using a Likert-scale for the skills portion, scores could range from zero as none to four as excellent. Six questions were used to measure participants' reported skills with the highest total score possible to achieve as 24. The mean pre-test was 12.90 (sd = 2.20), and the mean post-test was 14.85 (sd = 2.35) for the skills portion of the questionnaire. A statistically significant increase in participants' reported skills occurred after they received the education intervention (t (19) = -3.90, p < .05). The mean post-test was 14.30 (sd = 2.06), and the mean two to three month follow up post-test was 14.60 (sd = 2.72). However, the results for the mean on the post-test, and the mean on the follow up post-test two to three months later did not demonstrate a statistically significant difference for the participants' skills (t (9) = -.36, p > .05) (see Table 4.5). For the confidence portion of the questionnaire, the participants could

receive a high score of 36 with the nine questions. Scores could range from zero as not confident to four as extremely confident on the Likert-scale. The mean pre-test was 15.18 (sd = 6.05), and the mean post-test was 20.12 (sd = 4.87). A statistically significant increase in participants' confidence occurred after they received the education intervention (t (16) = -3.63, p < .05). The mean post-test was 20.30 (sd = 2.45), and the mean two to three month follow up post-test was 18.80 (sd = 1.69). However, the results for the mean on the post-test and the mean on the follow up post-test two to three months later did not demonstrate a statistically significant difference for the participants' confidence (t (9) = 1.59, p > .05). Their confidence decreased after participating in the education intervention two months later (see Table 4.5).

The final questionnaire allowed the project manager to assess the impact of the education intervention on the participants' interactions with patients about smoking cessation. The questionnaire provided a continuum for participants to determine how their interactions changed. Using a Likert-scale, the scores ranged from zero as never interacted to four, which is always interacted with patients who smoke. Twelve was the highest score that each participant could receive. Paired-sample t tests were conducted to measure the pre-test and post-tests scores (see Table 4.6). The mean pre-test score was 3.91 (sd = .71). The mean post-test was 7.00 (sd = .98). The pre-test to post-test scores had a statistically significant increase, which appeared to be due to the education intervention (t (10) = -3.80, p <.05).

Internal consistency was determined using Cronbach's alpha. Internal consistency for the Skills and Confidence for Smoking Cessation tool was determined. For the skill portion of the pre-test, the score was 0.56. Matten et al. (2011) reported an internal consistency for the pre-test of 0.81.The post-test had an internal consistency measure of 0.73, while the follow-up test had an internal consistency measure of 0.78. The internal reliability for confidence portion of the Skills and Confidence for Smoking Cessation tool was also determined. The internal consistency for the confidence portion of the pre-test was 0.94, which was consistent with Matten et al. (2011) with an internal consistency at baseline of 0.93. The post-test internal

consistency was 0.91 and the follow-up test was 0.63. The last questionnaire that assessed the participant's perceived interaction with patients who smoked was assessed for internal consistency. The pre-test had an internal consistency measurement of 0.73 and a post-test measurement of 0.95. The majority of the tests had a very good internal consistency.

Finally, bivariate correlations were conducted, using a Pearson correlation coefficient (see Table 4.7). The correlations included data obtained from the demographic surveys and the pre-test results based on the sample size of 22. Surprisingly, only two statistically significant correlations were found between the participants' demographics and the questionnaires. First, a moderate positive relationship was found between participants' employment status and scores on the pre-knowledge test (r (20) = .45, $p < .05$). Second, a positive relationship existed between years of experience in nursing and pre-confidence tests. (r (17) = .55, $p < .05$). The relationship between the participants' knowledge, skills, and confidence did not demonstrate statistically significant relationships with other demographic data. Additional, correlations were conducted between the questionnaires. Correlations were noted between them. Positive statistically significant correlations occurred between the pre-skills test portion and the pre-confidence test portion of the Skills and Confidence for Smoking Cessation tool (r (17) = .53, $p < .05$). The two to three month post follow up skills and confidence portion of the Skills and Confidence for Smoking Cessation tool were also moderately positively correlated (r (9) = .65, $p < .05$). The two to three month follow up skills portion for the Smoking and Confidence for Smoking Cessation tool and the post questionnaire that evaluated the nurses' interaction with patients who smoke had a significant positive correlation (r (9) = .81, $p < .01$). The two to three month follow up on the confidence section of the Skills and Confidence for Smoking Cessation tool and the two to three month follow up knowledge questionnaire were moderately positively correlated (r (9) = -.70, $p < .05$).

Table 4.4

Paired Sample Statistics for Pre- and Post- Knowledge Tests

Test	Mean (N)	SD	Std. Error Mean
Pre-Test	11.52	1.94	0.42
Post-Test	16.86	1.68	0.37
Follow-Up	13.30	1.70	0.54

Table 4.5

Paired Sample Statistics for Pre- and Post-Tests for Skills and Confidence for Smoking Cessation Tool

Test	Mean (N)	SD	Std. Error Mean
Skills Section			
Pre-Test	12.90	2.20	0.66
Post-Test	14.85	2.35	0.81
Follow-Up	14.60	2.72	0.86
Confidence Section			
Pre-Test	15.18	6.05	1.47
Post-Test	20.12	4.87	1.18
Follow-Up	18.80	1.69	0.53

Table 4.6

Paired Sample Statistics for Pre- and Post-Tests for Interaction with Patients and Smokers

Test	Mean (N)	SD	Std. Error Mean
Pre-Test	3.91	0.71	0.71
Post-Test	7.00	0.98	0.98

Table 4.7

Paired Sample Test Showing Significance between Pre- and Post-Test Scores

Test	Pre/Post	t	df	Sig. (2-tailed)
Employment Status/ Pre-Knowledge Test		.45	20	.05
Years in Nursing/Pre-Confidence Test		.55	17	.05
Pre-Skills Test/ Pre-Confidence		.53	17	.05
Follow-up Skills/ Confidence		.65	9	.05
Follow-up Skills/ Post-Interaction		.81	9	.01
Follow-up Confidence/ Follow-up Knowledge		-.70	9	.05

Conclusion

From this analysis, several conclusions can be made. First, it can be concluded that improvements were seen after the educational intervention. With the pre- and post-test scores on all three questionnaires, improvements were noted, but there was a decrease in knowledge, skills, and confidence two months after the intervention. Second, some significant correlations did occur. With the small sample size of 22, the interpretation of these correlations should occur with caution. The significance and interpretation of the results from the analysis will be discussed in Chapter 5.

CHAPTER 5

DISCUSSION

The evidence-based practice project examined the impact of an educational and training program about smoking cessation on nurses' knowledge, skills, and confidence to approach patients about their smoking status. The Ask-Advise-Refer curriculum and pre- and post-tests were utilized based on the literature and guidelines for smoking education. The results of this project suggest that the educational intervention was appropriate for increasing their knowledge, skills, confidence, and interaction with patients who smoke.

Explanation of Findings

The scores on the knowledge questionnaire, the Skills and Confidence for Smoking Cessation tool, and the questionnaire that evaluated the nurses' interaction with patients who smoke improved on the pre- and post-test with the p values <.05. Improvements were noted on all tests, except no statistical significance was derived from the post-tests to the two to three month follow up post-tests on the 20 item knowledge questionnaire and the Skills and Confidence for Smoking Cessation tool. The statistical analysis revealed few significant correlations or variables that are accountable for the increase in the scores between the pre- and post-tests. With this lack of plausible explanation, the results may be appropriately attributed to the educational and training intervention. The findings from this evidence-based practice project had similar results to the reviewed literature with increased nursing knowledge about smoking cessation, increased perceived perception of skills and confidence, and increased interaction with patients to discuss their smoking status after the educational intervention (Matten et al., 2011; Sheffer et al., 2010; Sheffer et al., 2009; Barta & Stacy, 2005; Merrill, 2010; Hudmon et al., 2003; Bryant, 2008; Mitchell et al., 2008; Lancaster & Fowler, 2008; Gordon & Mahabee-Gittens, 2011; Borrelli, Lee, & Novak, 2008).

Despite the improvement of the scores on the knowledge questionnaire, no statistical significance was derived from the post-test to the two to three month follow up post-test. The mean post-test was 17.00 (sd =1.63), and the mean post-test follow up was 13.30 (1.70). These results showed a statistically significant difference from the post-test to the follow up (t (9) = 4.86, p < .05). The decreased scores on the knowledge questionnaire may be due to the restriction of time allowed for each educational session. Due to the units being busy, sessions were restricted to 30 to 45 minutes each. This limited time span included obtaining consent, answering the demographic questionnaire and pre-and post-tests, and reviewing the educational material with each participant. This limited time span did not allow for information to be reinforced or initially practiced through case studies as initially planned with the extended educational sessions. Another reason for this may be due to the factual nature of some of questions asked on the knowledge questionnaire and the ability of the participants to retain the information over the long term period of time.

The analysis of the Skills and Confidence for Smoking Cessation tool also demonstrated no statistical significance from the post-test to the two to three month follow up post-test. For the skills portion, the mean post-test was 14.30 (sd = 2.06), and the mean two to three month follow up post-test was 14.60 (sd = 2.72), which was not significant (t (9) = -.36, p > .05). The reported skills from the post-test to follow-up remained consistent. For the confidence portion of the questionnaire, the participants could receive a high score of 36. The mean post-test was 20.30 (sd = 2.45), and the mean two to three month follow up post-test was 18.80 (sd = 1.69). The results for the mean on the post-test, and the mean on the follow up post-test two to three months later were not statistically significant for the participants' confidence (t (9) = 1.59, p > .05). Reasoning for this result may be attributed to the lack of time for the participants to fully implement these skills into practice, allowing them to feel confident. The findings were consistent with Matten et al. (2011) at the two to three month follow up on their skills in providing smoking cessation.

Correlational studies were conducted between variables. It was surprising to note only two statistically significant positive correlations existed. A moderate positive relationship was found between participants' employment status and scores on the pre-knowledge test ($r(20) = .45$, $p < .05$). This may be related to the fact that those who work on a more full time basis have had more time and experience on the nursing unit, which has allowed them to gain knowledge about smoking knowledge in general. The other positive relationships existed between years of experience in nursing and pre-confidence tests ($r(17) = .55$, $p < 0.5$). Those with more experience in nursing had more confidence in their ability to ask patients about their smoking status, counsel patients, refer patients to appropriate resources, and provide support.

Further correlational studies were conducted between the two questionnaires. Moderate positive significant correlations were shown between the pre-skills test portion and the pre-confidence test portion of the Skills and Confidence for Smoking Cessation tool ($r(17) = .53$, $p < .05$). Similarly, the two to three month post follow up skills and confidence portion of the Skills and Confidence for Smoking Cessation tool were moderately positively correlated ($r(9) = .65$, $p < .05$). One's assessment of their confidence can affect how they perceive their skills in an area such as providing smoking cessation assistance to patients. This may be the reasoning behind the correlations. The two to three month follow up skills portion for the Smoking and Confidence for Smoking Cessation tool and the post questionnaire that evaluated the nurses' interaction with patients who smoke had a significant positive correlation ($r(9) = .81$, $p < .01$). The two to three month follow up on the confidence section of the Skills and Confidence for Smoking Cessation tool and the two to three month follow up knowledge questionnaire were moderately positively correlated ($r(9) = -.70$, $p < .05$). The participants had an increase in reported perception in their skills and confidence to ask, assist, and refer patients who smoke to quit. This perception may have been the correlated cause for their increased interaction with patients in their daily nursing care. Because the participants' perceived increased ability of their skills to ask, assist, and refer patients who smoke and their increased confidence, a correlation may be

concluded that they actually increased their interaction also, providing an explanation for the correlation.

One unexpected finding for this project manager occurred on the Skills and Confidence for Smoking Cessation tool. The project manager noted that some participants decreased their rating on the Likert-scale of their skills and confidence on the post-test. There are two possible explanations for this finding. The participants may have overestimated their skills and confidence on the pre-test and found that they did not truly estimate their skills and confidence correctly after receiving the education intervention. This resulted in a downward rating of their skills and confidence. The project manager heard many of the participants say on the pre-knowledge test that they were unaware of the correct answers. Depending on the order the participants took the pre-tests, they could have overestimated their skills and confidence. The other plausible explanation includes the fact that the participants may have forgotten how they answered the pre-test for the Skills and Confidence for Smoking Cessation tool. All of the participants who rated their skills and confidence as decreased from the pre-test, were only decreased by one point on the specific questions, resulting in error.

Application of the Theoretical Framework

Rogers' DOI served as the theoretical framework for the design and implementation of the evidence-based practice project. It provided a good fit to guide the implementation of the project. With this good fit, all five stages of the DOI were utilized and the four main interacting factors, which included the innovation, communication, social systems, and time, were identified and utilized during the implementation of the project. The DOI provided a means to identify a need for a change and allowed the project manager to follow through the stages to facilitate the adoption of the innovation.

Adoption of the innovation occurred through the stages as described by Rogers (2003). The innovation or the education intervention was proposed to opinion leaders to create a change by educating nurses on how to provide smoking cessation information to patients on the

units. There were no current resources or education for the nurses to meet the standards of providing patients with information on admission. Persuasion and knowledge was utilized to gain the approval for the implementation of the intervention by the unit managers and to gain the acceptance of the education intervention by the nursing staff and participants. Discussions regarding the health effects of smoking and quitting smoking were discussed with the participants. Additional discussions focused on helping the patients through the different stages of change in the process of contemplating quitting smoking. The decision stage of the innovation-diffusion process occurred with a decision made to adopt the innovation, which was to change their practice and increase their interaction with their patients who smoke by asking about their smoking status, providing them with the preprinted smoking information packets provided by the hospital, advising them to quit, and referring them to appropriate resources. Additionally, the participants met the goal of increasing their knowledge, skills, and confidence regarding general smoking cessation information. Twenty two nurses attended the comprehensive presentation of the material and answered the initial pre- and post-tests, which allowed for data to be collected on their knowledge, skills, and confidence. The innovation was adopted by participants over the time frame of the project. A quick adoption and growth at the end of the education intervention occurred. This was depicted by the significant immediate increase in knowledge, skills, and confidence from the pre- to post-tests. As time progressed, it became more difficult to obtain information on the post-tests and the innovation, due to attrition. This made it difficult to determine if the project ever followed the classic S-shaped curve of growth as described by Rogers (2003). At the end of the project, 11 of the 22 participants responded to the follow up surveys. The three item questionnaire survey allowed this project manager to assess how the participants' interactions changed with their patients in regards to providing smoking cessation information and education, assess patients' smoking cessation status, and provide the preprinted smoking cessation information during the admission process. The mean pre-test score was 3.91 ($sd = .71$), and the mean post-test was 7.00 ($sd = .98$). The

pre-test to post-test scores had a significant increase (t (10) = -3.80, p <.05). The results are indicative that the 11 participants have adopted the innovation and made the decision to continue with the innovation, which demonstrates the effectiveness of the innovation.

Applicability of the Evidence-Based Practice Framework

The Stetler Model provided the framework to integrate research findings into practice. The model was an excellent fit, as it allowed this project manager to evaluate the project at every step of the process. This provided a comprehensive assessment of the process from identifying the problem, searching the literature, determining the feasibility of applying findings to practice, implementing findings into practice, and evaluating the implementation of the innovation.

The Stetler Model was appropriate due to modifications that were made during the implementation of the project. The first modifications made to the project focused on the curriculum. The Ask-Advise-Refer curriculum was initially divided into two sessions, averaging 60 minutes each of PowerPoint slides and personal interactions. On the first day of implementation, it was noted that nurses were unable to attend two 60 minute education sessions. Therefore, the curriculum needed to be adjusted and it was decided to decrease the curriculum to one 30 to 45 minute session. This adjustment also was based on the literature as a few studies had the education sessions lasting between 30 minutes to one hour. After this adjustment, this project manager was able to recruit participants to attend the education sessions. The second modifications focused on adding one additional questionnaire to assess the participants' interactions with their patients in regards to providing smoking cessation information and education, asking patients' about their smoking cessation status, and providing the preprinted smoking cessation information during the admission process. The overall objective was to determine if there was a difference in their practices prior to and after the educational intervention. The need for these changes was recognized due to the recognized goals and the plan was slightly modified in order to fulfill the objectives of the project.

Further modifications would have been made if the project could be repeated. These modifications are based on the implemented project. The first modification would include trying to more actively receive an exempt status from the Institutional Review Board process at the clinical agency. Instead, the project had to go through a full review to be approved and to have any changes made. Another modification would have included the introduction of the evidence-based practice project to unit B at a unit meeting, which was done with unit A. Unfortunately, this project manager was unable to make contact with the unit director due to her taking a short leave of absence, and the project had to continue in order to fit within the allotted time frame to be completed. This made it initially difficult to recruit participants, but with increased awareness of the project and the unit directors return and support of the project, participation increased. An additional modification would include adding additional questions to the questionnaires. For example, participants would have ranked their smoking cessation knowledge from novice to expert. This would have added an extra layer of information to gain an understanding of how they perceived their knowledge about general smoking information. Further, another area to measure would be nurses' attitudes towards smoking cessation counseling. This fits with some of the current research that assesses how smoking cessation education and training positively changed nurses' attitudes towards providing smoking cessation counseling for patients. The final area to be added to the questionnaires would be the nurses' perceptions of their overall ability to help patients quit using tobacco pre- and post-training, as described in Hudmon et al. (2003). In regards to the presentation, this project manager would have condensed the content prior to the implementation of the project and would have provided time for the nurses to either practice providing smoking cessation counseling or discuss a case study. The practice time or case study was originally part of the Ask-Advise-Refer curriculum. This may have further enhanced their learning experience by allowing them to practice or talk through what they learned. These are suggestions for future modifications if this evidence-based practice project is repeated in the future.

Strengths of the Evidence-Based Practice Project

This evidence-based practice project had several major strengths to note. The educational intervention focused on a need and area that was not always properly addressed. Many nurses stated in the unit meetings that they had not read the preprinted smoking cessation packets given to patients who smoked and were not very good about talking to their patients about their smoking status. The nurses also recognized during the educational sessions that they were not aware of the current resources available to patients such as the services offered by the Quitline and the free counseling that is required to be offered by the makers of over-the-counter nicotine replacement therapies. The educational intervention was an apparent success in improving the interactions that nurses had with their patients who smoked and did increase their knowledge, skills, and confidence from the pre-tests to the post-tests. While this project manager was waiting for participants to arrive to attend one of the education sessions, a nurse who participated in a previous session came in with a nicotine patch and said that she was going to talk to her patient that smokes about quitting and resources to refer the patient to. Additionally, the educational interventional did not require extensive resources, except time from the nurses during their work day. Lastly, the unit managers and the assistant chief nursing officer were supportive of the educational intervention. They helped with the recruitment process by encouraging their staff to attend the sessions and offered their break rooms on each unit as areas to provide the education.

Limitations of the Evidence-Based Practice Project

Although several strengths were noted, the evidence-based practice project also had several significant limitations. The first most notable limitation was the small sample size (n=22). The education component of the project was proposed to be mandatory by one of the unit managers, but was not followed through after a discussion with the chief nursing officer. Making the education component mandatory may have increased the participation of nurses with the evidence-based practice project. Additionally, the sample size for the two to three month follow

up survey dwindled to 11 participants. This may be due to a lack of interest or a lack of time, because of how busy the units were. Furthermore, the participants were homogenous with Caucasian participants only. This may not be representative of all nurses. Time constraints also played a role in being able to fully discuss the Ask-Advise-Refer curriculum and interruptions also existed from people entering the break rooms and physicians calling to speak to the nurses. The interruptions resulted in a diversion of the group or individual from the education and possibly resulted in the participants missing some of the content, as this project manager had to continue to proceed in order to stay within the dedicated time frame. These limitations may limit the applicability or outcomes of the project.

The project manager faced issues with receiving Institutional Review Board approval from the clinical agency. This project manager contacted the person in charge of the Institutional Review Board and requested to be exempt. However, the evidence-based practice project had to go through a full review to be initially approved. Although the project received approval from the Institutional Review Board, the board was unsure of how the physicians would feel about the nurses interacting, assisting, and referring patients who smoke to appropriate resources to quit. The board believed that the physicians might be concerned that the nurses would be interfering with the physicians' plan of care for the patients who smoked. Therefore, the project went to the Executive Medical Board to receive approval also, which approval was received. When changes wanted to be made to improve the project, the project had to wait to go through another full review three months later with the Institutional Review Board. This impacted the project, because the project manager needed to ensure that she did not overlook any changes that needed to be made or else the project would have to wait to go through another full review. These system issues delayed the project and impacted what was able to be approved.

Implications for the Future

This evidence-based practice project examined the impact of an educational intervention, despite a small sample size of nurses. The educational intervention was

determined to have a positive impact on improving nurses' knowledge, skills, confidence, and interaction with patients' who smoke. The project has implications for the future based on the findings and lessons learned from the implementation of the project.

Theory

The use of Rogers' DOI worked well and was useful for this evidence-based practice project. All five stages of the theoretical framework were utilized and provided direction for the implementation of the project, which provided a good fit. It also allowed for analysis and synthesis to occur at each stage.

As a result of the innovation, change occurred on the two medical-surgical units. Of the 11 participants who completed the two to three month follow up interaction questionnaire, they noted that their interactions with patients who smoked increased. They assessed patients' smoking status, provided the preprinted smoking cessation information during the admission process, and provided smoking cessation information and education more often after the education intervention. A significant change resulted. Thereby, a change was embraced and created in their interactions and practices with patients who smoke. Because of the good fit, the project supported the hypotheses of Rogers' DOI.

Research

Additional areas for further research were noted during the implementation of the study. One question focuses on how would the nurse describe their smoking cessation knowledge on a Likert-scale from novice to expert? This would add further depth to understand the nurses' perception. Second, would a self-study method or an on-line PowerPoint presentation be more beneficial as compared to the traditional face to face method? This question is asked due to the interruptions and the busyness of the two medical-surgical units during the educational intervention. What is the optimal length of educational interventions on smoking cessation and counseling for nurses? This question is due to the multiple variations of lengths of time of educational interventions within the literature. What are motivators that drive nurses to want to

learn to learn about general smoking information, and how to counsel patients about quitting smoking? Two specific comments were heard from participants about how their family members smoked, and the participants thought that they may be able to use the information to help their family member quit smoking. Lastly, additional research is needed to correlate the effectiveness of the educational intervention and the ability of the nurses to effectively ask, advise, and refer patients who smoke.

Education and Practice

Reviewing the literature, there is a trend that health care providers are lacking education or training on general smoking information and how to provide smoking cessation counseling to patients. Based on the implementation and the results of this project, providing 30 to 45 minutes of education can make a difference. Therefore, the hope is that the clinical agency would integrate an educational component into their new employee nursing orientation and that they would create clinical guidelines and standards of practice for nurses to educate and counsel patients who smoke. Continuing education courses should be provided yearly. The clinical agency should continue to encourage and support their nurses to regularly provide smoking cessation counseling to patients. This includes support from administration, unit directors, and physicians.

<div align="center">**Conclusion**</div>

With the review of the literature, the best practice recommendation was formed. This best practice recommendation was to provide an education intervention that increased nurses' knowledge, skills, and confidence about smoking cessation and counseling. The registered nurses who attended the educational sessions on the two medical-surgical units at the clinical agency had a significant increase in their knowledge, skills, confidence, and even their interactions with patients who smoke from the pre-test to post-test. The evidence-based practice project affirmatively answered the PICO question and provided a foundation for future projects.

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BIOGRAPHICAL MATERIAL

Ms. Aust graduated from Valparaiso University with a Bachelor of Science degree in nursing in 2009. Prior to graduating with her Bachelor's, she decided to further her education and pursue the Doctor of Nursing Practice. She has worked at HealthLinc, a clinic for the low income and the underserved population, as an assistant to the medical staff. Currently, Ms. Aust is working at Porter Hospital on the pediatric/women's unit as a registered nurse and charge nurse. She is a member of Sigma Theta Tau International Honor Society of Nursing and the Midwestern Nursing Research Society. Her evidence-based practice project has been accepted for a competitive poster presentation at the Midwestern Nursing Research Society conference. She became interested in primary prevention, more specifically smoking cessation education, during her clinical experiences in the Doctor of Nursing Practice program. During these experiences, she recognized the impact of smoking not only on patient's health, but also on the entire person, environment, and the patient-family.

ACRONYM LIST

CDC: Centers for Disease Control

DOI: Diffusion of Innovation

PICOT: Population, Intervention of interest, Comparison of interest, Outcome of interest,

Timeframe

U.S.: United States

Appendix A

Letter of Introduction to the Participants

Hello. My name is Amanda. I am a Doctor of Nursing Practice student at Valparaiso University. I will be conducting an evidence-based practice project on your unit. This project will include nurses, 18 years and older. The purpose of this project is to help nurses learn about how to assess, advise, and refer patients who use tobacco. Since nurses have a duty to provide health promotion education to patients and patients who smoker are encountered in daily nursing care, it is important to be prepared to address these issues.

I hope that the results from this evidence-based practice project will reinforce the importance of providing education to health care providers, who interact with patients who smoke. The famous writer and speaker, Margaret Mead, once said "We are continually faced with great opportunities which are brilliantly disguised as unsolvable problems" (Inspirational Cancer Quotes). This evidence-based practice project is a great opportunity to increase your knowledge, skills, and confidence about smoking.

In regards to the specifics of this project, one educational session will focus on the different topics related to smoking education. Short tests will be used to be used to receive information in order to evaluate knowledge, skills, and confidence. These tests will occur before and after the educational session. The information from this project will hopefully be used to help educate health care providers in the future. Your participation in taking these tests and the specifics of this project is completely voluntary. You may withdraw from the project at any time. Also, any data will be kept confidential and your name will not be disclosed. If you have any further questions, please feel free to contact me. I want to thank you for your time and your consideration.

Sincerely,

Amanda Aust

Phone Number: (xxx) xxx-xxx
E-mail: Amanda.Aust@valpo.edu

Appendix B

Flyer Reminder to Nurses of Education

REMINDER for RNs:

Education Opportunity: Learn how to ask, advise, and refer your patients who smoke

Presented by Amanda Aust, VU Graduate Nursing Student as part of an evidence-based practice project

Please assist me in fulfilling the purpose of this project, which is to help nurses learn how to approach patients who use tobacco. Nurses have an important opportunity to provide health promotion education to patients.

Dates	Times	Location
November 1. Tuesday, 1 2. Wednesday, 2 3. Friday, 4 4. Monday, 7	• 0730, 0830, 1430, 1530 • Also available from <u>1230-1530</u> on scheduled dates • <u>Time Requirement:</u> 30-45 minute session	4 East Break Room

Appendix C

Informed Consent

I understand that I am being asked to join an evidence-based practice project. This project will be at this hospital. This project will look at the effects of an educational program on nurses' knowledge and confidence. If I join this project, I will attend the educational sessions and will complete the test before the educational sessions and after the sessions. The risks of the project will be the same as every day risks. I may use extra personal and/ or work time to come to the educational sessions during this project.

I am 18 years old and older. I am a registered nurse and/ or licensed practical nurse at this hospital.

Information from this study will help me, other nurses, or patients in the future.

I understand that joining this project is totally voluntary. I may leave the project at any time. There is no penalty for leaving. If I stop attending the project, it will have no effect on my job.

I understand that the project information will be private. No personal information will be used in the tests. Information will be kept locked in a draw, and the researcher will only have access to it. My name will not be given out and personal information will be destroyed at the end of the study. General information may be used in nursing journals or presentations.

If I need to, I can call Amanda Aust at (xxx) xxx-xxxx. I can e-mail her at Amanda.Aust@valpo.edu. Questions about the way the research study is being done should contact Julie Brandy. She can be reached at Julie.Brandy@valpo.edu or at (219) 464-5481.

The project has been explained to me. I have read and understand this consent form. My questions have been answered. By signing this form, I agree to join the project.

_____   _____

Signature of Subject   Date

_____   _____

Signature of Investigator   Date

Appendix D

Demographic Survey

Instructions: Put a check mark or X in each box that applies.

1. Birthday _____

2. Age

- ☐ 18-19
- ☐ 20-30
- ☐ 31-40
- ☐ 41-50
- ☐ 51-60
- ☐ 61-70
- ☐ >70

3. Race

- ☐ White/Caucasian
- ☐ Black/African American
- ☐ Hispanic
- ☐ American Indian/Native American
- ☐ Asian
- ☐ Pacific Islander
- ☐ Other: (specify) _____

4. Smoking Status

- ☐ Never smoked
- ☐ Previous history of smoking
- ☐ Current smoker

5. If you have or are a current smoker,
   number of years of cigarette use:

- ☐ Tried it, but never continued
- ☐ < 1 year
- ☐ 1-5 years
- ☐ 6-10 years
- ☐ 11-15 years
- ☐ 16-20 years
- ☐ 21-25 years
- ☐ 26-30 years
- ☐ 31-35 years
- ☐ 36-40 years
- ☐ 40-45 years
- ☐ 45-50 years
- ☐ > 50 years

6. Educational Level (Check highest degree)

- ☐ Diploma
- ☐ Associates Degree
- ☐ Baccalaureate Degree
- ☐ Some Graduate School
- ☐ Completed Graduate School

7. Nursing Level

☐ Licensed Practice Nurse
☐ Registered Nurse
☐ Nurse Practitioner

8. Employment Status

☐ PRN
☐ 0.3
☐ 0.4
☐ 0.5
☐ 0.6
☐ 0.7
☐ 0.8
☐ 0.9
☐ 1.0

9. Primary Shift worked

- ☐ Days
- ☐ Afternoons
- ☐ Midnights

10. Years of Experience in Nursing

☐ < 1 year
☐ 1-5 years
☐ 6-10 years
☐ 11-15 years
☐ 16-20 years
☐ 21-25 years
☐ 26-30 years
☐ 31-35 years
☐ 36-40 years
☐ > 40 years

11. Previous smoking cessation education

☐ Yes
☐ No

12. If you answered yes to question 10, clarify the type (example: continuing education) and how long ago you received training/education.

_____

_____

_____

_____

_____

_____

Appendix E

Poster Information for Educational Sessions

Goals

- Understand that smoking is an important public health issue
- Increase your knowledge, skills, and confidence in order to ask, advise, and refer your patients who smoke
- Incorporate the discussed information into your discussions with your patients
  - Significance of smoking
  - Impact on health
- Understand that we, as nurses, can make a difference by helping patients make an educated decision about quitting smoking
- Understand that smoking education and counseling can be incorporated into daily care and health education/promotion

3 Components of Clinical Guidelines

- Ask
- Advise
- Refer

Quitting

- Nicotine Replacement Therapy
  - Smokes > 10 cigarettes/day
  - Side Effects in 1st hour
    - Skin irritation-Itching, burning, tingling
- Smokers fail to create a plan to help them quit
- Withdrawal Symptoms
  - Subside in 2-4 weeks
  - Symptoms opposite of relaxation

Nicotine Toxicity

- Headache
- Nausea and Vomiting
- Diarrhea
- Abdominal Pain
- Cold Sweats
- Dizziness
- Vision/Hearing Problems
- Confusion
- Irregular Heart Rate
- Chest Pain

Treating tobacco dependence

- Need to use 2 approaches
  - Physiological→ Nicotine Replacement Therapy
  - Behavioral→ Counseling
- Approaching patients as nurses
  - Ask
    - If patients smoke
  - Advise
    - Advise patients to quit using genuine and personal approach
    - Use
      - Statistics
      - Health consequences
      - Number of years of life lost from smoking – 10 years
      - Patient's medical problems
      - Economic Burden- Spend at least $2,000 per year on cigarettes
  - Refer
    - Physician
    - Quitline

(Regents of the University of California, 2011)

Appendix F

Post-Test Follow-up Instructions to Participants

Dear Participant,

Thank you for your participation with my graduate school project on smoking education for patients.

Now, it is time to complete the final steps. I have put the knowledge test and skills and confidence questionnaire that you took during the education sessions and an additional survey in your mailbox. Please fill these out again so that I can see if there was any difference in your knowledge, skills, confidence, and follow up with patients who smoke that you encountered from the time that you took the initial questionnaires. <u>Please complete all three questionnaires and return it to the proper envelope posted on the bulletin board.</u> I have extras if you need them in a separate envelope. **The due date for these questionnaires is January 9.**

Thank you for your help and support.

Sincerely,

Amanda

Appendix G

Smoking Cessation Knowledge Test

Instructions: This test contains true/false, multiple choice, and fill in the blank questions. Please choose the best answer for each response. Make sure that your response is clearly marked.

1. **Pharmacology is not recommended for patients who smoke less than 15 cigarettes per day.**

    True or False

2. **Which signs and symptoms are consistent with nicotine toxicity?**

    a. Headache, abdominal pain, diarrhea, dizziness, blurred vision, cold sweats, mental confusion

    b. Hypertension, tachypnea, nausea/vomiting, tingling of extremities, agitation, sleep disturbances, headache

    c. Erythematic rash, mild itching/burning of skin, headache, increased salivation

3. **For transdermal nicotine replacement therapy, the patch should not be used in the same area again for at least 1 week.**

    True or False

4. **Water will not harm a correctly applied nicotine patch.**

    True or False

5. **Name two side effects to expect in first hour from a nicotine patch:**

    a. _____

    b. _____

6. **Tobacco smoke contains an estimated 4,800 compounds. Commonly found substances include: carbon monoxide, ammonia, lead, arsenic, and formaldehyde.**

    True or False

7. **Nicotine is the primary component that is responsible for the health effects from tobacco use.**

    True or False

8. **On average, cigarette smokers die approximately how many years younger than nonsmokers?**

   a. 5 years

   b. 10 years

   c. 15 years

   d. 20 years

9. **Physical withdrawal symptoms typically completely subside in what period of time?**

   a. <1 week

   b. 2-4 weeks

   c. 4-5 weeks

   d. >5 weeks

10. **Name four withdrawal symptoms that develop after nicotine is abruptly stopped.**

    _____

    _____

    _____

    _____

11. **Treatment should only address the behavioral aspects of dependence.**

    True or False

12. **Nicotine activates the dopamine reward pathway in the brain, which reinforces continued tobacco use.**

    True or False

13. The Clinical Practice Guideline consists of key components for tobacco cessation interventions. Name each of the 3 components that nurses can use to assist with tobacco counseling.

_____

_____

_____

14. Tobacco users plan to fail in their attempts to quit smoking.

True or False

15. Do not assume that patients who inquire about quitting are ready to quit.

True or False

16. Smoking gets rid of all of smokers stress.

True or False

17. To help with sleep disturbances, smokers who are trying to quit should:

a. Remove the nicotine patch prior to bedtime

b. Smoke one cigarette before bedtime and then continue with nicotine gum in the morning

c. Decrease the dosage of the nicotine patch at night

18. Nicotine withdrawal results in improved ability to perform tasks.

True or False

19. Smokers who quit smoking will gain on average about how many pounds?

a. < 5 pounds

b. 10 pounds

c. 15 pounds

d. 20 pounds

e. >25 pounds

20. Indiana's Tobacco Quiteline offers what resources to smokers who want to quit?

a. 5 free behavioral counseling sessions

b. Free nicotine patches/gum for 2 weeks

c. 4 free behavioral counseling sessions and free nicotine patches/gum for 2 weeks (if Noninsured/Medicaid/Medicare Patients)

d. Smoking quit kits with free information, stress balls, nicotine gum

Appendix H

Skill and Confidence for Smoking Cessation tool

Instructions: Please rate your smoking cessation counseling skills and confidence by circling one of the numbers for each. Smoking cessation counseling skills values range from 0 to 4 with 0 as no skills, 1 as poor, 2 as good, 3 as very good , and 4 as excellent. Smoking cessation counseling skills values range from 0 to 4 with 0 as no skills, 1 as poor, 2 as good, 3 as very good, and 4 as excellent.

Smoking Cessation Counseling Skills

1. Asking patients whether they use tobacco

None	Poor	Good	Very Good	Excellent
0	1	2	3	4

2. Advising patients to quit

None	Poor	Good	Very Good	Excellent
0	1	2	3	4

3. Assessing patients' readiness to quit

None	Poor	Good	Very Good	Excellent
0	1	2	3	4

4. Providing tobacco cessation assistance

Excellent	Very Good	Good	Poor	None
4	3	2	1	0

5. Providing patient counseling

Excellent	Very Good	Good	Poor	None
4	3	2	1	0

6. Knowledgeable about available resources for patients

Excellent	Very Good	Good	Poor	None
4	3	2	1	0

Smoking Cessation Confidence

Instructions: Please rate your smoking cessation confidence by circling one of the numbers for each. Smoking cessation confidence values range from 0 to 4 with 0 as not confident, 1 as not very confident, 2 as moderately confident, 3 as very confident, and 4 as extremely.

1. Knowledge of appropriate questions to ask

Extremely Confident	Very Confident	Moderately Confident	Not Very Confident	Not Confident
4	3	2	1	0

2. Skills to counsel for addiction

Not Confident	Not Very Confident	Moderately Confident	Very Confident	Extremely Confident
0	1	2	3	4

3. Ability to provide motivations for those trying to quit

Not Confident	Not Very Confident	Moderately Confident	Very Confident	Extremely Confident
0	1	2	3	4

4. Knowledge of pharmaceutical products

Extremely Confident	Very Confident	Moderately Confident	Not Very Confident	Not Confident
4	3	2	1	0

5. Ability to know when to refer patients to physicians

Not Confident	Not Very Confident	Moderately Confident	Very Confident	Extremely Confident
0	1	2	3	4

6. Ability to sensitively suggest tobacco cessation

Extremely Confident	Very Confident	Moderately Confident	Not Very Confident	Not Confident
4	3	2	1	0

7. Ability to provide adequate counseling

Not Confident	Not Very Confident	Moderately Confident	Very Confident	Extremely Confident
0	1	2	3	4

8. Ability to help recent quitters learn coping

Not Confident	Not Very Confident	Moderately Confident	Very Confident	Extremely Confident
0	1	2	3	4

9. Ability to counsel those not interested in quitting

Not Confident	Not Very Confident	Moderately Confident	Very Confident	Extremely Confident
0	1	2	3	4

(Matten et al., 2011, p. 70)

Appendix I

Permission to Use the Skills and Confidence for Smoking Cessation tool

Dear Mrs. Matten,
I contacted you in December about using the Skills and Confidence for Smoking Cessation tool for my evidence-based practice project for nurse practitioner school. Would it be ok if I display the questionnaire for a presentation I am conducting at the university for my evidence-based practice project, and could I also use it in my paper about my project? This paper will be stored at the library after I graduate and will only available for students, faculty, and staff to review. Thank you for your consideration.
Sincerely,
Amanda
[Quoted text hidden]

Pamela Matten <Pamela.Matten@stjoe.org>   Fri, Apr 13, 2012 at 11:23 AM
To: Amanda Aust <amanda.aust@valpo.edu>

Yes Amanda, that would be fine. I would love to read your paper on evidence based practice when you are finished. Take care ☺.

Pam Matten, RN, BSN, OCN

Appendix J

Assessment of Interaction with Patients and Smokers

Instructions: Please rate the following prior to and after receiving the provided smoking education below by circling one of the numbers for each. Values range from 0 to 4 with 0 as never, 1 as sometimes, 2 as often, 3 as very often, and 4 as always.

1. How often did you assess your patient's smoking status prior to the smoking education?

Never	Sometimes	Often	Very Often	Always
0	1	2	3	4

2. How often did you provide smoking cessation education and information to patients prior to the smoking education?

Always	Very Often	Often	Sometimes	Never
4	3	2	1	0

3. How often did you provide the preprinted smoking cessation information during the admission process prior to the smoking education?

Never	Sometimes	Often	Very Often	Always
0	1	2	3	4

Instructions: Please rate the following after receiving the provided smoking education below by circling one of the numbers for each. Values range from 0 to 4 with 0 as never, 1 as sometimes, 2 as often, 3 as very often, and 4 as always.

1. How much more often do you assess your patient's smoking status after being provided the smoking education?

Never	Sometimes	Often	Very Often	Always
0	1	2	3	4

2. How much more often do you provide smoking cessation education and information to patients after being provided the smoking education?

Always	Very Often	Often	Sometimes	Never
4	3	2	1	0

3. How much more often do you provide the preprinted smoking cessation information during the admission process?

Never	Sometimes	Often	Very Often	Always
0	1	2	3	4