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Analysis of Tobacco Use Vital Sign Assessment

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This doctoral project, directed and approved by the candidate’s committee, has been accepted by the College of Graduate and Professional Studies of Abilene Christian University in partial fulfillment of the requirements for the degree

Doctor of Nursing Practice

Date: 04/02/2019

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Analysis of Tobacco Use Vital Sign Assessment

A dissertation submitted in partial satisfaction
of the requirements for the degree of
Doctor of Nursing Practice

by
Latonya King, MSN, RN, FNP-C, DNPs

March 2019
Dedication

This project is dedicated to my family—husband Johnnie, daughter Lacy, and my son London James—for their utmost support. I thank you for encouraging and inspiring me to pursue my Doctor of Nursing Practice degree and supported me through all obstacles. I am also grateful for my mother’s ongoing support, love, and prayers every step of the way.
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First and foremost, I give thanks to God for giving me strength and ability to understand, learn, overcome challenges, and complete this project. I would like to extend thanks to the many people who contributed to the work presented in this project. This project would not have come to fruition without the supervision and direction of my project chair Dr. Tonya Sawyer-McGee, Program Director, Abilene Christian University Doctor of Nursing Practice Program. She has devoted her time to improving health disparities among minorities in underserved populations across the country and in laying the foundation for tomorrow’s nursing educators and leaders.

I would like to express my sincere appreciation to Dr. Tonya Sawyer-McGee for agreeing to be my chair and for her understanding, patience, and most importantly her time, guidance, and mentorship throughout this process. I am also hugely appreciative of my project committee members Dr. Ronesia Matero and Dr. Tonja Hartjes for their guidance and encouragement. I would also like to thank Dr. Michael Landry, for his assistance with my statistical analysis and literature review,
Abstract

There is a massive problem of tobacco-related cancer outcomes in patients that are affected by race and ethnicity. Although this is a known disparity, there continues to be a gap in care for asking patients if they use tobacco and in advising and assisting them in making a quit attempt. Health information technology requirements and meaningful use regulations require the utilization of systematic electronic documentation. In order to improve and support tobacco use screening, systematic tobacco use assessment and documentation are essential. There is a widespread belief that adding screening for tobacco use to the vital sign assessment will lead to an increase in health care staff offering smoking cessation support during an office visit (Boyle & Solberg, 2004). This project analyzed the effects of adding a tobacco use question to the vital sign assessment in the electronic health record (EHR). The goals were to increase nursing documentation of tobacco use and to increase patient participation in initial smoking cessation counseling during a routine office visit.

Keywords: tobacco use vital sign, electronic health records, smoking cessation
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Chapter 1: Introduction

There are 400,000 deaths annually from diseases resulting from tobacco use, such as cardiovascular disease and cancer. However, there continues to be an increase in mortality and death worldwide related to tobacco use, which is preventable (U.S. Department of Health and Human Services [DHHS], 2017). Smoking-related cancer in Nashville, Tennessee has resulted in one of the highest death rates in the nation. This region has been described as a place-based disparity (Ribisl, Luke, & Henriksen, 2016) for combustible tobacco use that is caught in a spiral of high smoking prevalence and staggering smoking-related mortality (Holmes, King, & Babb, 2016; Lortet-Tieulent et al., 2016; National Cancer Institute [NCI], 2017). To improve survival rates among cancer survivors, smoking prevention and cessation is increasingly essential (DeMoor, Elders, & Emmons, 2008).

Weak tobacco control policies (Givel & Glantz, 2001; Mamudu et al., 2014) and comparatively positive attitudes toward smoking among some patients conspire to promote higher rates of smoking and smoking-related illness (Finney-Rutten, Augustson, Moser, Beckjord, & Hesse, 2008). Although policies that address tobacco abuse and health effects have led to a decrease in smoking, men in the United States continue to be disproportionately affected by death from lung cancer (Villanti, Jiang, Abrams, & Pyenson, 2013). Additionally, the highest mortality rate is found in African American men from the south (Lortet-Tieulent et al., 2016). This high mortality rate explains in part why four out of 10 cancer deaths among southern men are attributable to smoking, compared to three out of 10 cancer deaths nationwide.

Problem Statement

Although smoking is a known health disparity, assessing all patients for tobacco use and providing education and resources for how to stop smoking remains a problem in the underserved population. There is a widespread belief that adding screening for tobacco use to
the vital sign assessment will lead to an increase in health care staff offering smoking cessation support during an office visit (Boyle & Solberg, 2004). The method of electronic documentation in the medical record to improve assessing and treating tobacco use is at the forefront, as more organizations strive to become compliant with *meaningful use* regulations for screening for tobacco use. Clinicians are encouraged by the government health care systems to use health information technology, especially a certified EHR, to receive incentives (HealthIt.gov, 2018). Using the EHR allows for an efficient, accurate transfer of information to the Centers for Medicare and Medicaid Services (CMS).

There is a massive problem of tobacco use among cancer patients and racial and ethnic disparities in tobacco-related cancer outcomes. Tobacco prevention and treatment are two of the most useful services that can improve survival rates and prevent the many cancer-related deaths caused by smoking (DeMoor et al., 2008). It is a known that continuing to smoke during cancer treatment affects survival rate. Although patients know that continuing to smoke can have detrimental effects on their prognosis, they continue to smoke.

Tennessee ranks fifth nationally in terms of cancer incidence overall and fifth in mortality (NCI, 2017). Over half of the cancers treated in the mid-south are smoking-related, leading to some of the highest smoking-related death in the nation (Lortet-Tieulent et al., 2016). Asking patients if they use tobacco and offering and providing education on how to quit smoking is one of the most effective routine methods conducted during an office visit (Agency for Healthcare Research and Quality (AHRQ), 2018). It is recommended that each adult patient is screened for tobacco use by clinicians during an office visit. Patients who report that they smoke should be offered and provided smoking cessation, but such necessary preventative health screening and education during the clinic office visit are often forgotten (U.S. Preventive Services Task Force [USPSTF], 2015).
The significance of this study was the implementation of nursing staff practice changes to help improve patient engagement in smoking cessation and to incorporate best practices and resources for more extended counseling support and tobacco treatment. Systematic evidence-based smoking cessation and tobacco treatment services are critically needed to optimize cancer care for high-risk tobacco users in the mid-south, who are known to be at high risk for poor health outcomes.

**Background**

**Smoking-related cancer and mortality rates.** Eighteen percent of adults who live in the United States smoke cigarettes, which is an estimated 42.1 million people (USPSTF, 2015). Smoking accounts for 20% of deaths yearly, and 480,000 premature deaths a year (DHHS, 2014). Thirty percent of all cancer deaths are related to using tobacco (Siegel, Miller, & Jemal, 2015). Smoking not only causes lung cancer, it also causes multiple other cancers, including myeloid leukemia (Shields et al., 2016).

**Mortality and disparity.** Tobacco use has reached epidemic levels and a public health threat resulting in over seven million deaths annually. Direct tobacco use causes more than six million deaths, while second-hand smoke attributes to approximately 890,000 deaths (U.S. Food & Drug Administration [FDA], 2009). The highest burden of mortality related to tobacco use is in countries that have a high percentage of low to middle income populations, affecting nearly 80% of smokers in the world. Tobacco farming often entails the manipulation of wet tobacco leaves, which has been known to cause green tobacco sickness. In some country’s families must work in tobacco farms to provide for their family, and these families have direct contact with wet tobacco leaves. Tobacco farmers’ children are more prone to green tobacco sickness, which results from the absorption of wet tobacco leaves into the skin (World Health Organization [WHO], 2018).
Health literacy and tobacco use. Patients often have multiple sources of vulnerability and social determinants of health that hinder quality outcomes. Although low health literacy affects 90 million adults in the United States, it is an issue rarely addressed in health care (Kutner, Greenberg, Jin, & Paulsen, 2006). Patients with low socioeconomic status, who are also racial and ethnic minorities, are known to be disproportionately affected by low health literacy (Stewart et al., 2014). Patients with low educational levels struggle to understand necessary information about their health, both written and oral, which can hinder their shared decision-making ability when it comes to making proper health choices, such as tobacco cessation. Studies have also noted that patients with decreased health literacy are less aware of the unwarranted effects of smoking and have a more positive attitude toward smoking versus patients who do not have low literacy (Arnold et al., 2001).

Stewart et al. (2014) analyzed how health literacy affects tobacco cessation outcomes in a racially, ethnically, and the low socioeconomic population who participated in a program to assist with quitting smoking. The likelihood of patients with low health literacy to start back smoking after quitting are three times more likely. The results also showed that uneducated African Americans living in poverty had an increased rate of low health literacy (Kutner et al., 2006). These findings indicate that health practitioners should be knowledgeable of the effects that a decreased understanding of health information may have on a patient’s health outcomes. Health care providers can also help decrease disparities in health literacy and improve the quality and safety of care for the highest risk populations.

Targeting youth and the economically disadvantaged. According to the Truth Initiative (2017), tobacco companies target low-income, African Americans, those with mental illness, and the LGBTQ community. Tobacco companies in the United States target low-income areas and people with mental illness, who account for 46% of cigarette sales. The big tobacco
companies went to the United States Supreme Court to obtain permission to advertise near schools and spend 10 times more on advertising in low-income Black neighborhoods than they do in more affluent neighborhoods (Koval, 2007; Truth Initiative, 2017).

**Burden and cost effectiveness.** As more adult tobacco users quit smoking or die from a disease, the tobacco industry has begun to focus their efforts on youth and adolescents. “The CDC reported that on average, over 440,000 deaths and $76 billion in medical expenditures were attributable to cigarette smoking each year from 1995 through 1999” (U.S. General Accounting Office [GAO], 2003). The average age that people begin using tobacco is between the ages of 10 and 18, which makes decreasing death and disease related to tobacco use a severe challenge for the federal government. If more efforts are used to prevent this age group from using tobacco, they are more than likely to remain tobacco-free as an adult (DHHS, 2014).

**Financial impact of smoking.** Integrating tobacco use assessment and treatment into daily clinical practice can provide significant financial gains for health care organizations. The Affordable Care Act (ACA) expanded tobacco cessation coverage for the Medicaid and Medicare population. The ACA’s essential health benefit under preventative and wellness services covers counseling and tobacco cessation medication for Medicaid, Medicare, and private insurance (American Lung Association, 2018). Mills (2008) noted that “Medicare Part B has covered smoking and tobacco cessation counseling for more than three years, but some physicians have yet to catch on to this billing opportunity” (p. 27). Medicare’s national average reimbursement rate for Code 99406, which is smoking counseling three to 10 minutes, is $12.89, and for Code 99407, which is smoking counseling greater than 10 minutes, the reimbursement rate is $25.39 a visit (Mills, 2008). Our health care institution has an average 600 cancer patients who smoke, and if half of them received brief initial cessation counseling, which is three to 10 minutes, the clinic’s return on investment (ROI) for smoking cessation would be an estimated
$3,867 a month. If patients participated in the intensive smoking cessation classes, which is higher than 10 minutes and a total of eight visits, the estimated ROI is $60,936 a year for our health care organization.

In the United States, $168 billion of annual health care spending is associated with smoking (Baker et al., 2018). The financial impact of smoking cessation also has a tremendous benefit for those patients who choose to stop smoking. Smoking contributes to numerous chronic diseases, which can cost a significant amount of medical expenditures and pharmacy cost for the patients. The average cost of a pack of cigarettes is $5.51, with the price in most states of $6.00 and $8.00. Cigarettes in New York are the highest, with an average cost of $12.85 (Fair Reporters, 2017).

In summary, there are many underserved and indigent patients who must choose between buying food to eat or buying their cigarettes. Helping patients stop smoking improves outcomes, revenue, and ROI for health organizations; reduces health care expenditures and reduces health care burdens for patients entrusted to health care providers.

**Purpose of the Study**

The purpose of this project was to analyze how adding tobacco use screening to the vital sign assessment in the EHR impacts nursing documentation of tobacco use status and patient participation in initial smoking cessation counseling during a routine office visit. The goals were to increase nursing documentation of tobacco status, increase patient participation in initial smoking cessation counseling, and establish best practices for screening for tobacco use and offering smoking cessation.

**Significance**

Although cancer patients understand the risk of continuing to smoke, 10% to 30% choose to continue to smoke (Park et al., 2016). The significance of this study was implementation of
nursing staff practice changes to help improve patient engagement in smoking cessation services and to establish best practices and resources for more extended counseling support and tobacco treatment. Systematic, evidence-based smoking cessation and tobacco treatment services are critically needed to optimize cancer care for tobacco users in the mid-south who have a high risk of unwarranted health issues.

**Nature of the Project**

This project implemented the recommended meaningful use procedure of utilizing the EHR as a means to assess every patient every time for tobacco use and implement the Five A’s (5A’s) framework of brief smoking cessation counseling. The primary goals of this project were to increase nursing documentation of tobacco use status and to increase patient participation in initial smoking cessation counseling. The secondary goals were to increase referrals and attendance to the patient-centered medical home (PCMH) clinic’s 8-week intensive smoking cessation program, which included an evaluation by the certified tobacco treatment specialist (CTTS) nurse practitioner for prescribing FDA-approved medication for tobacco dependence.

The most significant barrier to providing comprehensive tobacco control is the lack of consistent, systematic outpatient tobacco care (tobacco use assessment, smoking cessation counseling, and prescribing of FDA-approved medication). This project took the first steps to close the gap of lack of smoking cessation services in the cancer clinic and to expand the existing PCMH clinic smoking cessation program. The cancer clinic and PCMH clinic are co-located in a community hospital.

**EHR implementation.** This project implemented an EHR intervention that added a tobacco use question to the vital assessment. There is widespread belief that adding screening for tobacco use to the vital sign assessment will lead to an increase in health care staff offering smoking cessation support during an office visit (Boyle & Solberg, 2004). Existing relationships
with information technology (IT) was leveraged to add a tobacco use question as the sixth vital sign in the EHR.

The vital signs included the heart rate, respiratory rate, weight, blood pressure temperature, and tobacco use. Patients have the option to choose either current smoker, former smoker, or never smoked. Prior to adding the tobacco use question as the sixth vital sign, there was no structured or systematic process for assessing and tracking tobacco use and smoking cessation counseling. The tobacco use status question was previously housed under the social history tab, which is often overlooked and not asked during the triage process. The tobacco use status question was also documented in various areas in the chart, such as the progress notes and plan of care. After successful IT implementation of the sixth vital sign, nursing staff were notified of EHR enhancements and workflow changes via email, staff meetings, and Friday morning in-service training.

**Staff training.** Staff were trained on using the evidence-based 5A’s—ask, advise, assess, assist, and arrange—smoking cessation intervention, which assesses readiness to stop smoking. The 5A’s framework are a brief tobacco intervention recommended by DHHS, CMS, NCI, and the American Medical Association (AHRQ, 2012).

**Research Question**

Q1. In racially and ethnically diverse tobacco users with cancer (P) will documenting tobacco use as a vital sign (I) versus not documenting tobacco use as a vital sign (C) increase nursing documentation of tobacco use status and initial smoking cessation counseling rates (O) within three months?

**Theoretical Framework**

How do we change behaviors? We know that behaviors are major contributors of chronic disease and growing health care cost. Change is a process that evolves over time and is not an
instantaneous action. As clinicians, we often utilize principles and stages of change as a baseline to determine if a patient is ready and willing to change. The theoretical framework used to support this evidence-based project is the transtheoretical model of change (TTM). The five stages of change in this model are precontemplation, contemplation, preparation, action, and maintenance.

Prochaska and DiClemente developed the TTM, which encompasses the various phases involved in change and how change takes place (Koyun & Eroglu, 2016). The health promotion and psychology industry has often used this model, and it has become the model of choice for many studies that involve smoking cessation (Prochaska, Norcross, & DiClimente, 2007). The TTM and motivational interviewing (MI) offer major benefits to clinicians and professional counselors who are assisting patients with stopping unhealthy behaviors such as smoking. Motivational interviewing is a conversation between the provider and the patient that helps patients to recognize their own motivation and readiness for change. The key principle in the TTM is encouraging patients to have a strong reason and desire to change and how to work with others and show support and empathy. This model has a progressive paradigm that allows patients to progress based on their readiness and desire, as opposed to being forced to change.

**Operational Definitions**

**Electronic health record (EHR).** The EHR is the patient’s medical history provided in an electronic version; “the EHR automates access to information and has the potential to streamline the clinician’s workflow” (CMS, 2012, para. 1). Systematic electronic documentation also supports assisting clinicians with evidence-based decision making and quality reporting (CMS, 2012).
**Meaningful use.** Meaningful use is the utilization of a certified EHR to record meaningful processes, such as prescribing medication, improving documentation of quality metrics, and the exchange of health information the provider must submit to the DHHS (2017).

**Smoking cessation.** Smoking cessation is the absence of smoking for at least six months. Smoking cessation helps to lower the risk of cancer and many other health issues. Resources such as modification, behavioral therapy, and counseling are often used to assist with quitting (“Smoking cessation,” n.d., para. 1).

**Certified tobacco treatment specialist (CTTS).** A CTTS is a registered nurse or nurse practitioner who functions as a highly trained tobacco coach to accept referrals and work collaboratively with cancer providers to initiate and/or modify the tobacco treatment plan (Sheffer et al., 2016).

**Five A’s framework.** The steps in the 5A’s framework are (1) asking and identifying patients who smoke, (2) offering advice to help patients quit smoking, (3) providing steps on how to assess patient readiness and willingness to quit, (4) assisting patients with counseling and medication, and (5) arranging follow up (AHRQ, 2012, para. 2).

**Scope and Limitation**

This project implemented an EHR intervention that added a tobacco use question to the vital sign assessment to improve consistency in assessing and documenting tobacco use and assisting patients in stopping smoking. Tobacco use, also referred to as smoking status, was added to the vital sign assessment as a systemwide clinic documentation change, alongside blood pressure, pulse, height, weight, and temperature. The inclusion criteria for this study were adult current tobacco users with cancer. Limitations of the project included use of a convenience sample to assess the status of smoking self-reported by potential participants. Self-reporting an unhealthy habit, such as smoking, has the potential to be under- or over-estimated, which can
alter the prevalence of smoking in the population group. Another limitation of the study was delivering smoking cessation counseling during a routine office visit, due to time constraints and multiple competing priorities of the clinic visit.

Summary

Although smoking-related cancers continue to be of grave significance, there remains a lack of attention to assessing tobacco use and the need to promote smoking cessation. The purpose of this project was to analyze how adding a tobacco use question to the vital sign assessment in the EHR would impact nursing documentation of tobacco use and a patient’s participation in brief initial smoking cessation counseling during a routine office visit in patients with cancer. Using the EHR to automate important and critical assessment questions, such as tobacco use, can make a significant impact on improving day-to-day clinic practice workflow and promote smoking cessation.

This chapter also shed light on the high mortality rate in cancer patients of ethnic and minority backgrounds and the significant effects that lack of assessing tobacco use and providing smoking cessation counseling can have on cancer diagnosis and economic impact. Extensive background information was provided regarding smoking-related cancer and mortality rates, mortality, disparity, burden and cost effectiveness of reducing tobacco-related deaths, the financial impact of smoking, and the importance of efforts that support smoking cessation counseling.
Chapter 2: Literature Review

The purpose of this study was to evaluate the effects of adding a tobacco use question to the vital sign assessment in the EHR. The study sought to answer the research question: Will assessing tobacco use as a vital sign in the EHR (structured data field) increase nursing documentation of tobacco use and initial smoking cessation counseling rates?

Methodology of Literature Review

The current literature review included searching the following databases: PubMed, using Medical Subject Headings (MeSH) tobacco cessation, primary care, and intervention, and was limited to full text, U.S. published, in English language between 2012-2017, and peer-reviewed, which resulted in 20 studies. The relevant articles did not have full text viewing capability. A comprehensive search using Abilene Christian’s online library was conducted, which searched Medline, CINAHL, and Health Source Nursing Academia Education (HSNAE), using smoking status vital sign, tobacco cessation, and primary care and was limited to articles published from 2012 to 2017 in the United States, full text, and peer-reviewed. This search resulted in 97 articles: Medline (61), CINAHL (22), and HSNAE (14). The search was then limited to English only, which left 26 articles. Three articles were selected that specifically had Smoking Cessation in Primary Care in the title. The key terms were furthered narrowed down to smoking cessation, primary care, and safety-net clinics, which resulted in three articles. I completed additional studies using the key words smoking and cancer and EHR and tobacco treatment, which resulted in studies from 2009 to 2018. The findings of the literature review included extensive research on the effects of adding a tobacco use question to the vital sign assessment and its influence on nurses consistently documenting tobacco use status and the frequency of smoking cessation counseling and support. Literature also included meaningful use tobacco screening and the use
of the EHR to support smoking cessation. I also completed a thorough literature examination on the evidence-based 5A’s framework screening, assessing, and treating tobacco abuse.

**Historical Overview**

The first phenomenon of expanding the vital signs to include a question about smoking use to improve identification of tobacco users was introduced in 1991 by Michael Fiore. Whether the addition of a smoking use vital sign improved advising patients to quit smoking and educating patients about stopping smoking varied. Some studies reported no change and other studies reported an increase in simple advice to quit, but no studies reported a rise in extensive smoking cessation education (Fiore, 1991).

**Smoking Status as a Vital Sign**

The McCullough, Fisher, Goldstein, Kramer, and Ripley-Moffitt (2009) study was the first study to evaluate the effects of adding two questions to the EHR that addressed smoking. In addition to asking patients if they smoked, a plan to quit was a part of the smoking cessation protocol. The two outcomes measured pre- and post-addition of the smoking vital sign questions by McCullough et al. were the number of patients identified as smokers and those who received smoking cessation counseling. Overall, there was an 18% improvement in the number of smokers identified and a 100% improvement in assessing for a plan to quit smoking after adding the tobacco use and plan to quit smoking questions to the vital sign assessment. McCullough et al. concluded that when asked about smoking use and a plan to stop, more physicians documented smoking cessation education in the EHR.

Despite its significance, there were several limitations in the McCullough et al. (2009) study that could have affected study biases. One of the main barriers was that the facility implemented smoke-free practices during the use of smoking-related questions in the vital sign assessment. Also, two of the clinics that participated in the study sample lead the educational
efforts in the hospital’s monthly grand rounds, which involved educating staff about the new smoking use and counseling question in the vital sign assessment of the EHR.

Rothemich et al. (2008) examined if asking about smoking use during the vital sign assessment would influence the number of times patients received smoking cessation and the intensity of the education received. There were 1,149 patients, 561 in the intervention group and 588 in the control group. The intervention group was instructed to ask patients if they smoke during the vital sign assessment. The control group did not have a systematic method for screening for tobacco use. The study resulted in minimal increase in extensive education or number of sessions received. The exit questionnaires conducted by the patients over a 6-month period revealed that most patients received simple advice to quit (Rothemich et al., 2008). As mentioned in prior studies, self-reported information is a limitation in the study.

Boyle and Solberg (2004) looked at the effects of adding a tobacco use question to the vital sign assessment as part of the clinic smoking cessation guidelines. A lead clinician was assigned to the implementation efforts of the new tobacco use vital sign, but there were no other structured changes that supported smoking cessation interventions. Boyle and Solberg concluded that although adding a tobacco use question to the vital sign assessment improved consistent documentation of tobacco use, it had minimal effects on staff’s behavior toward initiating cessation counseling and advice. The method carried out in this study consisted of 429 adult smokers who recently quit smoking and were members of a health plan in two clinics in Minneapolis (Boyle & Solberg, 2004). Health plan members completed a telephonic questionnaire to collect the data.

Fiore et al. (1995) concluded that adding a smoking use question to the vital sign assessment was an inexpensive, natural intervention that demonstrated a significant improvement in asking patients if they smoke and receiving smoking cessation. The tool used to assess
tobacco use was a smoking use stamp placed in the vital sign assessment. Adequately trained staff utilized the new tool appropriately. The study took place over 16 months between 1991 to 1993. Patents were administered a survey before and after the addition of the smoking use vital sign assessment, which consisted of questions related to the Five A’s framework of smoking cessation (Fiore et al., 1995).

Robinson, Laurent, and Little (1995) evaluated the use of adding a tobacco use stamp to the vital sign section as a reminder to prompt physicians to discuss quitting smoking with patients. Robinson et al. concluded that physicians discuss smoking cessation more with patients when tobacco use was assessed as a vital sign. The sample consisted of patients in a family practice residency clinic, who were surveyed about the staff’s counseling on smoking. Busy clinics are more likely to use the stamp method because it is easy and inexpensive to use (Robinson et al., 1995).

**EHR and Tobacco Treatment**

Most studies that addressed utilization of the EHR to assist with assessing tobacco use status and tobacco treatment typically addressed only the first two steps of the 5A’s framework of smoking cessation counseling, which is asking the patient if they use tobacco (ask) and offering and prescribing medication to help patients quit smoking (assist). Expansion and utilization of the EHR to efficiently assess tobacco use and provide tobacco abuse treatment will afford health care systems the opportunity to earn financial incentives, if the required compliance percentage is met (CMS, 2015). With the implementation of meaningful use standards and regulations, more health care systems are beginning to explore expanding EHR functions beyond just assessing tobacco use and prescribing medication for treatment of tobacco abuse.

Bae, Ford, Kharrazi, and Huerta (2018) analyzed the addition of automatic task reminders in the EHR to assess tobacco use status, delivery of smoking cessation, and offering/ordering
tobacco treatment medication. Although it was found that overall, there was an increase in providers assessing tobacco use status, patients receiving education on how to stop smoking, and ordering/prescribing of tobacco abuse treatment medication, the number of counseling sessions remained low. Bae et al. suggested that patients’ acceptance of smoking cessation education may improve due to the ACA’s expansion of preventative services, which includes smoking cessation services. Patients often do not accept preventative services, such as smoking cessation, diabetes education, and nutritional counseling, due to inability to pay out-of-pocket expenses. Bae et al. also noted that patients who utilized Medicare were more likely to reveal that they use tobacco, versus patients who were consumers of private insurance, which was likely due to concern of cost sharing. With the assurance of coverage of preventative health services, patients have less concern of out-of-pocket expenses, which is also known as cost sharing. In summary, new EHR functions, such as adding automatic reminders, can support physicians in identifying tobacco users, in counseling smokers, and in providing ordering and prescribing medication to support quitting smoking.

In the Schindler-Ruwisch, Abroms, Bernstein, and Heminger (2017) study, two independent reviewers analyzed 14 studies that made changes to the EHR to improve conducting and documenting the 5A’s framework (ask, advise, assess, assist, arrange) for smoking cessation. Twenty-one tobacco treatment EHR features directly related to the 5A’s framework were identified during the analysis. The results revealed that EHR functions noted the most were related to patients being asked if they use tobacco (ask) and assisting with medication prescribing (assist). The EHR functions that were documented the least were giving patients advise to quit (advise), smoking cessation education (assist), and scheduling follow-up care (arrange). For the ask section, a code was placed in the EHR to note documentation of the tobacco status. The coding included documentation located in the vitals, progress notes, or problem list. Secondly,
the EHRs were coded for the advice section, which was specific to language advising the patient to quit. Epic EHR was the most widely used electronic health system. Although a variety of EHRs were used, a large number did not reveal what computer system was used. All trials included the ask functionality, and some electronic systems included an alert. The tobacco use assessment question was documented in various sections of the EHR, from the vitals, to progress notes and problem list. Across trials, the tobacco use status was documented most in the vital sign assessment area (Schindler-Ruwisch et al., 2017).

Schindler-Ruwisch et al. (2017) found that there were major differences in the EHR features in the trials, even when the EHRs were strategically changed to improve assessment of tobacco use and treatment. Future studies are needed to examine whether EHR modifications improve tobacco treatment outcomes and the effects of the 5A’s model on treatment outcomes. Understanding the implications of such EHR modification could have a major benefit to providers, patients, and health care systems, especially when the focus is on achieving better quality outcomes and incentives.

**The 5A’s Framework**

Kruger, O’Halloran, Rosenthal, Babb, and Fiore (2016) found more patients accepted smoking cessation counseling and prescription medication treatment for tobacco abuse when the 5A’s framework was utilized. Kruger et al. revealed that health care workers do not consistently follow the recommended 5A’s counseling method. Patients self-reported if they received the 5A’s smoking cessation counseling methods in this study, which was one of the limitations (Kruger et al., 2016). When patient’s self-report, there is a higher risk of memory bias related to the services they received during the office visit. The results of this study revealed the critical importance of having a structured documentation system that allows health care workers to efficiently collect real time data versus a post survey (Kruger et al., 2016).
Mahoney et al. (2014) evaluated how tobacco cessation services were rendered for 922 smokers was randomly selected from four safety-net clinics in Houston, Texas. The researchers specifically examined if tobacco use was asked and recorded during the vital sign assessment and which parts of the 5A’s intervention for quitting smoking were utilized. The study results showed that most patients were asked if they use tobacco and advised to quit, but less than 25% of patient’s readiness to quit was assessed (Mahoney et al., 2014). Assessing patient’s readiness to quit is important, because for those patients who are not ready to quit, it is recommended that providers use the relevance, rewards, risk, roadblocks and repetition (5 R’s) approach to encourage, support, and personalize their motivation to help patients think about stopping smoking in the future. One of the limitations of the study was the reliability of documentation in the medical record and the validity of smoking cessation education completed, beyond what was documented in the patient’s chart. Implementation of a systematic charting system was suggested for future studies (Mahoney et al., 2014), which supports the need for this project implementation of adding a structure tobacco use question to the vital sign assessment.

There are two other evidence-based methods recommended to assist patients with smoking cessation beyond the 5A’s. Vidrine et al. (2013) compared the ask-advise-connect (AAC) approach to the ask-advise-refer (AAR) approach to help patients stop smoking and the results that these methods produced. The setting was 10 safety-net clinics of low socioeconomic patients. Overall, the study revealed that the AAC approach had the most significant impact on enrollment in smoking cessation. The benefit of using the AAC approach is that it is less time consuming and accomplishes the goal of initiating smoking cessation with a population that has known social determinants of health challenges and are harder to reach (Vidrine et al., 2013).
Physician Engagement in Tobacco Cessation

Many researchers discussed physician engagement in tobacco cessation. El-Shahawy, Shires, and Lafata (2016) looked at the effects assessing tobacco use have on smoking cessation interventions. The authors found that most patients were asked if they used tobacco and educated about how to help stop smoking, but the initiation of smoking cessation counseling was not individualized according to the patient’s readiness. One of the limitations in the El-Shahawy et al. study was that the sample of physicians and adult patients who participated were a part of an integrated health system that included the smoking status question in the vital signs housed in the EHR. All health systems are different, and the tobacco use status is not always included as a vital sign in the EHR. The study would have been more effective if it contained multiple health systems that utilized various methods for assessing tobacco use and providing smoking cessation.

Bell, Bowers, McCullough, and Bell (2012) conducted a study that explored how providers and smokers viewed smoking cessation interventions in a primary care clinic by conducting interviews via face-to-face and/or telephone. The authors noted that the smoker and the providers believed that the topic of smoking was best approached when patients initiated it or when it was related to a smoking-related health issue. Bell et al. concluded that patients are more receptive to smoking cessation interventions from general providers when they educate and inform rather than coerce. One of the limitations of the study was that the participants were self-selected and already had strong views regarding smoking cessation (Bell et al., 2012).

Hung, Leidig, and Shelley (2014) looked at providers’ utilization of the 5A’s protocol and how it related to organizational culture. Hung et al. found that organization cultures that focus on performance standards and human resources, which were the group, hierarchical, and intellectual culture, are more likely to adhere to incorporating the 5A’s clinical guidelines for
smoking cessation into routine clinic visits. One of the limitations of the Hung et al. study was the variations in the meaning of culture and the uncertainty over the organization’s values.

**Summary**

In summary, research revealed that physicians’ discussions with current tobacco users are the most significant prompts for quit attempts. The main negative belief from physicians was that counseling was too time consuming. The literature supported the theoretical model of stages of change used for this project, which has been used in numerous studies about smoking cessation. The review of the literature suggests that more studies are needed that examine how features of the EHR can affect smoking cessation outcomes. The EHR assists clinicians with submitting reliable and valid information to the CMS, which is a requirement for participation in the CMS incentive program. Future studies that examine the efficiency and efficacy of how functions of the EHR can be utilized to systematically assess tobacco use will be instrumental in the delivery of consistent patient-centered, quality smoking cessation education.

The focus of this quality improvement project examined the effects of adding a tobacco use question to the vital assessment nurse’s documentation of tobacco use and brief smoking cessation counseling during a routine office visit. Before this project, there was no standardized or systematic place to document tobacco use in the EHR. I anticipated that there would be a significant increase in the participation in initial smoking cessation education when tobacco use was assessed during the vital sign assessment, as compared to tobacco use status evaluated by other methods. The clinic will continue tracking project metrics to demonstrate the sustainability of these project improvements.
Chapter 3: Research Method

This project explored how adding a tobacco use question to the vital sign assessment impacts nursing documentation and smoking cessation education for patients in a community-based cancer clinic. The goals were to increase nursing documentation of tobacco status and increase patient participation in initial smoking cessation counseling. Nursing staff knowledge of evidence-based workflow practice to assess tobacco use and how to consistently provide cessation assistance was also provided and enhanced during this project.

Interprofessional Collaboration

Several departments were instrumental in the success of this project; IT, population health, and quality improvement committees were leveraged to add smoking status to the vital sign assessment. I contacted the American Lung Association, and they provided free information packets entitled *Freedom from Smoking Facilitator Training*, which focused on the 5A’s framework for patient engagement. MD Anderson Cancer Center provided CTTS training for the DNP project implementer and the two other care management staff who participated in the study.

Project Design

Clinical practice workflow and EHR changes were implemented to consistently provide initial smoking cessation counseling during an office visit. I used a convenience sample of patients in two groups from a cancer clinic for this study. This study was a quantitative study that utilized retrospective data from closed charts. The general problem of this study was the high number of cancer patients who use tobacco and the lack of smoking cessation services and tobacco treatment. During the study, I analyzed whether adding a tobacco use question as a vital sign would increase nursing documentation of tobacco status and increase initial smoking cessation counseling frequency during a routine office visit.
Staff Training

The clinic team (nurses and medical assistants) received training on the 5A’s framework and MI from the principle investigator (PI), who is considered an expert in tobacco treatment in the local community. The PI has 22 years of experience in the health care industry as a family nurse practitioner, registered nurse, disease manager, and respiratory therapist. The PI is also a CTTS, an American Lung Association Freedom from Smoking (FFS) facilitator for intensive counseling, and a recognized referral provider for the Tennessee Department Health Tobacco Quitline program, which uses telephonic smoking counseling services. All certifications and training programs used the 5A’s counseling framework and MI techniques. Each staff member received MI quick tips, 5A’s laminated quick reference guides, and the Tennessee Tobacco Quitline toolkit booklet.

The PI previously implemented a smoking cessation program in the PCMH clinic and attended a week-long training at MD Anderson Cancer Center to become a CTTS. The CTTS training reviewed evidence-based practices for tobacco treatment and smoking cessation 5A’s counseling framework, behavioral counseling, MI, and incorporating prescriptions for FDA-approved medications (varenicline, bupropion, nicotine replacement therapy).

Study Workflow Implementation

Nursing staff were trained to screen all patients for tobacco use during their office visit and to document it as a vital sign. Identified current tobacco users were approached in an opt-out design. Directed by the project implementer and care managers, the clinic team was trained to complete the 5A’s of a brief three to five minute tobacco intervention, which asks if they smoke, advises to quit, assesses patients’ willingness to quit and cigarette dependence, assists with initial smoking cessation counseling, and arranges follow-up and/or referral to extensive weekly smoking cessation classes. Initial smoking cessation counseling was defined as documentation
that patients received the Tennessee Tobacco Quitline *The Quitting Process* handout that reviews the following: (a) set a quit date, (b) change your environment, (c) review your past quit attempts, (d) get support, (e) learn new skills and behavior to cope with cravings and stress, and (f) choose your method of quitting.

**Instruments and Measurement Tools**

The educational framework used for training staff was the 5A’s (see Appendix A; AHRQ, 2012). The American Lung Association’s (2018) FFS program questionnaires and resources were used to access the readiness to quit and nicotine dependence, which were Session 1 and Session 3 questionnaires from the FFS group clinic program (see Appendix B). The Tennessee Department of Health (n.d.a) Tobacco Quitline resources were used for the patient’s resource packet.

**Freedom from Smoking program.** The FFS is a collaborative smoking cessation program that resulted from the collaborative efforts of multiple professional organizations that used evidenced-based cessation techniques (American Lung Association, 2018). The program is utilized by hospitals, employers, and health plans.

The FFS is a patient-centered program based on the patient’s needs and desires, offering participation via online, telephone, and group clinics. The FFS Plus online program can be accessed via computer, tablet, and smartphone and includes the following nine sessions:

1. Getting ready
   a. Navigating roadblocks
   b. Exploring addiction
   c. Gaining control
   d. Making a quit plan
2. Taking action
a. Your quit day

3. Staying smoke free
   a. The first two weeks
   b. Recovering from slips and relapse
   c. Long-term strategies
   d. Life as a nonsmoker

The FFS group clinics are composed of eight sessions and consist of eight to 16 people. The sessions are led by a trained certified facilitator and offer an individualized step-by-step plan for smoking cessation. The telephonic program is self-directed and is conducted by certified respiratory therapist and tobacco treatment specialist (American Lung Association, 2018).

**Tennessee Department of Health Quitline.** The patient’s resource packet during the initial smoking cessation session consisted of resources provided by the Tennessee Department of Health’s (n.d.a, n.d.b) Tobacco Quitline program: The Quitting Process Informational Guide and Tennessee Quit Kit Toolkit (see Appendix C). The Tennessee Quitline was first established in 2006 by Tennessee Department of Health Commissioner K. Robinson, M.D. The Quitline is administered by Leade Health’s behavior change evidenced-based *I Can Quit* smoking cessation program. Leade Health is a leader in health coaching and behavioral change and pioneers in tobacco cessation, stress management, and weight management (Ward, 2006). Dr. Robinson recognized the need for the program, due to complications from smoking being the number one cancer killer in Tennessee. In 2004, 4,148 residents died due to tobacco-related deaths (Tennessee State Government, 2006).

The Tennessee Health Department offers the Quitline and toolkit as free resources to Tennesseans to assist with quitting smoking. The smoking cessation services are offered in
English and Spanish, free of charge, via telephone or online, by trained professionals. Services are personalized, and every client is given an individualized quit plan, feedback, and guidance from their assigned counselor. Digital resources, such as videos, online quizzes, podcast, and the quit kit, are offered. The quit kit is a 34-page booklet based on evidence-based best practices for smoking cessation studies, consisting of a three-step process: (a) deciding to quit, which is setting a quit date and changing your environment; (b) making a plan and getting support; (c) learning new skills and behaviors; and (d) let’s quit, which is choosing your method of quitting (see Appendix D).

Data Collection, Management, and Analysis Plan

The hospital’s population health data analyst (PHDA) at the study site collected data retrospectively between August 27, 2018 and November 30, 2018. The PHDA has a master’s in Statistics and Public Health and a medical degree and is trained to conduct specific methods and data analysis to predict results. The PHDA extracted data for all patients of the cancer clinic who were asked if they use tobacco when the vital signs were taken and who received initial smoking cessation counseling. I performed chart reviews for the cancer patients of the clinic who did not have their tobacco status assessed as a vital sign to determine if they received initial smoking cessation counseling.

There were two different groups in the study—patients who received counseling and were asked if they used tobacco when the vital signs were conducted and patients who received counseling and were not asked if they used tobacco when the vital signs were taken. The project compared the difference in the number of patients who accepted education on how to stop smoking based on the total population of smokers and the two different forms of treatments, also referred to as groups. I used descriptive statistics for participants’ demographics analysis. I used
the chi-square test and power analysis, along with descriptive statistics, for data analysis purposes.

**Methodology Appropriateness**

This project was a non-experimental study that analyzed the effect of asking patients if they use tobacco during the vital sign assessment and its effects on staff documentation of tobacco use and educating patients on how to stop smoking. I collected data for this descriptive study from a retrospective chart review and extrapolation of structured data fields. Data for the project were managed and housed securely in the EHR. Clinic leadership granted consent and support for the use of the data and program information. A disadvantage of non-experimental studies is that they do not yield persuasive evidence for inferences (Polit & Beck, 2004).

**IRB Approval and Process**

Prior to initiating the study, Abilene Christian University’s Institutional Review Board (IRB) approved the study as exempt research (see Appendix E). This approval was granted for exempt, as it is a retrospective closed chart review project and presents minimal or no research risk to human subjects. The study site clinic director granted approval to conduct the research project and to review retrospective data and charts (see Appendix F). The data collected for the sample group were protected and kept confidential. All information was housed on a password-encrypted flash drive in a secure office, and I am the only person with access to this office. Additionally, I used no individual identities in any reports or publications resulting from this study.

**Practice Location**

This study took place in an outpatient cancer clinic located in a safety-net hospital in Nashville, Tennessee. The setting is affiliated with an academic medical school. The hospital provides emergency and surgical services, as well as comprehensive acute care services and
numerous specialty and primary care clinics. The clinics and hospital predominantly serve the indigent, low socioeconomic, and underserved population of central Tennessee and surrounding counties. The organization is Joint Commission accredited, and the cancer program has been accredited since 1941 and in 2017 received Silver Level recognition by the Commission on Cancer. I received support for this project from the director of the ambulatory clinics during the collaboration of this project (see Appendix F).

**Target Population**

The targeted population for data collection included cancer patients who presented to the clinic, smoked, and were 18 years or older. The participants’ stage of cancer varied from stage zero to stage four. Many physicians use the tumor, node, metastasis (TNM) system of the American Joint Committee on Cancer to properly describe the stage of cancer. Patients in the clinic have various stages of cancer. Stages of cancer range from zero to four: (a) stage zero describes cancer that is in place but has not spread to any tissue; (b) in stage one, the cancer is small and is not in any deep tissue; (c) stage two and stage three is considered large tumors that are in tissue and/or lymph nodes; and (d) stage four is considered the most advanced form of cancer and the cancer has moved to other organs, which is also known as metastatic cancer (American Society of Clinical Oncology, 2018). Patient data utilized for this study were all patients who were seen at the cancer clinic. The exclusion criteria were patients who do not smoke. No exclusion was based on race, ethnicity, or financial class for this study.

**Risks and Benefits**

The implementation of the tobacco use vital sign allowed for tracking and trending of both documentation of the smoking status vital sign as well as patient participation in initial smoking cessation. The project used collected information from closed chart records; therefore, no foreseen risk took place, as this was a non-experimental, non-human project. The two
interventions incorporated in this project were low cost, time efficient, and evidence-based. After implementation, the anticipated outcome would benefit patients, nursing staff, providers, and the health facility. Patients would have better health outcomes. Nursing and other clinical staff would have increased knowledge, confidence, and training in smoking cessation counseling. Finally, providers and the health care facility would have taken the first steps toward being a meaningful use certified facility, increasing potential revenue for the organization and treatment clinicians.

**Timeline**

The project timeline ensured organization and tracking of activities (see Appendix G). Once IRB approval was granted, the timeline of events included an EHR intervention of adding smoking status as the sixth vital sign. I trained nursing staff on the practice changes of the vital assessment and the 5A’s framework of brief smoking cessation counseling. I collected, analyzed, and disseminated data for quality improvement efforts.

**Summary**

An EHR that is compliant with meaningful use is beneficial for its interoperability and efficiency. The EHR models with structured data fields and electronic referral capability have been endorsed by the North American Quitline Consortium (NAQC, 2015) as a potential national standard of care. The attendance in initial smoking cessation counseling can increase when there is a structured systematic field in the EHR to identify and assess for tobacco use and knowledge, resources, and support to confidently conduct brief smoking cessation counseling.

In summary, this retrospective project used a convenience sample of two groups of cancer patients, an intervention group and a comparison group. I collected chart reviews and data from structured fields. I used the chi-square test and power analysis, along with descriptive statistics, for data analysis purposes. The target population was tobacco users with cancer, ages
18 years and over. This project was the first stage for preparation, evaluation, and analysis of workflow and process improvement for implementation of a future dedicated tobacco treatment clinic for cancer patients.
Chapter 4: Results

This project analyzed how adding tobacco use screening to the vital sign assessment in the EHR would impact nursing documentation of tobacco use status and patient participation in initial smoking cessation counseling during a routine office visit. The goals were to increase nursing documentation of tobacco status, increase patient participation in initial smoking cessation counseling, and establish best practices for screening for tobacco use and offering smoking cessation.

Data Analysis

The usual practice group and the intervention group consisted of 220 participants for this project. I used two tools for analysis. One was a statistical software called R, which I used to perform the chi-square and \( p \)-value. I used a G*Power calculator to perform the effect size (see Appendix H) and a statistical power analysis (see Appendix I). I used descriptive statistics of variables for analysis of participants’ demographics. The 220 participants consisted of both the usual practice group and the intervention group (Faul, Erdfelder, Lang, & Buchner, 2007).

Findings

Demographic characteristics. The total sample ranged from 25 years of age to 65 years of age, with 82% between the ages of 45 years and 64 years. The majority of the sample were male, with females accounting for 45%. Most of the patients were African American, with Caucasians accounting for 39%. There were a variety of financial classes noted, with most of the patients utilizing Medicaid. Table 1 provides details of the sample demographic characteristics.
Table 1

Demographic Characteristics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>n</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
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<tr>
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<tr>
<td>Male</td>
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<td>25 – 44</td>
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<td>0.0</td>
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<tr>
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<td>Black/African American</td>
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<td>Hawaiian/Pacific Islander</td>
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<tr>
<td>Uninsured</td>
<td>60</td>
<td>25.4</td>
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*P*-value and interpretation. I performed a Pearson chi-square test of independence to examine the relationship between method of smoking status assessment and patients who received smoking cessation counseling. The relationship between these variables was significant, $X^2 (1, N = 220) = 69.39, p$-value $< 0.01$ (see Table 2).
Table 2

Cross Tabulation of Study Group and Smoking Cessation Counseling

<table>
<thead>
<tr>
<th>Smoking cessation counseling</th>
<th>Usual practice group</th>
<th>Intervention practice group</th>
<th>$X^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23</td>
<td>94</td>
<td>69.39*</td>
</tr>
<tr>
<td>No</td>
<td>79</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

* $p < 0.01$

Figure 1. Group comparison of percentage of patients who received smoking cessation counseling.

Variables in the charts and graphs. The following variables were used for this study.

- Counseling – yes: Number of smokers who received smoking cessation counseling sessions.
- Counseling – no: Number of smokers who did not receive smoking cessation counseling sessions.
- Usual practice group: Smokers whose tobacco use status was assessed through the usual method in the social history or patients who did not get the treatment of recording tobacco use as a routine vital sign.
• Intervention practice group: Smokers who were asked if they use tobacco during the vital sign assessment or patients who got the treatment of being asked if they use tobacco during the routine vital sign assessment.

Effect size and power. I conducted a post-hoc analysis, which is also known as a post-study analysis, using G-power software.

• Effect size: The difference between the number of patients in the intervention group who attended smoking cessation counseling and the number of patients in the non-intervention group who received smoking cessation (0.78 – 0.23 = 0.57076).

• Total sample size: Number of smokers in the intervention group plus number of smokers in non-intervention group (118 + 102 = 220).

• Level of significance (α = 0.05).

Summary

In summary, the demographic characteristics of the sample indicated that the majority were African American males, in the age range of 45 years to 64 years, on Medicaid or uninsured. At 5% of the level of significance, a significantly higher proportion of smokers whose status was assessed during the vital sign assessment received smoking cessation counseling than smokers whose smoking status was evaluated by the usual method in the social history (p-value < 0.01). The post-hoc power calculated in the G-power statistical tool was 100%. A 0.80 or greater power analysis is acceptable and deems the sample size is suitable enough to achieve statistically significant results (Polit & Beck, 2004). The results of 100% power analysis indicated the results can be generalized to the study population. As a result, the hypothesis was accepted because smokers whose tobacco use status was assessed during the vital sign assessment were more likely to be educated on how to stop smoking than were the smokers whose tobacco use status was evaluated the usual method in the social history.
The results of this study indicated that more research is needed. Additionally, incorporating asking patients if they use tobacco as a vital sign in the EHR can be significant in helping to encourage patients, especially those with cancer, to stop smoking and improve their health outcomes, which will ultimately decrease their mortality rates. The demographic data indicated that most patients were African American males of the Medicaid population. Conducting more studies that focus on the racially and ethnically underserved population will help to decrease disparities of cancer care support among African American males and increase their quality of life through tobacco treatment services, advocacy, and access to education.
Chapter 5: Discussion, Conclusions, and Recommendations

Asking patients if they use tobacco and educating them about how to stop smoking are two of the easiest preventative health methods that can be conducted during a routine office visit, yet there remains a gap in care for providing these services. The overall goal of this project was to improve clinical practice gaps in care for assessing and documenting tobacco use status and providing smoking cessation services for economically and racially disadvantaged cancer patients. The results showed that adding tobacco use status to the vital sign documentation area resulted in significant improvement in patients receiving brief smoking cessation counseling during the office visit. The other goal of this project was to increase nurses’ knowledge of the 5A’s model for assessing tobacco use and providing smoking cessation during an office visit.

Implications for Nursing

Offering preventative health services, such as smoking cessation, is often not addressed during a routine cancer care office visit, due to competing priorities, such as chemotherapy and radiation. This study showed that having a structured charting system for assessing tobacco use status not only helped with documentation, but it also helped to improve consistency of patients receiving smoking cessation counseling. Some of the subjective actions noted during the study were that some of the nursing staff were less comfortable with the EHR and with conducting the brief counseling sessions during the visits. There were staff complaints about not having enough time to conduct the brief counseling and of feeling rushed. Thus, there is need for more training to provide confidence in performing this task, which can lead to better efficiency in performing this skill.

Relationship to DNP Essentials

The Doctor of Nursing Practice (DNP) Essentials are the foundation for DNP graduates (American Association of Colleges of Nursing [AACN], n.d.). As part of this retrospective
study, it is important to highlight the relationship to the AACN DNP Essentials that established the foundation for conducting this study. The ACCN DNP Essentials represented in this project are the following:

**Essential I: Scientific Underpinnings.** As DNP-prepared nurses, we must be prepared to properly conduct research and translate that research into practice to improve quality of care, patient safety, and patient outcomes. Assessing tobacco use status during an office visit and providing smoking cessation counseling for cancer patients continues to be an inconsistent practice. The literature review supported the need for a systematic, evidence-based, consistent method for assessing tobacco use and providing smoking cessation counseling to every patient during every visit. The theoretical underpinning used in this study was the TTM. Multiple studies have shown the evidence-based effectiveness of the TTM with behavioral change. In a recent study that compared the health belief model to the TTM as the framework for smoking cessation for nurses who smoke, the TTM was found to be beneficial when going through the various phases of change and in having a cessation of six months or more (Bakan & Erci, 2018).

According to Koyun and Eroglu (2016), “The TTM is the behavioral change model that is most recommended by health professionals regarding smoking cessation” (p. 105). This theory is effective because it considers all the different stages patients experience when deciding when they are ready to stop smoking and the most appropriate treatment. The TTM is successful also because it is one of the most flexible theories that encompasses various behavior change theories and flexibility based on the patient’s needs and physical addiction (Fidanci, Ozturk, & Unal, 2017).

**Essential II: Organizational and Systems Leadership for Quality Improvement.** The implementation of a tobacco use question as a vital sign with an underserved population who were not being offered consistent smoking cessation services helped to improve patient safety
and inclusion of evidence-based practice. This project brings attention to the lack of tobacco prevention services for a group of patients. By utilizing the organization’s EHR to impact workflow and process improvement, advanced practitioners and providers can effectively assess, evaluate, and manage patients’ health care needs and ultimately improve patient quality of care. Analyzing the tobacco use question in the vital sign assessment, with consistent documentation, contributes to improvement in workflow process.

**Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice Essential.** Data and statistics used in this study assured the accuracy of results and contributed to translating research to practice. Implementation and dissemination of the phenomenon of adding tobacco use screening to the vital sign assessment and the 5A’s evidence-based brief tobacco cessation intervention to daily nursing practice provides a vehicle for translating evidence-based process to practice. This nursing project identified a gap in tobacco treatment services and introduced the phenomenon of tobacco use as a sixth vital sign, which will ultimately improve health outcomes and contribute to scholarly nursing practice.

**Essential IV: Information Systems and Patient Care Technology.** The EHR was utilized in this project to improve the workflow process and as a tool to communicate effectively with the health care team and to advocate for consistent smoking cessation education. A brief smoking cessation question was added, as well, to assist staff with conducting the initial brief smoking cessation counseling.

**Essential V: Health Care Policy.** The implementation of adding a tobacco use assessment to the vital sign section in the EHR is in direct correlation with state and federal health policy and the ACA expanded tobacco cessation coverage for the Medicaid and Medicare population. The ACA’s essential health benefit under preventative and wellness services covers counseling and tobacco cessation medication for Medicaid, Medicare, and private insurance
(American Lung Association, 2018). The use of the EHR to support tobacco treatment is at the forefront, as more organizations strive to become compliant with meaningful use regulations for screening for tobacco use. Clinicians are encouraged by CMS to use health IT, especially a certified EHR, to receive incentives (HealthIt.gov., 2018). As DNP-prepared nurses, we can advocate for improved delivery systems and address health disparities and access to care.

**Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes.** As advanced practice nurses, it is critical that we collaborate with other professionals and stakeholders and advocate for our patients. The IT department, the population health department, clinic leadership, frontline staff, and the care management team were critical stakeholders in the implementation of the tobacco use vital sign and template for initial smoking cessation education during an office visit. The IT department created the templates for the smoking cessation and collaboratively worked with the PI of the study to structure the questions to be easily extrapolated for data collection and analysis. Bi-weekly meetings were held with the data analyst from the population health department to review ongoing progress, barriers, and successes with implementation of the tobacco use vital sign. Clinic leadership and frontline staff were a major part of this project by allowing the education and training of the 5A’s smoking cessation intervention, process improvement in clinical workflow, and advocacy for quality care.

**Essential VII: Clinical Prevention and Population Health.** Smoking cessation, especially for patients inflicted with cancer, can prevent worsening of cancer and other comorbidities. By implementing a tobacco use vital sign in a systematic format into the EHR, targeting cancer patients who smoke, participation in smoking cessation services increased, ultimately improving their quality of life. Through implementation of the tobacco use vital sign phenomenon, advanced practitioners can shift their mindset from individual reactive care to proactive population-based care.
Essential VIII: Advanced Nursing Practice. DNP-prepared nurses have advanced knowledge and training to implement evidence-based research. Providing training on assessing and documenting a tobacco use vital sign and conducting the 5A’s evidence-based intervention model for smoking cessation to frontline health care, staff has a tremendous effect on the staff’s foundational knowledge of tobacco treatment and prevention. The trainings not only increase nurses’ knowledge but also helps to build confident and competent nurse leaders. Increasing nurses’ knowledge in the specialty area of tobacco treatment enhances their skillset needed to efficiently assess patients and provide quality care (AACN, 1996).

Recommendations

According to Ward et al. (2004), “Elimination of disparities in the burden of cancer is one of the overarching themes of the American Cancer Society 2015 challenge goals” (p. 78). Future studies should include the benefits of adding tobacco use as the sixth vital sign for physicians, residents, and providers who care for cancer patients of ethnic and racial disparities, especially those of low socioeconomic status. Suggestions for future projects that involve cancer patients and staff/provider training on evidence-based smoking cessation should consist of a pre-and post-test to assess the knowledge of the 5A’s model and a personality test to determine the level of staff comfort for interviewing and educating patients. Providing formal MI training will help improve confidence and knowledge. Providing behavioral and MI training as an elective course would be beneficial for advanced clinical nurses, as knowing how to utilize these skills is very useful in chronic disease management. Incorporating technology into the brief cessation counseling, such as the text messaging program offered by the NCI, would also be beneficial (DHHS, n.d.).
Future Implications

One of the immediate implications of this project includes billing for tobacco screening and cessation. Sharing and disseminating the results to other community clinics via speaking engagements and conferences is at the forefront, as well. As a CTTS, there is an opportunity to network with other CTTS individuals via the Association for the Treatment of Tobacco Use and Dependence (2019), which is “an organization of providers dedicated to the promotion of and increased access to evidence-based tobacco treatment for the tobacco user” (para. 1). Smoking cessation workshops that include evidence-based practices obtained during CTTS training at MD Anderson Cancer Center in Texas can be conducted, as well. Ultimately, the overarching goal includes expanding this project and obtaining funding to support developing a dedicated tobacco treatment clinic that utilizes the new evidence-based precision medicine nicotine metabolite ratio blood test as customary screening for all tobacco users who have cancer.

Summary

The overarching goal of the study was to analyze tobacco use screening best practices and initiate the beginning steps for consistently assessing tobacco use screening and helping cancer patients to stop smoking. The results showed that assessing tobacco use during the vital sign assessment resulted in more consistent documentation of tobacco use status and patient participation in initial smoking cessation counseling during a routine office visit. Tobacco cessation and treatment reduces the risk of complications after being diagnosed with lung cancer, it also improves the survivability of lung cancer (Pua, Dou, O’Connor, & Crawford, 2016). Plans are to expand this project by obtaining funding to support developing a dedicated tobacco treatment clinic that utilizes evidence-based precision medicine nicotine metabolite ratio blood test as customary screening for all cancer patients who use tobacco. This approach uses the nicotine metabolite ratio, a validated, inexpensive, reproducible biomarker that predicts smoking
behavior (St. Helen et al., 2012) and treatment response to medications to inform the choice of FDA-approved smoking cessation medication (Schnoll et al., 2009). In line with the facility’s committee for providing coordinated quality care via a PCMH model, executive and clinic leadership have committed to continue initial project efforts by allocating funds and applying for grants.
References


https://www.who.int/news-room/fact-sheets/detail/tobacco
Appendix A: The 5A’s

THE BRIEF TOBACCO INTERVENTION

The 5As

ASK about tobacco use:
“Do you currently smoke or use other forms of tobacco?”

ADVISE the patient to quit:
“Quitting tobacco is one of the best things you can do for your health. I strongly encourage you to quit. Are you interested in quitting?”

ASSESS readiness to quit:
“Are you interested in quitting tobacco?”

ASSIST the patient in quitting:

IF READY TO QUIT: Provide brief counseling and medication (if appropriate). Refer patients to other support resources that can complement your care (e.g., quitlines, Smokefree.gov, SmokefreeTXT, BeTobaccoFree.gov, group counseling).

For tips on how to offer brief counseling, see: www.ahrq.gov/path/tobacco.htm.

IF NOT READY TO QUIT: Strongly encourage patients to consider quitting by using personalized motivational messages. Let them know you are there to help them when they are ready.

ARRANGE for follow up:
Follow up regularly with patients who are trying to quit.
Five Major Steps to Intervention (The “5A’s”)

Successful intervention begins with identifying users and appropriate interventions based upon the patient’s willingness to quit. The five major steps to intervention are the “5 As”: Ask, Advise, Assess, Assist, and Arrange.

**ASK**
Identify and document tobacco use status for every patient at every visit. (You may wish to develop your own vital signs sticker, based on the sample below).

**ADVISE**
In a clear, strong, and personalized manner, urge every tobacco user to quit.

**ASSESS**
Is the tobacco user willing to make a quit attempt at this time?

**ASSIST**
For the patient willing to make a quit attempt, use counseling and pharmacotherapy to help him or her quit. (See Counseling Patients To Quit and pharmacotherapy information in this packet).

**ARRANGE**
Schedule followup contact, in person or by telephone, preferably within the first week after the quit date.

---

Tobacco is the single greatest preventable cause of disease and premature death in America today.

"Starting today, every doctor, nurse, health plan, purchaser, and medical school in America should make treating tobacco dependence a top priority."

David Satcher, MD, Ph.D.
Former U.S. Surgeon General
Director, National Center for Primary Care, Morehouse School of Medicine

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**VITAL SIGNS**

<table>
<thead>
<tr>
<th>Blood Pressure:</th>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse:</td>
<td></td>
</tr>
<tr>
<td>Temperature:</td>
<td></td>
</tr>
<tr>
<td>Respiratory Rate:</td>
<td>Current</td>
</tr>
<tr>
<td>Tobacco Use:</td>
<td></td>
</tr>
</tbody>
</table>

*Alternatives to expanding the vital signs are to place tobacco-use status stickers on all patient charts or to indicate tobacco use status using electronic medical records or computer reminder systems.
THE BRIEF TOBACCO INTERVENTION

The 2As & R

ASK about tobacco use:
“Do you currently smoke or use other forms of tobacco?”

ADVISE the patient to quit:
“Quitting tobacco is one of the best things you can do for your health. I strongly encourage you to quit. Are you interested in quitting?”

REFER the patient to resources:
IF READY TO QUIT: Provide direct referrals to resources that will assist the patient in quitting. Provide direct referrals. Prescribe medications, if appropriate.
“This is a resource I recommend. It will provide you with support, help you create a plan to quit, and talk to you about how to overcome urges you might have to smoke after you quit.”

IF NOT READY TO QUIT: Strongly encourage patients to consider quitting by using personalized motivational messages. Let them know you are there to help them when they are ready.

Recommended resources include:
- Free telephone-based state tobacco quitlines: 1-800-QUIT-NOW
- The National Cancer Institute’s website: www.Smokefree.gov
- The National Cancer Institute’s text-messaging quit smoking program: SmokefreeTXT; Text QUIT to 47848
- The Department of Health and Human Services website: BeTobaccoFree.gov
- Appropriate community-based or local cessation resources (e.g., classes, support groups)

From “Five Major Steps to Intervention (The 5 A’s),” by Agency for Healthcare Research and Quality, 2012 (https://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/tobacco/5steps.html). In the public domain.
Appendix B: American Lung Association Smoking Cessation Programs

American Lung Association Smoking Cessation Programs

The American Lung Association provides several programs that help tens of thousands of smokers quit every year. Freedom from Smoking® is considered to be the gold standard of smoking cessation programs. All of these programs include components of the intensive counseling interventions recommended in the Guideline. More information about these programs can be found at www.lungusa.org.

Freedom From Smoking®:

The Freedom From Smoking® program has been helping smokers quit for over two decades. The program is offered in three different formats. It began in 1980 as a self-help manual, which is still available today. The eight-module program is also offered as a group clinic in many areas of the country. Additionally, in 1999 the American Lung Association launched Freedom From Smoking Online (www.ffsonline.org), which takes smokers through the modules online and provides interaction with other smokers from across the country.

Participants in Freedom From Smoking® develop a personalized step-by-step plan to quit smoking. Each session uses a positive behavior change approach and encourages participants to work through the problems and process of quitting individually as well as in a group.

Evidence has shown that Freedom from Smoking® is very effective at helping smokers quit.¹ ²

Not-On-Tobacco:

This program for teens aged 14-19 was developed by the American Lung Association and West Virginia University. Introduced in 1997, it is now the most widely available teen tobacco cessation program in the country.

The program includes 10 sessions conducted in small groups. N-O-T is a voluntary (non-punitive) program that offers participants support, guidance, and instruction on understanding the reasons they started smoking, preparing to quit, and preventing a relapse once they have quit.

Not-On-Tobacco has proven to be effective in helping teens quit smoking.³ ⁴

Lung Helpline (1-800-LUNGUSA):

The Lung Helpline is a valuable resource to anyone interested in and affected by lung health. The Helpline is staffed by registered nurses and respiratory therapists. Callers can ask about a variety of lung-related topics – 70% of calls are related to tobacco cessation.

The Lung Helpline can help callers quit smoking, and refer them to local programs and treatments that will also help. The nurses and therapists at the Helpline also answer questions submitted through the American Lung Association website.

## SESSION 1: Thinking About Quitting

### Are You Ready to Quit Smoking?

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do I want to quit smoking for myself?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>2. Is quitting smoking a #1 priority for me?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>3. Have I tried to quit smoking before?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>4. Do I believe smoking is dangerous to my health?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>5. Am I committed to trying to quit even though it may be tough at first?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>6. Are my family, friends and co-workers willing to help me quit smoking?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>7. Besides health reasons, do I have other personal reasons for quitting smoking?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>8. Will I be patient with myself and keep trying if I slip or backslide?</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

*If you answered YES to 4 or more of these questions, you are ready to quit smoking. GOOD LUCK!*

*If you answered YES to less than 4 questions, please talk to your Freedom From Smoking Clinic Facilitator.*

©2016 American Lung Association.
SESSION 1: Thinking About Quitting

Registration Form and Questionnaire

All information on this questionnaire will be kept confidential. Please print clearly.

Name: ____________________________
Address: ____________________________
City: ____________________________ State: ____________ Zip Code: ____________________________
Home Phone: ____________________________ Work Phone: ____________________________
E-mail: ____________________________

Which of these best describes your race or ethnic group? (Check all that apply.)

☐ White ☐ African American ☐ Hispanic ☐ Asian/Pacific Islander
☐ Native American/Alaskan Native ☐ Other: ____________________________
☐ I prefer not to answer this question.

Gender: ____________________________ Age: ____________________________

Questionnaire 3

Your History of Tobacco Use

1. At what age did you begin to use tobacco? ____________________________

2. How many cigarettes do you smoke each day? ____________________________

3. How many times have you stopped smoking before? ____________________________

4. What is the longest period of time you have gone without smoking since you first started? ____________________________
Appendix C: Tennessee QuitKit

Tennessee Tobacco QuitLine

Telephone help and referral for quitting tobacco

Tennessee Tobacco QuitLine
1-800-QUIT-NOW
[1-800-784-8669]
http://tn.gov/health/topic/FHW-tobacco

The Tennessee Tobacco QuitLine is a free telephone-based, web-based and proactive counseling service in English and Spanish available to help smokers and spit tobacco users quit using tobacco.

The Quitline serves Tennessee residents who are tobacco users in any stage of readiness to quit, family and friends (proxy callers), health care providers, other professionals and the general public. Information, counseling services, tailored materials and referrals are offered. A TDD line, 1-800-969-1393, is available to provide services to the hearing impaired. Automatic call answering extensions are used to channel callers to specific services or staff. Live call center response is provided Monday through Friday, 7:00am - 10:00pm CST, Saturday 8:30am - 5:00pm CST and Sunday 10:00am - 4:00pm CST. Recorded information and voice mail is available when the call center is closed. For more information regarding the Tennessee Tobacco QuitLine, visit http://tn.gov/health/topic/FHW-tobacco

The Tennessee Tobacco QuitLine also offers a unique clinical support service for health care providers interested in stopping tobacco usage by their patients. Through the Tennessee Tobacco QuitLine's Fax Referral Service, health care providers can refer their patients to the free, telephone-based cessation program by following these simple steps:
• Ask the patient about his/her tobacco use.
• Advise the patient to quit.
• Assess the patient's readiness to quit.
• If the patient is ready to quit,
  1. prescribe nicotine replacement pharmacotherapy, and
  2. complete the Tennessee Tobacco QuitLine fax referral form.
  3. Fax the fax referral form to the Tennessee Tobacco QuitLine's fax referral service at 601-899-8650 or email to referrals@tnquitline.com.

Referral forms can be downloaded from http://tn.gov/assets/entities/health/attachments/TNQuitLine_Fax_Referral_form.pdf or http://www.tnquitline.org/
Local Resources

Local Health Department Services

Talk with your medical health care provider about options for tobacco cessation treatment. If you do not have a primary care provider or lack health insurance coverage in general, or coverage specifically for tobacco cessation treatment, then we encourage you to contact your local health department.

Some local health departments offer low cost help to quit smoking. Counseling services and cessation products are free to Medicaid/TennCare patients.

For a listing of the county health departments in Tennessee, visit:
http://tn.gov/health/topic/localdepartments
Updated advisory concerning Electronic Cigarettes/Electronic Nicotine Delivery Products (ENDS).

**Note:** This advisory was modified Jan. 17, 2017. [Click Here](https://tn.gov/assets/entities/health/attachments/Health_Advisory_-_Electronic_Cigarettes_1-17.pdf) for more information.

# The Quitting Process

No matter what stage of the quit process you are in, the Tennessee Tobacco QuitLine can help. When you enroll with the QuitLine you will be assigned your own quit counselor, and you will have the same counselor for a whole year.

**Are you thinking about quitting? You should...**

- **Learn the facts about tobacco and its effects on you.**
  - Heart disease, various cancers, lung diseases (COPD, emphysema), etc.

- **Learn the facts about the effects of tobacco on those you love.**
  - Children exposed to secondhand smoke are more likely to get pneumonia, ear infections, bronchitis, etc.
  - Adults exposed to secondhand smoke are more likely to have heart disease and lung cancer.

- **Think about ALL of the costs of tobacco. Can you really afford it?**

**Are you ready to quit? If the answer is yes, you should...**

- **Set a quit date.** What day will be the first day you don't use any tobacco?

- **Change your environment**
  - Get rid of all tobacco products, ashtrays and lighters.
  - Don't let people use tobacco in your home or car.

- **Review your past quit attempts.**
  - What worked and what didn't?

- **Get support!**
  - Identify at least two people you can count on for support while you are quitting.

- **Learn new skills and behavior** to cope with cravings and stress.

- **Choose your method of quitting.**
- Discuss options with your counselor or doctor prior to quitting.

**Have you already quit and you are thinking "What if I slip?"**

- If you slip, it's ok. Ask yourself, "Why am I using tobacco right now?"
  - Is it withdrawal?
  - Is it stress or anger?
  - Did someone offer tobacco?

- Call your counselor and review your quit plan so you can get back on track.

- Don’t let a slip set you back. Just pick up where you were and continue being tobacco free.

When you are ready to quit, give us a call at 1-800-784-8669 or [Click Here](http://www.iqhquitline.com/members) for online support.

---

**Quitline Hours**

**Eastern Time:**
- Mon. – Fri. 8:00 a.m. – 11:00 p.m.
- Sat. 9:00 a.m. – 6:00 p.m.
- Sun. 11:00 a.m. – 5:00 p.m.

**Central Time:**
- Mon. – Fri. 7:00 a.m. – 10:00 p.m.
- Sat. 8:00 a.m. – 5:00 p.m.
- Sun. 10:00 a.m. – 4:00 p.m.

**Days of Operation**
The Tennessee Tobacco Quitline is open 7 days a week except for recognized holidays:
- Christmas Day
- Fourth of July
- Labor Day
- Thanksgiving Day

**Contact Us**
- support@iqhquitline.com (mailto:support@iqhquitline.com)
- 1-800-784-8669
- 1-800-692-9023
- [http://www.tnquitline.org](http://www.tnquitline.org)
Getting ready to quit

Find out why you use tobacco and why you want to quit.

Why do you use tobacco?
- It makes me feel better when I'm stressed and worried.
- I'm addicted to the nicotine in tobacco.
- I use tobacco out of habit.
- Using tobacco helps me feel at ease in social situations.
- I use tobacco as a reward for getting through a tough situation.
- I use tobacco because I have cravings.

Why do you want to quit?
- I want to be a healthier person. If I quit smoking, I will lower my risk of heart disease, cancer, and many other smoking-related health problems.
- I want those around me to be healthier, and I want to set a good example for them.
- I am pregnant.
- I want to have more energy.
- I want to have more money to save or spend.
- My doctor recommended that I quit.

Now ask yourself:
- Do my reasons for quitting matter more than my reasons for smoking?
- Do these reasons seem important enough to make me want to quit soon?

I'm ready to quit, now what?

When you quit using tobacco, it is important to see where, when and what triggers cause you to light up or dip.

Studies have shown that these steps will help you quit for good. You have the best chance of quitting if you use them together:

1. GET READY! Set a quit date.

My quit date: ______________________

Change your environment.
- Get rid of ALL tobacco products and ashtrays in your home, car and work.
- Don't let people smoke in your home or your car.

Review your past attempts to quit. Think about what worked and what did not.

From now until you quit, buy one pack at a time and change brands every time you buy tobacco.
2. GET SUPPORT! List two people you can call.

Name: ____________________________
Number: ____________________________
Name: ____________________________
Number: ____________________________

3. LEARN NEW SKILLS AND BEHAVIOR

• Try to distract yourself from urges to use tobacco. Talk to someone, go for a walk, or get busy with a task.
• When you first try to quit, change your routine. Use a different route to work. Drink tea instead of coffee. Eat breakfast in a different place.
• Do something to reduce your stress. Take a hot bath, exercise or read a book.
• Plan something enjoyable to do every day.
• Drink a lot of water and other fluids.

What if you use tobacco again?

If you slip, it’s OK! Ask yourself, “Why am I using tobacco right now?”

• Is it withdrawal? Look for a better way to handle the discomfort.
• Is it stress or anger? Remember the Four D’s (Deep breathing, Drink water, Do something else, Delay for 10 minutes). Take a walk or call your support person.
• Did someone offer you tobacco and you took it? Try to stay away from people with tobacco for a while.

Don’t let this slip set you back, just pick up where you were and continue being tobacco-free!

Call 1-800-QUIT-NOW or 1-800-784-8669 to speak to a counselor to help you get back on track to become tobacco-free!

Hours of Operation
Monday - Friday 7:00 a.m. - 10:00 p.m. CST
Saturday: 8:00 a.m. - 5:00 p.m. CST
Sunday: 10:00 a.m. - 4:00 p.m. CST

4. CHOOSE YOUR METHOD OF QUITTING

Discuss options with a counselor or healthcare provider

• Cold Turkey
• Nicotine Patch
• Nicotine gum or Lozenge
• Medication
• Cutting Down
• Telephone or Online Counseling
• Class
• Buddy System

Appendix D: Table of Contents for Tennessee Tobacco Toolkit

Dear Latonya,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled "The Analysis of Smoking Use Vital Sign Assessment (IRB# 18-055) is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determine whether or not the exempt status is still applicable.

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs
Appendix F: Site Approval

Nashville General Hospital at Meharry

To Whom It May Concern:

April 02, 2018

Latonya King, APRN, FNP-C, graduate student in Abilene Christian University’s Doctor of Nursing Practice Program has been granted support and given permission, by the Director of Ambulatory Clinics & Patient Centered Medical Home, to utilize the data, program material produced and her intellectual property in the development and implementation of the Project, ‘The Analysis of Tobacco Use Vital Sign’ in the cancer clinic, in an effort to improve documentation of tobacco use and patient participation in smoking cessation.

Thank you,

Jennifer Sujdak I Director of Ambulatory Clinics & PCMH
1818 Albion Street I Nashville, Tennessee 37208 | (o) 615.341.4406 | (c) 615.406.1580 | (f) 615.341.4952
V Nashville General Hospital at Meharry

1818 Albion Street • Nashville, Tennessee 37208
www.nashvillegeneral.org — we care for YOU. for life.
Appendix G: Project Timeline

<table>
<thead>
<tr>
<th>Month/Year Completed</th>
<th>DNP Project Task List</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2018</td>
<td>Submission of Problem of Interest (POI), Background, Purpose and Significance of POI</td>
</tr>
<tr>
<td></td>
<td>Formation of DNP Project Committee</td>
</tr>
<tr>
<td>March 2018</td>
<td>Setup of E-Portfolio</td>
</tr>
<tr>
<td>March 2018</td>
<td>Submission of Chapter 1 of DNP project paper</td>
</tr>
<tr>
<td>March 2018</td>
<td>Review of Literature</td>
</tr>
<tr>
<td>April 2018</td>
<td>Completed ACU’s ‘EthicsCORE Responsible Conduct of Research’ Training</td>
</tr>
<tr>
<td>April 2018</td>
<td>Received Letter of Support from Clinic Director to conduct project</td>
</tr>
<tr>
<td></td>
<td>IRB Certificate and Research Training submitted</td>
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<tr>
<td></td>
<td>Submission of Chapter 2 of DNP project paper (Methodology Development)</td>
</tr>
<tr>
<td>April 2018</td>
<td>Submitted Chapter 3 of DNP Project</td>
</tr>
<tr>
<td>April 2018</td>
<td>Prepare for Capstone Proposal Defense</td>
</tr>
<tr>
<td>April 2018</td>
<td>Submission of final draft of Chapters 1 through 3 of DNP project paper</td>
</tr>
<tr>
<td>April 2018</td>
<td>Submission of preliminary proposal defense presentation</td>
</tr>
<tr>
<td>September 2018 - January 2019</td>
<td>Meeting with Project Chair to review project</td>
</tr>
<tr>
<td>July 2018</td>
<td>Conducted proposal defense</td>
</tr>
<tr>
<td>August 2018</td>
<td>IRB application submitted, and approval granted</td>
</tr>
<tr>
<td>September - December 2018</td>
<td>Implementation to completion of research project</td>
</tr>
<tr>
<td>December 2018</td>
<td>Statistician extrapolated data from closed charts and analyzed and interpreted results</td>
</tr>
<tr>
<td></td>
<td>Complete Chapter 4 (Results) and 5 (Conclusion) of DNP project paper in preparation to begin DNP Project II course.</td>
</tr>
<tr>
<td>January 2018</td>
<td>Submit Chapter 1 through 5 of DNP project paper to Chair and Committee</td>
</tr>
<tr>
<td></td>
<td>Submission of draft Final proposal oral defense</td>
</tr>
</tbody>
</table>
Appendix H: Effect Size Calculation
Appendix I: Power Analysis Calculation