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Implementing Low-Dose CT Scans to Screen for Lung Cancer in the Primary Care Setting

Monifa Ri'ana Beal

IMPLEMENTING LOW-DOSE CT SCANS TO SCREEN FOR LUNG CANCER IN THE PRIMARY CARE SETTING

by

Monifa Ri'ana Beal

A Doctoral Project
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Committee:

Dr. Carolyn Coleman, Committee Chair
Dr. LaWanda Baskin

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ABSTRACT

Lung cancer is the leading cause of cancer-related death in both men and women in the United States. By the end of 2023, lung cancer will have been diagnosed in approximately 238,000 Americans and claimed the lives of about 127,000 of those that are diagnosed (American Cancer Society, 2023). Currently lung cancer accounts for more deaths among Americans than breast, prostate, and colon cancers combined (Centers for Disease Control and Prevention [CDC], 2019). Despite being one of the most preventable cancers in the world, lung cancer continues to be the leading cause of cancer-related death among Americans and more so in the Veteran population. The diagnosis of lung cancer can be attributed to the fact that a significant number of military personnel utilized tobacco products or were subjected to considerable levels of toxic environmental risks such as burn pits, jet fuel, and other airborne environmental exposures. According to Kinsinger et al. (2017), nearly 900,000 of a population of 6.7 million Veterans Health Administration (VHA) Veterans meet the criteria for lung cancer screenings (LCS).

The goal of this Doctoral of Nursing Practice (DNP) project was to enhance the understanding of lung cancer screening among primary care providers and nurses at the Jackson VA. The DNP project was intended to facilitate the identification and referral of a greater number of eligible Veterans to be screened for lung cancer. Based on the available data, it is possible to implement a clinical reminder tool that facilitates communication of eligible individuals on an annual basis, as well as at other designated intervals, in accordance with the Lung Rads staging system for follow-up purposes. A comprehensive understanding of lung nodules and cancers, coupled with a collaborative

decision-making approach involving healthcare providers, has the potential to expedite and enhance the precision of diagnosis and treatment.

The DNP project employed the Population/Patient Problem, Intervention, Comparison, Outcome, Time (PICOT) format to formulate a clinical question for Veterans who are seeking care in the primary care clinic with a history of tobacco use over 20 packs per year. **(P)** In Veterans who have appointments in Primary Care Clinics at VAMC, how does **(I)** Implementing a protocol for early lung cancer screening, compared to (**C)** not completing annual screening **(O)** Increase the likelihood of lung cancer in Veteran's who use tobacco **(T)** during a four-week time frame. During the time of using the clinical reminder and education of lung cancer screening, data showed that without updated knowledge of lung cancer and the screening process, many veterans would be lacking proper follow-up and possible early intervention.

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DEDICATION

First and foremost, I thank God for HIS Grace and Mercy because, without those twins, I would have been lost. I express my heartfelt dedication to my DNP project and degree to my beloved children, Sydney, Sean, and Summer, they have been patient through countless late days and nights, missed meals, and sacrifices as I have worked hard to finish all of my academic assignments. I would like to express my gratitude to my spouse, Nickolas, for his unwavering support, remarkable patience, and profound understanding throughout the entirety of this endeavor. I would like to extend my sincere appreciation to my parents, Norwood and Rena Beal, for their steadfast confidence in my capabilities and their tremendous assistance throughout the demanding phase of my educational endeavor. I express my gratitude for the steadfast support that both of you have shown to my family in this season of transition.

To my close friends who quietly didn't know that their support was also what kept me going and moving forward: thank you. Thank you to my “Circle” for setting the bar for achieving academic excellence. To everyone who thought I was absolutely "looney" for going through this process while sitting at the cheer gym, driving to the next state for cheer competitions, being at the football games with a book in tow, participating in social activities and several out of town business trips, and even taking a break at the happiest place on earth to finish assignments before donning my Mickey Ears and having fun with my family, I want to say thank you for pushing me forward and not letting me give up.

A hearty "You Got This" to everyone who has ever wanted to push themselves to their limits and see what they're truly capable of.

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LIST OF ABBREVIATIONS

AACN	American Association of Colleges of Nursing
DNP	Doctor of Nursing Practice
HIPPA	Health Insurance Portability and Accountability
IRB	Institutional Review Board
LDCT	Low Dose Computed Tomography
LCS	Lung Cancer Screening
LPN	Licensed Practical Nurse
LPOP	Lung Precision Oncology Program
MD	Medical Doctor
NLCST	National Lung Cancer Screening Trial
NP	Nurse Practitioner
PDSA	Plan Do Study Act
PICOT	Population, Intervention, Compare, Outcome, Time
QI	Quality Improvement
RN	Registered Nurse
TPY	Total Pack Per Year
USM	The University of Southern Mississippi
USPTF	United States Preventative Services Task Force
VA	Veterans' Administration
VAMC	Veteran's Administration Medical Center

CHAPTER I INTRODUCTION

Introduction

Lung cancer is the leading cause of cancer-related death in both men and women in the United States. By the end of 2023, lung cancer will account for more deaths than breast, prostate, and colon cancers combined (American Cancer Society, 2023). People at high risk for developing lung cancer, such as current and former smokers, can benefit from screening for the disease. However, screening rates among this group are still quite low. Deaths from lung cancer can be reduced by raising awareness of screening recommendations among both healthcare providers and at-risk individuals. Educating people about the risks of smoking and the benefit of quitting is another way to reduce deaths from lung cancer.

Veterans in the VA Healthcare system face a substantial risk of developing lung cancer due to many servicemen using tobacco products or having had substantial exposure to toxic environmental hazards like burn pits, jet fuel, and other airborne environmental exposures during their military service. The Veterans Health Administration diagnoses and treats around 8,000 cases of lung cancer in veterans each year, according to the U.S. Department of Veterans Affairs (VA). Considering that age and smoking alone put nearly 1.5 million Veterans at risk for developing lung cancer, the VA strongly endorses widespread lung cancer screening implementation programs to improve early detection.

Background

This DNP project took place at the G.V. Sonny Montgomery VAMC in the Primary Care clinics. The absence of a proactive strategy or clinical instrument to assist

healthcare practitioners in the screening of lung cancer among Veterans is the primary motivation for my decision to undertake this study.

According to the U.S. Preventive Services Task Force (USPSTF) (2021), guidelines suggest that adults aged 50 to 80 with a 20-pack-year smoking history who smoke now or have quit within the past 15 years should undergo annual screening with low-dose computed tomography (LDCT) for lung cancer. In the event that an individual abstains from smoking for a duration of 15 years, it is advisable that they refrain from undergoing screening procedures if they encounter a health condition that substantially diminishes their life expectancy or hampers their capacity or inclination to undertake curative lung surgery. (USPSTF, 2021).

According to the social determinants of health concept outlined in Healthy People 2030 (2022), the implementation of lung cancer screenings within primary care settings can have various effects on patients, their families, and the wider community. Concerning cancer screenings, the objective of the Healthy People 2030 initiative is to expand access to screenings and preventative techniques that are supported by evidence in order to improve cancer care and survival rates among the general population. (2020)

Significance

According to Kinsinger et al. (2017) nearly 900,000 of a population of 6.7 million Veterans Health Administration (VHA) Veterans meet the criteria for lung cancer screenings (LCS). The primary objective of lung cancer screening is to detect the presence of the illness in its early stages. During the first phases of lung cancer diagnosis, early treatment exhibits a greater degree of effectiveness. One contributing factor is that lung cancer frequently remains asymptomatic until it reaches an advanced stage The

proposed integration of LCS inside the VHA system is expected to result in a significant increase in the number of eligible patients for preventative screenings. Considering that age and smoking alone put nearly 1.5 million Veterans at risk for developing lung cancer, the VHA strongly endorses widespread lung cancer screening implementation programs to improve early detection (I LUNGevity Foundation, 2022). Therefore, the implementation of screening measures will need significant dedication from both those seeking healthcare and healthcare professionals.

Problem Statement

Despite its high preventability, lung cancer remains the primary cause of cancer-related mortality among those who have served in the military when compared to breast or prostate cancer. The higher incidence of lung cancer among Veterans in comparison to the general population can be ascribed to the cumulative impact of smoking, duration of smoking, and military duties, which provide substantial hazards. The elevated risk corresponds to a 25% increase in the number of individuals impacted by lung cancer (VA Lung Precision Oncology Program (LPOP), 2022).

Should clinical providers adopt a strategy of denial and delay screenings until the progression of lung cancer beyond the stage at which therapy may be optimally administered, or should a comprehensive screening approach be implemented for those who meet the established risk criteria? The implementation of lung cancer screening in primary care settings possesses the capacity to impact several socioeconomic determinants of health. Consequently, LCS has the potential to result in enhanced health outcomes, heightened availability of preventative care, and a healthcare system that exhibits greater equity. Primary care providers have multiple screenings to complete

when patients come in for appointments and at times the burden of an added screening can deter providers from “adding one more thing to the list”. However, in our capacity as clinical providers, it is incumbent upon us to fulfill our obligation of ensuring that our patients receive thorough and meticulous attention in terms of yearly screenings and the provision of high-quality and proficient healthcare services.

Clinical Question

Will implementing a standardized process for early identification of lung cancer screening in Veterans seeking care in the VA Primary Care Clinic improve health outcomes of early detection of lung cancer over four weeks?

PICOT

(P) In Veterans who have appointments in Primary Care Clinics at VAMC, how does **(I)** Implementing a protocol for early lung cancer screening, compared to (**C)** not completing annual screening **(O)** Increase the likelihood of lung cancer in Veteran’s who use tobacco **(T)** during a four-week period.

Available Knowledge

According to the U.S. Census Bureau (n.d.), there are about 16.5 million veterans in the United States as of 2021, accounting for less than 7% of the adult population. According to U.S. Census Bureau (n.d.) there are approximately 160,000 Veterans in the state of Mississippi. Approximately 5,000 Veterans yearly experience mortality due to lung cancer, despite the fact that the Department of Veterans Affairs identifies and provides treatment for approximately 8,000 new cases each year. Unfortunately, lung cancer is usually not diagnosed until a very advanced stage, making treatment very challenging. Stage IV lung cancer has a survival rate of less than 5% at five years. Only

about one in five cases of lung cancer are detected in their early stages today. When lung cancer is detected at stage I and surgically treated, the five-year survival rate increases to 60 to 70%. Lung cancer screening is crucial because it increases the likelihood of a positive diagnosis at an earlier stage *Diffusion Marketplace* (n.d.). According to research from the National Lung Screening Trial Research Team (NLST) (2011) high-risk adults who undergo annual lung cancer screening (LCS) with low-dose computed tomography (LDCT) have a lower probability of dying from lung cancer.

The VA strongly endorses widespread lung cancer screening implementation programs to improve early detection, as these two risk factors together put nearly 1.5 million veterans at risk for developing lung cancer. Research according to LPOP (2022) indicates that the VA has low screening rates for lung cancer among those eligible Veterans all over the country. With the assistance of a program, dedicated clinical staff, and or a clinical reminder, the proportion of individuals who go through screenings in accordance with the recommendations can be raised to a higher level.

Needs Assessment

As a nationally integrated health system with service coordination across regional units, the VA is in a good position to provide high-quality LCS, address LCS access disparities in rural and underserved areas, and decrease lung cancer mortality. Despite the efforts of the GO2 Foundation for Lung Cancer, the research by Boudreau et al. (2021) reveals that rural Veterans continue to face LCS access disparities. Utilizing local facilities allows the VA's centralized system to more efficiently distribute and coordinate LCS services.

In contrast to the prior endeavors undertaken by the Primary Care, Radiology, and Pulmonary departments to implement screening measures for lung cancer, the available data does not provide definitive proof that can be gathered. The use of a clinical tool reminder in primary care settings will likely become a routine process for identifying individuals suitable for lung cancer screening. A dedicated program, a multidisciplinary team of health care professionals, and a clinical reminder can all help raise screening rates to meet recommendations further increasing the awareness of the significance of lung cancer screening among the medical professionals and staff who care for our Veterans.

Synthesis of Evidence

To get a better knowledge of lung cancer screening in the Veteran population and who the stakeholders were, a review of the evidence using current clinical and scholarly literature. During the literature search, the following databases were used: *Google Scholar, Pub Med*, *Cochran Library*, *Center for Disease Control,* and *Medline*. The search terms included information about Veterans, lung cancer, lung cancer screening, primary care providers, preventive medicine, rural, and access to care. Tanner et al. (2013) concluded most vets are open to undergoing lung cancer screening, suggesting that getting people to take part in the program won't be an issue. However, because of a greater number of comorbid conditions, it is possible that the mortality benefit of lung cancer screening cannot be generalized to the Veteran population.

According to the U.S. Census Bureau (n.d.) there are about 16.5 million Veterans in the United States as of 2022, accounting for less than 7% of the adult population. There are 10,162 Veterans in Hinds County (U.S. Census Bureau, n.d.). There are 2.7

million Veterans living in rural and highly rural areas, out of a total of 4.7 million Veterans. About half of the rural Veterans enrolled in the VA health care system are over the age of 65. The medical needs of the aging Veteran population are complex, as they are more likely to suffer from chronic conditions like diabetes, obesity, high blood pressure, and heart disease. According to Kowada (2022), lung cancer rates had a significant impact on cost-effectiveness analyses. Sensitivity analyses showed that LDCT was cost-effective for Japanese patients' 99.3-99.99 percent of the time, while no screening was cost-effective for American men 77% of the time, and CXR was cost-effective for American women 93.2% of the time.

Screening for lung cancer in primary care settings has the potential to influence several social factors that influence health, which in turn can lead to improved health outcomes, increased access to preventive care, and a more equitable healthcare system. Regular screenings in primary care settings can save patients and their families money on lung cancer treatment by detecting the disease at an earlier stage. Less severe lung cancer cases can also lessen the financial toll that cancer treatment takes on local economies. According to Rajupet et al. (2017), primary provider education is just as important as patient and family education. Even though they have lower levels of self-assurance and knowledge regarding lung cancer screening, primary care physicians are just as likely as specialists to recommend LDCT in their plan of care.

Considering these statistics, Healthy People 2030 has determined the need for early detection and treatment of lung cancer screenings. By promoting lung cancer screenings as part of regular healthcare, healthcare providers can help reduce healthcare disparities and improve access to preventive care for underserved communities. LCS can

contribute to a more equitable healthcare system and help promote social and community well-being (Healthy People 2030, 2022). Most providers, however, will be pleased to be able to offer their patients enhanced, all-encompassing care. One of the most effective methods of increasing the number of Veterans who are screened for lung cancer is to take a holistic, integrated approach to their health.

To effectively implement and evaluate a comprehensive plan of this nature, several key components are required, including sufficient time, additional resources in advanced radiology and pulmonary services, commitment from primary care providers, nurses, agency leadership, available resources, technology application vendors, and patient involvement. The execution of this plan is not going to be possible without any of these participants.

Rationale

Plan Do Study Act

The model shown in (Figure 1) is the Plan Do Study Act Cycle (PDSA). The approach that is presented provides a direct and practical approach that is characterized by its efficiency and effectiveness in addressing problems and responding to changes. Prior to implementing any changes to processes and working habits, it is essential to conduct preliminary assessments of expected improvement measures using the model. According to the American Society for Quality (2019) the planning, carrying out, checking (or studying), and acting phases of the model iteratively repeated throughout the PDSA cycle.

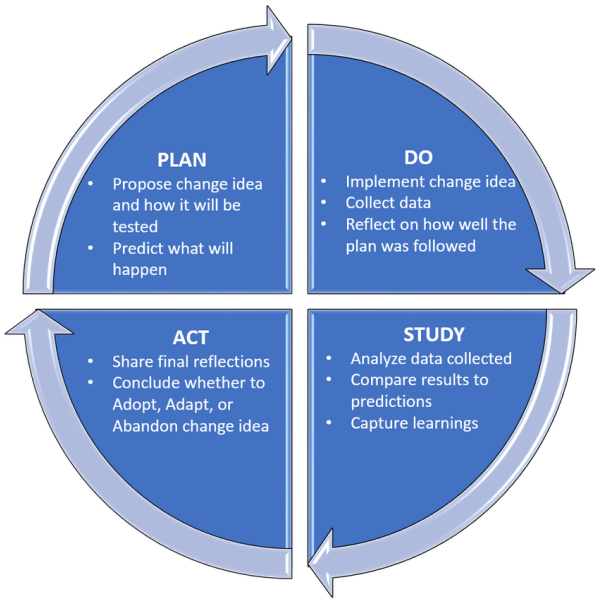


Figure 1. A Visual Diagram of the Plan-Do-Study-Act (PDSA).

PDSA is a four-step problem-solving approach for process improvement and transformation.

Barron, Kenneth & Hulleman, Chris & Hartka, Thomas & Inouye, R. [2017]. Plan-Do-Study-Act (PDSA) Cycle. [online image]. Available from https://www.researchgate.net/figure/A-visual-diagram-of-a-Plan-Do-Study-Act-PDSA-Cycle_fig1_319377456. Accessed on October 6, 2023

The success of the program is expected as a result of the introduction of screening processes that are similar to those utilized in other regions of the VA healthcare system.. There was an increase in the amount of work that needed to be done, but screening reminders and tools helped find at least 10% more cases of lung cancer for every 300 scans that were performed (Ngo-Metzger et al., 2020). The Jackson VA intends to implement the clinical reminder across all of its Primary Care clinics and five Community Based Outpatient Clinics in order to raise the rate at which Veterans undergo lung cancer screening.

Specific Aims

The goal of the DNP project was to enhance the understanding of lung cancer screening among primary care clinicians and nurses at the Jackson VA, with the aim of

identifying and referring a greater number of eligible Veterans for further testing. Based on the available data, it is possible to develop a clinical reminder mechanism that facilitates regular communication with eligible persons on an annual basis, as well as at other predetermined intervals, in accordance with the lung rads staging system for follow-up purposes. A comprehensive understanding of pulmonary nodules and malignancies, coupled with a collaborative approach to decision-making between patients and healthcare professionals, has the potential to expedite and enhance the precision of diagnosis and treatment.

DNP Essentials

According to the American Association of Colleges of Nursing (AACN) the Doctor of Nursing Practice (DNP) degree encompasses eight key dimensions that hold significance in the realm of nursing practice. The fundamental principles of the Doctor of Nursing Practice (DNP) are widely acknowledged as the fundamental building blocks of essential skills and knowledge that nurses with a DNP degree must possess (AACN, 2006).

DNP Essential I

Scientific Inquiry: To effectively address present and future practice concerns, it is imperative to establish a robust scientific basis for practice. The scientific basis of nursing practice has undergone significant expansion, encompassing a comprehensive examination of both the natural and social sciences, therefore the DNP project's beginnings shed light on the absence of clinical staff knowledge of lung cancer screening, as well as a clinical tool in the primary care setting, highlighting the potential benefits that a change in practice may bring to my job as a healthcare practitioner.

DNP Essential II

For quality improvement and systems thinking, DNP Essential II focuses on organizational and systems leadership (AACN, 2006). The primary objective of quality improvement initiatives is to optimize patient outcomes, concurrently identifying strategies for enhancing the performance of healthcare institutions (AACN, 2006). If nurses and other providers use the screening tool based on the USPSTF recommendations and involve veterans in a shared decision-making process, the organization will be able to meet its quality improvement target of improving health promotion and disease prevention of lung cancer through screenings. And help bring the number of veterans getting checked for and perhaps treated for lung cancer up.

DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based.

This application encompasses the process of transforming research findings into practical applications and the resulting dissemination and integration of new information, which are fundamental undertakings for graduates of Doctor of Nursing Practice (DNP) programs. The data and conclusions obtained from this research will be shared through many channels, including practical settings, department-wide lunch and learn sessions, presentations at research conferences, and the upcoming lung cancer health fair.

DNP Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

The acquisition of knowledge and skills pertaining to information systems/technology and patient care technology equips the Doctor of Nursing Practice (DNP) graduate with the ability to utilize newfound knowledge, oversee the management of information at both individual and collective levels, and evaluate the effectiveness of patient care technology that is suitable for a specific field of practice. The utilization of data obtained from the lung cancer screening platform is proposed as a means to effectively communicate with organizational leadership. The objective is to advocate for the recruitment of a dedicated navigator for lung cancer and to leverage the information to further smoking cessation initiatives.

DNP Essential V

Focuses on healthcare policy and advocacy (AACN, 2006). Advocating for patients' rights is essential to work in the medical industry. Early detection and diagnosis of lung cancer are essential because it increases the likelihood that the cancer can be successfully treated, and the patient will survive. By increasing their awareness of the significance of lung cancer screening and arming themselves with knowledge of proposed plans of care for the treatment of lung cancer, nurses and providers can effectively advocate for patients. Evaluating providers' and nurses' contentment with the clinical reminder and basing additional testing orders on the tool can also take into account their motivation to advocate for patients who meet the criteria for lung cancer screening. The DNP project will help in the pursuit of healthcare advocacy and shed light

on the importance of establishing a policy mandating periodic and annual lung cancer screenings.

DNP Essential VI

The focus of DNP Essential VI is on teamwork and the enhancement of health outcomes for both individuals and communities (AACN, 2006). In order to optimize patient outcomes, it is imperative for providers, nurses, specialists, and patients to establish effective communication and collaboration. The use of a clinical tobacco screening tool by nurses and other healthcare professionals ensures that veterans receive optimal treatment. This measure will facilitate the hospital in attaining its principal goal, which is to augment the caliber of healthcare given to patients.

DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

Healthy People 2030 aims to improve cancer care and survival rates, as well as increase access to evidence-based cancer screening and prevention (Health.gov, 2020). This goal will be accomplished by increasing the availability of cancer screening and prevention strategies. The Healthy People 2030 social determinants of health framework suggests that lung cancer screenings in primary care settings can have several impacts on patients, their families, and the broader community.

DNP Essential VIII: Advanced Nursing Practice

According to AACN(2006), a Doctor of Nursing Practice (DNP) program offers comprehensive training in certain areas of nursing practice, necessitating a high level of proficiency, advanced understanding, and mastery in a particular specialty. The DNP project provided an opportunity for me to gain insight into the significance of preventive

care and screening in primary care, highlighting its equal importance to episodic treatment.

Summary

The DNP fundamentals offer a foundational framework for the Advanced Practice Nurse with a Doctoral degree to deliver their services. The common thread throughout scholarly experience is the utilization of evidence to enhance professional practice or patient outcomes. The goal of the DNP project is the creation of a concrete and actionable academic output, which is drawn from practical immersion experience, thus offering expert-level care and practice. The problem statement, DNP project's goal, PICOT, needs assessment, evidence synthesis, conceptual framework, and DNP fundamentals are all included in this chapter. The DNP project's techniques, interventions, and schedule are discussed in the following chapter.

CHAPTER II - METHODS

Context

This DNP project took place within the Primary Care Clinics at the G. V. Sonny Montgomery VAMC Jackson, Mississippi. The chosen clinic has three Registered Nurses (RNs), two Nurse Practitioners (NPs), and two Medical Doctors (MDs). The facility has six primary care clinics and seven community-based outpatient clinics. The stakeholders in this DNP project consist of patients, clinical staff, healthcare providers, clinical administration of the outpatient clinics, and hospital administration.

Interventions

The DNP project consisted of using the tobacco pack per year (TPY) clinical reminder using the LCS algorithm (see Appendix A). The leader of the DNP project did not have to gain approval to use the tobacco pack year reminder, as it is a clinical reminder tool that was developed and identified as the lung cancer screening tool for use within the VHA. The DNP project's leader secured permission from the G. V. Sonny Montgomery VAMC's Research Committee (IRB) and The University of Southern Mississippi (Protocol #23-0657). After receiving approval, the review of charts and study began.

After clinical providers and nursing staff were instructed on how to initiate the clinical reminder the screenings were able to be completed within the desired time and setting of the encounter. The staff members followed the guidelines provided for using the screening tool, and as a direct result, the clinical reminder prompted the provider to initiate further discussion and education about LCS and the shared decision-making process to allow for more patient-centered care. The providers ordered the preferred

screening imaging low dose CT scan for those that qualified for further testing. Pending results of the trained radiologist report, patients will continue to have screenings annually or require a higher level of care with Pulmonology, Radiology, Oncology, or Thoracic specialty medical services.

According to the U.S. Preventive Services Task Force (USPSTF) (2021), screening guidelines suggest that adults aged 50 to 80 with a 20-pack-year smoking history who smoke now or quit within the past 15 years should undergo annual screening with low-dose computed tomography (LDCT) for lung cancer. If a person has not smoked in 15 years or if they develop a health problem that significantly reduces life expectancy or the ability or willingness to have curative lung surgery, they should no longer undergo screening. (U.S. Preventive Services Task Force, 2021)

Recommendation Guidelines

1. Veteran has at least a 20-pack-year history.
2. The veteran is a current cigarette smoker or quit smoking fewer than 15 years ago (ineligible once the patient has quit for 15 or more years).
3. The Veteran is 50 to 80 years of age (ineligible once the patient turns 81 years old).

Exclusion criteria:

1. The Veteran has less than a 5-year life expectancy.
2. The Veteran is currently receiving active oncological therapy for cancer.
3. The Veteran has a history of lung cancer.

4. The Veteran has severe COPD and/or emphysema as evidenced by pulmonary function tests or prior imaging studies limiting likely surgical candidacy for early-stage lung cancer. (USPSTF, 2021; LPOP, 2022).

Measures

The objective of the DNP project was to implement a clinical practice modification in a primary care clinic setting. The modification aimed to enhance the knowledge of primary care providers regarding the appropriate utilization of low-dose CT scans. Implementing a screening tool for lung cancer, will be achieved through educating the use of a clinical reminder, appropriate clinical documentation, and ordering of LDCT scans. The guidelines set forth by the U.S. Preventive Services Task Force (USPSTF) and the Lung Precision Oncology Program guidelines from the VA national program will serve as the basis for this educational intervention. The implementation of the clinical reminder will serve as a prompt for the nursing staff to initiate communication with the provider, facilitating further discussion and collaborative decision-making during the screening process. The tobacco pack year reminder (TPY) is a concise instrument employed to conduct a more in-depth examination of patients who fulfill the criteria outlined by the USPTF guidelines. This assessment can subsequently facilitate the provision of specialized healthcare services after the patient and healthcare provider have jointly decided to undergo screening using the low dose computed tomography (LDCT) method.

Analysis

The DNP project findings were analyzed through a chart review of the clinical reminders that were activated for those Veterans who were eligible for screening.

Descriptive statistics solely provide insights and draw conclusions pertaining to the specific dataset from which they were derived**.** Data from the screening process was compiled using Excel. Analysis of the categories based on the results of the reminder being used, the total pack per year history of use, age, sex, smoking status, and number of patients screened in the clinic during the study time.

Ethical Considerations

The DNP project leader obtained approval from the Institutional Review Board (IRB) at Jackson VAMC and The University of Southern Mississippi IRB, all participants were given an in-service on the importance of lung cancer screening and completing the clinical reminder. The leader of the DNP project-maintained compliance with health insurance portability and accountability (HIPPA) laws, data collected is only accessible to the DNP project leader through reports and de-identification of data file in Excel. There was no identifying information collected during the study and no expected or predicted risks to the participants. Data from this DNP project will be stored in a locked file cabinet and a password-protected file on the DNP project leader's computer. After completion of the study, the data collected will be kept for three months.

DNP Project Objectives

The goals of the DNP project are to educate primary care providers and nursing staff about the significance of lung cancer screening; implement a screening protocol for primary care providers and nursing staff to fulfill the requirements for lung cancer screening within the VA Primary Care Clinics; and fulfill the requirements for documentation and ordering of low-dose CT scans in accordance with the guidelines outlined in the 2017 VHA 10N (DUSHOM) Memo. In addition, analyzes how well the

clinical reminder and the protocol work to enhance the health outcomes of patients who are screened for lung cancer. Present the recommendation to the chair and co-chair of the Committee at The University of Southern Mississippi by means of an executive summary and presentation.

Summary

The present chapter provides an overview of the contextual factors, demographic characteristics, intervention under research, and the projected schedule for completion. The utilization of clinical reminders for lung cancer screening has significant relevance in facilitating the comprehensive implementation of measures within the research. Ethical factors were considered.

CHAPTER III RESULTS

Analysis of Data

Descriptive Statistics

Clinical staff screened forty-eight (N=48) patients during the 4-week study. Of the forty-eight screened, eight (16.7%) were eligible for secondary screening with LDCT scans to be completed within the next 4 months. Veteran ages 50-59 10 (21%), 60-69 21 (44%), 70-79, 15 (31%), 80 (4%). Veterans smoking status is a key factor of risk for developing lung cancer, of the 48 screened, 40 (83.3%) are current smokers and 8 (16.7%) are former smokers. The average years of smoking of those screened is 47.27 years.

Table 1

Description of Screening Results

Baseline Characteristics of Study (N=48)

Age		Smoking Status		Total Pack Year	
50-59	10 (20.8%)	Current	40 (83.3%)	20-39	28 (58.3%)
60-69	21 (43.8%)	Former	8 (16.7%)	40-59	12 (25%)
70-79	15 (31.3%)			60-79	5 (10.4%)
80	2 (4.2%)			80-99	1 (2.1%)
				100+	2 (4.2%)
SEX		Agreed to LDCT		Total Screened	
MALE	45 (93.8%)	8 (16.7%)		48 (100%)	
FEMALE	3 (16.7%)				

Discussion

The clinical reminder was activated to capture the need for screening for 48 patients. Clinical staff were educated and completed 100% of screening tool reminders.

Data concluded that 16.7% of screened Veterans were eligible for secondary screening with low-dose CT scans, of those 93.8 % were male and 16.7% were females, 43.8% ages ranged from 60-69, 58.3% screened smoked 20-39 packs per year, and 83.3% are current smokers. The clinical reminder was activated in order to identify the necessity of lung cancer screening as a means to provide patient-centered treatment of superior quality.

When compared to the efforts that Primary Care, Radiology, and Pulmonary departments had previously made to establish screens for lung cancer, there is no conclusive evidence that has been able to be collected. The responsibility of understanding when to obtain LDCTs and provide yearly chest X-rays to all smokers was given to each clinician. Early identification using the unique clinical tool reminder will become standard practice for those eligible for screening throughout primary care and increase the early detection of lung cancer.

The results of the study indicated that the utilization of a clinical reminder effectively prompted clinical staff members to begin the screening process for lung cancer. The data analysis indicated that there was an enhancement in patient accessibility to low dose computed tomography (LDCT) scans among those who met the criteria for screening. The education and training of clinical staff and providers on the advantages of lung cancer screening, the hazards of screening, and patient preferences improve the quality of lung cancer shared decision-making.

Summary

In Chapter III, both the findings of the research and an interpretation of those findings are presented in outline form. The present study has identified many initiatives aimed at implementing a clinical practice shift and providing staff education to

effectively meet the requirement for lung cancer screenings within the Veteran population.

CHAPTER IV – DISCUSSION

The results of this study on quality improvement (QI) demonstrate that implementing lung cancer screening, in accordance with national standards and utilizing a clinical tool to facilitate the screening process, can contribute to the early identification of lung cancer among the Veteran population of tobacco users. The implementation of the tobacco pack year reminder was carried out because of the findings, to ensure its daily utilization by all primary care professionals and clinics.

The PDSA model serves as the theoretical basis for this effort, which is driven by the model. The idea of improving anything in four steps is frequently used in quality improvement initiatives. The paradigm for incorporating a lung cancer screening tool into a clinical context served as the primary source of inspiration for this research. The model was utilized to provide structure to the implementation process and enhance confidence in the effectiveness of the process modification, resulting in the establishment of a standardized clinical practice shift.

Limitations

This DNP project was undertaken as part of a QI program and practice change, wherein a clinical reminder was implemented to motivate clinical professionals to augment their existing responsibilities. One obstacle to the implementation of the clinical tool was the resistance exhibited by staff members who expressed concerns about the increased effort associated with completing the additional reminder. The potential apprehension of inadequate knowledge pertaining to lung cancer and its related screening procedures may impede healthcare personnel in effectively carrying out their responsibilities as primary care providers.

Future Implications

This DNP project suggests the implementation of an annual lung cancer screening event that incorporates Pulmonary, Radiology, and Primary Care Services at the facility. The primary aim of the yearly event is to strengthen patient awareness and comprehension of LCS and to conduct screenings for a larger number of patients on a broader scale. The study's overarching goal is to learn how to better screen for lung cancer by employing a lung cancer champion and lung cancer navigator. This clinical reminder, if implemented in all clinics, is predicted to increase the number of LDCT screenings performed on eligible Veterans. The utilization of lung cancer screening guidelines by healthcare professionals is dependent on the individual needs of veterans, utilizing an online platform to actively engage patients in focused healthcare interventions.

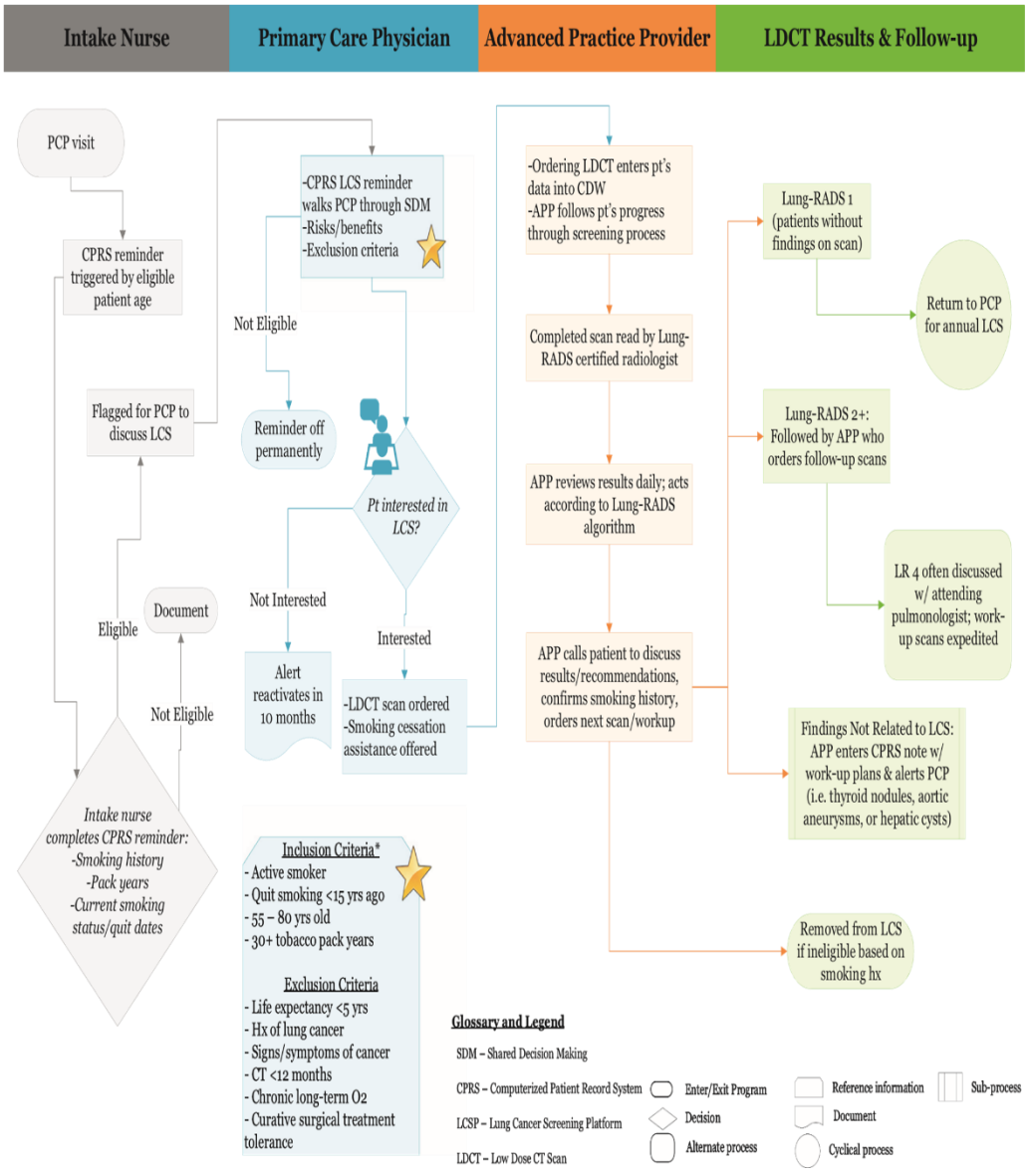
Conclusion

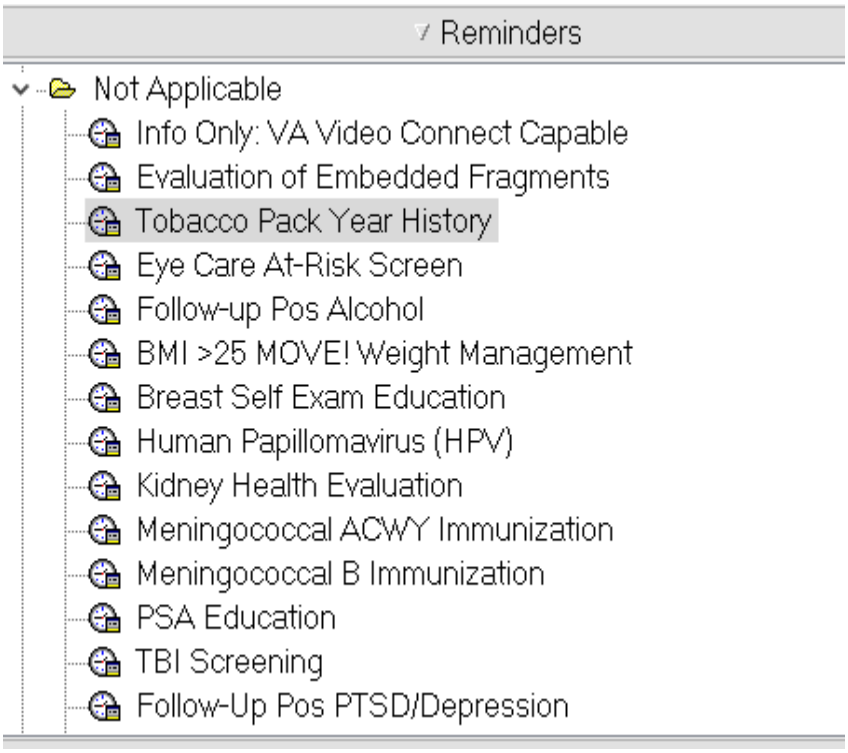
Primary care practitioners may encounter a sense of being inundated by the potential addition of more clinical reminders to their already substantial workload. Nevertheless, the implementation of more rigorous lung cancer screening protocols among veterans will ultimately result in improved overall health care for this specific demographic.

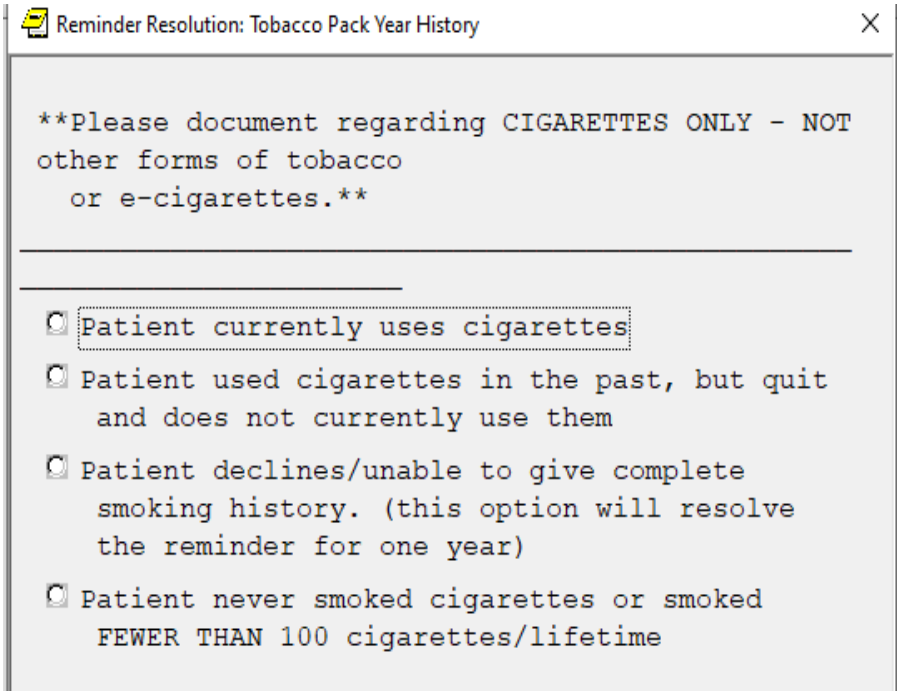
Identifying and understanding how current clinical practice relates to established clinical guidelines, healthcare practitioners must maintain current knowledge of these guidelines and make necessary modifications to their existing practices pertaining to lung cancer screenings. By promoting lung cancer screenings as part of regular health care, healthcare providers can help reduce healthcare disparities and improve access to

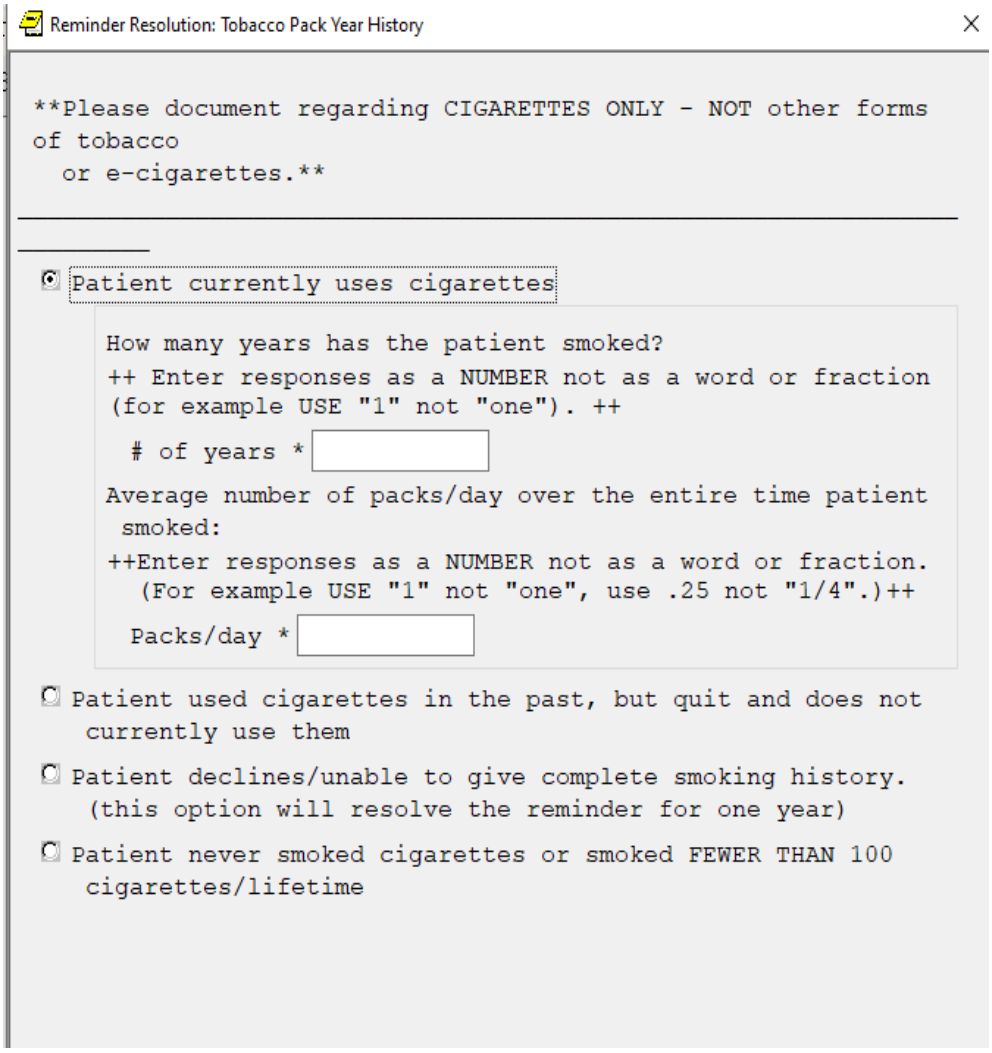
preventive care for underserved communities. This can contribute to a more equitable healthcare system and help promote social and community well-being (Healthy People 2030, 2022).

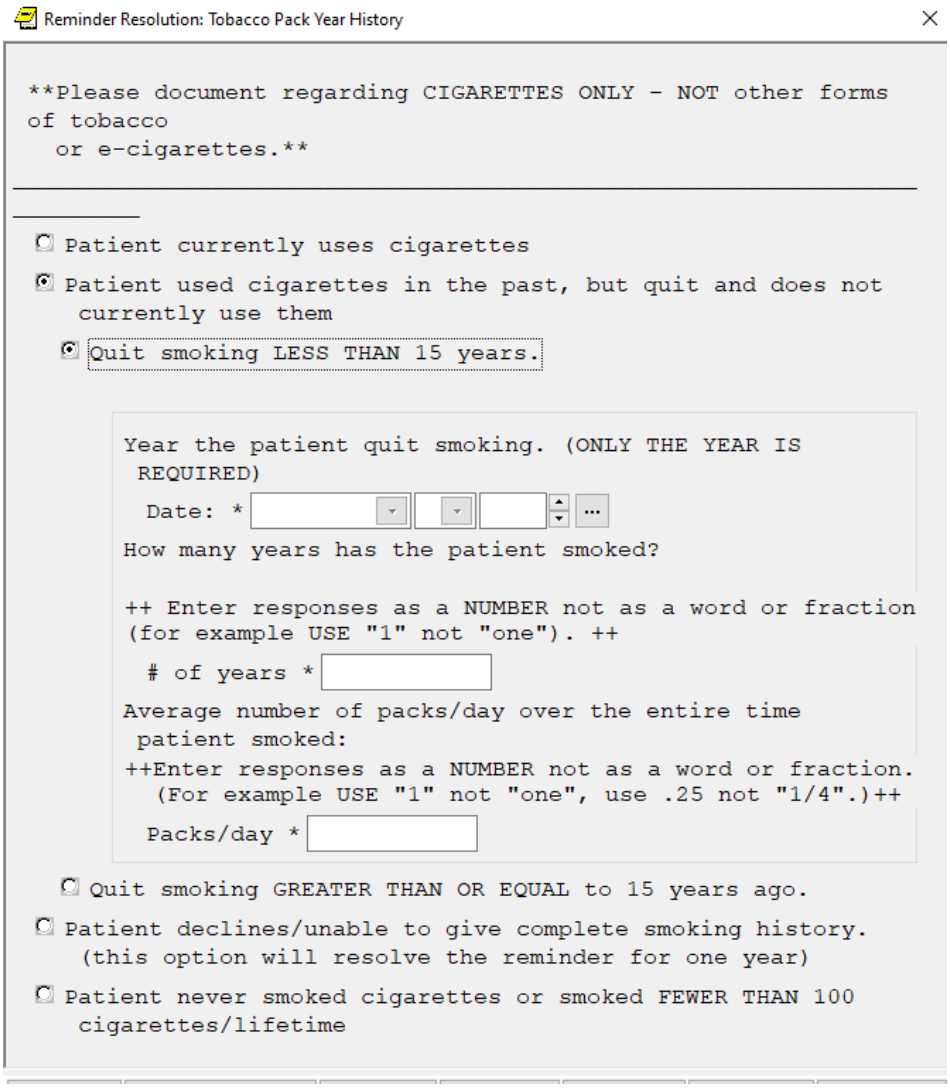
APPENDIX A – LCS Algorithm

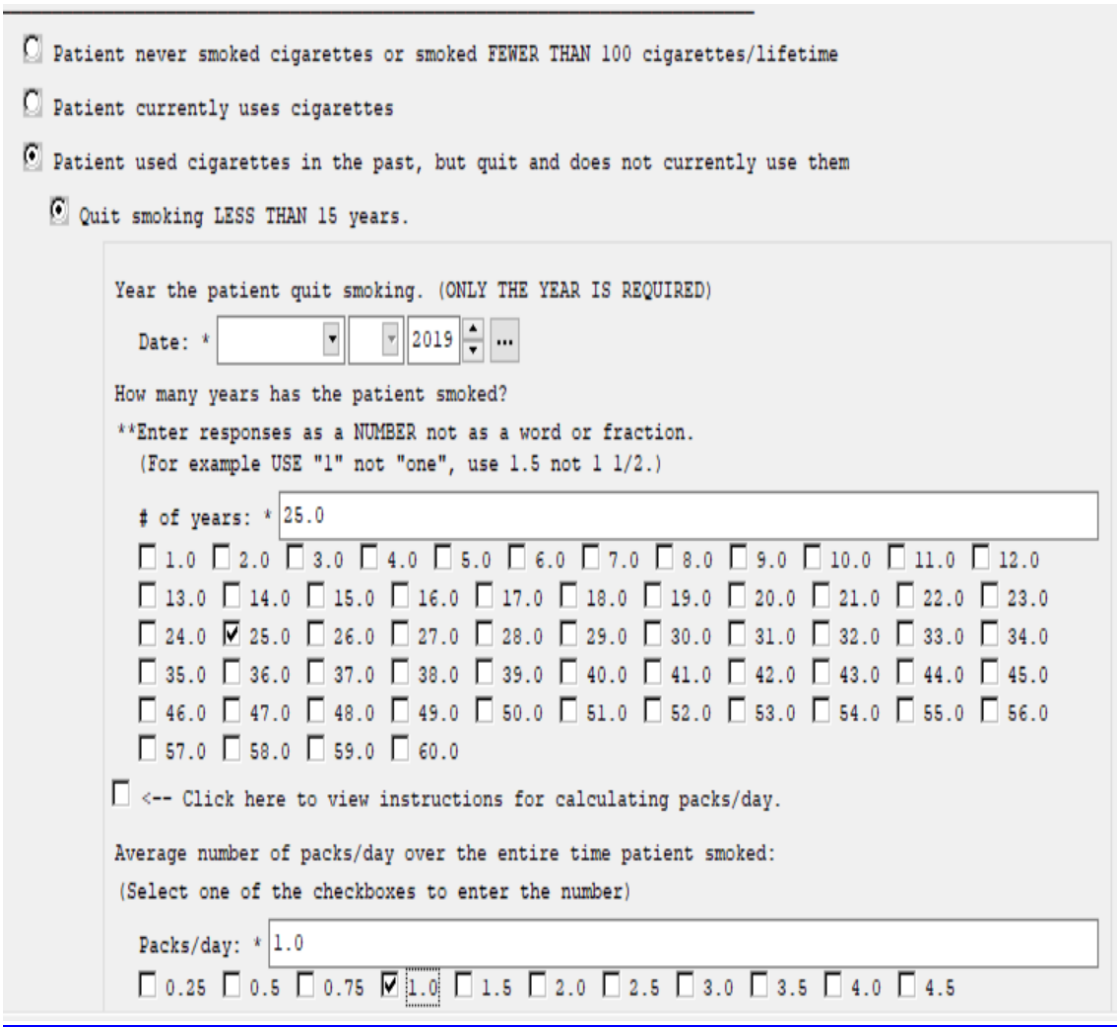


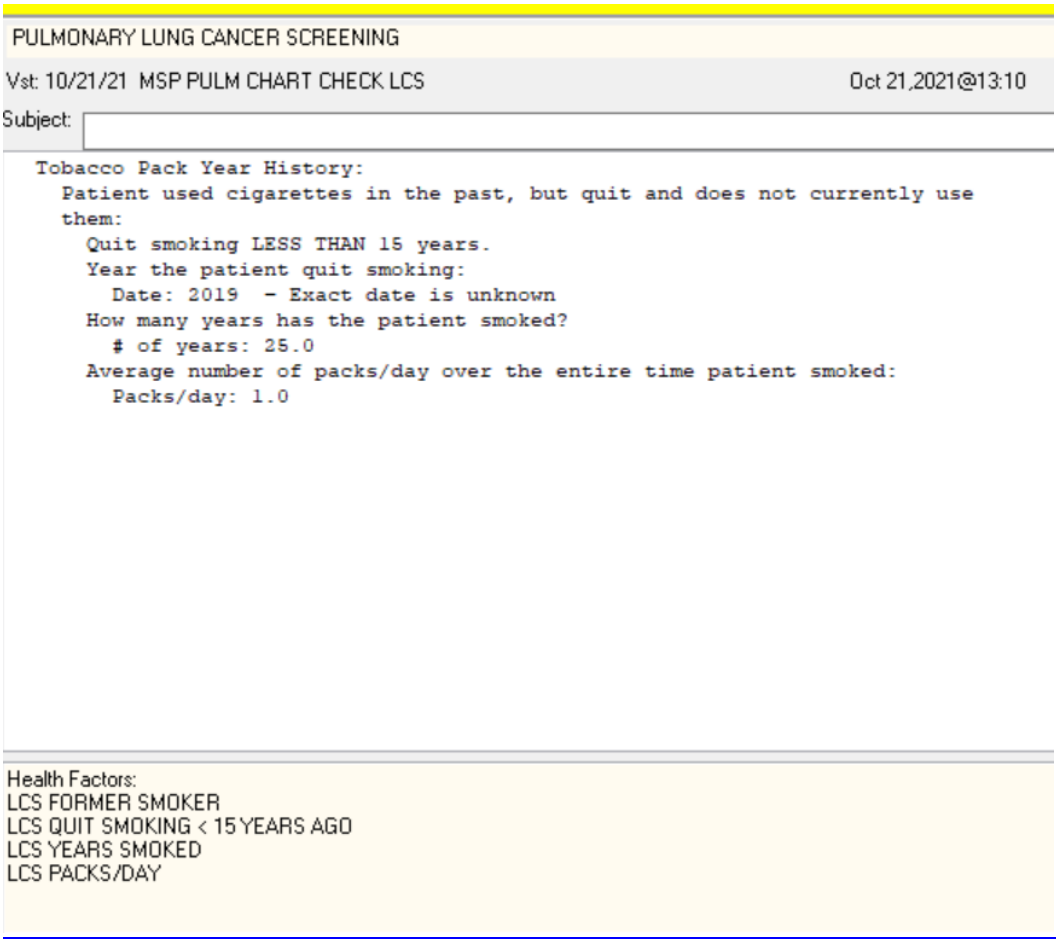

Reminders
Not Applicable
Info Only: VA Video Connect Capable
Evaluation of Embedded Fragments
Tobacco Pack Year History
Eye Care At-Risk Screen
Follow-up Pos Alcohol
BMI >25 MOVE! Weight Management
Breast Self Exam Education
Human Papillomavirus (HPV)
Kidney Health Evaluation
Meningococcal ACWY Immunization
Meningococcal B Immunization
PSA Education
TBI Screening
Follow-Up Pos PTSD/Depression


Reminder Resolution: Tobacco Pack Year History
Please document regarding CIGARETTES ONLY - NOT other forms of tobacco or e-cigarettes.
Patient currently uses cigarettes
Patient used cigarettes in the past, but quit and does not currently use them
Patient declines/unable to give complete smoking history. (this option will resolve the reminder for one year)
Patient never smoked cigarettes or smoked FEWER THAN 100 cigarettes/lifetime


Reminder Resolution: Tobacco Pack Year History
**Please document regarding CIGARETTES ONLY - NOT other forms of tobacco
or e-cigarettes.**
Patient currently uses cigarettes
How many years has the patient smoked?
++ Enter responses as a NUMBER not as a word or fraction (for example USE "1" not "one"). ++
# of years *
Average number of packs/day over the entire time patient smoked:
++Enter responses as a NUMBER not as a word or fraction. (For example USE "1" not "one", use .25 not "1/4".)++
Packs/day *
Patient used cigarettes in the past, but quit and does not currently use them
Patient declines/unable to give complete smoking history. (this option will resolve the reminder for one year)
Patient never smoked cigarettes or smoked FEWER THAN 100 cigarettes/lifetime


Reminder Resolution: Tobacco Pack Year History
**Please document regarding CIGARETTES ONLY - NOT other forms of tobacco
or e-cigarettes.**
Patient currently uses cigarettes
Patient used cigarettes in the past, but quit and does not currently use them
Quit smoking LESS THAN 15 years.
Year the patient quit smoking. (ONLY THE YEAR IS REQUIRED)
Date: *
How many years has the patient smoked?
++ Enter responses as a NUMBER not as a word or fraction (for example USE "1" not "one"). ++
# of years *
Average number of packs/day over the entire time patient smoked:
++Enter responses as a NUMBER not as a word or fraction. (For example USE "1" not "one", use .25 not "1/4".)++
Packs/day *
Quit smoking GREATER THAN OR EQUAL to 15 years ago.
Patient declines/unable to give complete smoking history. (this option will resolve the reminder for one year)
Patient never smoked cigarettes or smoked FEWER THAN 100 cigarettes/lifetime


Patient never smoked cigarettes or smoked FEWER THAN 100 cigarettes/lifetime
Patient currently uses cigarettes
Patient used cigarettes in the past, but quit and does not currently use them
Quit smoking LESS THAN 15 years.
Year the patient quit smoking. (ONLY THE YEAR IS REQUIRED)
Date: * 2019
How many years has the patient smoked?
**Enter responses as a NUMBER not as a word or fraction.
(For example USE "1" not "one", use 1.5 not 1 1/2.)
# of years: * 25.0
1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0
13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 22.0 23.0
24.0 25.0 26.0 27.0 28.0 29.0 30.0 31.0 32.0 33.0 34.0
35.0 36.0 37.0 38.0 39.0 40.0 41.0 42.0 43.0 44.0 45.0
46.0 47.0 48.0 49.0 50.0 51.0 52.0 53.0 54.0 55.0 56.0
57.0 58.0 59.0 60.0
<-- Click here to view instructions for calculating packs/day.
Average number of packs/day over the entire time patient smoked:
(Select one of the checkboxes to enter the number)
Packs/day: * 1.0
0.25 0.5 0.75 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5



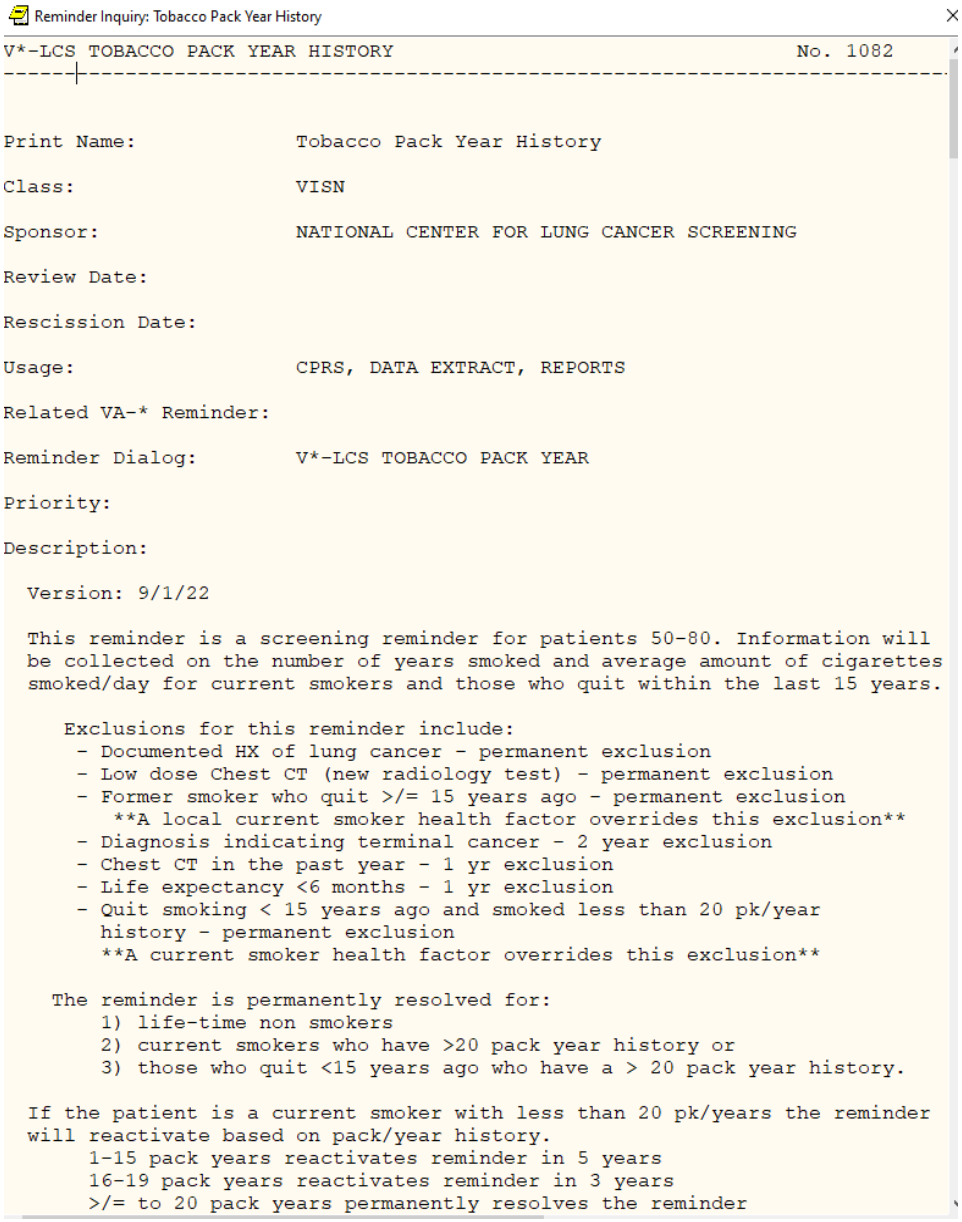
PULMONARY LUNG CANCER SCREENING

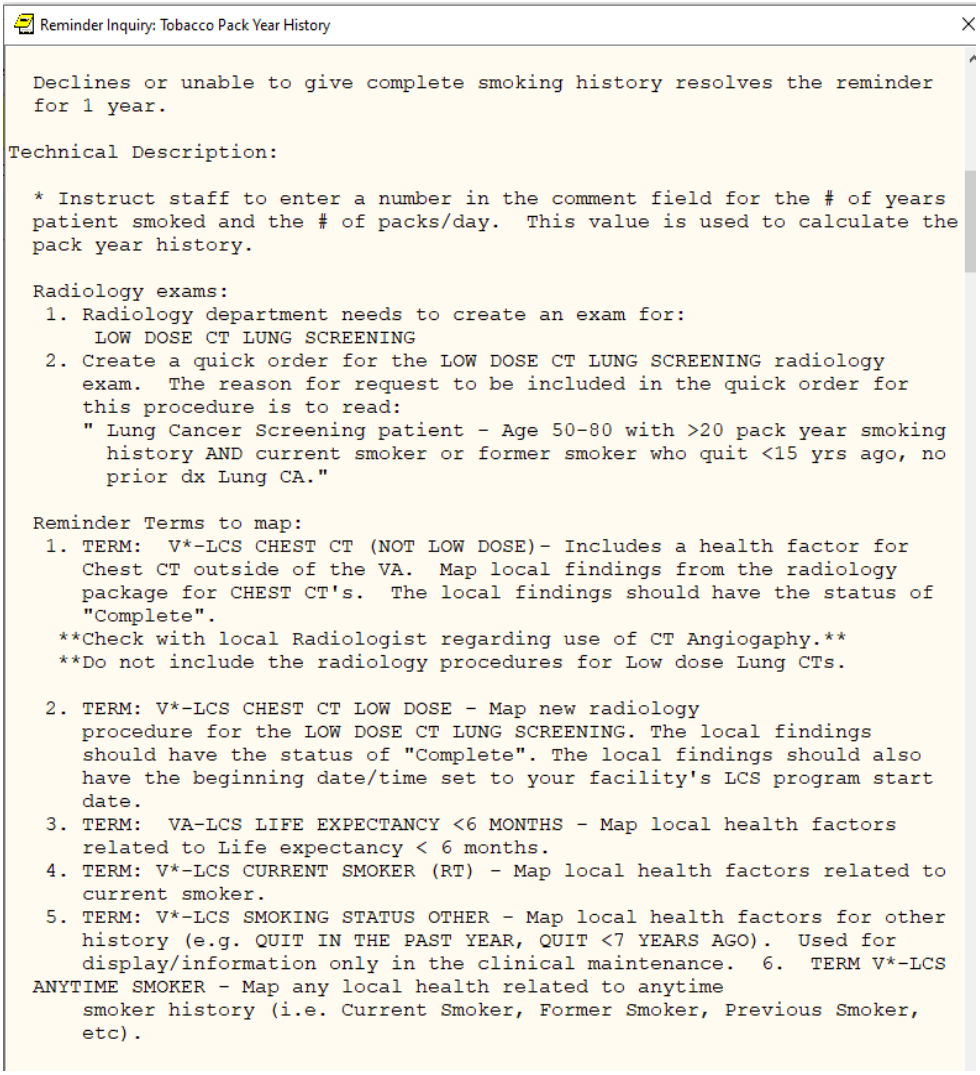
Vst: 10/21/21 MSP PULM CHART CHECK LCS Oct 21,2021@13:10

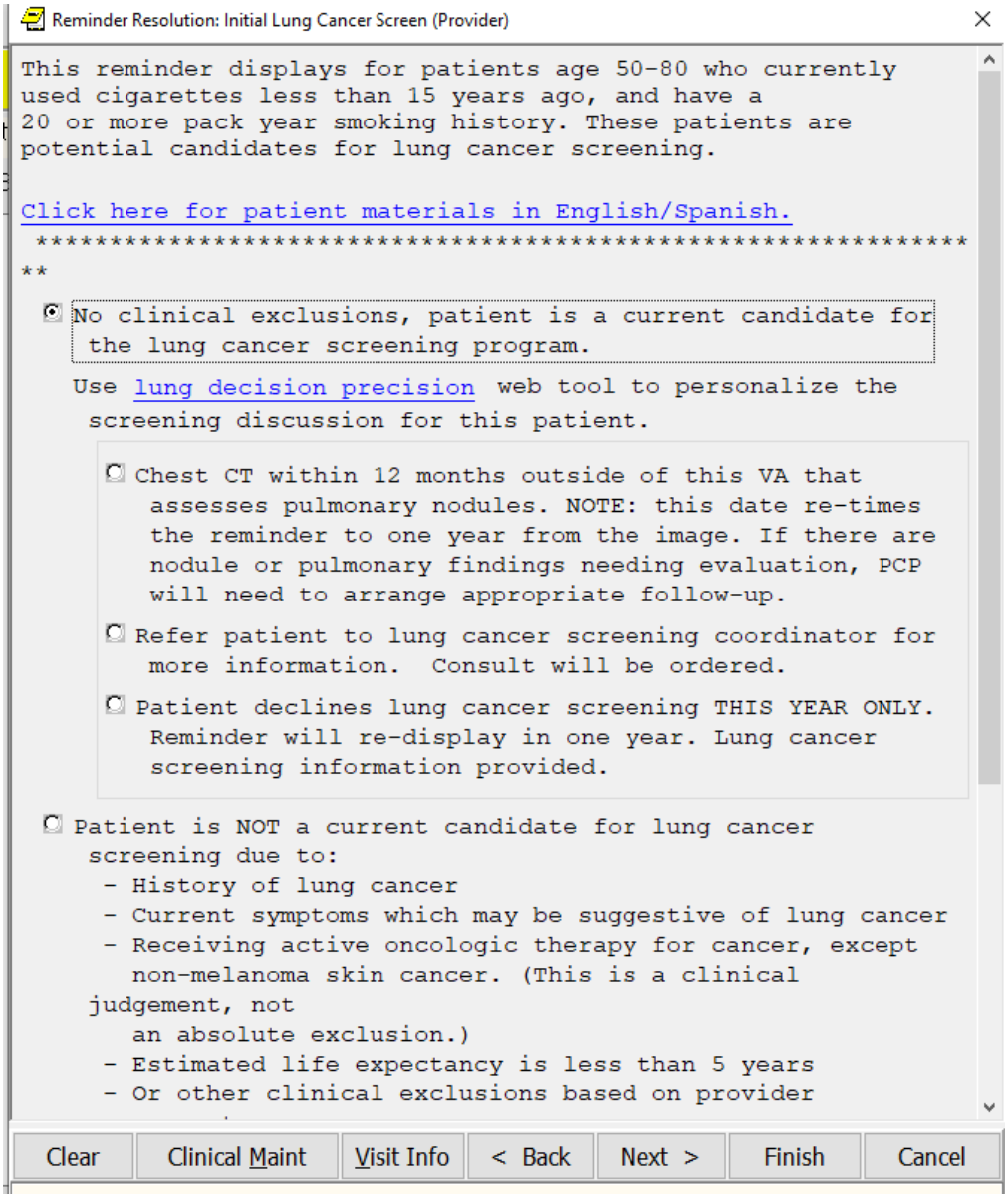
Subject:

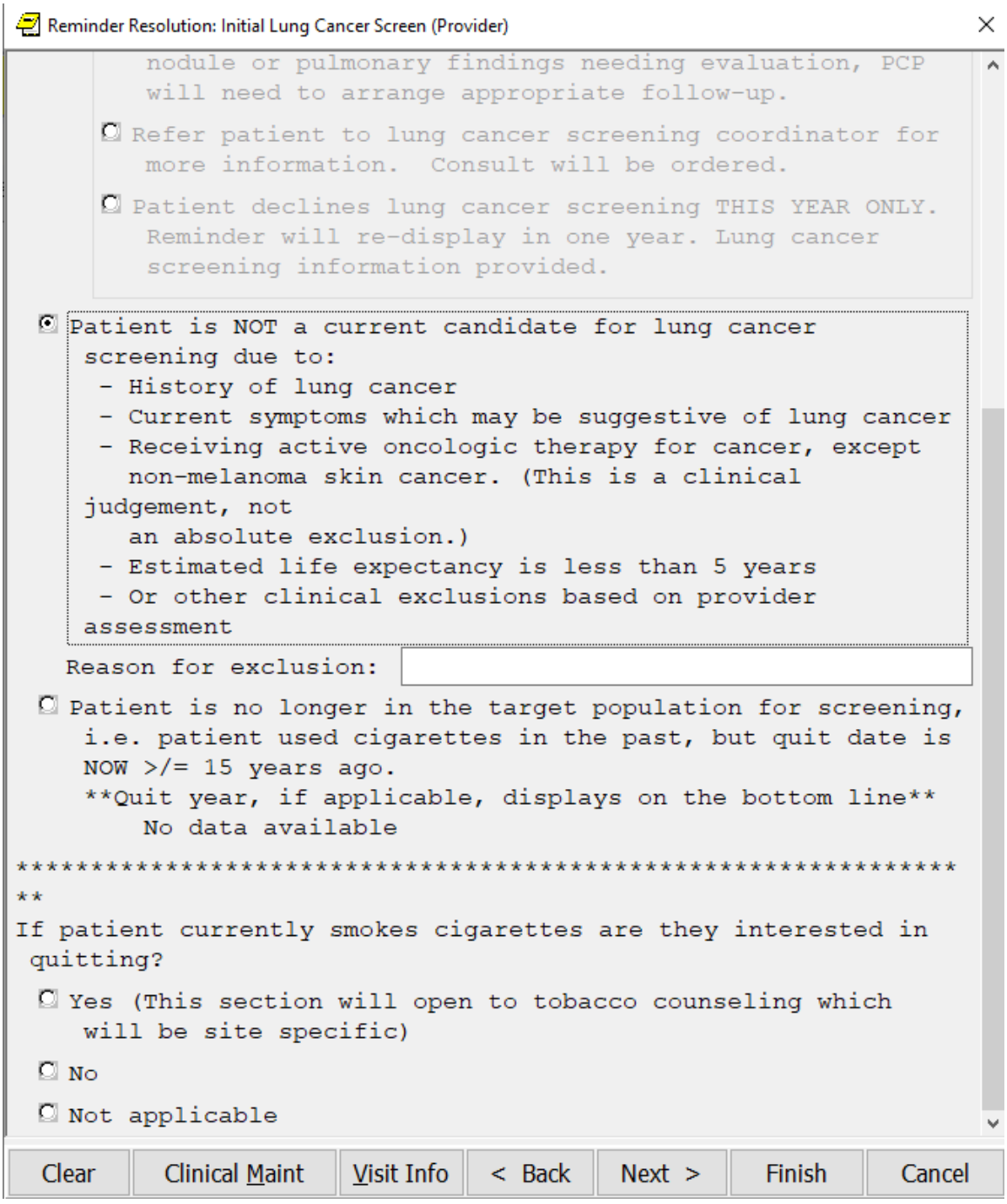
```
Tobacco Pack Year History:
  Patient used cigarettes in the past, but quit and does not currently use
  them:
    Quit smoking LESS THAN 15 years.
    Year the patient quit smoking:
      Date: 2019  - Exact date is unknown
    How many years has the patient smoked?
      # of years: 25.0
    Average number of packs/day over the entire time patient smoked:
      Packs/day: 1.0
```

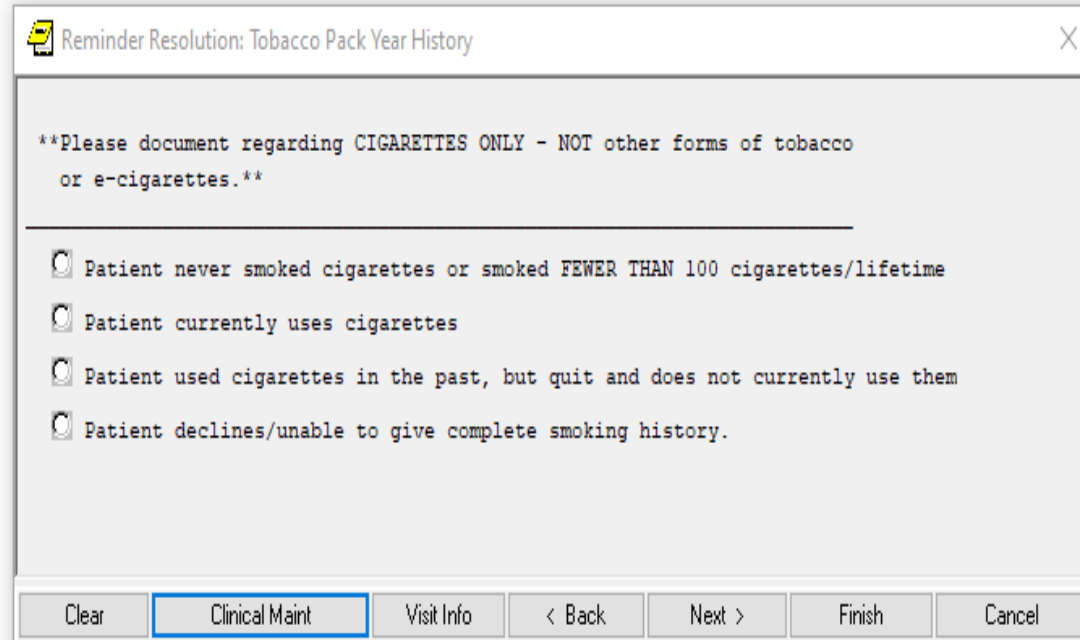
Health Factors:
LCS FORMER SMOKER
LCS QUIT SMOKING < 15 YEARS AGO
LCS YEARS SMOKED
LCS PACKS/DAY


Reminder Inquiry: Tobacco Pack Year History
V*-LCS TOBACCO PACK YEAR HISTORY No. 1082
Print Name: Tobacco Pack Year History
Class: VISN
Sponsor: NATIONAL CENTER FOR LUNG CANCER SCREENING
Review Date:
Rescission Date:
Usage: CPRS, DATA EXTRACT, REPORTS
Related VA-* Reminder:
Reminder Dialog: V*-LCS TOBACCO PACK YEAR
Priority:
Description:
Version: 9/1/22
This reminder is a screening reminder for patients 50-80. Information will be collected on the number of years smoked and average amount of cigarettes smoked/day for current smokers and those who quit within the last 15 years.
Exclusions for this reminder include:
- Documented HX of lung cancer - permanent exclusion
- Low dose Chest CT (new radiology test) - permanent exclusion
- Former smoker who quit >/= 15 years ago - permanent exclusion
A local current smoker health factor overrides this exclusion
- Diagnosis indicating terminal cancer - 2 year exclusion
- Chest CT in the past year - 1 yr exclusion
- Life expectancy <6 months - 1 yr exclusion
- Quit smoking < 15 years ago and smoked less than 20 pk/year history - permanent exclusion
A current smoker health factor overrides this exclusion
The reminder is permanently resolved for:
1) life-time non smokers
2) current smokers who have >20 pack year history or
3) those who quit <15 years ago who have a > 20 pack year history.
If the patient is a current smoker with less than 20 pk/years the reminder will reactivate based on pack/year history.
1-15 pack years reactivates reminder in 5 years
16-19 pack years reactivates reminder in 3 years
>/= to 20 pack years permanently resolves the reminder


Reminder Inquiry: Tobacco Pack Year History
Declines or unable to give complete smoking history resolves the reminder for 1 year.
Technical Description:
* Instruct staff to enter a number in the comment field for the # of years patient smoked and the # of packs/day. This value is used to calculate the pack year history.
Radiology exams:
1. Radiology department needs to create an exam for: LOW DOSE CT LUNG SCREENING
2. Create a quick order for the LOW DOSE CT LUNG SCREENING radiology exam. The reason for request to be included in the quick order for this procedure is to read: " Lung Cancer Screening patient - Age 50-80 with >20 pack year smoking history AND current smoker or former smoker who quit <15 yrs ago, no prior dx Lung CA."
Reminder Terms to map:
1. TERM: V*-LCS CHEST CT (NOT LOW DOSE)- Includes a health factor for Chest CT outside of the VA. Map local findings from the radiology package for CHEST CT's. The local findings should have the status of "Complete".
Check with local Radiologist regarding use of CT Angiogaphy.
**Do not include the radiology procedures for Low dose Lung CTs.
2. TERM: V*-LCS CHEST CT LOW DOSE - Map new radiology procedure for the LOW DOSE CT LUNG SCREENING. The local findings should have the status of "Complete". The local findings should also have the beginning date/time set to your facility's LCS program start date.
3. TERM: VA-LCS LIFE EXPECTANCY <6 MONTHS - Map local health factors related to Life expectancy < 6 months.
4. TERM: V*-LCS CURRENT SMOKER (RT) - Map local health factors related to current smoker.
5. TERM: V*-LCS SMOKING STATUS OTHER - Map local health factors for other history (e.g. QUIT IN THE PAST YEAR, QUIT <7 YEARS AGO). Used for display/information only in the clinical maintenance. 6. TERM V*-LCS ANYTIME SMOKER - Map any local health related to anytime smoker history (i.e. Current Smoker, Former Smoker, Previous Smoker, etc).


Reminder Resolution: Initial Lung Cancer Screen (Provider)
This reminder displays for patients age 50-80 who currently used cigarettes less than 15 years ago, and have a 20 or more pack year smoking history. These patients are potential candidates for lung cancer screening.
Click here for patient materials in English/Spanish.
No clinical exclusions, patient is a current candidate for the lung cancer screening program.
Use lung decision precision web tool to personalize the screening discussion for this patient.
Chest CT within 12 months outside of this VA that assesses pulmonary nodules. NOTE: this date re-times the reminder to one year from the image. If there are nodule or pulmonary findings needing evaluation, PCP will need to arrange appropriate follow-up.
Refer patient to lung cancer screening coordinator for more information. Consult will be ordered.
Patient declines lung cancer screening THIS YEAR ONLY. Reminder will re-display in one year. Lung cancer screening information provided.
Patient is NOT a current candidate for lung cancer screening due to:
- History of lung cancer
- Current symptoms which may be suggestive of lung cancer
- Receiving active oncologic therapy for cancer, except non-melanoma skin cancer. (This is a clinical judgement, not an absolute exclusion.)
- Estimated life expectancy is less than 5 years
- Or other clinical exclusions based on provider
Clear
Clinical Maint
Visit Info
< Back
Next >
Finish
Cancel


Reminder Resolution: Initial Lung Cancer Screen (Provider)
nodule or pulmonary findings needing evaluation, PCP will need to arrange appropriate follow-up.
Refer patient to lung cancer screening coordinator for more information. Consult will be ordered.
Patient declines lung cancer screening THIS YEAR ONLY. Reminder will re-display in one year. Lung cancer screening information provided.
Patient is NOT a current candidate for lung cancer screening due to:
- History of lung cancer
- Current symptoms which may be suggestive of lung cancer
- Receiving active oncologic therapy for cancer, except non-melanoma skin cancer. (This is a clinical judgement, not an absolute exclusion.)
- Estimated life expectancy is less than 5 years
- Or other clinical exclusions based on provider assessment
Reason for exclusion:
Patient is no longer in the target population for screening, i.e. patient used cigarettes in the past, but quit date is NOW >/= 15 years ago.
Quit year, if applicable, displays on the bottom line
No data available
****
**
If patient currently smokes cigarettes are they interested in quitting?
Yes (This section will open to tobacco counseling which will be site specific)
No
Not applicable
Clear
Clinical Maint
Visit Info
< Back
Next >
Finish
Cancel


Reminder Resolution: Tobacco Pack Year History
Please document regarding CIGARETTES ONLY - NOT other forms of tobacco or e-cigarettes.
Patient never smoked cigarettes or smoked FEWER THAN 100 cigarettes/lifetime
Patient currently uses cigarettes
Patient used cigarettes in the past, but quit and does not currently use them
Patient declines/unable to give complete smoking history.
Clear
Clinical Maint
Visit Info
< Back
Next >
Finish
Cancel

APPENDIX C – Consent Form to Participate

Consent Form for participation in the Doctor of Nursing Practice Project presented by **Monifa Beal-Horton**

Protocol #23-0657

"Improving access to low dose CT scans through early detection using clinical reminder tool in the primary care setting"

The project will consist of a PowerPoint training designed to inform you of lung cancer screening process and the use of the Total Pack Per Year (TPY) clinical reminder. After the educational session you will also be allowed to ask questions about the reminder and processes. At any appointment in your clinic, you will be asked to review the clinical reminder, complete the reminder questions. There will be two parts of this reminder: the nurse reminder and the clinical provider reminder. The TPY reminder will prompt the provider to then have a conversation with the patient and decide if further testing will be necessary. The reminder has been designed to assist in referring patients for lung cancer screening.

By providing your signature below, you are consenting that you are at least 18 years or older.

You are able to read and write English language,

You are a licensed Certified Nurse Practitioner or,

You are a licensed Physician or,

You are a licensed Registered or Licensed Practical Nurse.

You work in the Primary Care Clinic.

You also consent to participate in the Doctor of Nursing Practice project presented by Monifa Beal-Horton from The University of Southern Mississippi. Your participation is optional. There are no penalties involved for non-participation. There are no incentives offered for participating. There are no risks involved. Please ask any questions you may have by contacting Monifa Beal-Horton at w317204@usm.edu or at 601-540-6097

This project has been approved by The University of Southern Mississippi's Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the Institutional Review Board (IRB) by phone at 601-266-5997 or by mail at: Chair of the Institutional Review Board
The University of Southern Mississippi 118 College Dr. #5116, Hattiesburg, MS 39406

Your signature below is only used for proof of consent for participation. I have read the above information and have received answers to any questions I asked. I consent to take part in the study. No other identifying information will be used or shared.

Signature _____

Date _____

APPENDIX D – IRB Approval Letters

Office *of*
Research Integrity

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

118 COLLEGE DRIVE #5116 • HATTIESBURG, MS | 601.266.6756 | WWW.USM.EDU/ORI

NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI using the Incident form available in InfoEd.
- The period of approval is twelve months. If a project will exceed twelve months, a request should be submitted to ORI using the Renewal form available in InfoEd prior to the expiration date.

PROTOCOL NUMBER:	23-0657
PROJECT TITLE:	Improving access to low dose CT scans through early detection using clinical reminder tool in the primary care setting
SCHOOL/PROGRAM	Leadership & Advanced Nursing
RESEARCHERS:	PI: Monifa Beal-Horton Investigators: Beal-Horton, Monifa~Coleman, Carolyn~
IRB COMMITTEE ACTION:	Approved
CATEGORY:	Expedited Category
PERIOD OF APPROVAL:	07-Aug-2023 to 06-Aug-2024

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

DEPARTMENT OF VETERANS AFFAIRS

[redacted]

Date: June 11, 2023

From: Institutional Review Board (IRB)
Subj: Improving access to low dose CT scans through early detection using clinical reminder tool in the primary care setting, project ID: 1762034

To: Monifa Beal, MSN, BSN, RN

Thank you for submitting your project for review to the IRB.
After a careful review it has been determined that this project is not research.

VHA handbook 1200.05(2) defines research as a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Your project does not meet the definition of human subjects research according to the new Common Rule. It is determined that activities designed and implemented for internal VA purposes, are not considered to be research.

For assistance in starting your Quality Improvement Project, please contact Quality, Safety, & Improvement (QSI) Service formerly known as Quality Management.

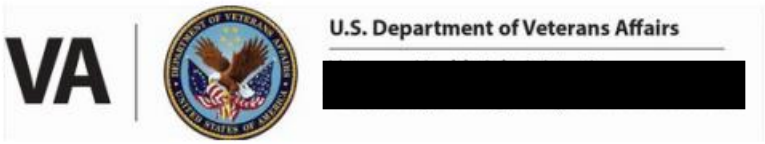
Best wishes for a successful project.If you would like additional information, please contact Merchell Pittman, Administrative Officer, at extention 51041.

Sincerely

7/12/2023

[redacted]

APPENDIX E – Letter of Support



Date July 24, 2023

RE: Letter of Support for Monifa Beal-Horton, FNP, DNP Student

Attn: Facility Nursing Research Council Application Process DNP Student

To: Nursing Research Council Chair and Committee

This letter is in reference for Monifa Beal, FNP, DNP Student who is applying to the VA Research board for application and approval of her Clinical Doctoral Project. The focus and title of her evidenced-based project is *Improving Access to Low Dose CT scans through Early Detection using Clinical Reminder tool in the Primary Care Setting.*

I understand that participation by the selected clinic members is completely anonymous and voluntary. There is no compensation for their participation.
I understand the planned dates are 30 days from USM IRB approval is received.
I understand that letter of support will be included in the University of Southern Mississippi Institutional Review Board (IRB) application.

As Associate Chief of Primary Care at this proposed site, I would like fully support Monifa Beal-Horton, FNP-BC, DNPs to achieve her academic endeavor in this clinical practice project. I look forward to hearing the results of this study and the implications on clinical practice.

Her Chair contact information is Dr. Carolyn Coleman, carolyn.coleman@usm.edu and cell 601-266-5869.

If there is any other information you should need, please do not hesitate to contact me.

[redacted]

REFERENCES

American Association of Colleges of Nursing (AACN). (2006) The essentials of doctoral education for advanced nursing practice. https://www.aacnnursing.org/Portals/0/PDFs/Publications/DNPEssentials.pdf

American Cancer Society. (2023). *Cancer Facts and Figures 2023*.[Fact Sheet].https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2023/2023-cancer-facts-and-figures.pdf

American Society for Quality (ASQ). (2019). *What is the Plan-do-check-act cycle?* https://asq.org/quality-resources/pdca-cycle

Barron, Kenneth & Hulleman, Chris & Hartka, Thomas & Inouye, R. [2017]. Plan-Do-Study-Act (PDSA) Cycle. [online image]. Available from https://www.researchgate.net/figure/A-visual-diagram-of-a-Plan-Do-Study-Act-PDSA-Cycle_fig1_319377456. Accessed on October 6, 2023

Boudreau, J. H., Miller, D. R., Qian, S., Nunez, E. R., Caverly, T. J., & Wiener, R. S. (2021). Access to lung cancer screening in the veterans' health administration. *Chest*, *160*(1), 358–367. https://doi.org/10.1016/j.chest.2021.02.016

Centers for Disease Control and Prevention (CDC). (2019). *Who should be screened for lung cancer?* Centers for Disease Control and Prevention. https://www.cdc.gov/cancer/lung/basic_info/screening.htm

Diffusion Marketplace. (n.d.). Marketplace.va.gov. Retrieved May 29, 2023, from https://marketplace.va.gov/innovations/centralized-lung-cancer-screening.

Healthy People 2030. (2020). *Cancer healthy people.* U.S. Department of Health and Human Services. https://health.gov/healthypeople/objectives-and-data/browse-objectives/cancer

Healthy People 2030. (2022). *Social determinants of health*. Healthy People 2030; U.S. Department of Health and Human Services. https://health.gov/healthypeople/priority-areas/social-determinants-health

Kinsinger, L. S., Anderson, C., Kim, J., Larson, M., Chan, S. H., King, H. A., Rice, K. L., Slatore, C. G., Tanner, N. T., Pittman, K., Monte, R. J., McNeil, R. B., Grubber, J. M., Kelley, M. J., Provenzale, D., Datta, S. K., Sperber, N. S., Barnes, L. K., Abbott, D. H., & Sims, K. J. (2017). Implementation of Lung Cancer Screening in the Veterans Health Administration. *JAMA Internal Medicine*, *177*(3), 399. https://doi.org/10.1001/jamainternmed.2016.9022

Kowada, A. (2022). Cost-effectiveness and health impact of lung cancer screening with low-dose computed tomography for never smokers in Japan and the United States: a modeling study. *BMC Pulmonary Medicine*, *22*(1). https://doi.org/10.1186/s12890-021-01805-y

LUNGevity Foundation. (2022). *Improving Lung Cancer Outcomes for US Veterans.* https://www.lungevity.org/blogs/improving-lung-cancer-outcomes-for-us-veterans

The National Lung Screening Trial Research Team. (2011). Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening. *New England Journal of Medicine*, *365*(5), 395–409. https://doi.org/10.1056/nejmoa1102873

National Academies of Sciences, Engineering, and Medicine. 2017. Implementation of Lung Cancer Screening: Proceedings of a Workshop. Washington, DC: The National Academies Press. https://doi.org/10.17226/23680.

Ngo-Metzger, Q. A., Mabry-Hernandez, I. R., Kim, J., Adsul, P., Higginbotham, L. B., Hoffman-Hogg, L., Smith, M. W., & Doherty, J. (2020). Implementation of evidence-based Recommendations for preventive services in the veterans health administration. *Journal for Healthcare Quality*, *42*(3), 148–156. https://doi.org/10.1097/jhq.0000000000000217

Rajupet, S., Doshi, D., Wisnivesky, J. P., & Lin, J. J. (2017). Attitudes about lung cancer screening: Primary care providers versus specialists. *Clinical Lung Cancer*, *18*(6), 417–423. https://doi.org/10.1016/j.cllc.2017.05.003

Tanner, N. T., Egede, L. E., Shamblin, C., Gebregziabher, M., & Silvestri, G. A. (2013). Attitudes and beliefs toward lung cancer screening among U.S. veterans. *Chest*, *144*(6), 1783–1787. https://doi.org/10.1378/chest.13-0056

U. S. Census Bureau. *(n.d.). QuickFacts: Mississippi*. U. S. Department of Commerce Retrieved December 15, 2022, from https://www.census.gov/quickfacts/fact/dashboard/MS

U.S. Census Bureau. (2018, April 11). *Veterans*. U. S. Department of Commerce https://www.census.gov/topics/population/veterans.html

U.S. Preventive Services Task Force (USPSTF). (2021). *Recommendation United States Preventive Services Taskforce (USPSTF)*. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/lung-cancer-screening

VA Lung Precision Oncology Program (LPOP). (2022). https://www.research.va.gov/programs/pop/lpop.cfm#:~:text=Nearly%208%2C000%20Veterans%20are%20diagnosed