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Using the 2As and R Method to Encourage Referral to Smoking Cessation Counseling in an Urban Pulmonary Clinic

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Using the 2As and R Method to Encourage Referral to Smoking Cessation Counseling in an Urban Pulmonary Clinic

A DNP Project Submitted to the
Graduate Faculty
of Jacksonville State University
in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Nursing Practice

By

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Abstract

Background: Smoking is a habit of millions of Americans despite the associated preventable health issues and death that it produces. Smoking cessation programs, particularly those using pharmacotherapy, are effective in increasing smoking cessation rates. However, smoking cessation programs remain underutilized.

Purpose: The purpose of the DNP project is to educate providers on using the 2As and R (ask, advise, and refer) of smoking cessation to assess a patient's readiness to quit and refer to smoking cessation counseling. For providers working in an urban pulmonary clinic, does education regarding the use of the 2As and R method as a standardized intervention to assess readiness for referral to smoking cessation counseling compared to no education regarding a standardized intervention increase the number of patients referred for smoking cessation counseling over eight weeks?

Methods: This is a quality improvement project using the 2As and R method of smoking cessation to improve referral rates to a pharmacy smoking cessation program. Providers in a pulmonary clinic were educated on the 2As and R method, the in-house pharmacy smoking cessation program, and how to place referrals to the program. Data was obtained from the pharmacy program coordinator and reviewed by the principal investigator.

Results: The pre-intervention rate of referrals to the pharmacy was 6.47% (18 patients out of 278) and the post-intervention rate was 10.91% (30 patients out of 275). Although there was an increase in referral rates post-intervention, this increase was not statistically significant. The increase does demonstrate clinical significance.

Conclusion: The 2As and R method of smoking cessation is effective in increasing the number of referrals to a smoking cessation program. The change was not statistically significant, however, the improvement in referral rates was encouraging.

Keywords: smoking cessation, pharmacotherapy, [redacted] brief smoking cessation intervention

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Using the 2As and R Method to Encourage Referral to Smoking Cessation Counseling in an Urban Pulmonary Clinic

The key to increasing referrals to a smoking cessation counseling program is to use a standard method for assessing a patient's readiness to quit and subsequently referring those who express interest. The Center for Disease Control and Prevention (CDC) (2022a) states that the likelihood of a person quitting smoking significantly increases with the use of a smoking cessation program. Programs that use pharmacotherapy and counseling are considered the gold standard as they produce the highest success rate of quitting (Onor et al., 2017). The [redacted] has a pharmacy smoking cessation program that is underutilized by the pulmonary clinic due to a lack of awareness of its existence and a standard method for assessing a patient's readiness to quit and encouraging referral. Introducing a standard method to assess readiness to quit and prompt referral will lead to increased rates of referral to the local [redacted] pharmacy smoking cessation program.

Background

Smoking is one of the leading causes of chronic and acute illnesses such as chronic obstructive pulmonary disease (COPD), hypertension, coronary artery disease, myocardial infarction, various respiratory infections, infertility, a variety of cancers, amongst other diseases, and death (West, 2017). The CDC (2023b) states that smoking can negatively affect each organ and causes over 400,000 deaths each year, many of which are premature. Smoking has negative effects on nonsmokers as well, since secondhand smoke poses the same health risks as smoking (CDC, 2022c). In children, secondhand smoke increases the risk of sudden infant death syndrome (SIDS), respiratory infections, ear infections, and asthma attacks (CDC, 2022c).

In addition to health issues, smoking presents a significant financial burden (Rezaei et al., 2016). This financial burden comes from the cost of cigarettes, cigars, or other forms of tobacco smoke along with the cost of healthcare expenses and missed days at work due to illness (CDC, 2022b). The United States reported a total cost of $600 billion in 2018 due to smoking (CDC, 2022b). This cost was due to approximately $185 billion in lost revenue due to smoking-related conditions, $240 billion in healthcare costs, $180 billion lost due to premature death resulting in loss of revenue, and $7 billion in loss of revenue due to illness caused by secondhand smoke (CDC, 2022b). The [redacted] spent approximately $2.7 billion on ambulatory care, prescriptions, hospitalization, and home health due to smoking-related issues (CDC 2023a). The CDC (2022b) reports that spending approximately 12% of national tobacco revenue would adequately fund these programs nationwide, with only 2.7% of revenue being spent as recommended. No states are reaching the recommended spending threshold, with one state not spending any revenue on smoking cessation and deterrent programs (CDC, 2022b).

Healthy People 2030 (2021) states that 16.8 % of adults aged 18 years and older use a burnable tobacco product at least some days per week. Smoking rates in Alabama were higher than the national average, with 18.5% of adults reporting that they are smokers (Truth Initiative, 2022). In the [redacted] population, it is reported that three in every 10 individuals use tobacco products, and one in every five report smoking cigarettes (CDC, 2018). Smoking rates among those with post-traumatic stress disorder (PTSD), a frequent psychological condition diagnosed in the [redacted] population, are higher than among the general population (Hammett et al., 2021). PTSD leads to poor health choices, like smoking, and increases the likelihood of cardiovascular disease and diabetes making it an important matter in the [redacted] population (Hoerster et al.,

2019). In the local [redacted] pulmonary clinic, nearly 80 % of patients are smokers, and the majority are seen for COPD or lung masses.

Per the CDC (2022a), smoking cessation is the most effective way to reverse and slow the effects of smoking. Interestingly, 68% of adult smokers state that they want to quit and 55.1% had tried to quit with only seven and a half percent having successfully quit (CDC, 2022a). Smoking cessation is more likely to occur with physician involvement, counseling, and medications (CDC, 2022a). People who quit smoking using self-guided methods were successful at a rate of 8-25% but those who were referred to and used a smoking cessation program had a success rate of 20-40% (CDC, 2022a). Smoking cessation counseling is essential in assisting patients in quitting as it increases their success rate (CDC, 2022a). Lund and Kvaavik (2021) stated that providers using a standardized method to assess the patient's readiness to quit and the need for referral to a smoking cessation program is beneficial in increasing the chances of quitting. Smokers are more likely to take the advice to quit when facing an acute health issue that may be seen inpatient or during doctors' visits (See et al., 2019).

The benefits of smoking cessation include slowing and reversing lung damage, decreasing the incidence of coronary artery disease, and lowering the risk of associated cancers (CDC, 2022a). A reduction in the occurrence of COPD exacerbations, heart failure exacerbations, and respiratory infections are additional benefits of smoking cessation (CDC, 2022a). Smoking cessation also comes with a decrease in the financial burden on individuals, families, and the healthcare system (Tobacco Free Earth, 2022).

The [redacted] has made smoking cessation a priority for the [redacted] they serve as demonstrated by the existence of the pharmacy smoking cessation program (Hammett et al., 2021). In 2004, the [redacted] pharmacy started a smoking cessation service that is available at the local

[redacted] hospital that serves primary care clinics managed by in-house clinical pharmacists (Blok et al., 2021). Since the program's inception, the [redacted] has made significant strides in increasing the number of its patients who receive pharmacotherapy for tobacco cessation along with cessation counseling (Blok et al., 2021). Prior to the pharmacy program, pharmacotherapy was used in the outpatient setting 13.8% of the time (Blok et al., 2021). Usage rates rose to 26.8% in 2008 and plateaued at 25.8% in 2011 due to the initiation of the program (Blok et al., 2021). These advancements were made due to pharmacy involvement, as the [redacted] found that their clinicians were uncomfortable with providing pharmacotherapy for reasons of perceived lack of interest from patients, lack of confidence in providing cessation interventions, and mistaken beliefs that pharmacotherapy was ineffective (Blok et al., 2021). Pharmacists provide cessation counseling consistent with [redacted] guidelines and in conjunction with pharmacotherapy ([redacted], 2023).

A retrospective observational study of the [redacted] system found that pharmacists were 74% more likely to prescribe pharmacotherapy for smoking cessation compared to physicians, physician assistants, and nurses (Blok et al., 2021). The advanced practice providers (APPs) in the pulmonary clinic feel more needs to be done to address smoking cessation for their patients and the in-house pharmacy program is an established route that can be utilized. Referral rates to the pharmacy smoking cessation program from the pulmonary clinic were 6.47% before intervention due to a lack of awareness of the pharmacy program and a standard assessment method by the providers. The 2As and R of smoking cessation are used to increase referrals to smoking cessation programs and is supported by the CDC, U.S. Public Health Service, American Lung Association, and multiple state health departments. Smoking cessation programs are highly effective and reduce associated healthcare costs (Patwardhan & Chewning, 2010). Currently,

providers in the local pulmonary clinic are only routinely assessing whether patients are smoking but not their readiness to quit and the need for referral.

Needs Analysis

The local [redacted] pulmonary clinic currently sees approximately 140 patients in a 30-day period and about 80% of those patients are smokers. In a 60-day period before the start of the project, 278 patients were seen and 222 of those patients indicated that they were smokers. Of those patients that indicated they were smokers, 6.47% were referred to the smoking cessation program in the pharmacy. These referrals were taking place without a standard method for assessing a patient's readiness to quit and widespread knowledge of the pharmacy program and the referral process.

The local [redacted] healthcare facility serves over 17,000 known smokers in the system. The primary care clinics have been the focal point for referring patients to the smoking cessation program. However, a greater concentration of smokers is seen in the pulmonary clinic. Therefore, the pulmonary clinic could benefit from having a standard process for assessing and referring patients to the smoking cessation clinic to streamline the process. Implementing the 2As and R method of smoking cessation with the physicians (attending and fellows) and APPs (nurse practitioners) in the pulmonary clinic will allow for increased awareness and referral to the smoking cessation program.

Problem Statement

Smoking is a habit that can lead to preventable health issues (West, 2017). This habit is more prevalent in the [redacted] population than in the general population (Hammett et al., 2021). Standard methods for assessing a patient's readiness to quit and prompting referral are integral to smoking cessation (Patwardhan & Chewning, 2010). For providers working in an urban

pulmonary clinic, does education regarding the use of the 2As and R method as a standardized intervention to assess readiness for referral to smoking cessation counseling compared to no education regarding a standardized intervention increase the number of patients referred for smoking cessation counseling over eight weeks?

Aims and Objectives

The overarching aims of this project were to:

1. Identify the adverse effects of smoking.
2. Identify a standard intervention for providers to assess a patient's readiness to quit.
3. Implement the standard intervention to promote referral to the pharmacy smoking cessation program.

Review of Literature

The literature search for this project used the Cumulated Index to Nursing and Allied Health Literature (CINAHL) and Google Scholar databases. Reviews of relevant government and health agencies such as the CDC, American Lung Association, World Health Organization (WHO), Healthy People 2030, and the Institute for Healthcare Improvement were also included. Keywords that were used in my database searches included smoking cessation and veterans in the initial CINAHL search. Additional parameters included articles published between January 2017 and February 2023 with full-text requirements that yielded 73 articles. This search was narrowed to six articles by adding the additional Boolean phrase of providers. Other searches were performed within CINAHL for a review of articles on the Plan, Do, Study, Act (PDSA) cycle and Lewin's change theory, however, returned no viable results. In Google Scholar, the same dates were used to search for literature. Searches were conducted for pharmacy-led smoking cessation programs, Lewin's change theory in the Doctor of Nursing Practice (DNP,

project, PDSA in the DNP project, and brief tobacco intervention methods. Articles were also filtered by the date of publication, relevance to clinical practice, and availability of full text. Thousands of articles were presented, and a total of 70 were reviewed. Only articles present on the first two pages of the search were reviewed. The following themes were identified in the literature: assessment tools and strategies for cessation.

Assessment Tools

The 5As of smoking cessation (ask, advise, assess, assist, and arrange) is the most widely known intervention for smoking cessation (Wray et al, 2018). In a study by Quinn et al. (2009) where the 5As method was used, patients who used pharmacotherapy and counseling were more likely to quit than those who did not use those resources. However, the brief intervention of the 2As and R method is just as effective and more accepted in organizations due to the length of the intervention (Wray et al., 2018). The 2As and R model increased compliance among clinicians, especially in demanding environments (Patwardhan & Chewning, 2010). Acceptance of the 2As and R model continues to grow and is recommended by multiple federal and state agencies such as the CDC, U.S Public Health Service, Texas Department of Health, South Dakota Department of Health, and California Department of Health. The United States Public Health Service Office of the Surgeon General (2020) recognizes the 2A and R method as comparable to the 5As of smoking cessation. The VA found that its providers stopped at asking their patients about tobacco use without further investigation due to a lack of confidence in providing interventions, a lack of time, and a need for more information (Blok et al., 2021). Using this brief intervention will promote more investigation into the patient's readiness to quit by providers while considering time and providing additional options to patients with a referral to the pharmacy

program. Using a standard method to assess a patient's readiness to quit is integral in improving referral success and, cessation (Lund & Kvaavik, 2021).

Strategies for Smoking Cessation

Prochaska and Benowitz (2016) reports that 95-98% of smokers are unsuccessful when attempting to quit cold turkey; however, this remains the most frequently used method to attempt quitting. Prochaska and Benowitz (2016) recommend using the combination of pharmacotherapy and counseling to improve success rates of smoking cessation. Stead et al. (2016) similarly concludes that combining pharmacotherapy and counseling raise smoking cessation success rates significantly relative to attempting quitting without or with minimal intervention. A review of previous studies shows that receiving counseling or pharmacotherapy individually is effective; however, combining them leads to increased effectiveness and is the gold standard for successful smoking cessation and doubles your chances of quitting (Fiore & Jaen, 2008). A 48% reduction in smoking rates is reported when pharmacotherapy and smoking cessation counseling are used in a 2015 study (Egici et al., 2017). Pharmacists are 74% more likely to prescribe pharmacotherapy for smoking cessation than physicians or advanced practice providers (Blok et al., 2021). [redacted] pharmacists are trained in the selection and dosing of the appropriate agents for each patient with consideration of other healthcare conditions that are prevalent in the veteran population, such as PTSD, as contraindications must be considered with the smoking cessation medicines (Hammett, et al., 2021). Sadeghi et al. (2021) shows that 53% of smokers quit following enrollment in a cardiac rehabilitation program. Pulmonary rehabilitation programs tend to view smoking cessation as a prerequisite or goal of the program; therefore, they use the same methods of counseling and medications to achieve cessation (Coleman et al., 2023). There is no statistical data to show the benefit of pulmonary rehabilitation as a single intervention for

smoking cessation. Mental health providers had high rates of patients quitting alcohol and drugs but only 10% quitting smoking (Gelenberg et al., 2008). Low smoking cessation rates are attributed to a lack of focus on smoking cessation with mental health providers due to smoking being viewed as a coping mechanism and smoking cessation medication contraindications in mental illness (White et al., 2023). Virtual smoking cessation programs may provide some benefits, but compliance rates are 20% and therefore difficult to quantify the success rates and they do not use medications (Goldenhersch et al., 2020).

Following the review of the literature, using the 2As and R method is a valid intervention to increase referrals to the [redacted] pharmacy smoking cessation program from the [redacted] pulmonary clinic. This brief intervention educates and empowers those clinicians to promote smoking cessation without having to manage the cessation process in the clinic. [redacted] pharmacists are trained in the prescribing of smoking cessation medications and providing counseling, with consideration of the needs of veteran patients. Incorporating the pharmacy program will provide tools to [redacted] to increase their chances of smoking cessation using gold-standard methods.

Theoretical Model

The theory used to guide this project is Lewin's change theory, developed by Kurt Lewin, a three-step plan to unfreeze, change, and refreeze a process to promote change and improve patient outcomes (Davidson et al., 2017). Unfreezing during the didactic portion of the project is intended to inform the providers that a change was needed and why (Udod & Wagner, 2018). Unfreezing causes disequilibrium in the system (Udod & Wagner). The change consisted of the implementation of the intervention and the placing of referrals. The intervention was supported by the medical director and other providers, it is important to have leadership support (Udod & Wagner). Change is difficult and not always welcomed due to a perceived or real increase in

workload for those performing the intervention (Waltz et al., 2019). Refreezing is the process of solidifying the change as the new standard for operation and promoting the sustainability of the intervention (Udod & Wagner). Refreezing will include the involvement of the nursing staff, additional providers, and the supplemental oxygen staff who are housed in the pulmonary clinic.

Methodology

The purpose of this project was to increase the referral of patients seen in the [redacted] pulmonary clinic to the [redacted] pharmacy smoking cessation program using a quality improvement process. The PDSA methodology is an ideal process for quality improvement projects. PDSA is a cycle that can be used for quality improvement in the healthcare field in real-world settings unlike traditional clinical trials (Coury et al., 2017). This method fits with this project as it is often used to promote changes on a small scale that aids in swift assessment with an opportunity for flexibility (Taylor et al., 2014). PDSA promotes engagement from stakeholders as risks are minimized to patients and the organization while allowing time for trust in the intervention to build (Taylor et al, 2014).

The planning phase consisted of the identification of the problem and review of the literature to find a potential solution. During the planning phase it was identified that the providers were routinely asking if patients were smokers but usually, that is where the assessment concluded. Some providers were aware of the in-house pharmacy smoking cessation program but did not have a standard method to lead to referral. One provider contacted the coordinator of the pharmacy program to verify how often they were receiving requests for consultations from the pulmonary clinic, the ability of the pulmonary clinic to use the program, and to get instructions on how to place the referral. Through a review of the literature, it was found that the 2As and R method was a viable solution to promote referral to the smoking

cessation program in the pulmonary clinic. All the information was provided to the attending physician of the pulmonary clinic, and they were inclined to move forward with the project. All willing providers were educated on the pharmacy smoking cessation program and the 2As and R method to smoking cessation and could give input throughout the project.

The Do phase consisted of implementing the 2As and R method of smoking cessation during their clinic visits with patients. Patients who were interested in participating in the pharmacy smoking cessation program were referred by the provider tagging the patient's assigned pharmacist in their visit note. During this phase, we will also document and observe any adverse events that may occur and begin the analysis of the data (Chen et al., 2020).

In the study phase, the number of referrals to the pharmacy smoking cessation program was collected from the program coordinator. The number of referrals sent by the pulmonary clinic was collected at the end of weeks four and eight and evaluated for the effectiveness of the intervention (Chen et al., 2020). Results were analyzed and a conclusion was made on the effectiveness of the intervention and implementation (Chen et al., 2020).

In the act phase, a plan for providers to continue using the 2As and R method of smoking cessation was implemented. This may include revisions of the intervention and planning for a subsequent PDSA cycle (Chen et al., 2020). If accepted this may be adopted by other disciplines within the practice such as nursing.

Setting

This [redacted] Medical Center services over 17,000 patients that admit to being smokers. Providers in the pulmonary clinic see 25 patients in the clinic weekly. Eighty percent of patients in this pulmonary clinic are current smokers and the most common diagnoses are COPD, various

lung masses, and chronic respiratory failure requiring supplemental oxygen. The patient population is mostly males between the ages of 45 and 80.

The [redacted] system has core values expressed in the [redacted] acronym ([redacted]) ([redacted], 2021). The system strives to serve the needs of those who [redacted] system ([redacted], 2021). This means providing the best evidenced-based practice care which includes smoking cessation through programs such as the pharmacy smoking cessation program. [redacted]'s current strategic plan has four core principles: [redacted] ([redacted], 2022). This project lines up with these principles by providing patients access to an excellent program with proven outcomes through the advocacy of the principal investigator and providers.

Population

The pulmonary clinic is divided into lung mass, COPD, interventional pulmonary, and supplemental oxygen groups. Each group has dedicated providers with attending physicians, fellows, advanced practice providers, and shared nursing staff. Stakeholders for this program included the attendings, fellows, and advanced practice providers who are enthusiastic about the possibilities of this project which is a positive indication for the project (Waltz et al., 2019).

Inclusion/Exclusion Criteria for the Population

Inclusion criteria for the project includes being a provider in the lung mass, COPD, or interventional pulmonary group willing to participate in the project. Exclusion criteria includes providers in the pulmonary clinic who were unable to receive training on the intervention. Providers in the pulmonary clinic who were unwilling to participate in the intervention were also excluded.

Recruitment

This project was implemented in early March of 2023. An informational session was held for the providers in the pulmonary clinic to attend. All providers within the service agreed to participate, which was two nurse practitioners, one attending, and four fellows. Each participant reviewed and signed the provided consent form. These providers are the stakeholders for the project.

Consent

Participants in the project were informed that their participation was completely voluntary and that they could decline to participate further at any time. Their decision to participate did not affect their jobs. There was no risk to the safety of the patients or themselves. Participants were supplied with a consent form to sign and information to retain for their review (See Appendix A). Consent forms were destroyed at the conclusion of the project.

Design

Lewin's Change Theory and PDSA methodology aligned well with this project because both are used to promote change in the healthcare setting and are cyclical. In the needs analysis for this project, we discovered that there was no standard method for providers in this pulmonary clinic to assess a patient's readiness to quit and subsequent referral to the pharmacy smoking cessation program. Using Lewin's Change Theory in conjunction with PDSA, a plan was laid out to address the clinic's needs. During the unfreezing and planning stages, literature was reviewed to determine a potential intervention to allow providers to effectively assess patient readiness to quit and identify how to place referrals to the pharmacy smoking cessation program. This information was reviewed with stakeholders, and they decided to participate in the project.

In the change and Do stages, the 2As and R method was implemented for providers to assess readiness to quit and place referrals to the pharmacy smoking cessation program. During and following the Do stage, the Study stage of PDSA was entered and the number of referrals was reviewed halfway through implementation and after the project. Implementing this project required the extra steps of informing the patient of the smoking cessation program and placing the referral to their assigned clinical pharmacist within the electronic health record. The advantage of this process is that it did not require the provider to toggle screens to place the referral. Throughout implementation, stakeholders made suggestions to promote the sustainability of the intervention.

At the end of the project, in the refreezing and Act stages, a plan for sustainability was put into place. The plan for sustainability included incorporating the intervention into the nursing staff's duties before the patient sees the provider. Should the patient agree to be referred to the pharmacy program, the provider would place the referral in the visit note. This will not absolve the provider from performing the intervention but, will provide the patient two opportunities to be approached during the office visit. Stakeholders also wanted to incorporate the intervention for their supplemental oxygen team, who can also place referrals to the pharmacy program in their visit notes.

Data Review Process

The number of referrals to the smoking cession program for this project was housed within the pharmacy. The coordinating pharmacist retrieved the number of referrals coming from various clinics and providers. These numbers were reported to the principal investigator before implementation, at the halfway mark, and at the end of the project. The N-1 Chi-squared test will be used to analyze data.

Risks and Benefits

This project aims to increase the number of smoking patients referred to the pharmacy smoking cessation program. This will increase the likelihood of a patient quitting smoking. The United States Public Health Service Office of the Surgeon General (2020) states that the health benefits of smoking cessation supported the use of smoking cessation programs. Smoking cessation programs additionally reduce the financial burden of smoking on patients and the healthcare system (CDC, 2020).

The risks in this project are minimal. There is a slight increase in steps for providers in the clinic to complete the intervention and referral process. However, there is no expected mental or physical harm to come from the project.

Compensation

During the implementation of the intervention, providers were given handouts as reminders of the 2As and R intervention. Participants were also provided with light refreshments for their time. No monetary compensation was offered or promised.

Timeline

This project spanned over 21 months dating back to November 2021, when the planning began (see Appendix B). In April 2022, the project was presented and approved by the proposal evaluation review committee and submitted to the Jacksonville State University Institutional Review Board (IRB) (see Appendix C). In February 2023, the principal investigator (PI) received clearance from the [redacted] IRB, in an abbreviated process, to proceed with conducting the project based on the project being non-research (see Appendix D). The letter of support was also received at this time (See Appendix E). Implementation of the project started on March 2023 and continued until April 2023. Prior to the development of the project, the course for social and

behavioral responsible conduct of research with Collaborative Institutional Training Initiative (CITI) was completed (see Appendix F).

Budget and Resources

The budget for the project included the costs of printed materials and refreshments for the staff totaling $81.27 (see Appendix G). The project personnel included the PI, preceptor, providers in the pulmonary clinic, the university writing center, and the project chair. There was also collaboration with the pharmacy program coordinator to obtain the number of referrals placed before and after implementation. The technology involved included the electronic medical record used by the [redacted].

Evaluation Plan

Statistic Considerations

Once the intervention was completed, the number of referrals was collected from the pharmacy coordinator for review and transcribed into percentages. The percentage of patients referred pre and post intervention were compared using the N-1 Chi-squared test for statistical significance, due to the presence of a singular dependent outcome. The PI used the results to plan for future use of the intervention.

Data Maintenance and Security

Data maintenance and security was of the utmost importance to the principal investigator. Data containing the personal health information of patients was not required for this project. Consent forms containing the name and signature of participants were securely stored with the PI and destroyed following the conclusion of the project.

Results

Results of Data Analysis

At the end of implementation, the PI performed statistical analysis with the help of a statistician using the N-1 Chi-squared test on MedCalc®.org. The pre-intervention rate of referrals to the pharmacy was 6.47% (18 patients out of 278), whereas the post-intervention rate was 10.91% (30 patients out of 275). Although there was an increase in referral rates post-intervention (difference = 4.44%, 95% confidence interval = -0.2948-9.2801%), this increase was not statistically significant, $\chi^2(1) = 3.433$, $p = 0.0639$.

While the intervention did not produce a statistically significant change in the number of referrals, there was a 4.44% increase in the number of referrals. That change is clinically significant. Clinical significance is defined as an improvement that will result in a better outcome for an individual (Ranganathan et al., 2015). More individuals will receive an intervention that will lead to lower disease and financial burden.

Discussion

Implications for Clinical Practice, Healthcare Policy, and Quality

The results show a clinically significant improvement in the number of referrals placed from the pulmonary clinic to the pharmacy smoking cessation program. The success of such programs has been shown to at least double the chances of people quitting which leads to improved health outcomes (Onor, 2017). Therefore, it will be beneficial for the pulmonary clinic to continue using the 2As and R method for assessing a patient's readiness to quit and refer to the pharmacy smoking cessation program. Using the 2As and R method will be beneficial to use in other outpatient clinics in the healthcare system. Health maintenance organizations have increasingly required formal assessment of smoking behaviors as a quality measure (Quinn et al.,

2009). Using this intervention will continue to ensure future insurance reimbursements (Quinn et al.).

Implications for Education

This project was clinically significant, and the intervention should be heavily considered as a standard intervention in the pulmonary clinic. The PI recommends re-educating all providers on the intervention and the benefits of the intervention along with incorporating other disciplines (i.e., nursing) in the intervention. As more smokers are referred to the pharmacy smoking cessation program, they will reap the health and financial benefits of smoking cessation.

Limitations

Limitations of the project would include the length of the study, provider hesitancy, and patient hesitancy. Limitations of this study are due to the time constraints on the project length. The length of the project does not allow the DNP student to explore how many patients referred by the pulmonary clinic begin and finish the pharmacy smoking cessation program. The length of the project also did not allow for the DNP student to monitor how many of those patients referred to the program quit smoking. Other limitations are related to providers hesitancy to implement change due to fear of increased workload and efficacy of the intervention. Patients not being ready to quit, confident in their ability to quit, or being overwhelmed by the intervention limits the project. However, the previous statistical data concerning this is positive and it is a metric that the pulmonary clinic can continue to measure for at least a year and periodically following retraining and inclusion of nursing staff.

Dissemination

The project personnel included the PI, preceptor, providers in the pulmonary clinic, the university writing center, the reviewer, and the project chair. There was also collaboration with

the pharmacy program coordinator to obtain the number of referrals placed before and after implementation and to verify the method of placing the referral. Technology involved included the electronic medical record used by the [redacted]. The project and its results will be reported to the stakeholders in the future and at Jacksonville State University's dissemination day on July 13, 2023.

Sustainability

The intervention has been proven effective by the experts and adopted by numerous well-known agencies such as the CDC and others. The intervention is brief for the participants therefore not placing a large burden on their workload. Sustainability is important to continue promoting improved patient outcomes. In this clinic, sustainability will transpire by incorporating nursing staff in the process. The 2As and R method will be reviewed with the nursing staff who triage patients before being seen by the provider. The worksheet that the nursing staff currently use and pass off to the provider will be adapted to include the new intervention. This will alert providers to the patient's desire to be referred to the smoking cessation clinic on the worksheet. The providers will place the referral for the patient if they have agreed. Should the patient not initially agree, the provider will use the 2As and R method, a second time, to assess the patient's readiness to quit and be referred to the pharmacy smoking cessation program. Incorporating the intervention at multiple points in the clinic visit will allow for more conversation to be had concerning a patient's readiness to quit.

Currently, the referrals for the pharmacy smoking cessation program are placed within the visit note. The group will consider if an order should be created for the electronic medical record (EMR) system and if that will be presented to the technical department if the providers deem that that will be more helpful. The present process allows for the provider to avoid

switching pages within the patient's chart for the placement of the referral and adding an additional step may prove to be more cumbersome. However, the order may be less cumbersome for the pharmacist who will not have to open the note they are tagged in to be notified of the referral.

Plans for Future Scholarship

There is sufficient evidence to support the use of the 2As and R method across all outpatient clinics throughout the healthcare system. Future use of the method should also be considered in inpatient settings as well, particularly for those admitted with complications of smoking. Further studies should be conducted to include the results of how many patients go on to participate in the pharmacy smoking cessation clinic and the outcomes of those who participate. Additional resources may be needed in the pharmacy program to supply new demand.

Conclusion

In this project, the 2As and R method was used to increase the number of referrals to a pharmacy smoking cessation program. Implementation of the intervention did not produce a statistically significant change in the number of referrals placed. However, the intervention did generate a noticeable increase in the percentage of smokers referred to the pharmacy smoking cessation program, therefore validating continued education and use of the intervention.

References

Blok, A. C., Ignacio, R. V., Geraci, M. C., Kim, H. M. Barnett, P. G., & Duffy, S. A. (2021). Provider and clinical setting characteristics associated with tobacco pharmacotherapy dispensed in the Veterans Health Administration. *Tobacco Induced Diseases, 19*(65). doi.org/10.18332/tid/140091

Centers for Disease Control and Prevention. (2018, January 11). *About three in 10 US [redacted] use tobacco products.* U.S. Department of Health and Human Services. https://www.cdc.gov/media/releases/2018/p0111-tobacco-use-veterans.html

Centers for Disease Control and Prevention. (2020, September 23). *Benefits of quitting.* U.S. Department of Health and Human Services. https://www.cdc.gov/tobacco/quit_smoking/how_to_quit/benefits/index.htm

Centers for Disease Control and Prevention. (2021, December 8). *Brief tobacco intervention.* U.S. Department of Health and Human Services. https://www.cdc.gov/tobacco/campaign/tips/partners/health/materials/twyd-5a-2a-tobacco-intervention-pocket-card.pdf

Centers for Disease Control and Prevention. (2022a, March 21). *Smoking cessation: Fast facts.* U.S. Department of Health and Human Services. https://www.cdc.gov/tobacco/data_statistics/fact_sheets/cessation/smoking-cessation-fast-facts/index.html

Centers for Disease Control and Prevention. (2022b, July 28). *Cost and Expenditures. U.S.* Department of Health and Human Services.

https://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/cost-and-expenditures.html

Centers for Disease Control and Prevention. (2022c, November 1*). Health problems caused by secondhand smoke.* U.S. Department of Health and Human Services. https://www.cdc.gov/tobacco/secondhand-smoke/health.html

Centers for Disease Control and Prevention. (2023a, February 10). *Military Service Members and Veterans.* U.S. Department of Health and Human Services. https://www.cdc.gov/tobacco/campaign/tips/groups/military.html

Centers for Disease Control and Prevention. (2023b, May 4). *Burden of cigarette use in the U.S.* U.S. Department of Health and Human Services. https://www.cdc.gov/tobacco/campaign/tips/resources/data/cigarette-smoking-in-united-states.html

Chen, Y., Vanderlaan, P. A., & Heher, Y. K. (2020). Using the model for improvement and Plan-Do-Study-Act to effect SMART change and advance quality. *Cancer Cytopathology. 129* (1), 9-14. doi.org/10.1002/cncy.22319/

Coleman, S. R., Menson, K. E., Kaminsky, D. A., & Gaalema, D. E. (2023). Smoking cessation interventions for patients with chronic obstructive pulmonary disease: A narrative review with implications for pulmonary rehabilitation. *Journal of Cardiopulmonary Rehabilitation.43*(4), 259-269. doi.org/10.1097/HCR.0000000000000764

Coury, J., Schneider, J. L., Rivelli, J. S., Petrik, A. F., Seibel, E., D'Agostini, B., Taplin, S. H., Green, B. B., & Coronado, G. D. (2017). Applying the Plan-Do- Study-Act (PDSA)

approach to a large pragmatic study involving safety net clinics, *BMC Health Services Research. 17*(411). doi.org/10.1186/s12913-017-2364-3

Davidson, S., Weberg, D., Porter-O'Grady, T., & Malloch, K. (2016). *Leadership for evidence-based innovation in nursing and health professions*. (1st ed). Jones & Bartlett Learning

Egici, M. T., Ozturk, G. Z., Bukhari, M. H., & Toprak, D. (2017). Smoking cessation with medication and behavior therapy, *Pakistan Journal of Medical Sciences, 33*(6), 1459-1462. doi.org/10.12669/pjms.336.13653

Fiore, M.C., & Jaen, C.R. (2008). A clinical blueprint to accelerate the elimination of tobacco use. *Journal of the American Medical Association, 299* (17), 2083-2085. doi.org/10.1001/jama.299.17.2083

Gelenberg, A., de Leon, J., Evins, A. E., Parks, J. J., & Rigotti, N. A. (2008). Smoking cessation in patients with psychiatric disorders. *The Primary Care Companion to the Journal of Clinical Psychiatry, 10*(1), 52-58. doi.org/10.4088/pcc.v10n0109.

Goldenhersch, E., Thrul, J., Ungaretti, J., Rosencovich, N., Waitman, C., & Ceberio, M. R. (2020). Virtual reality smartphone-based intervention for smoking cessation: pilot randomized controlled trial on initial clinical efficacy and adherence. *Journal of Medical Internet research, 22*(7). doi.org/10.2196/17571

Hammett, P. J., Japuntich, S. J., Sherman, S. E., Rogers, E. S., Danan, E. R., Noorbaloochi, S., El-Shahawy, O., Burgess, D. J., & Fu., S. S. (2021). Proactive tobacco treatment for [redacted] with posttraumatic stress disorder, *Psychological Trauma: Theory, research, Practice, and Policy*, *13*(1), 114-122. doi.org/10.1037/tra0000613

Healthy People 2030. (2021). Tobacco Use - Reduce current tobacco use in adults. U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. https://health.gov/healthypeople/objectives-and-data/browse-objectives/tobacco-use/reduce-current-tobacco-use-adults-tu-01

Hoerster, K. D., Campbell, S., Dolan, M., Stappenbeck, C. A., Yard, S., Simpson, T., & Nelson, K. M. (2019). PTSD is associated with poor health behavior and greater body mass index through depression, increasing cardiovascular disease and diabetes risk among U.S. veterans. *Preventive Medicine Reports, 15*, 100930. doi.org/10.1016/j.pmedr.2019.100930

Lund, M. & Kvaavic, E. (2021). Methods used in smoking cessation and reduction attempts: Findings from help-seeking smokers, *Norwegian Institute of Public Health, 2021.* doi.org/10.1155/2021/6670628

Onor, I. O., Stirling, D. L., Williams, S. R., Bediako, D., Borghol, A., Harris, M. B., Darensburg, T. B., Clay, S. D., Okpechi, S. C., & Sarpong, D. F. (2017). Clinical effects of cigarette smoking: Epidemiologic impact and review of pharmacotherapy options. *Environmental Tobacco Smoke: Exposure and Effects, 14*(10), 1147. doi.org/10.3390/ijerph14101147

Patwardhan, P. D. & Chewning, B. A. (2010). Ask, advise, and refer: Hypothesis generation to promote a brief tobacco cessation intervention in community pharmacies. *International Journal of Pharmacy Practice, 17*(4), 221-229. doi.org/10.1211/ijpp/17.04.0005

Prochaska, J. J. & Benowitz N. L. (2016). The past, present, and future of nicotine addiction therapy. *Annual Review of Medicine, 67*(1), 467-486. doi.org/10.1146/annurev-med-111314-033712

Quinn, V. P., Hollis, J. F., Smith, K. S., Rigotti, N. A., Solberg, L. I., Hu, W., & Stevens, V. J. (2009). Effectiveness of the 5-As tobacco cessation treatments in nine HMOs. *Journal of General Internal Medicine, 24*(2), 149-154. doi.org/10.1007/s11606-008-0865-9

Ranganathan, P., Pramesh, C. S., & Buyse, M. (2015). Common pitfalls in statistical analysis: Clinical versus statistical significance. *Perspectives in Clinical Research, 6*(3), 169-170. doi.org/10.4103/2229-3485.159943

Rezaei, S., Sari, A. A., Arab, M., Majdzadeh, R., & Poorasi, A. M. (2016). Economic burden of smoking: A systematic review of direct and indirect costs. *Medical Journal of the Islamic Republic of Iran, 30*, 397. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5004566/

Sadeghi, M., Shabib, G., Masoumi, G., Amerizade, A., Shahabi, J., Heidari, R., & Roohafza, H. (2021). A systematic review and meta-analysis on the prevalence of smoking cessation in cardiovascular patients after participating in cardiac rehabilitation. *Current Problems in Cardiology, 46*(3), 100719. doi.org/10.1016/j.cpcardiol.2020.100719

See, J. J., Yong, T. H., Poh, S. K., & Lum, C. H. (2019). Smoker motivations and predictors of smoking cessation: Lessons from an inpatient smoking cessation programme. *Singapore Medical Journal, 60*(11), 583-589. doi.org/10.11622/smedj.2019148.

Stead, L. F., Koilpillai, P., Fanshawe, T. R., & Lancaster, T. (2016). Combined pharmacotherapy and behavioral interventions for smoking cessation. *Cochrane Database of Systematic Reviews, 3*(3). doi.org/10.1002/14651858.CD008286.pub3

Taylor, M. J., McNicholas, C., Nicolay, C., Darzi, A., Bell D., & Reed, J. E. (2014). Systematic review of the plan-do-study-act method to improve quality in healthcare. *BMJ Quality and Safety, 23*(4), 265-267. doi.org/10.1136/bmjqs-2013-001862

Tobacco Free Earth. (2022). *Quit smoking for better health: The top 10 reasons to quit*. https://tobaccofree.org/quit-smoking-for-better-health-the-top-10-reasons-to-quit/

Truth Initiative. (2022). *Tobacco use in Alabama 2021*. https://truthinitiative.org/research-resources/smoking-region/tobacco-use-alabama-2021

Udod, S., Wagner, J., (2018). Leadership and Influencing Change in Nursing, University of Regina Press. https://opentextbooks.uregina.ca/leadershipandinfluencingchangeinnursing/chapter/chapter-9-common-change-theories-and-application-to-different-nursing-situations/

United States. Public Health Service. Office of the Surgeon General. (2020). *Smoking cessation: The health benefits of smoking cessation. A report of the Surgeon General.* U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General. www.ncbi.nlm.nih.gov/books/NBK555590/

[redacted]

Waltz, T.J., Powell, B.J., Fernandez, M.E., Abadie, B., & Damschroder, L.J. (2019). Choosing implementation strategies to address contextual barriers: Diversity in recommendations and future directions. *Implementation Science*, *14*(42). doi.org/10.1186/s13012-019-0892-4

West, R. (2017). Tobacco smoking: Health impact, prevalence, correlates and interventions. *Psychology and Health, 32*(8), 1018-1036. doi.org/10.1080/08870446.2017.1325890

White, S.A., Stone, E., Murphy, K.A., Daumit, G., & McGingty, E.E. (2023). Smoking cessation medication prescribing for smokers with and without mental illness. *Psychiatric Services, 74*(4), 332-340. doi.org/10.1176/appi.ps.202100690

World Health Organization. (2023). *Quitting tobacco*. https://www.who.int/activities/quitting-tobacco

Wray, J. M., Funderburk, J. S., Acker, J. D., Wray, L. O., & Maisto, S. A. (2018). A meta-analysis of brief tobacco interventions for use in integrated primary care. *Nicotine & Tobacco Research, 20*(12), 1418-1426. doi.org/10.1093/ntr/ntx212

Appendix A

Participant Consent Form

TITLE OF STUDY: Using the 2As and R method to encourage referral to smoking cessation counseling in an urban pulmonary clinic.

Principal Investigator (PI): Jennifer Holloway, AG-ACNP, MSN, RN

Location: Pulmonary Clinic, [redacted] Birmingham

Facility Address: [redacted]

This consent form is part of an informed consent process for a Doctor of Nursing Practice (DNP) student project, and it will provide information that will help you decide whether you wish to volunteer for this project. It will help you to understand what the project is about and what will happen during the project.

If you have questions at any time during the project, you should feel free to ask them and should expect to be given answers that you understand entirely.

After all your questions have been answered, you may participate in the educational session if you still wish to participate in the project.

You are not giving up any of your legal rights by volunteering for this research project. The participants identity will only be attainable through the consent forms which will remain with the principal investigator and not be disclosed within any other project materials or otherwise. They will be destroyed following the conclusion of the project.

Why is this project being done?

This project aims to increase the referral of patients who smoke to the smoking cessation program by using the 2As and R method as a standardized intervention to assess readiness to quit and improve the referral process. Following the implementation of the project the number of referrals will be evaluated and the effectiveness of the intervention assessed for continued use or modification.

What will you be asked to do if you take part in this DNP project?
The PI will ask you to participate in a 20- minute educational session. Educational materials will be left in the clinic for reference. You will use the information to determine if referral to the smoking cessation program in the pharmacy is appropriate. In two months, the PI will evaluate the number of referrals.

What are the risks or discomforts you might experience if you take part in this project?

No expected harm can occur from participating in this study. This project has no influence or involvement from upper management, and participation is voluntary. You may withdraw from participation at any time without penalty or loss of benefits by notifying the Principal Investigator, Jennifer Holloway, at jbogan@stu.jsu.edu.

Participation in this project is of no cost to you.

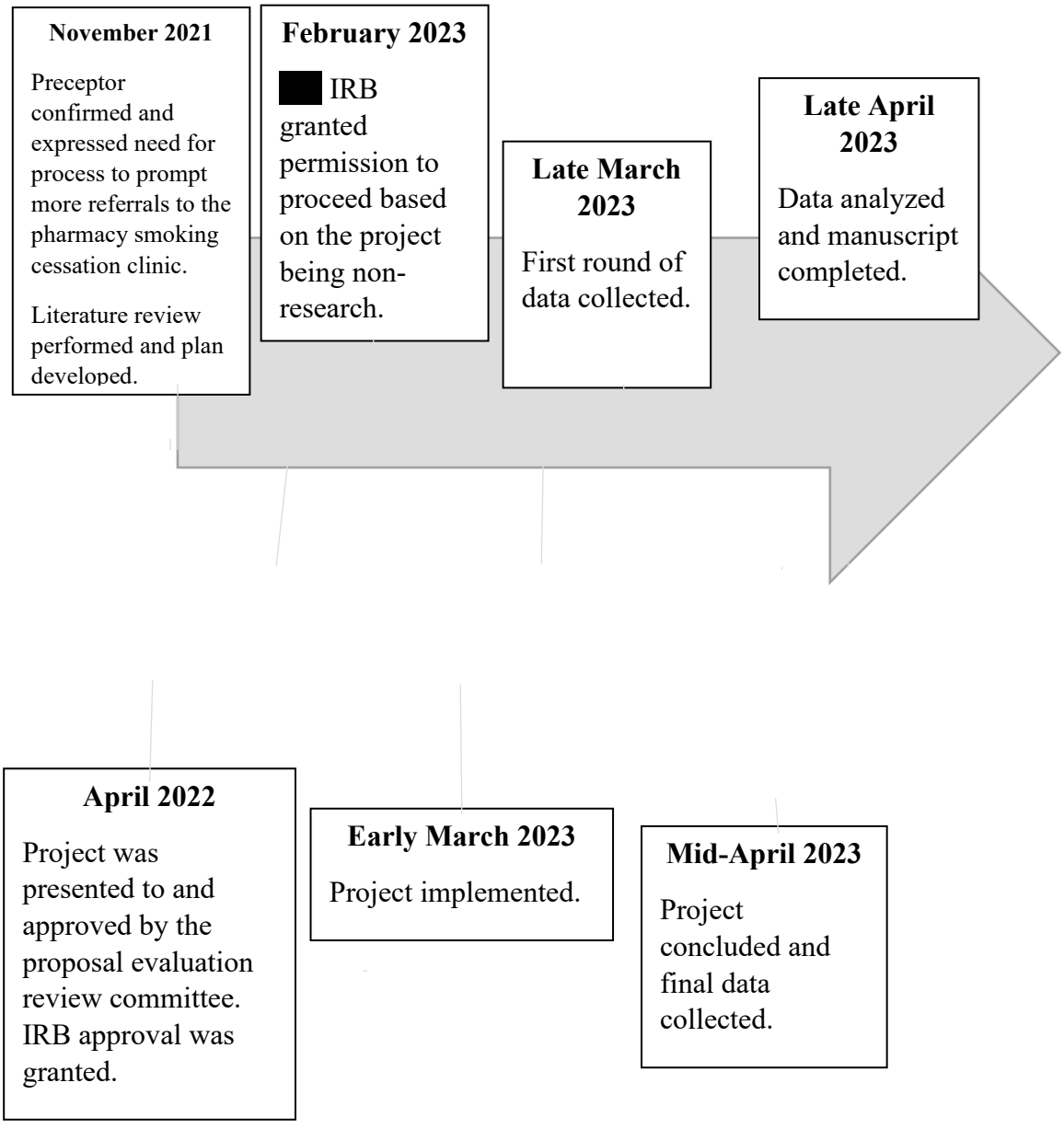
I have read and understand the above information and willingly agree to participate in this DNP project.

_____ _____

Participant Signature Date

Appendix B

Project Timeline



Appendix C

Jacksonville State University IRB Approval

INSTITUTIONAL REVIEW BOARD
JACKSONVILLE STATE UNIVERSITY

Institutional Review Board for the Protection of Human Subjects in Research
249 Angle Hall
700 Pelham Road North
Jacksonville, AL 36265-1602

April 26, 2022

Jennifer Holloway
Jacksonville State University
Jacksonville, AL 36265

Dear Jennifer:

Your project "Using the 2 As and R method to encourage referral to smoking cessation counseling in an urban pulmonary clinic." 04262022-02 has been granted exemption by the JSU Institutional Review Board for the Protection of Human Subjects in Research ORB). If your research deviates from that listed in the protocol, please notify me immediately. One year from the date of this approval letter, please send me a progress report of your research project.

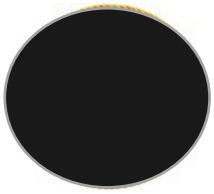
Best wishes for a successful research project.

Sincerely,

Lynn Garner
Associate Human Protections Administrator, Institutional Review Board

Appendix D

[redacted]



Date: **March 1, 2023**

To: **Jennifer Holloway, DNP**
Principal Investigator

From: [redacted]

Protocol Title: **[1738817-1] Using the 2As and R Method for smoking cessation referrals**

Review Type:

Action:

Determination Date:

The following comments were recorded for this submission:

[redacted] (Review Marked Complete 02/27/2023):
IRBNet ID: 1738817-1
Recommendation: Modifications Required
Special Designation: Primary Reviewer

This should be fine as non-research QI since it is assessing whether informing clinicians of a best-practice increases local referrals and is not designed to contribute generalizable knowledge. Please submit a signable/fillable version of the determination request.

Appendix E

Letter of Support

[redacted]
Medical Center
[redacted]
Birmingham, AL 35233

[redacted]

To whom it may concern,

This letter is to express my support for the having the DNP project using the 2 As and R (ask, advise, and refer) for smoking cessation to be conducted in the Birminghan[redacted]pulmonary clinic. The Birmingham [redacted]as a great pharmacy led smoking cessation program and we want our clinicians to be more aware of it and refer more patients there. Here in the pulmonary clinic, we have a large number of smokers and it would provide great benefit if more patients were referred to the smoking cessation program.

Thank you,

Celestine Dent-Parker

Pulmonary Clinic Nurse Practitioner

Appendix F

CITI Training Certificate

Completion Date 25-Sep-2021
Expiration Date 24-Sep-2024
Record ID 45305620

This is to certify that:

Jennifer Holloway

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Social and Behavioral Responsible Conduct of Research
(Curriculum Group)
Social and Behavioral Responsible Conduct of Research
(Course Learner Group)
1 - RCR
(Stage)

Under requirements set by:

Jacksonville State University

Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wd9e5a866-f62f-47c2-a2de-3bfd72882a23-4530562 0

Appendix G

Budget and Resources

Resource	Cost
Paper products	$16.81
Refreshments	$64.46
Total	$81.27