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Implementation of a Smoking Cessation Program in a Multidisciplinary Clinic

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Implementation of Smoking Cessation Program in an Outpatient Clinic

Tobacco use remains the solitary, most preventable cause of death and secondary disease among patients in the United States (US). Health-related smoking costs are in an excess of \$300 billion yearly (CDC, 2018). Addressing this global, public health concern is vital in order to attempt to reduce unnecessary smoking-related comorbid conditions and death.

This project is important to scholarly nursing practice in order *to* reduce smoking-related Chronic Obstructive Pulmonary Disease (COPD) exacerbations, reduce carbon monoxide (CO) levels, and reduce dyspnea on exertion (DOE) among current primary care smokers. The expectations of this project are for the doctoral of nursing practice (DNP) student to implement a personalized, clinic-based smoking cessation program to reduce nicotine dependence in order to reduce the harmful outcomes of smoking and to improve the patient's quality of life.

Problem Statement

Smoking cigarettes kill an estimated 480,000 patients in the US annually (CDC, 2018). Patient knowledge regarding smoking cessation is necessary to minimize negative effects of tobacco use. There is a great need for this personalized smoking cessation program to be implemented to keep patients informed of strategies to reduce nicotine dependence. The clinic's mission statement is "Our mission is Life." Therefore, screening the patient's level of nicotine dependence and implementing a personalized smoking program will improve negative effects of smoking among current smoking patients in this primary care clinic.

There is no current, clinic-based smoking cessation program implemented at this primary care clinic nor is there additional time for the providers to offer smoking cessation counseling. Patients are admitted to the hospital with smoking-related co-morbid conditions at gigantic proportions. This is catastrophic to the patient's health and to the financial stability of the health

care facility. Some patients are not aware of the harmful effects of smoking and need to be educated in a face to face manner by the providers. According to Lancaster and Stead (2017), intensive smoking cessation counselling provided in the clinical setting is extremely effective.

Provider's professional advice to patients regarding smoking cessation results in facilitating the transition of the smoking cessation process among current smoking patients. In addition, providers who systematically followed up with patients routinely regarding smoking cessation showed greater improvement of smoking cessation results. The level of motivation among smokers also play an integral part in smoking cessation (Stead et al., 2013). According to Berndt (2014), smoking cessation programs are the greatest effective strategy to reduce multiple comorbid conditions including coronary heart disease (CHD).

There is a need for this project implementation at this clinic due to overwhelming evidence that face-to-face counselling regarding smoking cessation can assist patients in diminishing nicotine dependence. Intensive counselling has been shown to be more effective in smoking cessation versus brief counselling (Lancaster & Stead, 2017). Evidence supports the fact that smoking causes unnecessary deaths, therefore, this is a worthy project to implement in order to reduce deaths related to tobacco use.

Costs incurred related to this project include purchasing a CO monitor, copy paper for questionnaires, patient folders, and a file cabinet. The insurance reimbursement for smoking cessation counselling far exceeds the costs that will be incurred (see Appendix C for further information regarding the project budget). Resources for this project include the Fagerstrom Test for Nicotine Dependence (FTND) and the Medical Research Council (MRC) Dyspnea Scale to measure patient improvement throughout the duration of the project. The stakeholders involved with this proposed project are the patients, administrators, physicians, nurse practitioners, and

nurses and medical assistants. The stakeholders are directly affected by the DNP project outcomes. Input and suggestions from the physicians, nurse practitioners, and administrators must be obtained prior to the implementation of the DNP in order to have a successful outcome and sustainability (Harris, 2016).

Other work that will be done that is worthy of pursuing this project is maintaining stakeholder support. This can be done by keeping the stakeholders informed on the progress during the project implementation. Engaging the stakeholders in the entire project lifecycle and providing positive results regarding patients' smoking cessation will ensure that the providers will remain engaged during the project implementation (Polancich, Roussel, & Miller, 2017).

Project Purpose

The overall purpose of this project is to reduce nicotine dependence among current smokers in this primary care setting. Once nicotine dependence is reduced, CO levels will fall to zero, DOE among smokers will subside, and COPD exacerbations and hospital admissions just decrease. The project AIM is to offer a personalized, clinic-based smoking cessation program to 100% of patients who currently smoke in a multidisciplinary, outpatient clinic.

The first objective for this DNP project is to *decrease* the level of nicotine dependence in 100% of all adult patients participating in the clinic-based smoking cessation program. Next, the DNP student will attempt to decrease CO levels to a measurement of 0% in 100% of all adult patient participating in the clinic-based smoking cessation program. The final objective is to decrease DOE in 100% of all adult patients participating in the clinic-based smoking cessation program. The goal is for all objectives to be obtained by the final visit over a 12-week period.

Clinical Question

(P) In adult smokers who are current patients in a multidisciplinary clinic, (I) does the implementation of a clinic-based, personalized smoking cessation program, (C) verses no current program, (O) reduce nicotine dependence use among smokers (T) over 12 weeks.

Review of Literature

Literature was synthesized and findings proved that implementation of a smoking cessation program in primary care is the single most effective strategy to reduce nicotine use among current smoking patients. Barriers to the implementation of smoking cessation programs in primary care involved limited resources, time, and limitations in patient follow up after the office visit (Berndt, 2014). Smoking remains a public health issue and smoking cessation programs should be implemented to address this priority (CDC, 2018).

Appraisal of the literature was conducted and studies were selected that supported the AIM, had appropriate methodology, and provided clinical significance of smoking cessation. According to Berndt (2014), intensive telephone and face-to-face smoking cessation behavioral interventions facilitate smoking cessation. This study found that patients who were involved with personalized, telephone and face-to-face smoking cessation counselling showed a significant increase in smoking abstinence versus patients who completed care as usual. Berndt described the process of smoking cessation as incorporating strategies such as preparation, action, and maintenance. Patients were encouraged to prepare for implementation, plan, possess the desire to quit, and plan for follow up treatment. Future studies are needed to continue to investigate how patients can continue to benefit from smoking cessation interventions in primary care (Berndt et al, 2014).

In spite of significant knowledge regarding the process of nicotine addiction and smoking cessation interventions, one gap in research includes the phenomena that smoking cessation counselling among patients with COPD is less successful than desired (Klinke & Jonsdottir, 2014). Smoking intensifies unnecessary co-morbidities conditions including death, therefore gaps in practice need to be resolved so all smokers can receive intensive, smoking cessation counselling. Furthermore, evidenced based smoking cessation tools should be administered to all smoking patients in the clinical setting to assist with smoking cessation strategies (see Appendix D for literature review matrix).

Determining the merit of a literature review involves examining the coherent project as a whole from beginning to end. Areas that should be examined include the methodology, variables, data analysis, and quantitative studies. (Buckner, Hall, Roussel, & Jones, 2014). The proposed interventions are to implement a smoking cessation program utilizing evidence-based strategies validated by research. The first EB tool is the Fagerstrom Test for Nicotine Dependence (FTND). This tool measures the patient's level of nicotine dependence (Parashar et al., 2016). The next level of measurement is the patient's CO level. A CO level of zero confirms smoking abstinence (Perkins, Karelitz, & Jaco, 2013). The next EB tool for implementation is the Medical Research Council (MRC) Dyspnea Scale. This tool measures the degree of the smoker's DOE (Stenton, 2008). Finally, motivational interviewing will be used by following the DARN-CAT continuum to identify the patient's willingness to abstain from smoking and to provide optimal goals to remain abstinent (Resnicow, Gobat, & Naar, 2015).

Quality Improvement Model

The American Nurses Association (ANA) promotes standards to guide the DNP student's strategies to implement quality measures and practice excellence. These practice guidelines

encompass areas that focus on implementing quality improvement initiatives in healthcare to improve patient outcomes (ANA, 2019). Quality improvement describes using a systematic framework in order to improve health care by analyzing current data and implementing measurable and sustainable strategies. The Model for Improvement has been selected to guide this project implementation.

This model uses strategies such as the Plan-Do-Study-Act (PDSA) cycles to guide the DNP student during project implementation. The PDSA Worksheet initially guides the DNP student to develop the “who, what, where, and when” of data collection. The next step of the PDSA is to carry out a pilot test and begin to analyze data followed by summarizing the research findings. Finally, the PDSA refines change based on what was learned from the data analysis.

The Model for Improvement will assist the DNP student to construct clear goals of what needs to be accomplished, identify how change will be achieved, and evaluate how implemented change will result in improvement (Institute for Healthcare Improvement, 2018). The overall goal of the project is decrease nicotine dependence among current smoking in order to improve healthcare and decrease the harmful effects related to smoking.

Evidence-Based Practice Model

The Transtheoretical Model (TTM) is the selected evidence-based practice (EBP) model to guide the project implementation. This model focuses on stages of change and is extremely beneficial in the diagnosis and treatment of patients who suffer from substance abuse. The TTM guides the DNP student to assist patients through the process of smoking cessation by focusing on the individual’s decision-making strategies to initiate and sustain change. The TTM’s six stages of change are precontemplation, contemplation, preparation, action, maintenance, and termination. For this project, the DNP student will focus on the contemplation, preparation,

action, and maintenance stages of change the stages involve the patient's decision to initiate change, the patient taking steps in the near future to change, the actual process of change, and the self-efficacy to maintain lasting change (Sarbandi, et al., 2013).

During the contemplation state, the DNP will initiate the smoking cessation visit with the patient to identify the degree of motivation to consider smoking cessation. The preparation stage will consist of the DNP student providing outpatient counselling to the patient to provide a detailed and personalized plan for smoking cessation. The action phase consists of the patient's actual efforts to decrease nicotine dependence. This involves identifying triggers and setting goals for smoking cessation. The maintenance stage involves follow up with the DNP student to evaluate possible relapse, discuss the option of continued counselling, and ensure sustainability of smoking cessation long-term (Sarbandi, et al., 2013).

Nursing Theory

The nursing theory selected is Nola Pender's Health Promotion Model. This model was designed to increase the patient's level of well-being by focusing on health as a dynamic and self-motivated state versus simply a disease process. The Health Promotion Model will guide the DNP project in improvement in healthcare outcomes by evaluating the patient's motivation to change the current behavior of smoking. Strategies that will be used for this smoking cessation project will include, addressing barriers, identifying personal and interpersonal influences, and avoiding known triggers for smoking. Additional areas to investigate are the patient's self-efficacy, level of commitment, and motivation to attend smoking cessation counselling. Finally, the DNP student will provide constructive reinforcement to endorse positive, health-promoting choices to ensure smoking cessation longevity (Thomas, Hart, & Burman, 2014).

Project Methodology

The participants selected for this study are current, adult smokers who are currently patients at this multidisciplinary clinic. Inclusion criteria includes any patient 18 years and older, either gender, current smoker, or willing participants. Exclusion criteria include patients who solely use smokeless tobacco, use e-cigarettes, or patients who do not wish to participate in smoking cessation counselling. The goal is to provide counselling to at least 50 patients for an initial and follow up appointment over a 12-week time span. The smoking cessation setting will take place in two exam rooms at the outpatient clinic.

One major issue that may have negative impacts on this project is a lack of patient participation in the smoking cessation counselling program. Other possible concerns that may have adverse impacts on this project include lack of referrals from nurses and a lack of patient motivation to take necessary steps to ensure the sustainability in smoking cessation. Finally, common failures of smoking cessation attempts are caused by fear of relapse and hopelessness feelings regarding the addiction of cigarette smoking (Resnicow, Gobat, & Naar, 2015).

Data measurements that will be obtained are tools to measure nicotine dependence scores, measure CO levels, and measure DOE limitations. The first quantitative tool for implementation is the FTND which will measure nicotine dependence. This tool will be administered on the initial and on the final visit to compare pre and post numerical values of nicotine dependence scores (see Appendix A for information on the FTND Tool). A numerical value of 1-2 (low dependence), 3-4 (low to moderate dependence,) 5-7 (moderate dependence), 8 or greater (high dependence) (Parashar et al., 2016).

The next quantitative tool for implementation on the initial visit and on the final visit is the MRC Dyspnea Scale to compare numerical values of dyspnea on exertion. The MRC

Dyspnea scale ranges from 1 (only dyspneic during strenuous exercise) to 5 (too dyspneic to leave the house) (Tottenborg, et. al., 2016). The MRC Dyspnea Scale (see Appendix A for more information regarding the MRC Dyspnea Scale) will measure levels of dyspnea on exertion. This tool quantifies the disability related to breathlessness. The final quantitative measurement is recording CO levels in patients on the initial and final visit to obtain a score of zero to confirm smoking abstinence (Perkins, Karelitz, & Jaco, 2013).

One study estimated the reliability of the FTND using the Cronbach's alpha coefficients. The reliability was consistent with predictions and reached the Cronbach's alpha threshold of $>.70$. The FTND has a high validity and has been proven through EB research that it accurately measures what it is intended to measure. This instrument has been reported a useful measure to predict nicotine dependence, cravings, and relapse in current smokers (Gonzalez-Roz, Secades-Villa, & Muniz, 2018). The validity of the MRC Dyspnea tool has been shown to be effective due to its 98% agreement between clinical observations or breathlessness and the patients' MRC scores. Reliability using the Cronbach's alpha coefficients showed a value of $>.8$ and has been proven to be consistent in measuring dyspnea among smokers (Tottenborg, et. al., 2016).

Intervention and Data Collection

Properly planning for the administration of interventions prior to project implementation is necessary to ensure an effective process for collecting accurate data (see Appendix B for process map information) The participants selected for this study are adult smokers who are current patients and are willing to participate smoking cessation counselling. Two quantitative tools will be implemented to measure the effectiveness of the project's intervention implementation.

FTND administration on the initial and final visit for comparison of pre and post numerical values will determine the patient's nicotine dependence score (Parashar et al., 2016). Implementation of MRC Dyspnea Scale on the initial and on the final visit to compare numerical value of DOE to follow the patient's progress during the smoking cessation program (Tottenborg, et. al., 2016). The measurement of CO levels each visit will confirm smoking abstinence. Lastly, utilizing motivational interviewing techniques such as the DARN CAT continuum at each visit will measure the patient's progress through the smoking cessation program (Resnicow, Gobat, & Naar, 2015). This project will be implemented over a 12-week time span during the summer semester of 2019. Patients will be seen for an initial visit and every week for follow up. Data will be collected at each visit for comparison and to track success in the process of smoking cessation.

Patients will be referred by nurses, medical assistants, and providers through the EPIC electronic health record's (EHR) ambulatory referral system. Four in-services were provided to nurses, medical assistants, and providers to educate on the need for a clinic-based smoking cessation program. Current statistics were provided to the staff regarding the global public health crisis of tobacco use and the cost that are incurred due to smoking related illnesses. Staff were also educated on the referral process through the EHR at the clinic (CDC, 2018).

The DNP student will call all patients prior to the appointment date to confirm the patient's arrival and provide clarity if needed. Once the patient arrives for the appointment, the DNP student will assist the patient with the completion of the EB tools and provide MI techniques to identify barriers to smoking and benefits of smoking cessation. Goals will be set by the patient prior to discharge and follow up appointments will be made by the DNP student.

The need for this project is supported to research conducted by Berndt (2014), who has proven that intensive, face-to-face smoking cessation behavioral interventions facilitate smoking cessation and will have significant impact on the success rate and adherence of smoking cessation. This project implementation will be conducted to decrease nicotine dependence and improve the overall quality of the patient's life.

Evaluation Plan

Meaningful information in research can be organized in a format that is easily interpreted (Thomas & Bleich, 2018). Data will be analyzed by differentiating dependent outcomes and independent variable using histograms and frequency distributions. Another way data will be collected is by using Pearson or Spearman rank-order correlations, paired t-tests and independent ANOVA analysis. The DNP student will perform all data analysis.

The outcomes based on performance measures that will be measured to determine the effectiveness of this project will include measures that are important to effectiveness. Aligning supporting evidence by the DNP student requires collecting data that is pertinent to the subject matter of the project to be implemented (Dearman, Chappel-Aiken, & Davis, 2020). The stakeholders are directly affected by the DNP project outcomes. Input and suggestions from the physicians, nurse practitioners, and administrators must be obtained prior to the implementation of the DNP in order to have a successful outcome and sustainability (Harris, 2016).

This project is scientifically sound and is based on current evidence-based practice guidelines of quality and efficacy. Smoking cessation has been addressed in primary care in the past by simply providing patients with smoking cessation pamphlets. This type of smoking cessation attempts has been shown to be ineffective. Strategies that will be used to encourage smoking cessation will be evidenced-based, measurable, and quantitative in measure (Hall &

Roussel, 2018). This project is also cost effective due to reimbursement from insurance companies for intensive smoking cessation counselling.

Doctoral education focuses on obtaining knowledge regarding best practices and using evidence-based guidelines in order to translate evidence into practice (Harris, 2016). Strategies to address this public health problem will be the implementation of tools that have been shown to be effective for smoking cessation. Feasible, quantitative tools will be implemented to determine level of nicotine dependence, degree of smoking abstinence, and the degree in which the patient desires to quit smoking. Further evidence-based tools and strategies involve the measurement of activities of daily living, breathlessness degree. Lastly, motivational interviewing techniques will be used face-to-face and via smart phone devices to provide ongoing support during the smoking cessation process.

Evaluation is used to improve and demonstrate the merit of the project and to improve the implemented smoking cessation program. This is the rationale for choosing how this project was evaluated. Evaluation was used in this projected implementation to increase knowledge of how to create and implement a sustainable smoking cessation program. The overall project evaluation includes purpose, stakeholders, the gathering of relevant evidence and building a consensus which validates EB practices (Thomas & Bleich, 2018).

This change project will be sustainable since data collected showed positive outcomes in smoking cessation among patients at this multidisciplinary clinic. Through the project implementation, a need for a smoking cessation team was discovered. There is no time built in to the current practitioner's schedule to maintain intensive smoking cessation counselling. According to administration, a position will be created for a smoking cessation team to continue with this effective, clinic-based smoking cessation program.

Significance to Advance Practice Nursing

Tobacco abuse remains one of the highest priorities to deter of all public health problems. Smoking cessation programs are needed in primary care to thwart the negative effects of smoking. Implementing a personalized, clinic-based smoking cessation program in a multidisciplinary clinic will be effective in reducing COPD exacerbations, decreasing nicotine dependence, reducing CO levels, and reducing DOE among current patients who use tobacco. If the measurements of the EB tools collected increase, the patient's quality of life will improve.

This project will positively affect the care implemented for smoking cessation since this project will generate a newly implemented smoking cessation program. The project will have been evaluated for positive and negative outcomes and could be adjusted for use by the providers and staff who will be members of the new smoking cessation team. Areas will be addressed that need improvement and these areas can be corrected for future smoking cessation encounters in order to improve patient outcomes and guarantee positive smoking cessation results.

Identifying key stakeholders, determining best-practice strategies for implementation, and utilizing current evidenced based studies regarding smoking cessation will assist the DNP student in implementing a sustainable DNP project. The Administration has expressed an interest in developing a smoking cessation team to ensure sustainability after the DNP project implementation has ended. Smoking cessation teams will be implemented in this and all clinical settings to tackle this global problem. Further research and is needed to increase the spread of smoking cessation in the clinical setting to decrease the negative outcomes of smoking and improve overall quality of life.

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Appendix A

Medical Research Council (MRC) Dyspnea Scale

1	Breathless only with strenuous exercise
2	Short of breath when hurrying on the level or up a slight hill
3	Slower than most people of the same age on a level surface or has to stop when walking at my own pace on the level
4	Stop for breath walking 100 meters or after walking few minutes At my own pace on the level
5	Too breathless to leave the house

Fagerstrom Test for Nicotine Dependence – Revised (FTND-R)

Items	Scoring Criteria
1. How many cigarettes ad day do you smoke?	0= less than 10 1= 11-20 2= 21-30 3= 31+
2. Do you smoke more in the morning that the rest of the day?	0= never 1= sometimes 2=most of the time 3= always
3. How soon after waking do you smoke?	3= within 5 minutes 2= 6-30 minutes 1= 21-30 minutes 0= after 60 minutes
4. Cigarette you would hate to give up most.	1= first in the morning 0= all others
5. Do you find it difficult to refrain from smoking in places where it is forbidden	0= never 1= sometimes 2= most of the time 3= always
6. Do you smoke if you are so ill that you are in bed all day?	0= never 1= sometimes 2= most of the time 3= always

Fagerstrom Test for Nicotine Dependence- Revised Scoring for Dependency

Score of 1 - 2

A patient who scores between 1 and 2 on the Fagerstrom Test for Nicotine Dependence is classified as having a low dependence on nicotine. This suggests that they may not need Nicotine Replacement Therapy (NRT), although it is recommended that they still be monitored for withdrawal symptoms.

Score of 3-4

A patient who scores 3 or 4 would be considered to have a low to moderate dependence on nicotine and could be offered patches, inhaler, lozenges or gum.

Score of 4-5

A patient who scores 4 would be considered to be moderately dependent on nicotine and can be offered patches, inhaler, lozenge or gum. They can also be offered the combined therapy of patches with lozenge and gum.

Score of 7 and over

A patient who scores greater than 7 would be considered to be highly dependent on nicotine and can be offered patches, inhaler, lozenge or gum. They can also be offered the combined therapy of patches with lozenge and gum.

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