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The Impact of Discharge Teaching on COPD Readmissions

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The Impact of Discharge Teaching on COPD Readmissions

by

Anita Thurman

A DNP project submitted to the faculty of
Gardner-Webb University Hunt School of Nursing in
partial fulfillment of the requirements for the degree of
Doctor of Nursing Practice

Boiling Springs, NC

2018

Submitted by: Approved by:

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Abstract

The purpose of this evidenced-based project was to answer the question: Does using a formalized discharge list identifying key educational topics regarding the patient's disease process decrease readmission risk for COPD patients? This study used all COPD patients admitted over a two-week period who consented to receiving one-on-one detailed COPD education (n=33). Participants were provided education utilizing a COPD educational tool that addressed topics pertaining to the transition from the hospital back home, inhaler techniques and use, common questions to ask the provider before being discharged, smoking cessation, and identifying the warning signs of an exacerbation were among the few topics covered. One-on-one educational sessions were scheduled at minimum for one hour and available seven days a week.

Post-implementation of the evidenced-based project, a simple regression analysis was completed to test the variables of length of stay, age, sex, race, smoking status, and payor source. Based on these statistics, length of stay was the only significant variable. Seven patients who participated in this project were readmitted to the hospital. Readmissions were more common among former smokers and males. In conclusion, utilizing a COPD education tool to provide education had little impact on readmissions alone.

Keywords: *COPD, COPD exacerbations, readmissions, discharge education, hospital discharge, transition model, transition of care, and Meleis Transition Theory.*

Dedication

     I would like to dedicate this project to my late father and mother, Daniel and Carlesta Lane. Their guidance and love has made me the strong woman I am today. You both are forever on my mind and in my heart. Rest in peace.

Acknowledgements

A heartfelt thanks to my loving husband Franklin for his support, listening ear, and unconditional love during this journey. Thanks to my amazing sons, Henry and Jonathan, for your patience and support, I am truly blessed to have wonderful sons like you two. An abundance of gratitude goes to my sister Crystal for her prayers, words of encouragement, and listening ear as I vented my frustrations during this process and my dear father-in-law and mother-in-law for their assistance. Many thanks to Dr. Isaac-Dockery.

I would like to thank my organization for their support and the opportunity to make a difference in the care provided to our patients. Finally, I would like to thank my friends and colleagues for all the encouraging words and acts of kindness.

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SECTION I

Problem Recognition

Identified Need

Chronic Obstructive Pulmonary Disease (COPD) is a serious health problem in the United States. In 2008, the third leading cause of mortality was contributed to chronic lower respiratory disease which is a principal component of COPD (Ford et al., 2014). People with COPD experience poor quality of life and more disabilities resulting in the higher rates of comorbidities than people without COPD (Engstrom, Persson, Larsson, & Sullivan, 2001). These comorbidities and continued disease exacerbation result in frequent emergency department visits and hospitalizations. COPD is estimated to cost the United States $53.7 billion dollars (Ford et al., 2014). The expenditures for readmissions have subsequently made readmission rates a priority measure of quality. Centers for Medicare and Medicaid Services (CMS) monitor readmission rates in acute care hospitalizations for patients 65 years of age and older who experienced an unplanned readmission for any cause within 30 days of the original hospital visit for COPD or respiratory failure (Centers for Medicare and Medicaid Services, 2013). Early readmissions can both increase morbidity and result in disease progression (Tiep, Carlin, Limberg, & McCoy, 2015). Reducing early readmissions improve patient outcomes and decreases the financial strain placed on hospitals.

Problem Statement

Factors highlighted as ongoing reasons for readmissions are thought to be contributed by premature discharge from the hospital, poor discharge medication reconciliation, lack of patient and family education on disease management, and lack of

communication between the acute care provider and primary care provider for patient (Laverty, Elkin, & Watt, 2015). Utilizing a discharge tool that guides the educational concepts on COPD will assist in addressing multiple facets identified as weakness, opportunities, and/or threats among COPD patients. Among these are key points identifying early signs and symptoms to report to their primary care provider, in addition to post-acute resources (pulmonary rehabilitation) and medication compliance with return inhaler demonstration. Utilizing established guidelines outlined by the COPD Foundation, patients will receive education about their disease process, smoking cessation, symptoms management, discharge medication review, and post discharge services (Yawn et al., 2017). This projects aim was to determine if utilization of a focused discharge tool and education reduced COPD readmissions compared to patients that did not have focused discharge education prior to the project implementation.

Literature Review

Chronic Obstructive Pulmonary Disease (COPD) affects 15 million Americans; nearly one in five hospital patients older than age 40 is diagnosed with COPD (Wier, Elixhauser, Pfuntner, & Au, 2011). Chronic Obstructive Pulmonary Disease is one of the most common causes of hospitalization or readmissions (Wier et al., 2011). Patients with COPD have cycles of exacerbations related to worsening respiratory symptoms (difficulty breathing and excess mucus production), therefore increasing their morbidity and mortality (Wier et al., 2011). COPD exacerbations result in 700,000 hospitalizations per year with an in-hospital mortality of 2.5% (Wier et al., 2011). COPD is characterized as being a chronic and progressive disease for which there is no cure. Statistically, one in five patients hospitalized with an exacerbation of COPD will be readmitted within 30

days (Shah, Press, Huisingh-Scheetz, & White, 2016). An extensive review of the

literature revealed that using detailed, standardized education to assist in guiding key

points about symptom management, pulmonary rehabilitation, medication compliance

with return demonstration of inhalers, and discharge appointments are all interventions

providing pioneering and evidence-based methods to avert the readmission of patients

with enduring diseases (Bourbeau et al., 2003). A review of clinical guidelines according

to Global Initiative for Chronic Obstructive Lung Disease (GOLD) standards report

enabling patients to build knowledge and skill through appropriate education on key

topics as discussed above may play a role in improving skills, along with the ability to

cope with the illness (Vestbo et al., 2013). GOLD guidelines note using a one on one

interactive communication approach empowers the patient to take greater responsibility

for their health and well-being (Vestbo et al., 2013). According to the GOLD Executive

Summary, the hospital provides a unique opportunity to address key interventions of

successful disease management (Vestbo et al., 2013). Authors report education on

smoking cessation, inhaler technique, spirometry measurement, and controlling other

comorbidities will result in successful transitioning of care and disease management

(Vestbo et al., 2013)

Many hospitals utilized standardized protocols to treat COPD exacerbations on

the acute care side. Protocols are multidisciplinary and focus on treating COPD

exacerbations with systemic corticosteroids and antibiotics to shorten the recovery time

(Brown, Johnson, DeRonne, Parenti, & Rice, 2016). Treatment with long acting

bronchodilators and inhaled corticosteroids are also a component of treatment protocols

(Brown et al., 2016). These protocols are evidence based; however, research has shown

multiple reasons patients are readmitted to a hospital. Approximately 10-55% of readmissions for an acute exacerbation of COPD may be preventable (Shah et al., 2016). Factors highlighted as ongoing reasons for readmissions are thought to be contributed by premature discharge from the hospital, poor discharge medication reconciliation, lack of patient and family education on disease management, and lack of communication between the acute care provider and primary care provider for the patient (Laverty et al., 2015). Educational interventions focus on providing patients with the skills and knowledge to deal with the limitations caused by their disease (Blackstock & Weber, 2007). There are promising results from research that shows education improves the quality of life and improves health care utilization (Blackstock & Weber, 2007).

GOLD Recommendations

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) was designed to bring further attention to the management and prevention of COPD. The executive summary provides guidance on principles and drug classes to be applied, and national guidelines to assist in building the assessment and management principles suggested by GOLD. The discharge bundle identified for use is one developed by the COPD Foundation, based on Global initiative for Chronic Obstructive Lung Disease (GOLD) recommendations (Vestbo et al., 2013). The COPD Foundation took the 75-page GOLD executive summary and condensed these guidelines into a short summary guide. Information was broken down into a 14 page booklet that covers topics to help manage COPD (The COPD Foundation, 2014). Contents of this booklet focus on management of COPD by listing resources to help with smoker cessation, effective inhaler and oxygen use, medication adherence, maintaining follow up appointments, and exacerbation

symptoms (Vestbo et al., 2013). A meta-analysis which included four random control trials across three countries determined the use of COPD discharge bundles which reduced hospital readmissions by 20% (Ospina et al., 2017). COPD discharge bundles have been advocated by numerous researchers as a means of reducing 30-day readmissions. After introducing bundles into the discharge process for one hospital, 30-day readmissions decreased from 23.21% to 17.78% over a 12-month period (Winn, Noone, & Buxton, 2011). Although the tools utilized in previous research varied in format, the components remained the same as those listed in the COPD Foundation discharge education tool and checklist.

Significance of COPD Readmission

Quality initiatives and management programs for COPD have increased pressure on hospitals to reduce readmissions. Excessive readmission beyond 30 days of the index visit resulted in penalties, and with the rising cost within healthcare along with decreasing payments, hospitals are investing numerous resources into this ongoing issue. Centers for Medicare and Medicaid Services (CMS) began penalizing hospitals for 30-day readmissions on October 1, 2012 at 1%, upping the penalty rate to 2% for fiscal year 2014 (Centers for Medicare and Medicaid Services [CMS], 2016). CMS increased the maximum penalty for excess readmissions to 3% for fiscal year 2015 (CMS, 2016). The average cost for a COPD readmission with COPD as a principle diagnosis is $8,400 dollars with a readmission rate of 7.1%. The average cost of a COPD readmission is $10,900 dollars with a 17.3% readmission rate. The average COPD readmission costs 118% of an initial COPD admission, which averages $7,100 dollars (Elixhauser, Au, & Podulka, 2011).

Collaborative Recommendations

Frequent exacerbations of COPD are an important cause of the considerable morbidity and mortality found with this disease, in addition to poor quality of life (Soler-Cataluña et al., 2005). Exacerbations are associated with substantial symptomatic and physiological deterioration, though there is little information available about the onset and duration of recovery from the exacerbation (Seemungal, Donaldson, Bhowmik, & Wedzicha, 2000). Patients who suffer with recurrent exacerbations have shown a faster decline in lung function. One study completed showed frequent exacerbations had a deterioration in forced expiratory volume (FEV) compared to those with no or infrequent exacerbations (Donaldson, Seemungal, Bhowmik, & Wedzicha, 2002). These recurrent exacerbations lead to hospitalizations creating economic burden related to the treatment of COPD. Unplanned hospital readmissions are a common and costly problem especially among the elderly and high-risk patients. One in five Medicare beneficiaries are readmitted within 30 days, driving policy makers and payers to focus on methods to decrease the cost associated with what is considered an avoidable event (Leppin et al., 2014). Payers, healthcare organizations, and regulators, including the Institute of Healthcare Improvement, promote utilizing readmissions as a hospital quality indicator. The focus on readmission brings forth a challenge for hospitals as they represent uncompensated services leaving hospitals looking for strategies to reduce or prevent readmissions. As hospitals implement their own strategies to reduce COPD readmissions, continual struggle of being successful is noted. In developing interventions, it is essential to know if demographics and what other contributing factors among certain patients placed those patients at a higher risk for readmission. The focus on prevention has been

outlined as an important goal in the management of COPD; however, factors that lead to

hospitalization for COPD exacerbations is limited (Garcia-Aymerich, Farrero, Izquierdo,

Marrades, & Anto`, 2003). In the United States approximately 10% to 55% of

readmissions after the initial or index admission for an acute exacerbation of COPD is

thought to be preventable (Shah et al., 2016).

Patients at risk for readmission are those who are transitioning from one setting of

care to another. Transitions from the hospital to home have been associated with the

highest utilization of emergency services and preventable readmissions (The National

Transitions of Care Coalition, 2016). Many organizations are placing a focus on

transitional services which have been shown to promote continuity of care across acute

and post-acute services, while promoting quality care for vulnerable chronically ill

patients (Naylor, Aiken, Kurtzman, Olds, & Hirschman, 2011).

Patient centered education has been well received and, in some studies, it has

been associated with improved health outcomes (Suhonen et al., 2016). Hospitals are

engaged with multiple collaborative efforts aimed at reducing preventable readmissions.

In reviewing the literature, interventions vary in scope from facility to facility, all with

fluctuating levels of successes and limitations.

Reducing Preventable Readmissions

Interventions commonly cited in the literature consisted of care coordination,

which is not specifically outlined and could consist of multiple components within itself;

post discharge phone calls, medication reconciliation, and transitional nursing care

(Nowicki, Zembroski, Pickering, & Nobel, 2012). Researchers have utilized several

models outlining the transitional model with Project Reengineering Discharge (RED)

being one of those models. RED utilized 11 discharge components to address both system

and patient navigation (Jack, Paasche-Orlow, Mitchell, Forsythe, & Martin, 2017). These

components consisted of meeting with the patient and family while hospitalized to review

reason for the admission, medications ordered and the importance of taking medications

as prescribed, lab and test results in addition to coordinating discharge plan and follow up

appointments, and developing action plans should problems arise. Additionally, a post

discharge follow-up phone call two to three days after discharge was made to reinforce

education and answer questions about the established plan of care (Greenwald, Denham,

& Jack, 2007). Transitional care nursing is listed vaguely. An attempt to define the role

varies from facility to facility, each outlining different components of this role. In

general, transitional care is provided by a nurse who coordinates the transition from the

hospital to home utilizing a multidisciplinary approach. Focus is provided on engagement

and education for the patient and family, regular home visits for a four to six week

period, and telephone support for any issues that arise (Krishnan et al., 2015).

Transitional nurses also facilitate communication between the patient and primary care

giver (Krishnan et al., 2015).

SECTION II

Needs Assessment

Expand Literature Review

Despite the research previously conducted to identify factors impacting COPD and readmissions, results to decrease the morbidity and mortality related to COPD have been unsuccessful. Currently the organization of interest, 30-day average readmission rate sits at 23.85%, placing its performance at 97 among 107 facilities in North Carolina (U.S. Center's for Medicare and Medicaid, n.d.). This organization has had an ongoing issue with readmissions. The needs assessment indicated readmissions for COPD was higher in patients dispositioned home, although this specific demographic of patients received numerous resources. The readmission team reviewing these cases looked at variances among this population and identified gaps exist due to a lack in a standardized discharge bundle to guide disease specific key points. National surveys have shown significant differences in COPD patient outcomes, which are likely due to variations in care and standardized discharge teaching (Hopkinson et al., 2012).

The analytics department of the participating organization reviewed three months of COPD readmission data. The data supported the need for the evidence-based project. Follow up meetings were conducted with the Director of Care Management and readmission team to review the data obtained and identify opportunities to reduce readmissions. Based on the data provided by the organizations analytics department 95% of the patients reviewed were dispositioned home after their initial hospital admission (Williams, 2018). Further analysis was completed by the transitional team members for patients in this three month cohort and based on best practices, focused discharge

education was identified as lacking based on readmission interviews. Transitional team members consist of the care managers, social workers, and a paramedic who is responsible for in-home telemonitoring. According to the transition team members, patients were not able to articulate self-management of their symptoms, which is a key component of the planned discharge checklist and education.

Readmission costs the participating organization one million dollars over the past year. As identified, CMS had several organizations on a tiered penalty concept, therefore the organization's penalties continued to escalate. According to research, appropriate patient education and attention to precautionary disease management are likely to reduce the frequency of further exacerbations (Hopkinson et al., 2012). General information about COPD, advice on medication use and written instructions on use of inhalation and oxygen devices, as well as a plan for management of worsening symptoms, should be provided (The Thoracic Society of Australia & New Zealand, 2017). COPD readmissions have been a consistent issue (see Figure 1). A review of last year's COPD data shows that 819 patients were admitted with the principal diagnosis of COPD and among these 213 were readmitted within 30 days. Evaluation of three months data for the 2018 fiscal year outline consistent concerns, revealing a total of 207 patients were admitted with a COPD primary diagnosis. Of these patients discharged, 53 readmitted, resulting in a 25.6% readmission rate (Williams, personal interview, 2018).
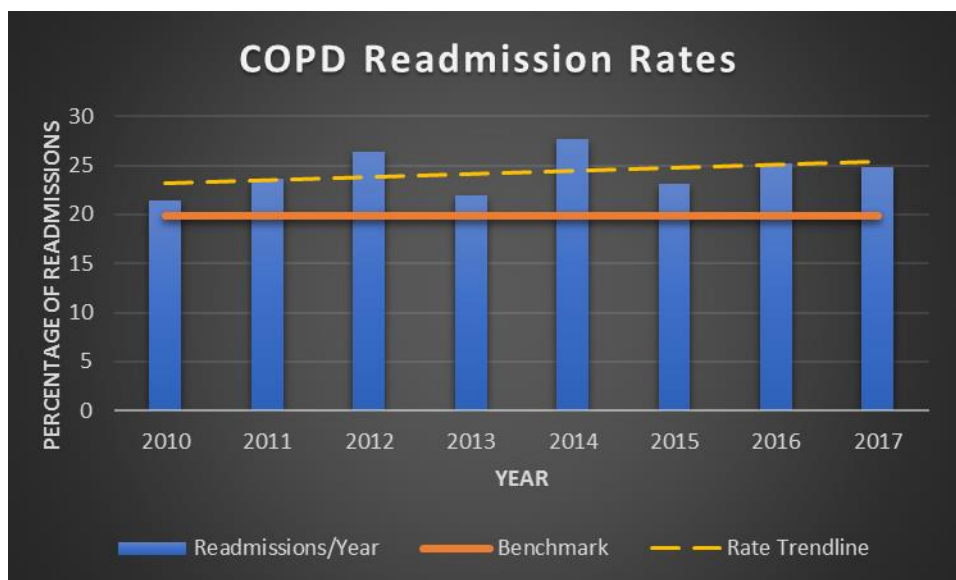
Figure 1. COPD Readmission Rates 2010-2017

PICOT Statement

COPD patients admitted to the hospital for an index admission is the population of interest (P). The patients participated in an individualized educational session delivered by the doctoral student. A discharge bundle and detailed checklist was utilized to make sure all educational points were covered (I), and the readmission rates for those receiving detailed discharge education was compared to the rates of patients in previous months who did not receive the intervention (C). The assumption was patients receiving focused education about their disease process would have a lower readmission rate (O).

SWOT Analysis

Completion of strengths, weaknesses, opportunities, and threats analysis was performed to align the focus of this project. Several tactics have been identified addressing readmissions among different service groups such as care managers, providers, and ancillary staff; therefore, teasing out information was key to developing an

overall picture of the participating organization. The organization has several great things they are doing to address readmissions; however, outlined are numerous opportunities of improvement.

Strengths

The organization acknowledged the current state on COPD readmissions and added this measure to the organization's strategic goals as a priority. Because of this realization, they made it clear their willingness to think outside the box and try new tactics as well as nontraditional means of improving the overall management of care. They currently have a multidisciplinary team that meets weekly to address outliers and identify interventions to prevent readmissions.

Weakness

Currently the healthcare system owns 30 primary care clinics, which aid in expediting appointment times for COPD follow up visits. Although this benefit is available, they are challenged with provider behaviors preventing maximum capacity management of services. Providers lack a readiness to serve with turning away patients and informing patients they need to report to the emergency verses being managed and seen by their primary care provider.

A residency clinic staffed by medical students and residents provide same day appointments or follow up appointments for those with no insurance, high risk for readmission, or unable to get an appointment with their primary care physician within a week. This clinic has been identified within the community as operating below its maximum potential. Patients are required to pay an $80 copay for services that are denied for them.

Currently a telemedicine service is available within the community; however, due to recent turnover, personnel are not signing patients up appropriately. Prior to the turnover, this service had patient compliance issues with daily monitoring. Standing protocols are not in place to support this service; therefore, lack of provider support results in an emergency room visit.

Opportunities

The transition department collaborates with primary care providers, acute care providers, long-term care, pharmacies, paramedic partners, and other entities to help the patient transition successfully to their home environment. Employees of this department contact the patient by phone and make home visits to validate compliance and learning. When patients are cooperative and family support is available, these visits can help the patient be very successful. Despite all of the previous interventions, COPD continues to be a debilitating illness and continued research efforts to improve diagnosing, management, and long-term treatment are needed.

Care managers in the emergency department function as a layer between the patient and emergency room providers. The intent of this new role is for care managers to interview patients at the time of readmission and to outline what interventions the patient already has in place. The goal is for care managers to gather information on current interventions in place in the outpatient environment for these readmissions, with the hope this information will assist the provider in his/her decision making in regards to admitting the patient or discharging the patient home with follow up care from community resources. The workflow of this design is new and areas of improvement are needed.

Threats

  Publicly reported data is built to aid patients and consumers in choosing clinically superior services. Having a low publicly reported score can lead patients to have little confidence in getting appropriate care from the organization of interest. Limited specialty appointments post discharge for high risk patients are a variable which impacts readmissions. Current wait times for these appointments is 60-90 days outside of discharge appointment time frame. These prolonged time frames contribute to the bounce back into the system. Hospitals that work with tight operating margins and financial penalties due to readmission can compromise the financial integrity of the organization leading to buy-out, bankruptcy, or possible facility closure. (Table 1)

Table 1

SWOT Analysis

SWOT Analysis	
STRENGTHS	**WEAKNESSES**
1. Acknowledgement of the problem 2. Data available to analyze issue 3. Multidisciplinary team working on problem-which is recommended.	1. Not fully utilizing primary care clinic capacity to serve with timely discharge appointments 2. Telemedicine program not fully operational 3. Residency clinic not fully operational as designed for readmissions 4. Community/Patient comprehension of severity of COPD 5. Use of valid assessment tool to identify patients at risk for readmission 6. Gaps in consistent focused discharge transitioning
OPPORTUNITIES	**THREATS**
1. Research and technological advances in COPD: -Diagnosis -Treatment/disease management 2. Operational Transition team, but key components of this team are missing (ie. Pharmacy, dietician) 3. ED care manager evaluation for readmissions not hardwired process	1. Long specialty appointment wait times 2. Publicly reported data on COPD 3. Penalties associated with readmissions

Sponsor and Stakeholders

Engaging the participation of stakeholders is imperative to utilizing the multifaceted approach needed to drive modifications in the current process and means of service delivery. Each stakeholder has varying levels of involvement that influence the overall outcome of decreasing readmissions. The Federal Health Reform Program to control payment for preventable readmissions has sparked concern among both private and public health sectors. Many organizations are aiming to reduce readmissions by collaborating with their community partners and reengineering the clinical and administrative processes. To accomplish these activities, employers, health insurance companies, and hospital systems are all vested in improving care efforts in attempt to decrease the unnecessary expenditures related to COPD readmissions. Partnerships that involve patients and improved care coordination from acute care to post-acute care is essential between primary care providers, specialists, and long-term care facilities.

Team Selection

The team selected were key individuals who serve in several capacities throughout the participating organization. The Chief Nursing Officer (Project Committee Member) has over 27 years of experience, holding a Master's Degree in Healthcare Administration. Her role is key in maintaining clinical and patient-care standards. The Vice President of Medical Affairs (Project Committee Member) has been practicing medicine for over 29 years. He provides the viewpoint of both the physician and administrator. The Director of Care Management (Project Committee Member) has over 19 years of experience. She has a Master's in Nursing and Healthcare Administration and is knowledgeable of the resources available to assist the patient in being successful in

recovery post admission. The Faculty Project Chair is a doctorally prepared Nurse

Practitioner with 15 years of nursing experience and served in providing guidance in

development and implementation of the doctoral of nursing practice (DNP) project.

Cost-Benefit Analysis

There was minimal cost associated with implementing this project within the

organization. A booklet was provided to each patient for education at a cost $0.75 per

booklet. The COPD Foundation also offers an alternative method of purchasing a

compact disc at one flat cost. Utilizing the compact disc format provides the organization

with an opportunity to brand the literature with logos prior to distributing; however, the

context of the education is copyrighted from altering. The cost of disposables such as ink

and paper are additional expenses for this method. Minimal expense will be acquired by

the doctoral student to print paperwork during the implementation process.

Scope of Problem

Efforts to reduce readmission have been ongoing for several years, but recent

financial penalties have sparked increased tactics and interventions to reduce readmission

rates (Kripalani, Theobald, Anctil, & Vasilevskis, 2014). Case reviews have shown over

half of readmissions could have been prevented and were caused by factors highlighted

as ongoing reasons during the inpatient stay (Edelman, 2016). It is suggested based on

surveys from patients and providers along with chart reviews that contributory influences

are premature discharge from the hospital, poor discharge medication reconciliation, lack

of patient and family education on disease management, and lack of communication

between the acute care provider and primary care provider for patient (Laverty et al.,

2015). Safely transitioning patients from the hospital to home is a process requiring

successful completion of multiple task and great coordination of care (Forster, Murff, Peterson, Gandhi, & Bates, 2003). A successful transition is dependent upon whether the hospital has adequately educated patients about key elements of care such as the diagnosis, medications, and follow up care (Chugh, Williams, Grigsby, & Coleman, 2009). Readmission rates have successfully been reduced for patients being discharged home by implementing tactics. These tactics include: patient needs assessment, medication reconciliation, patient education, and scheduling timely follow up appointments. However, the effects of interventions on readmission rates correlates to the number of components implemented. One single component is not thought to have a significant impact (Kripalani et al., 2014).

In the setting of interest there are many initiatives in place to address readmissions; however, improvement has been marginal over the past several years. While a variety of tactics are in place, improvement in standardizing patient education has not been hardwired. This leaves patients with gaps in education about their disease and to some extent a loss of control. This project evaluated if utilizing a clinically supported discharge education tool to address topics such as smoking cessation, inhaler use, signs and symptoms of exacerbation, medication compliance, and follow-up care will decrease readmissions by giving patients the knowledge needed to manage their disease. Patients recovering from COPD exacerbations have shown improvement in health quality of life, measured through decreased respiratory related readmission events (Chavannes et al., 2009). These improvements are contributed to education on self-management and through teaching on COPD and its clinical condition (Chavannes et al., 2009). Learning about interventions that assist in maneuvering and coordinating

ambulatory care post discharge have also proven beneficial (Krishnan et al., 2015).

Utilizing a discharge tool will guide the educational concepts on COPD, assist in

addressing multiple facets identified as weakness, opportunities, and threats among

COPD patients. Among these are key points identifying early signs and symptoms to

report to their primary care provider, medication compliance with return inhaler

demonstration, discharge appointments, and post-acute resources (pulmonary

rehabilitation). Research conducted has shown that utilizing a multifaceted approach to

address the most common issues contributing to readmission has some success (Shah et

al., 2016)

SECTION III

Goals, Objectives, and Mission Statement

Goals

The foremost goal of this project was to reduce COPD readmissions and costs associated with COPD readmissions by utilizing a discharge list and instructions. A recent Cochrane review substantiates successful patient self-management in COPD is associated with a decrease in both respiratory-related and all-cause readmissions (Zwerink, Brusse-Keizer, van der Valk, Frith, & Effing, 2014). The thought was focused education will build the knowledge base for COPD patients, expanding self-management, and improved quality of care.

Outcomes and Objectives

The objectives for this evidence-based project was (1) to reduce COPD readmissions below the current year to date average, (2) address deficits in the discharge process by utilizing a standardized checklist to cover all educational components for a successful discharge transition, and (3) improve patient awareness about COPD and symptom management by providing standardized education. The primary outcome of utilizing the COPD discharge checklist and instructions was to reduce COPD readmission. Therefore a decrease in COPD readmission would decrease costs associated with COPD readmissions.

Mission Statement

This project was completed to reduce COPD readmissions and costs by enhancing discharge education. Through educating patients in a detailed and succinct manner, patients will receive comprehensive information specific to COPD. This strategy reduces

variation within the discharge phase leading to better patient outcomes and decrease

COPD readmissions.

SECTION IV

Theoretical Underpinning

The Meleis Transition Theory is a nursing theory developed primarily by Afaf Ibrahim Meleis in the 1960's for individuals undergoing life changes and assists them with health promotion (Meleis, Sawyer, Im, Hilfinger-Messias, & Schumacher, 2000). This theory provides a framework generating questions and guides effective care prior to, during, and after transition (Meleis, 2010). Concepts within this theory focus on interventions made to facilitate transition and promote coping related to the change. This includes support systems that assist in identifying what the patient is experiencing at the current moment, as well as what the person may experience subsequently such as transportation issues, lack of family/caregiver support at home, and/or financial challenges to afford medications. The second part of the transition theory focuses on the ease of transitioning from one setting to the next. Quite often patients experience barriers in seeking care post hospitalization, such as incorrect medication reconciliation or long wait times for specialty appointments. Single versus multiple transitions attribute to the patient's ability to cope as well as other life events that may be occurring at the same time (Meleis, 2010). Meleis' Transitions Theory Model was useful for intellectualizing and investigating the discharge transition. It focuses on the nature of the transition, transition conditions, and nature of nursing interventions to influence patterns of response across the post hospitalization transition (Meleis, 2010). Facilitating a healthy transition process as well as healthy outcomes with interventions focusing on the expertise of care team members, identifying milestones, and learning from the successes of others, contribute towards establishing a successful discharge transition.

How Theory Supports Project

Meleis' Middle-Range Theory of transitions was designated as a guiding

framework for conceptualizing the discharge transition. To maximize the ability of

COPD patients to successfully transition from the hospital to home and prevent

readmission to the hospital for an exacerbation, skill attainment needs to be developed in

patients. Although self-care is an individual patient responsibility, it is most effectively

achieved when supported by a health care team who coaches and supports the patient.

Entrenching this theory into clinical practice, nurses can help patients learn how to

monitor and understand symptoms, establish priorities, and make choices about their

care. A hospital discharge occurs in three chronological phases which are (1) the

hospitalized phase in which discharge preparation occurs, (2) the discharge period in,

which short term outcomes are set and able to be measured during the preparatory phase

and (3) the period after discharge when patient's perception of their capacity to cope with

the stresses of care at home and their needs for support and aid from family and health

services offer evidence of positive or adverse results of the patient's transitional process

(Zwerink et al., 2014). Validating a patient is ready for discharge is imperative, failure to

do so may result in decline or possibly death. Readiness for discharge is familiar not only

to patients, but families and providers of hospital-based care (Weiss et al., 2010). It is

often described as the patient's ability to leave the hospital or a perception of being

equipped or not equipped for hospital discharge and as a gauge of appropriate recovery to

allow safe discharge (Weiss et al., 2010). Despite the clinical relevance of the patient's

perception of readiness for discharge, significances exist for discharging a patient who is

not ready such as post hospital complications or premature readmission. Patient

education in the form of discharge teaching and care coordination are activities that

orchestrate the patient towards having successful discharge transition. Although most

patients report receiving adequate information at the time of discharge, they report

identifying gaps in needed information when questioned after discharge. Patients report

transitioning from the hospital is complicated alone; however, the lack of preemptive

education to promote the knowledge, confidence, coping skills, and support needed for

managing the stressful and complex transition is lacking (Weiss et al., 2010).

Patients requiring admission for COPD are experiencing a significant transitional

event. Transition processes are the cognitive, behavioral, and interpersonal processes

through which change occurs (Weiss et al., 2010). For positive transitions, these

processes migrate the individuals towards health; whereas, negative transitions move

individuals toward susceptibility and risk such as readmission. Planning discharge for

COPD patients yield positive transition by teaching patients the skills and behaviors

needed to successfully manage their disease, leading to a better quality of life. (Figure 2)
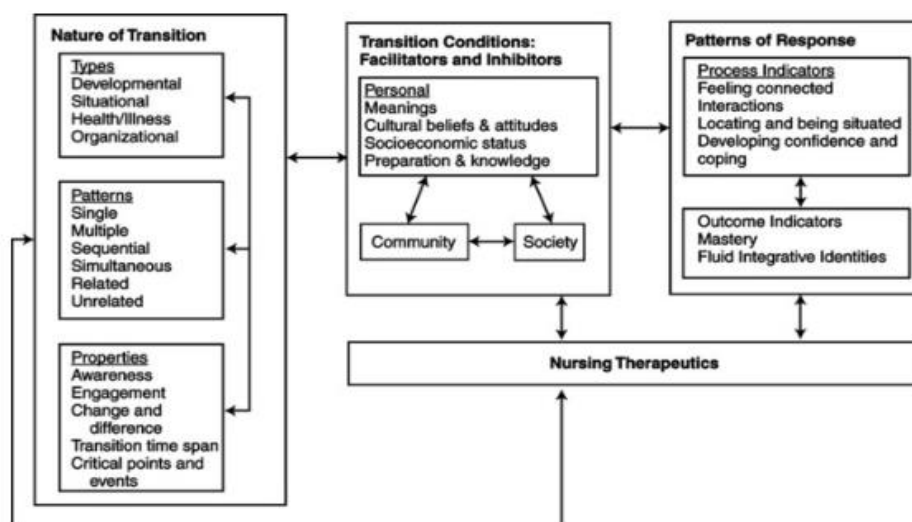

Figure 2. Transitions Theory

SECTION V

Work Planning

Project Proposal

The proposed question of this evidenced based project was: Does utilizing a clinically supported discharge tool that outlines key educational topics regarding the patient's disease process decrease COPD readmissions? The population involved patients 18 years and older admitted with the diagnosis of COPD within a rural acute care hospital in Southeastern North Carolina. The project sample will include a maximum of 50 patients admitted with COPD during a two-week project implementation period.

Research Procedure

Pre-Intervention Process

Patients were provided with a print out of their admitting diagnosis as well as a print out of all new medications ordered on discharge. This information was reviewed by the discharging nurse, despite his/her years of experience. Some patients commented on return surveys that the nurse provided the discharge instruction and instructed the patient to read it at their leisure.

Intervention

Participants for this evidenced based project were identified by the analytics department of the participating organization. A daily report was generated of all patients admitted with the diagnosis of COPD. The doctoral student offered all patients an opportunity to participate in the project and receive education utilizing the COPD Discharge Transition Education Tool. This report was generated for a two-week period during which time the doctoral student rounded on patients listed. Additionally, the report

outlined the chief complaint such as shortness of breath (SOB), coughing, etc., the doctoral student attributed that to COPD. If the chief complaint was a fall, knee pain, etc., the doctoral student attributed that to a diagnosis other than COPD. Only English-speaking patients were requested to participate in this project as the educational brochure was only purchased in English; however, should this project reflect success, it is available for purchase in all languages. Other communication limitations and patients not alert and oriented to acknowledge participation consent were excluded from the project.

For those who agreed, informed consent was obtained prior to proceeding with interventions by the doctoral student. Education was provided by the doctoral student who is a certified family nurse practitioner. Patients who declined participation or were unable to consent to participate received discharge education based upon the current standard of care provided in the participating organization by the discharging nurse. One-on-one educational sessions were offered seven days a week during the intervention period by the doctoral student. The sessions lasted a minimum of one hour. During the educational sessions, the COPD Discharge and Transition Education Tool was utilized. The COPD Discharge and Transition Education Tool is a booklet published by the COPD Foundation geared towards educating patients about key concepts related to successful disease management and transition from acute care. Among the topics discussed were signs and symptoms of COPD exacerbation, medications, inhaler education and demonstration, oxygen therapy, follow up appointments, and smoking cessation. Teach back assisted the doctoral student in confirming successful instruction of participants. The doctoral student allowed time for discussion and questions by the patient after reviewing all components of the educational tool. Booklets were purchased from the

COPD Foundation. Each patient received a booklet. At the end of the two-week interventional period, the 30-day observation period ensued where patients were monitored for emergency room visits and/or readmissions into the organization.

The data endpoints abstracted on index admission and readmission were diagnosis, length of stay, age, sex, race, smoking status, insurance payor source, discharge education documentation, medical records, and encounter number. The medical record number was used to help track readmission within 30 days of discharge. The number of emergency room visits was monitored after the index admission. The pre-intervention sampling from a comparative group of COPD admits was utilized to monitor if a reduction in COPD readmission was noted post-implementation.

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Timeline

Table 2

Timeline

|	Description of Work	Start and End Dates
Problem Recognition	Research topic approval with partnership organization and team development	November 2016
Needs Assessment	Review of data on readmissions for COPD and identify opportunities to improve outcomes.	May 2017, Repeat February 2018
Literature Review	Review literature on topic to outline what others are saying about the problem.	May 2017; Repeat February 2018
Outline Objectives		
IRB Submission	Submit IRB application to Southeastern Health for approval	April 6, 2018 for participating organization; June 29, 2018 Gardner-Webb
Work Planning	Develop project proposal and management tools	August 10, 2018
Implementation	Data collection	August 20, 2018
Interpretation of Data	Data analysis	August 28, 2018

GANTT Chart
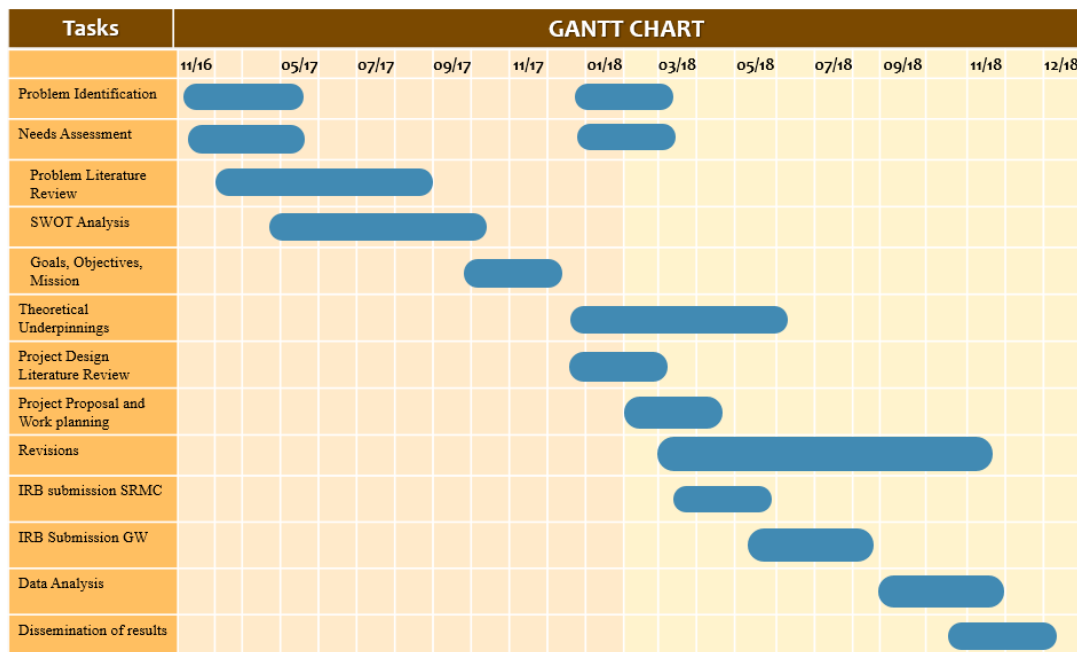
Figure 3. Gantt Chart

Project Budget

The doctoral student provided all discharge education to COPD patients consenting to participate in the evidence-based project over the year week period of the project implementation. Therefore, no additional cost for staff was incurred by the healthcare organization. The tool (COPD Foundation Tool) utilized within the project was purchased from the COPD Foundation for $0.75 per booklet. A total of 33 books were used during the project implementation phase (total cost: $24.75). The doctoral student incurred all costs for the booklets utilized within this project. The COPD Foundation has an alternative option available for organizations, allowing the organization to purchase all educational literature on a compact disc for one flat cost which will be explored further after the project implementation and project outcomes are reviewed with the organization.

SECTION VI

Evaluation Planning

Monitoring and Evaluation Plan

The doctoral student served as the sole educator during the two week implementation period. Additionally, the same discharge information/booklet was utilized by the doctoral student to provide participants within the project consistent information limiting the chance of variability within the project. To demonstrate the effectiveness of the project, the pre-intervention sampling from a comparative group of COPD admits was utilized to monitor if a reduction in COPD readmission was noted post-implementation of a standardized discharge tool.
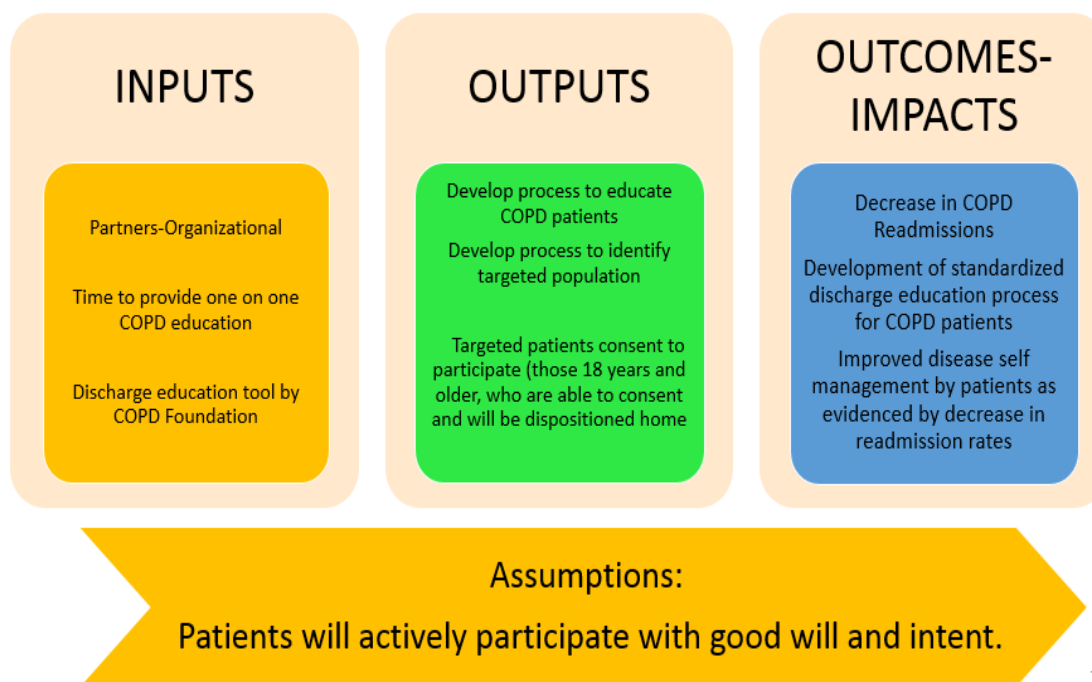
Logic Model Development

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Figure 4. Logic Model

Quality Improvement Methods

The aim of quality improvement is to change the performance of a system not by adding or reducing the resources directed to it, but by rearranging them (Barker, 2015). The Plan, Do, Study, Act (PDSA) cycle was utilized as a tool in the evidence-based project. (P) Literature review, project planning, and team meetings assisted in defining the problem. Once the problem was identified with appropriate goals and targets, a needs assessment was evaluated to determine if an improvement was needed for COPD readmissions. (D) After IRB approval was awarded and patient consent obtained, the education was provided to patients as a means of testing the effectiveness of the established plan. (S) After the 30-day observation period and data abstraction, results were studied to see if reviewing the topics in the COPD Foundation Discharge and Transition booklet impacted COPD readmission rates. (A) Data was reviewed to evaluate if a decrease was noted in COPD readmission within the project sample that received one-on-one discharge education.

Data Collection

Data provided by the participating organization's analytics department included patients 18 years of age and older admitted with the diagnosis of COPD. The data endpoints abstracted on index admission and readmission were diagnosis, length of stay, age, sex, race, smoking status, insurance payor source, discharge education documentation, medical records, and encounter number. The intervention period occurred over a two-week period while monitoring occurred 30 days after discharge of the participants within the two-week period. Patient risk was minimized by removing the names and assigning numbers. All names and medical information were kept confidential

by assigning numbers to patient's medical records. Patients' names were not attached to

the data used in the project and data was stored on the researcher's personal computer

that was encrypted and secured by password. After the index admission, the number of

emergency room visits were monitored. The data was then entered into an excel spread

sheet and a simple regression analysis was calculated on all pre- and post-intervention

data to test if any one variable made a significant difference in the patient's readmission

status.

SECTION VII

Implementation

The doctoral student used a work list identifying COPD patients provided by the participating organizations analytics department. There was a total of 37 referrals received over the two-week project implementation phase; however, one patient was unable to provide consent for participation and three expired resulting in a sample size of 33 patients. Detailed information about the evidence-based project was provided and those who consented to participate were requested to sign a consent. The original consent was saved for filing purposes and a copy was provided to the participant. COPD patients who failed to meet inclusion criteria or declined participation received education as was currently provided within the organization.

IRB Approval

Permission to conduct the evidence-based project was obtained by the participating organization's Institutional Review Board (IRB) initially. Additionally, IRB approval was obtained from the University's IRB, where the doctoral student attended. Both applications were submitted for expedited review due to minimal risk to participants.

Threats and Barriers/Limitations

The doctoral student, who is a certified family nurse practitioner evaluated the worklist provided by the analytics department to determine eligibility. Upon receiving the worklist, the doctoral student conversed with the patient and explained the project. There were a total of 37 patients admitted with COPD during the two-week intervention period;

however, only 33 patients were eligible to participate. Three patients expired, and one patient was excluded due the inability to provide consent for participation.

With the project yielding 33 patients admitted with COPD diagnosis, only 17 would be eligible under the CMS penalty guidelines, which currently applies to Medicare patients only. All 33 patients received discharge education utilizing the COPD Discharge and Transition Education tool, which identified the first limitation of the project. Disease awareness was very limited among several patients. Some patients had no idea they had COPD and among this subpopulation, several did not know what COPD was. The doctoral student confirmed the diagnosis with the attending of record and received permission to continue with education. This provided great opportunity to build a strong foundation of knowledge for these patients.

Another barrier preventing successful disease management was referrals to pulmonary rehabilitation. An overwhelming number of patients had not had pulmonary rehabilitation and expressed great interest in that program. Unfortunately, pulmonary rehabilitation requires an order from the primary care provider of the patient, therefore it is not ordered during hospitalizations. Other concerns expressed by patients were long wait times to see specialist such as Pulmonologist and affordability of medications resulting in noncompliance.

The doctoral student's role focused on teaching the patient about their disease process and interventions to decrease complications; however, as patients revealed barriers to their successful transition home, this produced a barrier for the doctoral student. Having someone such as a care manager follow up on the components identified

as barriers or areas of interest by patients would be a great support to decreased readmissions.

Lastly, the sample size was too small and intervention period for this project was too short to identify a significant relationship from the data to ensure a representative distribution of the population in consideration. Expanding the project to another facility would resolve these issues and potentially broaden the demographics of subject patients. Restructuring the design of the project may yield the solicited improvements.

Monitoring of Implementation

Participation in this project was voluntary and patients had the right to decline or withdraw at any time. Those who declined or failed the inclusion criteria received information under the organizations standard discharge education process. Those who agreed to participate were thoroughly informed about the project. A signed informed consent was obtained, although there was minimal risk to the patient. Participants were also provided with a copy of the consent listing contact information for the doctoral student and faculty sponsor should concerns develop.

Patient risk was minimized by de-identification of the data. All names and medical information were kept confidential by assigning numbers to patient's medical records. Patients' names were not attached to the data used in the project and data was stored on the researcher's personal computer that was encrypted and secured by password.

Project Closure

In reviewing the tangibles for this project, all procedures were implemented as outlined in the proposal with collection of all data endpoints as described. Data and

documentation were maintained as previously stated. Results of the data were reviewed with organizational leaders at the participating facility and further discussions were needed in regards to how the data and feedback will be utilized to guide COPD discharge education.

SECTION VIII

Interpretation of Data

Sample Characteristics

During the two-week intervention period of the study, there were 37 patients admitted to the facility with a diagnosis of COPD. One patient was excluded from the study due to the lack of mental capacity to consent to participation and three patients expired during their hospitalizations. A total of 33 patients admitted with COPD were potential patients for the project. All 33 patients consented to participate. Seventeen of the 33 patients admitted with COPD diagnosis were eligible under the CMS penalty guidelines, Medicare patients only, impacting financial penalties for readmission of these patients.

Analytics provided a report identifying patients readmitted during the 30-day observational window. Based on the report provided, characteristics of all COPD admissions included: 27.2% African American, 36.4% Caucasian, and less than 36.4% Asian or American Indian (Williams, personal interview, 2018). Additionally, 64% were females and 36% were males with an average age of 63. The discharge disposition for participants by payer were 52% Medicare discharged home, 24% Medicare discharged to facility, 18% Medicaid discharged home, 3% self-pay discharged home, and 3% commercial discharged home. The average length of stay for all COPD patients admitted was 5.21 days. COPD patients who admit to smoking and tobacco abuse was 30.3 %, those who have never smoked or used tobacco product 33.3%, and 36.4% were former smokers (Williams, personal interview, 2018).

Discussion of Results

Within the seven patients readmitted that had Medicare as a pay source, 23.5% were African American, 41.2% were Caucasian, less than 35.3% were Asian or American Indian. Characteristics of the Medicare group are as followed: 65% females and 35% males with an average age being 65. The average length of stay for the Medicare group was 4.29 days. Medicare COPD patients who admit to smoking and tobacco abuse was 29.4%, those who have never smoked or used tobacco product 23.5%, and 47.1% former smokers. Among the Medicare group, zero patients readmitted smoked, 33.3% never smoked, and 66.7% were former smokers (Williams, personal interview, 2018).

A simple regression analysis was conducted on length of stay, age, sex, race, smoking status, and insurance source in regards to the variables interaction on readmission. Based on the data, only length of stay (LOS) was significant on readmission (see Table 3). The correlation of length of stay to readmission supports the current research regarding premature hospital discharges being a barrier in successful COPD discharge and transition. Although there is insufficient clinical data supporting an optimal length of stay for patients with a COPD exacerbation, additional resources should be evaluated for patients to help support their transition home and recovery period.

Additional information obtained revealed 21% of all COPD patients during the project observation period had emergency room visits not associated with a readmission, while 6% of patients in the Medicare group had ED visits not associated with readmission. Twelve percent of Medicare patients had multiple readmissions during the project observation period (Williams, personal interview, 2018).

In 2017, 819 patients were admitted to the organization with a principal diagnosis of COPD. Among those 213 were readmitted within 30 days. Evaluation of three months data (April-June 2018) prior to implementation revealed 207 patients were admitted with a primary diagnosis of COPD and of these 53 patients were readmitted within 30 days, resulting in a 25.6% readmission rate. During the implementation phase (two weeks in July 2018), 37 patients were admitted with the diagnosis of COPD. Of the 37 patients, one patient was excluded due to inability to provide consent for participation and three patients expired. A total of 33 patients admitted with a primary diagnosis of COPD provided consent to participate within the study. Of the 33 patients admitted during the implementation phase, seven patients were readmitted within 30 days of discharge. Seventeen patients of the 33 patients fall under the CMS penalty guidelines.

Table 3

All Variables Regression Analysis

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.507755442
R Square	0.257815589
Adjusted R Square	0.050003953
Standard Error	0.404636107
Observations	33

ANOVA

	df	SS	MS	F	Significance F
Regression	7	1.421892034	0.203127	1.240622	0.318657759
Residual	25	4.093259481	0.16373		
Total	32	5.515151515			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1.146871072	0.548378604	2.091386	0.046814	0.017464195	2.2762779	0.017464195	2.27627795
Sex	0.004595467	0.16274544	0.028237	0.977697	-0.330585041	0.339776	-0.33058504	0.33977597
Payor	-0.026191986	0.115324761	-0.22712	0.822181	-0.263707776	0.2113238	-0.26370778	0.2113238
Disposition at Discharge	-0.157860993	0.196223923	-0.80449	0.428696	-0.561991728	0.2462697	-0.56199173	0.24626974
Initial LOS	0.013184721	0.020708742	0.636674	0.530124	-0.029465731	0.0558352	-0.02946573	0.05583517
ED visits (not included in Readmission	0.39798786	0.193879387	2.05276	0.050702	-0.001314213	0.7972899	-0.00131421	0.79728993
Race	0.062923005	0.096133833	0.654535	0.518744	-0.13506833	0.2609143	-0.13506833	0.26091434
Smoking Status	-0.025140672	0.093691951	-0.26833	0.790645	-0.218102856	0.1678215	-0.21810286	0.16782151

Conclusion

Over a two-week period, 33 patients admitted with a primary diagnosis of COPD consented to receive one on one education by the doctoral student on smoking cessation, inhaler use, medication compliance, oxygen therapy, and signs and symptoms of COPD exacerbations. The sample size of the study was too small to be statistically significant; however, length of stay (LOS) was identified as the only variable with a significant influence on readmission status.

Decreasing readmissions is beneficial to not only the organization but to patients. Financially a decrease in readmissions will result in lower penalties and improved quality scores for the organization. Engaging patients in a one-on-one educational session provided them with an opportunity to learn more about their disease process and treatments available to manage COPD. Improving quality of life and disease management are priceless in the eyes of the patient and caregiver.

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