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Clinical Practice Guideline for Transitions of Patients with Chronic Obstructive Pulmonary Disease

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Walden University
2020

Abstract

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MS, Walden University, 2015

BS, Tuskegee University, 1995

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Chronic obstructive pulmonary disease (COPD) is a public health challenge and a leading cause of readmissions in the United States. Research suggests that many patient readmissions could be prevented by using a multidisciplinary approach to develop quality, evidence-informed clinical practice guidelines. A retrospective review of the electronic health record by the project site's quality committee revealed a lack of consistency in adhering to best practice recommendations, as evidenced by increased readmission rates. The purpose of this project was to develop a clinical practice guideline with input from a collaborative expert advisory committee for the discharge care of COPD patients. The practice-focused question addressed whether a multidisciplinary group could develop evidence-based clinical practice guidelines that meet the AGREE II criteria for the discharge care of COPD patients. The Iowa model of evidence-based practice was used as the conceptual framework to guide this project. Core components of the chronic care model were used as a proactive approach to reducing fragmented care while improving quality outcomes for COPD patients. Five expert advisory members provided feedback on the quality of the guideline using the AGREE II instrument. The advisory committee agreed to present the guideline as a policy proposal to the local site's medical executive committee. If implemented, this guideline could affect positive social change through use at other organizations to improve patient outcomes and reduce 30-day readmissions.

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Dedication

I would like to dedicate this capstone project to my parents, who taught me as their first-born child to lead by example, never to stop learning, and always set the bar high. Without my mother's nurturing affection and my father's tough love and guidance, this achievement would not be possible. I would not be where I am today or what I am today without both of my amazing parents. So, Mom and Dad—this one is for both of you!

Acknowledgments

First and foremost, I acknowledge my God Almighty for giving me the opportunity and inner strength to complete this research study satisfactorily. I pray that this project will positively impact those affected by COPD. This achievement could not have been possible without his blessing.

Secondly, I would like to extend my sincere gratitude to my chair for this project, Dr. Catherine Garner, whose insightful guidance, mentorship, encouragement, and support pushed me forward during challenging times to help me successfully achieve this goal. I would also like to thank my committee members for their constructive feedback and guidance. So, Dr. Sue Bell, Dr. Jonas Fomukong-Nguh, and Dr. Nancy Moss, thank you for your contributions to this project!

Last but not least, I want to acknowledge my perseverance to finish what I started. In the words of the great Maya Angelou, “That is what you want to do? Then nothing beats a trial but a failure. Give it everything you have got. I have told you many times, ‘Cannot do is like Do not Care.’ Neither of them has a home.”

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Section 1: Nature of the Project

Introduction

The increasing prevalence of chronic obstructive pulmonary disease [COPD] is a public health concern. COPD is the third leading cause of morbidity and mortality in the United States (Guarascio, Ray, Finch, & Self, 2013). An estimated 15.7 million people in the United States have been diagnosed with COPD, with millions more people potentially living with the disease undiagnosed (Centers for Disease Control and Prevention [CDC], 2019). According to the CDC, COPD can be defined as a group of progressive respiratory diseases that are characterized by increasing breathlessness. The result of this increasing breathlessness over time leads to respiratory failure, which often results in excessive hospital readmissions, long-term disability, and early death (Kumbhare, Beiko, Wilcox, & Strange, 2016). Nearly one out of five patients diagnosed with COPD are readmitted back to the hospital within 30 days of discharge (Krishnan et al., 2015).

The slow progression of COPD potentially contributes to these excessive readmissions, as many people are unaware of the early warning signs associated with this chronic disease and are frequently diagnosed in the later stages of the disease (Krishnan et al., 2015). As a result of these late diagnoses, more than 800,000 people aged 40 years or older in 2008 were hospitalized with a primary diagnosis of COPD (Wier, Elixhauser, Pfuntner, & Au, 2011). Another 3.8 million people hospitalized that same year aged 40 years or older had a secondary diagnosis of COPD, costing a total of $6.1 billion in direct care costs for that year alone (Wier et al., 2011). In 2010, the projected cost of COPD was nearly $50 billion, with 70% of this cost being attributed to longer than average

hospital stays, excessive 30-day readmission rates, and lost workdays (Guarascio et al., 2013; Kumbhare et al., 2016).

Clinical practice guidelines aim to improve the quality of care and patient outcomes by using evidence-based research to inform clinical decisions. Despite the available COPD guidelines and the abundance of published evidence on reducing excessive readmissions, the gap in practice was the poor implementation of evidence-based recommendations at this acute care facility, which may potentially contribute to excessive readmission rates. The effective management of COPD requires adherence to best practice guidelines. DNP-prepared nurses can help promote adherence to best practice guidelines by identifying gaps in knowledge and then translating the best available evidence from clinical practice guidelines into clinical practice.

Problem Statement

COPD is a significant cause of morbidity and mortality and is one of the leading causes of hospitalization in the United States (Guarascio et al., 2013). Each year, over 700,000 hospitalizations and 1.5 million emergency room visits are the result of COPD (Sullivan et al., 2018). The projected costs of these hospitalizations and emergency department visits, as well as readmissions and indirect costs such as days of work lost, are estimated to be about $32 billion (Sullivan et al., 2018). Additionally, nearly one out of five (19.2%) COPD admissions discharged from the hospital will be readmitted within 30 days, and more than half (58%) of these patients are readmitted within 15 days (Jacobs et al., 2018; Krishnan et al., 2015). By the year 2020, the economic burden of COPD is projected to be approximately $50 billion annually (Sullivan et al., 2018). As mortality

rates for other leading causes of death such as heart disease and stroke steadily decline, mortality rates for COPD continue to increase (May & Li, 2015).

Based on this growing prevalence, the increasing clinical, financial, and societal burden of COPD implies that there is a gap in the quality of care delivered to this population. The Global Initiative for Chronic Obstructive Lung Disease (GOLD; Mirza, Clay, Koslow, & Scanlon, 2018), which was established by the National Heart, Lung, and Blood Institute in 1998, offers guidance on the diagnosis, management, and prevention of COPD. Despite the available COPD guidelines and the abundance of published evidence to reduce readmissions after acute exacerbations, the gap in implementation of evidence-based guidelines may potentially contribute to excessive readmission rates. The effective management of COPD to reduce hospital readmissions would require adherence to best practice guidelines. The development and implementation of a COPD clinical guideline for discharge care planning promoted evidence-based recommendations that can potentially be useful in reducing 30-day readmissions while concurrently improving patient outcomes.

In comparison to national benchmark data, hospital readmissions for this acute care project site are 21.9%, which is above the national average at 20.5%. A retrospective review of the electronic health records by the project site's quality committee found a lack of consistency in adhering to best practice recommendations. For example, evidence-based core interventions recommended by the GOLD guidelines, such as demonstration of proper inhaler technique, smoking cessation counseling, and referrals to pulmonary rehabilitation frequently lacked in patient records. Other core

interventions recommended by the GOLD guidelines, like self-management education and scheduling outpatient follow-up visits before discharge was also found to be inconsistent. The gap in practice was the lack of using consistent, evidence-based clinical practice guidelines to deliver optimal discharge care to COPD patients and to prevent premature readmissions.

Purpose Statement

The purpose of this scholarly project was to develop a clinical practice guideline with input from a collaborative expert advisory committee for the discharge care of COPD patients. The practice-focused question was: Can a multidisciplinary group develop evidence-based clinical practice guidelines that meet the AGREE II criteria for the discharge care of COPD patients? The overall aim of this project was to improve the quality of life for people with COPD by reducing excessive hospital readmissions through the development and implementation of an evidence-based COPD clinical practice guideline for discharge care planning that aligns with national guideline recommendations. Baseline data from the quality department indicated that evidence-based practices were not consistently followed. Frequent failures in care found lacking in the electronic health record included return demonstration of proper inhaler technique, smoking cessation counseling, referrals to pulmonary rehabilitation, disease-specific patient education, and a lack of follow-up appointments scheduled before discharge. This gap in evidence implementation may have potentially contributed to excessive readmission rates. The Centers for Medicare and Medicaid [CMS] (2019a) developed the Hospital Readmissions Reduction Program [HRRP] to improve the quality of care and

reduce the costs of readmissions for COPD and similar chronic diagnoses. Under this program, hospitals receive financial penalties for excessive readmission rates. As the cost of care and complex needs of this population continue to evolve, it was essential to use a multidisciplinary team to develop and implement an evidence-based clinical practice guideline to close the gap between existing discharge practices and current best practice recommendations.

Nature of the Doctoral Project

This doctoral project focused on developing a clinical practice guideline for the discharge care of COPD patients to reduce avoidable readmissions. The Walden Manual for Clinical Practice Guidelines was used to frame this process. Many healthcare systems have experienced challenges in reducing preventable readmissions, including this facility. The setting for this project was a 168-bed acute care facility located in the southeast. The poverty rate for the community that this hospital serves is approximately 15%, which is above the national average of 12.3%, and the median age for this community is 52 compared to the state's average age of 42 (Fontenot, Semega, & Kollar, 2018; United States Census Bureau, 2018). Existing studies indicated that there is a strong correlation between increasing age, socioeconomic status, and the incidence of COPD (Grigsby et al., 2016; Khakban et al., 2017). According to the Agency for Healthcare Administration (2017) benchmarks, this acute care facility had higher than average avoidable readmissions when compared to similar healthcare organizations. This hospital's mission statement is to improve the health and well-being of the community it serves; therefore, the project site strives to reduce avoidable hospital readmissions for COPD patients by

using more effective discharge methods. The sources of evidence were a review of the literature and the GOLD guidelines.

The Iowa model of evidence-based practice was used to develop the guideline and act as a guide to help translate the research findings into clinical practice. The Iowa model uses problem-focused or knowledge-focused triggers to identify problems in clinical practice (Brown, 2014). Once a clinical problem is identified, a team is formed to evaluate and appraise the quality of available evidence to improve the identified practice problem (Brown, 2014). The identified clinical practice problem was the need to develop a clinical practice guideline for the discharge care of COPD patients. The chronic care model was the approach used to ensure coordination of care across the care continuum. This model reduces healthcare utilization by facilitating providers to take a proactive approach to manage complex diseases and also encourages patients to take an active role in their self-management (Clini, Castaniere, & Tonelli, 2018).

Significance

Nearly one in five patients with COPD are readmitted back to the hospital within 30 days after discharge (Krishnan et al., 2015). Due to the progressive nature of COPD, current evidence indicates that the frequency of these readmissions will only increase (Ospina et al., 2017). It has been suggested that many of these patient readmissions could be prevented with the implementation of a COPD discharge care bundle. COPD discharge bundles help to standardize processes of care by providing nursing staff with an evidence-based practical approach for the discharge care of COPD patients (Gómez-

Angelats & Sánchez, 2018). Significant gaps remain on which evidence-based interventions should be used within a COPD discharge bundle.

Using the AGREE II tool to critically appraise, identify, and adopt the most effective interventions is not only crucial to improving processes of care, but it also helps to identify which evidence-based interventions are appropriate to improve patient outcomes at the project site (Brouwers et al., 2010). Because the purpose of the discharge bundle was to improve coordination of care at discharge, it also provided an opportunity to enhance patient-provider communication while simultaneously teaching the patient self-management strategies related to their disease. This is significant for patients and their families because research has shown that when patients understand their discharge instructions, they are less likely to return to the hospital. Under the HRRP, hospitals receive financial penalties for excessive readmissions (CMS, 2019b).

Using a discharge bundle is also significant for nursing and other healthcare professionals, as it provides the multidisciplinary team with a useful checklist to ensure that essential evidence-based interventions are not missed at discharge. If this quality improvement project can reduce excessive hospital readmissions through the development and implementation of an evidence-based COPD clinical practice guideline for discharge care planning, then it can be shared throughout the healthcare community to improve the quality of life for people with COPD.

Summary

In summary, the clinical, financial, and societal burden of COPD and its recurrent readmission rate represent a significant public health problem. Efforts to reduce the

burden of COPD should include using evidence-based strategies. To identify the best available evidence, an interdisciplinary team approach is needed in the development and implementation of a clinical practice guideline for the discharge care planning of COPD patients. The Iowa model of evidence-based practice is an appropriate model to assist healthcare providers in addressing the practice gap in the effort to reduce recurrent readmissions while concurrently improving the quality of care. Using the chronic care model to improve care coordination, in addition to incorporating vital elements of the GOLD guidelines, to develop and implement a clinical practice guideline for nursing discharge care planning is proposed as a proactive approach to reduce avoidable 30-day readmission rates for COPD patients at this project site. In the next section, I discuss the framework that was used for this quality improvement project. In addition to defining the concepts, models, and theories used for this project, relevance to nursing practice, local background and context, and the roles of the DNP student and project team are also discussed.

Section 2: Background and Context

Introduction

About one in five patients diagnosed with COPD are readmitted to the hospital within 30 days of discharge (Krishnan et al., 2015). Because of these avoidable readmissions, the quality of care given to patients with COPD is being called into question. The HRRP aims to improve the quality of care by linking payment to hospital performance and financially penalizes hospitals with excessive readmissions (CMS, 2019b). Baseline data from the quality department in the hospital indicated that evidence-based practices were not consistently followed. Some of the evidence-based practices that were lacking included patient education, return demonstration of proper inhaler technique, smoking cessation counseling, referrals to pulmonary rehabilitation, and follow-up visits not scheduled before discharge. In patients with COPD within an acute care facility in the southeastern region of the United States, can a multidisciplinary group develop evidence-based clinical practice guidelines that meet the AGREE II criteria for the discharge care of COPD patients? The purpose of this evidence-based practice project was to improve the care of COPD patients by reducing excessive hospital readmissions through the development of an evidence-based COPD clinical practice guideline for discharge care planning. This project identified potential risk factors that may have contributed to readmissions, and also offered evidence-based recommendations for nursing to bridge the gap between existing discharge practices and current best practice recommendations. In Section 2, I provide information on the concepts, models, and

theories that informed the project. This section also includes a review of the problem's relevance to nursing practice, as well as this DNP student's role in the project.

Concepts, Models, and Theories

IOWA Model

The Iowa model was used as the conceptual framework to guide the development of the clinical practice guideline. Because the Iowa model emphasizes team-decision making and considers the entire healthcare system, it was an appropriate model to use for a project that involves using a multidisciplinary team to develop a clinical practice guideline. There are seven steps in the Iowa model.

1. Selecting a topic
2. Forming a team
3. Evidence retrieval
4. Grading the evidence
5. Developing an evidence-based practice standard
6. Implementing evidence-based practices
7. Evaluation (Titler et al., 2001).

Data derived from the project site's quality committee identified an increasing number of potentially preventable readmissions as the problem-focused trigger for this project. Forming an interdisciplinary team with interested stakeholders to investigate this problem further was the second step in this process. The project team consisted of the chief medical officer, chief nursing officer, director of respiratory therapy, case management coordinator, quality nurse analyst, and lead hospitalist. Current, relevant

evidence-based recommendations related to the discharge care of COPD patients were appraised and evaluated by the multidisciplinary team using the AGREE II tool.

The Iowa model was developed by Maria Titler in 1994 to serve as a guide for nurses to use the best available evidence to improve patient outcomes (Titler et al., 1994). Since its development, the Iowa model has been widely used as a framework to address challenges in translating research into practice (LoBiondo-Wood & Haber, 2014). The model provides nurses with a foundation to identify issues significant to nursing, delivers a means to research the best available solutions, and then provides a systematic approach to implement changes (Doody & Doody, 2011). Because the model uses an organizational approach to drive clinical decision-making, healthcare professionals, including nurses, are triggered to examine existing practices in the effort to improve patient outcomes (Titler et al., 2001). Given the fragmented discharge care of COPD patients, along with the inconsistent adoption of COPD guidelines at the project site, the model's logical stepwise methodology was a good fit for this project.

Chronic Care Model

The chronic care model was used as the theoretical framework for this quality improvement project. The GOLD guidelines consistently maintain that COPD is treatable and that a comprehensive approach should be used to manage the burden of disease (Mirza et al., 2018). Based on the feedback from the GOLD guidelines, the chronic care model was an appropriate model to improve discharge care planning in the effort to reduce 30-day readmissions for COPD patients, primarily because it provides a comprehensive framework that allows healthcare providers to provide a coordinated

continuum of care (Williams, Wilcox, ZuWallack, & Nici, 2016). With support from the Robert Wood Johnson Foundation, the chronic care model was initially developed by Ed Wagner and his colleagues at the MacColl Center for Health Care Innovation at Group Health Cooperative to improve the management of chronically ill patients (Bodenheimer, Wagner, & Grumbach, 2002). Critical components of this model include health system support, planned interventions, self-management, supportive information systems, and links to community resources (Coleman, Austin, Brach, & Wagner, 2009).

Reactive care for COPD exacerbations is frequently recognized as the norm, where healthcare professionals have little to no interaction with asymptomatic COPD patients (Fromer, 2011). As a result of this fragmented approach, patients with COPD lack needed care outside of the hospital, which potentially contributes to excessive readmission rates. To transform care from reactive to proactive, the chronic care model uses an integrated systems approach to expand care beyond the acute care setting of the hospital to a population-based network (Coleman et al., 2009).

Clinical Practice Guideline Development

Quality clinical practice guidelines are an essential part of providing quality nursing care. Clinical practice guidelines were first defined as “systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances” (Field & Lohr, 1990, p. 38). Based on the need to improve the quality of available evidence and the strength of recommendations, a multidisciplinary expert panel at the Institute of Medicine (IOM) convened to develop a new protocol for developing trustworthy guidelines (The National Academies of Science

Engineering and Medicine: Health and Medicine Division [NASEM], 2018). The IOM defines clinical practice guidelines as "statements that include recommendations intended to optimize patient care that is informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options" (NASEM, 2018, p. 4).

Healthcare organizations develop clinical practice guidelines with the intent of improving the quality of care delivered to specific populations, as well as to offer consistent, structured processes to close the gap between research, policy, and best practice (Kredo et al., 2016). The eight defining principles of clinical practice guidelines include the following:

1. Describing appropriate care based on the best available scientific evidence;
2. Reducing preventable variations in practice;
3. Providing a rational basis for referral;
4. Providing a focus for continuing education;
5. Promoting the efficient use of resources;
6. Providing a focus for quality control, including audit;
7. Highlighting gaps in the existing literature; and
8. Suggesting appropriate areas for future research (Open Clinical, 2013).

Relevance to Nursing Practice

Transitioning COPD patients from the hospital to home is a complicated process for nurses and healthcare professionals, as each discipline within the interdisciplinary team often functions independently during the discharge process (Wong et al., 2011). Discharge bundles have been suggested as an effective strategy for improving processes

of care, especially since they provide a consistent approach for using best practices (Resar, Griffin, Haraden, & Nolan, 2014). The Institute for Healthcare Improvement (IHI, n.d.) defines bundles as "a small, straightforward set of evidence-based practices — generally three to five — that, when performed collectively and reliably, have been proven to improve patient outcomes" (p. 1). The concept of using discharge care bundles allows multidisciplinary teams to identify which set of evidence-based interventions will be most effective at reducing inconsistency in practice to improve patient outcomes (Joint Commission International, 2016).

A recent systematic review found that using COPD discharge bundles leads to fewer readmissions (Ospina et al., 2017), suggesting that the use of care bundles can improve discharge planning by providing a consistent, standardized protocol that nurses can adhere to. The review by Ospina et al. included a total of 14 studies (five clinical trials, seven uncontrolled trials, and two-time interrupted series). Out of 26 elements of care included in the review, five of the most commonly used interventions found were: proper inhaler technique (nine studies), self-management education programs (eight studies), assessment and referral to pulmonary rehabilitation (eight studies), scheduling outpatient follow-up visits (eight studies), and referrals to smoking cessation programs (seven studies) (Ospina et al., 2017). While the systematic review failed to demonstrate improvements in mortality and quality of life, the use of discharge care bundles did show a significant reduction in 30-day readmissions (Ospina et al., 2017).

On a similar note, the latest consensus report published by an international expert panel of health professionals for the effective care of COPD proposes similar

recommendations aimed at reducing exacerbations and the potential for readmission, emphasizing the importance of proper inhaler technique, smoking cessation, and pulmonary rehabilitation after hospitalization (GOLD, 2020). The GOLD guidelines add that both pharmacologic therapies guided by disease severity and the recognition of comorbidities should also be considered as strategies to reduce the potential for exacerbations and readmissions. Since the guidelines define COPD as "a common preventable and treatable disease" and maintains that a comprehensive approach to disease management must be taken to reduce the burden, the chronic care model was an excellent approach to reduce disparate and fragment care strategies between various providers across the care continuum (GOLD, 2020, p. 4).

In addition to the systematic reviews mentioned, other studies have also demonstrated that using a combination of evidence-based interventions, such as discharge care bundles, can have an impact on hospital readmission rates. A prospective cohort study by Parikh, and Shah, and Tandon (2016) demonstrated that using a standardized COPD discharge bundle significantly reduced readmissions, length of stay, as well as decreased the aggregate costs of care by $12,000. Nonpharmacologic interventions for this study involved demonstrating proper inhaler technique and scheduling outpatient follow-up visits with a pulmonologist within three days of discharge (Parikh et al., 2016). Pharmacological interventions within the study focused on the timeliness of antibiotics and giving steroids upon admission (Parikh et al., 2016).

There is a lack of consensus on which evidence-based interventions within a COPD discharge bundle would be most effective at reducing readmissions (Kelly, 2011).

However, proper inhaler technique is one intervention that was commonly mentioned in a multitude of evidence-based studies to reduce rates of 30-day readmissions (Dantic, 2014; Jennings et al., 2015; Laverty et al., 2015; Morton et al., 2019, Parikh et al., 2016; Sulaiman et al., 2017; Turner et al., 2015). Poor technique of inhaled therapies can increase the risk of exacerbations, thereby increasing the risk of hospitalization (Dantic, 2014; GOLD, 2020; Sulaiman et al., 2017; Turner et al., 2015). Other interventions that were relatively consistent in the literature to reduce the impact of 30-day readmissions were smoking cessation, pulmonary rehabilitation, follow-up appointments with a pulmonologist before discharge, and patient education (Benzo et al., 2016; Jackson, Shahsahebi, Wedlake, & DuBard, 2015; Jennings et al., 2015; Laverty et al., 2015; Morton et al., 2019; Turner et al., 2015; Williard et al., 2016; Zafar et al., 2017). Ensuring that patients understand their discharge instructions, including when to take their medicine and when to schedule follow-up visits, as well as knowledge of available support services, are core components of the discharge planning process (Benzo et al., 2016; Cloonan, Wood, & Riley, 2013). Patients who understand their discharge instructions are 30% less likely to be readmitted (Cloonan et al., 2013).

The interventions mentioned above align with the latest consensus reports released by the GOLD guidelines, which maintain that a comprehensive approach, with engagement from a multidisciplinary care team, can reduce exacerbations and the potential for readmissions (GOLD, 2020). The practice guideline developed for this project focused on using a multidisciplinary team to develop a discharge bundle to provide a structured means of caring for COPD patients. Developing a standardized

process for discharging patients amongst the interdisciplinary team can reduce gaps in care, and potentially reduce increasing readmission rates. Additionally, the use of discharge bundles allows multidisciplinary teams to focus on a variety of measurable activities, such as improving processes of care to achieve desired outcomes (Gómez-Angelats & Sánchez, 2018).

Local Background and Context

Despite continuous efforts, many healthcare systems have experienced challenges in reducing avoidable readmissions, including the acute site for this project. In 2014, CMS enacted the HRRP, where hospitals are financially penalized for COPD patients readmitted within 30 days (CMS, 2019b). The financial penalty is based on a percentage of total Medicare payments (CMS, 2019b). Hospital readmissions that are considered excessive or avoidable could see a 3% reduction in Medicare reimbursement payments (CMS, 2019b; McIlvennan, Eapen, & Allen, 2015). The national average for COPD readmissions is approximately 20% (Krishnan et al., 2015). The readmission rate for COPD patients at this acute care project site is above the national average at 21.9% (CMS, n.d.).

Even though maximizing payment incentives appeared to guide this practice change, this acute-care project site was looking for evidence-based approaches to reduce COPD readmissions in addition to improving discharge planning. The project setting was a 168-bed acute care facility located in the southeast. The poverty rate for the community that this hospital serves was approximately 15%, which was above the national average of 12.3%, and the median age for this community was 52 compared to the state's average

age of 42 (Fontenot et al., 2018; United States Census Bureau, 2018). The literature indicates that there is a direct relationship between socioeconomic factors, increasing age, and the incidence of COPD (Grigsby et al., 2016; Khakban et al., 2017).

According to the CMS hospital compare website, which compares "how well hospitals provide recommended care to their patients," this acute care facility had higher than average avoidable readmissions when compared to similar healthcare organizations (CMS, n.d., p. 1). The hospital's mission statement is to improve the health and well-being of the community it serves; therefore, the goal of this project was to reduce avoidable hospital readmissions for COPD patients by using more effective discharge methods.

Role of the DNP Student

My role as the DNP student was to guide the development of the practice guideline. According to DNP Essential VI, DNP nurses should take a leadership role in leading interprofessional teams to analyze gaps in practice, and then develop and implement evidence-based practice models to improve patient care (American Association of Colleges of Nursing [AACN], 2006). My role was to act as a change agent to improve processes of care that will prepare COPD patients for discharge readiness. This is increasingly important since gaps in discharge preparation are linked to increased 30-day readmissions (Portillo et al., 2018). My tasks included (a) using a systematic approach to investigate the COPD readmission rate, (b) forming a team, and (c) collaborating with team members in the retrieval and grading of evidence to develop a clinical practice guideline. Clinical practice guidelines are essential to maintaining safe

and clinically competent nursing. My motivation was to ensure that COPD patients are effectively prepared and clinically appropriate for discharge before transitioning home.

As an experienced nurse working with COPD patients through various roles over the last few years, I noticed provider-related gaps in the quality of care given to this population that were potentially decreasing the likelihood of safe transitions from hospital to home, as evidenced by increased readmission rates. If there was any bias, then it could have resulted from an essential need to improve patient outcomes for COPD patients by implementing evidence-based practices. To mitigate the potential for bias, I ensured that data was collected in a professional manner.

Role of Project Team

The project team consisted of myself, the chief medical officer, chief nursing officer, director of respiratory therapy, case management coordinator, quality nursing analyst, and the lead hospitalist at the project site. Each of the healthcare personnel involved in this project is impacted by excessive and avoidable readmissions and understand the challenges associated with them. The multidisciplinary project team met weekly through either teleconferences or face to face meetings. Project team members were asked to critically appraise the developed guideline using the AGREE II model scoring instrument and were given seven days to review the content of the guideline. The AGREE II instrument uses a 7-point Likert scale that measures the extent to which a guideline should be recommended for use. The administrative leaders on the project team have provided enormous support in this change initiative. Respiratory therapy and case management were vital in identifying the needs of this population at this acute project site

and also assisted in searching the literature and critically appraising the evidence. The quality member and chief hospitalist on the team were instrumental in ensuring that the newly developed guideline met the needs of the local population.

Summary

The purpose of the developing this practice guideline was to ensure that COPD patients receive the highest level of care by using evidence-based recommendations for the discharge care of COPD patients. The Iowa model augmented by the chronic care model were both used as frameworks to develop and implement an evidence-based practice standard for discharged patients admitted for COPD. The AGREE II instrument was also used as a framework for guideline development, assessing the rigor and quality of the newly developed guideline. The chronic care model was used to ensure continuity of care following hospital discharge. In Section 3, I restate the problem and purpose, as discussed in Section 1, and describe the sources of evidence and methods of data collection that formed the foundation of the practice guideline.

Section 3: Collection and Analysis of Evidence

Introduction

An increase in 30-day readmission rates for COPD patients was the problem identified for this scholarly project and provided the foundation for developing a clinical practice guideline with collaborative input from an expert panel. The practice-focused question was: Can a multidisciplinary group develop evidence-based clinical practice guidelines that meet the AGREE II criteria for the discharge care of COPD patients? Reducing excessive readmissions through the development of a COPD clinical practice guideline for discharge care planning that aligns with national guideline recommendations was the overall aim of this project. The financial cost of readmissions can negatively impact the hospital's operating margin and resources, as hospitals incur reimbursement penalties from Medicare under the HRRP (CMS, 2019b).

Baseline data from the quality department identified that the project site lacked a standardized process for discharging COPD patients. Repeated failures included a lack of smoking cessation counseling, demonstrating proper inhaler technique, pulmonary rehabilitation referrals, patient education, and failing to schedule follow-up appointments before discharge. Closing the gap between existing discharge practices and current best practice recommendations can potentially reduce excess readmission rates while concurrently improving the quality of care provided to COPD patients. The purpose of this project was to lead a multidisciplinary team in the development of a clinical practice guideline for the safe discharge care of COPD patients. In Section 3, I provide

information on how the multidisciplinary achieved consensus, as well as the sources of evidence and methods of data collection that were utilized.

Practice-Focused Question(s)

The practice-focused question for this quality improvement project was: Can a multidisciplinary group develop evidence-based clinical practice guidelines that meet the AGREE II criteria for the discharge care of COPD patients? The ultimate purpose of this project was to reduce hospital readmissions for people with COPD by developing and implementing an evidence-based COPD clinical practice guideline for discharge care planning that aligns with national guideline recommendations. The acute care project site lacked a standardized discharge planning process for COPD patients, potentially contributing to the excessive readmission rates for this population. Some of the frequently omitted care processes included were educational content regarding self-management, smoking cessation, pulmonary rehabilitation referrals, proper use of an inhaler, and scheduling outpatient follow-up visits before discharge. Standardized practices, such as the use of care bundles, can help to ensure that critical evidence-based interventions are not missed during the discharge process.

Despite the lack of consensus on which interventions within a COPD bundle are the most effective, current data does suggest that the use of discharge bundles can decrease exacerbations, decreasing the risk of rehospitalization and improving the quality of life of these patients (Gómez-Angelats & Sánchez, 2018). The use of bundles in the discharge planning process provides a standardized and collaborative approach and promotes adherence to best practice recommendations. To that end, using a

multidisciplinary team to develop a COPD discharge bundle that meets the AGREE II criteria for the discharge care of COPD patients has the potential to close this gap identified in practice.

Sources of Evidence

Literature searches were performed using the Cochrane Database of Systematic Reviews, Google Scholar, and the following Walden Library databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline Simultaneous Search, ProQuest Nursing, and PubMed. Inclusion criteria were used to locate scholarly and peer-reviewed journals that highlight the importance of using discharge bundles to improve readmission rates for COPD patients. Scholarly and peer-reviewed journals that were consulted were between 2010 and 2020, and search terms and phrases included the following: *chronic obstructive pulmonary disease, COPD, acute exacerbation of chronic obstructive disease, care bundles, GOLD guidelines, clinical practice guidelines for COPD, discharge planning for COPD,* and *benefits of discharge planning.* The websites of leading national and international public health organizations were also consulted, such as the Institute of Medicine, the World Health Organization, the Centers for Disease Control and Prevention, and the Agency for Healthcare Research and Quality. Demographic specific data was retrieved using the Florida Department of Health and the 2018 annual population survey conducted by the U.S. Census Bureau. Approximately 70 articles were reviewed for this project, and 47 articles were used for reference, with 10 articles used in the literature review (see Appendix A).

The purpose of this evidence-based quality improvement project was to develop clinical practice guidelines for the discharge care that will facilitate best practice approaches in the effort to improve care, reduce hospital readmissions, and improve the quality of life for people living with COPD. With the poor adoption of evidence-based practice in the management of COPD patients at the project site, as evidenced by the excessive readmission rate, using a multidisciplinary team-based approach to synthesize the best available evidence to develop a clinical practice guideline can potentially promote the adoption of evidence-based guidelines and close the gap identified in practice.

From an ethical standpoint, the project followed the Walden DNP Manual for Clinical Practice Guidelines. There was no direct patient contact. Before this project began, approval was obtained from the Walden University Institutional Review Board (IRB) (see Appendix B). Approval from the site's chief nursing officer was also obtained.

Analysis and synthesis

This project followed the Walden DNP Manual for Clinical Practice Guidelines. In Section 1, the practice problem and its significance to nursing practice were described. In Section 2, I reviewed the practice-focused question, the purpose of this DNP project, and the concepts, models, and theories that were used to inform the doctoral project. The GRADE approach (Grading of Recommendations Assessment, Development, and Evaluation) was used to assess the quality of the scholarly articles and the strength of the recommendations (Moran, Burson, & Conrad, 2016). In Section 3, I identify the sources

of evidence that addresses the practice-focused question and further clarify the relationship between the evidence and the purpose of the project. A multidisciplinary expert panel using the AGREE II instrument was used to assess and evaluate the quality of the proposed guideline. Once usability was ensured, the guideline will be submitted to the medical executive committee for final approval before implementation.

Summary

The volume of COPD patients readmitted within 30 days of discharge was a practice problem at this acute care project site. A lack of standardized approaches for discharging patients amongst the interdisciplinary team was found to be a problem. Using a discharge bundle to promote standardization is a practical solution that can potentially reduce 30-day readmissions. Discharge bundles are a set of evidence-based practices that provide consistency to nursing practice and improve processes of care (Ospina et al., 2017). The sources of evidence for this project included scholarly peer-reviewed journals and leading public health websites that assessed the effectiveness of using discharge bundles to improve 30-day readmission rates for COPD patients. Walden IRB approval was requested to ensure ethical protection before beginning this project.

Section 4: Findings and Recommendations

Introduction

Excessive readmissions for COPD patients was found to be a problem at this acute care project site and supported the need for developing a clinical practice guideline with collaborative input from an expert panel (see Appendix C). Clinical practice guidelines aim to enhance patient outcomes and quality of care delivered to patients by using evidence-based research to inform clinical decisions. The guideline for this scholarly project focused on using a multidisciplinary team to develop a discharge bundle provides a structured means of caring for COPD patients, as this acute care project site lacked a standardized discharge planning process for COPD patients. Discharging patients from the hospital to home has proven to be a complicated process that requires multidisciplinary collaboration. The concept of using an evidence-based COPD discharge care bundle promotes multidisciplinary collaboration and standardization of best practice by helping to ensure that critical evidence-based interventions are not missed during the discharge process. The practice-focused question was: Can a multidisciplinary group develop evidence-based clinical practice guidelines that meet the AGREE II criteria for the discharge care of COPD patients? Developing a clinical practice guideline can potentially close the gap between existing discharge practices and current best practice recommendations while also reducing excessive readmission rates and improving the quality of life for people with COPD.

Sources of evidence included literature searches using the following databases: Cochrane, Google Scholar, CINAHL, Medline, ProQuest Nursing, and PubMed.

Evidence was also obtained from leading national and international public health organizations, such as the IOM, WHO, CDC, and the AHRQ. The quality of the scholarly articles and strength of recommendations was assessed using the GRADE approach. The development of the guideline followed the Walden DNP Manual for Clinical Practice Guidelines and the AGREE II instrument was used to appraise the quality of the developed guideline.

Findings and Implications

The developed guideline was critically appraised by six expert panelists using the AGREE II model scoring instrument (see Appendix D). The six members of the expert panel consisted of administrative and clinical personnel who were routinely impacted by poor transitions in care from the hospital to home and included the local site's chief medical officer, chief nursing officer, lead hospitalist, director of respiratory therapy, readmission case management coordinator, and a representative from the quality management department. The chief nursing officer assisted in the selection of the expert panel. Each panelist was given seven days to appraise the guideline and provide feedback using My AGREE PLUS, which is an online version of the AGREE II instrument that allowed each expert panelist to appraise the practice guideline online. Five of the six appraisers completed the guideline in the allotted timeframe. Based on the feedback from each panelist, the My AGREE PLUS tool gives scaled scores to measure the overall quality of the guideline. Short videos are also available on the website that provides instructions to the appraiser on how to use the website and how to complete the appraisal.

Before evaluating the guideline, each panelist received a copy of the disclosure form from the Walden University DNP clinical practice guideline manual (see Appendix D).

The AGREE II instrument consists of 23 items that are organized into six separate domains to appraise the quality of developed practice guidelines (Brouwers et al., 2010). Each question in the AGREE II instrument uses a 7-point Likert scale that measures the degree to which a guideline should be recommended for use, with 1 being strongly disagreed and 7 being strongly agree. The six domains are (1) scope and purpose, (2) stakeholder involvement, (3) rigor of development, (4) clarity of presentation, (5) applicability, and (6) editorial independence. Additionally, the AGREE II instrument uses two final overall assessment items that require the appraiser to rate if the quality of the guideline is appropriate for use. Domain and overall rating scores are calculated by totaling the individual scored items in each domain "and by scaling the total as a percentage of the maximum possible score for that domain" (Brouwers et al., 2010, p. 9). The following formula is an example: Obtained score - minimum possible score / maximum possible score - minimum possible score x 100. In the following sections, I briefly describe the results of the evaluation by the expert panel. The tables in each section display the expert panels feedback in using the AGREE II instrument to rate the quality of the clinical practice guideline.

Domain 1: Scope and Purpose

The scope and purpose of the clinical practice guideline was evaluated in domain 1 of the AGREE II instrument. The expert panelists gave an overall score of 90% for this domain, suggesting that the expert panelists agreed that the overall objectives of the

practice guideline were met. One expert panelist commented that the age for the target population should be expanded to include children. This suggestion was discussed with the other panelists, and there was a group agreement that listed age in the guideline was appropriate.

Table 1

Domain 1: Scope and Purpose

	Item 1	Item 2	Item 3	Total
Appraiser 1	6	6	6	18
Appraiser 2	6	7	7	20
Appraiser 3	6	6	6	18
Appraiser 4	7	7	7	21
Appraiser 5	6	7	6	19
Total	31	33	32	96

Note: 96-15/105-15 x 100 = 90%

Domain 2: Stakeholder Involvement

Domain 2 of the AGREE II instrument focuses on stakeholder involvement in the development of the guideline and assessed if the views of the intended users and preferences of the target population were taken into consideration. The overall score for this domain was 81%, suggesting that there was consensus regarding stakeholder involvement. Compared to the other domains, this domain had some of the lowest scores. One panelist scored items 4, 5, and 6 lower than the other panelists and commented that patient interviews could not be found in the guideline, which is beyond the scope of this project.

Table 2

Domain 2: Stakeholder Involvement

	Item 4	Item 5	Item 6	Total
Appraiser 1	6	6	6	18
Appraiser 2	2	4	6	12
Appraiser 3	7	5	7	19
Appraiser 4	7	7	7	21
Appraiser 5	6	5	7	18
Total	28	27	33	88

Note: 88-15/105-15 x 100 = 81%

Domain 3: Rigor of Development

Domain 3 of the AGREE II instrument included eight questions that addressed the systematic methods used to gather and synthesize the best available evidence to formulate the guideline recommendations. The overall score for this domain was 92%, with each panelist scoring all items in this domain a six or a seven. This high score suggests that the expert team overwhelmingly agreed that the practice guideline was developed using extensive research. One of the appraisers stated, "The document clearly outlines what search methods were used to obtain relevant literature on this topic."

Table 3

Domain 3: Rigor of Development

	Item 7	Item 8	Item 9	Item 10	Item 11	Item 12	Item 13	Item 14	Total
Appraiser 1	6	6	6	6	6	6	6	6	48
Appraiser 2	7	7	6	7	7	7	7	7	55
Appraiser 3	6	6	6	7	7	6	6	6	50
Appraiser 4	7	7	7	7	7	7	7	7	56
Appraiser 5	7	7	7	6	6	6	6	6	51
Total	33	33	32	33	33	32	32	32	260

Note: 260-40/280-40 x 100 = 92%

Domain 4: Clarity of Presentation

Domain 4 of the AGREE II instrument pertains to the clarity of presentation and included three questions that relate to the language, structure, and format of the guideline. The overall score of this domain was 84%, suggesting that the guideline was easy to understand. One expert panelist commented that the recommendations were clear and detailed, while another panelist commented that the recommendations should be numbered by priority. The goal of the guideline was to provide evidence-based recommendations of equal importance.

Table 4

Domain 4: Clarity of Presentation

	Item 15	Item 16	Item 17	Total
Appraiser 1	7	6	6	19
Appraiser 2	5	5	7	17
Appraiser 3	6	5	5	16
Appraiser 4	7	7	7	21
Appraiser 5	6	6	6	18
Total	31	29	31	91

Note: 91-15/105-15 x 100 = 84%

Domain 5: Applicability

Domain 5 of the AGREE II instrument focused on the guideline's applicability, as it relates to barriers and facilitators with implementation. The overall score for this domain was 83%, suggesting that there was consensus on using the guideline in practice. One of the panelists commented, “How can the barrier of referring homeless patients to pulmonary rehabilitation be addressed?” The evidence-based recommendations for this project are general in nature, and this question is beyond its scope.

Table 5

Domain 5: Applicability

	Item 18	Item 19	Item 20	Item 21	Total
Appraiser 1	6	6	6	6	24
Appraiser 2	7	7	6	6	26
Appraiser 3	7	6	6	6	25
Appraiser 4	4	4	4	5	17
Appraiser 5	6	7	7	7	27
Total	30	30	29	30	119

Note: 119-20/140-20 x 100 = 83%

Domain 6: Editorial Independence

Domain 6 of the AGREE II instrument evaluates editorial independence, which focuses on competing interests and any biases related to the formulation of recommendations. The domain received the highest score of 93%. This domain did not receive any comments or suggestions.

Table 6

Domain 6: Editorial Independence

	Item 22	Item 23	Total
Appraiser 1	7	6	13
Appraiser 2	7	7	14
Appraiser 3	7	7	14
Appraiser 4	7	7	14
Appraiser 5	7	4	11
Total	35	31	66

Note: 66-10/70-10 x 100 = 93%

Overall Guideline Assessment

The overall quality of the clinical practice guideline scored 80%, with three of the five (60%) of the expert panelists suggesting the guideline for use without any modifications and the remaining two (40%) expert panelists suggesting the guideline be used with modifications. I personally met with each individual expert panelist to review comments and feedback. Feedback from administrative personnel was to prepare the guideline for submission to the site's medical executive committee, without revisions, for policy approval. Based on this feedback, the guideline was not revised, and each panelist was emailed a final copy of the guideline.

Table 7

Overall Guideline Assessment

	Overall quality of guideline
Appraiser 1	6
Appraiser 2	6
Appraiser 3	6
Appraiser 4	5
Appraiser 5	6
Total	29

Note: 29-5/35-5 x 100 = 80%

Table 8

Recommended Use of Guideline

	Yes	Yes, with Modifications	No
Appraiser 1		X	
Appraiser 2		X	
Appraiser 3	X		
Appraiser 4	X		
Appraiser 5	X		

Note: Yes = 3/5 x 100 = 60%. Yes, with modification = 2/5 x 100 = 40%

Recommendations

Recommendations as a result of this project include integrating the evidence-based recommendations from the guideline into the site's electronic health record as a standardized order set. Standardized order sets, also known as standardized protocols, in the electronic health record aim to improve compliance with recommended processes of care. As a preliminary step, a technical change request form would need to be submitted to the information technology production team with a description that describes the change and a business reason for the change. A second recommendation was using the key recommendations as a checklist during multidisciplinary rounds. In multidisciplinary

rounds, multidisciplinary teams come together to coordinate patient care, which can assist the team in identifying critical processes missed before discharge.

Contributions of the Doctoral Project Team

The project team consisted of an expert panel from various administrative and clinical disciplines. The project team included me, the chief medical officer, the chief nursing officer, director of respiratory therapy, case management coordinator, a representative from the quality improvement department, and the lead hospitalist at the project site. Each of the team members involved in this project had an in-depth understanding of the challenges associated with reducing readmissions for COPD patients. The multidisciplinary project team had several meetings to identify clinical gaps in care that may be potentially contributing to excessive readmission rates. Due to the COVID-19 pandemic, there was low attendance for meetings to review literature. The AGREE II scoring instrument was used to critically appraise the guideline, with project team members given seven days to review the content of the guideline and offer feedback. Administrative support for this DNP project was instrumental in driving this change initiative forward. Clinical personnel on the project team were vital in identifying the needs of this specific needs of the targeted population at this acute care project site.

Strengths and Limitations of Project

Safely discharging patients from the hospital to home is a complex process that involves using a multidisciplinary approach. One of the major strengths of this scholarly project was the collaboration of a multidisciplinary team to develop a useable clinical practice guideline that provides a consistent, standardized protocol that can be used to

reduce inconsistencies in practice. Using a multidisciplinary team to investigate a clinical problem helped inform the organization of inconsistent practices during the discharge process were potentially contributing to excessive readmission rates. Another strength of this scholarly project is that it helped this acute care project site identify effective strategies to address clinical practice gaps in other problem areas with high readmission rates.

A limitation of this project was that this practice guideline was developed specifically for COPD patients and is not generalizable. For example, heart failure and pneumonia readmissions are problems at this acute care project site. This guideline cannot be generalized to reduce readmissions for either of these problem areas. Another limitation of this project was that the team members on the expert panel were mostly administrative or clinical personnel who had limited time to participate in the exhaustive and systematic search of the literature, as identified in the AGREE II results with stakeholder involvement being the lowest scoring domain.

Section 5: Dissemination Plan

Introduction

There is a universal acknowledgment that nurse-led research from scholarly methods should be shared with other clinicians to not only improve the quality of care and individual outcomes but also to facilitate clinical scholarship (AACN, 2006). My plans for disseminating the developed clinical practice guideline will include several approaches. First, the guideline will be presented as a policy proposal to the local site's medical executive committee. If approved, the guideline will be implemented as a clinical standard for all departments in the hospital that provide care to COPD patients. Approved guidelines are also posted on the hospital's intranet and can be readily accessed by all staff at the local site.

In addition to the policy proposal, the acute care project site is part of a large healthcare organization that holds an annual informatics and analytics summit, where clinicians present evidence-based performance improvement initiatives that utilize technology to improve patient outcomes at the point of care. The recommendation to integrate this clinical practice guideline into the site's electronic health record qualifies this project to be presented at the annual summit.

A third approach to disseminating this guideline is to use the organization's corporate quality improvement committee to communicate the research findings for this scholarly project. The quality improvement committee at the organization focuses on best practices, innovation, and continuous improvement by communicating new evidence-based practices in its organizational newsletter, which is published quarterly to over 50

hospital campuses. Additionally, the corporate quality improvement committee communicates new evidence-based practices to employees, contractors, and its partners throughout the system by email and posting information on the homepage of each hospital's intranet. External dissemination of the scholarly project is also an option, as I will continue to look for opportunities to publish in interdisciplinary nursing journals and present at nursing conferences.

Analysis of Self

This DNP scholarly project has afforded me numerous opportunities. First, this project has allowed me to enhance my leadership skills by introducing an evidence-based practice change that may potentially impact the entire organization. As a nurse leader, DNP-prepared nurses have an ethical obligation to create a culture of safety (AACN, 2006). Leadership skills are essential to understanding organizational culture, identifying gaps in care, analyzing budget concerns, and using evidence-based methodologies to improve quality initiatives. As a result of the various experiences encountered with this project, I have gained the knowledge and skills necessary to engage busy experts from various professional backgrounds competently. I found it challenging to schedule meetings with busy administrative and clinical personnel, especially amidst a pandemic. However, I used creative strategies to get valuable information to key individuals, such as using concrete and specific language to summarize lengthy research articles.

Secondly, this scholarly project has given me a clear understanding of the curricular elements and competencies that are required by the DNP essentials. By using the scientific underpinnings of practice (DNP Essential I), I am using advanced nursing

knowledge and skills (DNP Essential VIII) to address a clinical gap in practice. Using a multidisciplinary team to develop a clinical practice guideline to improve population health (DNP Essential VII) and reduce costs of care requires clinical scholarship (DNP Essential III), systems leadership (DNP Essential II), and interprofessional collaboration (DNP Essential VI). As I lead this project to improve the discharge care of COPD patients, I will use information systems and technology (DNP Essential IV) to advocate for new organizational standards to address the needs of COPD patients (DNP Essential V).

Thirdly, a key element of guiding improvements in practice is centered on educating healthcare professionals on how to improve health outcomes. I have found that formal quality improvement education and training is often lacking in the workplace. Fortunately, the academic curriculum at Walden, along with this project, has given me a wide variety of evidence-based teaching strategies that can be employed in the practice setting.

Summary

The doctoral project is an extension of the hospital's commitment to improving processes of care by relying on scientific evidence to deliver safe, timely, effective, patient-centered care in the community it serves. In this DNP project, a gap in clinical practice when transitioning COPD patients from the hospital to home was identified as potentially contributing to excessive readmission rates. As a result, an evidence-based clinical practice guideline with input from an interdisciplinary expert panel was developed to address the identified gap. The development of a COPD clinical practice

guideline is an effective strategy to reduce excessive readmissions while concurrently improving the quality of care delivered to COPD patients, and can also provide nurses with consistent, structured processes to close the gap between existing discharge practices and best practice recommendations. Future research and projects should include the development of disease-specific, evidence-based clinical practice guidelines to enhance the quality of care delivered to patients, as well as to inform clinical decisions.

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Appendix A: Literature Review Matrix

Reference	Purpose	Study Design	Data Collection/Outcome Measures	Findings/Conclusions	Grade
The Global Initiative for Chronic Obstructive Lung Diseases [GOLD] (2020)	The purpose is to offer clinicians guidance on the diagnosis, management, and prevention of COPD.	Evidence-based CPG based on systematic reviews of RCTs	CHEST grading system; Measured the effectiveness of diagnosing, assessing, and managing stable and unstable COPD.	Strong level of support for chronic care management, smoking cessation counseling, influenza, pneumococcal vaccination, self-education, pulmonary rehab, and addressing anxiety and depression.	**A**
Ospina, M. B., Mrklas, K., Deuchar, L., Rowe, B. H., Leigh, R., Bhutani, M., & Stickland, M. K. (2017).	Reviewed the effectiveness of COPD discharge bundles and summarized their individual care elements.	Systematic review	Meta-analysis of 14 clinical trials were conducted for hospital readmissions, mortality, and quality of life.	Evidence from the systematic review demonstrated that discharge bundles for patients with COPD led to fewer readmissions but did not significantly improve mortality.	**A**
Dantic, D. E. (2014). A critical review of the effectiveness of 'teach-back 'technique in teaching COPD patients self-management using respiratory inhalers. Health Education Journal, 73 (1), 4150.	Examined the effectiveness of self-management educational interventions, such as teach-back, for COPD patients using respiratory inhalers.	Systematic review	Measured the proportion of correct inhaler use before and after inhaler use	Patient education is crucial in correct use of inhalation devices and can significantly reduce readmission rates.	**A**
Jennings, J. H., Thavarajah, K., Mendez, M. P., Eichenhorn, M., Kvale, P., & Yessayan, L. (2015).	Assessed whether Predischarge screening and educational tool administered to patients with COPD reduces readmissions and ED visits	RCT	Pre and post implementation smoking cessation, inhaler technique, f/u phone call, and screening for depression; 30 and 90 day readmission rates	Predischarge bundle did not reduce 30-day readmissions or ED visits. Compliance of intervention use was not measured and a multidisciplinary approach was also not used.	**B**
Morton, K., MacNeill, S., Sanderson, E., Dixon, P., King,	Evaluated the effectiveness of care bundles on COPD	Mixed Methods	Pre and post implementation; COPD readmissions, ED visits, mortality,	Care bundles failed to demonstrate a reduction in readmission rates, but poor implementation of	**B**

Reference	Purpose	Study Design	Data Collection/Outcome Measures	Findings/Conclusions	Grade
A., Jenkins, S., ... & Hollingworth, W. (2019). Evaluation of 'care bundles' for patients with chronic obstructive pulmonary disease (COPD): a multisite study in the UK. BMJ open respiratory research, 6(1), e000425.	readmissions, ED visits, mortality, costs and process of care.		costs and process of care	discharge bundle elements was a potential factor and was only achieved in 7.6% of cases.	
Benzo, R., Vickers, K., Novotny, P. J., Tucker, S., Hoult, J., Neuenfeldt, P., ... & McEvoy, C. (2016). Health coaching and chronic obstructive pulmonary disease rehospitalization. A randomized study. American journal of respiratory and critical care medicine, 194 (6), 672-680.	Evaluated the effect of health coaching on the rate of COPD readmissions	RCT	Measured health coaching vs usual care on 215 patients with COPD. The primary outcome was COPD related readmissions.	The health coaching intervention significantly impacted COPD readmission rates at 1, 3, and 6 months post–hospital discharge.	**B**
Wong, E. L., Yam, C. H., Cheung, A. W., Leung, M. C., Chan, F. W., Wong, F. Y., & Yeoh, E. K. (2011). Barriers to effective discharge planning: a qualitative study investigating the perspectives of frontline healthcare professionals	Identify facilitators and barriers to effective discharge planning.	Focus group interviews	semi-structured group discussions that focused on current practice on hospital discharge, barriers to effective hospital discharge, and suggested structures and process for an effective discharge planning system	The collaboration between acute and community healthcare professionals needs to be improved and emphasized for effective discharge planning.	**C**
Parikh, R., Shah, T. G., & Tandon, R. (2016).	Purpose was to construct a COPD exacerbation care bundle and	Prospective analysis	Length of stay, readmission rates, and hospital costs.	Care bundles demonstrated significant improved care for COPD exacerbation patients during hospitalizations	**C**

Reference	Purpose	Study Design	Data Collection/Outcome Measures	Findings/Conclusions	Grade
	evaluate the effects on length of stay, readmission rates, and hospital costs.			and also decreased the cost of care.	
Laverty, A. A., Elkin, S. L., Watt, H. C., Millett, C., Restrick, L. J., Williams, S., ... & Hopkinson, N. S. (2015). I	measured the impact of a COPD discharge care bundle on readmission rates following hospitalization with an acute exacerbation.	Interrupted time series	Readmission rates within 7, 28, and 90 days before and after implementation	Hospitals using COPD discharge care bundles appeared to have a reduction in readmission rates	**C**
Turner, A. M., Lim, W. S., Rodrigo, C., Welham, S. A., & Calvert, J. M. (2015).	Evaluated admission and discharge bundle implementation	Longitudinal Observational	Bundle completion rates were linked to LOS, readmissions, and QOL.	Supports the use of bundles and demonstrated a significant reduction in readmissions and LOS. Supported discharge interventions included proper inhaler use, self-management education, pulmonary rehab, smoking cessation, and f/u appointments before discharge.	**C**
Zafar, M. A., Panos, R. J., Ko, J., Otten, L. C., Gentene, A., Guido, M., ... & Alessandrini, E. A. (2017). Reliable adherence to a COPD care bundle mitigates system-level failures and reduces COPD readmissions: a system redesign using improvement science. BMJ quality & safety, 26(11), 908-918.	Reduce 30-day all-cause readmissions by creating a COPD care bundle that addresses care delivery failures	Cross-sectional study	cross-sectional study of COPD 30-day readmissions from October 2014 to March 2015 to identify care delivery failures.	Higher readmission rates were associated with system-level failures, such as deficient inhaler use, late follow-up appointments, confusing discharge instructions.	**C**

Reference	Purpose	Study Design	Data Collection/Outcome Measures	Findings/Conclusions	Grade
Jackson, C., Shahsahebi, M., Wedlake, T., & DuBard, C. A. (2015). Timeliness of outpatient follow-up: an evidence-based approach for planning after hospital discharge. The Annals of Family Medicine, 13 (2), 115-122.	Measured the timeliness of outpatient follow-up visits and its effect on readmissions.	Observational	The final study sample included 44,473 Medicaid recipients. Measured the effectiveness of f/u visits at 3, 7, 14, 21, and 30 days after discharge.	Patients with multiple comorbidities benefited significantly from f/u visits scheduled within 7 days.	**B**
Sulaiman, I., Cushen, B., Greene, G., Seheult, J., Seow, D., Rawat, F., ... & MacHale, P. (2017). Objective assessment of adherence to inhalers by patients with chronic obstructive pulmonary disease. American journal of respiratory and critical care medicine, 195 (10), 1333-1343.	Evaluated patterns of inhaler use and determinants of adherence	Prospective observational study	244 patients included in study. Measured the inhaler time of use, interval between doses, and intentional and unintentional errors.	Can assist clinicians in understanding why inhaler use is not effective and devise strategies to promote adherence in inhaler usage.	**B**

Appendix B: Walden IRB Approval Number

Walden IRB approval # is 05-20-20-0391257.

Appendix C: Clinical Practice Guideline

Clinical Practice Guideline for Transitions of Patients with Chronic Obstructive Pulmonary Disease

Background

Chronic Obstructive Pulmonary Disease (COPD) is a significant public health challenge and is one of the leading causes of hospitalization and readmissions in the United States, with 1 out of every 5 patients readmitted within 30 days of discharge. Current research suggests that many of these patient readmissions could be prevented by using a multidisciplinary approach to develop a high quality, evidence-informed clinical practice guideline. COPD discharge bundles are one type of clinical practice guideline and can be defined as "a small, straightforward set of evidence-based practices — generally three to five — that, when performed collectively and reliably, have been proven to improve patient outcomes" (IHI, n.d., p. 1; Joint Commission International, 2016). A recent study found that COPD patients only receive evidence-based care approximately 50% of the time (Willard et al., 2016). The development and implementation of a COPD clinical guideline for discharge care planning promote adherence to best practice recommendations and provides a structured way of improving processes of care, thereby improving patient outcomes and reducing 30-day readmissions.

Scope and Purpose

Objectives

The purpose of this guideline is to provide evidence-based recommendations to clinicians for the safe discharge care of COPD patients. The overall aim of this guideline is to improve the quality of life for people with COPD by reducing excessive hospital readmissions through the development and implementation of an evidence-based COPD clinical practice guideline for discharge care planning that aligns with national guideline recommendations. This clinical practice guideline will provide clinicians with a standardized discharge process for the safe discharge care of COPD patients.

Questions

The practice-focused question is: Can a multi-disciplinary group develop evidence-based clinical practice guidelines that meet the AGREE II criteria for the discharge care of COPD patients?

Target Population

This guideline is intended for adult patient populations, age 18 years old or older, male and female, who are admitted with a primary diagnosis of Chronic Obstructive Pulmonary Disease. This guideline excludes patients aged 17 years or younger.

Intended Users

The intended users of this guideline include multidisciplinary team members who provide care to admitted patients with a primary diagnosis of COPD, including but not limited to

providers, nursing, respiratory therapy, case management, social workers, pharmacy, dietary, cardiopulmonary technicians, and physical and occupational therapy.

Key Recommendations

Recommendation 1: Smoking Cessation	**Evidence Category**	**Strength of Recommendation**
• Smoking cessation is the most important intervention to prevent acute exacerbations and worsening COPD [3]. • Efforts to prevent hospital readmissions should include smoking cessation counseling and referrals to smoking cessation programs [3,9].	A	Strong

Recommendation 2: Proper inhaler technique	**Evidence Category**	**Strength of Recommendation**
• Poor technique of inhaled therapies can increase the risk of exacerbations, thereby increasing the risk of hospitalization [2,3]. • 6 out of 10 patients report non-adherence to COPD medications due to incorrect use of inhaled therapies [2,3,9]. • Strategies to prevent hospital readmissions should include evidence-based educational methods to correct the use of inhalers [3].	A	Strong

Recommendation 3: Pulmonary rehabilitation	**Evidence Category**	**Strength of Recommendation**
• The benefits of pulmonary rehabilitation have been studied extensively, and its positive outcomes consistently include reducing dyspnea, minimizing COPD symptoms, improving quality of life, and reducing hospital readmissions [3,4,9]. • Approaches to reduce hospital readmissions should include referrals to pulmonary rehabilitation, as appropriate, with the best outcomes being demonstrated in programs lasting 6 to 8 weeks [3].	A	Strong

Recommendation 4: Self-management education	**Evidence Category**	**Strength of Recommendation**

• Evidence is abundant that self-management interventions, such as how to manage exacerbations and when to take medications, improve outcomes in COPD [1,2,3,9]. • Teaching self-management strategies, delivered by a respiratory therapist or nurse, at the time of discharge, reduce rehospitalization, and emergency department visits [1]. • Programs to reduce hospital readmissions should include teaching self-management strategies [3,9].	B	Strong

Recommendation 5: Scheduling follow-up visits	**Evidence Category**	**Strength of Recommendation**
• Scheduling timely outpatient follow-up visits before discharge have been promoted as a critical strategy to reduce readmissions [3,6]. • Nearly 50% of 30-day readmissions do not have a follow-up before the readmission [6]. • Results from various studies suggest that higher-risk patients with 3 or more comorbidities, such as COPD patients, can significantly benefit from follow-up visits scheduled within 7 days of discharge, with a 20% reduction in 30-day readmissions [3.6].	B	Strong

Supporting Evidence

A recent systematic review found that using COPD discharge bundles leads to fewer readmissions (Ospina et al., 2017), suggesting that the use of care bundles can improve discharge planning by providing a consistent, standardized protocol that nurses can adhere to.

1. Benzo, R., Vickers, K., Novotny, P. J., Tucker, S., Hoult, J., Neuenfeldt, P., ... & McEvoy, C. (2016). Health coaching and chronic obstructive pulmonary disease rehospitalization. A randomized study. *American journal of respiratory and critical care medicine*, *194*(6), 672-680. Retrieved from the Google Scholar database.
2. Dantic, D. E. (2014). A critical review of the effectiveness of 'teach-back'technique in teaching COPD patients self-management using respiratory inhalers. *Health Education Journal*, *73*(1), 41-50. Retrieved from the Google Scholar database.

3. Global Initiative for Chronic Obstructive Lung Diseases [GOLD] (2020*). Global Strategy for Diagnosis, Management and Prevention of COPD.* Retrieved from https://goldcopd.org/wp-content/uploads/2019/11/GOLD-2020-REPORT-ver1.0wms.pdf
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9. Willard, K. S., Sullivan, J. B., Thomashow, B. M., Jones, C. S., Fromer, L., Yawn, B. P., ... & Rotert, R. (2016). The 2nd national COPD readmissions summit and beyond: from theory to implementation. *Chronic Obstructive Pulmonary Diseases*, *3*(4), 778. Retrieved from the Google Scholar database.

Methods

Search Methods and Criteria Selection

Literature searches were performed using the Cochrane Database of Systematic Reviews, Google Scholar, and the following Walden Library databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline Simultaneous Search, ProQuest Nursing, and PubMed. Inclusion criteria were used to locate scholarly and peer-reviewed journals that highlight the importance of using discharge bundles to improve readmission rates for COPD patients. Scholarly and peer-reviewed journals that were consulted were between 2010 and 2020, and search terms and phrases included the following: chronic obstructive pulmonary disease, COPD, acute exacerbation of chronic obstructive disease, care bundles, GOLD guidelines, clinical practice guidelines for COPD, discharge planning for COPD, and benefits of discharge planning. The websites of leading national and international public health organizations were also consulted,

such as The Institute of Medicine, the World Health Organization, the Centers for Disease Control and Prevention, and the Agency for Healthcare Research and Quality.

Strength of Evidence

Description of Levels of Evidence		
Evidence Category	**Sources of Evidence**	**Definition**
A	Randomized controlled trials (RCTs) Rich body of high-quality evidence without any significant limitation or bias	Evidence is from endpoints of well-designed RCTs that provide consistent findings in the population for which the recommendation is made without any important limitations. Requires high quality evidence from ≥ 2 clinical trials involving a substantial number of subjects, or a single high quality RCT involving substantial numbers of patient without any bias.
B	Randomized controlled trials (RCTs) Limited Body of Evidence	Evidence is from RCTs that include only a limited number of patients, post hoc or subgroup analysis of RCTs or meta-analysis of RCTs. Also pertains when few RCTs exist, or important limitations are evident (methodologic flaws, small numbers, short duration, undertaken in a population that differs from the target population of the recommendation, or the results are somewhat inconsistent).
C	Non-randomized trials Observational studies	Evidence is from outcomes of uncontrolled or non-randomized trials or from observational studies.
D	Panel consensus judgement	Provision of guidance is deemed valuable but clinical literature addressing the subject is insufficient. Panel consensus is based on clinical experience that doe not meet the above stated criteria.

References

1. **Lozano, R., Naghavi, M., Foreman, K., Lim, S., Shibuya, K., Aboyans, V., ... & AlMazroa, M. A. (2012). Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. The lancet, 380(9859), 2095-2128.**
2. **Mathers, C. D., & Loncar, D. (2006). Projections of global mortality and burden of disease from 2002 to 2030. Plos med, 3(11), e442.**

Stakeholder Involvement

This guideline was developed by Thomas Stewart, Doctor of Nursing Practice student at Walden University. The intended goal of this guideline is to improve the care of COPD patients by reducing excessive hospital readmissions through the development of an evidence-based COPD clinical practice guideline for discharge care planning. Key administrative and clinical personnel at the healthcare facility provided valuable insight into the development of this guideline.

Facilitators/Barriers to Implementation

Current literature describes significant challenges in implementing COPD discharge bundles that involve a multidisciplinary team. Roles and responsibilities of the multidisciplinary team must be clearly defined to facilitate successful implementation.

Funding/Conflict of Interest

This clinical practice guideline was developed as part of a Doctor of Nursing project. All work completed for this scholarly project is free from competing interests, and there is no funding for this project.

Monitoring and Data Collection

This guideline should be reviewed on an annual basis and revised as necessary to reflect the latest evidence. The use of bundled interventions recommended by this guideline will be audited monthly using the hospital's quality dashboard.

Disclaimer

The recommendations prepared in this guideline are summarized directly from evidence-based sources. However, this guideline is not intended to supplant, replace, or overrule the clinical judgment of qualified health care providers.

Appendix D: Expert Panels Scoring of Clinical Practice Guideline

Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6	OA 1	OA 2
90%	81%	92%	84%	83%	93%	80%	Yes - 3, Yes with modifications - 2, No – 0

Domain 1. Scope and Purpose					
	Appraiser 1	Appraiser 3	Appraiser 5	Appraiser 6	Appraiser 10
Item 1	6	6	6	7	6
Item 2	6	7	6	7	7
Item 3	6	7	6	7	6
Domain 2. Stakeholder Involvement					
	Appraiser 1	Appraiser 3	Appraiser 5	Appraiser 6	Appraiser 10
Item 4	6	2	7	7	6
Item 5	6	4	5	7	5
Item 6	6	6	7	7	7
Domain 3. Rigour of Development					
	Appraiser 1	Appraiser 3	Appraiser 5	Appraiser 6	Appraiser 10
Item 7	6	7	6	7	7
Item 8	6	7	6	7	7
Item 9	6	6	6	7	7

Item 10	6	7	7	7	6
Item 11	6	7	7	7	6
Item 12	6	7	6	7	6
Item 13	6	7	6	7	6
Item 14	6	7	6	7	6
Domain 4. Clarity of Presentation					
	Appraiser 1	Appraiser 3	Appraiser 5	Appraiser 6	Appraiser 10
Item 15	7	5	6	7	6
Item 16	6	5	5	7	6
Item 17	6	7	5	7	6
Domain 5. Applicability					
	Appraiser 1	Appraiser 3	Appraiser 5	Appraiser 6	Appraiser 10
Item 18	6	7	7	4	6
Item 19	6	7	6	4	7
Item 20	6	6	6	4	7
Item 21	6	6	6	5	7
Domain 6. Editorial Independence					
	Appraiser 1	Appraiser 3	Appraiser 5	Appraiser 6	Appraiser 10

Item 22	7	7	7	7	7
Item 23	6	7	7	7	4
Overall Assessment					
	Appraiser 1	Appraiser 3	Appraiser 5	Appraiser 6	Appraiser 10
OA1	6	6	6	5	6

Appendix E: AGREE II Apraisal Instrument and Instructions

AGREE II Score Sheet

Domain	Item	AGREE II Rating						
		1 *Strongly Disagree*	**2**	**3**	**4**	**5**	**6**	**7** *Strongly Agree*
Scope and purpose	1. The overall objective(s) of the guideline is (are) specifically described.							
	2. The health question(s) covered by the guideline is (are) specifically described.							
	3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.							
Stakeholder involvement	4. The guideline development group includes individuals from all the relevant professional groups.							
	5. The views and preferences of the target population (patients, public, etc.) have been sought.							
	6. The target users of the guideline are clearly defined.							
Rigor of development	7. Systematic methods were used to search for evidence.							
	8. The criteria for selecting the evidence are clearly described.							
	9. The strengths and limitations of the body of evidence are clearly described.							
	10. The methods for formulating the recommendations are clearly described.							
	11. The health benefits, side effects and risks have been considered in formulating the recommendations.							
	12. There is an explicit link between the recommendations and the supporting evidence.							
	13. The guideline has been externally reviewed by experts prior to its publication.							

	14. A procedure for updating the guideline is provided.							
Clarity of presentation	15. The recommendations are specific and unambiguous.							
	16. The different options for management of the condition or health issue are clearly presented.							
	17. Key recommendations are easily identifiable.							
Applicability	18. The guideline describes facilitators and barriers to its application.							
	19. The guideline provides advice and/or tools on how the recommendations can be put into practice.							
	20. The potential resource implications of applying the recommendations have been considered.							
	21. The guideline presents monitoring and/ or auditing criteria.							
Editorial independence	22. The views of the funding body have not influenced the content of the guideline.							
	23. Competing interests of guideline development group members have been recorded and addressed.							
Overall Guideline Assessment	1. Rate the overall quality of this guideline.	**1** *Lowest possible quality*	**2**	**3**	**4**	**5**	**6**	**7** *Highest possible quality*
Overall Guideline Assessment	2. I would recommend this guideline for use.	*Yes*	*Yes, with modifications*					*No*

Appendix F: Disclosure to Expert Panel

Disclosure to Expert Panelist Form for Anonymous Questionnaires
To be given to expert panelist prior to collecting questionnaire responses—note that obtaining a "consent signature" is not appropriate for this type of questionnaire and providing respondents with anonymity is required.

Disclosure to Expert Panelist:
You are invited to take part in an expert panelist questionnaire for the doctoral project that I am conducting.

Questionnaire Procedures:
If you agree to take part, I will be asking you to provide your responses anonymously, to help reduce bias and any sort of pressure to respond a certain way. Panelists' questionnaire responses will be analyzed as part of my doctoral project, along with any archival data, reports, and documents that the organization's leadership deems fit to share. If the revisions from the panelists' feedback are extensive, I might repeat the anonymous questionnaire process with the panel of experts again.

Voluntary Nature of the Project:
This project is voluntary. If you decide to join the project now, you can still change your mind later.

Risks and Benefits of Being in the Project:
Being in this project would not pose any risks beyond those of typical daily professional activities. This project's aim is to provide data and insights to support the organization's success.

Privacy:
I might know that you completed a questionnaire but I will not know who provided which responses. Any reports, presentations, or publications related to this study will share general patterns from the data, without sharing the identities of individual respondents or partner organization(s). The questionnaire data will be kept for a period of at least 5 years, as required by my university.

Contacts and Questions:
If you want to talk privately about your rights in relation to this project, you can call my university's Advocate via the phone number 612-312-1210. Walden University's ethics approval number for this study is 05-20-20-0391257.
Before you start the questionnaire, please share any questions or concerns you might have.

Appendix G: Permission to use GOLD Description of Levels of Evidence Table

Stewart, Thomas
From: donotreply=goldcopd.org@mg.goldcopd.org on behalf of GOLD <donotreply@goldcopd.org>
Sent: Monday, June 22, 2020 12:30 PM

Subject: GOLD Copyright Permission Form - Thomas Stewart

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