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## Transition of Care for Discharged Patients

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**Transition of Care for Discharged Patients**

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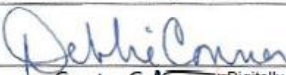
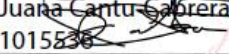
This Manuscript Partially Fulfills the Requirements for the  
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December 1, 2020

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<i>My signature confirms I have reviewed and approved this final written DNP Scholarly Project. DocuSign electronic signature or wet signature required.</i>		
<b>Type Name in Blue Box Below</b>	<b>Signature</b>	<b>Date</b>
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### Abstract

**Practice Problem:** The 30-day readmission rate for patients discharged from the hospital and returned to their primary care in a clinical office setting (21%) was higher than the national average readmission rate (17%). The high readmission rate suggested patients were receiving transitional care that was fragmented and non-standardized. Therefore, the implementation of a collaborative transition of care practice was vital to reduce avoidable readmissions.

**PICOT:** The PICOT question that guided this project was, “In adult patients with chronic conditions, what is the effect of a transition of care practice, versus a non-standardized practice, on reducing 30-day readmissions, within a 30-day period?”

**Evidence:** Evidence suggests that implementing a multidisciplinary Transition of Care practice for patients who are discharged from the hospital to home decreases the 30-day readmission rate.

**Intervention:** Using a multidisciplinary approach, the registered nurse implemented a Transition of Care practice, consisting of 10 evidence-based interventions, applied to help the patient transition from hospital to home.

**Outcome:** The results of this project revealed a decrease in the 30-day readmission rate from 23% to 15%. Also, seven of the 10 interventions were successfully implemented at a rate of higher than 85%.

**Conclusion:** The reduction in the percent of 30-day readmissions was statistically and clinically significant between the pre-transition of care and the post-transition of care participants. In addition, the transition of care interventions were successfully implemented to standardize an evidence-based practice for patients transitioning from the hospital to their home.

### **Transition of Care for Discharged Patients**

Avoidable readmissions related to chronic conditions are a worldwide epidemic and continue to burden our healthcare systems (Kreimer, 2016). The transition period from hospital to home leaves many patients in a vulnerable state, which can lead to adverse events and readmissions (Gallahue et al., 2015). Often patients are discharged from the hospital with poor understanding of their illnesses and complicated discharge instructions (Balbale et al., 2016). Many of these patients do not have a timely follow-up with their primary healthcare team and struggle to understand new medications (Gallahue et al., 2015).

High 30-day readmission rates suggest patients continue to receive fragmented care after they have been discharged from the hospital (Hirschman et al., 2015). To improve the quality of transitional care post-discharge, it is critical for healthcare organizations to integrate a collaborative, patient-centered Transition of Care (TOC) practice. The purpose of this project was to prevent 30-day readmissions for adult patients with a chronic condition by reducing fragmentation in care and implementing a collaborative TOC practice. Applying an evidence-based TOC practice improved the transition of patients discharged from the hospital to home. The outcomes of this project demonstrated a significant reduction in 30-day readmissions and illustrate the effectiveness of a collaborative TOC practice.

### **Significance of the Practice Problem**

In 2017, healthcare costs accounted for about 3.5 trillion dollars, or about 18% of the entire United States (US) gross domestic product (Centers for Disease Control and Prevention [CDC], 2019). Hospitalizations constituted one-third of healthcare spending. Despite increased awareness, unnecessary readmissions continue to rise (CDC, 2019). Avoidable readmissions account for 40 billion dollars annually (Ayele et al., 2017; Backman et al., 2018). Avoidable

readmissions within 30 days of discharge are often related to fragmentation in care resulting from lack of a standardized TOC practice and poor discharge planning (Auerbach et al., 2016).

With improvements in technology and advancements in healthcare, the elderly population continues to grow (Rowe et al., 2016). However, many live with chronic conditions like congestive heart failure (CHF), hypertension, diabetes, and chronic obstructive pulmonary disease (COPD). These can result in multiple hospital admissions (Blumenthal et al., 2016). Healthcare for this population is complex and often involves multiple specialties (Blumenthal et al., 2016). Complex discharge instructions, medication changes, diet modifications, and social needs can be overwhelming for patients (Ayele et al., 2017). Nationally, 30-day readmission rates have been as high as 30% (Piette et al., 2020). According to the CDC (2019), 90% of U.S. medical spending supports patients with chronic conditions. On average, the United States spends twice as much per capita as any other country.

In Texas, chronic conditions such as CHF and COPD are leading causes of mortality (Hellerstedt, 2018). Further, the southern region of Texas and the Rio Grande Valley have seen an increase in patients with morbid obesity and diabetes (Manusov et al., 2019). This trend may be related to socioeconomic status as well as lack of patient education (Hellerstedt, 2018).

Within the healthcare organization chosen for this project, chronic conditions are responsible for at least 70% of all admissions and contribute to most readmissions within 30 days of discharge. Currently, the organization is lacking a standardized practice for patient care post-hospitalization. Therefore, implementing a collaborative TOC process that incorporates a patient-centered approach is vital to improve care and reduce avoidable readmissions for this patient population (Facchinetti et al., 2019).

### **PICOT Question**

In adult patients with chronic conditions, what is the effect of a transition of care practice, versus a non-standardized practice, on reducing 30-day readmissions, within a 30-day period?

### **Population**

The population for this project included adults with a chronic condition who were discharged home and followed up by the primary care team in the outpatient facility selected for this project. Adult patients with chronic conditions are more likely to be readmitted when they do not receive a standardized TOC practice (Ni et al., 2018). Gaps in care result in medication nonadherence, lack of patient engagement, and timely follow-up with the primary care provider (Auerbach et al., 2016).

### **Intervention**

The intervention for this project was to implement a collaborative TOC practice for adult patients with chronic conditions who were discharged from the hospital to home. The TOC practice incorporated the entire clinical team, including the primary care provider, nurse, and social worker. Using a patient-centered approach, the clinicians engaged the patient as part of the healthcare team to develop a personalized care plan. The intervention began when the patient was discharged from the hospital and ended four weeks post-discharge.

### **Comparison**

The current practice for patients discharged from a hospital is not standardized throughout the outpatient clinic. Furthermore, it fails to provide collaborative and timely interventions, which has resulted in a high number of patients with readmissions. Currently, patients are not contacted by a nurse within 48-72 hours post-discharge. They often experience issues related to medication errors, lack of a follow up appointment, and have social needs that

are left unmet. The lack of a collaborative and effective TOC practice has led to confusion for the patients and their families, resulting in unnecessary readmissions.

The desired outcome was to improve the TOC for adult patients with chronic conditions who are discharged from the hospital. The collaborative interventions included interdisciplinary care that is timely and patient-centered. All discharged patients were contacted within 48-72 hours via telephone by an RN. The RN completing the telephone encounter reviewed the discharge instructions, provided pertinent education using a teach-back process, and ensured there was timely follow-up appointment with the primary care provider. The preferred method for the follow-up visit was a face-to-face visit. However, the provider could also use video telehealth or telephone if the patient was unable to make a physical appointment.

### **Outcome**

Patients experienced a seamless TOC upon discharge and unnecessary readmissions decreased. Data was collected and analyzed using a retrospective method after 30 days of implementation. According to the Institute for Healthcare Improvement (IHI, n.d.), the national 30-day readmission rate is about 17%. However, the baseline 30-day readmission rate for the outpatient clinic is higher, at 21%. The outcome goals were to decrease the 30-day readmission rate to 17% during the first 30 days of intervention.

### **Timeline**

The timeline for this project to be implemented was 12 weeks. Retrospective data was collected to obtain a baseline 30-day readmission rate for the organization. During the 12-week implementation period, the process data was collected and analyzed. Each participant was tracked for 30 days post-discharge and the outcome measure was collected and compared with the baseline readmission rate.



### **Evidence-Based Practice Framework and Change Theory**

Successful improvement projects include a change methodology to serve as the framework for implementation (Christoff, 2018). Additionally, a change theory must support the transformation of the practice within the healthcare organization and culture (Batras et al., 2016). Healthcare environments are complex organizations with multiple interconnected and interdisciplinary processes. Since the Institute for Healthcare Improvement (IHI) published “To Err is Human” in 1999 and “Crossing the Quality Chasm” in 2001, much focus has been directed to implementing process improvements to help reduce medical errors and patient outcomes (IHI, n.d.).

#### **Framework**

The Plan, Do, Study, Act (PDSA) is a four-step change model used widely throughout healthcare organizations to implement practice changes (Sylvia & Terhaar, 2018). It can be used to improve and sustain evidence-based practices, or EBP (Christoff, 2018). The PDSA allows for continuous monitoring of a process throughout its implementation and after dissemination (Sylvia & Terhaar, 2018). The PDSA (Sylvia & Terhaar, 2018) contains the following phases:

1. *Plan*: The project manager identified the problem with the current TOC practice by collecting baseline data. A team was assembled to establish clear and measurable objectives to reduce the 30-day readmission rate.
2. *Do*: Once the new process was developed, the project manager implemented the interventions at the outpatient clinic. This allowed for testing of the new interventions.

3. *Study*: The project manager obtained data resulting from the processes selected and analyzed the results. This determined if the new practice was successful at decreasing 30-day readmissions or if it required reevaluating.
4. *Act*: The project manager worked with leadership to disseminate the new process throughout the healthcare system as a standardized practice.

### **Change Theory**

The theoretical framework for this project was Lewin's Organizational Change Theory and three-step model to implement and sustain changes (as cited in Batras et al., 2016). Using Lewin's change theory, the project manager helped conceptualize the required phases within the organization and involved all key stakeholders, including frontline staff (Batras et al., 2016). Lewin's three-step model allowed for a better understanding of how organizational barriers, as well as habitual practices, influenced the acceptance of change within the organization (Batras et al., 2016).

The first phase in Lewin's three-step model is to *unfreeze* the current practice. Lewin (as cited in Batras et al., 2016) believed that change must be accompanied by the awareness of the need to change. In this project, creating awareness was accomplished by using visual data and literature to exemplify the high 30-day readmission rate within the organization. Additionally, illustrative examples of patients who were readmitted due to lack of TOC practice and coordination were used as an effective method to help create a desire for change. Helping clinicians understand the importance of change discourages the natural tendencies of staff to resist change (Batras et al., 2016).

The second phase of Lewin's theory is the *move* phase, also known as the implementation phase (as cited in Batras et al., 2016). While this phase is initially implemented in a limited

setting, it is an essential step towards gaining acceptance from clinicians and other key stakeholders. In this project, creating buy-in from staff was facilitated through proper education and training. This phase allowed for the organization to obtain an objective review of the process and outcomes prior to dissemination throughout the healthcare system.

The third phase of Lewin's theory is the *refreezing* stage. The refreezing stage allows for sustainment of the new practice (as cited in Batras et al., 2016). In this phase, the project manager worked with leadership to help disseminate policies that were created in the second phase. These policies will help ensure the new practice is sustained throughout the organization. The refreezing phase is essential to ensuring the new practice continues to be implemented effectively throughout the organization (as cited in Batras et al., 2016).

### **Evidence Search Strategy**

A comprehensive review of the literature on reducing readmissions and providing a TOC practice for adult patients discharged with a chronic illness was conducted. The databases used for this search included Cochrane, DynaMed, Ovid Medline, PubMed, CINAHL Complete, Ovid Emcare, and Joanna Briggs. Initial search parameters included articles that were published in English, between the years 2015 and 2020. Keywords used were: "chronic illness," "transition of care," and "readmission." This search yielded 1,619 articles.

Parameters (including articles available as full text, English language, and peer reviewed academic journals) were added to the search to further narrow the findings. Additionally, Boolean Operators, including "AND" and "NOT" with inclusion and exclusion words, were added to the search. The Boolean Operator AND was added to the following search words: "chronic illness," "care coordination," "transition of care," "rehospitalization," and "readmission." The search was further narrowed by using the Boolean Operator "NOT" for the

following search words: “pediatric,” “mental health,” and “pain.” Hand-searches of reference lists generated three additional peer-reviewed, randomized control trial (RCT) articles.

### **Evidence Search Results and Evaluation**

The initial search words “chronic illness,” “transition of care,” and “readmission.” generated 1,619 articles. The search was narrowed to 267 articles by excluding articles published before 2015. Using the Boolean Operators (Melnik & Fineout-Overholt, 2015) to apply inclusion and exclusion criteria further narrowed the search to 181 articles. The 181 articles were reviewed by title, abstracts, and applicability to TOC and reduction of readmissions. All periodicals and duplications were removed, and three grey articles (CDC, 2019; IHI, n.d.; Veterans Affairs [VA], 2019b) were added to the final articles yielded. Of the 181 articles reviewed, 15 articles were yielded for this project.

Using the Johns Hopkins Nursing Evidence-Based Practice Model (n.d.), the 15 articles were graded for evidence level and quality. Of the 15 articles generated, 10 were graded at a Level II or higher with qualities of at least B (high quality). The remaining five articles were graded at Levels IV and V with qualities of at least B. These articles, as well as the grey literature, were used for literature support of existing standards of practice associated with transitional care post discharge. A summary of the article results and evaluations are included in Appendices A and B.

### **Themes from the Evidence**

All literature was assessed for quality using the Consolidated Standards of Reporting Trials (CONSORT) and PRISMA checklist (Johansen & Thomsen, 2016). The nine RCTs were rated as good to high quality and met at least 80% of the 25 CONSORT criteria. All three systematic reviews (SRs) were rated as good quality and met at least 85% of the 27 PRISMA

criteria. All 12 articles were designed with the sample population of adult patients with chronic conditions who were transitioning from hospital to home. The primary outcome for the 12 articles was to determine if the implementation of a TOC process decreased the rate of readmissions compared to the control group, who received usual care.

Four of the nine RCTs used a population sample with inclusion criteria that contained adult patients with any chronic condition who were also at high risk for readmissions. The remaining five RCTs focused on the specific diagnosis of either CHF or COPD. Only two of the RCTs used the LACE (length of stay, acuity of admission, co-morbidities, and emergency room visits) Index to help determine if the patient was at high risk for readmission. The patient LACE Index score can fall between zero and 19 (Low et al., 2017). A LACE index score of 10 or higher indicates the patient is at a high risk for readmission (Low et al., 2017). The remaining RCTs used different criteria, including the Charlson Comorbidity Index (Balaban et al., 2015) and previous history of high-risk chronic condition and readmissions.

Eight of the nine RCTs produced statistically significant outcomes in reducing readmissions related to chronic conditions within 30 days of discharge when implementing a TOC process. Only one RCT resulted in more readmissions after implementing a TOC process (Aboumatar et al., 2019). However, it focused on discharges within six months and did not report findings for 30-day discharges. Additionally, the RCT identified a limitation related to the lack of power to yield statistically significant results (Aboumatar et al., 2019).

The study by Johnson-Warrington et al. (2016) found mixed results, depending on the timeline reviewed for readmission rates. Although Johnson-Warrington et al. found a statistically significant decrease in readmissions for the 30-day timeline, there were no statistical improvements 90 days after implementation. Similarly, Balaban et al. (2015) only found a

statistically significant difference for adult patients  $\geq 60$  years of age. The combined findings established strong correlations between TOC processes and decreases in 30-day readmission rates.

The RCTs and SRs were synthesized and reviewed for findings indicating how a TOC practice decreases the readmission rates for adult patients with chronic conditions. Although each of the nine RCTs and three SRs studied multiple TOC approaches, four common themes emerged from the synthesis: patient self-management; medication review; education about early signs and symptoms of chronic conditions; and caregiver engagement.

### **Theme 1: Patient Self-Management**

The theme most often found in the research for adult patients discharged with a chronic diagnosis was *patient self-management*. All nine RCTs discussed patient self-management as a key indicator of the patient's ability to avoid being readmitted. The concepts of *self-care* and *self-efficacy* were used interchangeably with *self-management* throughout the articles. According to Cui et al. (2019), self-management skills are the ability to manage daily activities while adhering to lifestyle changes, medications, and diet compliance. Additionally, self-management is the ability to recognize red flags or early symptoms, and to verbalize what actions to take when symptoms arise (Balaban et al., 2015).

Several clinical interventions were identified to improve overall self-management. These included patient education, patient empowerment, and a patient-centered approach (Cui et al., 2019; IHI, n.d.; Johnson-Warrington et al., 2016; Piette et al., 2020). Five of the nine articles reported patient-centered planning as an effective intervention (Aboumatar et al., 2019; Benzo et al., 2016; Cao et al., 2017; Low et al., 2017; Johnson-Warrington et al., 2016). Additionally, motivational interviewing (MI) is a counseling technique that uses a patient-centered approach to

empower patients to modify their behaviors and improve self-care and adherence to instructions (Benzo et al., 2016; Piette et al., 2020).

### **Theme 2: Medication Review/Education**

*Medication review* and *medication education* were used interchangeably throughout the articles. Intervention to address medications post discharge was evident in all articles reviewed. Medication education was listed as an effective TOC intervention for patients discharged with a chronic condition. Medication barriers identified for patients after discharge were their inability to purchase new medications, lack of knowledge related to new prescriptions, and changes made to dosages. Bronstein et al. (2015) further identified that using the teach-back method during medication education was an essential component of the review process. Patients who were able to verbalize their medications, including their indications, were more likely to adhere to their prescribed doses (Benzo et al., 2016).

Three articles specifically referred to medication reconciliation as an essential TOC intervention (Albert, 2016; Low et al., 2017; Ni et al., 2018). The IHI (n.d.) cited medication reconciliation as a crucial intervention and defined it as “the process of creating the most accurate list possible of all medications a patient is taking, including drug name, dosage, frequency, and route. ...” (para. 2). Medication non-adherence often leads to complications and readmissions, and was identified as an issue in four of the nine RCTs (Albert, 2016; Benzo et al., 2016; Cui et al., 2019; Ni et al., 2018). Often, it was caused by lack of knowledge or confusion related to multiple or new medications.

### **Theme 3: Education on Early Signs/Symptoms**

Seven of the nine RCTs reported that education on early warning signs and symptoms was an essential intervention to help prevent readmissions for patients with chronic conditions.

The patient's ability to recognize early warning signs was found to improve overall healthcare outcomes throughout the literature reviewed. The IHI (n.d.) employed the concept of using red flags to help conceptualize the indication of early signs and symptoms when educating patients.

While most of the articles focused on patient education regarding CHF and COPD, the IHI (n.d.) found such education to be helpful throughout the entire spectrum of chronic conditions. Lack knowledge has led to exacerbations and rehospitalizations (Bronstein et al., 2015), and educating patients using the teach-back method on actions to take when early symptoms are identified was instrumental in preventing readmission (Benzo et al., 2016). Therefore, patients' verbalization of actions to take and having a point of contact available at all times were crucial to a successful transition from hospital to home (Low et al., 2017).

#### **Theme 4: Caregiver Involvement**

The fourth theme identified throughout the research was caregiver involvement. The term *caregiver* was used synonymously with *family member*, *support person*, and *care person*. Seven of the nine articles recommended patient caregiver engagement and involvement with healthcare planning. Although Piette et al. (2019) identified caregivers as essential to the TOC process, clinicians often failed to identify and involve the caregiver. This contributed to unnecessary readmissions and undesired healthcare outcomes (Piette et al., 2019).

A point of consensus among the articles was that patients with identified caregivers often had better outcomes and less complications related to the transitional periods of care. Those patients with engaged caregivers were less likely to rely on community support and to be readmitted (Bronstein et al., 2015). Furthermore, interventions with engaged caregivers were identified as essential to the process of transitional care for patients discharged with a chronic condition (Cao et al., 2017).



### **Similarities, Differences, and Controversies**

The literature review identified several key interventions to improve the quality of patient care throughout their transition after hospitalization. The four themes identified were consistent throughout the literature. While only three articles specifically referred to medication reconciliation, all the articles identified medication knowledge as crucial for reducing unnecessary rehospitalizations. *Medication reconciliation* is the specific terminology used by the IHI (n.d.), as well as by other healthcare accrediting organizations, such as The Joint Commission, and TJC (Piette et al., 2019).

The majority of the articles yielded positive results in decreasing 30-day readmission rates. However, not all articles noted significant reductions in readmissions for their intervention group. One article demonstrated positive results in decreasing readmission rates for 30 days but no change for those patients after 90 days (Johnson-Warrington et al., 2016). Further, studies that focused on timelines extending beyond 30 days were not conclusive in their findings regarding a decrease in readmission rates.

### **Practice Recommendations**

After a careful review and synthesis of the literature, we concluded that a successful TOC intervention requires a multifaceted, collaborative, and timely approach. Additionally, clinicians must utilize evidence-based methods to engage the patient and make the patient feel to be part of the health care team. These EBPs include health coaching, MI, and the teach-back method to help engage patients and their caregivers become active participants in the patients' plans of care (Cao et al., 2017). Research underpins the importance of engaging both the patient and the

support persons (Bronstein et al., 2015). Additionally, clinicians must use a multifaceted approach that empowers the patient as part of the healthcare team (Ridwan et al., 2019).

After discharge from an inpatient facility to home, patients must modify their lifestyles to include new diet regimes, different medications, improved sleeping habits, and integration of exercise regimes. MI and health coaching techniques are effective methods to help patients feel empowered as effective members of the healthcare team (Bunyan et al., 2017). An important part of MI is using good listening skills to identify what is important to the patient. This helps the clinician and patient establish practical and measurable goals.

The TOC practice interventions are communication-based and must include timely telephone encounters and follow-ups with a primary care provider (Auerbach et al., 2016). While the individual interventions are essential components of the new TOC practice, the nurses, providers, and social workers must all work collaboratively to support the patient and family in a holistic manner. Using a multifaceted TOC approach for patients transitioning from hospital to home requires timely collaboration among multiple disciplines and healthcare settings. Patient information, such as the discharge summary, must be made available for the primary care team within 72 hours of discharge to allow for continuation of care.

### **Project Setting**

The project setting is an outpatient clinic for adults who have served in the military. It is one of four clinics within the healthcare system and serves about 10,000 patients per year. The outpatient clinic uses the Patient Aligned Care Team (PACT) model to provide interdisciplinary coordinated care for each patient. The PACT model was implemented throughout the Veterans Health Administration (VHA) in 2009 using the primary care medical home (PCMH) concept as a framework to deliver interdisciplinary and holistic care (VHA, 2019). Additionally, each

primary care team is designed to serve as the central hub for those patients who receive care from different specialties. Every PACT team includes a licensed independent provider (LIP), a RN, a licensed vocational nurse (LVN), and a medical support assistant (MSA). Using a collaborative team approach, the PACT model allows patients to be at the center of their healthcare (VHA, 2019).

The mission of the outpatient clinic is “to provide excellence in healthcare by improving the patient’s health and wellbeing” (VHA, 2015, para. 3). The vision is “to be the role model in the healthcare industry by demonstrating excellence in healthcare” (VHA, 2015, para. 2). Each primary care team is designed to deliver patient-centered, holistic care, with emphasis on a multidisciplinary and collaborative approach (VHA, 2019). Furthermore, the organization prioritizes building coalitions with local community partners to ensure patients receive quality, timely, and coordinated care (VHA, 2019).

The stakeholders for this project include patients, providers, nurses, and leadership. The project is aimed to decrease 30-day readmissions by implementing a collaborative transition of care. It is aligned with the overarching goals of the organization to provide holistic, timely, and quality patient-centered care. Readmission rates are key performance indicators relevant to multiple quality indicators, including quality of care, healthcare costs, and patient satisfaction (Albert, 2016). Because transitional care practice is linked to multiple quality measures, this project will be sustained as a continuous process improvement initiative within the organization.

### **Organizational Analysis**

The strengths, weaknesses, opportunities, and threats (SWOT) analysis is a tool employed by healthcare systems to facilitate strategic planning of evidence-based projects (Harris et al., 2018). Using this tool in the planning phase helped the organization identify

unknown threats and areas of vulnerability. Additionally, the tool created an awareness of organizational attributes, which were leveraged to help implement the new TOC process. The SWOT analysis was completed with input from the key stakeholders, including the associate chief of medicine, nurse manager, case manager, and social worker. Refer to Appendix D for SWOT analysis results.

There were multiple strengths identified throughout the organization. However, one was identified as a key element in implementing the necessary changes in practice required to improve the TOC for discharged patients: leadership's commitment to quality care and to implementing practices that were patient-centered and reflected EBP. Additionally, the organization implemented a culture of a high reliability organization (HRO) that uses continuous process improvement strategies to improve patient care outcomes. The HRO qualities are an essential part of the outpatient clinic that helps foster a culture of safety (Sylvia & Terhaar, 2018).

A prominent weakness of the organization was the inability to provide acute care services for patients. The lack of inpatient services was considered a weakness because patients must seek care outside the organization when their health deteriorates and outpatient care is no longer adequate. Standardizing the practices and obtaining medical records between different healthcare systems with different electronic healthcare records (EHRs) was also identified as a weakness.

The stakeholders identified the development of stronger rapport with community partners to help improve overall communication as an opportunity. Therefore, the community care staff were designated as liaisons between the organization and the community healthcare systems. Another opportunity that was identified was to make the EHRs more available for staff within

the organization. Currently, only a few of the case managers have access to records from the community's hospitals.

Losing patients to the community was identified by the team as a viable threat. Recent legislation allows the patients increased flexibility in choosing a healthcare system throughout the community (VHA, 2020). Losing patients to other healthcare organizations will ultimately lead to a decrease in patient census. This can negatively impact the organization financially, which could lead to less resource availability. Additionally, the growing complexity of healthcare for patients with chronic conditions was identified as a threat. Awareness of these threats allowed the organization to plan the implementation of the TOC practice with an understanding of potential future barriers.

### **Project Overview**

Unnecessary readmissions related to fragmented and non-standardized TOC practices continue to burden healthcare systems throughout the nation (Kreimer, 2016). Aligning the project goals with the organizational mission and vision is an essential component of this project. Using a patient-centered approach, this project will engage the patient as part of the healthcare team to improve healthcare outcomes (Auerbach et al., 2016). Furthermore, the overall objectives will include practical short and long-term goals to modify the TOC practice so that it remains effective and practical for the organization.

### **Project Mission and Vision**

The mission of this project is to lower or prevent all unnecessary readmissions to the hospital within 30 days of discharge for adult patients with a chronic illness. The vision is that all patients will experience a seamless and holistic service at time of hospital discharge which is the

result of a multidisciplinary and collaborative approach. The mission and vision of the project are in alignment with the patient-centered care approach that is valued by the organization.

### **Project Objective**

The objective of the project was to implement a multidisciplinary transition of care process, which would ultimately improve the 30-day hospital readmission rate for the organization. The short-term objectives were to collect baseline data, create awareness, and educate on the new process. These objectives were accomplished in the first four weeks of the implementation stage. Training of the staff was completed after the initial data collection and took approximately two weeks. Modalities such as online or face-to-face training helped ensure flexibility and allowed for distance learning without accruing unnecessary travel expenses. The long-term goal of the project is to have a significant decrease in the hospital readmission rate. The progress of this goal can be measured beginning 30 days after implementation of the new process.

The primary risk to this project that was identified was that it might create a negative perception of the new TOC practice due to the added workload. This risk was mitigated by examining workflows and by identifying and removing any nonvalue-adding steps. Additionally, working closely with frontline clinicians and leadership to develop a process that meets the unique demands of the organization was identified as an imperative.

### **Project Plan**

The project plan was to implement the new TOC practice using the PDSA change model. This change model uses a four-step process to implement practice changes rapidly (Christoff, 2018). Applying this model as the framework for this project allowed for a deep-dive review of then-current TOC practice and the development of objectives to improve the practice with clear

and measurable outcomes. Moreover, adhering to the principles of the PDSA model assured that practices continued to be monitored and adjusted as needed.

The “Plan” phase allowed the project manager to work with organizational leadership and stakeholders to define the problem and develop measurable objectives (Christoff, 2018). The project manager developed a project charter to provide clear guidance (Harris et al., 2018). Next, the project manager collaborated with clinic leadership to ensure commitment to implementing the new TOC practice. As noted previously, obtaining full support from leadership is crucial to the success of such a project (Harris et al., 2018). The project manager also worked with the nurse manager to assemble a project team comprised of key individuals representing all clinical service lines involved with the TOC process. Including frontline staff in the planning phase facilitated successful implementation and reduced barriers associated with lack of buy-in and resistance to change (Sylvia & Terhaar, 2018). Tools such as the process map (Sylvia & Terhaar, 2018) and SWOT analysis (Sylvia & Terhaar, 2018) helped identify practice issues that often resulted in fragmented care for many patients who were transitioning from hospital to home.

Furthermore, the lack of timely coordination was identified as a major shortcoming that placed patients at risk for unnecessary readmissions (Auerbach et al., 2016). Illustrating these areas of weaknesses and opportunities was instrumental in creating awareness of the need to change the current practice. A synthesis of literature and input from the primary stakeholders was used to develop the new TOC practice interventions and to align them with the organization’s mission, vision, and values. Based on these interventions, the clinic leadership developed a standard of practice (SOP), which established clear guidelines for clinicians.

Additionally, the project coordinator worked with the clinical informatics staff and the nurse

manger to modify the current note templates to include the required TOC interventions. The SOP and note templates ensured clinicians were adhering to the interventions.

The next PDSA phase is the “Do” phase (Christoff, 2018). Throughout this phase, the interventions developed in the planning phase were implemented on a smaller scale to test the new project and analyze the outcomes (Christoff, 2018). Additionally, audit measures collected both summative and formative findings from this project. The project was implemented at the outpatient clinic with participants discharged from local community hospitals.

The interventions started when the patient was discharged and concluded after four weeks. The TOC RN completed the first telephone encounter within 72 hours of the patient discharge date. The use of MI is an EBP which engages patients as drivers in their healthcare, allowing them to modify behaviors and improve healthcare outcomes (Bunyan et al., 2017). The MI approach requires clinicians to have an open mind and to listen to what is important to the patient. In this instance, the patient was considered the subject matter expert, which helped develop a personalized care pathway and set realistic and attainable goals (Cao et al., 2017).

The TOC RN introduced the program and provided a name and telephone number that served as the patient’s point of contact. An integral component of the initial telephone encounter was medication reconciliation. Medication reconciliation involves comparing the patient’s new medications with their current medications to prevent errors, omissions, and duplications (Ni et al., 2018). Medication errors continue to be one of the most prevalent issues associated with readmissions (Ridwan et al., 2019). The TOC nurse completed the medication reconciliation by reviewing each medication with the patient and comparing it to the EHR from the hospital. If the nurse identified a discrepancy, the primary care provider was contacted to help resolve the issue.



The telephone encounter also included easy-to-read education on significant signs and symptoms associated with the patient's chronic condition. These early warning signs are considered red flags, which if discovered and treated in a timely manner, can help prevent an unnecessary readmission (Ridwan et al., 2019). Chronic conditions have specific red flags that require patient's understanding and are paramount for their self-management and early detection of warning signs to prevent exacerbations (Johnson-Warrington et al., 2016).

Additional interventions for the TOC RN included obtaining a complete discharge summary from the hospital within 72 hours of discharge (Bronstein et al., 2015). The discharge summary was uploaded into the outpatient clinic EHR for easy access by the primary care provider and other team members. Furthermore, the TOC RN ensured the patient had a follow up appointment scheduled with the provider within two weeks of the discharge date (Cao et al., 2017). The follow up could be a face-to-face visit, tele-video modality, or a telephone encounter, as indicated by the patient and the primary care provider.

The TOC RN also evaluated the patient for basic social needs such food, water, heat, air conditioning, and transportation (Bronstein et al., 2015). If the patient did not have a support person and lacks the ability to provide self-care, then the TOC RN documented this finding and used standing orders to consult the social worker for home and safety evaluation. The social worker helped identify available resources within the organization and the community to help the patient. Moreover, the social worker continued to work collaboratively with the primary care team and community partners to ensure the patient's needs were met (Bronstein et al., 2015). Finally, the TOC RN confirmed that the patient had a follow-up appointment with the primary care provider. If the patient required transportation assistance, a social worker was consulted to help the patient identify public transportation.

A week after the initial telephone contact, the TOC RN completed three weekly telephone encounters. During each encounter, the RN reviewed any changes in the healthcare plan with the patient. Additionally, the RN used MI skills during the telephone encounter to encourage self-management behaviors, such as recognizing and reporting early warning signs (Johnson-Warrington et al., 2016). Teach-back is an essential technique used by nurses and other clinicians to confirm patients have a good understanding of the instructions (Cao et al., 2017).

The third phase in the PDSA is the “Study” phase (Christoff, 2018). In this phase, the project manager analyzed the measures collected throughout the implementation of the new TOC practice. The main outcome of the intervention, the 30-day readmission rate, was compared to baseline data to ensure desired outcomes were achieved. The timeline for review of these measures was 30 days after implementation of the new practice. The outcomes were presented to the organization’s leadership and to the project team to allow them an opportunity to review and provide feedback. Feedback and suggestions from frontline clinicians is an essential component of this phase to help assure the project was implemented successfully (Christoff, 2018).

The final phase of the PDSA cycle is the “Act” phase (Christoff, 2018). In this phase, the organization determined whether the project could be disseminated throughout the system. This required analysis of the interventions based on the data collected, as well as feedback from the front-line staff (Christoff, 2018). Prior to dissemination, leadership review the processes for possible modifications suggested by the data and input from clinicians. The PDSA model allows for these adjustments and cycles interventions to correct any areas of opportunity as well as improve any weaknesses associated with the interventions (Christoff, 2018).

### **Project Barriers and Facilitators**

One of the barriers to implementing this project was the lack of awareness of the need to change current practice. Such a deficiency can lead to front line staff resistance (Christoff, 2018). The project manager collaborated with leadership to create presentations with charts and visual data related to the current status of readmissions. Additionally, the project manager worked with clinical leadership and the champions to disseminate awareness of the existing flaws in their process using face-to-face and virtual meetings.

Clinical champions were identified early in the planning phase to help ensure the project was successfully developed, implemented, and sustained (Sylvia & Terhaar, 2018). Identifying the clinical champions, such as frontline providers and nurses, helped promote the changes throughout the clinic. The clinical champions served as change agents to foster peer support and expedite the change with less resistance (Harris et al., 2018).

### **Project Budget**

This TOC project was considered a low-resource project in terms of supplies and equipment. The new interventions were added with proper adjustments to the current workflow to help mitigate the additional workload. Nevertheless, the project increased the utilization of overtime for the RNs. Approximately one hour of training for each provider, nurse, and social worker was added to the budget costs. There were eight providers, ten nurses, and four social workers that required one-hour training. The financial costs for this project were \$50 for supplies, \$1,750 for training, and \$3,450 for RN overtime. The total costs for implementation of this project was calculated at \$5,250. Refer to Table 1 for illustration of the project budget.

**Timeframe for Project**

Prior to implementation of the DNP scholarly project, approval was obtained from an Evidence-Based Practice Project Review Council (EPRC) from the University of St. Augustine for Health Sciences. The project manager then submitted the project proposal to the organization's leadership for approval. Once the project was approved by the organization, the project manager assembled a project team consistent with the interdisciplinary framework of the project. Members of the team included leadership, providers, nurses, and social workers. Next, the project manager collaborated with the health care organization's education department to develop and schedule trainings, both face-to-face and virtually. The format flexibility provided multiple opportunities and ensured all staff took the training. Following the training, the project manager worked with clinic leadership to develop job-specific competencies and ensure staff were trained in and knowledgeable about the new TOC practice. Once training and competencies were completed, the project manager worked with leadership to implement the new TOC practice. As the new practice was being implemented, the project manager evaluated for any issues that required intervention, such as reeducation and training. The project intervention was implemented and completed within its projected 12-week timeline (see Appendix C)

**Project Manager Role**

The project manager collaborated with clinic leadership and frontline clinicians to understand the current organizational culture and readiness for change. Building rapport with key stakeholders is essential to successful project implementation (Harris et al., 2018). Behaviors associated with successful project managers include demonstrating respect, active listening, clear expectations, and evaluating the process for accountability (Kogon et al., 2015). Visualization

techniques, such as illustrating data in charts and conveying the information in a story, are effective communication strategies (Sylvia & Terhaar, 2018).

### **Evaluation Results**

A project evaluation plan is required to measure the success of the project and to determine whether the implementation of the interventions was effective (Harris et al., 2018). The project's goal (to reduce the 30-day readmission rate for adults with a chronic condition) was evaluated for statistical and clinical significance. While *statistical* significance is important, the primary objective for this EBP was to create *clinically* significant results for the organization. The interventions were also evaluated with process measures before and after implementation to demonstrate fidelity to the new TOC practice.

The original timeline for the project manager to collect post-implementation data included 30-, 60-, and 90-day readmission rates. However, due to unforeseen circumstances related to the COVID-19 outbreak, the project implementation was delayed several weeks. This delay resulted in a shorter timeline and exclusion of the 60- and 90-day data collection. The outcome goal of the project (to reduce the 30-day readmission rate) was not impacted by this modification. However, the additional data would have allowed the project manager to examine whether implementation of the new practice also decreased the readmission rate after 60 and 90 days.

### **Selection of Participants**

Thirty participants were selected for review to obtain a baseline measure, and 26 participants were selected for review after implementation of the new TOC practice. The participants included all adult patients discharged from the hospital with a diagnosis of a chronic condition. Inclusion criteria were patients discharged to home who agreed to participate in the

TOC program. Exclusion criteria were patients discharged to another level of care, including hospice, nursing home, rehabilitation center, or a long-term acute care facility. Additional exclusion criteria were patients who declined care, such as those who left the hospital against medical advice, and those who sought care outside the outpatient clinic.

### **Data Collectors**

The data were collected by the project manager and a designated lead. Both were trained in securing patient health information (PHI) prior to collecting data. They used the same data collection tool and worked closely with the organization's privacy and compliance officer.

### **Data Integrity**

An electronic file with password protection was created solely for the data collectors to securely enter participants' information and measures. Trainings and presentations did not include any PHI, to avoid unnecessary risk of exposure. The data collectors were provided clear direction on the process to notify the organization's privacy officer immediately if PHI was lost or compromised.

### **Project Evaluation Design**

The evaluation design incorporated primary data with a retrospective collection method. Because this was not a research project, the aim of the interventions was to improve clinical significance of outcomes relevant to existing research findings. This project demonstrated an improved TOC for patients, which was achieved through the project interventions and seen in the decreased number of patients who were readmitted.

### **Formative and Summative Criteria**

Several measures were used to evaluate the effectiveness of the project interventions and outcomes. These included both formative and summative criteria. Formative criteria were used

for an ongoing assessment of the project (Polit & Beck, 2017). These consisted of documented project interventions, including patient education, red flags, medication reconciliation, and use of the teach-back method. Additionally, the evaluation measured the timeliness of specific interventions, such as the first encounter, discharge summary availability, and the patient's follow up appointment. Summative criteria were used to evaluate the main outcome of the project and were essential for dissemination (Polit & Beck, 2017).

### **Categories of Measures**

This project included contextual measures, process measures, balancing measures, financial measures, outcome measures, and sustaining measures (Sylvia & Terhaar, 2018). Several measures provided data that overlapped categories. All measures were collected prior to and after implementation. To ensure sustainability, the measures will continue to be collected and analyzed by the organization.

The Evaluation Chart (see Appendix F) illustrates the 13 categories of measures used in this project. The process measures yielded the percentage of participants who successfully received each intervention, to demonstrate adherence to the new practice (Melnyk & Fineout-Overholt, 2015). Other measures helped identify differences in the mean age and gender of the participants evaluated, before and after implementation of the new TOC practice. Finally, one measure was used to judge the financial impact on the organization of the use of overtime pay.

### **Contextual Measures**

Contextual measures were meaningful data that could have impacted the outcome of the project (Melnyk & Fineout-Overholt, 2015). The findings created a better understanding of how circumstantial information could have influenced overall project outcomes (Melnyk & Fineout-Overholt, 2015). Data used to describe participants' characteristics included their date of birth

and gender. The calculated mean age of the participants before the project implementation was 70.1, and afterwards was 68.27. Further, 100% of the participants were male. In both groups of participants, the majority (75%) were over 65 years of age. These contextual measures ensured that the ages and genders of the participants were similar.

A total of 30 participants' data were reviewed prior to implementation of the new TOC practice. Figure 1 provides a demographic breakdown of these participants. The youngest participant was 28 years old and the oldest was 91 years old. The calculated mean age was 70.1 and the standard deviation was 13.99. A total of 26 participants were reviewed after implementation of the new TOC practice. Figure 2 provides a demographic breakdown of these participants. The youngest participant was 34 years old and the oldest was 84 years old. The calculated mean age was 68.27, and the standard deviation was 10.81.

### **Process Measures**

This section describes the various process measures, also known as fidelity measures, used to monitor the success of the project outcomes (Melnik & Fineout-Overholt, 2015). They were collected before the project was initiated, 30 days after, and captured all ten of the interventions within the project. The interventions were measured for percentage of completion pre- and post-implementation of the new TOC practice. The benchmark for these process measures was that they be at least 85% completed.

The first process measure was whether the discharge summary was available to the primary care team within 72 hours of discharge. It improved from 37% to 85%. Having the discharge summary available allowed the primary care team to formulate a coordinated plan of care for the patient. The second intervention was to ensure the patient had a follow-up visit scheduled with the primary care team within 14 days of discharge. It improved from 37% to



88%. This step ensured the participants were seen timely and issues were identified early. The third measure identified the percent of participants with a completed initial encounter within 72 hours of discharge. It improved from 33% to 92% and ensured participants were contacted in a timely manner. The fourth measure identified the percent of patients who had an identified caregiver. It improved from 7% to 88% and helped ensure that the caregiver was engaged in the TOC practice. The fifth measure identified the percent of participants who received education on red flags. It improved from 13% to 92% and ensured participants were provided timely education on key symptoms that required intervention. The sixth measure identified the percent of participants who were provided with medication reconciliation. It improved from 37% to 92% and ensured participants had the correct medications after discharge. The remaining three process measures (7-10) were new interventions introduced as part of this project; therefore, they were all 0 at baseline. The benchmark for these interventions was 85%. After implementation, the use of the teach-back method by nursing was measured at 88%. Participants received a telephone encounter on weeks two (77%), three (69%), and four (50%) after discharge. The final three encounters were less than the benchmark of 85%. However, “patient preference” was often documented as a reason, and the low percentage completion did not appear to negatively impact the overall readmission rate. See Figure 3 for a visual breakdown of these process measure results.

### **Balancing Measures**

Balancing measures identify consequences related to the implementation of the project that potentially influence the outcomes (Melnyk & Fineout-Overholt, 2015). The balancing measure for this project was nursing overtime percentage for completing additional project interventions, trainings, and project meetings. Prior to initiation of training and the new project,

this percentage was 4.3%. After implementation of the project, it was 6.8%. Because the 2.5% increase included training and project meetings, the organization will continue to monitor overtime after dissemination is completed.

### **Financial Measures**

Financial measures allow for calculation of costs associated with the project (Melnik & Fineout-Overholt, 2015). These measures overlapped with the balancing measures. They included overtime costs for the training required prior to the implementation of the project and supplies required for the meetings. This new process will require approximately one hour of training for each provider, nurse, and social worker. The costs associated with overtime hours were calculated using the average RN overtime salary and the increased hours for completing the new interventions. The total costs of the project were \$5250 (see Table 1 for a breakdown).

### **Outcome Measure**

The outcome measure was the 30-day readmission rate, which was collected prior to and after implementation of the new TOC process. The benchmark for this measure was to decrease the readmission rate to  $\leq 17\%$ . The baseline 30-day readmission rate was 23%, and the post implementation rate decreased to 15%. Therefore, this outcome measure was met.

### **Sustaining Measures**

Sustaining measures were implemented to monitor the project over time. This data allowed the organization's leadership to continue tracking the project and to compare its results to internally set benchmarks (Sylvia & Terhaar, 2018). The benchmark for these measures was 85%.

### **Statistical Analysis**

This section describes the statistical analysis results of the 30-day readmission rates before and after the implementation of the new TOC practice. There were a total of 30 participants audited for the pre-TOC implementation ( $n = 30$ ) and 26 participants for the post-TOC implementation ( $n = 26$ ). A binomial test was performed to compare the rate of readmissions between the two groups. The analysis revealed a statistically significant difference, with 20% readmission rate in the pre-TOC participants and 15% in the post-TOC participants ( $p$ -value=0.000). These quantitative results (see Table 2) were used to demonstrate the success of the new TOC practice in reducing the 30-day readmission rate.

### **Data Collection Tool**

The data collection template was an Excel spreadsheet with 18 data points. It was not necessary to gain permission to use this data collection instrument as it was not previously created. The first six data points collected were patient information, including three patient identifiers (ID number; last name; date of birth) and gender. The following ten data points tracked the completion of specific interventions with dichotomous values of Yes or No. The last two data points collected readmissions and readmission dates. The data entry points were placed in an order that reflected the timeline of interventions. The raters used the organization's EHR to obtain the data and manually recorded it in the electronically secured spreadsheet. Refer to the template in Appendix E for the spreadsheet format.

Data collection, which was done through an EHR using a retrospective method, began when the hospital notified the outpatient clinic of the patient's admission. The hospital also notified the outpatient clinic when the patient was discharged. Notification of admission and

discharge transpired within 48-72 hours of the occurrence. Data collection ceased after the patient was discharged for more than 30 days or was readmitted to the hospital.

### **Reliability and Validity**

Active measures were taken to ensure that data collection was valid and reliable. Collecting valid data means capturing the information that was intended (Sylvia & Terhaar, 2018). To ensure the data was valid, the measuring tool was structured to capture dichotomous results for the interventions. Additional data was collected by reviewing documentation within a specific note to confirm the intervention was completed. If the intervention was not found in the specified note, then no further investigation or interpretation was conducted. Two data collectors were identified and trained using the same process and EHR. The data template was designed to ensure minimal variation in responses. Additionally, the Excel spreadsheet was locked with preset responses as appropriate.

### **Type of Data**

The data collected consisted of nominal, ordinal, and continuous data (Melnyk & Fineout-Overholt, 2015). Contextual data were nominal and ordinal. Process data were nominal and included dichotomous responses to confirm that specific interventions were completed. Dates of discharge and admission were ordinal data.

### **Planned Analysis of Evaluation Data**

Analysis of measures was performed on quantitative data. The process data was used to analyze the percent of patients who received interventions in a timely manner. This helped determine the clinical significance of the project on the organization's practice. This data also helped identify areas of opportunity, including identification and retraining of clinicians who were not completing the process interventions as described. Outcome data evaluation consisted

of the 30-day readmission rate measured before and after project implementation. This demonstrated the success of the project interventions in reducing the 30-day readmission rate. A binomial test was used for statistical analysis (Sylvia & Terhaar, 2018).

### **Protection of Human Rights**

Multiple measures were instituted to protect human rights and privacy of health information. The project manager received approval from the University of St. Augustine for Health Sciences EPRC and from the organization's leadership prior to initiating the project (refer to Appendices G and H). Because it was not a research project, an Institutional Review Board review and approval were not required.

This evidence-based project was low risk and was monitored by the healthcare system's Ethics Committee. By design, only two raters had access to the electronic file containing PHI used for data collection. All team members and clinicians were required to adhere to strict PHI compliance rules, which included the inability to print patient lists as an additional safety measure to avoid unnecessary PHI exposure. Once the project was terminated, all electronic patient data files were deleted.

### **Impact**

Implementation of the new TOC practice positively impacted the quality of care patients received from the outpatient clinic. Throughout the 15-week implementation period, the organization experienced a transformation in the way care coordination was provided. The new TOC practice successfully implemented evidence-based clinical interventions to decrease gaps and to improve care. Further, this project addressed the high readmission rate by standardizing a quality TOC practice throughout the clinic.

The previous TOC practice was not consistent and lacked the necessary elements to provide a quality TOC. A total of ten evidence-based interventions were implemented, using a multidisciplinary strategy. They were applied in a purposeful manner with specific timelines to ensure patients received timely care. All ten of the project interventions were communication-based and required no additional equipment.

This new TOC practice also aligned with the organization's mission and vision to provide excellent, timely, and patient-centered care (VA, 2015). Prior to implementation of this project, the outpatient clinic did not have a standardized TOC practice, which resulted in a lack of coordinated care and increased fragmentation. According to Ridwan et al. (2019), a successful care coordination practice requires a combination of interventions. Collectively, the project interventions closed gaps in care and empowered patients with the necessary knowledge to improve their overall experience. The future goals of this project are aimed to help the organization standardize an effective and evidence-based TOC practice.

Without ongoing monitoring and reinforcement, previous practices can reappear that can jeopardize the new practice (Kogon et al., 2015). To ensure sustainability of the intervention, leadership must provide on-going evaluations of its effectiveness. Thus, monitoring of the interventions and outcomes will continue, and data will be reviewed by leadership on a monthly basis. The measures will be analyzed and compared against internal benchmarks using control charts and graphs. This will create visual data that can easily be interpreted by clinical staff. Further, monitoring these interventions will encourage the outpatient staff to continue to adhere to the new interventions and will reinforce the changes (Kogon et al., 2015). Additionally, the data generated will allow leadership to recognize staff for positive outcomes, as appropriate.

Finally, monitoring these interventions will help leadership sustain and disseminate the new practice successfully throughout the organization (Melnyk & Fineout-Overholt, 2015).

### **Dissemination**

Dissemination of the project began a week after collection of the outcome data (see Appendix C for the project timeline). The measures were evaluated and analyzed to ensure the efficacy of the project was optimized for the entire healthcare system. According to Melnyk and Fineout-Overholt (2015), dissemination of an evidence-based project includes sharing the practice and outcomes with clinical leadership and front-line staff.

Along with communication and creating awareness, hardwiring the project into the daily practice was essential for the dissemination plan (Melnyk & Fineout-Overholt, 2015). With the goal of standardizing the project as a best practice, the organization utilized the SOPs, standing orders, and job specific competencies that were developed during implementation of the project. The project manager worked with the nurse managers to ensure every nurse was provided the opportunity to complete the training required. Further, the organization identified one clinical point of contact in each clinic site to serve as a champion for the project. These combined efforts will help ensure the project is sustained over time.

Communication of successful outcomes is an essential component of the dissemination phase (Melnyk & Fineout-Overholt, 2015). Initially, the project manager presented the new TOC practice and outcomes to senior and clinic leadership. Next, the project manager worked with clinic leadership to present the findings at the unit meeting level and shared governance councils. The project manager utilized multiple methods of communication to ensure the intended audience was reached, including face-to-face meetings, online meetings, emails, newsletters, and poster boards. These strategies helped publicize the outcomes and created awareness throughout

the organization. Within the university, this paper will be uploaded into the Scholarship and Open Access Repository (SOAR@USA). The SOAR is an institutional repository for the university where other university students and staff can access and review this project. Further, to help dissemination within the professional community, this project will be shared with community outpatient clinics as part of the organization's wider networking practices. The *American Academy of Ambulatory Care Nursing* and the *Journal of Ambulatory Care Management* will be considered for external publication.

### **Conclusion**

The intention of this paper was to document the implementation of the project with an overall goal to reduce the 30-day readmission rate for adult patients with a chronic diagnosis. Utilizing the PDSA change model to implement the new evidence-based practice was essential to the success of this project. Reviews of multiple RCTs and SRs revealed common themes associated with improving transition of care for adults with chronic conditions. These themes were integrated into the project as evidence-based interventions and clinical practices. Aligning with the organizational mission, this project identified a common theme to engage the patient as a partner in healthcare.



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**Table 1***Project Budget*

<b>Line Item Description</b>	<b>Hospital Contribution</b>	<b>Total Cost</b>
Additional personnel	\$0.00	\$0.00
Equipment	\$0.00	\$0.00
Materials and supplies	\$50.00	\$50.00
Staff training	\$1750.00	\$1750.00
RN Overtime	\$3450.00	\$3450.00
<b>Total Cost</b>	<b>\$5250.00</b>	<b>\$5250.00</b>

*Note:* This proposed budget includes materials and supplies used for presentations and trainings such as presentation boards, paper, and markers.

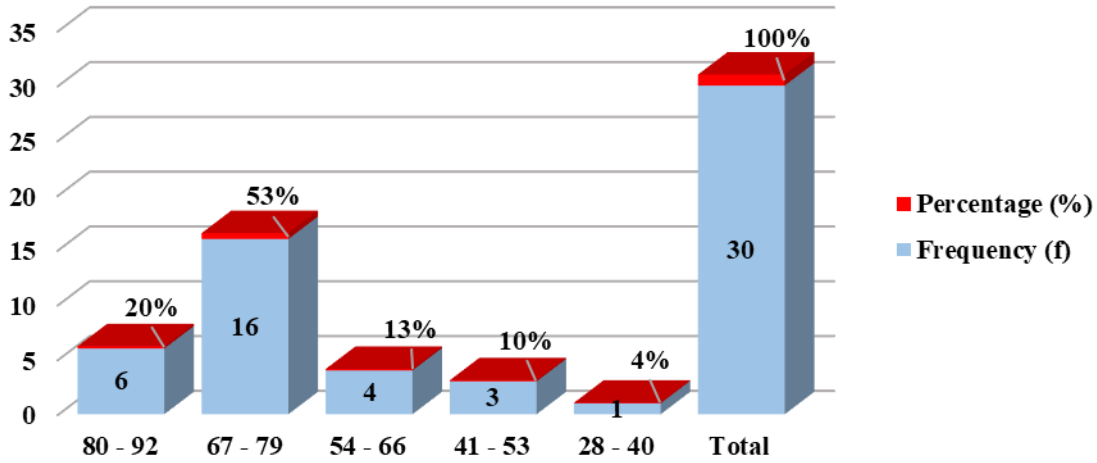
**Table 2***Binomial Test for Pre- and Post-TOC*

30 Day Readmission Necessary?	Pre-TOC <i>n</i> = 30	Post-TOC <i>n</i> = 26	<i>p</i> -value
Yes	20%	15%	0.000
No	85%		

*Note:* A Binomial Test was completed to compare the readmission rates between the first group of participants (*n* = 30) and the second group of participants post intervention (*n* = 26).

**Figure 1**

*Frequency and Percentage Distribution of Participants by Pre-TOC Age Group*

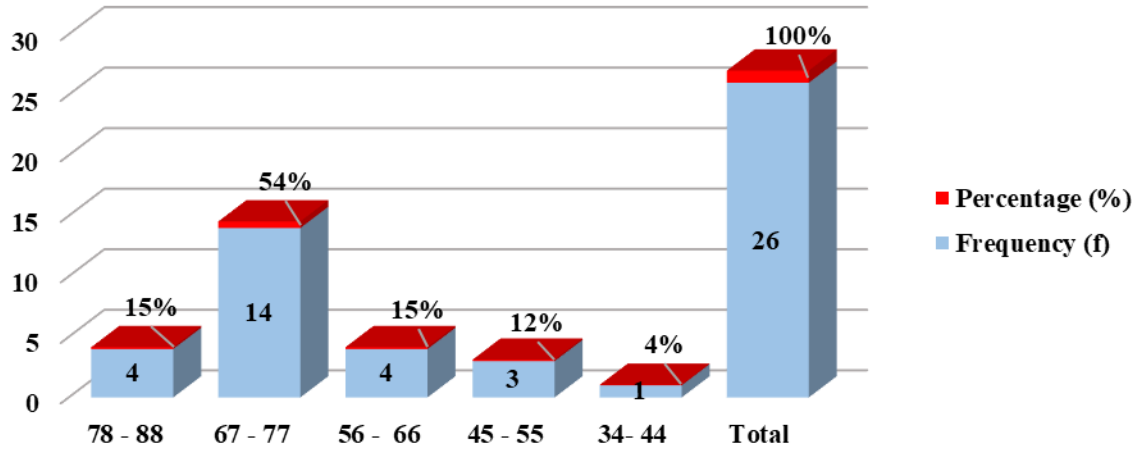


*Note:* The majority of patients (73%) were 67 years of age or older.



**Figure 2**

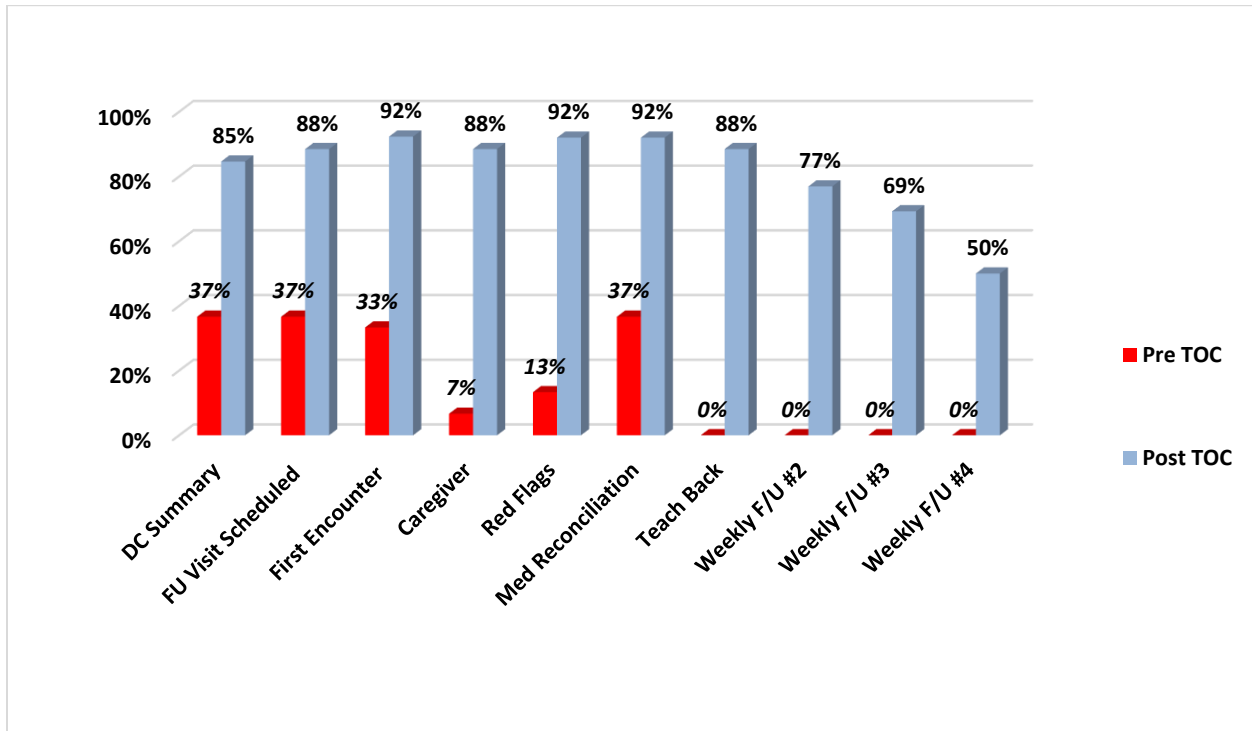
*Frequency and Percentage Distribution of Participants by Post-TOC Age Group*



*Note:* The majority of patients (69%) were 67 years of age or older.

**Figure 3**

*Frequency of Interventions by Percentage Before and After Implementation*



*Note:* There were a total of ten interventions in the project. The red bars represent the percentage of completion prior to implementation and the blue represent the percentage of completion after implementation of the project.

## Appendix A

## Summary of Primary Research Evidence

Citation	Design, Level Quality Grade	Sample size	Intervention Comparison	Theoretical Foundation	Outcome Definition	Usefulness Results Key Findings
Auerbach, A. D., Kripalani, S., & Vasilevskis, E. E. (2016). Preventability and causes of readmissions in a national cohort of general medicine patients. <i>JAMA Internal Medicine</i> , 176(4), 484-493. <a href="http://dx.doi.org/10.1001/jamainternmed.2015.7863">http://dx.doi.org/10.1001/jamainternmed.2015.7863</a>	Level II Grade A  Observational Study	Readmitted patients within 30-days (n = 1000)	Used a structured case review process to interview patients, physicians and complete chart reviews. Based the findings using The National Quality Forum's Care Coordination Measures as well as published standards for discharge.	No theoretical foundation was stated.	Likelihood that readmission could have been prevented.	Of the 1000 readmissions, 269 could have been prevented. Four common factors associated with readmissions including: ED decision, inability to keep appointment post discharge, premature DC, and lack of a POC post discharge.
Balbale, S. N., Etingen, B., Malhiot, A., Miskevics, S., & LaVela, S. L. (2016). Perceptions of chronic illness care among veterans with multiple chronic conditions. <i>Military Medicine</i> , 181(5), 439-444. <a href="http://dx.doi.org/10.7205/MILMED-D-15-00207">http://dx.doi.org/10.7205/MILMED-D-15-00207</a>	Level III Grade A  mailed survey	Patients with Multiple Chronic Conditions (MCC) (n = 3519)	Survey patients with multiple chronic conditions using the PACIC to obtain their perception of quality chronic care.	The CCM used as a framework to define quality chronic care.	Patient's with MCC perceive improved quality of chronic care based on their level of involvement and engagement.	Key findings include that Veterans with MCC perceive a lack of continuity of care and a lack of patient engagement and involvement with care coordination.

Citation	Design, Level Quality Grade	Sample size	Intervention Comparison	Theoretical Foundation	Outcome Definition	Usefulness Results Key Findings
Hirschman, K. B., Shaid, E., McCauley, K., Pauly, M. V., & Naylor, M. D. (2015). Continuity of care: The transitional care model. <i>OJIN: The Online Journal of Issues in Nursing</i> , 20(3), Manuscript 1. <a href="http://dx.doi.org/10.3912/OJIN.Vol20No03Man01">http://dx.doi.org/10.3912/OJIN.Vol20No03Man01</a>	Level II Grade A  Literature Review	N/A	N/A – Article used for literature review of care coordination, TOC, and elderly chronic conditions.	N/A – Article used for literature review to support project.	N/A – Article used for literature review to support project.	Findings are consistent with readmission related to gaps in care, lack of patient engagement, and timely follow-up in primary care setting.
Ni, W., Colayco, D., Hashimoto, J., Komoto, K., Gowda, C., Wearda, B., & McCombs, J. (2018). Reduction of healthcare costs through a transition-of-care program. <i>American Society of Health-System Pharmacists</i> , 75(10), 613-621. <a href="http://dx.doi.org/10.2146/ajhp170255">http://dx.doi.org/10.2146/ajhp170255</a>	Level II Grade B Non-Randomized Cohort Study	Adult Medicaid managed care patients discharged from inpatient facility (n = 830)	The intervention was an ambulatory care pharmacy-based TOC program with medication reconciliation as the primary intervention to decrease readmissions versus standard treatment	No theoretical foundation was stated.	Decrease in 180-day readmission rate for Medicaid patients for the KHS.	Findings were a reduction readmission and healthcare costs by implementing a TOC program.
Piette, J. D., Striplin, D., Fisher, L., Aikens, J. E., Lee, A., Marinec, N., Mansabdar, M., Chen, J., Gregory, L., & Kim, C. S. (2020). Effects of accessible health technology and caregiver support posthospitalization on 30-day readmission risk: A randomized trial. <i>The Joint Commission Journal on Quality and Patient Safety</i> , 46(2), 109-117. <a href="https://doi.org/10.1016/j.jcjq.2019.10.009">https://doi.org/10.1016/j.jcjq.2019.10.009</a>	Level I Grade B	Adults Discharged with Chronic Diagnosis (n = 283)	The intervention was implementing an automated telephone call and identification and engagement of an informal care partner versus standard treatment.	No theoretic foundation was noted. However, caregiver support and engagement were mentioned.	Reduction of 30-day readmissions with use of a care partner and automated telephone intervention.	Key findings were not statistically significant and warranted greater power. However, significant decrease in 30-day readmissions noted for pulmonary related diagnosis.

Citation	Design, Level Quality Grade	Sample size	Intervention Comparison	Theoretical Foundation	Outcome Definition	Usefulness Results Key Findings
Cui, X., Zhou, X., Ma, L., Sun, T., & Bishop, L. (2019). A nurse-led structured education program improves self-management skills and reduces hospital readmissions in patients with chronic heart failure: A randomized and controlled trial in China. <i>Rural and Remote Health</i> , 19(2). <a href="http://dx.doi.org/10.22605/RRH5270">http://dx.doi.org/10.22605/RRH5270</a>	Level I Grade A	Adults with CHF in rural Areas (n = 96)	Nurseled education program prior and post DC versus standard treatment.	Self-management theory by Norris et al.	Primary outcome decreases in mortality and hospital admission r/t cardiac problems.	Key findings were statistically significant improvement of self-management, medication compliance, dietary modifications, and in readmissions within 12 months.
Low, L. L., Tan, S. Y., Ng, M. J., Tay, W. Y., Ng, L. B., Balasubramaniam, K., Towle, R., & Lee, K. H. (2017). Applying the integrated practice unit concept to a modified virtual ward model of care for patients at highest risk of readmission: A randomized controlled trial. <i>PLoS ONE</i> , 12(1), 1-18. <a href="http://dx.doi.org/10.1371/journal.pone.0168757">http://dx.doi.org/10.1371/journal.pone.0168757</a>	Level I Grade B	Adults readmitted within in 90 days with a LACE $\geq 10.8$ (n = 420)	Multidisciplinary (nurses, pharmacists, and social workers) case management. Telephone contact 72 hours post DC, one home assessment, and weekly calls for three months versus standard treatment. Coaching, and medication reconciliation.	No theoretical foundation noted in article. However, self-management and patient-centered care are mentioned.	Reduction in 30-day readmissions.	Key findings were statistically significant reduction in 30-day readmission.

Citation	Design, Level Quality Grade	Sample size	Intervention Comparison	Theoretical Foundation	Outcome Definition	Usefulness Results Key Findings
Johnson-Warrington, V., Rees, K., Gelder, C., Morgan, M. D., & Singh, S. J. (2016). Can a supported self-management program for COPD upon hospital discharge reduce readmissions? A randomized controlled trial. <i>International Journal of COPD</i> , 11, 1161-1169. <a href="http://dx.doi.org/10.2147/COPD.S91253">http://dx.doi.org/10.2147/COPD.S91253</a>	Level I Grade A	Adults with COPD grade 2-5 dyspnea (n = 78)	Using Home-Based SPACE (Self-management program of activity, coping, and education) as a framework to improve transition versus standard treatment.	No theoretical foundation noted in article. However, self-management and patient-centered care are mentioned.	Reduction in 30 and 90-day readmission.	Key findings included statistically significant reduction in 30-day readmission. No difference for 90-day.
Aboumatar, H., Naqibuddin, M., Chung, S., Chaudhry, H., Kim, S. W., Saunders, J., Bone, L., Gurses, A., Knowlton, A., Pronvost, P., Putcha, N., Rand, C., Roter, D., Sylvester, C., Thompson, C., Wolff, J., Hibbard, J., & Wise, R. A. (2019). Effect of a hospital-initiated program combining transitional care and long-term self-management support on outcomes of patients hospitalized with chronic obstructive pulmonary disease: A randomized clinical trial. <i>Journal of American Medical Association</i> , 322(14), 1371-1380. <a href="http://dx.doi.org/10.1001/jama.2019.11982">http://dx.doi.org/10.1001/jama.2019.11982</a>	Level I Grade B	Adults in healthcare system with diagnosis of acute exacerbation or history of COPD (n =240)	Three phases. First, nurse provides transitional information and assures understanding. Second, individualized care plan emphasis on medications, recognition of signs and symptoms, and follow up actions. The nurse facilitates communication with community services post discharge.	No theoretical foundation noted in article. However, self-management and patient-centered care are mentioned.	Reduction of number of COPD related acute care events (includes hospitalization and/or ER visit within 6 months).	Key findings were an increase in number of COPD related acute care events with intervention group. (6-month readmission rate study)

Citation	Design, Level Quality Grade	Sample size	Intervention Comparison	Theoretical Foundation	Outcome Definition	Usefulness Results Key Findings
Benzo, R., Vickers, K., Novotny, P. J., Tucker, S., Hoult, J., Neuenfeldt, P., Connett, J., Lorig, K., & McEnvoy, C. (2016). Health coaching and chronic obstructive pulmonary disease rehospitalization: A randomized study. <i>American Journal of Respiratory and Critical Care Medicine</i> , 194(6), 672-680. <a href="http://dx.doi.org/10.1164/rccm.2015.12-2503OC">http://dx.doi.org/10.1164/rccm.2015.12-2503OC</a>	Level I Grade A	Discharged adults with COPD (n = 215)	Using phone-based post discharge motivational interviewing (MI) health coaching versus standard treatment.	No theoretical foundation noted However, self-management and patient-centered care are mentioned.	Reduce readmissions. Improve self-management, medication adherence, behavior change, decrease knowledge gap.	Key findings were decreased readmissions rates at 30, 90, 180, and 270 days. Also found sustained improvement in QOL (looking at physical and emotional function).
Bronstein, L. R., Gould, P., Berkowitz, S. A., James, G. D., & Marks, K. (2015). Impact of a social work care coordination intervention on hospital readmission: A randomized controlled trial. <i>National Association of Social Workers</i> , 60(3), 248-255. <a href="http://dx.doi.org/10.1093/sw/swv016">http://dx.doi.org/10.1093/sw/swv016</a>	Level 1 Grade B	Adult inpatients $\geq$ 50 years with LACE $>7$ (n = 89)	Implementation of a TOC process. Multidisciplinary team as needed. Versus standard discharge.	No theoretical foundation noted in article.	Reduction of 30-day readmission.	Statistically significant and 30% decrease in readmission rates as compared to no intervention. DC summary to primary care provider.
Balaban, R. B., Galbraith, A. A., Burns, M. E., Vialle-Valentin, C. E., & Ross-Degnan, D. (2015). A patient navigator intervention to reduce hospital readmissions among high-risk safety-net patients: A randomized controlled trial. <i>Journal of General Internal Medicine</i> , 30(7), 907-915. <a href="http://dx.doi.org/10.1007/s11606-015-3185-x">http://dx.doi.org/10.1007/s11606-015-3185-x</a>	Level 1 Grade B	Admitted adults with low socioeconomic status and high Charlson scores (n = 1510)	Hospital visit prior to DC and weekly post DC phone calls for 30 days. Using coaching techniques to help patient self-manage disease.	No theoretical foundation noted in article.	Reduction in 30-day readmission rates.	Statistically significant and decrease in 30-day readmissions for patients $\geq$ 60 years. However, no change for younger patients.

Citation	Design, Level Quality Grade	Sample size	Intervention Comparison	Theoretical Foundation	Outcome Definition	Usefulness Results Key Findings
Cao, X., Tian, L., Chen, L., & Jiang, X. (2017). Effects of a hospital community partnership transitional program in patients with coronary heart disease in Chengdu, China: A randomized controlled trial. <i>Japan Journal of Nursing Science</i> , 14, 320-331. <a href="http://dx.doi.org/10.1111/jjns.12160">http://dx.doi.org/10.1111/jjns.12160</a>	Level 1 Grade A	Adult patients within healthcare system with diagnosis of CHF (n = 236)	Implement a transitional care program using a team (nurse, case manager, provider, patient, and family/care giver) approach and project BOOST. Intervention includes f/u phone call post DC and appointment with primary care provider	No theoretical foundation noted in article. However, self-management and patient-centered care are mentioned.	The primary outcomes were the 30 and 90-day readmission rates after discharge.	Key findings were statistically significant decreased readmissions rates at 30 and 90-days post DC.

Legend: Transition of Care (TOC), (POC) Point of Contact, Multiple Chronic Conditions (MCC), Patient Assessment of Chronic Illness Care (PACIC), The Chronic Care Model (CCM), Practical Robust Implementation and Sustainability Model (PRISM), Kern Health System (KHS), Discharge (DC)



## Appendix B

## Summary of Systematic Reviews (SR)

Citation	Quality Grade	Question	Search Strategy	Inclusion/Exclusion Criteria	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/Implications
Facchinetti, G., D'Angelo, D., Piredda, M., Petitti, T., Matarese, M., Olivetti, A., & Marinis, M. (2019). Continuity of care interventions for preventing hospital readmission of older people with chronic diseases: A meta-analysis. <i>International Journal of Nursing Studies</i> , 101, 1-10. <a href="http://dx.doi.org/10.1016/j.ijnurstu.2019.103396">http://dx.doi.org/10.1016/j.ijnurstu.2019.103396</a>	Level I Grade A	Can continuity of care interventions prevent hospital readmissions for older people with chronic conditions?	Meta-analysis of RCT articles	Inclusion criteria: Patients 65 years or older with one or more chronic conditions who were discharged from a hospital.  Exclusion criteria: Patients with cancer or psychiatric illness.	Two reviewers independently extracted data. Initially, reviews were of titles and abstracts, then full text review. Extracted data include by author, publication year, country, sample size, disease, interventions, follow-up time, continuity dimension, and principal healthcare provider involved.	COC associated with less readmissions within 30 to 90 days. Evidence that COC was effective to lower readmissions post 90 days was inconclusive.	There are three COC dimensions including relational, informational, and management. Studies suggest using all three COC dimensions yields better outcomes with prevention of readmissions within 30, 60, and 90 days of discharge.
Albert, N. M. (2016). A systematic review of transitional-care strategies to reduce rehospitalization in patients with heart failure. <i>Heart and Lung</i> , 45(2), 100-113. <a href="http://dx.doi.org/10.1016/j.hrtlng.2015.12.001">http://dx.doi.org/10.1016/j.hrtlng.2015.12.001</a>	Level I Grade A	Do multidisciplinary TOC models decrease exacerbation and rehospitalizations?	Systematic literature search for articles relevant to HR TOC.	Inclusion criteria: patients with HF with at least one transition intervention, and outcomes of TOC in North America.	The articles collected were analyzed for inclusion and exclusion criteria, study limitations, study type and TOC themes.	Key findings were consistent with multidisciplinary collaboration: TOC processes improved readmission rates for patients with HF.	Article reinforced importance of medication reconciliation, timely follow-up post discharge, and patient and family engagement.

Citation	Quality Grade	Question	Search Strategy	Inclusion/Exclusion Criteria	Data Extraction and Analysis	Key Findings	Usefulness/Recommendation/Implications
Ridwan, E. S., Hadi, H., Wu, Y., & Tsai, P. (2019). Effects of transitional care on hospital readmission and mortality rate in subjects with COPD: A systematic review and meta-analysis. <i>Respiratory Care</i> , 64(9), 1146-1156. <a href="http://dx.doi.org/10.4187/respcare.06959">http://dx.doi.org/10.4187/respcare.06959</a>	Level I Grade B	Is there a significant effect of transitional care on both COPD related and all cause hospital readmissions?	Electronic database search using keywords and MeSH terms for COPD and transitional care resulted in 13 RCTs.	Inclusion criteria: RCT studies for TOC of patients with COPD. Exclusion criteria: those without outcome data of interest and w/o transitional care in COPD.	Data extracted independently by two reviewers. Any disagreements were resolved through discussion. Analysis included effect size of TOC interventions measured as odds ratios (ORs) with 95% CIs.	Key findings included a significant effect of TOC in reducing all cause readmission and COPD readmissions. Readmissions were decreased by 28% and COPD related were decreased by 44%.	The effects of TOC interventions on hospital readmissions are moderated by intervention, duration, multidisciplinary approach and use of telephone follow-up.

Legend: Continuity of Care (COC), Randomized Controlled Trials, Primary Care Provider (PCP), Setting, Perspective, Intervention, Comparison, and Evaluation framework (SPICE)

Appendix C

Project Schedule

	NUR7801								NUR7802								NUR7803						
Activities/Task	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	Week 13	Week 15	Week 1	Week 3	Week 5	Week 7	Week 9	Week 11	
Meet with preceptor	█																						
Review literature	█	█	█	█																			
Prepare project proposal				█	█	█	█	█															
Submit project to USA Evidence-Based Practice Project Review Council (EPRC)									█														
Identify champions and team members									█														
Process flow map of current process									█														
Identify and train data collectors									█														
Obtain/Analyze baseline data									█														
Develop patient education										█													
Present 15 min Power Point to leadership										█													
Present 30 min Power Point to clinicians										█													
Meet with clinical leadership											█	█											
Educate key stakeholders - providers													█	█									
Educate key stakeholders - nurses													█	█									
Update documentation templates													█	█									
Meet with clinic leaders													█	█									
Implement process (Pilot)														█	█	█	█	█					
Collect data and evaluate																	█	█	█	█			
Report out to senior leadership																			█	█	█	█	█

### Appendix D

#### SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Culture of patient-centered care</li> <li>• Strong foundation of evidence-based practice</li> <li>• Leadership committed to change</li> <li>• Whole health initiative</li> <li>• High reliability organization</li> </ul>	<ul style="list-style-type: none"> <li>• Slow adaptation to change</li> <li>• Competing processes and priorities</li> <li>• Multiple policies</li> <li>• Dependence on community partners</li> <li>• Lack of inpatient capability</li> <li>• Different electronic health care records</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Improve rapport with community partners</li> <li>• Establish points of contact for community</li> <li>• Obtain community EHR read-only access</li> <li>• Implement daily huddles amongst PACT</li> </ul>	<ul style="list-style-type: none"> <li>• Increased choices of care for patients</li> <li>• Increased complexity in care management</li> </ul>



## Appendix F Evaluation Chart

MEASURES	Categories						Time for Data Collection		Statistical Test		Values	
	Outcome	Process	Balancing	Financial	Sustaining	Contextual	Baseline	30 days	Binomial Test	Other	Values	30 days
Note: Percentages obtained by multiplying the answered by 100.												
<b>Percent of 30-day readmissions</b> (Denominator is the number discharged. The numerator is the denominator readmitted within 30 days from discharge date).	x				x		x	x	x		21%	≤17%
<b>Percent w/ DC summary available within 72 hours of discharge</b> (Denominator is the number discharged. The numerator is the denominator DC summary available within 72 hours of discharge).		x			x		x	x		x	37%	85%
<b>Percent w/ follow-up appointment scheduled w/in 14 days of discharge</b> (Denominator is the number discharged. The numerator is the denominator with an appointment scheduled within 14 days of discharge).		x			x		x	x		x	37%	88%
<b>Percent w/ telephone encounter w/in 48-72 hours of discharge</b> (Denominator is the number discharged. The numerator is denominator with telephone contact within 48-72 hours of discharge).		x			x		x	x		x	33%	92%
<b>Percent w/ an identified caregiver</b> (Denominator is the number discharged. The numerator is the denominator with an identified caregiver).		x				x	x			x	7%	88%
<b>Percent w/ documented education on Red Flags</b> (Denominator is the number discharged. The numerator is the denominator with documented education on Red Flags).		x					x	x		x	13%	92%
<b>Percent w/ documented Med Reconciliation</b> (Denominator is the number discharged. The numerator is the denominator with documented Med Reconciliation).		x					x	x		x	37%	92%
<b>Percent w/ documented Teach Back</b> (Denominator is the number of discharged. The numerator is the denominator with documented Teach Back).		x					x	x		x	0%	88%
<b>Percent w/ a completed f/u week 2 post discharge</b> (Denominator is the number discharged. The numerator is the denominator with a completed f/u week 2 post discharge).		x			x		x	x		x	0%	77%
<b>Percent w/ a completed f/u week 3 post discharge</b> (Denominator is the number discharged. The numerator is the denominator with a completed f/u week 3 post discharge).		x			x		x	x		x	0%	69%
<b>Percent w/ a completed f/u week 4 post discharge</b> (Denominator is the number discharged. The numerator is the denominator with a completed f/u week 4 post discharge).		x			x		x	x		x	0%	50%
<b>Percent of nursing overtime hours</b> (Denominator is the total number of nursing hours per week. The numerator is denominator minus non overtime hours).			x	x			x			x	4%	7%
<b>Average age of the patient</b> (Sum of all ages divided by the number of discharges).						x	x			x	70	68
<b>Percent of male discharges</b> (Denominator is the total number of discharges. The numerator is denominator minus female patients).						x	x			x	100%	100%