Reducing Heart Failure Readmission: A Seven-Day Post Discharge Transition Protocol

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Abstract

The National Heart, Lung, and Blood Institute defines heart failure as a chronic condition of the heart, which commences when heart muscles cannot pump sufficient blood to meet the body's oxygen demands. Statistics indicate that heart failure affects five million Americans annually and accounts for one million admissions. Ineffective management contributes to the high number of readmissions. In this regard, the project aimed to evaluate patients' compliance of seven-day post discharge appointment by implementing a post-discharge transition protocol by cardiology providers at a South Florida cardiology clinic. The project's problem selection entailed the review of literature gathered from previous studies conducted using similar methodologies. Predetermined criteria are used to harmonize selected articles, emphasizing transition care protocols and their impact on reduced heart failure patients' readmission. A heart failure protocol was developed by the project mentor as the preferred data collection tool and validated through stakeholder participation. The research used descriptive statistics and a confidence level of 95% to draw conclusion and make inferences. The investigation drew results from a sample size of 44 heart failure patients having an average age of 73.61 (SD = 13.37). The Fisher's Exact Test revealed a statistically significant association between the existing practice of a seven-day post-discharge appointment with the post-intervention of a seven-day post-discharge appointment for all HF patients, $\chi 2$ (1; N = 44) = 27.01, p < .001. The likelihood ratio, 5.14, indicates that the odds of a seven-day post-discharge appointment for HF patients are more likely through the use of systematically developed transitional care interventions.

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Reducing Heart Failure Re-admission: A Seven-Day Post Discharge Transition Protocol

Heart failure is defined as a chronic heart condition characterized by the inability of the heart muscles to either fill or pump blood adequately to meet the body's oxygen demands (The National Heart, Lung, and Blood Institute, 2017). The leading causes related to heart failure (HF) are coronary artery disease, high blood pressure, valve disorder, and other structural abnormalities of the myocardium. These underlying conditions force the heart to be overworked and lead to either hypertrophy or dilation of the ventricles (ventricular impairment), resulting in the inability to fill or pump adequately (Inamdar, & Inamdar, 2016). Historically, nearly 20% of all Medicare discharges had a re-admission within 30 days (McIlvennan, Eapen, & Allen, 2015). Despite the notable advancements in the field of medicine generally and specifically in the management of HF, the rates of hospital re-admissions associated with HF have continued to plague the medical field. HF continues to be the most common cause of re-hospitalizations for Medicare in the United States (Mozaffarian, Benjamin, & Go, 2016). The Centers for Medicare and Medicaid Services (CMS) defines a hospital re-admission in two categories, the same cause re-admission, and all-cause re-admission. For the purpose of this project, we will be evaluating the impact of a seven-day post-hospital discharge transition protocol and the effect in the reduction of same cause re-admission outcomes (Health Quality Ontario, 2017).

Although not every re-admission is unnecessary, the majority of them may be preventable through themed hospital practices, proper post-discharge planning, and consistent and thorough follow up (Fingar, & Washington, 2016). Without patient-focused discharge instructions, the transition care period between discharge and the post-hospital follow up appointment presents as a high-risk period for re-admission. The oversight of the cardiac provider is imperative during this critical transition to ensure continuity of care and mitigate

complications a retrospective observational study evaluation concluded that the involvement of cardiology expert in contrast with non-specialty care might favourably impact mortality and re-admission following HF (Avaldi et al., 2017). Involvement was related to both inpatient, and outpatient cardiology care and included the follow up visit after discharge with a cardiologist. In adults discharged to home after hospitalization for heart failure, outpatient follow-up with a cardiology provider within seven days was associated with a lower chance of 30-day re-admission (Lee, 2016). Many current patients cared for at the selected cardiology practice clinic have been discharged from community hospitals lacking a timely cardiology follow-up within seven days of hospital discharge. Others have missed their follow up appointment for an unknown reason. Lack of follow up within seven days of discharge has resulted in rapid decompensation and higher rates of re-admission for some of these patients. This evidence-based project seeks to improve adherence with the seven-day follow up appointment by proposing a model that incorporates both securing follow up appointment by cardiology provider as part of the discharge protocol as well as identifying and mitigating barriers to adherence with follow-up appointments post-discharge.

The literature shows that hospitals who incorporate early post-discharge follow up visits as part of their discharge intervention have better outcomes as opposed to just treatment plan instructions to patients or families (Ziaeian, & Fonarow, 2016).

Background of The Problem

The condition of HF affects an approximately five million Americans and accounts for at least one million hospital admissions every year (Chamberlain, Sond, Lau, & Mahendraraj, 2018). In 2005, seven-day re-admissions were reported by Medicare at a rate of 6.2% and a rate of 17.6% for 30-day re-admissions. Furthermore, these rates continued to rise. In 2011, re-

admission rates for Medicare patients within 30-days after discharge, risk-standardized period were reported at the rates of 20-25% (Krumholz et al., 2015).

With the rising prevalence of HF, we can expect an associated rise in HF healthcare expenditures. By 2030, the total cost of HF is projected to increase to $69.7 billion, from $30.7 billion in 2012 (Zohrabian, Kapp, & Simoes, 2018).

Many of these re-admissions are preventable by 84%, which could save stakeholders finances to a tune of $600 million (Medicare Payment Advisory Commission, 2017). The federal government, through the Department of Health and Human Services (HHS), designed the Hospital Readmission Reduction Plan. The aim is to address hospital re-admissions, which lead to the loss of millions of dollars annually. The Affordable Care Act, 2010 requires CMS to employ financial penalties for facilities with an excess number of re-admissions calculated at 3% of total Medicare reimbursements (Joynt, & Jha, 2017).

The penalization system acts as a strong incentive for healthcare professionals and facilities alike to improve patients' outcomes and reduce hospital re-admissions and has continued to yield significant results over time. For instance, in 2015, the Healthcare Cost and Utilization Project was able to report a 1.6% decline in the rates of hospital re-admissions for patients with heart failure. From 2009 and 2013, rates decreased from 25.1% to 23.5%, respectively, this resulted in savings of CMS $200 million to CMS (Fingar, & Washington, 2016). In 2016, the Medicare Payment Advisory Commission reported that there was a significant decline in the rates of preventable hospital re-admissions among patients of chronic heart failure. From 2010 and 2014, the rates decreased from 19.5% to 17.0% (MedPAC, 2016). The reduced rates of re-admissions signify a move in the right direction. However, prevalence rates of re-admission among heart failure patients and related penalties remain the highest among

all patient groups in America. This data suggests that there be a mechanism for not only understanding the causes of high re-admission rates among heart failure patients but also the need to develop appropriate strategies to address this problem including appropriate health system interventions prior to discharge such as patient education, medication reconciliation, and completion of a follow-up appointment within seven days (Ziaeian, & Fonarow, 2017).

Problem Statement

Heart failure is among the topmost poorly managed chronic diseases in America and the world in general. This poor management results in post-discharge complications among patients and may be the result of the application of single interventions or non-specific strategies that do not yield many results in terms of reducing re-admissions (Kripalani, Theobald, Anctil, & Vasilevskis, 2014).

Although healthcare facilities have continuously adhered to the American Heart Association's "Get with the Guidelines HF" programs in recent years leading to reduced hospital re-admissions, the reduction has been negligible at best. The rates of rehospitalization remain either completely unchanged or just slightly decreased at 25% of all Medicare heart failure beneficiaries (Gheorghiade, Vaduganathan, Fonarow, & Bonow, 2016). This evidence points to the failure of in-hospital interventions in mitigating re-admissions. These interventions include and indicate the need for change in the adoption of post-discharge interventions in order to secure more positive outcomes for patients (Riley, & Masters, 2016). Resultantly, this evidence-based project will propose an approach that considers proper post-discharge interventions and care coordination in a single wholesome model that is system-based and patient-centered.

A gap in adherence to a seven-day post-discharge follow up has been identified as a possible culprit in the HF 30-day re-admission. Currently, the proposed project site does not

incorporate methods to identify current patients who were recently hospitalized, their discharge disposition, or barriers that impede adherence with follow-up visits within seven days after discharge. This project aims to implement strategies that secure follow up visits within seven days post-discharge with the collaboration of three Cardiology Nurse practitioners, two office front desk personnel, and the designated caregiver at the patient's home.

Purpose Statement

The purpose of this project is to show that the reduction of hospital re-admissions for heart failure patients is achievable through the proper and efficient transition of care approach that involves procuring a follow-up appointment as part of the discharge plan. The specific program this evidence-based project seeks to exploit in order to reduce re-admissions is a care model that is patient-centered and intervention-specific. It incorporates the patient in their health management journey after discharge. This intervention is premised on the recognition that the majority of re-admissions are preventable so long as health systems incorporate the patient and their post-discharge caregivers in their health management and that more comprehensive intervention models generate more significant results in terms of success (Ziaeian, & Fonarow, 2017). The specific model proposes to incorporate a tool through the transitional phase from discharge to outpatient. This tool involves a discharge-post discharge HF protocol for cardiac providers that comprises a number of interventions, which include patient-centered discharge education, provisions of transition care resources, mitigation of post-discharge barriers for office follow up through phone calls, and adherence of seven-day post-discharge clinic visit. Intervention models will be applied for every HF discharge. This project seeks to propose this as a multi-faceted intervention model with the aim of realizing positive patient outcomes through

proper collaborations between the cardiac providers and office personnel in order to apply interventions with all discharge patients consistently.

Project Questions

Question: Will the implementation of a post discharge HF transition protocol for cardiology providers improve compliance with the post-discharge seven-day follow up appointment?

(P) Problem: Reduced rate of post discharge seven-day follow up appointment for HF patients at the cardiology clinic.

(I) Intervention: Implement a post discharge protocol at the cardiology office

(C) Comparison: adherence of seven-day post discharge cardiology appointment with protocol vs no protocol intervention.

(O) Outcome: To improve compliance in keeping a seven-day post discharge appointment at the cardiology clinic.

(T) Time: Timeframe of DNP project.

Project Objectives

Through the development of a standardized tool and in collaboration with the cardiac provider team, we will attempt to increase the rate of compliance in post-discharge follow-up appointments and decrease the rate of 30-day re-admission through the attainment of the following objectives by the end of the Doctor of Nursing Practice (DNP) project.

1. Develop a post-hospital discharge protocol for patients diagnosed with HF that will be implemented by all providers and front desk personnel in the cardiology clinic.
2. Develop written educational tools for patient education, tailored to both English and Spanish language.

3. Educate the cardiology providers and office staff to the new protocol and their perspective roles through in-office training.
4. Improve the patient compliance in keeping the seven-day follow up appointment.
5. Evaluate compliance of providers in protocol utilization through a retrospective chart review.

Review of Coverage and Justification

The essence of the search strategy used in the review of literature were various online databases that yielded multiple studies in support of the PICOT question. The online databases of interest included: Cumulative Index of Nursing and Allied Health Library (CINAHL), Cochrane Library, PubMed, Agency for Healthcare Research and Quality (AHRQ), and American Heart Association (AHA). The PICOT question was pivotal in the generation of the keywords that were used to search for relevant evidence across the online databases. The initial search key terms included heart failure hospital readmission, and transition care models. These search terms yield 4283 returned results and lead to the need for broader use of key terms and filters. The inclusion and exclusion criteria of the studies further entailed the use of various filters, which enhance the accuracy of the literature search (Melnyk & Fineout-Overhold, 2015). This guided the search to accepted articles related to transition care protocol, pre-discharge education, post-discharge follow-up, pre-discharge as criteria of inclusion, and excluded pediatrics population or setting outside of the hospital to the clinic. In addendum, other filters inserted were full-text articles, peer-reviewed, AHA best practice guidelines, studies conducted within the past five years, and published in the English language. Based on the new search strategy, 120 studies returned from the four online databases were included. Of these studies, twenty-six articles were noted to be relevant to the proposed project. The excluded ninety-four studies either failed to

meet inclusion criteria such as heart failure patient selection, adult or geriatric population, hospital-specific transitional models, or discharge disposition was different from patient's home. Upon completion of a detailed abstract search, all chosen articles were deemed relevant to the topic and appropriate for the practice site.

Review of Synthesis

Impact of Heart Failure Readmission

Despite emerging therapies, heart failure (HF) remains the number one cause of hospitalization readmission. Heart failure initiatives to reduce readmission, improve quality of life, and decrease morbidity and mortality have gained increased attention in the last several decades. Prevalence in HF is expected to continue to increase. According to Gutierrez-Garcia (2017), it is estimated that the number of people diagnosed with HF in the US will exceed eight million by 2030. Multiple stratification modalities to identify high-risk patients have been the core initiative of hospitals in efforts to improve the quality of care, reduce hospital stay, and reduce health care costs. The aim of this literature review is to evaluate the efficacy of different transitional care interventions that attempt to reduce HF readmissions in inpatient and outpatient settings.

Prevention of heart failure through transition care models. The integration of multidisciplinary transitional care models within different health care settings has proven effective in preventing readmission; however, inconsistency in their success has led to further investigation. The transition of care is defined as the time a patient transfer from a hospital back to the community (World Health Organization [WHO], 2018); this transition point is considered to contribute to gaps in the quality of care and patient safety outcomes. Areas that may take account of these gaps include lack of attention to an individualized plan from hospital to home

that takes into account each patient-specific need and identifies a lack of resources. Nurses are at the forefront of healthcare and are usually the first point of contact for the patient upon hospitalization. Early identification of high-risk patients plays a vital role in the length of hospital stay, discharge disposition, and self-care barriers. Reinforcing plan of care, self-management, and strategies to prevent hospital readmission should continue throughout the hospital trajectory and transcendence into the next level of care setting. According to Alper, O'Malley, & Greenwald (2020), "Researchers in the field of Transitions of Care evaluate the effectiveness of various interventions to improve the discharge process" (par. 2) A practical method to classify these interventions, is by grouping them into two categories, pre-discharge, and post-discharge interventions. Pre-discharge interventions is defined as inpatient education, medication reconciliation, and scheduling of follow up appointments. Post-discharge intervention would include follow up telephone phone calls, and in-person follow up appointments. Despite the success of these approaches, little association has been found in the application of one over the other (Alper, O'Malley, & Greenwald, 2020).

Heart failure selfcare education. According to Toukhsati, Jaarsma, Babu, Driscoll, & Hare (2019), extensive use of approaches has been designed to provide patients with the required skill and knowledge to self-manage their HF condition. Equipping patients with these tools assist in expeditious recognition of modifiable risk such as weight gain due to fluid retention, edema to lower extremities, and dyspnea. Early identification of risk factors alone may prevent frequent emergency department (ED) visits and hospital re-admissions. Randomized controlled trials (RCTs) provide evidence that suggests that self-care interventions can improve clinical outcomes in patients with HF.

For example, Boyde et al. (2018) found a reduction of unplanned HF re-admission with the implementation of self-care interventions. Self-care education revealed a reduction of 30% in patients with HF (relative risk [RR] 0.703; 95% confidence interval [CI], 0.55, 0.90). The results of the study did, however, detect inconsistency in patient adherence to self-care intervention. Further Meta-analyses and systematic reviews of studies may be required to clarify true clinical outcomes.

Ruppar, Cooper, Mehr, Delgado, & Dunbar-Jacob (2016) conducted a recent meta-analysis that reported a benefit in self-care on HF-related re-admission. The self-care approach used a teach-back method as the choice in the intervention approach. The research concluded that self-care interventions that included medication adherence yielded a reduction in mortality risk (RR 0.89, 95% CI, 0.81, 0.99) and significantly decreased the hospital re-admissions (odds ratio (OR) 0.79; 95% CI, 0.71, 0.89) in HF patients, little consistency was seen in reducing mortality risk. The overall suggestions for the literature emphasize the use of self-care education to improve clinical endpoints.

Post discharge phone call follow up. Post-discharge follows up call initiative is a simple and effective way to identify risk factors and the need for early intervention for clinical issues that may occur to a patient after discharge with HF. The AHA (2016) Get with the Guidelines® - Heart Failure Patient Management Tool™ recommends follow-up telephone calls within 72 hours of patient discharge home.

A nested matched case-control study was utilized to compare the associated variables of post-discharge follow-up and their impact on heart failure readmission. Variables included post-discharge telephone call and post-discharge clinic visits. Relevant post-discharge was defined as a clinic or telephone visit with a physician or practitioner in internal medicine, family medicine,

or cardiology specialty. The research excluded other providers with the argument that other specialties would not have direct involvement in HF treatment. Initial contact by clinic visit was associated with a 15% (95% CI: 2% to 27%) lower adjusted odds of readmission. In contrast, initial telephone contact by non-clinicians yielded an adjusted odd of 30-day readmission (adjusted OR 0.85, 95% CI 0.69–1.06). The study concluded that while an initial clinic visit was associated with reduced readmission rate, initial post-discharge contact by telephone may be more practical in implementing in clinic practice settings (Lee, Yang, Hernandez, Steimle, & Go, 2016).

Harrison, Auerbach, Quinn, Kynoch, & Mourad (2014) conducted a retrospective observational study at an academic medical center to determine the effect of receiving a post-discharge telephone call on 30-day readmission on patient's post-discharge from November 2010 through May 2012. The intervention consisted of a patient receiving two telephone calls within the first three days post-discharge. The calls were made by a nurse who used a standardized checklist to identify modifiable risk factors that may lead to unnecessary readmission. The group of patients that completed the checklist and received telephone calls has less probability of being re-hospitalized compared to those who did not [155 (5.8 %) vs. 123 (8.6 %), $p < 0.01$. Upon analysis of results, it was determined that the effectiveness of post-discharge phone call programs might be directly related to whether patients are able to answer a phone call than to the actual care delivered during the call. The need to identify patient barriers to receiving phone calls may negatively impact the outcome and success of phone outreach approaches.

Seven-day post hospital follow up. Fundamental to the gathered evidence showing the impact of a seven-day post-discharge follow-up protocol on the readmission of heart failure patients and their compliance to the same are various studies that are worth highlighting. To

begin, Atzema et al. (2018) in their retrospective cohort study aimed at establishing the impact of early follow-up care (within seven days of discharge from the ED) in comparison to eight-30 day post-discharge follow up, and the effect on the mortality and readmission rates. The follow up consisted of in-person visits with a clinician with expertise in heart failure management (family care physician or cardiologist). The logistics of the visit were not mentioned in this study. The researchers concluded that follow-up within the seven days of discharge from the ED had a lower mortality rate (hazard ratio [HR] 0.92; 95% confidence interval [CI] 0.87–0.97), and hospital readmission over 90 days [HR 0.87, 95% CI 0.80–0.94] (Atzema et al. 2018).

Similarly, Tung, Chang, Chang, and Yu (2017) carried out their research intending to evaluate the relationship between seven-day physician follow-up and no patient follow up and 30-day readmission of acute myocardial infarction (AMI) and heart failure. The groups were further stratified into the same physician, or different physician follow up. A propensity score analysis was used to decrease the bias and the baseline contrast between the early follow-up and the no early follow-up groups. Among those with heart failure, rates of early follow-up with the same physician, with a different physician, and with a cardiologist were 74.9%, 52.9%, and 37.6%, respectively. Despite the notable reduction in 30-day readmission with a different physician follow up, the study revealed that follow up with a physician that is not familiar with a patient's disease progression, may lead to unnecessary ED visits due to misinterpreted decompensation as a consequence of lack of input from patient's hospital trajectory. Moreover, the same physician follow-up leads to higher therapeutic effectiveness and early identification of deterioration due to familiarity with the hospital course. In general, a seven-day same physician follow-up resulted in a lower risk 30-day readmission of the AMI and heart failure patients (Tung et al. 2017).

Current management. A gap in transitional care from hospital to home has been identified at the practice site. A lack of consistency and non-evidence-based interventions on preventing readmissions was appraised, and a need for implementation of a protocol has been suggested. Currently, the cardiologist and nurse practitioners limit their interventions to verbal recommendations to patients for office visit follow up appointments during the patient's hospital course; however, no timeframe is provided. Patient education on a disease process is brief during a hospital stay, tailored self-care, and disease management is initiated during office visits. Consistency of the limited interventions from clinician to clinician has not been measured. Various transition care models have been adopted in hospitals and clinics with the aim of reducing HF readmissions. Many readmissions are preventable and attributed to poor discharge care. Studies demonstrate there is a positive impact in cardiology developed interventions and that specialty led transition care yields better outcomes. (Donaho et al. 2015).

Current recommendation. The literature review delineates the implementation of specific evidence-based strategies commonly used in transitional care models. These interventions have proven to be effective when used separately or in conjunction. The indicated literature specifically outlines the implementation of protocols such as self-care education, follow up telephone calls, and in-person seven-day post follows up visits to improve overall clinical outcomes and reduce HF hospital readmission. The literature analysis supports the application of transitional care protocols at the cardiology practice site.

Review of Study Methods

The literature reviewed included multiple methodologies previously mentioned. Predefined criteria were used to select studies that focused on transitional care protocols that reduced HF readmission in outpatient clinics. Results included retrospective observational

studies, retrospective cohort studies, randomized control trials, nested matched control studies, meta-analysis, and systematic reviews. All themes and sub-themes are pertinent to the gaps identified in the practice site. Studies chosen were relevant to the project topic and revealed consistency in their outcomes. Therefore, the implementation of these clinical protocols at the practice site should yield the same positive results.

Significance of Evidence to Profession

In overall terms, healthcare providers must strive to deliver quality care to their patients by adopting multiple care delivery models. Concerning the reviewed evidence, the utilization of transition care programs for the management of discharge patients with HF will be essential. It is worth considering the inclusion of advanced practice nurses (APNs) to act as leaders and managers of the heart failure transition care program alongside other interventions (Garcia, 2017; Vedel, & Khanassov, 2015).

Most importantly, APNs who always remain at the forefront and leaders of the continuum of care ought to coordinate care plans by using a multicomponent transition care program. Among the elements that have been included best practices in transitional care models include but are not limited to, patient and caregiver disease process education, disease management teach-back education, telephone call within three days of discharge and outpatient multidisciplinary clinic visits within seven days post-discharge have proved effective (Tung et al. 2017).

Additionally, the significance of the evidence to the nursing profession is further highlighted by the increased quality of care provided to heart failure patients. According to Donaho et al. (2015), transitional care is a crucial element of high-quality care for persons diagnosed with heart failure. Such is the case given reduced readmission and mortality rates

within 30 days of discharge. With such a capacity to decrease in readmission and mortality rates, nurses are thus in the driver's seat of influencing the lives of the HF patients by the provision of high-quality care characterized by meeting dire needs of these persons (Donaho et al. 2015).

Conclusively, research evidence has demonstrated the need to embrace transition care programs in various care models. Therefore, the multicomponent transition of care in heart failure should be the center of the care continuum in care coordination. APNs ought to demonstrate their competencies in continued education and research undertakings to improve the care delivery to clients in different settings. Multidisciplinary coordination of care should be based on evidence-based interventions for quality improvement, decrease in mortality, and reduce hospital expenditure.

Theoretical Framework

The theoretical framework used to inform this QI project is the care transition framework. This model refers to the transfer of a patient with a chronic or acute illness from one care setting to another or between practitioners due to changes in care and condition needs. The goal of the model is to enhance care outcomes while curtailing the costs of health care systems (Smith, Ashok, Sydney, Wines, & Texeira, 2014). The care transition framework focuses on the recognition of patient health goals and the measures that should be taken to ensure the best health outcome (Hung, Truong, Yakir, & Nicosia, 2018). The framework is an essential element to guide the seven-day post-discharge transition period protocol in reducing heart failure re-admissions (See Appendix A).

History and Development

The care transition framework is based on the principles of the redefining for efficiency and reduction model (PR) as well as the patient-centered medical home framework (PCMH). The

PCMH framework was modified to include adaptation work (Smith et al., 2014). The new framework stipulated the location of the intervention. The new framework stipulated that the intervention's location would take place across the care continuum from the acute setting during the hospitalization through to outpatient in the cardiology clinic practice setting. Population and resources were added as new constructs to influence the kinds of services provided. Besides, the modifications to the implemented process included facility management, facilitators, staff, and patients as stakeholders in the decision-making process (Smith et al., 2014). The purpose of the new developments was to address six sub-constructs, including coordinated, patient-centered, accessible, comprehensive, quality, and patient safety.

The care transition framework builds on previous adaptations. The purpose of the care transition framework was to address the gaps in PR and PCMH frameworks. Thus, it was essential to adapt and redefine the PR and PCMH models to create the care transition approach. The goal of the care transition framework was to direct research and appraise care transitions implementation within a wide array of organizational settings (Smith et al., 2014). The goal was to address the why, how, and where, the framework can be incorporated in the care system (Oikonomou et al., 2019). The theory's development was prompted by the growing cases of the unsafe transitions of care from the hospital to the community, as manifested by the high number of growing re-admissions. Although not all re-admissions are avoidable, efforts to remediate unsafe transitions were deemed necessary.

Application of the Theory to Current Practice

The complexities of medical conditions and the increasing approaches of providing care have made the care transition theory a vital element in the current practice. Recent care processes focus on enhancing patient outcomes. Thus, the care transition framework is expected to prevent

poor care outcomes among patients by promoting the timely and safe transfer of individuals within different levels of care and between providers (Mouw, Wertman, Barrington, & Earp, 2017). The theory plays a significant role in identifying and addressing barriers to efficient transition, to prevent gaps in healthcare, to ensure that patients receive adequate care, and to avoid additional costs of needless re-admissions.

The framework can be implemented by researchers to establish and assess the range of probable relevant aspects and results in the process of preparing an implementation study (Klueh et al., 2019). Nurses are the primary point of contact for patients, making them crucial in facilitating a smooth process. For instance, nurses prepare relevant patient information that should be passed on to the appropriate discharge team (Nguyen, Yan, Ell, Gonzalez, & Enguidanos, 2017). One of the main challenges contributing to complications and re-hospitalization of chronically ill patients is poor communication and coordination among providers through the continuum of care. The assertion is echoed by Burke, Guo, Prochazka, and Misky (2014), who posits that nurses use the care intervention framework to provide patient education, care coordination information, provide advanced care planning, and ultimately lessen re-admission cases. Planning is key to enhancing care outcomes. Nurses play an essential role in informing all individuals involved in the care team about patient needs. A randomized two-year study conducted at the State University of New York (SUNY) Downstate Health Science University was initiated in March 2015. The 882-bed teaching hospital located in Brooklyn, New York, was designated to develop an HF transitional care model clinic to provide post-discharge early follow up visits to high-risk patients with chronic heart failure disease. The intervention consisted of identifying cases hospitalized with an exacerbation of HF, which provided a post-discharge follow-up appointment, and received a phone call reminder one day before their

appointment. Data were abstracted from the electronic health record and analyzed to compare those patients discharged with appointments to those without appointments. Clinic interventions, which included medication education, physical examination, and symptoms check where performed by pharmacist, nurse practitioner (NP), and a medical doctor (MD). After the evaluation of interventions, a conclusion of the study revealed a significant reduction in re-admission within seven days and 30 days post-discharge for the group engaged in the transitional care model clinic (Lee, et al., 2019). Therefore, the care transition framework applies to current practice.

Major Tenets

Intervention Characteristics

The implementation of a care transition framework depends on intervention attributes. These concepts include essential characteristics, such as the indispensable aspects of the intervention (Smith et al., 2018). These aspects are defined by the key components and strategies of each adapted intervention. The characteristics are considered and evaluated before adoption decisions and implementation. Ignoring intervention strategies might have adverse effects on the care transition framework.

Organizational Characteristics

The care transition framework defines the characteristics of the facility involved in the intervention process, including networks and communication, readiness, as well as culture. All these elements interact to influence the implementation process (Stolee et al., 2019). Organizations, hospitals, and central intervention approaches are the chief constructs involved in the care transition framework and are critical characteristics of the theory.

Characteristics and Roles of Providers

Numerous parties are involved in the intricate care process of an acute or chronically ill individual. These individuals are conversant with organizational, cultural, and professional needs of care facilities and can assist in providing care (Smith et al., 2018). Therefore, it is crucial to determine the characteristics and roles of the people who facilitate care, mainly through the patient transition.

Characteristics and Roles of Patients and Caregivers

Caregivers and patients have a responsibility to guarantee the best health outcomes by determining their mindsets, interests, and customs. Caregivers have a responsibility to enhance a sense of wellbeing when facilitating transitions (Kooyman & Witry, 2019). Additionally, nurses must assess and consider the inhibitors and facilitators that impact a patient's passage through the transition when facilitating the patient transition. It is essential to confirm the patients and their caregivers participate fully and effectively to ensure the transition occurs flawlessly.

Process of Implementation

Implementing the care transition framework in a medical setting involves critical processes of planning, engaging, and reflecting on the main objective. The planning process must involve all stakeholders, including the caregivers, the patient, and family members (Fremont, Hicks, & Pincus, 2020). All stakeholders must be consulted, and their insights are into account during the decision-making process. Additionally, all the decisions must align with the primary goal of patient care. In such a way, it is possible to achieve the individual and organizational level application of the theory.

Measures of Implementation

The implementation of the care transition framework varies concerning quality and the setting. A proper implementation strategy is necessary to ensure the transition process occurs smoothly (Kalu, Maximos, Sengiad, & Dal Bello-Haas, 2019). Caregivers from both teams must exchange information accurately when planning the transition process. Thus, in addition to involving the nature and frequency of communication with patients and caregivers, the measurement process should also consider the quality and content of those interactions.

Outcomes

A transition is considered successful if there is an efficient collaboration between the caregivers, patients, and providers to ensure their conditions remain stable and the care process continues effectively (Werner, Gurses, Leff, & Arbaje, 2016). The receiving team must provide the patient with the necessary support as he or she continues treatment. The care transition framework will provide a theoretical guide for reducing the chances of patient re-hospitalization (Klueh et al., 2019). The process applies insights from evidence-based transition models and promotes the engagement of a patient and caregiver. Ultimately, the process will minimize preventable rehabilitation among patients.

Theory Application to the DNP Project

The care transition theory can be applied in the project implementing the seven-day post-discharge transition period protocol in reducing heart failure re-admissions. The principles of the framework could be applied when developing a post-hospital discharge protocol for patients diagnosed with HF. It will be implemented by all providers and front desk personnel in the cardiology clinic. The framework could also help educate the cardiology providers and office staff on the new protocol and their perspective roles through in-office training. The goal will be

to enhance patient participation and assessing the acquiescence of providers in protocol utilization through a retrospective chart review. All stakeholders in the transition of care process must understand their roles and what is expected of them to facilitate the success of the procedure.

Regarding the major tenets, intervention characteristics, organizational characteristics, characteristics and roles of providers, characteristics and roles of patients and their caregivers, process implementation, measures of the implementations, and outcomes can be evaluated through a review of existing policies, and meetings with the organization. The characteristics and roles of providers are identifying the medical providers' knowledge and expertise, their perception and willingness to change, and their knowledge about evidence-based research on the topic. Besides, the characteristics and roles of patients and caregivers involve the collaboration between all stakeholders in planning the care transition process; this would include providers, patients, and caregivers working as a team to design an appropriate treatment plan aligned with the patient's values, goals, and preferences. Also, close, and consistent interaction of the team includes participation in frequent meetings and periodic updates of care plans to reach patient health goals. This type of strategically formed management is expected to increase compliance and reduce the possibility of failed outcomes. The process implementation tenet involves using the care transition framework when discharging chronically ill patients from the hospital. Additionally, the measures of implementation involve the accurate exchange of information, the frequency, and nature of the communication, as well as the quality and content of the interactions. Finally, the outcome would be an increase in keeping the follow-up appointment at the cardiology clinic.

Project Setting

The project site is a cardiology clinic located in South Florida. The functions of the APNs and cardiologist at the clinic is to provide evaluation and treatment of patients with cardiovascular diseases, which follows the patient from the acute hospital setting through to the office setting or vice versa. For this DNP project, the practice will focus on patients diagnosed with heart failure.

Due to the nature of practice size definition, the setting is considered a small practice being less than six providers. The clinic receives, on average, 450-500 patients a month of which approximately one third carry a HF diagnosis. While the cardiology clinic is a new facility that offers multiple invasive and non-invasive cardiovascular procedures using state of the art equipment, the medical director and owner, which is also the interventionalist cardiologist has over 20 years of experience in the field and is considered a renowned cardiologist in South Florida. The practice depends mostly on referrals and recommendations from previous patients, and scarcely relies on other methods of advertisement. The practice raised interest in the implementation of a HF protocol as a result of the increase in readmission due to gaps in the transition of care as well as flaws in the electronic health record systems in the past several years.

Population of Interest

The population of interest of this quality improvement (QI) project includes all the medical providers and ancillary staff employed at a cardiology clinic in South Florida. The cardiology team is comprised of four advanced nurse practitioners (APNs), one cardiologist, and three medical assistants (MAs) who care for patients with cardiovascular diseases. The ancillary group, which is composed of two front-office and four back-office clerks and the administrative

team, including the office administrator and administrative assistant. The inclusion criteria entail the cardiology staff implementing this protocol, such as the cardiologists, APNs, MAs, and front office staff working full time at the cardiology clinic. The inclusion criteria were selected to ensure the participants have direct contact with patients through initial and subsequent office visits, evaluation, and treatment. The exclusion criteria include the back-office staff who do not have direct contact with the patients, administrative staff, information technology team, and all other contract or temporary employees of the practice.

Finally, the indirect population of interest in this project pertains to patients with heart failure both newly diagnosed and those with chronic heart failure with specific needs to prevent re-hospitalization. Precisely, the project aims to improve the well-being of this population by implementing discharge protocols that may prevent unnecessary readmission.

Stakeholders

According to O'rourke, Higuchi, and Hogg (2016), implementing any project relies on keeping major stakeholders indulged throughout the implementation process. Stakeholders with the highest interest are the owner and administrative team, as the success of this new protocol provides the opportunity to grow the practice census by providing unmatched outcomes not available within the practice market. The medical team is a stakeholder because the implementation of this protocol and the intervention's success will enhance the practice, knowledge, and ability to improve care. This success will translate into higher recognition and respect in their field of practice. For this project, the relevant stakeholders who have granted permission include the site administrator, owner, and medical director (see Appendix B). Finally, considering the affiliation agreement topic, the clinic requires an affiliation agreement only for research projects requiring Institution Review Board (IRB).

Interventions

The intervention will be initiated in the inpatient setting before the discharge. At this time, the provider will begin to implement the HF protocol that consists of three checklists with detailed sections of the interventions to be completed throughout the trajectory of the patient's transition of care from inpatient and ending at the outpatient seven-day post-discharge office follow up visit. Week one will commence with Phase I, the educational phase, on (November 4th, 2020, thru November 10th, 2020). During this phase, the project lead will be conducting educational PowerPoint presentations in two separate lunch and learn sessions beginning with the medical providers first followed by the front office staff on a different day during the same week. Presentations will be conducted separately in order to meet the specific needs of the different education levels. Phase II, the implementation phase, will begin on week two through week five (November 11th, 2020 -December 8th, 2020). This phase is composed of implementing the HF protocol tool by the medical providers at the inpatient site, followed by a hand-off report to the front desk office staff who will contact the patient three-days post-discharge and ending with the seven-day post-discharge follow up visit at the clinic.

Due to the COVID-19 pandemic, there is limited access to the number of providers with access to the facility grounds; therefore, monitoring compliance at the hospital site will be performed remotely through concurrent file audits. Participant communication will be available through phone or email. Formative evaluation to review gaps in compliance will be ongoing during the implementation phase. Collecting data and analysis will be performed weekly to effectively capture any gaps that may require re-education in any of the three sections of the protocol. Finally, Phase III, the statistical testing phase will begin and end on week five

(December 9-December 15, 2020). During this phase, compiling of all data and analysis will be completed, and statistical testing will occur.

Tools

The Heart Failure Protocol tool (Appendix C) has been developed with the project mentor's assistance using evidence-based research to incorporate best practices for the prevention of HF readmission. Expert consultation will be sought through stakeholders and the project team for validation of the protocol tool.

Heart Failure Protocol. The tool is a 20-item checklist designed to guide the participant and determine compliance with the protocol.

Section I. The section I checklist of the protocol includes the provider documentation of the following areas: 1) Left Ventricular Systolic Function (LVSF) through Ejection Fraction percentage (EF%), 2) prescription of angiotensin-converting enzyme/angiotensin II receptor blockers ACE/ARB for a patient with an EF of less than 40% or contraindication of the medications, 3) smoking cessation education has been provided to patient, 4) Heart failure self-management tool for patients has been provided to patient, and the patient can verbalize understanding and use of the tool, 5) post-discharge seven days follow up appointment at the cardiology office has been provided to the patient.

Section II. Once the first portion of the checklist is completed and checked off by the provider, it is handed down to the front office desk staff for the initiation of part II. The front office completes this portion, which consists of the staff contacting the patient three days after discharge as a reminder of the office visit appointment and to briefly review the following: 1) any barriers such as transportation or special assistance required to meet the office visit, 2) reminders to bring a list of prescribed and OTC medications, 3) review of symptoms log with the

patient and 4) address any zones that require anticipated visits, and 5) provide instructions for seeking emergency and non-emergency after-hours care. Once this portion is completed, the front office will scan this checklist into the patient's medical record and label the patient under notes as Heart Failure Transitional QI Project.

Section III. The third checklist in the protocol will be initiated upon the seven-day post-discharge visit at the office by the cardiology provider after the physical examination and review of all test results. This checklist will consist of 1) reviewing the symptoms log with the patient, 2) re-educate on warning signs and patient understanding of such, 3) evaluate patient's knowledge of medication indications, 4) reconciling of medications, 5) discussing changes to management and/or further workup, 6) evaluate outpatient resources needed such as home health care nursing services, 7) providing next office appointment. The completed protocol will be scanned to the patient's record to be used in the chart review once the intervention phase is completed.

Heart failure self-management tool. In addendum to the HF protocol checklist, a staying healthy with heart failure self-management tool from the Preventive Cardiovascular Nurses Association (PCNA) has been added to provide to the patients during their inpatient stay before discharge (Preventive Cardiovascular Nurses Association, n.d.). The tool allows patients to recognize the warning signs of HF complications easily and provides a guide to proper actions to avoid rehospitalization. The tool will be provided in both English and Spanish (Appendix D&E). PCNA only requires the user of the tool to register as a member of the organization; no further permission is required for the use of any of their provider tools.

Daily symptom log. Along with the self-management tool, a symptom log in English and Spanish (Appendix F&G) was developed to provide the patient with a method to record their

daily symptoms. In the literature, a study provided evidence of successful heart failure transition to outpatient settings using these strategies. According to Ziaeian & Fonarow (2016), strategies that provide increased support at discharge, improved communication, and early and close outpatient follow-up are associated with lower heart failure readmission risk.

Chart Audit Tool. A chart audit form (Appendix H) will be used to determine the efficacy of the HF tool, the compliance of the participants' use of the protocol, and the success in a seven-day post-discharge visit among the patients. The tool is formatted into three sections, similar to the HF protocol tool, to easily evaluate the gaps in compliance through the implementation phase. Section I of the tool will be directed towards evaluating compliance in applying interventions during pre-discharge in the hospital by the medical providers. Section II will evaluate the compliance by the front desk in the three-day post-discharge phone call. Finally, section III will evaluate the compliance of the medical providers during the in-office post-discharge visit.

Educational Presentation. According to Ba, Son, Lee, & Kim (2020), providers lack knowledge about the benefits of a transitional care programs to improve quality of life and reduce morbidity and mortality in heart failure. Providers are failing to offer their patients the necessary tools to improve outcomes. Empowering patients in taking control of their disease through self-care management has been linked with the reduction of rehospitalization (Toukhsati, Driscoll, & Hare, 2015). The medical providers and front office staff must receive the education needed for the success of this DNP project. The project lead will conduct educational training through a PowerPoint presentation (Appendix I). Training will be provided separately for the medical provider and front office to meet the different educational levels' needs. Training will take place in the form of a lunch and learn session. The main discussions in training include the

benefits of transitional care programs, reviewing the three sections of the HF protocol, each participant's role throughout the three sections, the proper use of all the tools mentioned previously, and data method compiling and analysis. All participants will receive copies of the tools during the training session; project lead contact information will also be provided during training.

Study of Interventions/Data Collection

The project lead will conduct data collection of the three sections of the protocol with some front office staff assistance. The front office staff will provide the initial appointment pre-discharge, contact the patients at the 3-day post-discharge, and compute the total number of successful seven-day post-discharge appointments after the intervention. The HF tool will be provided to all participants during the education presentation before implementation. Data collection will begin with selecting patients in the hospital census assigned to the practice site and are identified as admitted with a primary diagnosis of acute heart failure. The provider examines the patients throughout the hospital stay and will complete the first section of the protocol prior to discharge. Upon discharge, the hospitalist will facilitate the HF protocol to the front office staff to provide it to the project lead. The project lead will then review the protocol section and perform a chart audit for compliance. Simultaneously the front office will provide the project lead with the incoming protocol and move to complete section two and scan the form to the patient chart. The medical provider will complete the last section during the patient's seven-day post-discharge appointment. Once the final section is completed, the project lead will perform the second audit for compliance. All patient and participant information will be labelled with an un-identifiable code name, number, or colour in the codebook to protect confidentiality. In addition to measuring the medical provider's compliance with the sections applied to them,

the project lead will also collect data to measure compliance with the practice protocol. Ongoing data collection of all sections of the protocol will continue thru the four weeks of the implementation phase with data entry weekly by the project lead. Data analysis will determine if a significant change occurred in the seven-day post-discharge appointment compliance vs. the standard follow-up discharge before implementation. If, after the intervention, compliance of seven-day post-discharge appointment is significantly higher, it will be concluded that the intervention was successful.

Ethics/Human Subjects Protection

Direct education on ethical conduct standards during the research of human subjects was achieved by completing the CITI modules during the course. All data collection and participant information will be stored in a locked laptop. Access to the laptop will be denied to anyone outside the project lead. For protection and confidentiality purposes, the data will be non-identifiable. The project site does not have an IRB committee; therefore, the project lead will comply with Touro University Nevada's requirements to complete and submit the required IRB materials to the project team for final determination. As per the US Department of Health and Human Services (n.d.), activities of this nature have not needed to undergo Institutional Review Board (IRB), provider informed consent, or patient informed consent. Criteria that meet IRB application are as follows: the use of the fixed clinical protocol, an objective other than producing an improvement in safety or care that may be sustainable over time, randomized trial intervention, and intervention poses risks greater than those presented by routine clinical care (Hopkins Medicine, n.d.). All providers will be automatically assigned to participate due to the project's nature being a mandated practice change for the clinic; therefore, recruitment is mandatory. Participants may not have the right to opt-out of the project due to the practice

mandate. Although participation is mandatory, it is not a condition of employment and will not be a risk of termination for any of the providers. No extra compensation outside of the provider's regular salary will be disbursed for participation. The benefits of participating in this project are recognition in collaborating in a quality improvement research to improve HF outcomes.

Measures/Plan for Analysis

A Fisher's exact test and descriptive statistic as percentage and 95% confidence intervals will be used. Fisher's exact test is the most appropriate statistical test to compare whether the proportions for one variable are different among the other variable values. In addendum, this test is recommended when testing sample sizes of less than 1000 (Mcdonald, 2014). Fisher's exact test will analyze the counts in a 2x2 contingency table. This would test whether there is an association with the existing practice of no seven-day post-discharge appointment with the proposed intervention of a seven-day post-discharge appointment for all HF patients. Descriptive statistics with a 95% confidence interval will be used to report the provider compliance with a percentage. The project lead will be responsible for creating a codebook in excel and submitted to SPSS for data analysis on the last week of intervention. The project lead consulted a statistician who performed a review of proposed data collection and recommended appropriate statistical testing to complete the statistical analysis. Time restraints have been identified as a limitation to analyze and compare the association of a three-day post-discharge phone call with patient compliance in their seven-day post-discharge appointment.

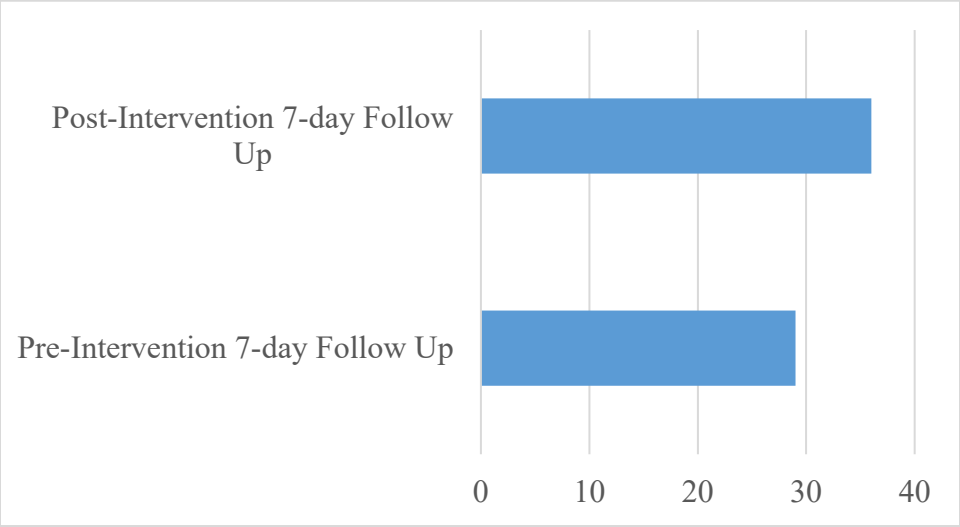
Analysis of Results

Data were first tested for requisite statistical assumptions prior to data analysis. All assumptions were met, including normality of the distribution of scores. However, because the

analysis was non-parametric in nature, violations of assumptions are not problematic because non-parametric statistics are employed when requisite parametric assumptions are not met such as sample size or normality (Tabachnick & Fidell, 2013). The sample comprised 44 HF patients with a mean age of 73.61 (*SD* = 13.37), of whom 14 identified as female (30 male). Results of Fisher's Exact Test showed there was a statistically significant association between existing practice of seven-day post-discharge appointment with the post-intervention of a seven-day post-discharge appointment for all HF patients, χ^2 (1; N = 44) = 27.01, p < .001. The likelihood ratio, 5.14, indicates that the odds of a seven-day post-discharge appointment for HF patients is five times more likely post-intervention. Figure 1 presents the frequencies of the pre-intervention seven-day post-discharge and post-intervention seven-day post-discharge.

Figure 1

Frequencies of Pre-Intervention and Post-Intervention Seven-Day Post-Discharge Follow Up Appointment

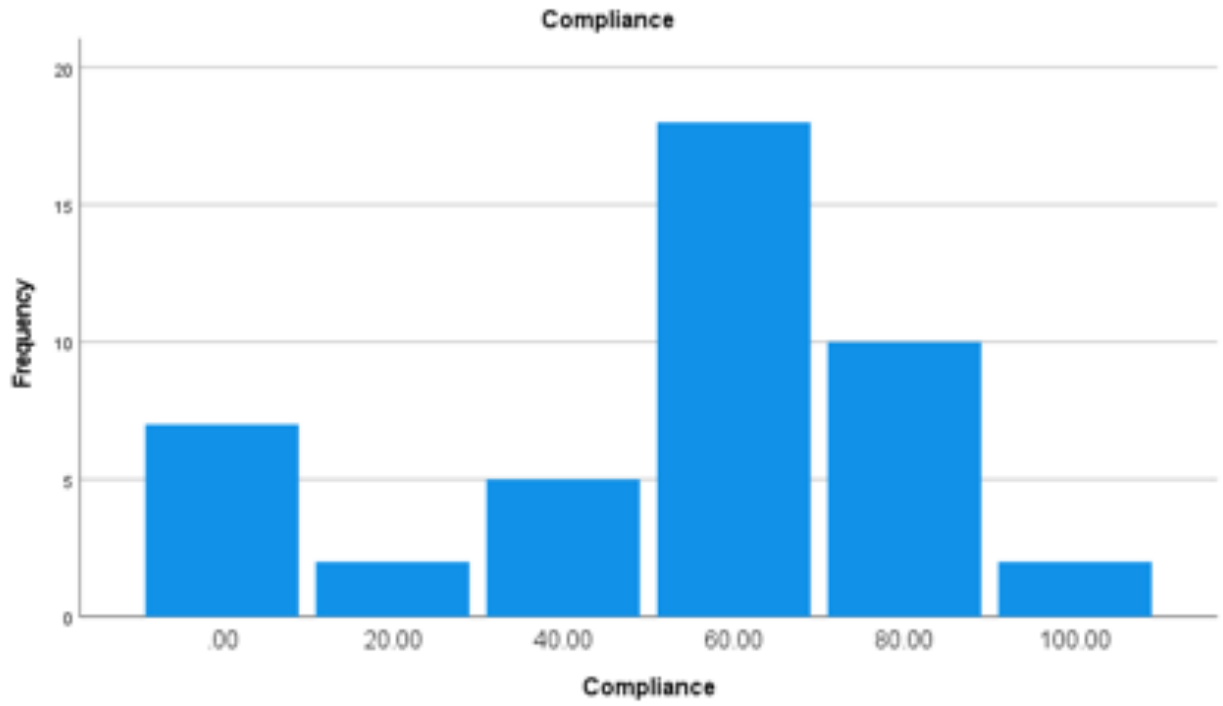


Regarding provider compliance, results revealed that providers complied with the protocol approximately 68.72% of time (95% confidence interval = 64.40, 73.04). Figure 2 displays the distribution of protocol compliance by providers. The x-axis along the left is the

frequency of provider compliance with the protocol while the y-axis contains the percentile values of protocol compliance. This distribution shows that providers complied with the protocol approximately 68% of the time, as previously reported, with 60% (with a frequency of 17 instances of provider compliance) and 80% (with a frequency of 10 instances of provider compliance) were the two highest values of protocol compliance expressed as percentiles, which led to the relatively high percentile of provider compliance with the protocol.

Figure 2

Frequencies of Percentile Protocol Compliance of Providers



Discussion Findings

This DNP project aims to improve the adherence of a seven-day post-discharge follow-up appointment by implementing a heart failure transition care protocol. The results demonstrate a statistically significant relationship following the intervention of the Heart Failure zone, symptoms log tools, and the cardiology provider's compliance with the use of the protocol.

Provider Compliance

Cardiology provider compliance with protocol utilization was measured through a retrospective chart review, which indicated that they complied with the protocol approximately 68% of the time post-intervention. Several barriers were identified during the data analysis that may have been the culprit to the failed compliance.

For instance, during the first week of implementation, the front office staff were not clear which of the two would be responsible for receiving forms from providers or calling the patients three days after discharge. This was addressed by alternating days for personnel to provide and receive communication from medical providers. Due to the quick capture and resolution of the issue, no negative impact was noted in patient compliance with the seven-day follow-up appointment. Another unprecedented issue was the non-electronic forms of tools provided to patients during hospital intervention. The medical provider assigned to the hospital portion of the protocol did not carry sufficient heart failure zone tools, or HF symptoms log to provide to the patients on one of the implementation days. Patients received verbal education and instructions by the medical provider instead, and no missed follow up appointments as a product of the gap in the process was identified. In order to avoid gaps in protocol implementation at the clinic, future consideration to electronic-based educational tools may be warranted. Lastly, some patients were discharged without education, tools, or appointment due to patients' unplanned discharge. This barrier prompted an immediate change in approach. With medical provider input, it was decided that providing education and tools upon first hospital consultation versus day of discharge would prevent patients from missing education; however, the unforeseen discharge results would prevent the patient from receiving the seven-day appointment prior to discharge. After data analysis, it became evident that these barriers have potentially altered the medical provider's

compliance with the protocol and patient compliance with the seven-day follow-up appointment. Previous literature has shown that the mode and methods used in transition when the patients are discharged from a hospital setting to home are a significant determinant in readmission and mortality (WHO 2018). This means that given the prompt recognition and modification of the barriers, it is safe to assume that 100% compliance would have been achieved. Therefore, we can conclude that the post-hospital discharge protocol for patients diagnosed with HF and the educational intervention developed for this research project successfully met the objective of evaluating providers' compliance in protocol utilization.

Seven-Day Follow -up Appointment

Regarding the objective to improve patient compliance in keeping the seven-day follow-up appointment, barriers were also identified in this area. For instance, it was brought to my attention that some patients were discharged without education, tools, or appointment due to patients' unplanned discharge. With medical provider input, it was decided that providing education and tools upon first hospital consultation would prevent patients from missing education; however, this change in approach would not secure the seven-day appointment offered prior to discharge. For these cases, the front office staff would be required to capture these patients' appointments upon the three-day follow up telephone call by the office. Previous literature has shown the mode and methods used in transition when the patients are discharged from a hospital setting to home are a significant determinant in readmission and mortality (WHO, 2018). According to Jackson, Shahsahebi, Wedlake, & DuBard (2015), the early follow-up has been associated with a meaningful reduction of heart failure patient's complications. The project’s data analysis revealed that although this barrier hindered the provider compliance, it did not affect the patient’s compliance with their follow up appointment. Results also indicated that

patients were more likely to keep a seven-day appointment post-educational intervention. This confirms that written educational tools used for patient education, tailored to English and Spanish languages, developed for this project were effective. The objective of improving patient compliance with the seven-day post discharge appointment was met. Despite the barriers identified during this project, the findings indicate how the protocol's use enhances the adherence of a seven-day post-discharge follow up appointment.

Significance/Implications for Nursing

The project findings provide important implications for the clinical practice of nursing, future research, and change in health policy. In this project, advanced practice nurses implemented tailored transitional care approaches that exceeded the typical type of care provided in our current health care system with the aim of preventing adverse outcomes. These approaches required individualized care while considering patient literacy, language, and anticipating barriers. Exploring patient perceptions of the care they received, and their challenges is pivotal when comparing transitional care interventions with future research (Bradway et al., 2012).

In addition to these approaches, other findings also support using the heart failure protocol in this practice. These findings included improved recognition of early symptoms by patients, compliance of medication treatment, reduction of risk in readmission with the first-week post-discharge and increase compliance in the use of the protocol by medical providers. According to Albert et al. (2015), patient-centered care protocols along the continuum of care are vital to improving outcomes and decreasing readmissions. Other implications of this project included the importance of providing increased awareness to the medical providers of patients at high risk for readmission through our patient self-care tools. These findings further solidify the

strategies used in the heart failure protocol as a method of intervention that may improve the challenges associated with the post-hospital transition of care.

The findings of this DNP project prove to be a positive influence on the nursing profession. Implementing an effective transition-based HF protocol depends on the efficient nurse-driven execution of interventions specified in clinical pathways (Kristensen, Nymann, & Konradsen, 2016). This DNP project places particular emphasis on subsequent follow-up post-hospitalization by advanced practice nurses with HF specialty. Through this project, A pivotal change in the management of the heart failure patients at this cardiology clinic site has been based on integrated care provisions mainly coordinated by APNs from the inpatient phase through their discharge to home. A smooth transition between levels of care requires collaboration and care coordination of medical services and health care providers. According to Bradway et al. (2012), advanced practice nurses have the ability to assist and encourage patients in making appropriate self-care decisions, to educate or guide a positive lifestyle. This DNP project's findings, coupled with existing literature, indicate APNs can bridge the existing gap between hospitalization and home while preventing readmission.

Limitations

There were several limitations of this DNP project. Due to COVID-19-related social distancing and lockdown measures, the number of patients visiting the practice site for HF treatment reduced significantly; hence the project considers a small sample size of convalescents presenting with the condition. This restraint limited the recruitment process. The design project was limited by the time frame for the clinical intervention, hindering adequate capturing of readmission and restraining data collection. Additionally, the DNP project is based on a small cardiovascular practice with only five consistent health providers. The small size of the practice

and the number of participants may adversely impact the validity, reliability, credibility of the project's outcomes. Moreover, unexpected early discharge of patients without post-discharge appointment was reported; however, the prompt capture of this issue and quick response by the office to provide a follow-up appointment prevented the events from affecting the collection method or data analysis. Equally, the limitations may compromise the dependability of its proposed intervention framework.

Therefore, in light of the project's restraints, future research such as randomized controlled trials should consider allowing comparison, minimize allocation, selection, and performance bias. Additionally, the research approach is appropriate for further investigations to eliminate confounding factors while ensuring statistical reliability and enhancing the project's replicability. Further, the subsequent evaluations should adopt a relatively larger sample size and a longer time frame to implement the intervention and follow-up. Moreover, the future project's scope is worth expanding to include more cardiology clinics across the state. Lastly, the collaboration with the inpatient discharge nursing team may enhance the outcomes by preventing missed follow-up appointments due to unplanned discharges.

The present quality improvement DNP project contributes significantly to reducing heart failure-related hospital readmissions in South Florida. However, the generalizability of its outcomes and the replicability of its multifaceted intervention model in other healthcare settings across the United States and beyond are limited by specific methodological constraints.

Dissemination

Disseminating the Doctor of Nursing Practice project's outcomes is essential for enhancing its value to the target audience and sustainability. The DNP project, such as the present one, is a unique opportunity to advance a critical component of the nursing profession;

hence, the program's findings are presented beyond the academic institution. Accordingly, the novel knowledge and the empirical evidence the project generates is conveyed to the stakeholders through individualized and group meetings. The project's findings will be disseminated to the Touro University Nevada's faculty and student peers in addition to submission to a DNP repository. Beyond the mentioned dissemination, it is intended that the success of this project's findings be introduced in the form of a poster presentation to cardiology professional conferences including but not limited to The American College of Cardiology 70th Annual Scientific Session and Expo and the 25th Annual Heat Failure 2021 virtual conference. The dissemination aims to eventually reach national cardiology providers through these conferences as well as publishing in peer-reviewed journals.

Additionally, the results may be circulated to the patients and their families through oral presentations, print, and social media. Fostering the project's sustainability is also essential for ensuring it creates maximum impact on the target beneficiaries.

Therefore, the project's sustainability is enhanced by forming interdisciplinary coalitions to facilitate knowledge sharing between healthcare professionals, providers, patients, and policymakers. Additionally, measures are put in place to foster cardiology providers, and administrative staff continued professional development to equip them with essential skills for implementing the project. Further, mechanisms are adopted by the healthcare entity to ensure provider and patient compliance with the project's protocols.

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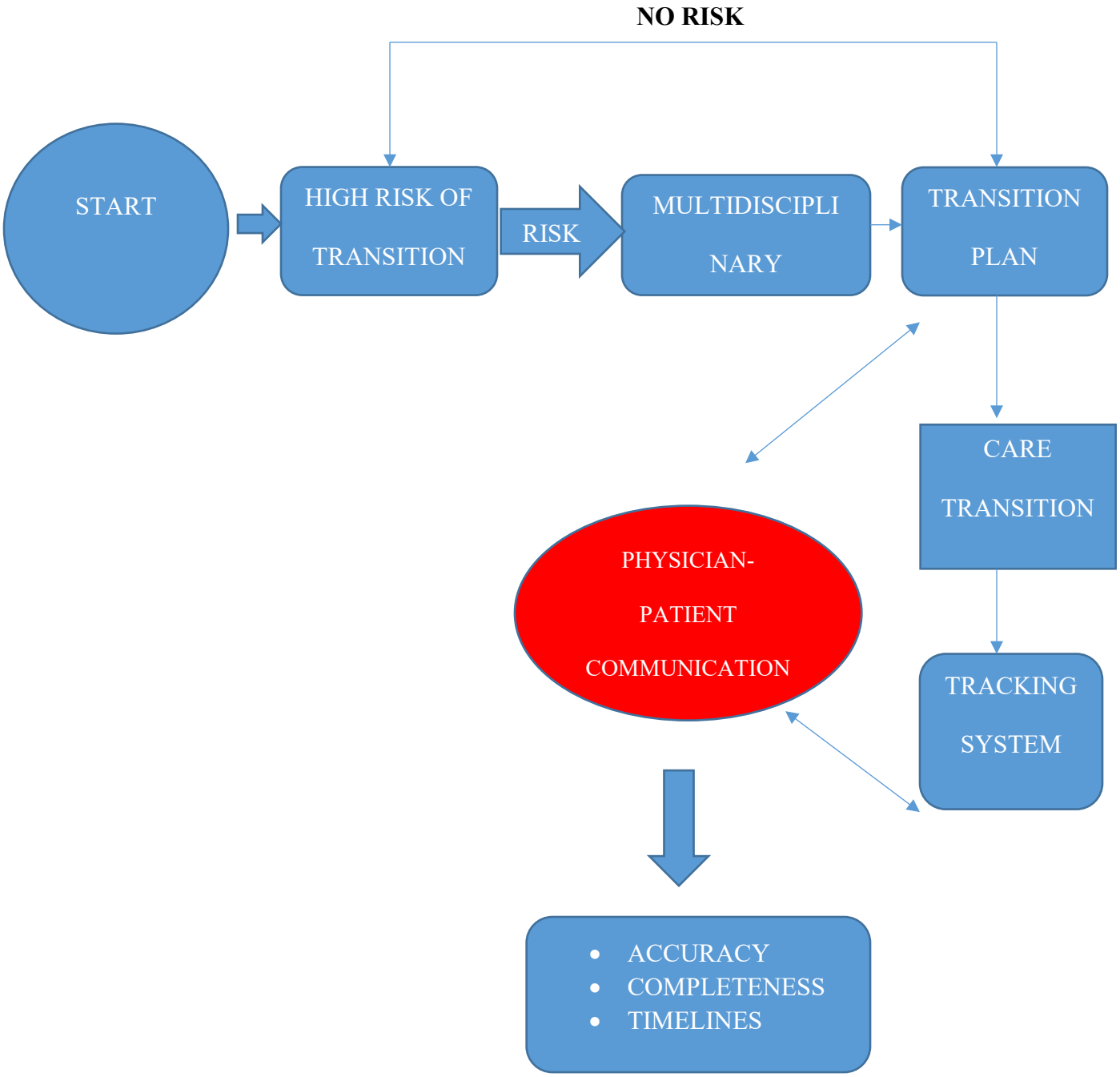
Appendix A

Care Transition Framework



Appendix B

Permission Letter

From: "Odalys V. Rodman BHA | Vascardio" <ody@vascardio.com>
Date: March 31, 2020 at 3:55:50 PM EDT
Subject: Doctoral Quality Improvement Project

Please use this email as attestation that Marisol Llamera has been approved to conduct her Doctoral Quality Improvement Project here at Vascardio Heart and Vascular Institute.
Our facility does not require an affiliation agreement for this project.

If you have any further questions regarding this information, please do not hesitate to contact our office.

Sincerely,

Odalys Vazquez-Rodman, BHA
Administrator

Odalys V. Rodman BHA | Vascardio
Administrator
Francisco Dieguez
Cardiology

Main Phone: (305) 575-1776
Main Fax: (305) 575-1780
Email: *ody@vascardio.com*

145 E 49TH ST
HIALEAH, Florida 33013

www.vascardio.com

Appendix C

Heart Failure Protocol

Section I: PRIOR TO DISCHARGE CHECKLIST (mark the appropriate section)

- LVSF _____EF%
- Medication reconciliation completed Yes____ No_____
- ACE/ARB prescribed Yes__ No__ if no marked, then contraindication _____
- Smoking cessation education provided Yes____ No_____
- HF zone tool provided and reviewed Yes___ No____
- Heart failure symptoms daily log provided Yes____ No_____
- Seven Day follow up appointment provided Yes____ No_____

Section II: POST FOLLOW UP VISIT CHECKLIST (mark the appropriate section)

Reminder call to patient or caregiver 3 days post discharge:

- Reminder of Appointment Yes____No_____
- Barriers to visit addressed Yes _____ No_____ N/A_____
- Reminded patient to bring all prescribed and OTC medication list Yes____ No_____
- Reminded patient to bring symptoms log Yes_____ No_____
- Address any yellow/Red zones with medical provider Yes____ No____
- Provide emergency/non-emergency after hours care information Yes_____ No_____

Section III: SEVEN DAY POST DISCHARGE VISIT CHECKLIST (mark the appropriate section)

- Reviewed symptoms log with patient Yes____ No_____
- Patient explains prescribed medications and their schedule Yes___ No_____
- Perform reconciliation of medication Yes____ No_____
- Have patient repeat back warning signs and appropriate action Yes____No____
- Explain changes to the plan of care and further work up Yes____ No_____
- Evaluate need for home health care Yes_____ No_____
- Provide next appointment visit Yes_____ No_____

Appendix D

Heart Failure Self-Management Tool English

Appendix E

Heart Failure Self-Management Tool Spanish

Insuficiencia Cardíaca:
Lo que necesita saber

PCNA
PREVENTIVE CARDIOVASCULAR NURSES ASSOCIATION

Cómo mantenerse saludable si tiene insuficiencia cardíaca

Aunque sufra de insuficiencia cardíaca, puede tener una vida cómoda y activa en el hogar controlando sus síntomas todos los días. Unos pocos y sencillos cambios pueden ayudarlo a mantenerse saludable y fuera del hospital.

Es muy importante seguir las instrucciones que su enfermero o médico le hayan dado sobre cómo mantenerse saludable en el hogar.

¿Qué hago ahora?

Llame al 911 si presenta los siguientes síntomas:

- Dolor en el pecho
- Mareos graves
- Falta de aire (dificultad para respirar)

Llame al enfermero o al médico en los siguientes casos:

- Si ha aumentado de 2 a 3 libras en 24 horas o 5 libras en una semana
- Si tiene más problemas para dormir y no puede quedarse acostado
- Si nota una mayor hinchazón en las piernas, los pies o los tobillos

Llame al enfermero o al médico si los síntomas empeoran:

- Mayor falta de aliento cuando realiza actividad
- Dolor o hinchazón en el abdomen
- Dificultad para dormir
- Tos seca y áspera

BAJE LA VELOCIDAD

Asegúrese de lo siguiente:

- Lleve un registro escrito de su peso diario
- Tome todos los medicamentos tal como se lo hayan indicado
- Siga una dieta baja en sodio
- Hágale a su médico o enfermero todas las preguntas que tenga sobre su salud
- Manténgase activo y disfrute la vida
- Asegúrese de asistir a todas sus citas de control

Mi próxima cita es

el _____

con _____.

ADELANTE

Appendix F

Symptoms Log English

Heart Failure Symptoms Log

(Use along with your self-management tool)

Week_____	Date	Weight	Daily Medications Yes/No	Green Zone (X)	Yellow Zone (X)	Red Zone (Call 911)
Sunday						
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						

Appendix G

Heart Failure Symptoms log Spanish

Registro Diario De Sintomas De Insuficiencia Cardiaca

(Usar junto a su autochequeo)

Semana_____	Fecha	Peso	Medicamentos diarios Si/No	Zona Verde (X)	Zona Amarilla (X)	Zona Roja (marque 911)
Domingo						
Lunes						
Martes						
Miercoles						
Jueves						
Viernes						
Sabado						

Appendix H

Chart Audit Tool

Patient Name_____ DOB_____ DC date_____

Section I: Pre-Discharge Inpatient (circle answer that applies)

1) Medical Provider documented Ejection Fraction **Yes/No**
2) Medical Provider prescribed medications as per protocol **Yes/No**
3) Medical Provider educated on smoking cessation **Yew/No/n/a**
4) Medical Provider educated on HF Zone and Symptoms log tool as per protocol **Yes/No**
5) Medical Provider completed medication reconciliation **Yes/No**
6) 7-day post discharge office appointment provided to patient by medical provider **Yes/No**

Section II: 3-day Post Discharge Phone Call (Circle answer that applies)

1) Was a Phone call generated by front desk 3 days after discharge **Yes/No**
2) Front desk addressed and resolved barriers (transportation, special services) for appointment **Yes/No**
3) Front desk reviewed Symptoms Log Zones with patient and followed protocol **Yes/No**
4) Was the patient provided with emergent/non-emergent after hours care information **Yes/No**
5) Was patient instructed to bring medications and symptoms log to post DC appointment **Yes/No**

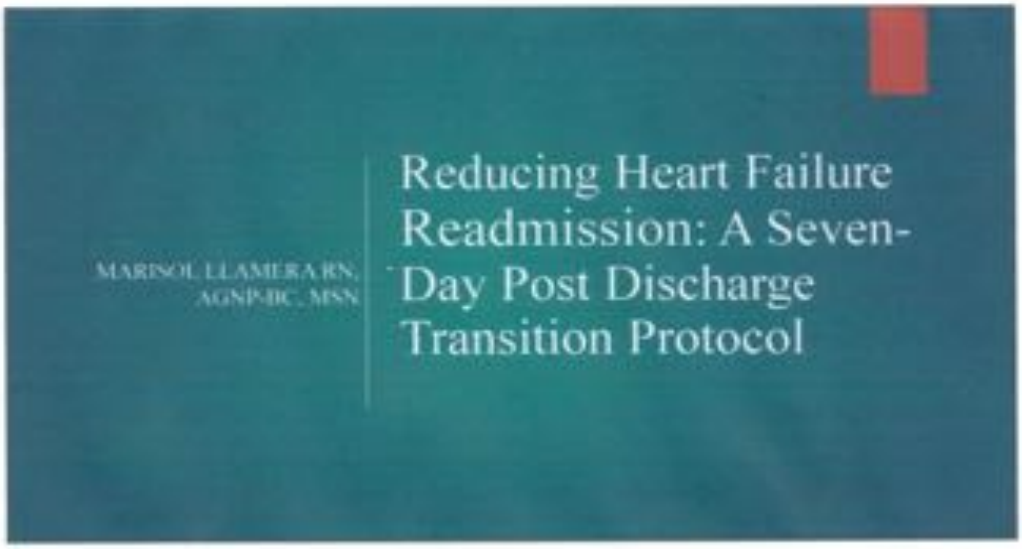
Section III: 7-day Post Discharge office visit (circle answer that applies)

1) Did patient present for 7-day post discharge visit **Yes/No**
2) Did Medical Provider discuss Heart Failure Zone and Symptoms Log Tool with patient **Yes/No**
3) Did Medical Provider discuss need for further cardiovascular work up with patient **Yes/No/n/a**
4) Did Patient verbalized understanding of medication management and schedule **Yes/No**
5) Did patient verbalized understanding of medication and their schedule with provider **Yes/No**
6) Did Medical Provider discuss Home Health Care with patient **Yes/No/n/a**
7) Did patient receive next clinic appointment **Yes/No**

Appendix I

Educational Presentation

9/8/2020



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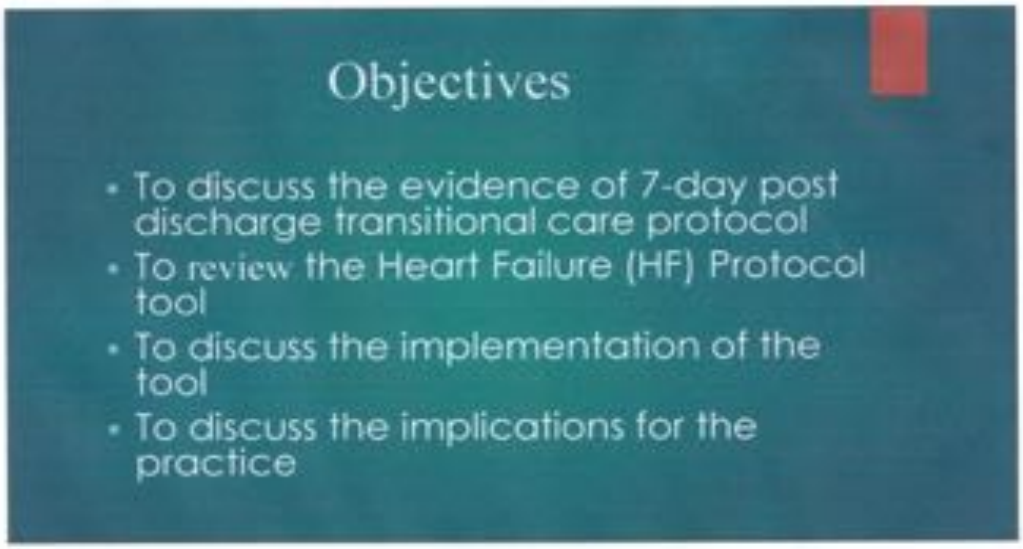

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9/8/2020

Purpose

The goal of this DNP quality improvement project is to incorporate a transition of care protocol in the practice that transitions the heart failure patient back home in a smooth method. The protocol will improve the overall quality of life of the patient, reduce healthcare expenditure and overall reduce heart failure readmission.

3

Background

- Heart failure accounts for an approximately five million Americans and accounts for at least one million hospital admissions every year (Chamberlain, Sond, Lee, & Mahendraraj, 2018).
- Transition of care protocols that include post discharge phone call and 7-day post discharge follow up appointment have proven to reduce unnecessary re-admission for HF patients (Lee, Yang, Hernandez, Steimle, & Go, 2016).
- Quality of Life worsens with each re-admission (Rodriguez-Artalejo, Guallar-Castillón, Pascual, et al., 2005).
- All cause mortality increases with every HF re-hospitalization (Lin, Chin, Sicignano, & Evans, 2017).
- By 2030, the total cost of HF is projected to increase to $69.7 billion, from $30.7 billion in 2012 (Zohrabian, Kapp, & Simoes, 2018).

4

Intervention

- The intervention will be initiated in the inpatient setting before the discharge. At this time, the provider will begin to implement the Heart Failure protocol that consists of three checklists with detailed sections of the interventions to be completed throughout the trajectory of the patient's transition of care from inpatient and ending at the outpatient 7-day post-discharge office follow up

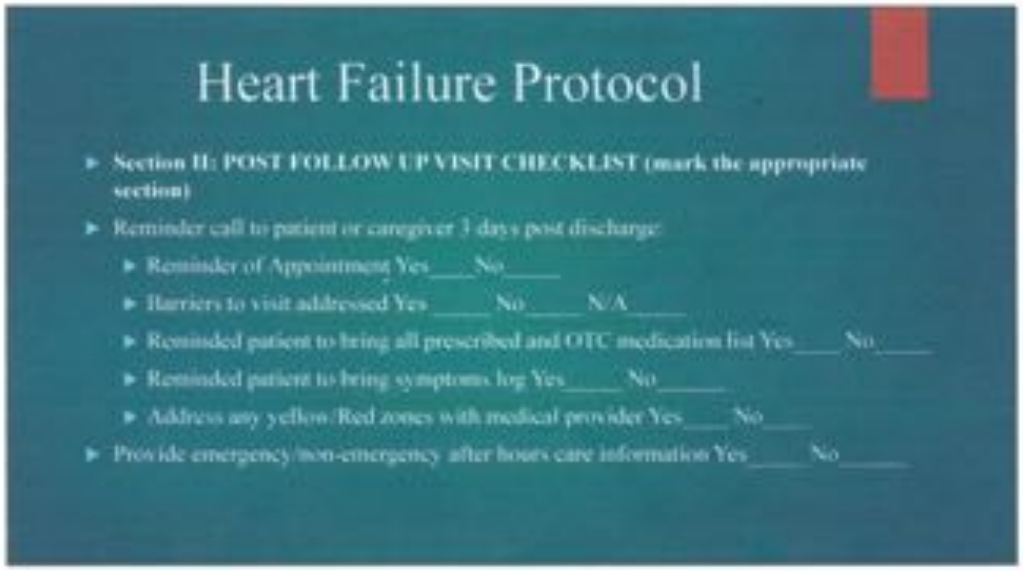
5

Heart Failure Protocol

- **Section I : PRIOR TO DISCHARGE CHECKLIST (mark the appropriate section)**
- LVSF_____EF%
- Medication reconciliation completed Yes____ No_____
- ACE/ARB prescribed Yes__ No__ if no marked, then contraindication _____
- Smoking cessation education provided Yes____ No_____
- HF zone tool provided and reviewed Yes____ No_____
- Heart failure symptoms daily log provided Yes____ No_____
- Seven Day follow up appointment provided Yes____ No_____

6

9/8/2020


Heart Failure Protocol
Section II: POST FOLLOW UP VISIT CHECKLIST (mark the appropriate section)
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Reminder of Appointment Yes___No____
Barriers to visit addressed Yes____ No____ N/A____
Reminded patient to bring all prescribed and OTC medication list Yes___ No____
Reminded patient to bring symptoms log Yes____ No____
Address any yellow/Red zones with medical provider Yes___ No____
Provide emergency/non-emergency after hours care information Yes____ No____

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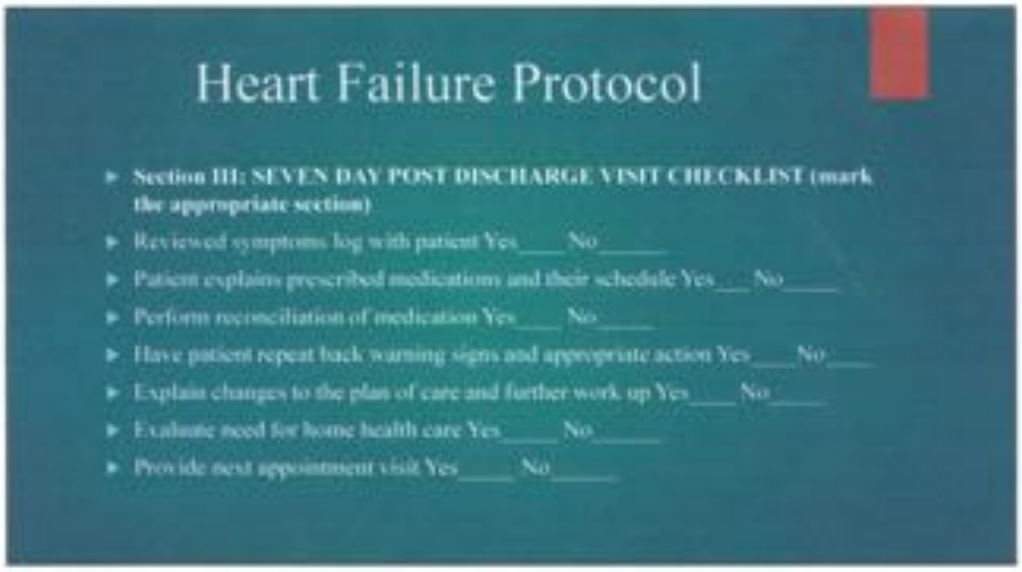
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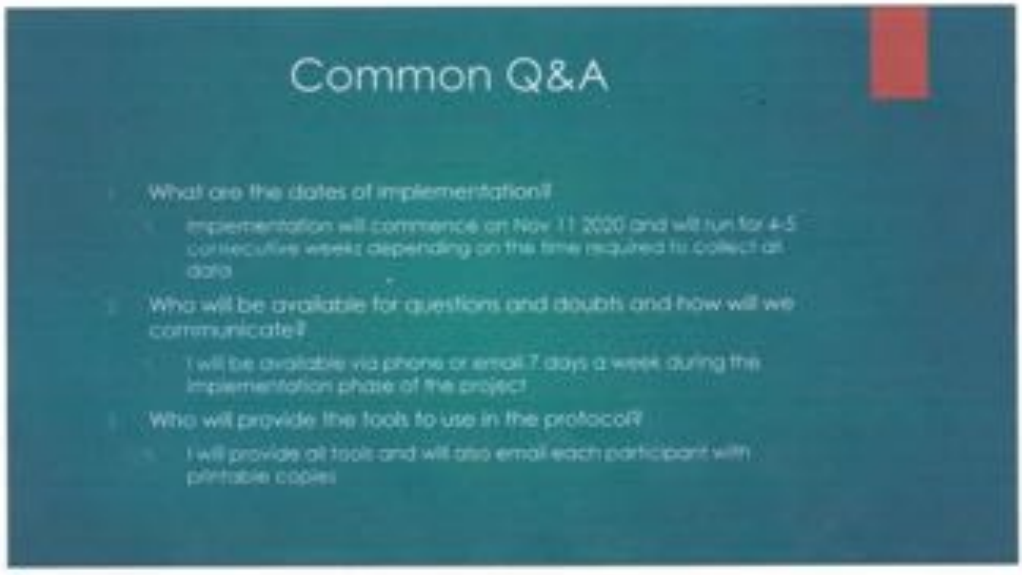
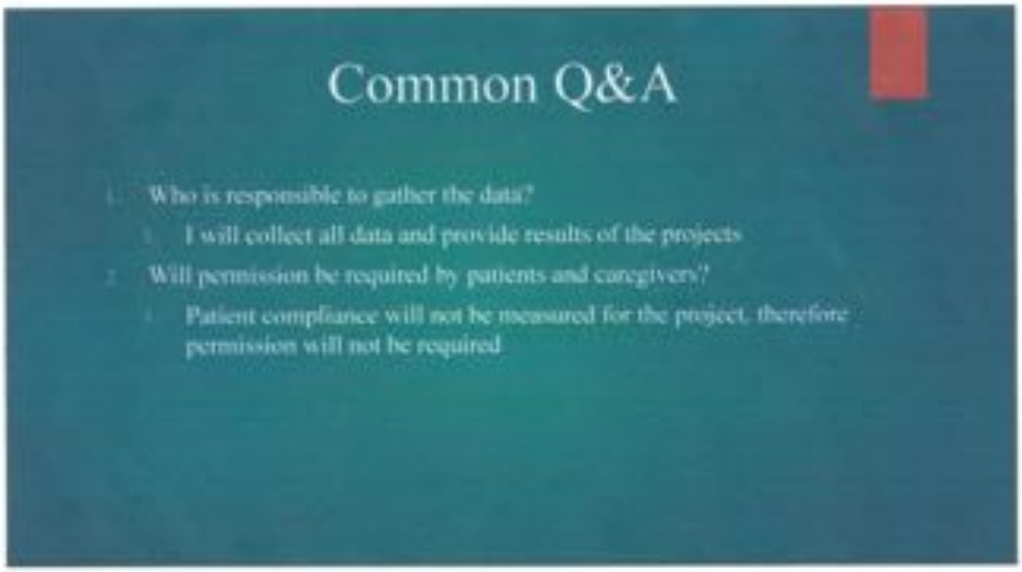
Perform reconciliation of medication Yes___ No____
Have patient repeat back warning signs and appropriate action Yes___No___
Explain changes to the plan of care and further work up Yes___ No____
Evaluate need for home health care Yes____ No____
Provide next appointment visit Yes____ No____

8

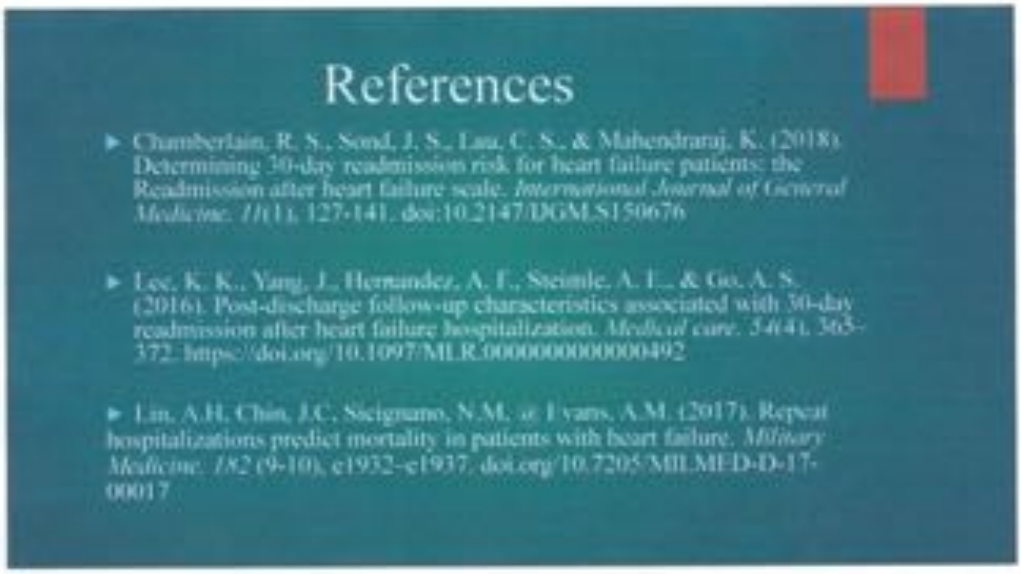
9/8/2020


Common Q&A
1. What are the dates of implementation?
a. Implementation will commence on Nov 11 2020 and will run for 4-5 consecutive weeks depending on the time required to collect all data
2. Who will be available for questions and doubts and how will we communicate?
a. I will be available via phone or email 7 days a week during the implementation phase of the project
3. Who will provide the tools to use in the protocol?
a. I will provide all tools and will also email each participant with printable copies

9


Common Q&A
1. Who is responsible to gather the data?
a. I will collect all data and provide results of the projects
2. Will permission be required by patients and caregivers?
a. Patient compliance will not be measured for the project, therefore permission will not be required

10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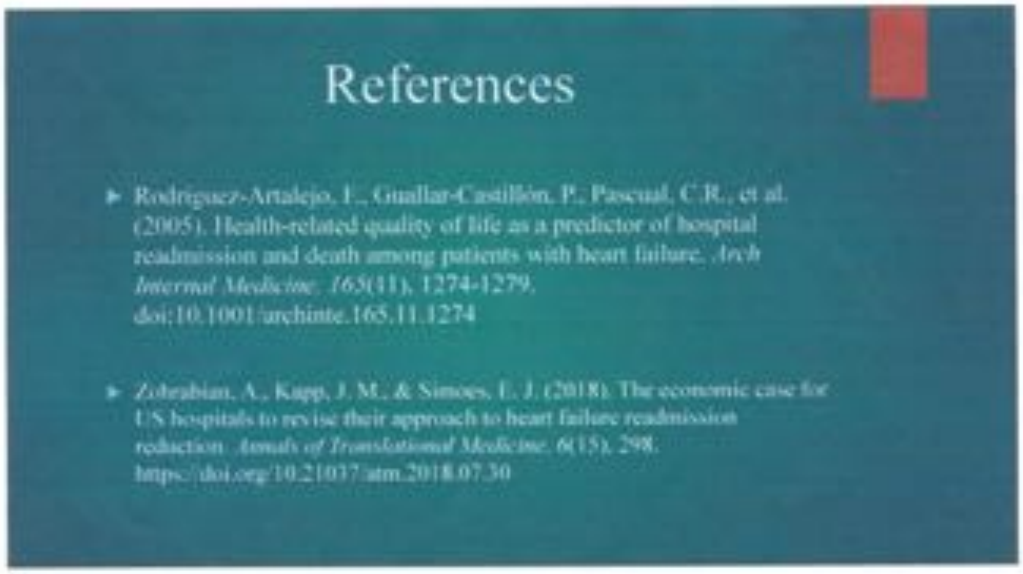
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