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Pilot Study: Avoiding Readmissions of Heart Failure Patients Across Transitions of Care

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ABSTRACT

PILOT STUDY: AVOIDING READMISSIONS OF HEART FAILURE PATIENTS ACROSS TRANSITIONS OF CARE

Background: A major problem facing the U.S. healthcare system is avoidable hospital readmissions. Patients with Heart Failure (HF) face variety of barriers to health care and are at higher risk for readmissions. To address this problem, evidence-based interventions focused on safe transition from hospital to home are needed. **Methods:** A quality improvement pilot project was implemented to evaluate the feasibility of evidence based interventions in preventing avoidable readmissions. The project setting was in a 900 bed health care system. The descriptive statistical methods were means and frequencies. The Transition Coordinator (TC) enrolled a convenience sample of 30 participants. The evidence based interventions were Project RED (Re-Engineered Discharge) and the TC Advocacy Plan. Project RED has 12 elements to improve the hospital discharge process by reducing rehospitalization rates, promoting safety, and increasing patient satisfaction. The TC Advocacy Plan consisted of screening tools, HF education, teamwork, collaboration, and use of resources. It offered different strategies and interventions that strengthen the initiatives in avoiding readmissions. This initiative was supported by a collaborative team that included physicians, nurses, social workers, and pharmacists. **Results:** Project RED 12 elements and the TC Advocacy Plan were all implemented. The identified trends in data were presented to key stakeholders. This possibly led to an enhanced multidisciplinary collaboration creating continuity of care in patient's seamless transition from inpatient to outpatient settings. **Conclusion:** An intervention that incorporates Project RED and the TC Advocacy Plan may be effective in preventing avoidable readmissions, but further investigation is needed.

Analiza Baldonado
May 2014

PILOT STUDY: AVOIDING READMISSIONS OF HEART FAILURE

PATIENTS ACROSS TRANSITIONS OF CARE
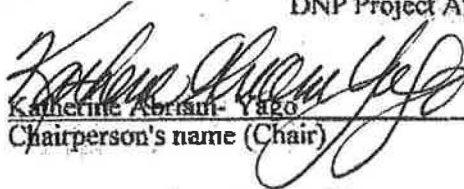
by

Analiza Baldonado

A project submitted in partial

fulfillment of the requirements for the degree of

Doctor of Nursing Practice (DNP)

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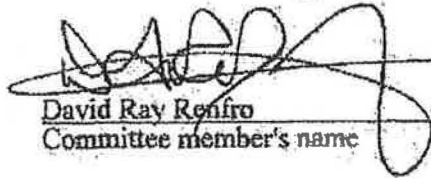May 5, 2014

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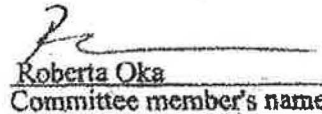
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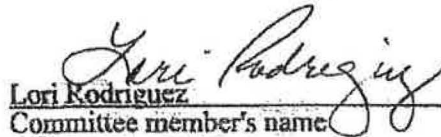   Department name

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CHAPTER 1: INTRODUCTION

A major problem facing the United States (U.S.) healthcare system is avoidable readmissions (Robert Wood Johnson Foundation, 2013). Avoidable readmissions are repeated hospitalization clinically related to the initial hospitalization (Texas Health and Human Services Commission, 2012). One in five elderly patients is readmitted within 30 days post discharge (Robert Wood Johnson Foundation, 2013). Moreover, the leading cause of hospitalization is Heart Failure (HF) in patients older than 65 years. (Zannad, Agrinier, & Alla, 2009). Patients with HF face various barriers to health care because the health care system is complex, fragmented, and broken, in which systemic failure affects patient safety (Spehar, Campbell, Cherrie, Palacios, Scott, Baker, Bjornstad, & Wolfson, 2005). These barriers to HF care are at patient, provider, and system levels, and include knowledge barriers, resource constraints, and communication issues (McEntee, Cuomo, & Dennison, 2009). Besides, these systemic failures in practice are identified in different transitions of care. To address this problem, evidence-based interventions are focused on safe transition of patients with HF from hospital to home. In that circumstance, readmission is likely preventable through the provision of improved coordination between inpatient and outpatient health care teams, quality care in the early hospitalization period, sufficient discharge planning, or adequate post discharge follow-up (Spehar et al., 2005). To this end, the innovative evidence-based solutions addressing avoidable readmissions are comprehensive transitional care plans, care coordination, and chronic disease management (Spehar et al., 2005; Marek et al., 2013; Agency for Healthcare Research and Quality, 2014).

In developing this project, the root causes of hospital avoidable readmissions were examined. Different theories were explored to find the appropriate theoretical framework. Also, thorough gathering and analyzing of evidence based strategies were evaluated. This

quality improvement project was focused on the feasibility of the chosen evidence based interventions. The concepts and practices of avoiding readmission initiatives were explored from a critical perspective. Challenges in carrying out the interventions were addressed. The purpose of this study was to evaluate the feasibility of evidence based interventions in preventing avoidable readmissions.

Problem Statement

People with chronic diseases constitute a high number of hospital readmissions, which contributes to an increase in health care costs (Agency for Healthcare Research and Quality, 2014). HF as a chronic disease is a growing problem; there are more than 20 million people with heart failure worldwide and more than five million in the U.S. (Go et al., 2011; National Heart, Lung, and Blood Institute, 2014). HF is common and is the number one reason for hospitalizations among older adults (Rosamond et al., 2007). Moreover, HF is a serious illness causing repeated hospital admissions (Zannad, Agrinier, & Alla, 2009). Due to the nature of the disease, hospital readmission rates are high among Medicare patients with HF; the rate of 30-day readmission is 26.9% after hospital discharge (Go et al., 2011). Since high readmission rates are linked with lower patient quality care, the Centers for Medicare and Medicaid Services (CMS) penalize hospitals for excess readmission rates (Foster & Harkness, 2010). The high rate of HF hospitalization cost in the US for 2009 is roughly $37.2 billion (Agency for Healthcare Research and Quality, 2010). Furthermore, the cost of multiple readmissions to patients and their relatives in terms of distress, mortality, and morbidity is immeasurable (Brown & Gray, 1998).

Summary

Heart failure is a chronic illness associated with high prevalence, morbidity, mortality, and economic burden to society (Brown & Gray, 1998; Foster & Harkness,

2010; Zannad, Agrinier, & Alla, 2009). The burden of the heart failure disease is complicated and complex requiring frequent hospitalizations among elderly patients. Many health care organizations have embraced different innovative solutions in avoiding readmissions. However, many are unsuccessful because of the complexity in the implementation of such solutions. Clearly, the need for evidence based solutions must be aligned with the organization's mission and vision in providing high quality care to ensure the success of avoiding readmissions initiatives.

CHAPTER 2: THEORETICAL FRAMEWORK

The Integrated Theory of Health Behavior Change (ITHBC) is the conceptual framework selected to guide this project. ITHBC is a framework based on behavioral change. The application of this theory is demonstrated in the development of this project. It includes aspects of health behavior change applicable to patients with Heart Failure (HF). The theory assumptions, concepts, definitions, and relationships among concepts are discussed. In addition, the application of the ITHBC developed intervention in facilitating behavior change is presented.

Chronic Diseases and Behavior Change

Patients with HF having unscheduled emergency room (ER) or clinic visits may be related to personal behaviors. Research shows patient's personal behaviors are associated with more than 50% of illnesses (Cossette et al., 2010). The complexity of HF demands multimodal strategies to assist the patient to better care for him or herself. The daily management of HF entails commitment; it is also a patient and family responsibility. However, the complexity of HF management overwhelms the patient and family, causing repeated hospital admissions and frequent need for unscheduled visits in outpatient services (Naylor, 2002). Therefore, it is imperative to include health promotion and behavior change in managing HF. The success in managing chronic conditions is found in managing negative emotions and being responsible to one's role related to chronic illness (Miller, 2000).

Integrated Theory of Health Behavior Change

The ITHBC is an integrated concept of foundational interventions in promoting health behavior change. This descriptive theory claims health behavior can be improved through developing knowledge and beliefs, increasing self-regulation skills and abilities,

and enhancing social facilitation (Ryan 2009). ITHBC was developed from a systematic review of peer reviewed research over the span of ten years. Ryan (2009) studied different effective interventions, geared towards changing health behaviors, influenced by a variety of theories on behavioral change, social support, self-regulation, and self-management of chronic illness (Ryan 2009).

Theory Assumptions

The ITHBC assumes that behavioral change requires a repetitive and dynamic process. Willingness and motivation are essential to such change, both of which can be facilitated through self-reflection. In addition, positive relationships or positive social influences also support and encourage change. Moreover, health behavior commitment results first in a short-term or a proximal outcome. Over time, the commitment to health behavior influences may lead to an improved long-term health status known as a distal outcome (Ryan, 2009). Also, the emphasis on person-centered interventions is far more superior and effective than standardized interventions when seeking behavioral change (McCormack & McCance, 2006).

Theory Concepts, Definitions, and Relationships among Concepts

The ITHBC concepts for behavioral change are knowledge and beliefs, increasing self-regulation skills and abilities, and promoting social facilitation (Ryan, 2009). The concept of knowledge is accurate information about the specific condition. Beliefs are individual's awareness about the explicit health behavior or health condition. Self-regulation is a process of merging changes in behavior into people's daily routines and lifestyle. This process requires monitoring oneself, thinking reflectively, setting goals, planning, decision-making, carrying out plans, emotional management occurring with the change, and self-evaluation. The link between knowledge and health beliefs fosters engagement to self-regulation (Ryan, 2009). Social facilitation consists of social support

with social influence. Behavioral engagement occurs when a person with perceived authority is able to influence the thinking and motivation of another person. The social influences may come from sources including health care providers, family and neighbors, printed or electronic communication, television and radio, or coworkers. Social support includes informational, instrumental, or emotional support that facilitates health behavior engagement (Ryan, 2009). Also, the positive social facilitation improves self-regulation and commitment to positive self-management behaviors (Ryan, 2009). The outcomes of ITHBC are proximal and distal (Ryan, 2009). Proximal outcomes are actual behavioral engagement specific to a condition, including managing risk, symptoms, and pharmacological therapies. The distal outcomes are associated with achieving the proximal outcomes. These outcomes may include perceived well-being, health status, quality of life, and health cost. Ultimately, commitment to self-management behaviors leads to positive and direct effect on health status (Ryan, 2009).

Application of theory based intervention

A Filipino male patient was hospitalized for acute HF exacerbation related to medication and diet non adherence. An advanced practice nurse (APN) provided HF management and treatments including medication and diet education in the patient's own language (Tagalog). The considerations of patient's cultural preferences were considered to increase self-efficacy, clarify outcome expectancy, and ensure goal congruence. In this situation, the APN is influencing and supporting the patient towards enhanced self-regulation of skills and abilities. Ultimately, the patient set his goals on medication and diet adherence, enhanced his decision making, planned and enacted his self-monitoring, and reflective thinking. In addition, the patient self-evaluated and applied different strategies to manage his emotions. Through this process, the patient became engaged with his self-management behavior, complied with his medications, followed a low salt diet, and self-monitored for worsening signs and symptoms of his HF. His self-management

behaviors were integrated to his daily routines and lifestyle. Consequently, this resulted in an improved health status and better quality of life. Figure 1 illustrates the application of ITHBC to HF patients.
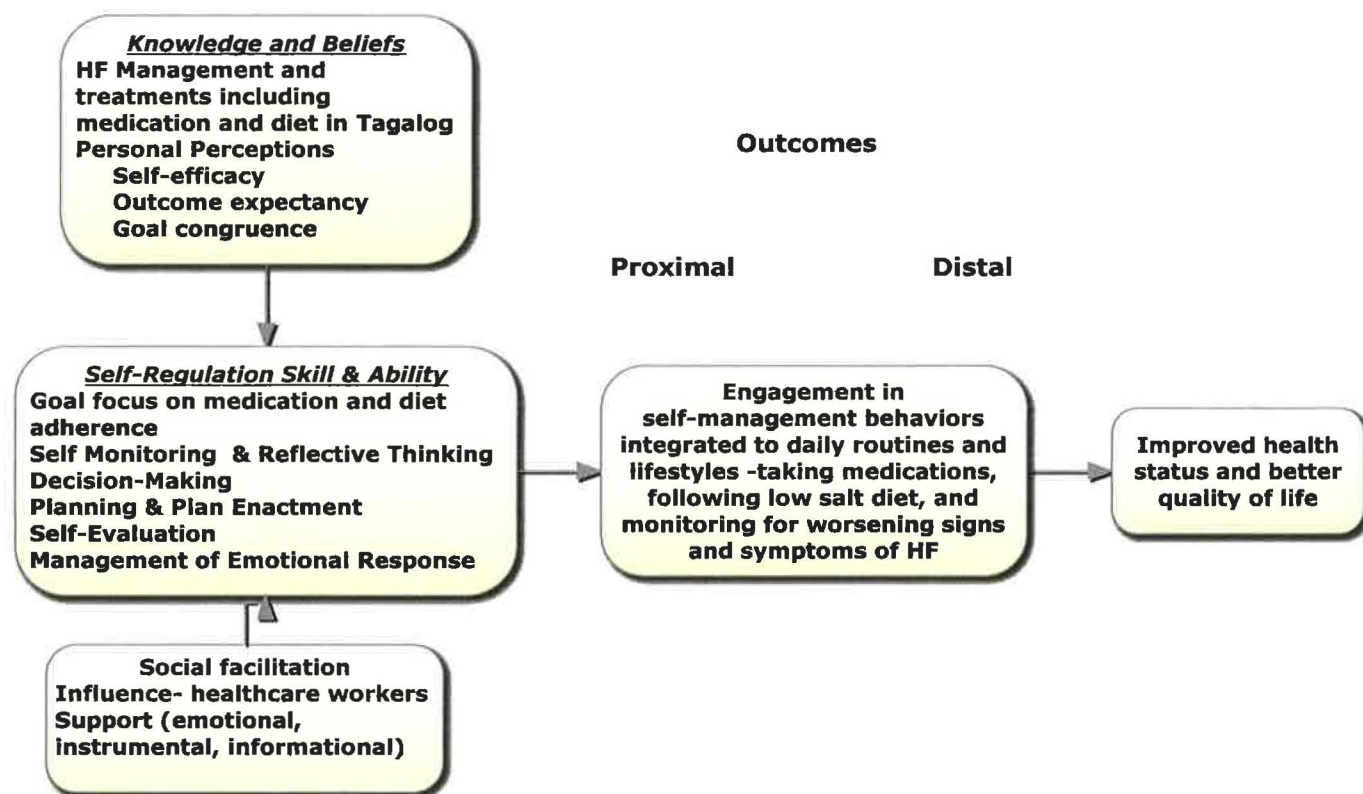
Figure 1. Application of ITHBC to HF patients, Adapted from "Integrated theory of health behavior change" by Polly Ryan, 2009, Clinical Nurse Specialist, 23, p. 164. Adapted with permission and "Application of ITHBC to HF patients" by Analiza Baldonado, A (2013). Unpublished manuscript.

Summary

The ITHBC is an appropriate framework based on individualized behavioral change. It promotes patient centered care and plays a major role in preserving the patient's optimal health. (Ryan, 2009). The APN uses ITHBC in the clinical practice to

direct care and act as consultant to the staff to deliver a holistic and comprehensive service. By doing this, the APN can facilitate and promote better patient outcomes that may facilitate system change.

CHAPTER 3: REVIEW OF LITERATURE

The public focus on hospital readmissions of patients with heart failure (HF) brought an increase in research studies. The research studies offer innovative solutions to lower readmission rates and improve patient quality care. Research translation to clinical practice is a rigorous analysis and evaluation of published literature. The literature is evaluated for its scientific merit, strengths, weaknesses, and the applicability to practice.

In this chapter, the extensive literature reviews were topics on preventing avoidable readmissions. Several themes on avoiding readmissions model, readmission risk screening tools, risk assessment factors, health literacy, motivational interviewing, HF education, team communication, and collaboration literature were searched. Integral to this study were different literature searched in CINAHL, EbscoHost database, Ingenta Connect, PubMed, Med line, Google Scholar, Cochrane, Ovid Online, and Science Direct. Also, the literature from Internet sites was from prominent organizations.

Avoiding readmissions model

Many innovative avoiding readmissions model have been developed in response to persistent rise in rehospitalization. Before implementing any avoiding readmissions initiative, it is imperative to understand the state of most current research. Among the up-to-date models are Project RED or Re-Engineered Discharge and Home Telehealth.

Project RED

Project RED or Re-Engineered Discharge is a research group aimed at avoiding readmissions. It is an initiative that offers different approaches to improve the hospital discharge process by promoting safety and increasing patient satisfaction (Jack & Bickmore, 2011). Likewise, a randomized trial of Project RED was done in an academic

hospital investigating the implementation of the RED elements and its effect on patient care.

The Project RED randomized trial was in a general medicine service setting at an academic hospital (Jack et al., 2009). It has 12 components, namely: (1) Determine need for and obtain language support, (2) Schedule clinician follow-up appointments including after hospitalization labs or tests, (3) Discuss studies or tests pending at discharge and plan for following-up the results, (4) Organize medical equipment before and after hospitalization services, (5) Ensure medicines are correct with plans for the patient to receive and take them, (6) Reconcile discharge plan with the National Guidelines Clearinghouse (NGC) recommendations, (7) Provide an easy to understand written discharge plan, (8) Educate the patient about relevant diagnoses, (9) Assess the degree of understanding through teach-back, (10) Review steps on what to do if a problem arises, (11) Transmit discharge summary to providers, and (12) After hospitalization telephone call. The intervention includes a nurse discharge advocate carrying out the components of Project RED and a clinical pharmacist completing follow-up phone calls. The intervention group (n = 370) reflected a lower rate of hospital utilization than those with the usual care (n = 368). The hospital utilization is 0.314 (intervention group) versus 0.451 (usual care) visits per person per month; this is a 30% lower rate of hospitalization. One emergency department (ED) visit or readmission was prevented in every 7.3 participants in the intervention group. Besides, a total cost difference between the study groups were $149,995 (average of $412 per person). This is a total cost of 33.9% lower in participants with intervention (Jack & Bickmore, 2011). However, the limitation of the study was relying on a participant's report in some outcome assessment. In addition, this was a single-center study and not all potential qualified patients were enrolled (Jack et al., 2009).

Project RED is the result of a five-year work of health professionals from Boston Medical Center (Jack & Bickmore, 2011). This effort was funded through grants from the National Heart Lung and Blood Institute (NHBLI) and Agency for Healthcare Research and Quality (AHRQ) (Jack & Bickmore, 2011). Project RED is a safe practice initiative supported by Institute of Healthcare Improvement (IHI), The Joint Commission (TJC), Leapfrog, and Center for Medicare Medical Services (CMS). In addition, it exceeds TJC standards (Boston Medical Center, 2012). Project RED is highly recommended by reputable organizations and is being implemented by various hospitals with diverse patient populations.

An organization using Project RED is recognized by the community as a high quality healthcare organization (Jack & Bickmore, 2011). Project RED meets the safety standards, improves clinical outcomes, and saves money (Jack & Bickmore, 2011). The evidence of improved patient clinical outcomes as a result of Project RED implementation are decrease of 30-day readmission rates, timely follow-up with the primary care physician (PCP), and improved patient readiness for discharge (Jack & Bickmore, 2011).

Home Telehealth

Compliance and adherence issues are major problems identified in different transitions of care, especially beyond the acute care setting. Patients are responsible for their own health at home after hospitalization, clinic visit, short term rehabilitation stay, or ED visit. It is important to address these issues that patients encounter, and HomeTelehealth (HT) is a suitable and cost effective model in managing patients at home (Baldonado et al., 2013).

Home Telehealth is an efficient implementation of disease management with the use of innovative technologies to improve patient care (Darkins et al., 2008). Clinicians involved in managing the care of patients with HF using HT aims to prevent admission to

institutional care (Darkins et. Al., 2008). The clinicians assist patients to take an active role in managing their illness with the use of telemedicine tools (Baldonado et al., 2013). The need for HT can be identified in hospital or clinic visits. The use of this innovative model early in the course of treatment and a patient's active participation ensures success of HF management. The process is as follows: patient is referred to HT; the staff will assess the patient for eligibility and send equipment according to the patient's health needs. The equipment may include different communication devices such as wireless apparatus, which collect physiological data. The patient records the blood pressure and takes pulse oximeters, blood glucose, and weight readings to obtain vital signs as directed (Baldonado et al., 2013). In addition, multiple health questions can be collected about behaviors and health status. The needed parameters are selected, which are individually tailored according to a patient's clinical presentation and comorbidities (Baldonado et al., 2013). These data are transmitted to the clinicians for interventions and coaching (The Fast Adoption of Significant Technologies, 2009). The plan of care for a patient with HF is reinforced through counseling that is focused on medications, diet, exercise, and other interventions. PCPs, specialists, and other providers can use the data collected to manage the healthcare needs of patients with HF (Baldonado et al., 2013).

A 2-year study was done to determine the efficacy of Telehealth to patients with life limiting illness including advanced HF (Maudlin, Keene, & Kobb, 2006). The purpose of this investigation was to manage the physical, spiritual, functional, and emotional care needs during the last 2 years of patients' lives. In addition, the study aimed to bridge patients into hospice care by educating providers on palliative care. This was a pilot project with data collected on 100 patients. The results showed 89% of the participants understood their medical condition, 68% believed that they were able to manage their conditions at home, and 82% relayed satisfaction through the communication with the provider and nurses. Other positive markers included a 98%

medication adherence, 92% rate of the verbalization of the benefits of the technology, and 90% of patients relaying a sense of security using the equipment. The combined cost of ED and admissions dropped from $151,771 to $25,119. The program demonstrated successful strategies for improving quality of life and enhancing and improving symptom management. Thus, this program provided data showing fewer hospital admissions, lower costs, and fewer emergency department visits (Mauldin, Keene, & Kobb, 2006).

The HT reliability and validity in the transmission of data is important to patient safety. A valid concern is apprehension of malfunctioning apparatus that may lead to adverse effect on patient care decisions (Schlachta-Fairchild, 2008). Misunderstood advice or false findings brought about by caregiver or patient error is also a legitimate issue. However, HT technologies continue to evolve to offer up-to-date technology and safe devices. Studies have also shown that the HT model prevents unplanned readmissions, reduces symptoms, decreases costs, and avoids inconceivable patient and family stress with chronic illness (Mauldin, Keene, & Kobb, 2006; Gellis, Kenaley, & Have, 2014).

Screening Tools

A patient with HF is at a high risk for readmissions; however, this risk may vary by patient (Yale School of Medicine, 2014). The use of clinical readmission risk calculators may stratify this risk. The readmission risk calculators may assist in predicting a patient's probability of hospital readmission within 30 days post discharge. The readmission risk calculators are the Inpatient Evaluation Center (IPEC) readmission risk calculator and the Yale-New Haven Hospital Center for Outcomes Research and Evaluation (Core) risk calculator.

Inpatient Evaluation Center (IPEC) Readmission Risk Calculator

The IPEC was tested on population with HF (Gannuscio, 2012). The testing of a 30-day readmission reviewed the index HF hospitalization between September 2007 and October 2010, which includes the presence of 15 demographic and clinical risk predictors. Index hospitalization is any appropriate acute hospitalization closest in time to the readmission (Agency for Healthcare Research and Quality, 2012). The risk predictors are demographics, hospitalization information, previous admission, medications, laboratory values, and primary or comorbid diagnosis. Additional variables specific to HF population were ejection fraction, substance abuse, and African-American race (added to the risk calculator). The methodology was to predict 30-day all cause readmissions (ACR) with binary and multiple logistic regression models. The C-statistic was calculated to assess the efficacy of the model in predicting who will be readmitted. The patients studied were mostly male (98%), African-American (73.1%), and averaged 68 years old (SD 13.2). Of the 271 patients, 79 (29%) had at least one readmission and 8.1% had two or more readmission within 30 days of discharge. Patients with serum Creatinine above 2 were more than twice as likely to be readmitted (OR=2.35: 95% CI 1.32, 4.19). Patients with COPD had a similar likelihood of readmission (OR=2.36; 95% CI 1.25, 4.47), as did patients with renal failure (OR=2.41; 95% CI 1.25, 4.62; bivariate logistic regression). An additional HF specific variable is African-American race, which had a significant influence on the likelihood of readmission (2.60; 95% CI 1.31, 5.16). In multivariate logistic regression with all of the predictors, only COPD (OR=2.70; 95% CI 1.32-5.52) and African-American (OR=2.07; 95% CI .97, 4.37) significantly predicted readmission. In conclusion, the IPEC Readmission risk calculator does not predict all causes of 30 day ACR. Even the addition of HF specific variables did not enhance the model. However, the study was a non-HF specific model with limited/small sample size.

Yale-New Haven Hospital Center for Outcomes Research and Evaluation (Core) Risk
Calculator

     The Yale-New Haven Hospital Center for Outcomes Research and Evaluation
(Core) risk calculator offers risk readmission estimates. This was developed for the
Centers for Medicare and Medicaid Services to authenticate the publicly statement on
readmission measure for each condition (Yale School of Medicine, 2014).This risk
calculator used patient demographics and clinical characteristics from chart models of
medical records. The statistical models used a patient's detailed information to predict
readmission risk. The readmission risk score for a patient with HF is intended for patients
age 65 and older. The different fields include the patient demographics, presentation of
in-hospital cardiac arrest, history, physical exam, and diagnostics on admission (Yale
School of Medicine, 2014). However, other factors that may influence readmission risk
are not included. Also, the Core calculator does not offer the mechanics on how to use the
estimates (Yale School of Medicine, 2014).

     The IPEC readmission calculator and Yale risk scores were both investigated on
predicting hospital readmission in patients with HF (Logan et al., 2013). The
investigators incorporated psychosocial factors into the IPEC readmission risk calculator
and Yale risk scores. The supplemental factors were smoking, alcohol use, living alone,
depression/anxiety, and enrollment in Telehealth and the Visiting Nurse Services. The
data that were collected were patient surveys and medical records review. The
methodology was a Receiver Operating Characteristic curve analyses. It was performed
by comparing the Area Under the Curve (AUC) for the two risk scores in addition to
augmented risk scores that incorporated the above mentioned six factors to prove their
accuracy in predicting hospital readmission. All comparisons were to chance (AUC=0.5).
The investigators examined 83 discharged HF patients. The AUCs (with standard error)
for the IPEC and Yale risk scores were 0.5608 (0.0791) and 0.5547 (0.0723). After

adding the covariates, the augmented IPEC and augmented Yale AUCs were 0.6563 (0.0748) and 0.6428 (0.0702). The IPEC (p= 0.44) and the Yale (p=0.45) scores were compared to chance and were not shown to be statistically different. However, the augmented Yale (0.04) and the augmented IPEC (0.03) scores were statistically different. In conclusion, psychosocial factors considerably improve predicting readmission. This may lead to developing more accurate risk score calculators and programs focusing on psychosocial issues relevant to readmission.

Better tools in predicting readmissions within 30 days maybe valuable to clinicians in preventing readmissions. Tools that are encompassing and comprehensive may provide a more accurate prediction of readmissions. To this end, risk readmission tools can be used to improve the decision making of providers in reducing readmissions and adverse events post hospitalization.

Risk assessment factors

The Society of Hospital Medicine (2008b) led a national initiative in enhancing the patient's transition from the acute hospital setting to home. This initiative is called "Better Outcomes for Older Adults through Safe Transitions" simplified as Project BOOST. This project includes the investigation of different risk factors to decrease the occurrences of adverse events of after hospital discharge and avoid rehospitalization.

The Project BOOST initiative is guided by multidisciplinary leaders and aimed at reducing readmissions. This is achievable by identifying high risk patients and providing risk specific interventions. Project Boost developed, refined, and collected the leading patient-specific risk factors that contribute to adverse events post-hospitalization (Society of Hospital Medicine, 2008b). It is imperative to lessen these risks throughout the hospitalization and communicate to the providers in the inpatient and outpatient settings. These patient-specific risk factors are called Project Boost 8Ps. The 8Ps are (1) principal diagnosis, (2) polypharmacy, (3) poor health literacy, (4) problem medications, (5)

psychological, (6) patient support, (7) prior hospitalizations in the last six months, and (8) palliative care.

The 8Ps are discussed more in the following context. Principal diagnosis: Patients hospitalized with main diagnosis of HF, cancer, chronic obstructive pulmonary disease, stroke, and diabetes or glycemic complication are at a risk of readmission and adverse events (Coleman, Wagner et al., 1998). Polypharmacy: The issue of polypharmacy includes five or more medications; these are the scheduled and not as needed medications. The more added medications results in a decrease in adherence. It is apparent that polypharmacy increases the risk of adverse events after discharge (Society of Hospital Medicine, 2008a). Poor health literacy: The poor health literacy risk factor is related to higher rates of hospitalization, higher mortality, and poor self-management skills among patients with chronic disease (Mitchell, Sadikova, Jack, & Paasche-Orlow, 2012). Problem medications: The medications digoxin, insulin, warfarin, and aspirin when used in combination with clopidogrel or as a dual therapy, seems to pose a risk for adverse event after discharge. The Society of Hospital Medicine (2008a) suggests that providing extra attention on patients newly starting the above mentioned medications will decrease the likelihood for unfavorable events. Psychological: Depression is widespread among elderly patients and frequently under diagnosed. The Society of Hospital Medicine (2008a) recommends including patients with history and or symptoms of depression as high risk for rehospitalization. Patient social support: Social support has an effect on readmissions among elderly patients with HF (Howie-Esquivel & Spicer, 2012). Strategies to provide patient support during discharge planning may improve patient outcomes. Prior hospitalization in the last six months: This is an independent predictor for rehospitalization. Patients readmitted for an unplanned hospitalization within six months should be automatically identified as high risk (Society of Hospital Medicine, 2008a). Palliative care: The care delivery is focusing on symptom management,

improving quality of life, and assisting the patient's transition to hospice care (Hauptman & Havranek, 2005). Palliative care increases patient satisfaction and decreases hospital readmissions (Jencks, Williams, & Coleman, 2009).

These 8Ps risk factors are identified at admission to determine patients at increased risk of adverse events after hospitalization. Carrying out interventions targeted by the 8Ps throughout the hospitalization mitigates subsequent rehospitalization. Moreover, communicating the identified risks and interventions to appropriate clinicians creates continuity of care and enhances the flow between the inpatient and outpatient teams.

Health Literacy

Patients with limited health literacy (HL) are at a higher risk for poor health outcomes (Powers, Trinh, & Bosworth, 2010). Individuals with adequate health literacy have better status of health compared to individuals with limited health literacy skills (Baker et al., 2007). Poor communication between patient and providers can lead to patient dissatisfaction, compromised medical outcomes, and frequent hospitalizations (Hauptman et al., 2008). Moreover, physicians' perceptions are inaccurate in recognizing patients with limited health literacy. The treatment plans are often not followed due to miscommunication or misunderstandings. The provision of optimized care is through the use of teach-back in assessing a client's HL that guides clinicians in the selection and development of education materials.

Health literacy is the competence to comprehend and understand the significance of the health information and services necessary to make right health decisions (Nielsen-Bohlman, Panzar, & Kindig, 2004). Health literacy (HL) is the responsibility of health care systems and includes provision of information to foster sound health decision making and compliance (Adams et al., 2009). An effective method to assess and educate learning is teach-back (White, Garbez, Carroll, Brinker, & Howie-Esquivel, 2013).

Teach-back is asking patients to restate the information that was taught to them (White, Garbez, Carroll, Brinker, & Howie-Esquivel, 2013). This technique involves repetition, at the same time, the educator checks for any gaps in understanding and recall during the teaching session. This allows the educator to emphasize, tailor messages, and engage in open dialogue with the patient (Schillinger et al., 2003). A study was done on teach-back which explored its efficacy on self-care and its relation to fewer hospital readmissions among hospitalized HF patients (White et. al., 2013). This was a prospective cohort methodology of 276 participants over a 13-month period. The participants were 65 years and older and with HF diagnosis. The teach-back was a part of the usual education process. About 7 days after hospitalization, a follow-up was done to confirm the data on participant's ability to recall the educational information while hospitalized. Follow-up phone calls and review of medical records were the means to confirm readmissions. The results reflected a 75% correct answers, of the self-care teach-back questions was 84.4% (n=233) while hospitalized, during follow-up was 77.1% (n=145). A longer teaching session was related to correct answers ($P<.001$). The teach-back questions answered correctly while hospitalized and the follow-up was non-significant ($P = .775$ and $.609$) in all cause 30 day hospital readmission rates reductions. However, this study proves that teach-back method is an effective method in assessing and educating patients.

Patients with chronic health conditions have complex treatment routines, medication, diet, and self-monitoring for changes in health condition. Therefore, it is imperative to ensure recall and comprehension during educational sessions especially for patients with HF. Teach–back is a valuable method to ensure that information is understood by the patient allowing an opportunity to repeat that information until understanding is achieved (White, Garbez, Carroll, Brinker, & Howie-Esquivel, 2013).

Heart Failure Education

Patients with HF face a series of complex and frequently life changing self-care activities to maintain their health. There are studies proving patient education prevents hospital readmissions, enhances health-related quality of life, and improves outcomes (Koelling et.al., 2005 & Clark et.al., 2004). To that end, patient education or self-management education is an important non-pharmacological strategy for long-term management of HF.

A study done was to investigate the benefits of discharge education on 223 participants with systolic heart failure patients (n=223). Patients with HF participated in a one hour teaching session provided by a nurse educator at discharge. This strategy was compared to the standard discharge process. The 30, 90, and 180 days data on symptoms, self-care practices, and clinical events were collected by phone. The study's primary end-point was the total number of days hospitalized or dead in the 180-day follow-up period. Participants with educational session (n=107) had less hospitalized or dead days in the follow-up period (0 and 10 days, median and 75th percentiles) compared to controls (n=116, 4 and 19 days; P=0.009). In addition, participants with the teaching session had lower costs of care than control subjects by $2823 per patient ($P$=0.035). In conclusion, an additional one hour of nurse educator education session at the time of hospital discharge improved self-care measure adherence, reduced costs, and improved clinical outcomes (Koelling et.al.).

Patient education assists patients and their family in understanding the care and treatment of HF. Moreover, the health education provided must be translated into therapeutic behaviors such as adherence to medication, diet, and exercise. Therefore, patients are more prepared to manage themselves after hospitalization if they have the knowledge and skills necessary to prevent deterioration of heart failure condition.

Motivational Interviewing

Motivational interviewing (MI) evolved from a convergence of science and practice (Miller & Rose, 2009). MI is an approach to behavior change that was applied and tested in various settings (Motivational Interviewing, 2009). MI techniques involve different strategies to invoke change talk. It is composed of essential elements, principles, interviewing skills, and strategies that are important to change talk.

MI is a person centered and collaborative technique of guiding to bring forth and strengthen the person's motivation to change. It is a clinical technique directed to improve intrinsic motivation to change through discovery and looking at solutions brought about by conflicting feelings (Miller & Rollnick, 2002). It is based on key elements; these are collaboration, evocation, and autonomy. Collaboration is the partnership between the therapist and the client focusing on mutual understanding. Evocation is eliciting the client's own ideas and thoughts. This way, the client's motivation and skills to change are drawn out. Autonomy provides the client the power to change. Empowering the individual ensures follow through with making changes and makes the individual responsible for his or her actions. MI is guided by four principles throughout the treatment. The MI principles are (1) conveying empathy, (2) evading argumentation and rolling with resistance, (3) developing discrepancy, and (4) sustaining self-efficacy (Motivational Interviewing, 2009). Expressing empathy allows the individual to share the experiences in depth and for the therapist to see through the client's eyes. As the counselor, rolling with resistance is avoiding being confrontational when resistance occurs. This way, the struggle does not disrupt the session. Instead, it is an opportunity to explore new points of view and guiding the client to understand and agree to the needed change and solve the problem. Developing discrepancy is setting a mismatch of the client's current behavior conflicting with the values or self-identified goals. This scenario increases client's realization of discrepancies with the values and future goals that more likely promote increased motivation in behavior change. Supporting self-efficacy is a

strengths-based approach allowing the individual to believe that change is achievable. On that matter, the counselor sustains the client's self-efficacy by emphasizing previous strengths and skills that the individual possesses.

The practice of MI also involves certain skills and techniques to draw out the individual's change talk and commitment for change (Motivational Interviewing, 2009). These micro counseling skills and techniques are Open-ended questions, Affirming statements, Reflecting patient's ideas and feelings, and Summarizing the patient's perspective (OARS). The OARS approach aims to establish a therapeutic partnership and elicit change discussions. Open-ended questions are not easily answered with a "yes or no." Open-ended questions are crafted to elaborate and stimulate deeper thinking about a particular issue. Affirmation statements identify the client's strengths. Reinforcing the client's positive qualities, which is genuine and fitting, facilitates self-efficacy. Reflective listening is probably the most vital skill in MI. This skill includes expressing empathy and guiding the client to resolving ambivalence. The technique is careful listening with reflective responses; this way, the counselor emphasizes the negative outcomes of the status quo and the positives of behavior change. Summarizing is a recap of the counseling session. This highlights the essential information of the discussion such as client's ambivalence and necessary information that can be minimized, included, or excluded.

The client's expression of change talk is revealing a consideration, motivation, or commitment to change (Motivational Interviewing, 2009). An individual who expresses change talk is more likely to act in modifying his or her behavior. Describing the different types of change talk at the preparatory level includes the desire, the need, the ability that one can change, and knowing the reason that it is important to change. On the other hand, the implementation level of change talk comprises commitment, activation, and taking the necessary steps to change (Motivational Interviewing, 2009).

Studies have shown that MI is an effective intervention in many areas of healthcare for several years (Motivational Interviewing, 2009). A study was done to investigate HF management with motivational counseling approach (Riegel et al., 2006). The methodology was a mixed method using pretest-posttest design to evaluate the benefits of the intervention and the mechanism of effectiveness. This study enrolled 15 participants with a diagnosis of HF that were hospitalized. The participants received motivational intervention aimed to improve HF self-care. The advanced practice nurse (APN) provided home visits (average, 3.0 ± 1.5, median 3, mode 3, range 1-6) over a three-month period. The APN was trained in motivational interviewing and family counseling. Central to this study were motivation, skill building, and support encouraging self-care behavior. The patient centered motivational approach included decreasing barriers and the use of communication style in assisting patients in resolving ambivalence about change. Skill building included developing knowledge and practice. Support was from engaging the family in the intervention. The results showed a similarity between the qualitative and quantitative data, resulting in 71.4% improvement in self-care among the participants with intervention. Audiotape analysis provided themes of (1) reflective listening and empathetic communication; (2) making it fit to overcome barriers, recognize cultural beliefs, setting an action plan; and (3) transitioning from hospital to home by providing information, skills building, and resources activation. This study highlighted the elements of motivational interviewing that may be effective in achieving a successful HF management.

MI is not based on interventions, in which patients are already ready at or in an action stage for change. MI is a patient-centered technique to improve the personal motivation for change (Miller & Rollnick, 2009). These methods are communication and counseling to elicit and strengthen motivations to change problematic behaviors (Knight,

McGowan, Dickens, & Bundy, 2006). MI is a valuable strategy to help clinicians improve health behavior (Thompson et al., 2010).

<div align="center">Cross-Continuum Team Collaboration</div>

The Massachusetts Hospital Association (2012) published its strategies on reducing readmissions, highlighting its cross-continuum teams. This is a multistate learning community aiming to improve transitions of care. The cross-continuum teams aiming to reduce avoidable readmissions are geared towards improving transitions from hospital to post-acute care settings, to the skilled nursing facilities, and to home health care (Agency for Healthcare Research and Quality, 2013).

In May 2009, the State Action on Avoidable Rehospitalizations (STAAR) was started in three states by the Institute of Healthcare Improvement (IHI). This initiative received a grant from the Commonwealth Fund. The STAAR cross-continuum teams are fifty teams comprised of hospitals, physician office practices, home health agencies, long-term care facilities, and others. The goal was to reduce the rate of admissions for patients using visiting nurses and skilled nursing facilities. This was accomplished through achieving engagement and communication between the health care organizations and community partners. This promotes PCP engagement and providing patients with safe care and positive experiences across the continuum. The STAAR concept of a cross-continuum team is highly rated and practical (Zablocki, 2012). MetroWest, a STAAR participant, developed a new care delivery model with the home care agency. One of the core intervention strategies was the use of transition care coaches. The transition care coach builds a relationship with the patient as they both analyze and evaluate any potential gaps in care once the patient leaves the hospital. The transition care coach registered nurse (RN) provides one hospital visit, one home visit or Skilled Nursing Facility (SNF) visit before discharge. The client under the transition care coach RN has a personal health record, 24/7 medication planner, scale, and other items to lessen and

monitor exacerbation of symptoms. Also, two phone calls per week for 13 days were done (Centers for Medicare Medicaid Services, n.d.). The MetroWest transition program has been thriving (Zablocki, 2012).

The alliance that the Massachusetts Hospital Association formed was guided with the basic principle of patient focus. All team members are working together and sharing appropriate information in developing a transition plan (Massachusetts Hospital Association, 2012). Moreover, leaders embracing the challenge in reducing their readmission rates understand the importance of working across institutional boundaries in improving transitions of care (Institute for Healthcare Improvement, 2009).

Summary

The literature with the central theme on avoiding readmissions among patients with HF was highlighted in this chapter. The different models, screening tools, and review of risk factors that contribute to adverse events after hospitalization were featured. Health literacy was extensively discussed which emphasized the role of clinicians in providing a clear communication to all patients to maximize the delivery of quality care. Heart failure education, motivational interviewing, and cross continuum team collaboration were elaborated. To encapsulate, a clinical practice based on the highest level of research studies provides a comprehensive disease management in a healthcare with dynamic interactions between involved clinicians, informed and proactive patients, and prepared healthcare teams (Powers et al, 2010).

CHAPTER 4: METHODS

There are variations of hospital discharge processes and poor quality of care during transitions of care that contributes to hospital readmissions. This fragmented transitions of care from hospital to discharge increases medical illness, unnecessary hospital utilization, and costs (Jack et al., 2009). Literature suggests evidence-based interventions can prevent unnecessary rehospitalizations and improve quality. This project aimed to determine the feasibility of evidence-based interventions in preventing avoidable readmissions across transitions of care. In this chapter, the project description including the setting, population, and sample were discussed. Additionally, the project interventions and procedure were extensively elaborated.

Project description

This quality improvement (QI) project was in concurrence with the current discharge program evaluations and quality assurance measures in preventing avoidable readmissions. The QI pilot project was an exploratory descriptive design. It was a preliminary discovery of the feasibility of the evidence based interventions done on a small scale and exploratory in nature. The project interventions were evidence based applied to the practice setting. The strategies were patient centered care, implementation of evidence-based solutions, use of informatics, continuous quality improvement, teamwork and collaboration, and commitment to safety (McCormack & McCance, 2006, Miller & Rollnick, 2002, Jack et al., 2009, Darkins et al., 2008, & Society of Hospital Medicine, 2008b).

Setting, Population, and Sample

The project setting was located in a 900 bed health care system in California. It was launched in the inpatient hospital setting that expanded to outpatient services. The

Transition Coordinator (TC) enrolled 30 participants in the project. The inclusion criteria were men, diagnosis of Heart Failure (HF), and telephone access. The exclusion criteria were patients under hospice care, transferred from a different hospital, admitted for a planned hospitalization, deaf and or blind. An illustrative TC Advocacy Plan is shown in Figure 2.
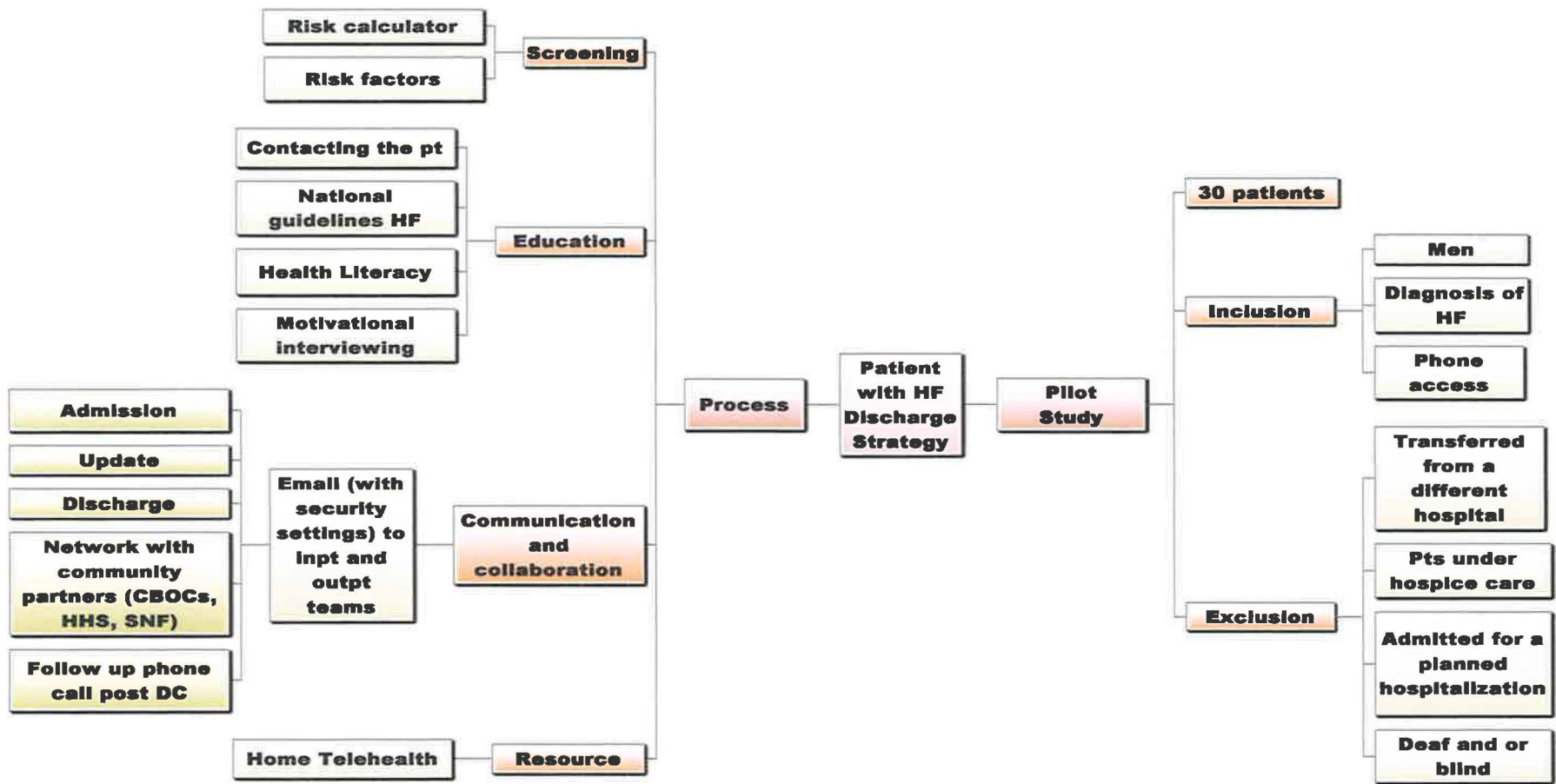
Figure 2. TC Advocacy Plan

Ethical Consideration (Human Subject Protections)

A "Determination of Human Subject Research" application was submitted to the Institutional Review Board (IRB). The project did not meet the federal definition of research or clinical investigation, and it was concluded as QI project. Regulations on the ethical involvement of human participants were followed during this project. The data were included in the organization's Project RED shared file as a continuous reference for project improvement.

Timeline of Implementation

The TC avoiding readmissions initiative began June 2012, following patients with HF, Pneumonia, Acute Myocardial Infarction, and sepsis. The TC interventions on avoiding readmission initiative started in October 2012. The HF pilot study began August 2013 and ended January 2014.

Interventions

The QI project began in the inpatient hospital setting and expanded to outpatient services, was a collaborative effort. The collaborative team included physicians, nurses, social workers, and pharmacists. The theoretical framework used in this project was the Integrated Theory of Health Behavior Change (ITHBC). The underpinnings of the Project RED elements were essential. Equally important was the TCs' Advocacy Plan (shown in Figure 2), which was divided into four major areas: screening tools, HF education, communication and collaboration, and use of resources.

Screening tools

Medical record reviews of patients with HF following the project criteria determine inclusion. Participants who met the project criteria were introduced to the IPEC screening tool and screened for the 8Ps risk factors for adverse events and readmissions. The inpatient and outpatient teams were notified with the results of the

screening tool and risk factors. The identified risk factors were mitigated through risk specific interventions such as providing more resources, longer or more frequent educational session, and referral to specialized services.

Heart Failure education

An individualized educational plan was developed on each participant. The self-management education was a non-pharmacological strategy for HF management. TC visit included an educational session on Project RED components and HF concepts using motivational interviewing and teach-back.

The After Hospital Care Plan (AHCP) contains several Project RED components. The AHCP booklet is an easy-to-follow discharge plan (Agency for Healthcare Research and Quality, 2013).This simple to understand discharge plan was usable to patients and caregivers with limited health literacy (Agency for Healthcare Research and Quality, 2013). The discharge plan was a planned course of treatment given to the participants and used after hospitalization. The participants used the information in the AHCP until the first visit with their Primary Care Physician (PCP). The AHCP cover page is personalized with the participant's name. The PCP and TC name and phone numbers were in the cover page and the advice nurse toll free number was written. The updated medication list with the right dose and right frequency information was in the next page. The succeeding pages showed the participant's allergies, appointments, diagnosis information, diet, and exercise. The pending test results and durable medical equipments were included. In the booklet was a list of appointments with the discharge planner's phone number to reschedule (if needed), and a 90 day calendar that was color coordinated with the appointments. The participant was able to record concerns, questions, and symptoms in the activation page as a topic for discussion during the follow-up clinician appointment.

The use of Krames understanding heart failure booklet promotes comprehension (Krames staywell, 2014). Reemphasized topics were (1) What is heart failure, (2)

Evaluating your heart, (3) Warning signs of a flare up, (4) Taking meds to control HF, (5)Tracking your weight, (6) Being active, (7) Coping with HF, (8)Making change to your diet, and (9)Discharge instructions HF. During the teaching session, the participant's self-care skills were assessed and HF key concepts were re-enforced.

The TC reviewed the educational materials with the participant using health literacy assessment through teach-back and motivational interviewing. Throughout the teaching session, the participant was asked to restate the information that was taught. It also involved repetition of information with frequent checks for any gaps in understanding and recall. The engaged dialogue between the TC and participant emphasized key concepts of HF such as medication and diet adherence with tailored messages. Examples of tailored messages were water pill instead of lasix or low salt diet instead of low sodium diet. This way, the TC confirmed that the participant understood what to do when he goes home.

The TC used motivational interviewing (MI) techniques. The micro counseling skills and techniques applied were open-ended questions, affirming statements, reflecting patient's ideas and feelings, and summarizing the patient's perspective (OARS). The open ended questions were crafted around reasons of the participant's hospitalization and actions when HF problems arise. The participant's positive qualities (example successfully stopped smoking) were reinforced through affirming statements that facilitated self-efficacy. More importantly, the TC exercised reflective listening and empathy that guided the participant to resolving the ambivalence in following the medication and diet instructions. Subsequently, the teaching session was summarized highlighting the essentials in health behavior change with the HF course of therapy. The change talk was achieved when the participant had taken the necessary steps to change such as monitoring for signs and symptoms of worsening HF by weighing themselves daily, following a strict low salt diet, and taking the prescribed medications.

The teaching session varied from 15 minutes to one-hour provided throughout the hospitalization. The educational discussions were based on the AHCP and Krames materials with teach-back and motivational interviewing strategies. The TC ensured the participant understood the plan and reviewed the necessary steps to follow before going home. The identified learning gaps were supplemented with resources (e.g. HT) or services (diet counseling) to enhance further learning.

Communication and collaboration

The communication and collaboration were between inpatient and outpatient teams. The mode of communication was face to face discussions, use of internal email, and telephone conversations. The focus was optimizing the participant's health at different transitions of care.

An internal email with built-in patient information security was initiated on each participant. The internal email contained admission, updates, and discharge patient information. The messages were sent to the inpatient providers, Project RED team, Patient Aligned Care Team (PACT), and Home Telehealth (HT) staff if applicable. The inpatient teams were physicians; the Project RED team consisted of nurses, clerical staff, pharmacists, and other clinicians integral to the care of the patient. The PACT team consisted of clinic's PCP and staff. Also, HT staffs were included to the email trail as necessary. This email communication created an opportunity for collaboration and open communication between clinicians and different stakeholders. The communication and partnership was supplemented via phone or face to face conversation as necessary. The focus was on optimizing the participant's health at different transitions of care.

The joint effort with community partners was between inpatient and outpatient teams. The teamwork of outpatient teams included staff in Community Based Outpatient Clinics (CBOCs), Home Health Services (HHS), HT, and Skilled Nursing Facilities (SNFs). Activities included engagement and communication among the teams regarding

identified issues during hospital stay and relay proposed solutions to foster continuity of care. This collaboration and communication between inpatient and outpatient teams were centered on the alignment of services to prevent avoidable readmissions.

Use of resources

Home Telehealth (HT) was the main resource used in this project. The participant referred to HT was assessed for eligibility. Then, the equipment was sent depending on the participant's health needs. The equipment may consist of different communication devices such as wireless apparatus or use of telephone to collect physiological data. The participant records the blood pressure and weight readings to obtain vital signs as instructed. Moreover, various health questions were collected about behaviors and health status. The needed parameters were individually customized according to the participant's HF clinical presentation and other comorbidities. These data were reviewed by clinicians for interventions and coaching. The plan of care for a patient with HF was reinforced by counseling focused on interventions. PCPs, specialists, and other providers used the data collected to manage the healthcare needs of patients with HF. Other resources applicable to patients with HF patient are inpatient and outpatient nutrition counseling, smoking cessation, weight control management, and mental health services.

Procedure

The TC's role was to implement the components of Project RED and TC Advocacy Plan which offered different strategies and interventions. These interventions may avoid readmission and affect patient outcomes. The TC process flow map was a combination of the Project RED elements and TC Advocacy Plan shown in Figure 3. The TC processes were divided into three sections namely initial process, meeting the participant, and after hospitalization. The TC courses of actions are illustrated with a sample participant.

Initial process

The project started with a medical record review of a patient with HF diagnosis. The participant was assessed for inclusion to the project at admission. Once selected, pertinent information gathered were age, birth date, sex, inpatient physician, admission date, diagnosis, allergies, medications, equipment, test results, and medical team's discharge plan. The above information was needed before the inpatient medical team was contacted. It was imperative that the inpatient medical team was aware of the TC role and the work done with the participant. The IPEC screening tool was used to assess the readmission probability. The risk factors for adverse events after hospitalization were reviewed on the selected participant. The participant had more than 40% IPEC readmission probability score and with multiple risk factors. The interventions were tailored to mitigate the adverse events after hospitalization. The risk factors were problem medications (insulin), principal diagnosis of HF, polypharmacy (more than five scheduled medications), absence of a caregiver, psychological, and recent hospitalization. The information was relayed to inpatient and outpatient teams thru internal email, face to face discussions, and phone conversation.

Meeting the participant

The TC met with the participant and initiated a trusting relationship. Fostering a trusting relationship in which the patient is more comfortable in revealing deficiencies or more willing to seek clarification of the health information provided by the clinician is beneficial to nurse patient interactions (National Patient Safety Foundation, 2003). Throughout the hospitalization, the educational session was focused on Project RED elements including HF concepts. There is evidence that 40-80 percent of medical information is forgotten instantly (Agency for Healthcare Research and Quality, 2013). Therefore, teach-back technique was a standard process. The education plan was customized to address the results of the screening tool and readmission risk factors. In

relation to those results, the teaching session highlighted medications, allergies, diet, calling the providers for questions and concerns, appointments, equipment, and available resources. The plan was also reviewed against the National Guideline Clearinghouse (NGC). A heart failure quick reference guide is available in the NGC website (National Institute for Health and Clinical Excellence, 2010). The educational material called "Krames Understanding Heart Failure" was used during the teaching session. These were (1) Warning signs of a flare up, (2) Taking meds to control HF, and (3) Tracking your weight. Moreover, the After Hospital Care Plan (AHCP) or written discharge plan conversations included what to do when problems arise, follow-up tests pending at discharge, and disposition.

The ITHBC framework and motivational interviewing techniques initiated behavior change. During conversations, the MI techniques were used. The techniques were open-ended questions, affirming statements, reflecting patient's ideas and feelings, and summarizing the patient's perspective (OARS). The use of open ended questions unraveled one of the participant's diet indiscretions. The TC affirmed his successful strategies in calling his providers if he had questions or concerns. Reflective listening and empathy facilitated discovery of the participant's plan to marry his fiancée so she can assist him with his diet adherence. Consequently, the essential steps to health behavior change and adherence to the treatment plan were highlighted and summarized. The change talk was evident when the participant, with the fiancée present, requested diet counseling on low salt diet at home. The ITHBC key concepts used were knowledge and beliefs, self regulation skill and ability, social facilitation, and outcomes. The above strategies equipped the participant knowledge on dietary choices, enhanced his awareness to change his behavior, and taken action with the support of the clinicians. The proximal outcome was his engagement to the treatment plan and self management behaviors. This was achieved by following his low salt diet and integrated this to his daily routine and

lifestyle. Eventually, this may result in an improved health status and better quality of life.

The complexity of HF management necessitated more additional resources after hospitalization to ensure success in managing his health. He was referred to HT with a follow up from the cardiology registered nurse practitioner (RNP) after discharge. Also, the discharge summary was available within 24 hours after hospitalization that facilitated information about his hospital stay to outpatient and consultative teams.
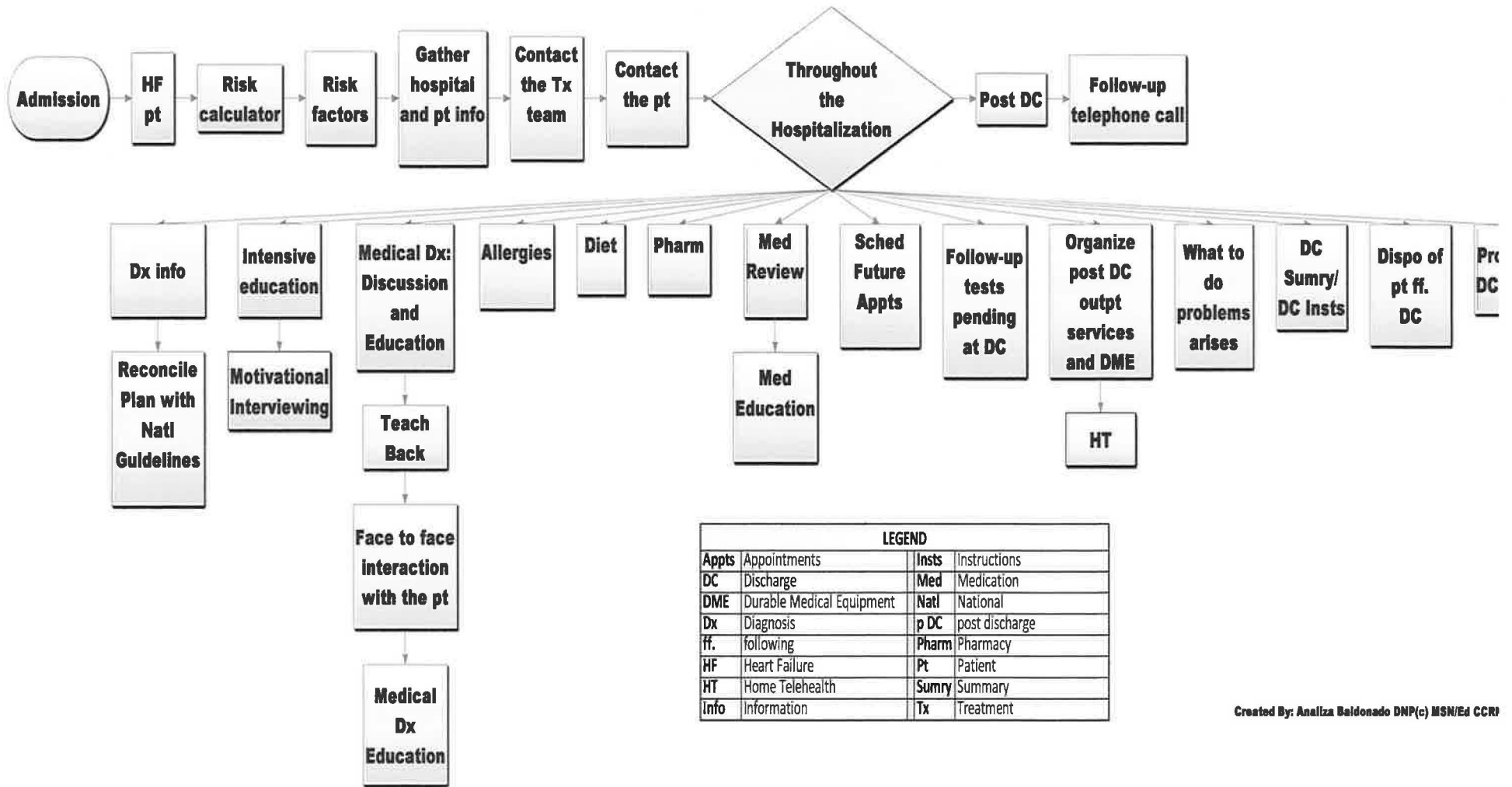
After hospitalization

The participant was referred to several services after hospitalization. He was educated with the use of equipment and his blood pressure, weight, and glucose data was transmitted. The HT clinician reviewed the data and communicated abnormal results to his PCP and other health care providers. Moreover, he received ongoing disease management education. The HT team, the cardiology RNP, PCP, and specialists did a close follow-up managing his health. The TC collaborated with the inpatient and outpatient teams even after hospitalization as the need arises. In addition, the TC and the PACT did a follow-up phone call after hospitalization. The TC discharge phone call included inquiry on "how the participant was doing with maintaining his health" and "what other questions he had." The follow-up phone call post discharge addressed current health issues. The TC's availability for telephone calls helped the participant in navigating the healthcare system. It also augmented the organization's continuing post-hospital discharge follow-up phone call. Moreover, the post discharge calls may have contributed to reinforced preventive care and optimized health.

Summary

A health care system has different organizational structures and processes in addressing hospital readmission. But, in this chapter a step by step process focusing on

avoiding readmission was presented. This includes the TC process flow map, which summarized the Project RED and TC Advocacy Plan. It also targeted a patient who is a high-risk for readmission, showcased an improved communication, follow-up care, and enhanced coordination between the inpatient and outpatient teams. These interventions may reduce readmissions, promote safety, and improve patient's transitions of care from hospital to home

Admission → **HF pt** → **Risk calculator** → **Risk factors** → **Gather hospital and pt info** → **Contact the Tx team** → **Contact the pt** → **Throughout the Hospitalization** → **Post DC** → **Follow-up telephone call**

From "Throughout the Hospitalization":

- **Dx info** → **Reconcile Plan with Natl Guidelines**
- **Intensive education** → **Motivational Interviewing**
- **Medical Dx: Discussion and Education** → **Teach Back** → **Face to face interaction with the pt** → **Medical Dx Education**
- **Allergies**
- **Diet**
- **Pharm**
- **Med Review** → **Med Education**
- **Sched Future Appts**
- **Follow-up tests pending at DC**
- **Organize post DC outpt services and DME** → **HT**
- **What to do problems arises**
- **DC Sumry/ DC Insts**
- **Dispo of pt ff. DC**
- **Pr... DC...**

LEGEND			
Appts	Appointments	Insts	Instructions
DC	Discharge	Med	Medication
DME	Durable Medical Equipment	Natl	National
Dx	Diagnosis	p DC	post discharge
ff.	following	Pharm	Pharmacy
HF	Heart Failure	Pt	Patient
HT	Home Telehealth	Sumry	Summary
Info	Information	Tx	Treatment

Created By: Analiza Baldonado DNP(c) MSN/Ed CCRI

Figure 3. TC process flow

CHAPTER 5: RESULTS

The purpose of the study was to determine the feasibility of avoiding readmission interventions. The components of Project RED and the TC Advocacy Plan were implemented. Other participant characteristics significant to the project were collected and analyzed. This chapter summarized the findings and presented the analysis of collected data. Also, an overview of the organization's readmission data was presented to track the possible correlation of the TC's interventions in the future.

Statistics and Data Analysis

The project aimed to evaluate and determine the feasibility of the evidence based interventions in preventing avoidable readmissions. The selection of project participants was a convenience sample. The descriptive statistical methods were means and frequencies of variables affecting readmission rates within 30 days. Patterns or trends were identified in analyzing the data. The analysis on length of stay (LOS) and Primary Care Provider (PCP) visits were included.

The participants were male (n = 30) with HF diagnosis, aged from 49-91 years old (range = 42, mean = 69.4, SD = 9.95). The national mean age of HF diagnosis is 70 years old (Sutherland, 2010). The IPEC readmission probability for the participants ranged from 8.2 to 45.3 % (mean = 21%). The higher the IPEC percentage value the higher the probability for readmission.

Project RED interventions

The completed project RED 12 elements with the implementation percentages are in Table 1. The language services, follow-up medical appointments, tests or studies discussions, organized service and equipment, and medication review were 96-100% completed. Of the 30 participants, National Guidelines Clearinghouse (NGC) review was applicable to 20 participants (67% implementation). The review of patient's plan of care
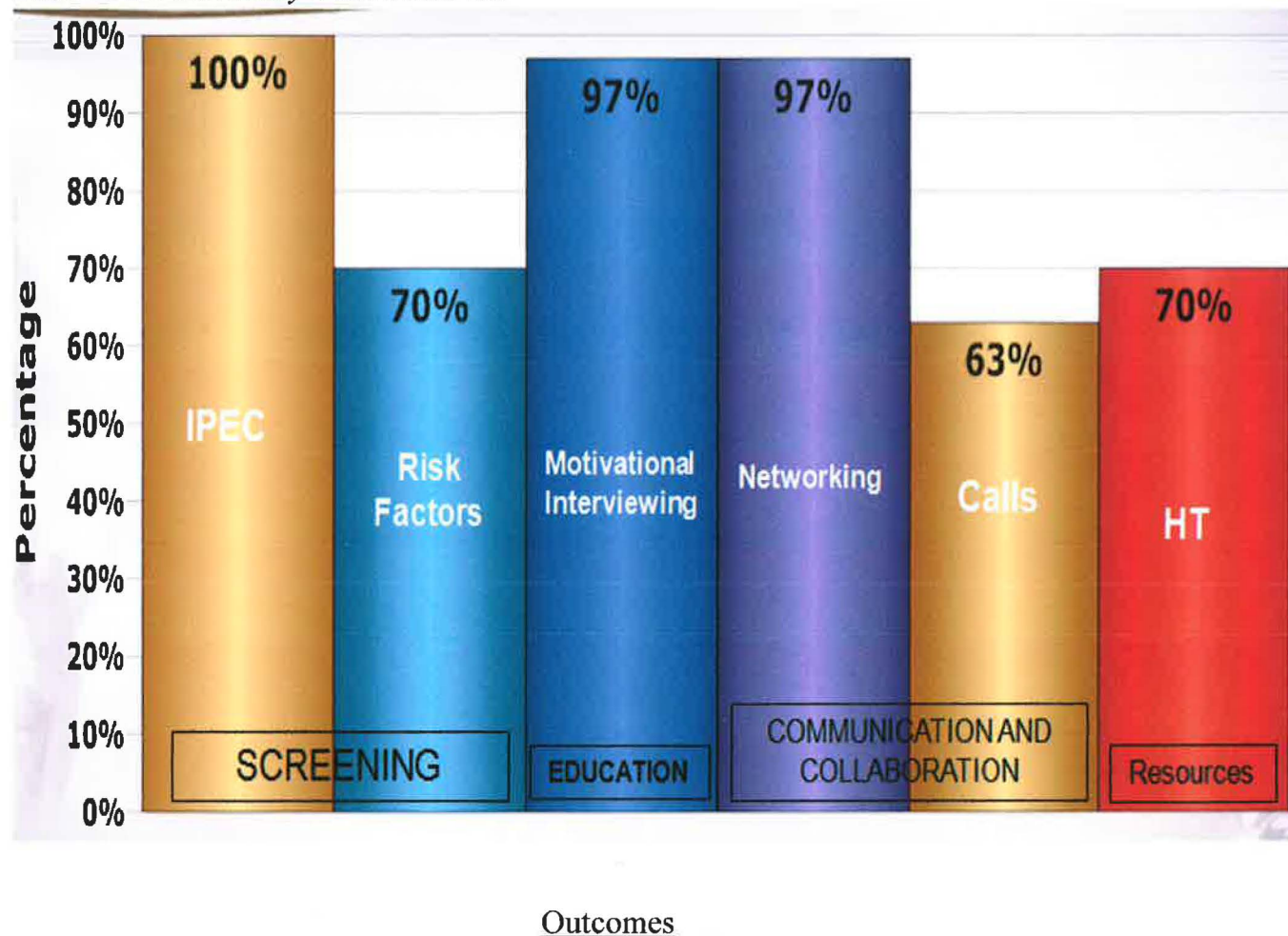
against the HF NGC necessitates medical and clinical expertise in the area of cardiology and HF management. The After Hospital Care Plan (AHCP) is an easy to understand written discharge plan. The AHCP, diagnosis education, assessing the degree of understanding (Teach-back), and what to do when problems arise discussions were 97-100% completed. The post discharge follow-up phone calls were applicable to 21 participants (9 were non- applicable due patient mortality and transfer to SNF). The phone calls were completed on 16 participants out of 19 (76% fulfilled). The implementation of these components was evaluated through medical record audit.

Table 1. *Project Red Interventions Achieved*
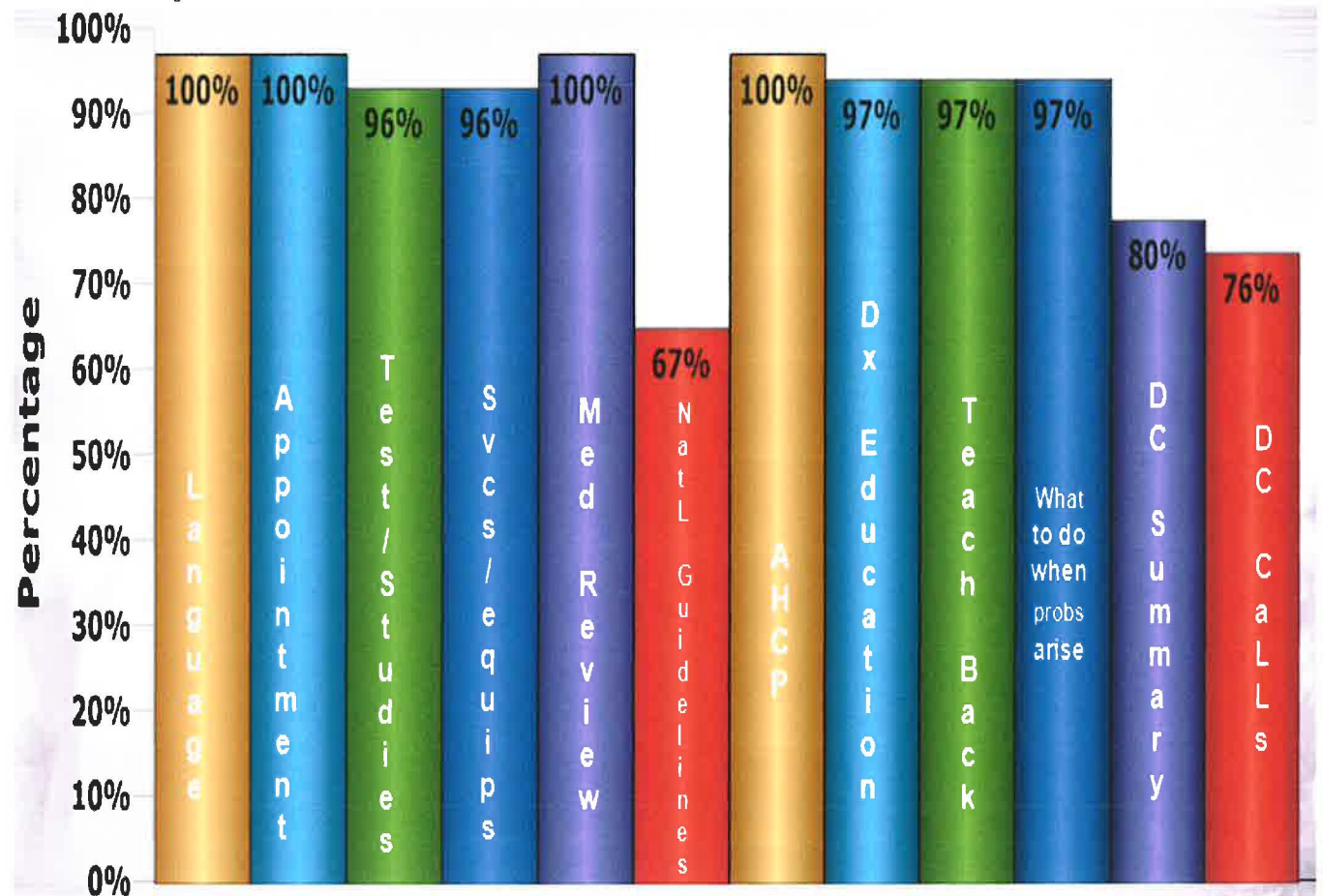
TC Advocacy Plan tasks

The TC Advocacy Plan was divided into four main tasks: screening tools, educating the patient, communication and collaboration, and use of HT resource. The IPEC screening tool was 100% completed. The review of risk factors for adverse events after hospitalization on 21 participants from the total 30 participants was 70% implemented. The motivational interviewing applied to 29 patients from the total 30 participants was 97% completed. The screening and education were measured through chart audit. The different processes on communication and collaboration applied to 29 patients from the total 30 participants were 97% fulfilled. The networking task was measured from the internal email generated. Post discharge phone calls to 19 patients from the total 30 participants were 63% completed. The 21 participants from the total 30 participants were referred to Home Telehealth (70% completed). The HT was audited for HT referrals in the electronic medical record system. The data illustration of the TC Advocacy Plan is shown in Table 2.

Table 2. *TC Advocacy Plan Achieved*

A bar chart titled with the following bars:
- IPEC (SCREENING): 100%
- Risk Factors (SCREENING): 70%
- Motivational Interviewing (EDUCATION): 97%
- Networking (COMMUNICATION AND COLLABORATION): 97%
- Calls (COMMUNICATION AND COLLABORATION): 63%
- HT (Resources): 70%

The vertical axis is labeled "Percentage" from 0% to 100%.

Outcomes

The length of stay (LOS) of all participants was 1-39 days (range 38, mean 9.4, SD 9.78). There were four participants readmitted within 30 days. From the four readmitted patients, three died. The mortality may be attributed to diagnosis of cancer and other comorbidities. Of the 21 participants, 19 (90%) were seen by their Primary Care Physicians. The nine participants were not followed by the PCP due to SNF transfer and death.

The all cause HF readmission rate for Fiscal Year (FY) 2012 was compared to FY 2013. FY 2012 months were from October 2011 to September 2012. On the other hand, FY 2013 months were from October 2012 to September 2013. The Inpatient Evaluation Center (IPEC) on the Veterans Health Administration Support Service Center (VHASSC)

website reports data on 30-day Unadjusted Readmission Rate (URR) of a Healthcare System in California. According to IPEC's measure, 42 patients diagnosed with HF were readmitted out of 186 discharged patients. The 30-day readmission rate for HF in fiscal year 2012 was 22.6% and the national average was 24.7% (Kociol et al., 2012). In FY 2013, there were 36 patients readmitted out of 165 patients discharged. The 30-day HF all-cause readmission rate for HF in FY 2013 was 21.8% (shown in Figure 4). The decrease in readmission rates does not directly correlate to the TC interventions and may involve other multiple avoiding readmissions program of the organization. However, analysis of the correlation of the TC interventions to the organization's over-all readmission rate can be investigated for future study.

Figure 4. IPEC's measure of HF 30-day unadjusted readmission rate
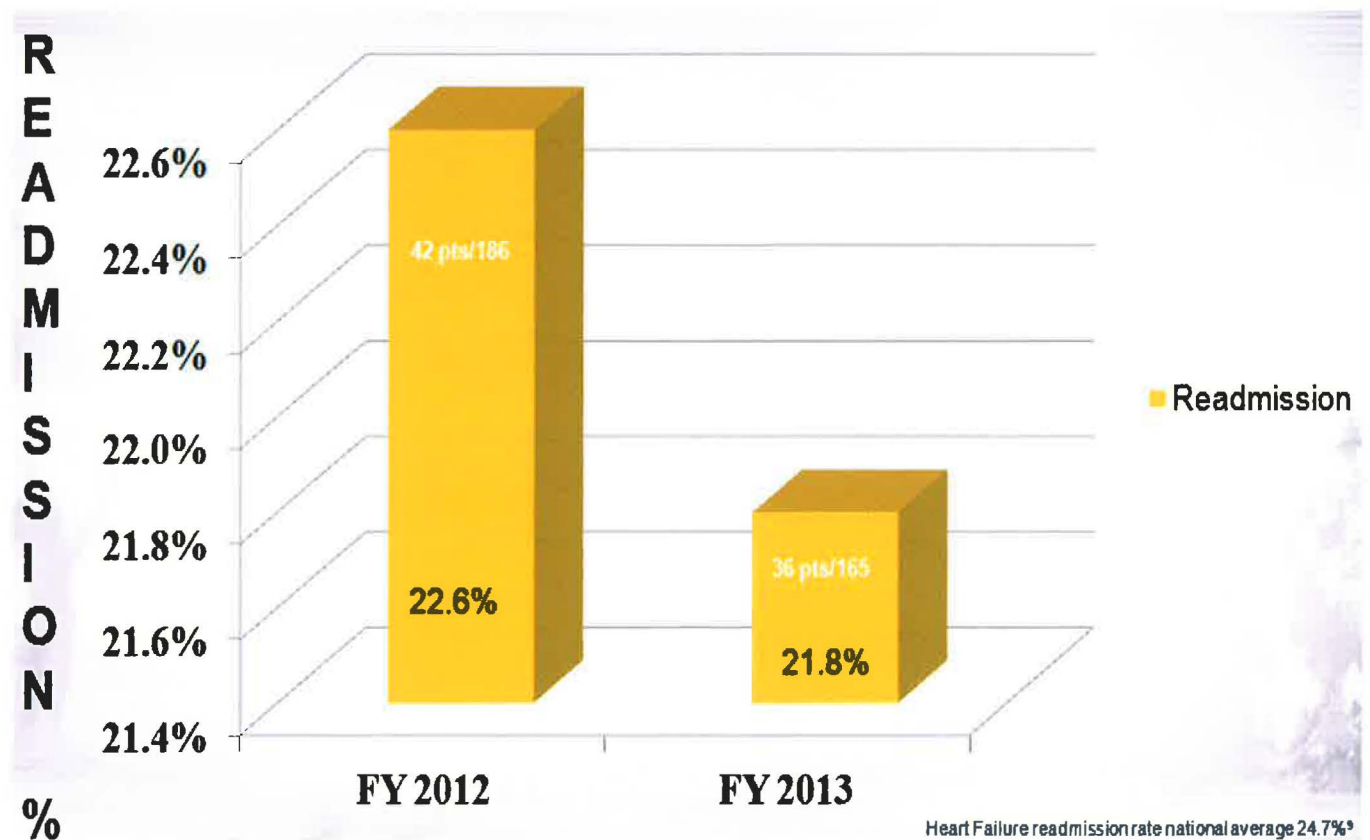
Summary

The Project RED components and the TC Advocacy plan were evidence based interventions to avoid readmissions. All Project RED components and the Transition Advocacy plan were implemented. Other end points were participant characteristics such as age, readmission probability, length of stay, and PCP visit. These end-points may affect the readmission rates and further tracking is warranted that may need to be addressed. The IPEC's measure of HF 30-day unadjusted readmission rate mirrors the readmission status of the organization. Tracking this information serves as a guide for a more meticulous and in-depth analysis of the interventions and its correlation to readmissions in future study.

CHAPTER 6: DISCUSSION

The results of this project were presented to inform the key stakeholders and to identify opportunities for improvement. The discussion on avoidable readmissions offered insight on the barriers of implementation, the organizational factors in play, and successful strategies in avoiding readmissions. Also, the discovery of data presented another path for process improvement and future research considerations.

Many healthcare organizations focus efforts to decrease avoidable readmissions. In addition to focusing efforts in preventing readmissions, it is also imperative to incorporate evidence-based practices into daily protocols. Through this project, evidence based interventions were implemented in clinical practice. Conversely, carrying out all Project RED elements is complex and involves multiple steps. These complexities were brought by the many facets of the discharge process. The Agency for Healthcare Research and Quality (2011), recorded the challenges in setting up the RED elements. The challenges to implementation are 1) Patient discharge plan receives low priority for busy inpatient clinicians, 2) Discharge is relegated to the least-experienced team member, 3) Last-minute tests/consultations result in delay of final discharge plan and medication list, 4) Inaccurate medication reconciliation, 5) Discharge medication reconciliation started on the day of discharge, 6) A lack of resources and financial incentives to sustain discharge programs, 7) Standardized discharge documents are not personalized or in patient's language, 8) Resistance to change by clinicians, 9) Financial pressure to fill beds as soon as they are empty, 10) Patient with no PCP, 11) Limited or no insurance coverage, 12) Inability to pay for medication co-pays, 13) Long wait times when calling health centers, and 14) Late discharge becoming less effective because staff are teaching patients who are anxious to leave. Some of these challenges were encountered by the TC in implementing the Project RED components and the TC Advocacy plan. To mitigate

these barriers the TC pled the support of the stakeholders. The stakeholder's support was important to the success of this project. The formal and informal leaders of the different departments and services were involved in the implementation and evaluation. The complicated implementation phase needed support among multiple disciplines. The collaborative team included physicians, nurses, social workers, and pharmacists. Also, recording progress and a continuous search for innovative solutions were necessary. The various effective and efficient concepts and models were implemented and standardized procedures. The use of electronic information systems served as a tool to collect data, presented to leadership, provided feedback, and supported clinical decisions. The information was disseminated through flyers, emails, presentations, in-services, and posters. The engagement and commitment of leaders at all levels of the organization may have led to cultural change.

Limitations

This project had several limitations. The HF New York classification, HF etiology, and the length of time the patient had the HF illness were not considered during the participant selection. This multifaceted project was challenging and complex that contributed to the variation of results in implementation. Because of the magnitude, short timeline, and complexity with a single person carrying out the multiple processes, some tasks were not completed. The identified difficult tasks resulted in prioritization of different process that best influenced patient outcomes. On some occasions, the TC visits were not suitable (worsening of condition, or patient refusal) to complete the Project RED components and Advocacy Plan (for example risk factor assessment). The medication reconciliation, palliative care discussions, and the use of the national guidelines were difficult to carry out. These are specialized tasks that require expertise and higher level of implementation. The medication reconciliation and palliative care

issues were brought to leadership's attention. The use of the national guidelines highlighted the importance of HF education.

<div align="center">Implications for Nursing Practice</div>

As the result of the study, the feasibility of evidence based interventions addressed the issue of preventable readmissions. This evidence based interventions are the implementation of Project RED and TC advocacy plan. Moreover, the organization-wide tasks were integral in preventing avoidable readmissions, promoting patient safety, and improving outcomes.

Multidisciplinary teams and leadership held monthly Avoiding Readmissions through Collaboration (ARC) meetings. These meetings promote a robust discussion of data trends, effective and efficient interventions, and root cause analysis that addressed readmissions and outcomes. Also, the stakeholders examine different initiatives affecting individuals' and groups' quality care. The TC provided reports and presentations in these ARC monthly meetings. The TC had an opportunity to contribute data on potential gaps of the process and identified the causes of avoidable readmissions. The medication management data were presented and led to an increase in pharmacist full-time equivalent (FTE). The project participant's case studies highlighted palliative care that led to the hiring of a palliative nurse-practitioner. In this ARC overview, it highlights the continuous conversation, study, and quality improvement activities essential to decrease the number of avoidable readmissions and increase the value of health care. The increased multidisciplinary collaboration may have created a seamless transition from inpatient to outpatient settings. A seamless transition includes a better communication of inpatient and outpatient clinicians as evidenced by easier accessibility, reinforced education, HT collaboration, and positive verbal reports. In addition, the processes, concepts, and models, which are effective and efficient, were integrated to project RED protocols.

Home Telehealth program was recognized as essential in preventing avoidable readmissions. The multidisciplinary collaboration with HT staff, providers, specialists, and different services were remarkable that led to dissemination of this project. This was documented and published in a peer- reviewed journal, *Dimensions of Critical Care Nursing* (DCCN). The HT article was disseminated to the inpatient and outpatient services. Thus, the HT enrollment doubled comparing the calendar year 2012 to 2113. However, the increase in enrollment cannot be directly attributed to the TC interventions or to the HT publication.

The implementation of Project RED component National Guidelines Clearinghouse investigated the need for more in-depth and specialized HF management educational modules. In addition, the importance of avoiding readmissions staff education resulted in innovative strategies. One of the strategies was the development of HF modules for the multidisciplinary team at various settings.

This pilot study offered scholarly opportunities such as publications and presentations. Moreover, this work was accepted for national and international poster presentations. This project was grounded on clinical practice aimed to provide high quality care. The involvement of organizational leaders was instrumental to the sustainability of this project. To encapsulate, this endeavor was to translate research into practice, improve systems of care, and measure outcomes of patients with HF.

Sustaining Measures

Creating innovative strategies in solving the identified causes of readmissions is vital. Equally important is increasing the dissemination with continued support of the major stakeholders. Data driven changes to reduce readmissions can dramatically achieve results. Therefore, the next step is to integrate the RED interventions, continue with audits to track progress, and sustain efforts. Also important is formulating standardized interventions in collaboration with involved disciplines, which may improve outcomes.

Conclusion

Hospital readmissions are persistent problem affecting our health care system. The substantial task to reduce hospital readmissions is challenging, but the gains are rewarding. Nurses are well-positioned to influence patient outcomes, which require innovative solutions that are evidence based and grounded with a theoretical framework to ensure a seamless transition. Not all interventions are generalizable, however; improved infrastructure, integration, and collaborative relationships aimed at reducing hospital readmissions in patients with HF may promote patient centered care, reduce costs, ensure patient safety, and deliver high quality care.

REFERENCES

REFERENCES

Adams, R.J., Stocks, N.P., Wilson, D.H., Hill, C.L., Gravier, S., Kickbusch, I., & Beilby, J.J. (2009). Health literacy: A new concept for general practice? *Australian Family Physician, 38*(3), 144-147.

Agency for Healthcare Research and Quality. (2010). Heart failure: percentage of patients aged 18 years and older with a diagnosis of heart failure with a current or prior LVEF less than 40% who were prescribed beta-blocker therapy either within a 12 month period when seen in the outpatient setting or at hospital discharge. Retrieved March 3, 2013 from http://www.qualitymeasures.ahrq.gov/content.aspx?id=34935

Agency for Healthcare Research and Quality. (2011). Slide 31 Project RED: Module 1: Preparing to redesign your discharge program. Retrieved from http://www.ahrq.gov/professionals/systems/hospital/red/module1/slide31.html

Agency for Healthcare Research and Quality. (2012). Readmissions. Retrieved from https://www.psoppc.org/c/document_library/get_file?uuid=1ac0a6ff-baea-465c-afc6-9650e2afbcef&groupId=10218

Agency for Healthcare Research and Quality. (2013). State action on avoidable rehospitalizations (STAAR) materials. Retrieved from http://www.innovations.ahrq.gov/content.aspx?id=3287

Agency for Healthcare Research and Quality. (2013). Health literacy universal precautions toolkit. Retrieved from http://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/literacy-toolkit/healthliteracytoolkit.pdf

Agency for Healthcare Research and Quality. (2013). Tool 3: How to deliver the re-engineered discharge at your hospital. Retrieved from http://www.ahrq.gov/professionals/systems/hospital/red/toolkit/redtool3.html#After

Agency for Healthcare Research and Quality. (2014). Chronic disease management can reduce readmissions. Retrieved from http://www.innovations.ahrq.gov/content.aspx?id=3867

Baker, D.W., Wolf, M.S., Feinglass, J., Thompson, J.A., Gazmararian, J.A., & Huang, J. (2007). Health literacy and mortality among elderly persons. *Archives of Internal Medicine, 167*(14), 1503-1509.

Baldonado, A (2013). *Application of ITHBC to HF patients.* Unpublished manuscript.

Baldonado, A., Rodriguez, L., Renfro, D., Sheridan, S. B., McElrath, M., & Chardos, J. (2013). A home telehealth heart failure management program for veterans through care transitions. *Dimensions of Critical Care Nursing, 32*(4), 162-165. 110.1097/DCC.1090b1013e318299f318834.

Brown, J., & Gray, C. (1998). Stemming the tide of readmissions: Patient, practice, or practitioner? *Reviews in Clinical Gerontology, 8*(2), 173-181.

Boston Medical Center. (2012). Project RED (Re-Engineered Discharge). Retrieved from http://www.bu.edu/fammed/projectred/

Centers for Medicare Medicaid Services. (n.d.). Central Mass/MetroWest Transitions in Care Collaborative. Retrieved from http://innovation.cms.gov/Files/x/CCTP-CntrlMAMetWest.pdf

Coleman, E.A., Wagner, E.H., Grothaus, L.C., Hecht, J., Savarino, J., & Buchner, D.M. (1998). Predicting hospitalization and functional decline in older health plan enrollees: Are administrative data as accurate as self-report? *Journal of the American Geriatrics Society, 46(4),* 419-425.

Cossette, S., Frasure-Smith, N., Guertin, M., Heppell, S., & Paradis, V. (2010). The efficacy of a motivational nursing intervention based on the stages of change on self-care in heart failure patients. *Journal of Cardiovascular Nursing, 25*(2), 130-141. Retrieved from http://www.nursingcenter.com/lnc/journalarticle?Article_ID=979594

Clark, J.C., Lan, V.M. (2004). Heart failure patient learning needs after hospital discharge. *Applied Nursing Research, 17*(3), 150–157.

Darkins, A., Ryan, P., Kobb, R., Foster, L., Edmonson, E., Wakefield, B., & Lancaster, A. (2008). Care coordination/home telehealth: The systematic implementation of health informatics, home telehealth, and disease management to support the care of veteran patients with chronic conditions. *Telemedicine and e-Health,* 14(28), 1118-1126. doi:10.1089/tmj.2008.0021

Fast Adoption of Significant Technologies. (2009). Detailed technology analysis home telehealth. Retrieved from http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CC8QFjAA&url=http%3A%2F%2Fwww.nehi.net%2Fuploads%2Ffull_re

port%2Fdetailed_technology_analysis__home_telehealth.pdf&ei=i2gzUcHcNKy
NigKCzICwDw&usg=AFQjCNFDlKxypwZHsDBgL5wcfspZ76LhkA.

Foster, D., & Harkness, G. (2010). Health care reform: Pending changes to
reimbursement for 30 day readmissions. Retrieved from
http://thomsonreuters.com/content/healthcare/pdf/pending_changes_reimbursemen
ts

Gannuscio, J. (2012). Testing a 30-day readmission risk calculator in a veteran
population with heart failure: A pilot study. Retrieved from
http://archive.hshsl.umaryland.edu/handle/10713/2327

Gellis, Z. D., Kenaley, B. L., & Have, T. T. (2014). Integrated telehealth care for chronic
illness and depression in geriatric home care patients: The integrated telehealth
education and activation of mood (I-TEAM) study. *Journal of the American
Geriatrics Society*, n/a-n/a. doi: 10.1111/jgs.12776

Go, A.S., Mozaffarian, D., Roger, V.L., Benjamin, E.J., Berry, J.D., Borden, W.B., ...
Turner, M.B. (2013). Heart disease and stroke statistics—2013 update: a report
from the American Heart Association. *Circulation, 127*, e6–e245.

Hauptman, P., & Havranek, E. (2005). Integrating palliative care into heart failure care.
Archives of Internal Medicine, 165(4), 374-8.

Hauptman, P.L., Rich, M.W., Heidenreich, P.A., Chin, J., Cummings, N., Dunlap, M.E.,
& Philbin, E. (2008). The heart failure clinic: A consensus statement of the Heart
Failure Society of America. *Journal of Cardiac Failure, 14*(10), 801-815.

Howie-Esquivel, J., & Spicer, J. (2012). Association of partner status and disposition
with rehospitalization in heart failure patients. *American Journal of Critical Care,
21*(3), 65-73.

Institute for Healthcare Improvement. (2009). State Action on Avoidable
Rehospitalizations Initiative. Retrieved from
http://www.ihi.org/Engage/Initiatives/Completed/STAAR/Documents/STAAR%2
0State%20Based%20Strategy.pdf

Jack, B., Chetty, V., Anthony, D., Greenwald, J., Sanchez, G., Johnson, S., ... Culpepper,
L. (2009). A Reengineered Hospital Discharge Program to Decrease
Rehospitalization: A Randomized Trial. *Annals of Internal Medicine, 150*(3), 178-
187.

Jack, B., & Bickmore, T. (2011). The Re-Engineered Hospital Discharge program to decrease rehospitalization. Retrieved from https://www.bu.edu/fammed/projectred/publications/CMdec2010jan2011.pdf

Jencks, S.F., Williams, M.V., & Coleman, E.A. (2009). Rehospitalization among patients in Medicare fee-for-service program. *New England Journal of Medicine, 360*(14), 1418-1428.

Knight, K., McGowan, L., Dickens, C., & Bundy, C. (2006). A systematic review of motivational interviewing in physical health care settings. *British Journal of Health Psychology, 11*(2), 319-332.

Koelling, T., Johnson, M., Cody, R., & Aaronson, K. (2005). Discharge education improves clinical outcomes in patients with chronic heart failure. *Circulation, 111*(2), 179-185.

Kociol, R., Peterson, E., Hammill, B., Flynn, K., Heidenreich, P., Piña, I., … Hernandez, A. (2012). National Survey of Hospital Strategies to Reduce Heart Failure Readmissions. *Circulation: Heart Failure, 5*(0), 680-687.

Krames staywell. (2014). Understanding Heart Failure. Retrieved from https://www.kramesstore.com/OA_HTML/ibeCCtpItmDspRte_kra.jsp?item=1479 409&ksw001_kswp_pses=ZG7C7B3A08D8A239C54CE8FE9A5A79826017D1B A38C6B20619AB1659F5E65C99AEE9FE0A200AE2D04F1DEDBB20EC649D BD0C65F1C0F2CE1193865096AB7CDB8831&ksw001_kswp=ZxFvwPgxDK9c sKaFDoBaH2sW:S

Logan, J., Freeman, C., Choi, J., Rodriguez, M., Wang, B., & Natarajan, S. (2013). Predicting hospital readmission in patients with heart failure: Usefulness of psychosocial factors not included in established risk scores. Retrieved from https://apha.confex.com/apha/141am/webprogram/Paper287547.html

Marek, K. , Stetzer, F. , Ryan, P. , Bub, L. , Adams, S. , et al. (2013). Nurse care coordination and technology effects on health status of frail older adults via enhanced self-management of medication: Randomized clinical trial to test efficacy. *Nursing Research, 62*(4), 269-278.

Massachusetts Hospital Association. (2012). Reducing readmissions: Highlights from Massachusetts STAAR Cross-Continuum Teams. Retrieved from http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0C CYQFjAA&url=http%3A%2F%2Fwww.macoalition.org%2FInitiatives%2Fma-staar2012%2FSTAAR-CCT%2520Storybook%2520Highlights%25202012.pdf&ei=e9BNU662LqLN2Q

Wc2IGoDg&usg=AFQjCNGyluqKavNG8FbqFsK_g7k8hKc4-g&sig2=7Omm0MtxYTT5W6qld8SH0w&bvm=bv.64764171,d.b2I

Maudlin, J., Keene, J., & Kobb, R. (2006). A road map for the last journey: Home telehealth for holistic end-of-life care. *The American Journal of Hospice & Palliative Care, 23*(5), 399-403.

McCormack, B., & McCance, T. (2006). Development of a framework for person-centred nursing. *Journal of Advanced Nursing, 56*(5), 472-479.

McEntee, M., Cuomo, L., & Dennison, C. (2009). Patient-, provider-, and system-level barriers to heart failure care. *The Journal of Cardiovascular Nursing, 24*(4), 290-298.

Miller J.F. (Ed.). (2000). *Coping with chronic illness: Overcoming powerlessness* (3rd ed.). Philadelphia, PA: F.A. Davis.

Miller, W. & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change.* New York: Guilford Press.

Miller, W., & Rose, G. (2009). Toward a theory of motivational interviewing. *American Psychology, 64*(6), 527-537.

Mitchell, S. E., Sadikova, E., Jack, B. W., & Paasche-Orlow, M. K. (2012). Health literacy and 30-day postdischarge hospital utilization. *Journal of Health Communication, 17*(sup3), 325-338. doi: 10.1080/10810730.2012.715233

Motivational Interviewing. (2009). An overview of motivational interviewing. Retrieved from http://www.motivationalinterview.org/quick_links/about_mi.html

National Institute for Health and Clinical Excellence. (2010). Management of chronic heart failure in adults in primary and secondary care. Retrieved from http://www.nice.org.uk/nicemedia/live/13099/50526/50526.pdf

National Patient Safety Foundation. (2003). Eradicating low health literacy: The first public health movement of the 21st century. Retrieved March 31, 2009 from www.npsf.org/askme3/pdfs/white_paper.pdf

National Heart, Lung, and Blood Institute. (2014). Who is at risk for heart failure? Retrieved from http://www.nhlbi.nih.gov/health/health-topics/topics/hf/atrisk.html

Naylor M. (2002). Transitional care of older adults. *Annual Review of Nursing Research, 20*(1), 127–147.

Nielsen-Bohlman, L., Panzer, A.M., & Kindig, D.A. (Eds.). (2004). *Health literacy: A prescription to end confusion.* Washington D.C.: National Academies Press.

Powers, B., Trinh, J., & Bosworth, H. (2010). Can this patient read and understand written health information? *The Journal of the American Medical Association, 304*(1), 77-84.

Robert Wood Johnson Foundation. (2013). The revolving door: A report on U.S. hospital readmissions. Retrieved from http://www.rwjf.org/content/dam/farm/reports/reports/2013/rwjf404178

Riege,l B., Dickson, V.V., Hoke, L., McMahon, J.P., Reis, B.F., & Sayers, S. (2006). A motivational counseling approach to improving heart failure self-care: Mechanisms of effectiveness. *Journal of Cardiovascular Nursing, 21*(3), 232–241.

Rosamond, W., Flegal, K., Friday, G., Furie, K., Go, A., Greenlund, K., … Hong, Y. (2007). Heart disease and stroke statistics--2007 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation, 115*, e69–e171.

Ryan, P. (2009). Integrated theory of health behavior change. *Clinical Nurse Specialist, 23*(3), 161-172. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2778019/

Schlachta-Fairchild, L., Elfrink, V., & Deickman, A. (2008). Patient safety, telenursing, and telehealth. In R.G. Hughes (ed.), *Patient safety and quality: An evidence-based handbook for nurses* (3rd ed., pp. 135-174). Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK2687/pdf/ch48.pdf

Schillinger, D., Machtinger, E., Wang, F., Win, K., Chen, L., Rodriguez, M. (2003). Are pictures worth a thousand words? Communication regarding medications in a public hospital anticoagulation clinic. *Journal of General Internal Medicine, 18*(suppl 1): 187.

Schillinger, D., Piette, J., Grumbach, K., et al. (2003). Closing the loop: Physician communication with diabetic patients who have low literacy. *Archives of Internal Medicine, 163*(1), 83–90.

Society of Hospital Medicine. (2008a). Assessing your patient's risk for adverse events after discharge. Retrieved from http://www.hospitalmedicine.org/ResourceRoomRedesign/RR_CareTransitions/PDFs/TARGET.pdf

Society of Hospital Medicine. (2008b). Project BOOST. Retrieved from
http://www.hospitalmedicine.org/AM/Template.cfm?Section=Home&TEMPLAT
E=/CM/HTMLDisplay.cfm&CONTENTID=27659

Spehar, A., Campbell, R., Cherrie, C., Palacios, P., Scott, D., Baker, J., Bjornstad, B., &
Wolfson, J. (2005). Seamless care: Safe patient transitions from hospital to home.
Retrieved from http://www.ahrq.gov/downloads/pub/advances/vol1/spehar.pdf

Sutherland, K. (2010). Bridging the quality gap: Heart Failure. Retrieved from
http://www.health.org.uk/public/cms/75/76/313/583/Bridging%20the%20quality%
20gap%20Heart%20Failure.pdf?realName=cXqFcz.pdf

Texas Health and Human Services Commission. (2012). Potentially preventable
readmissions in the Texas Medicaid population, State Fiscal Year 2011. Retrieved
from http://www.hhsc.state.tx.us/reports/2012/PPR-Readmissions-FY2011.pdf

The Fast Adoption of Significant Technologies. (2009). Detailed technology analysis
home telehealth. Retrieved from
http://www.nehi.net/writable/publication_files/file/detailed_technology_analysis_
home_telehealth.pdf

Thompson, D., Chair, S., Chan, S., Astin, F., Davidson, P., & Ski, C. (2010).
Motivational interviewing: A useful approach to improving cardiovascular
health? *Journal of Clinical Nursing, 20*(9-10), 1236–1244. doi:10.1111/j.1365-
2702.2010.03558.

White, M., Garbez, R., Carroll, M., Brinker, E., & Howie-Esquivel, J. (2013). Retention
and hospital readmission in hospitalized heart failure patients? *Journal of
Cardiovascular Nursing, 28*(2), 137 - 146. doi:DOI:
10.1097/JCN.0b013e31824987bd

Yale School of Medicine. (2014). Center for Outcomes Research and Evaluation
Readmission Risk Calculators. Retrieved from
http://medicine.yale.edu/core/index.aspx

Zablocki, E. (2012). Hospitals collaborate with SNFs, Home Care, Hospice, reduce
readmissions. Retrieved from http://www.hospitalist.com/assets/008/11558.pdf

Zannad, F., Agrinier, N., & Alla, F. (2009). Heart failure burden and therapy. Retrieved
from http://europace.oxfordjournals.org/content/11/suppl_5/v1.full