Transitioning from Hospital to Home: An Evidence based Approach in Heart Failure Patients

Donna Lee Flynn

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Approved by:
Chair: Joan Paternoster, PhD, RN
Committee Member: Elizabeth Parietti, EdD, CNM, APN, C
Committee Member: Patricia Reineke, PhD, RN
Committee Member: Minerva S. Guttman, EdD, RN, APN
ABSTRACT

Heart Failure (HF) is a complex syndrome affecting millions of Americans and is considered to be a major public health threat. It is responsible for $33.2 billion dollars in healthcare spending annually. The Center for Medicare and Medicaid Services (CMS) will no longer reimburse hospitals for readmissions within 30 days of hospital discharge for a primary diagnosis of HF. Patients diagnosed with HF often receive care from multiple practitioners across multiple settings. Crucial information is frequently lost when patients transition from one care site to another. This evidence-based practice project examined the effect of an evidence-based bundle to provide a seamless transition from the hospital to homecare setting. Use of the transition bundle ensures consistency in information transfer, patient assessment, patient education, and accurate medication reconciliation. This project demonstrated decrease in 30-day readmission rates for HF patients from 37.5% to 30%.
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DEDICATION

I would like to dedicate this writing to all nurses, but especially, my mother, Lillian Elizabeth Guerriero, RN. She was an incredible woman and a terrific nurse. I recall so many of her stories growing up from encouraging single mothers to return to school to complete their education to bringing a lost child she found in a snow storm to the police department so she could be reunited with her parents. She was that kind of person.

My parents were not college graduates. As a diploma graduate of a hospital based school of nursing, my mom never returned to school. She worked part-time as a nurse to help support our family. She did, however, realize the importance of education and insisted that my initial nursing education be a baccalaureate degree in nursing. She encouraged me to complete my master’s degree shortly thereafter. Upon completion of my master’s degree, she encouraged me to return to school for a doctorate in nursing. Not being terribly interested at the time, I continued to build my career, became certified, got married and raised a family. There was so much to do and thoughts of returning to school never entered my mind.

My mother died of pancreatic cancer in 1997. She left many fond memories, for which I am eternally thankful. In 2006, while cleaning my parent’s home after my dad suffered a stroke, I came upon a handwritten newspaper announcement my mother had prepared following the completion of my master’s degree. In it she referred to the fact that I would soon begin doctoral study. I began to cry as I read her words, as this was an unfulfilled hope of hers. Quite honestly, I do not know if her writing ever made it to the paper, but I suppose she left it in the top drawer of her dresser for a reason. Mom, I found your letter, and with the encouragement of my family and personal sacrifice, the completion of doctoral study has become a reality.
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Chapter 1

The Evidence-Based Practice Problem

Background of the Problem

Heart failure (HF), also known as congestive heart failure, is a chronic illness in which the heart is unable to effectively pump blood to the bodily organs. HF affects over 5 million Americans (American Heart Association [AHA], 2008). The incidence of HF approaches 10 per 1000 individuals over age 65, who make up a growing segment of the population (AHA, 2008). This number is expected to increase as technology advances, life expectancy increases, and the population ages. The AHA stated the annual costs associated with HF were in excess of $33.2 billion dollars. HF is a chronic disease associated with limitations on activity, a decreased quality of life, frequent hospital readmissions, and increased mortality (Fonarow, 2006). Despite optimal pharmacologic therapy, morbidity and mortality remain high.

Healthy People 2020 (U.S. Department of Health & Human Services, 2009), is a collaborative effort of various federal agencies whose aim is to focus attention on achieving better health for all Americans. The program seeks to eliminate disparities and create physical and social environments which promote health and healthy behaviors across the stages of life. In addition, Healthy People 2020 aims to reduce hospitalizations of older people with a primary diagnosis of HF and to increase disease self-management in individuals with chronic illnesses.

The Joint Commission (JC) and Center for Medicare and Medicaid Services (CMS) also have a vested interest in the health of older people. The JC developed core measures for a variety of key performance areas, with which hospitals must comply. Core measures for HF include evaluating left ventricular (LV) function, prescribing angiotensin converting enzyme inhibitors (ACEI) in eligible patients, promoting smoking cessation and providing patient education.
Hospitals do not receive funding from CMS unless they are accredited by the JC. As a result, these governing bodies, in addition to individual hospitals, have an interest in preventing readmission of HF patients.

HF is a chronic illness that involves lifelong management. HF patients are often transitioned to sub acute or community settings. Transitioning from one level of care to another or from one facility to another presents a safety risk to the patient (JC, 2007). These transition periods represent an opportunity for gaps in communication to occur which can affect the continuity of care. Hand-off communication is the process of passing patient specific information from one caregiver to another. This hand-off process applies from the hospital to the home care setting. When there is inappropriate transfer of information, the next level of care may not reinforce appropriate teaching; medication reconciliation may not be accurate; and follow through of crucial information may not occur. According to the JC (2007) communication breakdown was responsible for the leading number of sentinel events reported to the JC between 1995 and 2006.

The purpose of this project is to decrease 30 day readmission rates in patients with HF who are discharged from hospital to home by implementing a transition bundle. A bundle is a collection of three or four evidence-based practices performed on a consistent basis to achieve positive outcomes (Institute for Healthcare Improvement [IHI], 2006). All aspects of the bundle must be implemented. Bundles are successfully utilized in a variety of clinical areas, including the prevention of ventilator acquired pneumonia (VAP). In this example, the bundle consisted of oral hygiene, head of bed elevation, daily sedation vacation, and prophylaxis for peptic ulcer disease and deep vein thrombosis (Resar, et al., 2005). For this EBP project, the transition bundle will consist of effective hand-off communication from acute care to homecare, consistent
assessment by homecare nurses, accurate medication reconciliation, and reinforcement of education to patients and families about disease self-management.

**Significance of the Problem**

While efforts focus on improving care of patients with HF, readmission rates remain high. Estimated costs associated with readmission are $17.4 billion dollars annually (Jencks, Williams & Coleman, 2009). Jencks et al. (2009) found that approximately 20% of Medicare beneficiaries discharged from a hospital were readmitted within 30 days, and as many as 34% were readmitted within 90 days. The authors concluded that rehospitalizations are a frequent and costly burden to the US healthcare system. As CMS will no longer reimburse a hospital for a readmission for a primary diagnosis of HF within thirty days, current practice cannot be sustained.

Core measures are a group of targeted evidenced based interventions for specific patient populations (JC, 2006). Core measures specific to HF include the following: Discharge instructions, assessment of left ventricular function, use of ACEI for patients with systolic HF, and smoking cessation counseling (JC, 2009). Despite compliance with core measures, readmission rates in HF patients were reported at 20% (CMS, 2008, Jencks et al., 2009) to as high as 51.2% (Pereira-Baretto, et. al, 2008). Medicare is the largest payer of home care services. In 2006, 21.4% of home care patients had a disorder of the circulatory system identified as their primary diagnosis. A HF diagnosis contributed to more than half of this number (The National Association for Home Care & Hospice, 2008). CMS reports total expenditures for healthcare in 2007 to be $2.2 trillion dollars and is projected to rise by 19.5% in the year 2017 as baby boomers reach age 65 (Keehan et al., 2008).
Patients with HF have complex needs requiring management from various healthcare providers. A seamless transition from hospital to home is necessary to enable community management of the disease. Pharmacologic and non-pharmacologic interventions are necessary to maximize patients' health. The Institute of Medicine (IOM, 2001) identified that practitioners often operate independently without knowledge of problems addressed, services provided, information obtained, medications prescribed, or preferences expressed in previous settings. This leads to outpatient care that is often fragmented, episodic, and haphazard. Patients are at risk for medical errors, service duplication, inappropriate care, and critical elements “... falling thorough the cracks” (Coleman, 2003, p. 549). This can lead to poor clinical outcomes, dissatisfaction of patients and families, and inappropriate use of hospital services (American Geriatric Society [AGS], 2007).

According to Clancy (2009), ten years after the release of the IOM report To Err is Human: Building a Safer Health Care System, many hospital readmissions can be prevented with effective communication and follow-up. Greenwald, Denham and Jack (2007) describe the hospital discharge process as a hand-off “... ripe with structural risks and hazards that can result in passive or active failures” (p. 97). Communication between and among caregivers is critical for patients in transition.

Fiedman and Quinn (2008) suggest that HF patients do not recognize subtle symptoms and thus delay seeking medical attention. Clark et al. (2009) recommend that health promotion and disease self-management be incorporated into the care of HF patients and their families. Creation of an environment to support seamless transition of key information from one care site to another may maximize patients' ability to perform self-care, improve quality of life, and
prevent hospital readmissions. Coleman, Smith, Raha, and Min (2005) identified that quality and safety are jeopardized as patients move between care settings.

Several studies reported interventions that reduced readmission rates for elderly patients ranging from 4.7% to 30% (Coleman, Smith, Frank, Min, Parry & Kramer, 2004; Coleman, Parry, Chalmers & Min, 2006; Naylor, Brooten, Campbell, Maislin, McGauley & Schwartz, 2004; Koehler, Richter, Youngblood, Cohen, Prengler, Cheng & Mascia, 2009). The purpose of this project is to decrease the thirty-day readmission rate for HF patients through the use of a transition bundle.

**Statement of the Problem in the PICO format**

Quality and cost effectiveness will be critical in an era of healthcare reform, therefore, the PICO question is as follows: Will use of an evidence based transition bundle reduce the thirty-day readmission rates in patients age 65 and older with a primary diagnosis of HF who are discharged from acute care to home care?

- **Population**: Patients age 65 and older recently discharged from acute care to home care with a primary diagnosis of HF
- **Intervention**: Implementation of a transition bundle consisting of a hand-off communication tool, medication schedule, assessment, and reinforcement of patient education
- **Comparison**: Standard care prior to the intervention without the use of the bundle
- **Outcome**: A reduction in thirty-day readmission rate for HF patients by 5%.

**Concepts**

The concept central to this EBP project is self-care. Patients with a chronic disease such as HF require knowledge and skills to care for themselves and limit disease progression. The term self-care is frequently used interchangeably with self-management, self-monitoring, and
self-regulation. Self-care includes the knowledge and skills necessary for a patient to properly care for his/her self in the community setting. This includes pharmacologic and non-pharmacologic treatment, lifestyle modifications, and gives consideration to cultural values (Riegel & Dickson, 2010). For the purpose of this project, self-care is not considered to be only a patient responsibility, but one shared by family and significant others who coach and support the patient in disease management. Riegel and Dickson, (2010) developed a conceptual model for HF self-care. This model includes both self-care maintenance and self-care management behaviors including monitoring of symptoms, compliance to prescribed treatment, and decision making. Patient education is a necessary component for self-care. Patient education should include the following self-care skills: Daily weights, pharmacologic therapy, a low-sodium diet, exercise, preventive behaviors, symptom recognition and interpretation, and action based on the interpretation of the symptoms (Riegel et al., 2009). Self-care is necessary to achieve optimal outcomes and prevent rehospitalizations in the HF population. According to Riegel et al., (2009) teaching HF patients how to perform self-care is a low cost, low risk effective treatment. Self-care practices for HF patients recommended by the AHA in a scientific statement (Riegel et al., 2009) include taking medications on a regular basis, limiting salt in the diet, limiting alcohol intake, smoking cessation, exercising, and getting immunized against the flu and pneumonia. In addition to these areas, recognition of worsening disease and actions to take must be incorporated into the education of patients and their significant others.
Chapter 2

Critical Appraisal of the Evidence

The purpose of this Evidence-Based Practice (EBP) project is to decrease the 30 day readmission rate for HF patients aged 65 and above who are discharged from hospital to homecare settings. Transitioning from hospital to home is a vulnerable time for the elderly patient with HF. This chapter will discuss the evidence search and appraisal related to transitions, self-care and the use of a bundle to decrease 30 day readmission rates.

The Johns Hopkins Nursing Evidence Based Practice (JHNEBP) model (Newhouse, Dearholt, Poe, Pugh & White, 2007) was selected for the implementation of this project and will be discussed in further detail in Chapter 3. The rating scale used by the model rates evidence on a scale from level I to level V. Level I evidence is the strongest evidence and consists of randomized controlled trials (RCTs) and meta-analyses of RCTs. Level V, the weakest evidence, includes expert opinion, quality improvement data, financial analysis, and literature reviews. In addition to a level of evidence, the JHNEBP model further delineates a quality rating of high, good, and low. The rating system utilized by the Johns Hopkins Model of EBP is provided (see Appendix A). The JHNEBP Research Evidence Appraisal Tool will be utilized to appraise all research evidence (Levels I-III), including meta analyses of RCTs, RCTs, quasi-experimental, non-experimental, or qualitative studies. The JHNEBP Non Research Evidence Appraisal Tool will be used to critically evaluate evidence levels IV and V. Systematic reviews, clinical practice guidelines, organizational data, and expert opinion are included in non research evidence.

A literature search was performed of numerous databases including Cumulative Index of Nursing and Allied Health Literature (CINAHL), Cochrane Reviews, Johanna Briggs Institute,
MEDLINE, PsychINFO, and PubMed. Sources were found by using the following terms: transition, heart failure, bundles, self-care, and hospital discharge. The body of literature contained over 40 articles and one book. The sources most applicable to this study were incorporated into the literature review. Articles omitted included studies not available in English, those published prior to 2000, and articles not closely related to the clinical question.

Seventeen articles were included in the review of the literature. Nine studies were RCT or meta analyses of RCTs and were of good to high quality (Berenholtz, Dorman, Ngo & Pronovost, 2002; Coleman, et al., 2006; Jack et al., 2009; Koelling, Johnson, Cody, & Aaronson, 2005; Kohler, et al., 2009; Naylor et al., 2004; Phillips, Wright, Kern, Singa, Sheppard & Rubin, 2004; Sheppard et al., 2010; Van Such, et al., 2006). Two level II studies were included (Coleman, et al., Toth et al., 2010). Three level III studies were reviewed (Clark et al., 2009; Greenwald Denham & Jack, 2007; Reigel et al., 2006). Level IV and V sources include (Cruden et al., 2005; Resar et al., 2005; guidelines from the AHA, Reigel et al., 2009 and the AGS, 2007). A summary of articles included in the review of the literature appears in table form (see Appendix B). The literature is organized according to evidence related to the following topics: self-care, transition, bundles, and hospital discharge.

Self-Care

Self-care skills for HF patients are essential to a patient's ability to self manage his/her disease in a home care setting. Costs associated with hospital readmissions for HF patients are staggering. Consequently, self-care skills are essential to prevent hospital readmissions.

Clark and colleagues (2009) performed a qualitative study in which New York Heart Association (NYHA) Class II and III patients with a mean age of 76 years were interviewed about self-care along with their caregivers. Quota sampling was utilized from three sites to
obtain the sample of 42 patients and 30 caregivers. Using semi-structured interviews, the researchers identified that knowledge of HF and its management are necessary for effective self-care. However, knowledge alone is not sufficient. Other factors cited by the authors that influenced self-care included cultural views. Patients in the study regarded physicians as experts resulting in their reluctance to take an active self-care role. They often purposely delayed visits to physicians as they attributed their worsening symptoms to other factors such as the weather. HF patients who postponed seeking medical treatment were more acutely-ill when seen by their physicians. A limitation of this study is that it was conducted in Europe with a rural population, which limits its ability to be generalized to a larger population in a suburban or urban setting. The study concluded that in addition to self-care guidelines, patients require education on symptom interpretation and how to seek help, which should be incorporated into any educational program for HF patients.

In another source, Riegel and colleagues (2009) recommended self-care behaviors for HF patients. This panel, consisting of 18 experts in HF, reviewed 290 sources in the preparation of a scientific statement. The recommendations include immunization against flu and pneumonia, developing a system for medication adherence, monitoring weight and symptoms indicative of worsening HF, and restricting intake of salt, alcohol, and other toxins. In addition, patients should be encouraged to discuss sleep disturbances and feelings of depression with their healthcare provider at regular follow up appointments. The AHA 2009) recommends HF patients with diabetes achieve target control of blood glucose levels. In addition, they suggested interventions to support self-care include skill development, an assessment of factors that impact self-care ability such as co-morbid conditions, health literacy, advanced age, visual difficulties, depression and lack of family support. The authors conclude that a "... seamless healthcare
system from inpatient to outpatient care is greatly needed.” (p. 1155). The recommendations from this scientific statement will be incorporated into the educational plan in this EBP project.

**Transition**

According to the AGS (2007), “...transitional care is defined as a set of actions to ensure the coordination and continuity of health care as patients transfer between different locations or different levels of care within the same location” (p. 30). They identified that during a transition both the sending and receiving healthcare professionals require a plan of care, an accessible record, input from informal care providers, and an opportunity to coordinate care. The consistent use of a hand-off model of communication was recommended. This section will examine source literature related to transitions.

In a RCT, Naylor et al., (2004) found lower readmission rates and reduced health care costs in 239 HF patients aged 65 and older who participated in a three month transitional care program provided by advanced practice nurses (APNs). Subjects at six Philadelphia hospitals were followed for a period of 52 weeks post hospital discharge. Inclusion criteria were: age greater than 65, HF diagnosis, English speaking, oriented, available by phone, and residence within a 60 mile radius of the hospital. Subjects with end stage renal disease were excluded as they were eligible for Medicare services. A total of 641 patients were screened. Those enrolled in the study \((n = 239)\) and non-enrolled \((n = 402)\) were matched with regard to age, race, and gender. Reasons for non participation in the study were family refusal, distance from the hospital, and a previously established relationship with a home care agency. Following a screening process and consent, patients were randomized using a block 1:1 algorithm. The control group received usual care, as compared to the intervention group, which received the APN intervention. The
intervention included needs assessment, planning, patient education, and support through the discharge process in conjunction with home follow up visits. Outcomes studied were time to first readmission, number of readmissions, quality of life (QOL), functional status, cost and satisfaction. QOL was measured using the Minnesota Living with Heart Failure Questionnaire (MLHF). Functional status was measured using the Enforced Social Dependency Scale. A tool developed by the investigator was utilized to measure patient satisfaction. Reliability and validity of the tools were not discussed by the author, which is a limitation of this study. The authors concluded that transitional care for patients with HF was effective in reducing the time to readmission, the number of readmissions as well as healthcare costs associated with caring for elderly patients with HF. Short-term improvements were noted in QOL, functional status, and patient satisfaction. These results were similar to those found in previous works by Naylor and colleagues (1994). The proposed EBP project will address the transitional care needs of elderly patients with HF, who are discharged from hospital to home care.

In a qualitative pilot study, the Agency for Healthcare and Quality Research (Spehar, et al., 2005) examined ways to maximize post discharge patient outcomes. The authors conducted a three phase analysis at two organizations targeting patients at high risk for readmissions. Phase I consisted of a retrospective chart review. The populations identified were those with HF, pneumonia, and coronary artery bypass graft surgery. For this section, descriptive statistics were collected. Data for readmitted and non readmitted patients were compared using two-tailed t-tests and chi-square tests. The second phase consisted of a focus group with experts from both organizations. Qualitative analysis of an expert panel concerning the discharge process identified themes centered on a need for improved communication between patient and provider, provider and caregiver, and among various providers. The third phase focused on the outcomes of
interviews with patients who were initially identified at high risk for readmission who were readmitted within thirty days. Analysis of patients' perceptions of factors that may have prevented their readmission included an increased involvement in decision making, ensuring medical stability prior to discharge, improved education, and medication effectiveness. The authors suggest communication, cultural sensitivity, adequate patient and caregiver education, and continuity of care are crucial to providing a smooth transition for patients. This study supports the need to target high risk patients, and suggests that communication and coordination of care may prevent readmissions when transitioning patients from hospital to home.

Transitional care was examined by Coleman, et al., (2004). The authors conducted a quasi-experimental study involving 158 intervention patients who were compared to the control group of 1,235. In this study, patients age 65 and older with one of nine diagnoses, including HF, were selected based on a high likelihood they would require home care or transfer to a skilled nursing facility. The intervention group received tools to promote communication between care sites and encouragement to take a more active role in their care through the use of a transitions coach. This study showed a thirty-day readmission rate of 13.8% in the control group as compared to 8.9% in the intervention group.

The care transition intervention included a patient centered record, medication self-management, primary care follow up, and education on warning signs of worsening conditions. This study compared the rates of post discharge hospital use at 30, 90, and 180 days between the intervention and usual care group. A follow up phone call was made to the patients to measure their transition experience using the Care Transitions Measure (CTM). The CTM is a 15 item Likert scale designed to be conducted as a telephone survey. The purpose of the tool is to assess the quality of the transitional care received and predict recidivism. The CTM was developed by
the primary authors in 2002 for this study and has been used in subsequent studies (Coleman, Parry, Chalmers, Chugh & Mahoney, 2007). Content and construct validity were established (Coleman, et al., 2005). Reliability was reported as 0.86 using Cronbach’s alpha (University of Colorado Health Services Center, n.d.). The intervention group reported higher confidence in disease management, understanding of worsening symptoms and medication knowledge.

Statistical analyses using odds ratios (OR) comparing intervention patients to control subjects demonstrates OR = 0.52, CI = 95%, \( p = 0.04 \) at 30 days, OR = 0.43, \( p = 0.002 \) at 90 days, and OR = 0.57, \( p = 0.02 \) at 180 days. These results show a significant decrease in rehospitalization in the intervention group. This effect was sustained over time.

In another study, Coleman, et al., (2006) conducted a RCT which included 750 patients aged 65 and older who were randomized to receive intervention (\( n = 379 \)) or usual care (\( n = 371 \)). This RCT was designed as a follow-up to a previous quasi-experimental study conducted by the primary author and colleagues. The Care Transition Intervention includes assistance with medication self-management, a patient-centered record, timely follow-up with physicians, and education on symptoms of worsening condition. The interventions were designed to assist the patients and families assume an active role in their care. Phone calls and visits from a transitions coach were incorporated. The transition coach, an APN, supported the patient and caregiver in chronic illness self-care management. The transition coach met the patient prior to discharge and made a home visit 48-72 hours following discharge. During the home visit, medication reconciliation was performed and medication education was provided. The transition coach used role-playing to teach effective communication needed by the patient and caregiver to manage worsening symptoms. Three follow-up phone calls were made to the patient over a 28 day period. This RCT found a reduction in the rehospitalization rate due to the primary diagnosis in
the intervention group as compared to the control group. The OR = 0.59 (95% CI) at 30 days, OR = 0.64 (95% CI) at 90 days and OR = 0.80 (95% CI) at 180 days. The authors reported a cost savings associated with the intervention. A limitation of the study was that the intervention was not exclusive to HF patients. HF patients made up 16.5% of the intervention group and 13% of the control group. The study was conducted in collaboration with a large not-for-profit health care system. The authors mentioned a cost savings; however, no formal cost analysis was performed. These findings support the previous works of Coleman and colleagues and validate the need for elderly patients and their caregivers to have support during care transitions.

Transitional care was examined through different perspectives in the literature. Qualitative research done by (Spehar, et al., 2005) identified the need for improved communication between and among providers and patients. Improved education, particularly in the area of medication management is needed for smooth transitions to occur. Qualitative studies also support the need for transitional care. Naylor et al., (2004) saw a decrease in readmission rates in HF patients with use of APNs. Coleman and colleagues, (2004, 2006) utilized the Care Transitions Interventions to reduce readmission rates of patients with the use of a transition coach. In summary, transitions were identified as the site of communication failures, and present an opportunity for improvement by supporting patients and caregivers. The patient and caregiver should be targeted as a unit as they are the common thread passing from one care site to another. Interventions aimed at improved self-care knowledge and skills are needed to effect a quality transition. Evidence from these studies will be used to develop the transition bundle for the HF patient in the proposed EBP project.
Discharge

The hospital discharge process is an important aspect of care for a patient with chronic disease. HF patients and their caregivers require knowledge and skill in order to perform self-care and remain at home. The literature related to discharge will be examined.

Koelling, et al, (2005) compared the effect of a one hour discharge education program and follow up phone calls to usual care, consisting of written instructions in a folder. This RCT included 223 HF subjects (intervention group \( n = 107 \), control group \( n = 116 \)) who were contacted by phone at 30, 90 and 180 days to obtain information about their symptoms, clinical outcomes, and self-care practices. The two groups were matched for age, gender, LV function, history of heart disease and hospitalizations for HF. The primary endpoint in this study was rehospitalization or death within a 180 day period. The adjusted relative risk of rehospitalization or death in the intervention group who received the education was lower than the control group, meaning there were fewer rehospitalizations or deaths. The OR = 0.65 (95% CI), \( p = .018 \).

Study participants were interviewed via phone at 30 days post hospitalization regarding self-care practices such as daily weights, salt restriction, fluid restriction, not smoking, performing regular exercise, and reporting a plan for worsening symptoms. The intervention group reported greater compliance with self-care practices at 30 days with measurement of daily weights \( (p = .025) \) and not smoking \( (p = .03) \) being statistically significant. QOL was measured using the MLHF questionnaire. This MLHF questionnaire is a 21 item scale with physical, emotional, and a quality of life dimensions. It has reported reliability at Chronbach’s alpha > 0.80 (Middel, et al., 2001). Baseline scores on the MLHF questionnaire were similar prior to the intervention. The intervention group had improved scores on the MLHF questionnaire when compared with the control group at 30 days; however, there was no difference at 180 days. The education
demonstrated an improvement in self-care practices at 30 days. The authors concluded that targeted patient education at the time of discharge was effective in reducing rehospitalization in HF patients. There were several limitations to this study. First, improvement in self-care practices was self-reported, possibly influencing the outcomes. The second limitation is that of the 590 patients screened, 367 were excluded, which limits the ability to generalize the results to a larger population. The study was not blinded, and the duration of effect is unknown as the study was limited to 180 days. This study supports that comprehensive discharge education of HF patients and follow up improves patients’ ability for self-care.

According to Shepard, et al. (2010) a meta analysis of twenty-one RCTs examined the discharge plans of a variety of patients with medical, surgical, and psychiatric conditions. The authors searched the numerous reputable databases from 1966 to 2009. Types of interventions and outcome measures were identified. Articles were read by multiple authors and evaluated. Cochran’s Q test was utilized to quantify heterogeneity of the studies. The search yielded 3684 sources from which 62 studies were selected for additional review. From these studies, 21 were included in the meta analysis. Study periods ranged from weeks to months. Fifteen of the RCTs had subjects with a mean age > 65 years. The authors concluded that a structured discharge plan tailored to individual needs may bring about a small reduction in length of stay, reduce readmission rates, and may increase patient satisfaction. The population in this meta analysis was mixed and not specific to HF patients. While not specific to heart failure patients, this high quality evidence supports the need for a comprehensive discharge plan for elderly patients.

A meta analysis conducted by Phillips, et al., (2004) found that a comprehensive discharge plan with post discharge support was effective in reducing readmissions in HF patients age 55 and older. A total of 3741 reports were initially found, 832 received an electronic
screening. Two authors independently read 107 reports, eliminated duplicate reports and those not specific to the target population. From the 18 studies chosen for inclusion, the authors, using pooled data ($N=3304$) found that elderly patients with HF had lower readmission rates in the intervention groups ($n=1590$) as compared with the control groups ($n=1714$). Readmission rates were (555/1590 vs. 741/1714). Relative risk (RR) was 0.75, (95% CI), 0.64-0.88.

Secondary outcomes included a lower mortality and increased QOL. The intervention groups in the pooled studies had lower mortality, greater improvement in QOL scores using one of several QOL tools. A limitation is that the electronic search used by the authors may not have captured eligible studies. Studies that did not report the number of readmitted patients were omitted as were small studies with a ($N<100$).

In a review of the literature Greenwald, Denham and Jack, (2007) examined a variety of studies related to patient safety at hospital discharge. The authors identified issues related to the hospital, the patient, and clinician. Based on the review of the literature, the authors developed eleven components deemed necessary to include in a comprehensive hospital discharge program. These include: clear roles, education of the patients throughout their hospital stay, reliable communication between caregivers, making follow up appointments, organizing post discharge care, medication reconciliation, review of actions to be taken if a problem arises, communication of the discharge summary to subsequent care providers as well as telephone reinforcement and problem solving two to three days after discharge. A weakness of the review is that the methodology for article selection and review was not described. This literature review supports the need for a comprehensive discharge plan.

In a RCT by Jack et al. (2009), the reengineered hospital discharge (RED) program described previously by Greenwald et al., (2007) was implemented utilizing a discharge
advocate. The RED with the use of a discharge advocate was found to be effective in reducing
30-day return to the emergency room or readmission to the hospital by 30%. Intervention group
participants ($n = 370$) had a lower rate of hospital use than the usual care group ($n = 368$), 0.314
vs. 0.451 visits per month with an incidence rate ratio of 0.695, (95% CI): $p = .014$). The
intervention consisted of a nurse advocate who worked with patients during hospitalization,
arranged follow-up appointments, performed medication reconciliation, and patient education
with an individualized booklet. Patients in the intervention group received a phone call from a
clinical pharmacist two to four days after discharge to reinforce the discharge plan and review
medications. A secondary outcome included patients' knowledge of their discharge diagnosis,
higher follow up rates with their primary care provider, and self-reports of being prepared for
discharge. This study, while not exclusive to HF patients, nevertheless demonstrated the benefit
of a comprehensive discharge plan to prevent rehospitalization and corroborates the work of
other authors (Greenwald et al., 2007; Koelling, et al., 2005; Shepard, et al., 2005; Phillips, et al.,
2004). These studies confirmed the key components of a comprehensive discharge program,
which should be incorporated into an evidence based program to improve transitional care and
reduce readmission rates of HF patients.

**Bundles**

Bundles are a collection of evidence based practices that when followed consistently
improve patient outcomes (IHI, 2006). The use of bundles in changing care delivery will be
examined. Berenholtz, Dorman, Ngo and Pronovost (2002) through a systematic review
identified six evidence-based interventions that improved care for intensive care patients. The
authors performed a search of the literature from 1965 to 2001 and the Cochrane library for the
year 2001. Search criteria included systematic reviews, observational studies, and experimental
studies involving critical care adult patients with improved outcomes as the result of the intervention. A total of 3,014 citations were initially located and 66 studies were identified that were linked to improved outcomes in ventilator dependent patients. Sedation vacation, deep vein thrombosis (DVT) prophylaxis, peptic ulcer prophylaxis, and head of bed elevation were shown to reduce the incidence of ventilator-associated pneumonia (VAP). While this study is not directly related to HF patients, it demonstrates that evidence-based interventions, when performed consistently, improve patient outcomes.

Cruden, Boyce, Woodman, and Bray (2005) found a statistically significant reduction \( (p < 0.05) \) in ICU length of stay (LOS) and a decrease in ventilator days with the implementation of a care bundle in an ICU. The bundle consisting of DVT prophylaxis, daily sedation vacations, peptic ulcer disease prophylaxis, and head of bed elevation at 30 degrees was introduced and data collection occurred for a one year period. ICU LOS was reduced from 13.75 to 8.36 days. Mean LOS on the ventilator was reduced from 10.8 to 6.1 days. While the study has several limitations, including lack of a control group and simultaneous organizational changes, which may have had an effect on the study outcome, the study suggests that a bundled approach to care may improve patient outcomes.

In another study, Resar et al., (2005) examined the use of evidence based interventions in the reduction of VAP rates in multiple intensive care units (ICUs). During an 18 month period, teams of clinicians in 21 teaching hospitals and 40 community hospitals collaborated in improving ICU care. In this study, data were collected on compliance with the ventilator bundle, which included: Head of bed (HOB) elevation, daily sedation vacation, prophylaxis for DVT, and peptic ulcer disease prophylaxis, and VAP rates. In this quality improvement (QI) initiative, compliance with the bundle indicated all components of the bundle were performed. Only 35
units reported both VAP rates and compliance with the bundle. Compliance with the bundle was positively correlated with a reduction in VAP rates. In the 21 units with ≥ 95% compliance with the bundle, VAP rates decreased from 6.6 to 2.7 per 1,000 ventilator days. This was a 59% reduction in VAP rates (p < .001). Limitations of the study include: only 57% of the units reported data, and assessment of outcome measures was not blinded, which could result in bias. The authors suggested that evidenced based care provided in a bundled format may standardize care and improve clinical outcomes.

Koehler et al., (2009) studied the impact of a supplemental care bundle in high-risk elderly medical patients aimed at reducing readmission. This randomized controlled pilot study of 41 patients found a reduction in 30-day readmission/emergency room visits (p = 0.04) with the implementation of a supplemental care bundle inclusive of patient education, discharge planning, and medication reconciliation. The intervention group (n = 20) received medication counseling, condition specific patient education, and enhanced discharge planning with follow up phone calls. The control group (n = 21) received usual care. The authors did not see a reduction in 60-day readmission rates (p = 0.52). A limitation of the study was that the sample size was small (N = 41) and was not specific to HF patients. While the researchers were interested in the effect of the care bundle on length of stay, there was insufficient power to detect a statistical difference. Though not specific to the population of interest, this pilot RCT did demonstrate the effect of a supplemental care bundle on 30 day recidivism in the elderly population. The authors suggest that additional outpatient transitional support may be needed to extend the results beyond 30 days. This study supports the need for additional support for elderly patients transitioning to home to maximize their self-care and avoid rehospitalization.
A bundled approach to care was examined in another study by Toth, Chambers, and Davis (2010). In this quasi-experimental study, the implementation of a care bundle improved compliance with the quality indicators with regard to antibiotic usage. This study consisted of an intervention and control phase. A prospective chart audit was performed on 160 patient records, \( n = 80 \) in each group. The groups were of similar age, gender, and suspected pathogen causing infection. A trained pharmacist, acting as the steward reviewed appropriateness of therapy, examined culture reports, and discontinuation of antibiotics when appropriate. Patients on two inpatient units who were prescribed one of the targeted antibiotics were included in the study, which took place over a two month period of time. Retrospective chart audits were performed to obtain the control data for a prior two month period. The hypothesis was that the formal antibiotic stewardship program guided by the bundle would improve the outcomes for patients who were prescribed antibiotics. Statistical analysis included Chi-square, \( t \)-tests and Mann-Whitney U test. The authors stated that the implementation of the bundle did improve compliance with quality indicators \( (p < .001) \). The quality indicators included: Documentation of treatment choice, adherence with culture collection according to established guidelines, appropriate empirical antibiotic choice and appropriate de-escalation of antibiotics. Clinical outcomes examined were incidence of clostridium difficile infection (decreased from 10% to 5%), \( p = .23 \), effectiveness of therapy (90% to 98%), \( p = .09 \), mortality, and length of stay. There was no difference in length of stay or mortality between the two groups. A limitation of the study is that it was performed on two units and differences in patient populations were not identified. While this study did not address HF patients, it did demonstrate the effectiveness of the concept of a bundle. When a group of evidence based actions were implemented consistently, outcomes improve.
Summary

In summary, self-care is necessary for patients with chronic illnesses. Transitions are the site of medication errors and communication breakdown (IHI, 2006). Several authors (AGS, 2007; Clark et al., 2006; Coleman, 2003, 2005; Greenwald et al., 2007; Jack et al., 2009) identified transitional periods as the source of potential loss of critical information that may lead to poor outcomes. The literature strongly supports the need for a comprehensive transition program for elderly patients with chronic illnesses (Coleman et al., 2004, 2006; Jack et al., 2009; Naylor et al., 2004; Reigel et al., 2006) although there is variation as to the best method to achieve this outcome. Many studies have looked at the discharge process in an effort to reduce readmissions to the hospital (Greenwald et al., 2007; Jack et al., 2009).

Improved patient outcomes were demonstrated through the bundled approach to care (Berenholtz et al., 2002; Cruden et al., 2005; Koehler et al., 2009; Resar et al., 2005; Toth et al., 2010). A bundle consisting of accurate hand off, accurate medication reconciliation, consistent assessment, and reinforcement of education to patients and caregivers may enable patients to perform self-care. Patients with the knowledge and skills to manage their disease may remain at home with their family and enjoy an improved QOL. While these are significant reasons to support a change in practice to improve the transitional care for patients with HF, the JC and CMS perhaps supply the most compelling reason to implement this practice change. Joint Commission accreditation is needed for hospitals to remain fiscally solvent. Medicare will no longer reimburse hospitals for readmission within thirty days. The evidence supports the implementation of a transition bundle to improve care for HF patients.
Based on the review of the literature, there is sufficient evidence to support a change in practice to improve the transition of HF patients from hospital to home. Transitional periods, where crucial information may be lost, impact patients’ ability to perform self-care in the home. The goal of this EBP project was to reduce the thirty day readmission rates of HF patients who are discharged from hospital to homecare. The EBP project included a communication hand-off form initiated by the inpatient registered nurses (RNs) and communicated to the RNs in the homecare department. Critical information such as names of caregivers, previous HF admissions, patients’ current knowledge, and medications were communicated between care levels (see Appendix C). Consistent patient assessment was utilized by the home care RNs and teaching materials used in the hospital will be reinforced in the home setting.

**Organization/System where EBPP will be Implemented**

This EBP project was implemented at a medical center in Bergen County, New Jersey. The terms medical center and hospital will be used in this paper interchangeably. Permission to implement the EBP project was obtained from the medical center (see Appendix D). The medical center is a 361-bed acute care facility with a home care agency accredited by the JC. The home care agency has an annual volume of 2,000 patients, 25% of whom have a circulatory diagnosis. Of this total, approximately 10% have a primary diagnosis of HF. Consistent with the findings in the background and significance of the problem, communication breaks can occur within the medical center during transitions. The medical center is committed to reducing readmissions and controlling costs in order to remain fiscally solvent. The medical center currently employs a full time APN to work with HF inpatients and their families to reduce
recidivism. There was no consistent method of transfer of information from the hospital to the home care department, or a consistent assessment of the patient in the home care setting. This EBP project focused on the transfer of crucial information from the hospital to the home care RN, consistent patient assessment, reinforcement of patient education necessary for self-care, and a medication schedule that will complete the circle and close the loop for patients.

**Personnel/Staff Responsible for Implementation**

The person responsible for the implementation of this project was a doctoral student who functioned as project manager. Other staff instrumental to the project included the staff on the telemetry unit, case manager of the telemetry unit, home care RNs, and the educators of both the telemetry unit and home care departments. The doctoral student will be responsible for all education of staff prior to the implementation of the project. The education plan for both the telemetry and homecare RNs is included as a reference (see Appendix E). The telemetry staff was responsible to complete the hand-off form, which was faxed to the homecare department. The assessment forms, medication schedule and patient teaching forms were utilized by the homecare RNs in the assessment and care of the HF patients (see Appendix F).

**Plan for Data Analysis**

The data collected included the medical record number, age, and sex of each patient. In addition, the completion of the hand-off tool, medication schedule, assessment, and patient teaching form completed by the home care RN were reviewed. The student performed a concurrent chart review and determined the compliance with the completion of the forms. The readmission rates were trended over time and compared to the 30 day readmission rates prior to the intervention. The data collection form is included (see Appendix G). The sample for this
project was initially to be 20 patients but was reduced to ten after consultation with the program director.

**Implementation Model**

The project was implemented utilizing the Johns Hopkins Nursing Model of EBP (JHNEBP). This model was selected because it is a nursing focused model and the model of EBP utilized by the organization selected for implementation of the project. A diagram of The Johns Hopkins Model is provided for the reader (see Appendix H). Permission to utilize the model was obtained from Lois Gould, Manager of Continuing Education at The Institute for Johns Hopkins Nursing (see Appendix I).

The model utilizes findings from research and non-research sources such as financial data, performance improvement data, expert opinion, and considers the patient experience as well (Newhouse, et al., 2007). All aspects of the model are equally weighted. Based on a review of all findings, a change in practice may or may not be supported. The Johns Hopkins model (2007) is based on three cornerstones important to nursing: practice, education, and research. Both research and non-research findings form the basis of decision making about one of the three cornerstones. The Johns Hopkins Model is considered to be an open system and as such, it is subject to both internal and external factors. External factors include accrediting bodies, legislative issues, CMS, nurse practice act, and state boards of nursing. Internal factors include the organizational culture, resources, and hospital policies.

The JHNEBP model, (Newhouse, et al., 2007), utilizes the acronym PET, which stands for practice question, evidence search, and translation (see Appendix J). The practice issue was identified through a conversation with the Director of the HF Program at the hospital. The most important step was the development of a well-defined question. The model provided tools to
assist in question development. Transition of patients between settings is a potential safety concern as crucial information may be lost between care settings and providers. The project is a population specific problem. Elderly patients with chronic health issues are frequent consumers of healthcare. The hospital discharge is a transition which can contribute to passive or active failures (Greenwald, Denham & Jack, 2007). Frequent hospitalizations can lead to a decreased QOL for patients and loss of revenue for institutions.

The second step in the model is the search and evaluation of evidence. The model provided the researcher with tools to appraise both research and non research findings. The review of research and non-research evidence may reinforce current practice, support a change in practice or suggest more research if the findings are equivocal. Based on the review of the literature, recommended changes included the development and implementation of a hand-off form to be completed by the inpatient unit and communicated to the home care RNs, a medication schedule for patients, consistent assessment by the home care RNs, and reinforcement of education initiated in the hospital, which will increase patients' ability to perform self-management in the home care setting based on recommendations from the AHA.

The last step in the model is the translation of evidence into practice. This step includes determining the feasibility of translating the recommendations into the practice setting, developing an action plan, implementing a proposed change, and evaluating the change. Crucial to this stage was the support of the organization where the project was implemented. Permission to implement the project was secured from the Director of Clinical and Community Education at the medical center.
**Implementation and Data Collection**

Following approval of the project from the medical center and the university, project implementation occurred in two phases (see Appendices K and L). The first phase began with a meeting with the unit director, educator, and case manager of the telemetry unit as these were identified as instrumental to the success of the program. The telemetry unit was selected due to the volume of patients admitted with a diagnosis of HF. Following the planning sessions, the staff was educated on the hand-off form that was to be completed for every HF patient over the age of 65 discharged to home with home care. All HF patients age 65 or older who were discharged to home with homecare were included in the EBP project. All patients meeting the inclusion criteria were included. Exclusion criteria were patients younger than age 65, patients who were discharged to long-term care, sub-acute care, or discharged home without home care. The staff RN completed the hand-off form prior to the patient’s discharge from the hospital. Once completed, the RN forwarded the form to the case manager, and it was faxed to the homecare RN. This enabled the homecare staff to anticipate the patient’s needs and schedule an initial home visit as soon as feasible. The hand-off form alerted the homecare RN to any potential patient issues, and the homecare RN could speak directly to the inpatient RN caring for the patient prior to discharge.

The second phase was a meeting with the director, educator, and lead HF nurse in the homecare department. The remaining forms, patient assessment, medication schedule, and patient education sheets were completed by the home care RNs. All homecare RNs caring for HF patients attended an educational program that covered the following topics:

- Overview of evidence based practice
- Significance of the proposed project
• Review of treatment of HF

• Education on the use of the medication reconciliation form and patient education form

The data collection included the percentage of compliance with the completion of the forms and a review of the readmission rate within thirty days for three months prior to the intervention as compared to the readmission rate within thirty days following the intervention for the proposed sample of ten patients. The information collected included the patient number 1-10, age, gender, and the medical record number, which was used for the sole purpose of tracking patient readmission for 30 days following discharge. All data collected will be stored in a locked file cabinet located in the project manager’s office for a period of three years. Following the three year period, the files will be shredded. The key will be kept with the project manager. Access to the data will be restricted to the project manager.

**Barriers to Implementation**

Change is often difficult, and it may be challenging to implement a change in practice. There were several barriers noted in the implementation of this project. The first was a delay in implementation due to the expected visit from the JC. This was then followed by a change in leadership in the HC department. These two factors led to delays in beginning the project. Following the change in leadership, additional meetings were held, and the education of the staff began. An additional barrier was the implementation of a new form required by CMS to be completed by the physician prior to a patient being discharged to home with HC. There was initially reluctance to complete this form, and as a result, patients were being discharge to home without HC or being discharged to a sub acute facility. Overcoming this barrier necessitated working with the information technology department at the medical center to enable the form to
be available for electronic completion by the physician. Additionally, the new hand-off form was detailed, and the form required additional time to complete.

**Factors Facilitating Implementation**

Factors facilitating implementation of this EBP project included strong organizational support. The medical center is committed to providing quality care. This project was supported by the Chief Nursing Officer, Director of Hospital and Community Education, and the Director of the HF Program, and the newly appointed Chief Medical Officer. An organizational goal included disease specific certification in HF from the JC. This project augmented the organization’s HF program. This project supported an organizational goal and provided cutting edge quality care to HF patients. There is a potential to realize a cost savings based on unfunded, unplanned readmissions, however, the financial impact of the study was not examined.

**Protection of Human Subjects**

The doctoral student brought the EBP project before the hospital’s Evidence Based Practice/Research Council for approval. Once approved at this nursing council, an application was submitted to the medical center’s ICCR as well as the IRB of the university. As there were minimal risks to human subjects, an expedited review was granted. A waiver of consent was obtained from the ICCR of the medical center. The proposal was determined not to constitute human subject research by the IRB at the university. The student completed training in the protection of human subjects.
Chapter 4

Results and Recommendations

The purpose of this EBP project was to decrease the 30 day readmission rate for HF patients aged 65 and older who were discharged from hospital to home with HC. Transitioning from hospital to home is a vulnerable period for elderly patients with chronic diseases. This chapter will examine the findings from this EBP project.

Demographics

Data were collected on all patients admitted to the telemetry unit and discharged to home care between December of 2010 and September of 2011 \( n = 18 \). Pre-intervention data revealed eight patients ranging in age from 74 to 89 years. Six patients (75%) of the sample were male and two (25%) were female. The thirty-day readmission rate for this group was 37.5%.

The post intervention group consisted of ten patients ages 67 to 91 years. Seventy percent (7) were male and 30% (3) were female. The thirty-day readmission rate was 30%.

Table 1

<table>
<thead>
<tr>
<th>Patients discharged from Hospital to Home with HC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
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<tr>
<td>Pre Intervention</td>
</tr>
<tr>
<td>Post Intervention</td>
</tr>
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</table>

Table 2

<table>
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<tr>
<th>Compliance with transition bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand-off form completed</td>
</tr>
<tr>
<td>100%</td>
</tr>
</tbody>
</table>
Outcome

The data collected for the EBP project reflects all HF patients discharged from the telemetry unit to home with HC. Pre-intervention data reflect usual practice in the healthcare institution. Post-intervention data reflect the use of the transition bundle. There was a decrease in the thirty-day readmission rates of HF patients from 37.5% to 30% with the addition of the transition bundle. This represents a 7.5% decrease in the thirty-day readmission rate. This is within the range of 4.7% to 30% reduction in thirty day readmission rate previously reported in the literature (Coleman et al., 2004; Coleman et al., 2006; Naylor et al., 2004; Koehler et al., 2009).

Evaluation

Prior to beginning the post-intervention data collection, educational sessions were held with all HC and telemetry unit RNs. The RNs were educated on best practices in HF management, use of the hand-off tool, consistent assessment of HF patients, medication reconciliation, and reinforcement of patient education. Meetings were held with the case management department to ensure compliance with completion and faxing the hand-off tool from the hospital to the home care department. The RNs completed the data collection tool, and the project manager followed the patients for thirty days to determine the readmission rate.

The data support the use of the hand-off tool as a means of decreasing thirty-day readmission rates of HF patients. The tool ensures that crucial information is passed along from hospital to home care RN. Patients diagnosed with HF often receive care from multiple practitioners across various settings (Coleman, 2003). Crucial information is frequently lost during transition from one care site to another. The transition bundle ensures consistency in information transfer, assessment, patient education, and accurate medication reconciliation. This
EBP project suggests that the use of the transition bundle may enhance the patients’ ability to perform self-care and remain at home. This will ultimately result in a cost savings for the healthcare system.

While there was a decrease in the 30-day readmission rate for HF patients, this number remains higher than the current national average of 24.7% (Data.Medicare.Gov, n.d.). Additional interventions may be necessary to further reduce the 30-day readmission of HF patients. This should involve a multidisciplinary team consisting of nurses, physicians, case management and nurse practitioners.

In summary, the use of a transition bundle has shown to be effective in decreasing thirty-day readmission rate of HF patients. The bundle ensures consistent assessment of HF patients by the HC RNs, an accurate medication schedule, and reinforcement of patient teaching that was begun in the hospital setting and has been shown to be effective in promoting disease self-management in the HC setting.

Limitations

There are several limitations to this project; the first, being a small sample size. Data were collected over a period of six months to obtain the sample of ten patients. This was in part due to a newly required form to refer patients to HC. As a result, some HF patients may have been inappropriately discharged to home without HC due to the lack of an appropriate referral form. Secondly, HF is a complex disease characterized by periods of exacerbations, and readmissions may be unavoidable. Successful management of HF requires the interplay of numerous factors; comprehensive information transfer and patient education are just a few. The disease is characterized by periods of exacerbations and requires vigilance and compliance with
lifestyle modifications. The use of the transition bundle is one intervention that may be helpful to reduce the HF readmission rate.

**Strengths**

Data were collected over a period of eleven months. There was low to no turnover in the homecare and telemetry units during the study period. The pre and post-intervention groups were similar in age and gender.

**Recommendations and Implications**

Heart failure is a chronic disease, and it is considered to be a major public health threat. In this era of cost containment and pay for performance, hospitals must find ways to improve outcomes while maintaining a neutral budget. This project demonstrated a reduction in the 30-day readmission rate from 37.5% to 30%.

Based on the findings from this EBP project, several recommendations are offered. The first is that the transition bundle be adopted for continued use in the HF patients at this institution and become the standard of care. In patients who are identified as high risk, additional interventions such as home visits by the nurse practitioner to reinforce teaching and perform a more accurate assessment of the home environment may be needed to prevent readmissions. Second, the project should be repeated at other institutions with larger sample sizes.

Suggested areas for further study include the effect of weekly APN visits to the HF patients and use of the transition bundle to other vulnerable populations. Transitions are vulnerable periods, particularly for elderly patients with limited resources (JC, 2007). Nursing plays a key role in assisting patients in times of transition and communicating effectively with other sites where care is delivered such as HC, sub acute and long term care facilities (LTCF).
This transition bundle should be utilized not only with HC, but skilled nursing facilities and LTCF to improve transitional communication for the betterment of patients.

In conclusion, the use of the transition bundle has been shown to be effective in reducing the 30 day readmission rate for HF patients. The IOM report (2010) summarized the key role of nursing in the transformation of the healthcare system. Nurses have a responsibility to ensure continuity of care across settings and provide for a seamless transition between care sites. Use of the transition bundle may be an effective method to prevent gaps in care.
References


Clancy, C. (2009). Where we are a decade after to err is human? *Journal of Patient Safety* 5, 4

Agency for Healthcare Research and Quality.


Appendix A

Johns Hopkins Rating Scale for Evidence

**STRENGTH OF EVIDENCE**

**LEVEL 1 (HIGHEST)**

**EXPERIMENTAL STUDY (RANDOMIZED CONTROLLED TRAIL OR RCT)**
- Study participants (subjects) are randomly assigned to either a treatment (TX) or control (non-treatment) group.
- May be:
  - Blind: neither subject nor investigator knows which TX subject is receiving.
  - Double-blind: neither subject nor investigator knows which TX subject is receiving.
  - Non-blind: both subject and investigator know which TX subject is receiving; used when it is felt that the knowledge of treatment is unimportant.

**META-ANALYSIS OF RCTS**
- Quantitatively synthesizes and analyzes results of multiple primary studies addressing a similar research question
- Statistically pools results from independent but combinable studies
- Summary statistic (effect size) is expressed in terms of direction (positive, negative, or zero) and magnitude (high, medium, small)

**LEVEL 2**

**QUASI-EXPERIMENTAL STUDY**
- Always includes manipulation of an independent variable
- Lacks either random assignment or control group.
- Findings must be considered in light of threats to validity (particularly selection)

**LEVEL 3**

**NON-EXPERIMENTAL STUDY**
- No manipulation of the independent variable.
- Can be descriptive, comparative, or relational.
- Often uses secondary data.
- Findings must be considered in light of threats to validity (particularly selection, lack of severity or co-morbidity adjustment).

**QUALITATIVE STUDY**
- Explorative in nature, such as interviews, observations, or focus groups.
- Starting point for studies of questions for which little research currently exists.
- Sample sizes are usually small and study results are used to design stronger studies that are more objective and quantifiable.

**META-SYNTHESIS**
- Research technique that critically analyzes and synthesizes findings from qualitative research
- Identifies key concepts and metaphors and determines their relationships to each other
- Aim is not to produce a summary statistic, but rather to interpret and translate findings

**QUALITY RATING (SCIENTIFIC EVIDENCE)**

**A High quality**: consistent results, sufficient sample size, adequate control, and definitive conclusions; consistent recommendations based on extensive literature review that includes thoughtful reference to scientific evidence.

**B Good quality**: reasonably consistent results, sufficient sample size, some control, and fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.

**C Low quality or major flaws**: little evidence with inconsistent results, insufficient sample size, conclusions cannot be drawn.
**Strength of Evidence**

**Level 4**

**Systematic Review**
- Research review that compiles and summarizes evidence from research studies related to a specific clinical question
- Employs comprehensive search strategies and rigorous appraisal methods
- Contains an evaluation of strengths and limitations of studies under review

**Clinical Practice Guidelines**
- Research and experiential evidence review that systematically develops statements that are meant to guide decision-making for specific clinical circumstances
- Evidence is appraised and synthesized from three basic sources: scientific findings, clinician expertise, and patient preferences.

**Level 5**

**Organizational**
- Review of quality improvement studies and financial analysis reports
- Evidence is appraised and synthesized from two basic sources: internal reports and external published reports.

**Expert Opinion, Case Study, Literature Review**
- Opinion of a nationally recognized expert based on non-research evidence (includes case studies, literature review, or personal experience).

**Quality Rating (Summative Reviews)**

A **High quality**: Well-defined, reproducible search strategies; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies, and definitive conclusions

B **Good quality**: Reasonably thorough and appropriate search; reasonably consistent results, sufficient numbers of well-designed studies, evaluation of strengths and limitations of included studies, with fairly definitive results

C **Low quality or major flaws**: Undefined, poorly defined, or limited search strategies; insufficient evidence with inconsistent results, conclusions cannot be drawn

**Quality Rating (Expert Opinion)**

A **High quality**: Expertise is clearly evident.

B **Good quality**: Expertise appears to be credible.

C **Low quality or major flaws**: Expertise is not discernable or is dubious.

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## Appendix B
### Synthesis of Evidence

<table>
<thead>
<tr>
<th>Author</th>
<th>Type</th>
<th>Sample</th>
<th>Results</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berenholtz, et al. (2002)</td>
<td>Systematic Review</td>
<td>3014 citations were identified 66 studies were included in the review</td>
<td>• 6 outcome measures were identified to reduce ICU mortality, LOS, days on ventilator, pain and patient satisfaction.</td>
<td>Further testing suggested by the authors to prove effectiveness of bundle use.</td>
</tr>
<tr>
<td>Clark et al. (2009)</td>
<td>Qualitative</td>
<td>30 caregivers</td>
<td>• Knowledge of HF and its management insufficient determinant of HF self care.</td>
<td>European study in a rural area. Results not generalizable.</td>
</tr>
<tr>
<td>Coleman, et al. (2004)</td>
<td>Quasi-Experimental study</td>
<td>Intervention group (n=158) Control Group (n=1,235)</td>
<td>• Measure included rates of post hospital use at 30, 60 and 90 days.</td>
<td>Not limited to heart failure patients. These results are limited to a single health care system in Colorado.</td>
</tr>
<tr>
<td>Author</td>
<td>Type</td>
<td>Sample</td>
<td>Results</td>
<td>Limitations</td>
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</tbody>
</table>
(N = 750) Rates of rehospitalization were measured at 30, 90 and 180 days. | - Intervention patients reported higher levels of confidence managing their condition, communicating with physicians and understanding of medical regimen. | Large integrated single hospital system in Colorado, results may not be generalizeable to the entire US population. Not limited to heart failure patients. |
| Cruden, et al. (2005)  | Authors examined the results of an evidence based care bundle on length of mechanical ventilation and ICU LOS. | Four protocols were implemented DVT prophylaxis, peptic ulcer prophylaxis, daily sedation vacations and head of bed elevation to 30 degrees. | - Intervention group had lower readmission rates compared to control groups at 30, 90 and 180 days
- 30 days (8.3 vs. 11.9, p = 0.48), 90 days (16.7 vs. 22.5, p = 0.04)
- Lower hospital costs in intervention patients vs. the control
- Compliance with bundle, ICU LOS, ICU mortality
- Mean ICU LOS reduced from 13.75 to 8.35 days p < .05
- Mean ventilator LOS reduced: 10.8 to 6.1. | Limitations include the lack of a control group as well as organizational changes which occurred simultaneously and have had an impact on the results. |
<table>
<thead>
<tr>
<th>Author</th>
<th>Type</th>
<th>Sample</th>
<th>Results</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenwald, et al. (2007)</td>
<td>Review of Literature</td>
<td>Characteristics of hospital, patient, and clinicians that may         • Authors identified factors which lead to complications and rehospitalizations.</td>
<td>11 point re-engineered discharge process, (RED). NQF recommendations for discharge paralleled the RED describes by Greenwald et al.</td>
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<tr>
<td>IOE III-Good</td>
<td>Work of the National Quality Forum (NQF) Safe practice on hospital discharge</td>
<td>adverse hospital discharge process were identified.</td>
<td></td>
<td>Limited enrollment due to staffing limitations. Urban population, limited to English speaking, younger patients with fewer co-morbidities, which may prevent generalization to other groups. This study was not specific to heart failure patients.</td>
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</tbody>
</table>
| Jack et al. (2009)            | RCT                   | Single site ($N = 749$) Mean age 49.9 years. Intervention Group ($n = 370$) Usual Care ($n = 368$) Intervention Nurse Discharge Advocate confirm medication reconciliation, coordinate MD follow up, patient education, clinical pharmacist provided discharge phone call to reinforce medication teaching | • Outcomes were ER visits and readmission within 30 days of hospital discharge.  
• Secondary outcomes were self report of preparedness for discharge.  
• RED decreased hospitalizations by 30% (ER Visits and rehospitalizations during study period |                                                                                                                                                             |
<table>
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<th>Author</th>
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<th>Sample</th>
<th>Results</th>
<th>Limitations</th>
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</thead>
</table>
| Koelling, et al. (2005) LOE I-High | RCT of patients with systolic heart failure comparison of usual care to a 60 minute one to one teaching session with a nurse educator prior to discharge and were contacted by telephone at 30, 90 and 180 days post discharge with scripted questionnaires. Groups were matched with regard to age, sex, results of 6 minute walk test, and co-morbidities. | \( N = 223 \) Intervention group \( n = 107 \) had fewer days of hospitalization as compared to the usual care \( n = 116 \) group. | **Intervention group:**  
- Greater compliance in seeing their MD  
- Reported higher levels of preparation for discharge.  
  \( p = 0.028 \).  
- Felt more prepared for discharge,  
  \( p < 0.001 \).  
- Intervention group had a lower risk of rehospitalizations or death (relative risk, 0.65; 95% CI, 0.45-0.93; \( p = 0.018 \)).  
- Time to rehospitalization in the intervention group was longer \( (p = 0.012) \).  
- Cost of care was lower \( ($2823 less) \), \( p = 0.035 \).  | Limitations included 38% of the participants screened participated in the study, so the findings may not be generalizable to the population. The study was not blinded. The nurse coordinator performing follow up calls was aware of which group that patient was in. There was also a lack of reliability of self reported self care. |
<table>
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<th>Author</th>
<th>Type</th>
<th>Sample</th>
<th>Results</th>
<th>Limitations</th>
</tr>
</thead>
</table>
| Kohler et al. (2009)   | RCT                       | 41 medical inpatients predisposed to readmission or post admission ER visits. | - Intervention Group readmission rate was reduced at 30 days when compared to the control group $p = 0.04$.  
- 60 days, $p = 0.52$  
- Time to first readmission was longer in the intervention group $p = 0.026$  
- Fewer readmissions $p = .37$  
- Lower costs of hospitalization ($7636 vs. $12,481). | Power insufficient to reliably compare the effects of the intervention on lengths of index hospital stay between groups. Study sample small |
<p>| Naylor et al. (2004)   | RCT-Multisite             | 239 patients age 65 and older with heart failure control group n = 121 intervention group n = 118 | - Comprehensive discharge planning with post discharge support reduced readmission rates in older patients with CHF | Study conducted at six academic and community hospitals. |
| Phillips, et al., (2004) | Meta-analysis of 18 studies from eight countries in 3304 older patients &gt; 55 years of age with CHF | (n = 3304) Fewer intervention patients were readmitted compared with controls (555/1590 vs 741/1714) 95% CI | | Electronic searching and exclusion of non-English trials may have missed eligible studies. Small studies ($N &lt; 100$) were excluded. There was no cost data reported |</p>
<table>
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<tr>
<th>Author</th>
<th>Type</th>
<th>Sample</th>
<th>Results</th>
<th>Limitations</th>
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</thead>
</table>
| Reigel et al. (2006) LOE III-Fair | Mixed Quantative - Qualitative | N=24 enrolled 15 patients completed the 3 month study intervention designed to emphasize motivation, skill building and support | • Self-Care of HF index 15 item likert scale  
• Three subscales self care maintenance, self care management and self care confidence  
• Use of Motivational intervention  
Congruence between quantitative and qualitative data.  
• Major themes were communication, making it fit, acknowledging cultural beliefs and bridging the transition from hospital to home, providing information, building skills and activating support systems. | Sample size  
Single RN provided the intervention  
Recording device failure |
<p>| Reigel et al. (2009) LOE IV-High | AHA | N/A | • Guidelines for self care of HF patients delineated | N/A |</p>
<table>
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<tr>
<th>Author</th>
<th>Type</th>
<th>Sample</th>
<th>Results</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shepard et al. (2010)</td>
<td>Cochrane</td>
<td>21 RCTs were included (N=7234 patients)</td>
<td>Hospital LOS and readmission rates were decreased in patients who received tailored discharge planning,</td>
<td>Meta-analysis included medical, surgical and psychiatric patients.</td>
</tr>
<tr>
<td>LOE I-Good</td>
<td>Collaboration comparing individualized discharge plans.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spehar et al. (2005)</td>
<td>Pilot study</td>
<td>Two sites: VA Hospital and nonprofit hospital</td>
<td>Hospital LOS and readmission rates were decreased in patients who received tailored discharge planning,</td>
<td>While the hospitals were close in proximity, their organizational practices varied.</td>
</tr>
<tr>
<td>LOE IV AHRQ supported</td>
<td>Retrospective chart reviews, expert panel focus group on the discharge process, patient interviews</td>
<td>Phase I Retrospective review of unscheduled readmissions within 30 days. Three high risk groups were identified, one being heart failure. Phase II Focus group of experts from both hospitals including administrators and staff from various disciplines. Phase III Patient interviews of patients who had been readmitted</td>
<td>Phase I-For heart failure, additional secondary diagnoses were a predictor of readmissions, for each secondary diagnosis patients were 1.2x more likely to be readmitted</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Phase II-Themes were communication, discharge process, caregiver behaviors and lack of continuity</td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td>Phase III-Themes included readiness for discharge, reasons for readmissions medication, family involvement, cultural and language issues</td>
<td></td>
</tr>
<tr>
<td>Author</td>
<td>Type</td>
<td>Sample</td>
<td>Results</td>
<td>Limitations</td>
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<td>------------------------</td>
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</tr>
<tr>
<td>Toth et al. (2010)</td>
<td>Quasi-Experimental on two units.</td>
<td>(N=160 patients)</td>
<td>• 168 interventions were made, with an acceptance rate of 91%</td>
<td></td>
</tr>
<tr>
<td>LOE II-Fair</td>
<td>Intervention was a stewardship pharmacist; control group was no pharmacist intervention. Pharmacist suggested changes to empiric therapy based on antimicrobials and provided education on appropriate use of antibiotics.</td>
<td>442 antibiotic orders were reviewed. Primary outcome was compliance with care bundle quality indicators which included treatment rationale, collection of cultures and appropriate empiric antibiotic use</td>
<td>• Deescalation rate rose from 72% to 90% (p &lt; 0.001).</td>
<td></td>
</tr>
<tr>
<td>Van Such, et al. (2006)</td>
<td>Randomized, single site Survey</td>
<td>Retrospective, randomized chart review</td>
<td>• Documentation of discharge instructions correlated to reduced readmission rates, (p = 0.003) and for heart failure (p = 0.035)</td>
<td>Inconsistent documentation No active follow up of patients</td>
</tr>
<tr>
<td>LOE I-Good</td>
<td>Outcome time to death and time to readmission for heart failure or readmission for any cause</td>
<td>N=782</td>
<td>• No correlation with documentation of discharge instructions and mortality rates.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

Information Hand-Off for Heart Failure Patient

Name: ___________________   DOB: _______   Language Spoken: _______________

PCP: ______________________   Cardiologist: ______________________

DOA: _______ DOD: _______   Previous HF Admission: □ Y □ N Date: _______

NYHA Class: I   II   III   IV   Ejection Fraction: _______________

6 Min Walk Test: _______________ ft   Discharge Weight __________ lbs   BP ______

Current Situation:

Living Arrangements: ______________________________________________________

Caregiver at Home: □ Yes □ No   Name: _________________________________

Who is doing shopping/cooking? __________________________________________

Does the patient have discharge booklet: □ Yes □ No

Working Scale: □ Yes □ No   If no, patient is to be given scales prior to Discharge

Accurate List of Current Medications: □ Yes

Diet: _________________________   Fluid Restriction: ______________ ml/24 hours

Follow Up:

Current Medical Needs: ___________________________________________________

Home Care: □ Yes □ No

Telehealth □ Yes □ No

Follow Up Appointment: Date: _______________________

□ PCP □ Cardiologist

□ Clinic □ Other_________________________________________________________

RN completing form: ___________________________   phone extension: ________
Appendix D

Permission to implement DNP project

Holy Name Hospital

New York Presbyterian Healthcare System

[Signature]

[Initials]

[Title]

[Name]

[Department]

[Address]

[City, State, ZIP]

Phone: [Phone Number]

Email: [Email Address]

[Date]

[Additional Information]

[Redacted]

[Redacted]

[Redacted]
Appendix E

Outline of Educational Program

**Outline of Education for Telemetry RNs** (30 minute sessions repeated as needed)

1. What is EBP?
2. Purpose of this EPB Project
3. How to complete the Hand-off form/What to do with it once completed

**Outline of Education for Home Care RN's** (60 minute educational session)

1. Overview of EBP
   a. Definition
   b. Difference between EBP, Research and PI
2. Significance of Proposed Project
   a. Current readmission rate
   b. Proposed changes based on evidence
   c. Expected outcomes (improved communication, decreased readmission, increased self care)
3. Overview of Heart failure
   a. Definition of HF
   b. Pharmacologic/Non-Pharmacologic Therapy
   c. Patient teaching
   d. 6 minute walk test
   e. Review of symptoms to report to MD/nurse
4. Review of Forms and responsibility for completion
   a. Medication Schedule
   b. Patient Assessment
   c. Patient Teaching
Appendix F

Heart Failure Assessment Tool
Adapted with Permission from *Heartline Worksheet*

Name: ________________________________ Date: ____________________

**Assessment of Symptoms:**

<table>
<thead>
<tr>
<th>KEY</th>
<th>Y=YES</th>
<th>N=NO</th>
<th>I=INCREASED</th>
<th>D=DECREASED</th>
<th>S=SAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOB</td>
<td></td>
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<tr>
<td></td>
<td>Y____</td>
<td>N___</td>
<td>I__</td>
<td>D____</td>
<td>S____</td>
</tr>
<tr>
<td>PND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
|     | Y____ | N__  | I_ | D____ | S____ | # of pillows: ___________
| FATIQUE |   |      |             |             |        |
|     | Y____ | N___ | I__ | D____ | S____ |
| COUGH |       |      |             |             |        |
|     | Y____ | N___ | I__ | D____ | S____ |
| SPUTUM |       |      |             |             |        |
|     | Y____ | N___ | I__ | D____ | S____ |
| EDEMA |       |      |             |             |        |
|     | Y____ | N___ | I__ | D____ | S____ | Site ___________
| APPETITE |  |      |             |             |        |
|     | I____ | D___ | S____ |
| URINE OUTPUT |  |      |             |             |        |
|     | I____ | D___ | S____ |
| CHEST PAIN |       |      |             |             |        |
|     | Y____ | N___ |

Type _______________  Where _______________  When _______________

Weight Reported:  Today: _____ lbs  Yesterday: _____ lbs  Last visit wt: _____ lbs

Medication changes since last visit?  Y  N

Has patient been hospitalized since last visit?  Y  N

If yes, reason: ____________________________________________

Has patient seen MD since last visit  Y  N  Date: _____________

Next MD appointment: _______________  Next HC visit: _______________

MD contacted based on assessment?  Y  N

Reason: _______________  Follow up: _______________
Transition to Home in Heart Failure Patient Education

Printed Education Materials given to Patient: ________________________________

All Entries shall be dated

<table>
<thead>
<tr>
<th>Topic</th>
<th>Date</th>
<th>Who was Taught</th>
<th>Response</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of disease process, causes and contributing factors</td>
<td></td>
<td></td>
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<tr>
<td>Signs and symptoms of complications and actions to take</td>
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<tr>
<td>Importance of compliance with prescribed regimen</td>
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<tr>
<td>How to plan a meal limiting salt intake</td>
<td></td>
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<tr>
<td>Patient has the ability to calculate salt intake for previous 24 hours</td>
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<tr>
<td>Patient has ability to limit oral fluid intake</td>
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<tr>
<td>Patient is able to weigh self daily and record</td>
<td></td>
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<tr>
<td>Patient can identify medications, purpose, action of medications</td>
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<tr>
<td>Patient can perform ADLs and exercise within limits of cardiac limitations</td>
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<tr>
<td>Identify proper use of oxygen in the home if applicable</td>
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<tr>
<td>Identify signs &amp; symptoms to report to MD or home health RN such as weight gain, increasing fatigue, shortness of breath, etc.</td>
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<tr>
<td>Identify follow up appointments</td>
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<tr>
<td>Patient/Caregiver has posted emergency numbers near phone</td>
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<tr>
<td>If using telehealth, patient can demonstrate use of system and actions to take for troubleshooting assistance</td>
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<tr>
<td>6 min walk test: ___________ ft</td>
<td></td>
<td></td>
<td>Date D/C from HC</td>
<td></td>
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</tbody>
</table>

Signature of Home Health Nurse: ____________________________________________
## Medication Schedule

Medication Schedule for ____________________________________________ Pharmacy __________________________

Allergies ___________________________________________________________________________________

<table>
<thead>
<tr>
<th>Medication/Generic</th>
<th>Dose</th>
<th># of Pills</th>
<th>Doses per day</th>
<th>AM</th>
<th>Noon</th>
<th>Dinner</th>
<th>Bedtime</th>
<th>Reason taking/comments</th>
</tr>
</thead>
<tbody>
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</table>


Appendix G

Data Collection Tool for EBP project

<table>
<thead>
<tr>
<th>Patient #:</th>
<th>MR#:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td>Sex: M F</td>
</tr>
<tr>
<td>Was Hand-off form completed on this patient?</td>
<td>Y N</td>
</tr>
<tr>
<td>Was medication schedule completed?</td>
<td>Y N</td>
</tr>
<tr>
<td>Was assessment form utilized?</td>
<td>Y N</td>
</tr>
<tr>
<td>Was patient education form utilized?</td>
<td>Y N</td>
</tr>
<tr>
<td>Was patient readmitted within 30 days?</td>
<td>Y N</td>
</tr>
</tbody>
</table>

If yes, reason for readmission: ____________________________
Appendix H

Johns Hopkins Nursing Evidence-Based Practice Model

Appendix I

Permission to Use John Hopkins Model of EBP

Hello Donna,

You have our permission to use the Johns Hopkins Nursing Evidence-based Practice Model and Tools for your DNP capstone project. If you choose to use the Johns Hopkins Nursing Evidence-based Practice Model and Tools in any other way, please submit a request for that specific use. No modifications to the model or tools can be made without permission. All reference to source forms should include “© The Johns Hopkins Hospital/The Johns Hopkins University.”

I will be sending the instruments in two separate emails so that I don’t bog down your email system.

Cheers.....

Lois Gould
Manager, Continuing Education
Managing Editor, Banatric Nursing and Surgical Patient Care
The Institute for Johns Hopkins Nursing
525 North Wolfe Street, Room 532
Baltimore, MD 21205
www.jhhn.jhmi.edu
Appendix J

The Johns Hopkins Nursing Evidence-Based Practice Process

PET (Practice Question—Evidence—Translation)

**PRACTICE QUESTION**
- **STEP 1:** Identify an EBP question
- **STEP 2:** Define scope of practice question
- **STEP 3:** Assign responsibility for leadership
- **STEP 4:** Recruit multidisciplinary team
- **STEP 5:** Schedule team conference

**EVIDENCE**
- **STEP 6:** Conduct internal and external search for evidence
- **STEP 7:** Critique all types of evidence
- **STEP 8:** Summarize evidence
- **STEP 9:** Rate strength of evidence
- **STEP 10:** Develop recommendations for change in processes or systems of care based on the strength of evidence

**TRANSLATION**
- **STEP 11:** Determine appropriateness and feasibility of translating recommendations into the specific practice setting
- **STEP 12:** Create action plan
- **STEP 13:** Implement change
- **STEP 14:** Evaluate outcomes
- **STEP 15:** Report results of preliminary evaluation to decision makers
- **STEP 16:** Secure support from decision makers to implement recommended change internally
- **STEP 17:** Identify next steps
- **STEP 18:** Communicate findings

December 7, 2010

Donna Lee Flynn, DNP(c) MA, RN, CCRN, ACNS-BC
In-service Education
Holy Name Medical Center

Re: Application for New Research

Dear Ms. Flynn:

This letter is to inform you that Holy Name Medical Center Institutional Review Board (IRB), known as the Investigative Committee on Clinical Research (ICCR), reviewed and approved the following documents: Application for New Research at the ICCR meeting that was held on Monday, December 06, 2010.

**Protocol: Transitioning from Hospital to Home: An Evidence based approach in Heart Failure**

This study was exempted for ICCR review and consent requirement; since the study is only retrospective data collection without any risk to human subjects this study was granted a waiver.

As always, you are to keep the ICCR informed of any future protocol changes or addenda. As per the FDA and the ICCR’s by-laws, you must submit a written report annually. Please notify the ICCR Committee in writing when this protocol is complete or terminated.

Sincerely,

Steven Stravinski, M.D.
Secretary, Investigative Committee on Clinical Research

SS:cb
Dear Ms Flynn,

The project number 10-0036nhsr: Transitioning from Hospital to Home: An Evidence Based Approach in Heart Failure Patients has been determined to not constitute human subjects research as defined under 45 CFR 46. No further review or action is necessary.

If any changes are made to the study that would qualify the project as research with human subjects, this would need to be reviewed and approved by the Institutional Review Board before moving forward. Please contact the IRB office for specific instructions.

A formal letter signed by the Chair will be sent to you by mail for your records. Please contact me at [email protected], or you may contact Kim Diccianni, Human Research Compliance Manager at [email protected] if you have any questions or require assistance. Thank you for your submission.

--

Arielle Bernstein
IRB Coordinator, Grants and Sponsored Projects
Fairleigh Dickinson University

IRB Website: http://view.fdu.edu/default.aspx?id=221
Grants and Sponsored Projects Website: http://view.fdu.edu/default.aspx?id=1372