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# Transitional Care to Reduce 30-day Heart Failure Readmissions Among the Long-Term Care Elderly Population

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TRANSITIONAL CARE TO REDUCE 30-DAY HEART FAILURE READMISSIONS  
AMONG THE LONG-TERM CARE ELDERLY POPULATION

By

Shantha Franks

DNP Scholarly Project Committee

Dr. Mary Ellen Roberts, Chair

Dr. Judith Lucas

Mary Carroll, Mentor

Submitted in partial fulfillment of the  
Requirements for the degree of Doctor of Nursing Practice

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### Abstract

Throughout the nation, there is an increased focus on reducing preventable hospital readmissions. This initiative started with the Patient Protection and Affordable Care Act (PPACA) (CMS, 2014), which sets forth certain provisions for Medicare spending. Hospitals with higher than usual readmission rates, especially in terms of preventable readmissions, are receiving reductions in Medicare reimbursements (Stone & Hoffman, 2010, CMS, 2014). Congestive Heart Failure (CHF) or Heart Failure (HF) is recognized as a primary cause of 30-day hospital readmissions. Causes of HF readmission include inadequate patient education and planning for discharge, inappropriate medication reconciliation, and poor or inadequate follow-up in the days following discharge (Agency for Healthcare Research and Quality (AHRQ), 2009). Thus, many hospitals and facilities have implemented transitional care protocols to help reduce HF 30-day readmissions. Among the geriatric population, HF is a major contributor of morbidity and mortality, and the frail, elderly men and women residing in long-term care (LTC) or skilled nursing facilities (SNF) are particularly prone to the adverse health effects of repeated preventable hospitalizations. The purpose of this project is to provide and promote evidence-based transitional care methods to the nursing staff at a long-term care (LTC) facility in NJ in order to reduce 30-day HF hospital readmissions.

This project's significance lies in its potential to improve quality of life for the long-term care residents, by reducing the physical and emotional burden of frequent preventable hospitalizations. The conception of the project began with the realization of the lack of evidence-based transitional care practices, due to observed preventable re-hospitalizations within the LTC facility. This led to a thorough literature search, which confirmed the prevalence and incidence of repeated hospitalizations for HF as well as other conditions, and the effects of

transitional care. Initiation of the project began with a meeting that was held with the key administrators, presenting the outline and the benefits of the proposed project. After approval was obtained, then educational in-services for the nursing staff, lasting approximately 30-35 minutes, were instituted. A pre- and post-test method was utilized to measure change in knowledge of CHF management. Out of 8 in-services to date, all revealed that education did indeed increase initial nursing knowledge regarding transitional care to reduce 30-day HF readmissions. A similar test should be administered 3-6 months later to measure the long term effects of the education.

Transitional Care to Reduce 30-day Heart Failure Readmissions Among the Long-term Care  
Elderly Population

**Background**

Heart failure (HF) or Congestive Heart Failure (CHF) is a complex syndrome resulting in the heart's inability to pump blood sufficiently to meet the metabolic needs of the body (Braunwald, 2013). It is a serious condition that results in significant burden to the healthcare system. According to the Centers for Disease Control (CDC, 2013), heart failure affects approximately 5.1 million people in the US, and costs about \$32 billion yearly to treat. The Agency for Healthcare Research and Quality (AHRQ) quotes even higher, reporting that heart failure affects almost 7 million Americans aged 18 and older (2013). It is a condition with a high mortality, with almost 50% of patients dying within 5 years of diagnosis, and 30% of Medicare beneficiaries dying within 1 year. The incidence of HF increases with age and it is the leading cause of hospitalization in patients above the age of 65 (AHRQ, 2013; Rich et al., 1995; Feltner et al., 2014). According to CMS data from 2005, heart failure "is the most common principal discharge diagnosis among Medicare beneficiaries and the third highest for hospital reimbursements" (AHRQ, 2013).

According to the Center for Healthcare Quality and Payment Reform (CHQPR) (2011), the rates for re-admission from all causes are 15-25% (based on nationwide studies), and cost billions of dollars. The Medicare Payment and Advisory Committee (MedPAC), which evaluates the number of hospital readmissions noted that "in 2005, 17.6% of hospital admissions resulted in readmissions within 30 days of discharge, 11.3% within 15 days, and 6.2% within 7 days" (Stone & Hoffman, 2010). HF is the leading cause of hospital readmissions, with almost 25% of patients admitted with HF in the hospital being readmitted within 30 days (AHRQ, 2013,

Feltner et al., 2014). In a 2010 report by the Pittsburgh Regional Health Initiative (PRHI), a similar percentage was found, noting heart failure readmissions to be at 26% in a 12-month period, highest of all the 6 chronic conditions assessed (PRHI, 2010). CMS also corroborates that CHF readmission rates within 30 days of discharge on a national level from July 2008 to June 2011 were 24.7% (VanBooven, 2013). A study of 2007-2009 Medicare fee-for-service claims for 30-day CHF readmissions noted that most (61%) occurred within 15 days of discharge, and the remainder between day 16 and 30 after discharge (VanBooven, 2013).

Hospital readmissions can be viewed as a barometer measuring healthcare quality. The Patient Protection and Affordable Care Act (PPACA), which was signed into law in 2010 by President Obama, included penalties such as fines and less reimbursement to hospitals with high rates of readmission, especially for certain diagnoses (CMS, 2014). The Center for Medicare and Medicaid Services (CMS) was required from October 2012 onwards to reduce payments to hospitals with excessive readmission rates, initially for 3 specific conditions: acute myocardial infarction, congestive heart failure, and pneumonia. These policies were adopted as catalysts to promote quality care and to abate the growing numbers of hospital readmissions. Other applicable conditions, including acute exacerbation of COPD, were added later (CMS, 2014).

In terms of cost, Jencks, Williams & Coleman (2009) estimated “that the cost to Medicare of unplanned rehospitalizations in 2004 was \$17.4 billion,” and the Robert Wood Johnson Foundation (2013) confirms that hospital readmissions cost an astronomical \$26 billion yearly, with \$17 billion coming from preventable readmissions. This clearly warrants a concentrated effort to control and reduce these costs. Since many readmissions can be avoided, it is essential that members of the healthcare community are proactive in this effort.

The reduction of HF readmissions would be beneficial not just in terms of cost, but in terms of patient comfort, and complications related to hospital stays, such as hospital-acquired infections, and wounds. Causes of HF readmission include inadequate patient education and planning for discharge, inappropriate medication reconciliation, and poor or inadequate follow-up in the days following discharge (AHRQ, 2009).

According to AHRQ (2013), overall hospitalization rates for HF in the U.S. have decreased approximately by 30%; however, 30-day hospital readmission rates have not declined. While more and more services are available after hospital discharge, the rates of HF hospital readmissions are not decreasing (Albert et al., 2015).

In long-term care (LTC) and skilled nursing facilities (SNF), HF is a common diagnosis. Among the millions of people living in SNFs in the US, cardiovascular disease and HF are common, with the prevalence of HF ranging between 20%-37.4% in SNFs (Jurgens et al., 2015). Foebel et al. (2013) report that the HF is prevalent in LTC facilities at a rate of approximately 20%. Furthermore, hospital readmission rates for HF are high, ranging from 27% to 43% in SNFs (Jurgens et al., 2015). Thus, there is a need for transitional care tools and methods in LTC facilities to participate in the national initiative to reduce 30-day HF readmissions. Toles, Young, & Ouslander note that ,” Nursing home residents are highly vulnerable to harm from poorly executed care transitions, including inadequate communication of critical information from the hospital, medical errors, omissions, delays in follow-up diagnostic tests and treatments, and repeated hospitalizations” (2013, p. 79).

The project centers on integrating transitional care methods to reduce 30-day HF hospital readmissions in an elderly, long-term care population. Naylor (2009) defines transitional care as services which are intended to promote continuity of care and to prevent poor outcomes among

high risk populations, as they change from one setting to another, or move from one level of care to another. Errors, such as medication discrepancies, can occur during transitions or handoffs which can affect patient safety. Transitional care is an approach intended to lessen the gap that exists between healthcare providers and settings, so that patients transferred from one place to another do not suffer poor clinical outcomes, which may lead to hospital readmissions. In a scientific statement regarding transitional care in HF, the American Heart Association (AHA) (2015) recommends that the principles of transitional care in patients with chronic HF should include medication reconciliation, early follow-up after discharge with patient/caregiver, early office appointment with medical provider after discharge, education emphasizing recognition of signs/symptoms of HF, and coordination and collaboration among the multidisciplinary health care team.

The project was implemented at a long-term care veterans' facility starting in July 2015. This facility is a nursing home which is open to all veterans who served in active duty, as well as their spouses. There are currently a total of 313 residents, out of which 260 are male, and 53 are female. The population of the facility is an elderly cohort, many with multiple and complex medical problems, including a significant number with a diagnosis of HF. An overall estimate of patients having a documented diagnosis of HF at the home was noted to be at 30%. Since there were no transitional care methods or protocols for prevention of hospital readmissions it became apparent that there was a need to put protocols in place which would target the reduction of hospital readmissions, especially within 30 days.

There are several benefits to reducing 30-day HF readmissions in the elderly long-term care population. As hospitalizations contribute to worsening functional and cognitive status, reducing the rates of readmissions should show a decrease in decline, and thus reduce morbidity

and mortality. Secondly, lowering readmission rates should benefit the facility by reducing staff burden related to repeated hospitalizations and readmissions to the facility. Furthermore, by keeping residents at the facility, there should be a reduction in the loss of Medicare A reimbursement to the facility, as well as reduction in loss of Veterans Administration funds. By providing education to increase nursing staff's knowledge regarding current transitional care methods, it is theorized that 30-day HF readmissions will indeed be reduced.

It was planned that implementation of the project would require ongoing review of the evidence in literature, and collaborating with administrators and colleagues at the facility, as well as with the preceptor and advisor. To successfully implement the project, the leadership of the facility would need to recognize the significance and benefits of the project to the facility and its residents, and give their approval to proceed. Furthermore, an understanding of current nursing protocols to reduce 30-day HF re-hospitalizations was necessary in order to identify gaps in knowledge, and to target areas of education. Chart reviews would provide objective information, primarily review of Medicare A charting when a patient with HF is readmitted back to the facility after a hospitalization. Furthermore, engaging and including the nurse educator would be necessary, in order to handle the details of organizing the in-services for all three shifts.

The transitional care model will assist the nursing staff to play an integral part in reducing HF readmissions. As nursing staff increase their knowledge of HF management, and transitional care, they will be better equipped to provide care to the resident with HF. Hospitalizations and re-hospitalizations negatively affect the residents' quality of life, as well as increasing staff burden. The nurse can promote better health outcomes and prevent 30-day hospital readmissions by understanding and practicing good transitional care. Furthermore, nurses will gain knowledge of quality care and best practices.

### **Review of the literature**

The Transitional Care Model (TCM) developed by Mary Naylor is a conceptual model that can be used to reduce hospital readmissions. It focuses on comprehensive care, starting in the hospital and following through to home, for chronically ill older adults who are at risk for poor outcomes and readmissions. TCM encourages continuity of care between hospital and community providers, with an emphasis on multi-disciplinary care. The model addresses the concern that there will be a greater number of elderly patients with complex medical problems, accelerated health care costs, and a limited amount of Medicare money. Thus, it becomes necessary to promote cost-effective, quality care. TCM proposes the development of methods to reduce re-hospitalizations both pre- and post-discharge, and communication and partnership among healthcare workers. It emphasizes practices to prevent the significant rate of errors in the transitional process, which result in poor patient outcomes, preventable re-hospitalizations, and increasing financial costs.

There are several fundamental components of TCM. They include an advanced practice nurse (APN) acting as the principal coordinator of care, with assessment of patients starting in the hospital, collaboration among doctors and nurses, visits by a transitional care nurse (TCN) to homes, and communication between hospital providers and primary care providers. Furthermore, TCM emphasizes a holistic approach to individual patient's needs, which encourages educating patients, caregivers and families in order to identify as early as possible the potential risks which can lead to hospital readmissions (Naylor, 2004). To promote good outcomes, continuity of care is emphasized, delivered by the same TCN daily in the hospital, skilled nursing facility, or home. The transitional care period lasts approximately two months, targeting high-risk patients who are vulnerable to poor outcomes after hospital discharge, which can lead to readmissions. While the

TCM is nurse-led, a multidisciplinary approach is emphasized in the model. Other core components of Naylor's model include following evidence-based protocols, and the use of information systems (Naylor, 2009).

A literature search was conducted using the key words HF or CHF readmissions, 30-day readmissions, transitional care, long-term care, and skilled nursing facilities. Databases such as Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane Library, PubMed, Agency for Healthcare Research and Quality, and Google were utilized.

Naylor and colleagues conducted three NIH-funded randomized controlled trials (RCT) in the area of transitional care. A 1994 landmark study sought to determine the effects of a comprehensive discharge planning on patient outcomes. Medical and surgical diagnostic-related groups (DRG) were included. Medical DRGs included CHF and angina/myocardial infarction. Surgical DRGs included coronary artery bypass surgery, as well valve replacement. Between July 1989 through February 1992, patients were randomly assigned to either a control group or an intervention group. The medical DRG group sample had 72 patients in the intervention group, and 70 patients in the control group. Similarly, the surgical DRG group had 68 patients in the interventional group, and 66 in the control group. The intervention involved thorough discharge planning in the hospital by a Master's-prepared clinical nurse specialist, following the patients post discharge for 2 weeks. At 2 weeks post-discharge, the medical DRG intervention group had 4% hospital readmission compared with 16% in the control group ( $P = 0.02$ ). At 6 weeks after discharge, 10% were hospitalized in the intervention group, compared with 23% in the control group ( $P = 0.04$ ). Finally, at 12 weeks after discharge 22% were hospitalized in the intervention group, compared with 33% in the control group ( $P = 0.15$ ). In the surgical DRG group, the intervention group had less than half the readmissions of the control group 2 weeks

after discharge. There were limitations to generalizing the results of the study since only certain medical and surgical groups were studied. Moreover, the cohort of participants were community dwellers, who were alert and oriented, and, for the most part, with minimal functional deficits. The researchers concluded that further studies should be conducted, using elderly patients from other settings, including nursing homes. Another limitation is the small number of study participants. However, this study still lends support to the transitional care model as a good approach that can be utilized by the healthcare community to reduce hospital readmissions.

In a similar study, Naylor et al. (1999) assessed the effectiveness of an APN-run discharge planning and home follow-up intervention to reduce hospital readmissions in the elderly. Study subjects were patients 65 years or older who had been hospitalized at the Hospital of the University of Pennsylvania and the Presbyterian Medical Center of the University of Pennsylvania Health System, between August 1992 and March 1996. A total of 363 were included in the study, out of which 186 were in the control group and 177 in the intervention group. The intervention focused on providing thorough discharge planning, and a comprehensive home follow-up protocol. The intervention, which was initiated at hospital admission, lasted through 4 weeks post-discharge from the hospital. APNs were in charge of discharge planning while patients were hospitalized, and then followed the patients for the first 4 weeks after discharge, in place of the usual visiting nurse. The interventions by the APNs were aimed at areas such as medications, management of symptoms, diet, and activity. In the 4 weeks of home follow-up, the APNs focused on dealing with concerns and issues from patients, the healthcare team, caregivers, as well as collaboration with the patients' physicians. The outcome measures were hospital readmissions, including recurrence of the condition which caused the initial hospitalization, comorbid states, or new health conditions/problems. Readmissions were

measured at 6 weeks after discharge, as well as from week 6 to week 24 post discharge. The results of the study revealed that patients in the control group had higher rates of readmissions vs. the intervention group (37.1% vs 20.3%,  $P < .001$ ) in the first 6 weeks, as well as in the 6 to 24 week period. The researchers concluded that an APN-led discharge planning, and home follow-up intervention reduced hospital readmissions, increased time from discharge to first readmission, as well as decreased the costs of care.

The third study by Naylor et al. (2004) sought to investigate the effect of a transitional care intervention by advanced practice nurses (APN) on elderly patients admitted to a hospital with heart failure. It was an RCT consisting of 239 study subjects. The intervention included APNs following the patients from hospital admission to three months after discharge. APNs were involved in performing patient assessments and assuring smooth transition from hospital to home. The results of the trial revealed that time to readmission or death was longer in the intervention group vs the control group,  $P = .026$ . At the end of 52 weeks, patients in the intervention group had less re-admissions (104 vs. 162,  $P = .047$ ), as well as lower costs (\$7,636 vs. \$12,481,  $P = .002$ ). In terms of quality of life, it was noted that the improvements were short-lived. All three of Naylor's RCTs arrived at a similar conclusion that a well-rounded transitional care intervention can increase the time between hospital discharge and readmission or death, decrease the total number of hospitalizations, and reduce healthcare costs.

Another landmark study in 1995 was conducted by Rich et al., which was a prospective, randomized study of patients 70 years of age or older, admitted at Washington University Medical Center with heart failure. They were randomized into either a treatment or control group to evaluate the effectiveness of a nurse-directed, multidisciplinary intervention in reducing readmissions. The primary outcome measure was 90-day survival without hospital readmission.

The intervention was detailed education regarding CHF, treatments, dietary restrictions, social-service planning, and review of medications by a geriatric cardiologist. The 90-day survival outcome was achieved in 91 patients in the treatment group, versus 75 patients in the control group ( $P = 0.09$ ). As far as readmissions, there were 53 in the treatment group versus 94 in the control group. The study suggests that a multidisciplinary intervention can reduce hospital readmissions, thus reducing medical costs for geriatric patients with CHF. The authors noted that because of the multidisciplinary approach, they were unable to pinpoint which of the domains was most effective. However, their study emphasizes the need for an interdisciplinary approach to reduce CHF readmissions.

In a similar study, Park, Branch, Bulat, Vyas, and Roevers (2013) sought to determine if an intervention would reduce 30-day readmissions for people discharged from a skilled nursing facility. Using a pre-post design, a retrospective chart review of patients who were hospitalized, sent to a skilled nursing facility (SNF), then discharged back in to the community, was performed. The study participants were patients at a VA hospital in southern Florida. Primary outcome measures included the number of readmissions, acute care inpatient days, and ER visits within 30 days of discharge from the SNF. 2 groups were studied: pre-Post Discharge Clinic (PDC) group, and the PDC or intervention group. The intervention which was administered was a one-time, approximate two-hour visit by an NP who performed medication reconciliation, undertook ordering of medical supplies and home health services if warranted, provided education to patient/caregiver, and communicated with the patient's PCP through electronic health records. This was performed at the Post Discharge clinic of the VA hospital, prior to the patient being discharged from the SNF. The results showed 23% readmission in the pre-PDC

group vs. 14% readmission in the PDC intervention group. Intervention groups also had less acute care inpatient days during the 30 day follow-up ( $P < .001$ ).

Boxer et al. (2012) also conducted a survey in 4 SNFs, to determine the current state of HF management in SNFs, and the effect of education to SNF staff. It was discovered that there was significant lack of understanding of HF pathophysiology and management. An education program addressing HF disease management was developed and implemented by a multidisciplinary team. The program sought to educate all members of the healthcare team, not just the nursing department, utilizing web-based training. The authors concluded that there is clearly a lack of HF protocols and staff knowledge, and that “HF education for staff is likely important to effective HF management in the SNF” (p.83.e1). This study’s limitation is its design, as it was not a RCT and did not actually measure re-hospitalization rates. However, it was useful in terms of providing some information in regards to management of HF in SNFs, and the necessity to provide further education to staff.

Ouslander et al. (2011) implemented a quality improvement project to reduce hospitalizations from nursing homes, entitled Interventions to Reduce Acute Care Transfers (INTERACT) II. This tool was developed by Dr. Ouslander and his colleagues at the Georgia Medical Care Foundation to address the issue of patients admitted and readmitted to hospitals from nursing homes, resulting in billions of dollars of cost, as well as complications related to hospitalizations. CHF was listed among the preventable new hospital admissions as well as hospital re-admissions. INTERACT II outlines tools to support nursing home personnel to identify early symptoms of change in resident status, and then communicate these changes to the appropriate personnel. The tool was utilized in 25 nursing homes across 3 states in a 6-month period. An APN acted as the facilitator to conduct on-site education, as well as routine

teleconferences. A total of 17 nursing homes were fully engaged in the program, while the other 8 were not as engaged. The results showed a 24% reduction in hospital admissions in the former group, and 6% reduction in the latter group. A comparison group of 11 nursing homes revealed only a 3% reduction. The surveyors acknowledged that these percentages could be affected by inaccurate transfer logs kept by nursing homes. While this was not a RCT, it is reasonable to conclude that utilization of the INTERACT II tool could contribute significantly to the reduction of preventable hospital readmissions.

A qualitative study by King et al. (2013) involved the use of a focus group, and in-depth interviews with 27 nurses from five Wisconsin SNFs. The study's objective was to understand the transitional process from a nursing point of view, to determine what barriers nurses face, and the outcomes of the transitions. The nurses noted that there were multiple inadequacies during transition, with poor communication at discharge being the most significant. They reported that appropriate contact information was often missing, and attempts to contact hospital personnel were difficult. Even if they were able to reach someone, the information they were seeking could not be found, either because hospital staff couldn't access the medical record, or the individual(s) taking care of the patient in the hospital were not available. Other problems identified by the nurses were incomplete, inaccurate, and conflicting information on the medical record. The poor transitions led to delays in care, patient and family dissatisfaction, frustration among the nursing staff, and risk of re-hospitalization, to name a few. The authors concluded that evidence-based transitional care protocols should be employed, including the use of tools such as INTERACT. Study limitations were noted by the authors themselves, including the fact that the nurses worked in similar, geographic locations; thus, the results could not be generalized to all geographic areas. Furthermore, demographic information was not examined. Therefore, it is possible that nurses'

backgrounds and education could have affected their understanding of the discharge summaries. However, this study raises awareness that poor transitional care from hospitals to SNFs can result in negative outcomes.

Dharmarajan et al. (2013) conducted a study investigating the readmission diagnoses and timing among a cohort of Medicare patients, admitted to acute care hospitals with heart failure, acute MI or pneumonia between 2007 and 2009. Data was obtained from Medicare Standard Analytic and Denominator files. Outcome measures included the percentage of readmissions within 30 days, the most common readmission diagnoses within a 30-day period, median time to readmission for these readmission diagnoses, and the relationship between patient demographics and readmission diagnoses and timing. Out of 329,308 30-day readmissions in the 2-year period, it was found that 24.8% of the heart failure patients were readmitted, 19.9% of the MI patients, and 18.3% of the pneumonia patients. Furthermore, most of the readmissions, for all three diagnoses, occurred within 15 days of discharge from the initial hospitalization. The study increased awareness that 30-day CHF readmissions are a significant issue.

Feltner et al. (2014) performed a systematic review and meta-analysis. The surveyors sought to evaluate the effectiveness of transitional care interventions to decrease readmissions, as well as reduce rates of mortality for those hospitalized with CHF. They reviewed RCTs which examined 30-day CHF readmissions or mortality rates within 6 months of hospitalization. Interventions included home-visiting programs, heart failure clinic interventions and telephone support. Home visiting-programs and HF clinic interventions reduced all-cause readmissions and mortality, while telephone support specifically reduced HF readmission and mortality. Since these researchers reviewed RCT's, their evidence is higher level by study design. Surprisingly, not much evidence could be found on whether the interventions reduced 30-day readmissions.

A study by Jacobs (2011) suggested that intervention could lower CHF readmissions. This study specifically looked at CHF readmission rates from SNFs to a hospital. The study involved an intervention, which included follow-up phone calls by nursing case manager/coordinator to the SNFs, discussing the patient's discharge orders to ensure that they have been followed adequately. Other areas discussed during these calls included diet, weight monitoring, medications reconciliation and follow-up appointments. Prior to start of the initiative, it was noted that the total percentage of HF re-hospitalizations was at 50%. After the process was implemented, it showed a decrease in HF readmissions down to 11.32%. Clearly, this project was not a randomized controlled trial (RCT); thus, it has limitations, and caution needs to be exercised when generalizing results. Moreover, it did not look specifically at 30-day readmissions. However, the study supports that transitional care interventions may help to reduce HF readmissions.

Stauffer et al. (2011) conducted a prospective study with concurrent controls. They tested a transitional care program for elderly patients (65 years of age and older) with heart failure, led by APNs. Study subjects included all elderly patients discharged from Baylor Medical Center Garland (BMCG) from August 2009 to April 2010, who had a primary diagnosis of heart failure. The intervention included a 3-month transitional care program performed by an APN. APNs performed home visits, as well as phone calls to each patient. Outcome measures included heart failure readmission rates, length of stay, and total 60-day direct costs at BMCG compared with other hospitals in the Baylor Health Care System. The adjusted 30-day rates of readmission were 48% lower at BMCG post-intervention compared to pre-intervention. In terms of cost, total direct costs for patients who underwent the intervention was lower than those who did not. However, because there were costs associated with the intervention, the hospital could

not save money. Furthermore, the hospital lost money in preventing the readmissions. Thus, the effect of the APN-led transitional care program significantly reduced 30-day readmission rates, but not 60-day direct costs. Stauffer et al. (2011) concluded that “The effectiveness of the APN-led TCP provides further evidence that hospitals have the tools to reduce readmissions for HF patients, but payment policy must be amended to align incentives for hospitals to produce the highest value by reducing problems during transitions in care” (p. 1242). A limitation of the study was that it was not a RCT.

In the Geriatric Outcomes and Longitudinal Decline in Heart Failure (GOLD-HF) study conducted by Foebel et al. (2013), a cohort of 546 newly admitted residents to 42 LTC facilities were followed for up to 1 year, to examine predictors of mortality and hospitalization rates for those with and without HF. The study took place from February 2004 to November 2006. A research nurse determined heart failure diagnosis based on accepted criteria, and performed assessment of function of each resident. The surveyors sought to determine if there “was a statistically significant difference between hospitalization rates for those with HF and those without...” (Foebel et al., 2013, p. 470). Of the total cohort, 21.4% had HF. The conclusions were that in LTC residents, there is an association between HF and high mortality (24%) and hospitalization rates (27%).

Approximately 50 articles were reviewed. While there were multiple articles focusing on reducing HF hospital admissions and readmissions, there were few randomized controlled trials. There was also a limited amount of studies focusing on heart failure readmissions from SNFs or LTC facilities to hospitals. Education to nurses, other healthcare personnel, and patients reduced 30-day HF hospital readmissions. The overall consensus in the literature is that good transitional

care practices are necessary to reduce 30-day heart failure hospital readmissions, as well as decrease morbidity and mortality.

### **Project Methodology**

The plans to implement this project started with meetings with administration. Without management buy-in, the proposed project could not be implemented at this particular site, which is a long-term care facility for veterans. A meeting was conducted with the administrators of the facility in February 2015. In attendance were the CEO of the facility, as well as the acting assistant CEO, who was also the Director of Nursing at the time. Others present at the meeting included the preceptor, the pharmacy consultant, and another member of the medical team, along with the DNP student. A handout was provided to all attendees which outlined the project. The information presented during the meeting included heart failure statistics, HF readmission statistics, goals and benefits of transitional care, benefits to the residents, benefits to the nursing staff, and the outline of the educational in-services. During this time, the administrators asked several questions and they voiced some concerns. However, after explaining the role of the DNP project and how it would benefit the facility, they gave approval to initiate and implement the project at the facility.

The individual at the facility who was asked to serve on the Scholarly Project Committee is a Master's-prepared nurse, as well as a DNP candidate. She is part of the Quality Improvement (QI) team at the facility. As this implementation project is, in fact, a quality improvement project, a QI staff member seemed quite appropriate to support the project. Her role on the committee was to serve as preceptor, to help facilitate and implement the program at the facility. From Seton Hall University, the faculty member who agreed to serve as committee chair is an Assistant Professor in the graduate nursing program, as well as the Director of the

Doctor of Nursing Practice (DNP) program. She served as the subject matter expert on the topic, due to her background and expertise in cardiovascular medicine.

Certain risks were anticipated during the development of the project. They included failure of management to buy-in to the program, thus not allowing it to be implemented. This could be due to financial considerations, not wanting any or minimal cost to the facility, as well as the infrastructure of the state system. It is generally required that policies and procedures remain uniform in all of the state veterans' facilities; thus, the use of a 30-day checklist to serve as part of nursing documentation may be discouraged, as this would be considered new paperwork, not approved by the state. Next, there was a concern that staff would not value the project, thus being resistant to education and change. Delivery time was another potential risk to the proposed model. Implementation of the project could have been delayed, if the facility's administrators took a longer period of time to deliberate and give approval for the project. Furthermore, once the project was approved for implementation, the nurse educator needed to schedule the in-services, in between other mandatory in-services, such as fire safety, etc. These mandatory in-services could not be delayed; thus, it was a possibility that implementation could be delayed, due to time restraints and nursing schedules.

The need for such a project came out of observation in practice as well as literature that re-hospitalizations, especially among the elderly population, contribute to functional and cognitive decline, thereby increasing morbidity and mortality. Furthermore, it was observed in day to day practice at the facility that signs of worsening HF were missed, until the resident developed an acute exacerbation requiring hospitalization. This was partly due to the infrequent weight monitoring of the residents. The protocol is to weigh residents monthly, as is typical in long-term care facilities and nursing homes, unless there is a significant weight change, either

gain or loss, after which weekly weights are monitored for a period of time. Weekly weights are also performed when a patient is readmitted to the facility after a hospitalization. However, this does not serve HF patients well, as there can be significant weight gain within a week, which could result in a re-hospitalization. Early intervention is the key to preventing exacerbations and hospital readmissions of HF. Therefore, a plan was derived to present evidence-based transitional care methods which would assist in reducing the revolving door of hospital admissions, which were contributing to poor clinical outcomes for patients. There was also a financial benefit, as keeping residents out of the hospital would allow Medicare A reimbursements to be kept at the facility. Lastly, it was evident that there would be benefit to the nursing department, as staff burden would be decreased by reduction in hospital readmissions, as well as demonstrating that staff are providing quality care.

Prior to implementation, the nursing educator was contacted and she remitted emails regarding the in-services, and arranged several sessions for all three shifts, organizing the times to accommodate their needs. Her emails advertised the topic, as well delineating the target audience. As the facility is relatively small with only six units, word of mouth was also used for advertising. The NPs on the other units discussed the intent and benefits of the in-services, and encouraged staff to participate and attend at least one session. It is important to note that the other members of the medical team, which include the medical director, 2 full-time NPs, and 1 per-diem NP voiced their support of the implementation project, acknowledging the significance of reducing HF re-hospitalizations, since they themselves have noticed the effects of poor transitional care on their residents.

As previously stated, initial implementation steps included ongoing review of the evidence in literature, continued collaboration with administrators and colleagues at the facility,

as well as with the preceptor/mentor at the facility and the faculty advisor. The chart reviews provided insight into nursing knowledge regarding the readmission process, and nursing assessment in terms of disease signs and symptoms. This served as a method to identify gaps in nursing knowledge, which assisted in the preparation of an educational module. For example, documentation did not discuss weight at all. The registered dietitian would chart weight changes, either gain or loss, but nursing staff did not address this in the documentation. Nursing staff also did not comment on non-compliance with diet, or education to residents regarding diet. Chart reviews also provided greater insight into current medical treatment plans for those residents who are readmitted to the facility after hospitalization for HF.

The focus of the project was on creating an educational module that would target nurses. At the facility, there are currently 50 registered nurses, and 25 licensed practical nurses. However, it must be emphasized that a multi-disciplinary approach is needed to reduce HF readmissions. Thus, the educational in-services were open to other departments, and members of the healthcare team, including medical (nurse practitioners), pharmacy, and dietary, were in attendance. Educational sessions ran approximately 30-35 minutes in length. Although there was a large amount of information presented during that time, the sessions were kept to a 30-35 minute maximum to reduce the time the nursing staff would need to be off their units. The timing of the in-services were varied in order to include all three shifts – early afternoon for the day shift, late afternoon for the evening shift, and early morning for the night shift. The in-service consisted of a pre- and post-test, PowerPoint presentation, a handout, which was the 30-day checklist, and question/answer time. There was varied attendance, with as little as 4, to as many as 17 people.

The sessions focused on vital domains of HF transitional care. First of all, appropriate medication reconciliation and review of the common medications used in the treatment of HF were discussed. It was emphasized that nursing plays a major role in medication reconciliation. To completely comprehend and execute the plan of care initiated at the hospital, nurses should fully review the hospital records, including consultant recommendations. It is not sufficient to quickly peruse the discharge summary, but rather, a thorough review of the entire record is imperative. Furthermore, it was advised that nursing staff should not hesitate to contact hospital personnel, including the attending physician, to clarify any inaccurate, contradictory or unclear information. Often times, the hospital records include more than one medication record, with conflicting information. Both medical and nursing staff have experienced inconsistencies in medication lists, resulting in errors, as well as increased length of time performing medication reconciliation. Staff acknowledged that hospital records are at times unclear, and difficult to interpret, which could result in medication errors, resulting in the risk for harm to the patient.

The next topic of discussion was medications, such as diuretics, beta blockers, ace inhibitors, and aldosterone-antagonists. It was explained that these categories of medications are essential in the management of HF and to reduce readmissions and HF exacerbations. The actions of the medications were explained from a viewpoint of the neurohormonal responses which occur in HF, and how such medications combat these responses. Although they were administering these medications on a daily basis, most nurses did not know the pharmacology regarding the medications. Furthermore, except for diuretics, most nurses could not provide an example of a medication in the other classes. The importance of comprehending classes of medications was emphasized, as well as understanding the actions and adverse drug reactions. A brief overview of the pharmacology of the medications was provided.

The next area that was discussed was regarding identification of signs and symptoms of HF exacerbation, including shortness of breath, dyspnea on exertion, orthopnea, cough, fatigue, peripheral edema, weight gain, etc. Nursing staff was educated to monitor HF patients for such symptoms, and report them to the medical practitioner in a timely manner for early intervention which could defer a potential re-hospitalization. It was suggested that assessment could occur during medication passes, as the nurse stays with the resident while he or she is taking the medications. During this time, the nurse could be observing the resident for signs and symptoms such as edema, dyspnea, and cough. According to a study by Dharmarajan et al. (2013), most HF hospital readmissions occurred within the first 15 days after discharge. Thus, it was reiterated how important it is for nurses to gain understanding of HF symptomatology and intervene in a timely manner, as well as utilize transitional care methods.

Other areas which were addressed in the in-service were diet and exercise/activity. Nurses need to reinforce with their patients and families the importance of a low-sodium diet to reduce water retention. According to the American College of Cardiology Foundation and American Heart Association (ACCF/AHA), reduction of sodium intake is reasonable in patients with heart failure, to control congestive symptoms. The groups recognize that there are no clear-cut studies on the exact amount of sodium required, which may change with degree of heart failure, but the overall consensus is around 1500 mg/day in Grade A and B CHF, and less than 3000 mg /day in Grade C and D (Yancy et al., 2013). Often, residents of the facility are non-compliant with their prescribed diet, and do not like to adhere to certain restrictions. And while residents cannot be coerced into adhering to a recommended diet, ongoing education and encouragement can provide support to help residents follow the recommendations. It was explained how sodium causes water retention, thus increasing fluid volume in the body, causing

a higher workload for the heart, thus worsening HF. It was also discussed how exercise improves functional capacity, and reduces further deterioration. Therefore, nurses should encourage the residents to participate in therapy, and daily ambulation and wellness programs, as this will improve exercise tolerance. Thus, frequent education to residents plays a vital part in reducing hospital readmissions. It was suggested that education can occur while a nurse is passing out medications or during treatments, in an informal manner. Frequent, gentle reminders are necessary to promote compliance with these recommendations, especially in the geriatric population who frequently have short-term memory deficits.

The issue of daily weights was discussed during the in-service. Most nurses felt that weights could be obtained any time of day, as long as it was performed at a similar time each day. However, this is a risk for inaccurate calculations, since the weight can be higher if the patient has ingested sodium-rich foods that day compared to the previous day. It was explained that the most accurate weight is a “dry weight,” meaning upon awakening, after voiding, and before eating. Since diuretics are often adjusted based upon weight changes, it is recommended that weights be as accurate as possible.

Lastly, a 30-day HF checklist was reviewed and provided to each person to serve as a reminder for the different domains discussed in the in-service. In conjunction with the DON, it was decided that the checklist would be utilized as an educational tool. Thus, the plan was developed to laminate the checklist and provide it to each unit to be appropriated as a reference tool for assessment as well as a guide for documentation.

### **Project Outcomes**

The pre- and post-tests contained the same 7 questions. During the first 3 or 4 in-services, they were stapled together. Attendees were asked prior to the in-service to answer the

pre-test, then turn the test face down, and not refer to it again till after the session. They were then requested to complete the post-test. The intention of these tests was to determine if nursing knowledge had increased as a result of the education. Analysis of the tests revealed that the percentage of people who answered each question correctly went up in the post-test (refer to Appendix B). Question 1 had a correctly answered rate of 39.5% in the pre-test, while 94% answered it correctly in the post-test. This was the most dramatic increase in percentage compared to the other six questions. This question related to the common medications used in HF management. Question 2 tested knowledge of significant weight gain. 65% answered correctly pre-test, and 89% correctly post-test. Question 3 regarding sodium restriction in heart failure was answered correctly by most people both pre and post, 93% in the former group, 96% in the latter. The results of question 4 were interesting, as 47% answered it correctly pre-test, and only 71% answered it correctly post-test. The question was a true/false question: "The most accurate weight is any time of day, as long as it is the same time each day." The correct answer was false. As previously explained, it was discussed during the in-service that the most accurate weight is the "dry weight" upon awakening, which is best obtained after voiding, and before eating. In future in-services, this will be reiterated. Question 5 regarding exercise for HF patients was answered correctly by 82% pre-test, and by 95% post-test. Question 6 regarding when people are most prone to re-admission was answered correctly by 82% pre-test, and 100% post-test. Finally, question 7 regarding the signs/symptoms of heart failure was answered correctly by 53% pre-test, and by 89% post-test.

However, it is worth mentioning that the results of the tests are not completely accurate as some people were observed to change the answers on the pre-test after the in-service. Once this was noted, in future sessions, the pre-test was collected immediately upon completion, and

the post-test was only distributed after the education. Thus, it is likely that knowledge was lower on the pre-test than the records show, which would indicate a more pronounced change in knowledge after the education.

To date, there have been a total of 8 in-services provided to the 3 shifts, with a total of 57 attendees, assuming everyone who was present signed the attendance record. Not all were nurses, as previously reported, with a few attendees from the pharmacy, dietary, and medical departments, and 3 nursing assistants.

The educational in-services were well received, and as reported, pre/post tests showed that staff's knowledge had increased after the teaching sessions. Most nurses gave positive verbal feedback regarding the in-services, and admitted that their knowledge regarding HF and transitional care was lacking, and that they would be interested in attending more such in-services in the future. As a result of the project, staff are more educated regarding transitional care, signs and symptoms of heart failure, and more open to daily weight monitoring, in a facility where the norm is monthly weights or weekly in certain instances. Having a 30-day checklist at each nursing station will reiterate the risk of hospital readmission if appropriate methods are not followed (refer to Appendix C).

The administrators and the nurse educator agreed to move forward with future in-services till all nurses have attended at least one session. Ongoing implementation will involve scheduling 1 or 2 sessions every month, as well as during orientation of new nursing staff. Furthermore, the assistant chief executive officer (ACEO) verbalized her interest to engage the certified nursing assistants (CNA) in educational in-services as well. In the future, it is planned to provide short in-services to the CNAs addressing symptoms of HF. Since these caregivers are daily at the bedside, providing hands-on care, they would be the first to notice changes such as

worsening edema, cough, shortness of breath, and dyspnea on exertion, and can report these changes to the nursing staff for prompt evaluation.

Moreover, it was decided to institute APN-led facility-wide rounds on residents readmitted to the facility after index HF hospitalization and/or readmission. The plan is to assess the residents twice a week, or more if needed, for 30 days after hospitalization, and review medications, consultant recommendations, laboratory results, diet and exercise, and daily weights.

### **Summary, Conclusions and Recommendations**

Among the elderly LTC population, hospital readmission for HF within 30 days of discharge is a significant issue, and contributes to worsening functional and cognitive status, resulting in higher morbidity and mortality. There is a national quality initiative to reduce 30-day readmissions, both to improve the well-being of patients, as well as to control rising, out-of-control health care costs. The use of evidence-based transitional care protocols and practices is essential in the reduction of repeated hospitalizations which negatively impact quality of life among the LTC population. Reduced hospital readmissions are associated with quality care, patient and family satisfaction, and decreased healthcare costs.

Educating nurses in LTC/SNFs is crucial to the appropriate utilization of current transitional care practices, and can facilitate the reduction of 30-day HF re-hospitalizations. Educational in-services to the nursing staff at the long-term care veterans' facility have proven to be beneficial in terms of increasing nursing knowledge regarding transitional care practices and management of HF. Because there is a significant amount of information contained in each in-service, it would be advisable for nurses to attend the session more than once. However, if time

permits, it would be ideal to separate the in-service into two sessions. This will provide more time to discuss the domains of HF management in further detail.

Future education should also be targeted toward direct caregivers, the CNAs, who can be taught to observe changes in a resident's condition, to promote early identification of worsening HF which can be reported to the nurse. Furthermore, transitional care protocols should be formalized and written into standards of practice at the facility, so that all staff on all units are following uniform evidence-based methods. HF readmission rates can be compared between this facility and other state veterans' facilities to determine the effect of the teaching intervention. Finally, it is recommended that all LTC/SNFs should institute transitional care methods and protocols, as there is sufficient evidence from the literature that these methods assist in the reduction of 30-day HF hospital readmissions.

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## Appendix A

## Pre/Post Test

1. Which medications are commonly used in the treatment of heart failure? Check all that apply:
  - a. Diuretic
  - b. Ace Inhibitor
  - c. Beta blocker
  - d. Fluoroquinolone
  
2. How much weight gain is considered significant in heart failure patients?
  - a. 1 lb. in 1 day
  - b. 2 lbs. in 1 day
  - c. 2 lbs. in 1 week
  - d. 5 lbs. in 1 month
  
3. True or false:  
Patients with heart failure should restrict sodium.
  
4. True or false:  
The most accurate weight is any time of day, as long as it is the same time each day.
  
5. True or false:  
Patients with heart failure should be encouraged to exercise/participate in regular activity.
  
6. People are most prone to CHF re-hospitalization in the first:
  - a. 30 days
  - b. 60 days
  - c. 90 days
  
7. Signs/symptoms of heart failure include:
  - a. Edema
  - b. Cough, wheezing, rales
  - c. Weakness/fatigue
  - d. Tachycardia
  - e. A,B,D
  - f. All of the above

## Appendix B

Table 1

*Pre-test/Post-test Questions*

Questions	Answered correctly Pre-test	Answered correctly Post-test	Difference
1. Medications commonly used in HF	39.5%	94%	54.5%
2. What is considered significant weight gain in HF	65%	89%	24%
3. T/F: Patients with HF should restrict sodium	93%	96%	3%
4. T/F: Accurate weight is any time of day, as long as same time each day	47%	71%	24%
5. T/F: Patients with HF should be encouraged to exercise regularly	82%	95%	13%
6. People are most prone to CHF readmissions in: 30, 60, or 90 days	82%	100%	18%
7. Signs/Symptoms of HF	53%	89%	36%



