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A Structured Telephonic Transition Program for Heart Failure Patients

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UNIVERSITY OF SAN DIEGO
Hahn School of Nursing and Health Science

DOCTOR OF NURSING PRACTICE PORTFOLIO

By

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A portfolio presented to the
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DOCTOR OF NURSING PRACTICE
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Opening Statement

Purpose of Pursuing the Doctor of Nursing Practice Degree

I have been a nurse for the past 20 years working in a variety of roles. I have worked as a registered nurse caring for the acutely ill, as an advanced practice nurse in the outpatient setting and as a nurse educator teaching in a community college registered nursing program. As a geriatric clinical nurse specialist and nurse practitioner, I have seen the disparities in the care of our elders in the health system everyday. These experiences created a desire to learn as much as I could in order to successfully enact change to improve the quality of care we provide for our elders on both an individual level and on a systems wide level. As an educator, I strive to create an environment to foster clinical inquiry where my students will strive for excellence and not settle for the status quo, where they will have the desire to make changes and the ambition to do so.

The decision to enter into a doctoral program was made with deep reflection, and with a strong desire for both personal and professional growth. My goal was to expand upon my experiences and master the skills I would need to make significant contributions to health care reform as both a practitioner and educator. With the Affordable Care Act, health care reform is in the infancy stage with many challenges. Advanced practice nurses and those with the skill set gained in the doctoral program can meet the challenges and provide the guidance to help pave the direction in which health care develops. I plan to play a pivotal role in leading change and transforming care, and I hope to instill the same desire to others.

A Structured Telephonic Transition Program
for Heart Failure Patients

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Keywords: Heart Failure, Elderly, Disease Management, Self-care,
Telephone Intervention, Hospitalization and Readmissions

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Abstract

Purpose: To incorporate a structured telephonic self-care management transition program for heart failure (HF) patients to improve patient care and reduce hospital readmissions.

Background: HF is a fatal condition affecting more than 5 million Americans leading to frequent hospitalizations, poor quality of life and eventually death. There are approximately 900,000 new HF cases annually, with a 50% risk of mortality within the first year of diagnosis. The annual cost to the healthcare system is approximately \$38 billion, ranking HF as one of the costliest conditions to manage. Significant evidence exists that HF self-care management programs improve patient self-care and decrease HF-related readmissions. Current guidelines recommend health professionals provide comprehensive HF education focused on knowledge, skills of management, and self-care behaviors.

Practice Change: The Iowa Model of Evidence Based Practice provided the foundation for the practice change. Structured telephonic support (STS) was delivered by a nurse practitioner consisting of self-care management skills and a risk assessment for early intervention based on Bandura's Self-Efficacy behavior theory. Education was initiated prior to discharge followed by post-discharge STS weekly for 6 weeks. The Minnesota Living with Heart Failure Questionnaire (MLHFQ), was administered prior to discharge and again at 30 days to measure quality of life score improvement.

Outcomes: The practice change project included 5 participants. One participant dropped out for a planned surgical procedure. The remaining 4 participants completed the program without any HF 30-day readmissions. There was a 23% improvement in mean MLHFQ scores 30 days after the practice change.

Conclusions: Evidence-based HF self-care transition programs have the potential to assist HF patients to successfully transition from the hospital to home, demonstrating improved quality of life and reduction in readmissions. The advanced practice nurse possesses the knowledge base and skill set to meet the individual HF patient needs by incorporating education and self care. A successful practice change that is sustainable can yield significant financial implications for the healthcare system.

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A Structured Telephonic Transition Program for Heart Failure Patients

Background

Heart Failure (HF) is a progressive and fatal condition affecting more than five million Americans, requiring frequent hospital admissions. HF is caused by a structural decline of the heart muscle resulting in the accumulation of fluid and a reduction of adequate perfusion throughout the body. This condition follows a specific illness trajectory associated with severe debilitating symptoms, frequent hospitalizations, poor quality of life and eventual death. Nationwide, there are approximately 900,000 new HF cases annually, with a 50% risk of mortality within the first year of diagnosis (Mozaffarian et al., 2015; Kirkpatrick & Kim, 2006). HF is largely manageable, yet this condition continues to be the most common reason for hospitalization in the adult population. Research suggests that the lack of consistency from hospital discharge to transitional care with appropriate follow-up is a major contributor to the growing problem of hospital readmissions for HF (Degani & Stevenson, 2012).

From 2007 to 2010, the United States HF morbidity rate was recorded at 2.1%, or 5.1 million Americans ages 19 years and older, with approximately 56,410 deaths reported in 2010. The prevalence of HF is estimated to increase 46% from 2012 to 2030. These data indicate that more than 8 million American people greater than 17 years of age will have HF. In 2013, the national cost for HF was \$32 billion, with 68% attributable to direct medical costs. Projections are that the total cost will increase approximately 127% to \$69.7 billion from 2012 to 2030, with a 30-day readmission rate at 23.8%. Thus, HF ranks as one of the most costly diagnoses in the healthcare system. Annually, more than one million Americans are hospitalized with HF as the primary diagnosis. Of these hospitalizations, more than 50% experience a hospital readmission for HF exacerbation within the first 6 months following discharge with the approximate cost to

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the healthcare system for each HF re-admission averaging \$15,000 (Degani & Stevenson, 2012; Mozaffarian et al., 2015; Ross et al., 2010).

The California HF readmission rate as reported by the Centers for Medicare and Medicaid averaged 24.5% (CMS, 2015). With the Affordable Care Act (ACA) and Medicare reimbursement restrictions, penalties are imposed on institutions with frequent readmissions, specifically 30-day readmissions. The cost then becomes the responsibility of the healthcare system. In order to prevent these costly readmissions, it is imperative that medical institutions and primary care providers partner to develop evidenced-based HF programs to decrease the financial burden on the health care system, to improve quality of life, and decrease mortality.

Researchers (Dunagan et al., 2005; Feltner et al., 2014), have studied various interventions to determine the most efficacious solution to decrease 30-day readmission rates. These interventions, along with current national guidelines, are readily available, yet the risk of developing HF continues to increase with age and the existence of other cardiovascular comorbidities. These patients are at increased risk for frequent acute care hospitalization often requiring extensive hospital stays utilizing many resources. When discharged, these patients have the highest risk of readmission within the first 1 to 2 weeks of discharge. This may be explained by the fragmentation of care during the transition period and inconsistencies with follow-up care, which have been shown to cause an increase in HF exacerbation leading to frequent hospital readmissions (Dunagan et al.; Feltner et al.).

Literature Review

A literature search was conducted using PubMed, Cochrane, and CINAHL databases. The keywords used included heart failure, elderly, disease management, self-care, telephone intervention, hospitalization and readmissions. Of the results, two randomized controlled trials

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(RCT) and a systematic review and meta-analysis were selected to include in this summary. There are numerous studies with regards to HF self-care interventions to decrease the 30-day readmission rate, however the following were selected based on the specific telephonic case management intervention utilized after hospital discharge.

Riegel and colleagues (2002), conducted a RCT to test whether implementing a standardized telephonic case management intervention would decrease resource use in patients with chronic HF. A registered nurse case manager was used to call recently discharged patients with chronic HF, and provide telephonic case management. The RNs utilized a decision support software system to help prioritize needs. The software support based the decisions suggested on a methodology used to predict those with a high risk of utilization.

Findings included a 36% reduction in HF related readmissions in the intervention group as compared to the control group at 3 and 6 months. The data showed statistical significance at the 6-month data point. The number of patients required to be treated to prevent 1 primary HF readmission during the 6 months from initial admission was 10 patients (NNT=10). The all-cause readmissions were not statistically significant. The RCT was found to have a high quality of evidence for benefit, with a level A rating.

A RCT conducted by Dunagan and colleagues (2005), utilized nurse managed telephonic disease management for HF patients upon discharge to determine if a disease management program would decrease hospitalizations, readmissions and mortality. This trial focused on promoting self-management while also screening patients for exacerbation, and provided the patients with early intervention.

The HF related readmissions outcome demonstrated that only 30% in the intervention group required a HF related readmission as compared with the 47% in control group at 6 months.

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Overall all-cause readmissions showed 37% in the intervention group required readmissions while 65% in the control group experienced a readmission. The number of patients required to be treated to prevent 1 primary HF readmission during the 6 months from initial admission was 6 patients (NNT=6), and the number of patients requiring treatment to prevent all-cause readmission during the 6 months from initial admission was 3 (NNT=3). This RCT was found to have a high quality of evidence for benefit, with a level A rating.

A systematic review and meta-analysis by Feltner et al. (2014), included 13 RCT, comparing STS with usual care. The STS calls were initiated within the first 7 days of discharge and averaged 2 calls during the trial periods. The findings showed that HF related readmissions had a statistically significant reduction in readmissions at 3 and 6 months with high strength of evidence. However, all-cause readmissions did not prove to demonstrate statistical significance at 3-6 months with a moderate strength of evidence found. These data suggest that STS utilized to reduce HF related readmissions should be considered as an effective post discharge follow-up.

Need for Practice Change Project

During the past 3 years, the practice change project site had focused their attention on decreasing the overall readmission rate for those at high risk for hospital readmissions. From 2010 to 2014, the medical center reported an all cause readmission rate of 17.6%, a decrease of 10% for a small subset of the patient population they serve. This decrease was observed upon implementation of a grant-funded program targeting a small Medicare high-risk population. However, even with the overall decrease in readmissions within this population, there remained an overall higher proportion of those readmitted with HF diagnoses than other chronic conditions. The program only enrolled Medicare patients for 30 days who did not have a hospital readmission within 6 months prior to enrollment. While the current practice had shown positive

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results with varied levels of providers in the community, the medical center demonstrated interest in a cost-effective practice change utilizing specially trained providers to provide care to a larger population remotely, such as structured telephone support (STS).

PICO Question

In the adult population experiencing heart failure related hospitalizations, what is the effect of an Advanced Practice Registered Nurse (APRN) structured telephone support follow-up practice change as compared to usual discharge follow up care in decreasing 30-day hospital readmissions?

Model and Theory

The Iowa Model of Evidence-Based Practice model provided the framework for this EBP project. This model has been shown to be effective in guiding change at the system level by facilitating the process of healthcare providers making a practice change into their current practice (Rycroft-Malone & Bucknall 2010).

Bandura's Social Cognitive Theory is often utilized to effect positive behavior changes in patients with chronic conditions. This theory focuses on the patient's perception of their abilities for self-efficacy in caring for their chronic condition. Patients demonstrate efficacy through vicarious experiences, encouragement and education. The STS allows the APRN to provide essential information and encouragement as the patient demonstrates progression toward their goal of decreasing symptoms related to decompensation. This is important in order to provide and create a sense of self-efficacy leading to mastery and success. It is also just as important to provide challenges to the patient, as this allows for continued improvement and helps to firmly establish self-efficacy in maintaining health and wellness while living with HF (Bandura, 1994).

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Practice Change Process

This EBP project was based on the literature supporting that, initiating structured follow-up calls within the first 24-48 hours of hospital discharge, and weekly thereafter, will reduce hospital readmissions (Feltner, 2014). The EBP project obtained approval from the medical center's Institutional Review Committee (IRC) and the university-affiliated Institutional Review Board (IRB) prior to implementation. The population for this EBP project consisted of adults over the age of 65 years who were recently discharged for a HF related admission from a major medical center located in Escondido, California. This medical center is a 288 bed campus offering cardiology services, cardiac catheterization, cardiac progressive care and telemetry units. A certified family nurse practitioner (NP) provided STS in collaboration with a local medical center. The NP identified the participants based on the following inclusion/ exclusion criteria: (1) primary or secondary diagnosis of HF, (2) ages 18 and older, (3) ability to speak and read the English language and (4) have phone access. Exclusion criteria included (1) end stage renal disease on dialysis, (2) terminal illness, (3) cognitive or psychiatric impairment, (4) alcohol or substance abuse, (5) long- term care, (6) pregnancy or (7) the current participation in a HF transitional care study. The NP visited each potential participant prior to discharge, obtained consent from those who met inclusion criteria and provided initial HF education with the patient. The MLHFQ was administered at the first visit and again in 30 days. Patients were asked to self schedule their telephonic visit from open blocks of time to promote participation in the practice change process. Each received a copy of their scheduled visits and were informed as to their role during the call. The first session was allotted 45 minutes in which to enroll the patient, provide education and administer the MLHFQ. The NP placed the first call within 48 hours of discharge and continued calls weekly for 6 weeks. Weekly calls were completed during a 20-minute time

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frame. Self-care education and reinforcement focused on the following areas: diet, medication adherence, and symptom recognition with treatment plan, including a diuretic action plan (DAP) if ordered. The process was developed on self-efficacy of self-management skills. With each call, the NP completed a risk assessment in order to identify those with symptom exacerbation, or at high risk for exacerbation, and provided early intervention in which to help to avoid readmission.

Data Analysis

Data were collected from the Centers for Medicaid and Medicare Services specific for the practice change site for March 2015 and February 2016 to identify outcomes. These data were specific for heart failure 30-day readmissions for the medical center and as compared to the national average. March 2015 demonstrated 30-day readmissions between 18.6 - 25% with the national average at 22.7%. The February 2016 30-day readmissions dropped to 17 – 23% with the national average at 22%.

Retrospective baseline data from the project site were collected for the previous 24 months, and evaluated to determine if there was a need for the STS practice change. Creating a control chart with 24 data points allowed for the identification of variations in the data, and for outliers as noted by greater than 2 standard deviations from the mean. Baseline data indicated that there was an undesirable trend between October 2014 through March 2015. There was also an undesirable data point for December 2015. These findings further demonstrate evidence for the need of additional work with HF transitional care.

This baseline data indicated that although there is an overall effective transitional care program in place, there were 2 incidences where significant increases in 30-day readmissions occurred. The time frames are specifically in the fall and spring which may be related to holiday consumption leading to symptom exacerbation.

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Data were analyzed to determine if program outcomes demonstrated effectiveness of the practice change. These outcomes were based on reducing the 30-day readmission rate, and improving the quality of life for participants (Ornstein et al., 2011; Piette, 2005).

The primary evaluation measure focused on achieving a minimum 10% decrease in the overall HF 30-day readmission rate during the first 30-days post discharge. Data were tracked at 24 months prior to practice change, 30 days after implementation, and 6 weeks post implementation. The outcome data for 30-day readmissions were analyzed by reviewing the number of first time admissions and the number of readmissions within 30 days of discharge. The 30-day readmission rate was defined as the number of patients discharged and readmitted within 30 days divided by the total number of patients discharged (Ornstein et al, 2011). The STS readmission outcome target was met during the 6-week project, as no participants required HF related readmissions.

The secondary measure focused on achieving a minimum 10% increase in the mean quality of life score post 30-days practice change. The mean quality of life scores were analyzed by adding the questionnaire scores at enrollment and dividing this figure by the total number of questionnaires completed. This was calculated again with the questionnaires completed at 30-days post implementation. These two mean scores were compared to determine participant's perception of quality of life before and after the practice change was implemented. Patient perception of quality of life demonstrated improvement by 23.9%, as reported on the MLHFQ. The MLHFQ pre-mean score was 76.4, with the post-mean score of 52.5. The lower score is more desirable, as the MLHFQ uses a Likert scale from 0-5 where the patient scores symptoms impacting their life as higher than those that do not.

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Results

Of the participants in this practice change project, all remained free of heart failure related readmissions. Only 1 participant did not complete the 6-week program due to a planned admission for a surgical procedure. The benchmark target to reduce readmissions by 10% was met, as none of the participants required a hospital readmission during the 6 weeks of the project.

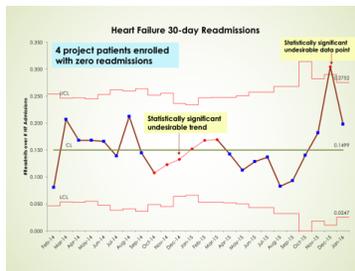


Figure 1. Baseline data supporting EBP practice change.

The second benchmark target of 10% was established to determine the increase in quality of life post practice change for those without HF related 30-day readmissions. Results indicated that the benchmark target for quality of life perception was met since there was an increase of 23.9% perceived quality of life.

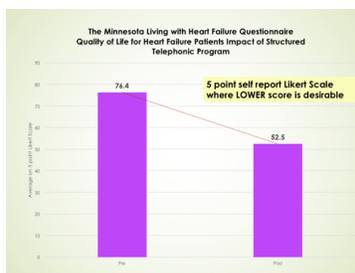


Figure 2. Quality of life mean scores pre and post EBP practice change utilizing the MLHFQ.

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Cost Benefit Analysis

To evaluate for sustainability, a cost benefit analysis was done. The Bureau of Labor Statistics (2014), was reviewed to determine the estimated annual cost for a full time APRN to provide the STS practice change at approximately \$114,000.00. A conservative estimated cost per each HF related readmission was noted at approximately \$15,000.00 (Degani & Stevenson, 2012; Ross et al, 2010). The cost benefit analysis demonstrated that the prevention of eight 30-day readmissions annually can realize a cost avoidance of \$120,000.00. Demonstrating the cost avoidance, and avoiding expensive penalties, further justifies the cost of using the APRN for the HF transition program.

Discussion and Implications

The population ages 65 and older is expected to increase to nearly 20% of the total population by the year 2030. The elderly population is living longer, and with that new HF cases are increasing as well. With the projected increase in the elderly population and the potential new cases of HF, there is much concern regarding the impact this condition will have on the healthcare system and the economy (Bennett, Sauve & Shaw, 2005; Rich, 2005). The direct and indirect cost to the healthcare system have been estimated to exceed \$69 billion dollars within the next 15 years (Degani & Stevenson, 2012; Mozaffarian et al., 2015; Ross et al., 2010). This strain on the current healthcare system is a result of inconsistent and fragmented healthcare.

Inconsistency in HF care and the lack of available resources within the community produce a fragmented system of care for these patients. Much of the care the patient receives after discharge from the hospital is within the community. The lack of care coordination contributes to the decline in health status and frequent readmissions further increasing the societal burden. The APRN can facilitate chronic conditions management by developing

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standardized programs aimed to eliminate gaps in care. Although there are efforts to improve outcomes in the inpatient setting, the lack of continuity of care in the outpatient setting remains a major cause of frequent readmissions (Gardetto & Carroll, 2007).

Challenges faced during implementation of this EBP project affecting patient participation included that of a concurrent grant study at the medical center, in which all Medicare patients were possible participants and recruited at discharge. Those patients were not exclusive to HF, however those with HF that met criteria for this study were excluded from the practice change process. Flyers were distributed to the nurses and managers, and a dedicated phone number was utilized for the nurses to call in when discharge orders were written. However, these strategies did not prove to be beneficial in the identification and recruitment of participants. The nurses noted the following as barriers for this method: (1) they did not have the phone number available when discharge orders were written, (2) they were busy and did not have the time to call, and (3) this was a new process and it was difficult differentiating whether the patients met criteria for the current grant study or the EBP practice change project. All participants were identified and recruited by the NP conducting the EBP change project.

While this evidence-based project cohort was small, the outcomes support project replication on a larger scale. CMS (2014), currently allows for penalties imposed on reimbursements for 30-day readmissions, therefore, with a reduction in readmissions, fewer penalties will be incurred. The transition program utilizing the STS has proven to assist HF patients make a successful transition from the hospital to home. According to the research, quality of life decreases with each hospitalization and as HF progresses. Piette (2005), noted that STS, though geared toward decreasing hospital readmissions, improves quality of life by encouraging positive behavior changes in self-care management, with increased confidence in

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self care and wellness. Overall project results are promising and consistent with the literature for STS use.

This HF transition program may be sustainable within the community as well, as provisions have been made through the Affordable Care Act for reimbursable telephonic visits for chronic conditions management (CMS, 2015). The use of telephonic visits using the APRN will provide a service to those who are unable to attend traditional office visits. APRNs can provide the complex care needed for this patient population while providing education, promoting self-care, providing early intervention, reducing 30-day readmissions, improving patient quality of life and preventing death.

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Concluding Essay

Reflections on Growth in the Advanced Practice Nursing Role

Growing up in a family of physicians and nurses, I found the path to my future quite clear at a very young age. Looking back, the road I chose for my future truly began as a young teen when I spent many hours as a hospital volunteer. While I assisted these patients, I spent a great deal of my time visiting and reading to them. The comfort I was able to provide by these simple acts took away any doubt I had about my future.

I have been a nurse working with adult and geriatric populations for 20 years. I became an advanced practice nurse as a certified geriatric clinical nurse specialist, and a certified family nurse practitioner to improve patient outcomes and enhance the lives of others. As nursing faculty, for a community college registered nursing program, I have learned the importance of passing on my knowledge and experiences to educate the future generations of nurses. As a doctoral student, I have developed outstanding skills with a deeper knowledge and understanding into the role of an advanced practice nurse with doctoral preparation.

I have gained valuable and unique experiences in all of these roles. It is with these experiences that I hope to make further changes and advancements as a clinician and educator on system wide levels locally, statewide and nationally. This has been the driving factor behind the advancement of my education. I plan to play a pivotal role in leading change and transforming care.

I continue to work as an educator and stay in practice as both a Clinical Nurse Specialist and as a Nurse Practitioner. My education and work as an advanced practice nurse has reaffirmed my personal and professional need to continue to contribute clinically, scientifically and academically to the improvement of healthcare. It is my hope that by earning my doctorate

degree and the skills I have acquired that I will provide significant contributions to the advancement of the science of nursing in the care of our patient populations and in the education of the nurses of our future.