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### Heart Failure Transitions of Care Benchmark Project

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Heart Failure Transitions of Care Benchmark Study  
A Paper Submitted in Partial Fulfillment of the Requirements  
For NURS 5382: Capstone  
In the School of Nursing  
The University of Texas at Tyler  
by  
Tamera Brandon  
December 6, 2020

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### **Executive Summary**

Heart failure (HF) is a major cause of death associated with extensive morbidity and impaired quality of life. The incidence and prevalence of HF has also increased dramatically in the past three decades (Whitaker-Brown et al., 2017). HF now affects approximately 5.7 million people in the United States and is the cause of more than 55,000 deaths annually (Whitaker-Brown et al., 2017). Consequently, readmission rates of HF patients are an area of great concern. The purpose of this benchmark project is to decrease HF readmission rates in adults who had a recent HF related hospitalization by providing transitional care interventions. According to the Centers for Disease Control and Prevention (CDC), HF costs the nation an estimated \$30.7 billion annually (CDC, 2020). In patients with HF, use of 30-day readmission rates as a healthcare metric and increased pressure to provide value-based care compel healthcare providers to improve efficiency and to use an integrated care approach (Albert et al., 2015). As a solution, transition of care programs are being used to achieve goals. Transition of care as it relates to HF management, refers to individual interventions and programs with multiple activities that are designed to improve transitions from one level of care to the next, most often from hospital to home.

### **Rationale for the Project**

The Heart Failure Society of America defines HF as a syndrome characterized by high mortality, frequent hospitalization, reduced quality of life, and a complex therapeutic regimen. This reality imposes an increasingly heavy burden on health care systems, most of which can be attributed to numerous hospital readmissions and emergency department visits (Vedel, 2015). On a national scale, approximately 20% of patients hospitalized with HF are readmitted within 30 days (Whitaker-Brown et al., 2017). The BSWH heart failure related readmission rate has steadily fluctuated well above the internal target for HF readmissions during the previous year. Whitaker-Brown et al. (2017) also notes that although all hospital readmissions are expensive with HF considered one of the most expensive diagnosis costing approximately \$32 billion annually.

In general, Vedel (2015) found that the frequent use of health care services is primarily due to a patient's lack of understanding of a treatment plan, nonadherence to medical therapy, unawareness of HF symptom exacerbation, and irregular follow-up. Previous literature has also shown that HF patients often lack support from healthcare teams especially when transitioning from the acute hospital level of care to their home environment (Whitaker-Brown et al., 2017). To address these issues, transitional care interventions will be implemented with an objective of reducing heart failure related hospital readmissions in the adult population. It is recommended that transitional care begin during admission and continue through discharge. Transitional care programs have been designed to ensure continuity of care, contribute to clinical stability, improve patient outcomes, and reduce rates of hospital re-admissions and other related health care costs (Whitaker-Brown et al., 2017). One of the hallmarks of transitional care is that it is a time limited patient-centered intervention, so the goal is to complement, not to replace primary

care, disease management, discharge planning or case management, by educating patients with chronic disease and their caregivers (Whitaker-Brown et al., 2017).

### **Literature Synthesis**

The review of literature was conducted using Cochrane Library, PubMed, and the Cumulative Index to Nursing and Allied Health Literature Database. For this project, the author set parameters to include heart failure articles between 2014-2020, that mentioned keywords such as “heart failure”, “readmission”, “rehospitalization”, and “transitions of care”. The search was significantly narrowed to only include research within North America and articles with the highest available levels of evidence. To support the feasibility and applicability of the implementation of transitional care interventions for recently hospitalized HF patients, systematic reviews, multiple meta analyses (MA), and randomized control trials (RCT) were thoroughly reviewed. The studies that follow support a decrease in readmissions, improvement in quality of life, and/or an improvement in mortality and morbidity in the heart failure adult population through utilizing evidence based transitional-care interventions such as: timely post-discharge appointments, early contact with patient post hospitalization, medication reconciliation, and comprehensive self-care and symptom recognition education.

Whitaker-Brown et al. (2017) presented a pre and post-test design study that found improved quality of life and decreased readmission rates following a 4-week multidisciplinary transitional care program following hospitalization for heart failure patients. 50 patients participated in this study and only 2 of them had a readmission within 30 days, both being unrelated to HF.

Stamp (2014) performed an integrative review that examined HF transitional care programs’ effect on quality of life, readmission rates, and cost effectiveness. The study used 5

review stages: problem identification, literature search, data evaluation, data analysis, and presentation. All studies included a transitional care intervention with a duration of 10 days to 18 months. The review found that nurse-led transitional care programs increase quality of life, decrease readmissions, and decrease cost of care for heart failure patients (Stamp, 2014).

Albert et al. (2015), completed a systemic review aiming to describe heart failure transition of care interventions and their impact on health outcomes, as well as to provide recommendations for practice and research. The reviewed studies included 59,652 adults with heart failure who were studied over a 10 year period. The review found that nurse led high and moderate intensity transitional care programs using nurses decreased mortality and heart readmissions. High and low intensity transitional care programs decreased readmissions. Albert et al.'s (2015) recommendations for clinical practice included medication reconciliation, very early post discharge contact, early office follow-up within first week of discharge, and chronic heart failure education that includes heart failure symptom identification and self-care behaviors.

Vedel (2015) completed a systematic review and meta-analysis. This review found that transitional care interventions for heart failure patients significantly reduced risks of readmission and emergency department visits.

In a systematic review, Feltner et al. (2014) found that telephonic transitional care programs reduced heart failure specific readmission and mortality rates, thus should be considered when implementing transitional care interventions. The review examined forty-seven trials and the primary purpose of the study was to assess the efficacy, comparative effectiveness, and harms of transitional care interventions to reduce readmission and mortality rates for heart

failure patients. The findings of this review provide guidance to quality improvement efforts aimed at reducing readmission and mortality rates for heart failure patients.

Albert (2016) presented a systematic review of 46 articles with an objective of evaluating existing transition of care models and identifying common themes that may minimize exacerbation and rehospitalization, as well as improve quality of life for heart failure patients. This review found 8 common themes of transition of care interventions and determined that all 8 themes can be applied to patients with heart failure to help minimize exacerbation of symptoms, reduce readmission rates, and improve overall quality of life. Albert (2016) also found that of the potential transitional care benefits, reducing readmissions is an important goal because multiple heart failure-related readmissions within 6-24 months of hospitalization were associated with increased morbidity and mortality.

### **Project Stakeholders**

The internal stakeholders for this project who are directly affected are the middle and senior leadership teams of Comprehensive Care Management, Care Management Managers, Regional Directors, Executive Director, and the Senior Vice President (SVP). External stakeholders include CMS, primary care providers, third party payors, BSWH hospitals, and the BSWH accountable care organization. It is imperative to acknowledge that while the financial burden caused by readmissions is huge on the healthcare system, the primary stakeholder in this project are the HF patients who are burdened by living with HF every day.

### **Implementation Plan**

The benchmark project implementation plan will encompass the activities required to successfully implement this project as a pilot HF transitional care program consisting of three Nurse Care Managers who will provide telephonic transitional care interventions to the HF patients population that see the primary care providers at one of our largest primary care clinics. This clinic's providers see over 300 Medicare patients and approximately 50 of those patients have a HF diagnosis.

Formal implementation will occur over three days and will include a brief Webex education session for hospital care management leadership teams and clinic leadership team the targeted primary care provider office. This session will inform these teams of the new transitional care interventions that will be provided to our shared HF patients. This step is important because we want our healthcare team partners to be aware and knowledgeable of our program if and when they come into contact with our patients. The next component would include training for the Nurse Care Management team. Training priorities would include the HF transitional care model, workflow, and documentation expectations.

### **Timetable/Flowchart**

This benchmark project would take 11 days to plan and implement, then would be active and measured over four weeks. See Appendix B.

### **Data Collection Methods**

The data collection methods for this project will rely upon the existing readmission data analysis tools created and maintained by the Data Analytics team. The Data Analytics team maintains a comprehensive PowerBI based Readmission Dashboard. This dashboard is built with claims data and electronic medical record (EMR) data and the dashboard has drilldown

capability to clinic, individual providers, and patients. All pre and post project readmission data will be compared to determine the efficacy of the project.

### **Cost and Benefit Discussion**

This project encompasses financial implications that have a very conservative level of risk. All hospital readmissions are expensive with HF considered one of the most expensive diagnosis costing approximately \$32 billion annually (Whitaker-Brown et al., 2017). In FY20, Baylor University Medical Center paid \$1.1 million in readmission penalties. Of those readmissions, 1,511 were HF related with a readmission rate of 26.67%. Baylor University Medical Center could see approximately \$100,000 in savings with a 10% reduction in HF readmissions. Consequently, most studies support the cost effectiveness of telephonic nurse-led HF transitional care interventions.

### **Discussion of Results**

The expectation is that the results of this benchmark project will support the feasibility of this HF transitional care program as a standard of care for our HF patients. It would be determined that the implementation of evidence based, nurse-led transitional care interventions would lead to a decrease in readmission rates for recently hospitalized HF patients that are discharged to their home setting. In preparation for this project, a multitude of MAs and RCTs were reviewed and a wealth of evidence was found to support the anticipated benefit and results on this benchmark project. After hospitalization for a HF related diagnosis, timely, thorough, coordinated ambulatory care, combined with detailed and customized education and medication reconciliation can reduce the rate of readmission. Providing context for how to apply recommend self-care maintenance and management behaviors in daily routines is imperative (Albert, 2016).

### **Conclusions and Recommendations**

This project set out to examine the impact of transitional care interventions on recently hospitalized HF patients, with an expected result of reducing HF related readmissions. Cost effective interventions that reduce readmissions should be a serious consideration as we continue to navigate the current and future financial impacts of the Coronavirus pandemic. More importantly, it is paramount to consider the impact on the quality of life of HF patients. The recommended next steps should include development of a quality of life outcome measure and spread of this project to a larger HF patient population.

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## Appendix A

**Synthesis Table**

<b>Study</b>	<b>Type</b>	<b>Purpose</b>	<b>Result</b>	<b>Conclusion</b>
<b>Vedel (2015)</b>	Systematic Review and meta-analysis	effect of TCIs on services used by CHF patients in primary care  identify most effective TCIs and optimal duration	TCIs significantly reduced risks of readmission by 8%; ED visits by 29%  High-intensity TCIs reduced readmission rate regardless of duration  moderate intensity, if for at least 6 months  low-intensity, no difference	Clinicians can determine balance of intensity and duration own practice  high-intensity is best option  minimum 6 month moderate intensity another option
<b>Albert et al. (2015)</b>	Systematic Review	describe HF TCIs and impact on health outcomes; provide recommendations for research and practice	High & moderate intensity TC programs decreased mortality & HR readmissions  High & low intensity programs decreased readmissions  programs using specialty registered nurses instead of other disciplines (pharm,	TC program implementation for high-risk HF patients  Recommended TCIs: medication reconciliation, early follow-up, post-discharge contact within 24 hours, notification of patient status with outpatient providers

			LVNs, and etc) had improved mortality and readmissions	Utilize specially trained nurses to carry out interventions  Use health informatics to assist with care coordination, financial analysis, research, quality, and patient communication
<b>Feltner et al. (2014)</b>	Systematic Review	Assess efficacy, comparative effectiveness, and harms of TCIs to reduce readmission and mortality rates for HF patients.	3-6 month period - Home-visiting & multi-disciplinary HF clinics reduced all-cause readmission & mortality  telephonic programs reduced HF-specific readmission and mortality; telemonitoring & primary educational interventions did not reduce readmissions or mortality	Home-visiting, multi-disciplinary HF clinics, and structured telephonic programs should be considered when implementing TCIs
<b>Stamp (2014)</b>	Integrative review	1. Examine HF transitional care programs effect on quality of life, readmission rates, and cost-effectiveness	Transitional care programs increase quality of life, decrease readmissions, and decrease costs of care for HF patients	Nurse-led transitional care programs can reduce readmission rates, costs of care, and quality of life

								Most successful interventions for decreasing readmission were: home visits combined with telephonic support or alone	Most effective intervention - home visits combined with telephonic support
Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/Method	Sample/Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])	
Stamp, K., Machado, M., & Allen, N. (2014). Transitional care programs improve outcomes for heart failure patients: An integrative review	Not addressed	Integrative Review – the authors examined the interventions, quality of life, and readmission rates of individuals with heart failure who were enrolled in transitional care programs	20 studies, sample sizes ranged from 70-1023 patients	IV = High intensity TCIs (weekly outpatient contact), moderate intensity TCIs (Once per month or more, and low intensity TCIs (< once per month))	Varied by study, see Table 2  Intensity Rating Scale (IRS) used to identify intensity of each intervention	Varied by study, see Table 2 and Table 3	Transitional care programs for heart failure patients can increase quality of life, decrease readmissions, and lower the cost of healthcare.	<ul style="list-style-type: none"> <li>• Limitation - Unable to account for variability of comorbidities</li> <li>• Transitional care program very feasible for use in my practice</li> <li>• USPSTF Grade A</li> <li>• Level V evidence</li> </ul>	

				DV1 = hospital readmiss ion rates at 30 and 60 days DV2 = quality of life				
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<p>Albert, N., Barnason, S., Deswal, A, Hernandez, A., Kociol, R., Lee, E., . . . White-Williams, C.; on behalf of the American Heart Association Complex Cardiovascular Patient and Family Care Committee of the Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Quality of Care and Outcomes</p>	<p>Not addressed</p>	<p>Systematic review – the authors reviewed RCTs to investigate TCIs and outcomes, in an effort, to discuss implications and recommendation for research and clinical practice to enhance patient centered outcomes</p>	<p>13 studies, Study participants ranged from 121 – 15,507 RCTs, quasi experimental, retrospective, and prospective</p>	<p>DV 1= rehospitalization DV2 = ED visits DV3 = healthcare costs  IV = transitional care interventions; varied by study</p>	<p>Varied by study; see Tables 3 &amp; 4</p>	<p>Varied by study; see Tables 3 &amp; 4</p>	<p>Varied by study &amp; intervention; see tables 3 &amp; 4 – “Transition of care findings relevant to end points column”  Optimal transitions of care can decrease rates of avoidable readmissions, decrease possible medication related adverse events, and promote patient satisfaction.</p>	<ul style="list-style-type: none"> <li>• Limitations varied by study; see Table 3-7</li> <li>• USPSTF Grade A</li> <li>• Level I evidence</li> </ul>
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Research. (2015)								
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<p>Feltner, C., Jones, C., Cené, C., Zheng, Z., Sueta, C., Coker-Schwimmer, E., . . . Jonas, D. (2014). Transitional care interventions to prevent readmissions for persons with heart failure.</p>	<p>Not addressed</p>	<p>Systematic Review – authors assessed effectiveness of TCIs to reduce readmission and mortality rates for HF patients</p>	<p>47 RCTs, see Table 3 on p. 778 for participant total for each intervention  Trial populations were adults with a mean age of 70 years old with New York Heart Association classification of moderate to severe HF. Participants were recruited within 1</p>	<p>IV = TCIs; varied by study  DV = all cause readmission rates DV2 = mortality</p>	<p>DerSimonian-Laird random-effects models used for meta-analyses of outcomes  Risk Ratios calculated for readmission and mortality rates</p>	<p>Varied by study</p>	<p>Vareid by study; see Figures 2 &amp; 3  Home-visiting and MDS HF clinics reduce all-cause readmissions and mortality  STS reduced HF readmissions and mortality</p>	<ul style="list-style-type: none"> <li>• USPSTF Grade A</li> <li>• Very feasible to use in practice - 95% CI</li> <li>• Limitations – few trials reported 30 day readmission rates.</li> <li>• Heterogeneous usual care – not described well</li> <li>• Level I evidence</li> </ul>
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			week of HF hospitalization; see Table 3 for characteristics by study					
Albert, N. (2016). A systematic review of transitional-care strategies to reduce rehospitalization in patients with heart failure.	Not addressed	Systematic review – author evaluated transition-of-care models; found themes to possibly reduce rehospitalization, exacerbation, and improve quality of life or HF	23 studies; Most study participants were over age 65.  See Table 1, Inclusion criteria column	IV = transitional care program; varied by study  DV1 = HF exacerbation DV2 = Rehospitalization DV3 = quality of life	Varied by study	Varied by study	Varied by study & theme. Coordinated medical care, combined with detailed, individualized, and reinforced patient education and medication reconciliation increased quality of life and reduced rehospitalization	<ul style="list-style-type: none"> <li>• Limitations – varied by study; See Table 1</li> <li>• Transitional care model feasible in practice</li> <li>• USPSTF Grade A</li> <li>• Level I evidence</li> </ul>
Vedel, I. & Khanassov, V. (2015). Transitional care for	Not addressed	Systematic review – reviewed RCTs to determine	41 RCTs; mean age	IV = High, moderate, low	Meta – analysis – differences between	See Figures 2 & 3	TCI reduces risk of readmission - (RR = 0.92; 95% CI, 0.87-	<ul style="list-style-type: none"> <li>• 35 trials were higher quality, 6 fair quality, none poor quality</li> </ul>

<p>patients with congestive heart failure: A systematic review and meta-analysis</p>		<p>impact of TCIs</p>	<p>of patients ranged from 57.9 to 81.0 years, and 65.6% of patients were men</p>	<p>intensity TCIs DV = hospital readmission on DV2 = ED visits</p>	<p>TCI and usual care RR &amp; 95% CI – mean effect size</p>		<p>0.98) See Figure 2 &amp; 3 for individual study results</p>	<ul style="list-style-type: none"> <li>• Interrater correlation strong – (0.79; 95% CI, 0.63-0.88; <math>p &lt; .0001</math>)</li> <li>• USPSTF Grade A</li> <li>• Level I evidence</li> </ul>
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Legend:

TCIs = transitional care interventions

RCTs = randomized controlled trials

HF = Heart Failure

STS = structured telephone support

MDS = multi-disciplinary

Appendix B

**Flowchart**

