Follow-up Nurse Telephone Calls for Heart Failure Patients: A Case Study

Danielle M. Schievelbein

South Dakota State University
FOLLOW-UP NURSE TELEPHONE CALLS FOR HEART FAILURE PATIENTS: A
CASE STUDY

BY

DANIELLE M. SCHIEVELBEIN

A dissertation submitted in partial fulfillment of the requirements of the
Doctor of Philosophy
Major in Nursing
South Dakota State University
2020
This dissertation is approved as a creditable and independent investigation by a candidate for the Doctor of Philosophy degree and is acceptable for meeting the dissertation requirements for this degree. Acceptance of this does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Heidi Mennenga
Advisor
Date

Melinda Tinkle
Department Head
Date

Dean, Graduate School
Date
This dissertation is dedicated to:

My amazing children, I hope you have learned that through the grace of God, hard work, and dedication you will do amazing things. The road may be long, but you can achieve anything you set your mind to. Dream Big Babies!
ACKNOWLEDGMENTS

It is with gratitude and joy the author wishes to acknowledge the following:

First off, to God, for giving me the courage and endurance needed to take this journey. He got me through the difficult times.

To Dr. Heidi Mennenga, my committee chair and mentor, thank you for your continued support and encouragement throughout this journey. Your patience and advice were appreciated, and I would have never completed this without you! Words cannot express how grateful I am to have had you by my side.

To Dr. Tom Stenvig, Dr. Mary Kay Nissen, Dr. Gemechu Djiri, and Dr. Sharon Vestal, my committee, thank you for sticking with me through the changes and the continued advice throughout the process.

To my coworkers, thank you for the continued encouragement to keep going.

To my sister, Rachel, for the countless conversations and endless support you provided throughout this journey. Now, it is your turn!

To my parents, Todd & Karen, for the continuous encouragement and always being there when I needed you to take care of my sweet children. I could not have done this without your love and support.

To my husband, Ryan, thank you for putting up with me during this adventure. It took longer than anticipated, but your support, encouragement, and love kept me going.

Finally, to my children, thank you for reminding me to take breaks and be a mommy during this journey. Your unconditional love kept me going. I am so incredibly blessed to call you mine!
CONTENTS

ABBREVIATIONS........................................................................................................x
FIGURES.......................................................................................................................xi
ABSTRACT.....................................................................................................................xii

Chapter 1: Introduction.................................................................................................1
  Background................................................................................................................1
  Purpose of the Study.................................................................................................3
  Research Question.......................................................................................................3
  Significance................................................................................................................3
  Definition of Terms......................................................................................................4

Chapter 2: Review of the Literature..............................................................................6
  Heart Failure...............................................................................................................6
  Readmission for Heart Failure..................................................................................7
  Strategies to Prevent Heart Failure Readmissions.........................................................9
  Patient Education......................................................................................................9
  Medication Management..........................................................................................11
  Team-Based Care.....................................................................................................12
  Follow-Up Appointments.........................................................................................13
  Follow-Up Phone Calls............................................................................................14
  Patient Satisfaction with Heart Failure.....................................................................15
  Summary..................................................................................................................16
  Conceptual Model and Framework.........................................................................16

Chapter 3: Method........................................................................................................22
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Research Plan</td>
<td>22</td>
</tr>
<tr>
<td>Research Design</td>
<td>23</td>
</tr>
<tr>
<td>Follow-Up Protocol</td>
<td>23</td>
</tr>
<tr>
<td>Discussion of Framework</td>
<td>26</td>
</tr>
<tr>
<td>Reach</td>
<td>26</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>27</td>
</tr>
<tr>
<td>Adoption</td>
<td>27</td>
</tr>
<tr>
<td>Implementation</td>
<td>27</td>
</tr>
<tr>
<td>Assessment Worksheet</td>
<td>27</td>
</tr>
<tr>
<td>Time Factors</td>
<td>28</td>
</tr>
<tr>
<td>Cost Factors</td>
<td>28</td>
</tr>
<tr>
<td>Maintenance</td>
<td>28</td>
</tr>
<tr>
<td>Client Satisfaction Questionnaire</td>
<td>29</td>
</tr>
<tr>
<td>Qualitative Feedback</td>
<td>30</td>
</tr>
<tr>
<td>Perceptions of Registered Nurse</td>
<td>30</td>
</tr>
<tr>
<td>Rigor and Trustworthiness</td>
<td>31</td>
</tr>
<tr>
<td>Human Subjects Protection, Confidentiality, and Informed Consent</td>
<td>32</td>
</tr>
<tr>
<td>Chapter 4: Results and Analysis</td>
<td>34</td>
</tr>
<tr>
<td>Reach</td>
<td>34</td>
</tr>
<tr>
<td>Demographic Data</td>
<td>34</td>
</tr>
<tr>
<td>Participant 1</td>
<td>34</td>
</tr>
<tr>
<td>Participant 2</td>
<td>35</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>35</td>
</tr>
</tbody>
</table>
Appendix F: Heart Failure Education..........................................................66
Appendix G: Institutional Review Board......................................................68
References......................................................................................................69
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHA</td>
<td>American Heart Association</td>
</tr>
<tr>
<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
</tr>
<tr>
<td>CMS</td>
<td>Centers for Medicare and Medicaid Services</td>
</tr>
<tr>
<td>CSQ</td>
<td>Client Satisfaction Questionnaire</td>
</tr>
<tr>
<td>NYHA</td>
<td>New York Heart Association</td>
</tr>
<tr>
<td>PRISM</td>
<td>Pragmatic Robust Implementation and Sustainability Model</td>
</tr>
<tr>
<td>RE-AIM</td>
<td>Reach, Effectiveness, Adoption, Implementation, Maintenance</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1. Pragmatic Robust Implementation Sustainability Model.....................18

Figure 2. Depiction of how RE-AIM Conceptual Model Guides this Study.............21

Figure 3. Follow-up Protocol Algorithm.........................................................25
ABSTRACT

FOLLOW-UP NURSE TELEPHONE CALLS FOR HEART FAILURE PATIENTS: A CASE STUDY

DANIELLE M. SCHIEVELBEIN

2020

Follow-up care is essential when trying to avoid readmissions for patients who have recently been discharged from a healthcare facility. As evidenced by the literature, multiple strategies have been implemented to help manage the care of heart failure patients; however, readmissions continue to be higher than desired, which implies the current strategies utilized should be reviewed and revised. It is important to evaluate the effectiveness of methods when providing follow-up care that prevents readmissions and is also beneficial and convenient for the patient.

The qualitative case study explored a heart failure follow-up protocol completed by a registered nurse using the Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM) Framework. Two patients were followed to gain an understanding of their thoughts on the protocol and opportunities to enhance the protocol. This includes education on heart failure, medications, and signs and symptoms of exacerbations. The information gained from the follow-up phone calls and the patient satisfaction survey allowed the researcher to discover the benefits of the protocol, while investigating ways to improve the protocol.
Chapter 1: Introduction

When a hospital discharges an individual with heart failure, follow-up care is a fundamental component of the discharge plan. The American Heart Association’s (AHA) (2018) standard for follow-up care includes a visit with the patient’s provider within seven days of discharge. While not routinely utilized in the process, registered nurses can play an important role in the follow-up of individuals with heart failure, perhaps leading to improved outcomes (Eastwood, Quan, Howlett, & King-Shier, 2017; Lee, Yang, Hernandez, Steimle, & Go., 2016; Unverzagt et al., 2016). In the scope of their current practice, nurses generally provide discharge instructions to patients and schedule follow-up appointments. For patients with heart failure, nurses schedule appointments within seven days after discharge (Eastwood et al., 2017). This is typically the final follow-up with patients after their stay in a hospital. However, continued follow-up beyond seven days may help prevent readmission and is something nurses could effectively complete (Lee et al., 2016). A follow-up phone call following discharge can help ensure the patient has understood the discharge instructions and know the date or time of the follow-up appointment. Appropriately trained nurses who have a script to follow could complete these follow-up phone calls (Lee et al., 2016; Ruggiri, Milner, & Buonocore, 2019).

Background

Millions of patients receive chronic illness diagnoses which may result in hospitalization. As the population of older adults increases, the burden of these illnesses increases (Miller, 2017). One such chronic illness is heart failure. Approximately 5.7 million adults in the United States are living with heart failure (Centers for Disease Control and Prevention [CDC], 2019; Mozffarian et al., 2015). Individuals who have
been diagnosed with coronary artery disease, high blood pressure, or diabetes experience
an increased risk of developing heart failure (CDC, 2019). Heart disease, which includes
heart failure, contributes to the cause of death in one of every eight individuals. Deaths
related to heart failure vary throughout the United States (CDC, 2019). Identifying
strategies to manage heart failure and improve access to care is essential to help with
disease management.

National changes in healthcare in 2010 spurred the Centers for Medicare and
Medicaid Services (CMS) (2018) to implement a program to reduce hospital readmission
rates. In hospitals, readmission for specific disease processes leads to decreased
payments from CMS. Heart failure, a common disease resulting in hospitalization for
many patients, is one of the disease processes included on this list (Blum & Gottlieb,
2014; CMS, 2018; Koberich, Lohrmann, Mittag, & Dassen, 2015; Salas & Miyares,
2015). In 2011, the estimated cost for all readmissions exceeded $41.3 billion in the
United States, and approximately $1.7 billion of that figure was a result of heart failure
readmissions (Hines, Barrett, Jiang, & Steiner, 2014). Nationally, total heart failure
costs, including healthcare services, medications, and time lost at work, are estimated at
$30.7 billion annually (CDC, 2019).

Receiving decreased payments for heart failure readmissions has placed a
financial strain on healthcare facilities, resulting in increasing costs and decreasing
reimbursement rates (Cotter et al., 2014; Salas & Miyares, 2015). Healthcare facilities
are continually striving to decrease readmission rates and find means to ensure
reimbursement for the care they provide to patients (Blum & Gottlieb, 2014; Hobbs,
Escutia, Harrison, Moore, & Sarpong, 2016; McLaughlin, Hoy, & Glackin, 2015;
Melton, Foreman, Scott, McGinnis, & Cousins, 2012). Healthcare practitioners have implemented a variety of techniques in hospital settings to help reduce readmission rates, including patient education, medication management, team-based care, follow-up appointments within seven days, and follow-up phone calls. Despite efforts, readmission rates continue to be high in many healthcare facilities (Cotter et al., 2016; Salas, & Miyares, 2015). In 2017, over 20% of heart failure patients were readmitted to a healthcare facility within 30 days of discharge (O’Connor, 2017). As hospitalizations for heart failure occur, readmission rates require continuous assessment. Protocols for discharge which include strategies known to decrease readmission rates, are essential in this context (Alspach, 2014).

**Purpose of the Study**

The purpose of this qualitative case study was to explore the use of a nursing follow-up protocol for heart failure patients using the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) Framework. Patient and nurse reactions were also studied to identify areas of improvement for the protocol and what worked well.

**Research Question**

The research question developed to guide this study is: In exploring a heart failure follow-up protocol using the RE-AIM framework, what are the perceptions of the patients and the registered nurse utilizing the protocol?

**Significance**

Appropriate, evidence-based discharge protocols, including disease-specific education, could aid in positively managing the disease for patients (Albert, 2013). Even
so, evidence-based protocols may, by themselves, be insufficient when it comes to assisting with disease management and preventing readmissions. Education and knowledge of early symptoms of heart failure exacerbations are important for patients during preparation for discharge from a healthcare facility. Early symptoms of heart failure exacerbation may go unrecognized during the time following discharge, resulting in subsequent hospitalizations and readmissions. The literature suggests consistent follow-up over time may aid in decreasing readmission rates to healthcare facilities (Unverzagt et al., 2016). Nurses have potential to affect consistent follow-up care when they are completing the care, including discharge planning, medication management, and quality education (Sherer, Crane, Abel, & Efird, 2016).

Current literature focuses on strategies to reduce readmission rates, but patient perception of the follow-up received, and the impact of the follow-up must be thoroughly examined. This should include some essential questions, such as: How does the patient feel about the care he or she is receiving after discharge from the hospital? Is it adequate or is there more that needs to be done? Understanding the patient’s perceptions will provide valuable information and assist in developing a follow-up protocol that will be beneficial for patients in general. Moreover, consistent follow-up has the potential to increase patients’ knowledge of their disease.

**Definition of Terms**

*Follow-up protocol* consists of weekly telephone calls from a registered nurse for one month after the patient has been discharged from the healthcare facility.

*Heart failure* is defined as when the heart is not pumping as effectively as it should (American Heart Association, 2018).
New York Heart Association (NYHA) Classification places patients in one of four classes according to their current limitations when completing physical activity (The Joint Commission, 2016).

- Class I – No limitations or symptoms (The Joint Commission, 2016)
- Class II - Mild limitation and symptoms (slight shortness of breath and/or angina) (The Joint Commission, 2016)
- Class III – Marked limitation (difficult to complete activity due to symptoms), only comfortable at rest (The Joint Commission, 2016)
- Class IV – Severe limitation and symptoms experienced at rest (The Joint Commission, 2016)

Perceptions result from gaining awareness or understanding of an observation (Merriam-Webster, 2019).

Patient satisfaction is the extent to which a facility and healthcare practitioners met a patient’s healthcare expectations (Agency for Healthcare Research and Quality, 2017).

Readmissions are occurrences when a patient is readmitted to the hospital within 30 days of being discharged from a previous hospitalization (Mayo Clinic, 2018).
Chapter 2: Review of the Literature

This study conducted a review of the literature on heart failure, approaches to reduce readmission rates, follow-up, and patient satisfaction. The databases used throughout the literature search included the Cumulative Index to Nursing and Allied Health Literature, EBSCOHost, PubMed, and Cochrane. The search included research articles published from 2011 to 2019. The initial search terms used for all databases included heart failure and patient outcomes. The search was refined using peer reviewed articles and the additional search terms of readmission rates, satisfaction, and follow-up interventions. The following discussion summarizes the literature review on heart failure related to readmission, follow-up, and patient satisfaction. Finally, the current study offers a discussion of the conceptual framework.

Heart Failure

Heart failure is a serious disease that impacts approximately 5.7 million adults living in the United States. Individuals at risk for developing heart failure include those who have coronary artery disease, high blood pressure, or diabetes (CDC, 2019). Heart failure is a progressive disease that often leads to hospitalizations and emergency room visits (Maeng et al., 2014). Upon heart failure diagnosis, the individual’s heart failure classification is completed to aid in determining the best treatment regimen (Buonocore & Wallace, 2014; Nicholson, 2014). The NYHA Classification consists of four stages of heart failure from less severe to quite severe: Class I is when a patient is not displaying symptoms and has no limitations, while Class IV is when a patient has severe limitations (The Joint Commission, 2016). Individuals with heart failure require education on lifestyle changes, medications, and diet to decrease heart-related issues (Pirozzi, 2018).
Readmission for Heart Failure

Several studies have been conducted looking at readmission rates of patients with heart failure (Cotter et al., 2016; Melton et al., 2012; Salas & Miyares, 2015; Smith, 2013). Indeed, it has become a priority to find ways to decrease readmission rates and costs while continuing to provide quality care. The restrictions placed on reimbursement has constrained many healthcare facilities, becoming and remaining a heavy burden. Coffey et al. (2012) determined some of the common factors among heart failure patients who are most at risk for readmission includes those who: 1) leave the hospital against medical advice, 2) have Medicaid coverage as their group payer, 3) have comorbidities including drug abuse, Human Immunodeficiency Virus, and/or psychosis, 4) have a heart failure severity class diagnosed as moderate, major, or extreme loss of function, and 5) are male.

Coen and Curry (2016) observed managing heart failure patient comorbidities may be beneficial. They also discovered that therapy which revolves around treating the cause of the heart failure is advantageous to the patient. Sherer et al., (2016) discovered individuals with three or more comorbidities were at an increased risk for readmission. Common comorbidities leading to readmissions included renal insufficiency, atrial fibrillation, cardiomyopathy, and a history of myocardial infarction and/or coronary artery disease. Riegal and Carlson (2002) observed barriers including physical limitations, coping with the treatment, lacking knowledge, experiencing negative emotions, having comorbidities, and having personal struggles. Providing education on these barriers can help the patient better manage the disease and learn how to cope successfully. Managing patients’ conditions effectively has the potential to decrease
readmission rates. Having the nurse complete a follow-up telephone call provides an opportunity to identify barriers the patient may still encounter after hospitalization. Education can be completed, and nurses can schedule additional follow-up if needed. All of these are important pieces when attempting to avoid readmissions. Assessing the patient’s current knowledge on heart failure and any barriers he or she is experiencing may also allow a healthcare team to provide the appropriate information for managing heart failure successfully (Riegal & Carlson, 2002).

Several risk factors which put a patient at risk for readmission can be addressed through education. Eastwood et al., (2017) noticed patients who were experiencing increased frailty and who had a specialist for the attending physician during hospitalization were at an increased risk for readmission. In their study, the authors also realized patients who were experiencing congestion 48 hours prior to discharge were at an increased risk for readmission within the first seven days following discharge. Additional risk factors to consider include diet, weight, and medication adherence.

Throughout a hospitalization, it is important nurses provide education to help prevent common factors that put a patient at risk for readmission. Currently, nurses provide education on the disease and any medications the patient is taking and will be taking once they return home. Providing education on comorbidities is also an important element when the patient is admitted to the hospital. With a nurse completing a telephone follow-up call post-discharge, there would be an opportunity to target patients who are at higher risk for readmissions.
Strategies to Prevent Heart Failure Readmissions

Hospitals have implemented numerous strategies to help manage care for patients experiencing heart failure. In-hospital strategies have primarily focused on patient education, medication management, and team-based care. Other strategies that have been used after discharge include a follow-up appointment with the patient’s primary care provider within seven days of discharge, as well as follow-up phone calls completed after discharge from the hospital.

Patient education. Proper education needs to be in place to ensure patients are receiving appropriate information for their discharge. Education is a key component when it comes to discharging patients from the hospital (Eastwood et al., 2017; McLaughlin et al., 2015). Nurses must be knowledgeable about heart failure and have the competence to educate patients upon discharge (Lee et al., 2016). Providing education to the patient and ensuring they are aware of the importance of following the care regimen is always crucial and it can impact readmission rates, including readmission of patients with heart failure (Salas & Mirayes, 2015).

Koberich et al. (2015) discovered implementation of an educational program to have a statistically significant ($p = 0.00009$) impact on patient’s knowledge and ability to monitor themselves for symptoms of heart failure exacerbation. The education consisted of one session prior to the patient’s discharge, as well as four follow-up phone calls within a three-month time period (Koberich et al., 2015). Vaillant-Roussel et al. (2016) came to different findings when completing their research on heart failure education sessions with general practitioners in the primary care setting. Their study uncovered no differences between general practitioner’s education session and the ability of heart
failure patients to increase their quality of life. McLaughlin et al. (2015) used a heart failure nurse specialist to provide education on managing heart failure, along with signs of exacerbations and the proper pharmacological regimen. This study found the implementation of a heart failure nurse specialist decreased hospital admissions; there were a total of 160 hospital admissions avoided during a 12-month time period (McLaughlin et al., 2015).

Many different healthcare providers can provide education to patients. Szkiladz et al. (2013) utilized pharmacy students and pharmacy residents to initiate an education program for heart failure patients prior to discharge. The education program yielded no differences in readmission rates; however, it did manage to avoid costs of $4,241 in the 26 interventions completed. Gerdes and Lorenz (2013) implemented an interdisciplinary education program in addition to the education provided upon a patient’s discharge. The 30-day readmission rate was found to be significantly \( p = 0.021 \) lower than the rate among patients who did not receive the outpatient education (Gerdes & Lorenz, 2013).

The method education is delivered to patients also needs to be considered. White, Garbez, Carroll, Brinker, and Howie-Esquível (2013) completed a study using the teach-back method when providing instructions to patients to determine the impact on readmission rates in heart failure patients. The teach-back method is an effective way to educate patients; however, in this case it did not impact readmissions \( (p = 0.775) \). Peter et al. (2015) saw different results in their development and implementation of a process using teach-back education for heart failure patients. Indeed, their results showed that using effective teach-back could result in a 12% reduction of readmissions at their healthcare facility (Peter et al., 2015).
Eastwood et al. (2017) reviewed health records to determine factors associated with hospital readmissions occurring within seven days of discharge. They observed that heart failure patients who received written instructions to follow-up with a primary care provider within seven days of discharge saw a decreased likelihood of readmission rates. Studies show the benefits of a policy where education is properly provided to patients, including written documents on medications, diet, weight, and signs and symptoms of exacerbation upon discharge from a healthcare facility (Eastwood et al., 2017; Ledwidge et al., 2014; Turrise, 2016; Unverzagt et al., 2016; Wu et al., 2013).

**Medication management.** Medication management in heart failure patients, including prescribing the appropriate medications and adhering to the regimen, is extremely important when it comes to managing the disease. The AHA (2019) recommends the provider prescribes the following medications at discharge: 1) Angiotensin-Converting enzyme inhibitors, Angiotensin Receptor Blocker, or Angiotensin Receptor/Nephrilysin Inhibitor; 2) specific beta-blockers (bisoprolol, carvedilol, and sustained-release metoprolol succinate); and 3) aldosterone antagonist. Guidelines are currently available for target doses for the medications prescribed to heart failure patients depending on the severity and type of heart failure (AHA, 2019). Despite these guidelines, multiple heart failure patients continue to receive sub-optimal treatments (Crissinger, Machionda, & Dunlap, 2015). Crissinger et al (2015) formed an interdisciplinary heart failure team to provide care; this team’s patients were compared to patients who saw a cardiologist and those who saw a primary care provider. Those seen by the team were more likely to be prescribed medications according to the guidelines. After completing readmission research on chronic obstructive pulmonary disease and
heart failure, Castillo, Edriss, Selvan, and Nugent (2017) found that many patients they examined did not have the correct medication regimen for heart failure upon discharge. Forty-seven patients with heart failure were followed during this study, with 20% being readmitted to the hospital within 30 days (Castillo et al., 2017).

A number of studies examined medication adherence and heart failure readmissions (Turrise, 2016; Unverzag et al., 2016; Wu et al., 2013). Turrise (2016) learned patients who believed their treatment was ineffective were at an increased risk for readmission within 30 days of their discharge. Wu et al. (2013) used the Medication Event Monitoring System and noticed patients who were nonadherent with their medication also had increased depressive symptoms and increased risk for readmission. Unverzag et al. (2016) included weight management and diet when examining medication adherence. They discovered examining these factors consistently over a long period of time was effective in maintaining medication adherence for heart failure patients. Sherer et al. (2016) observed an increase in the number of medications a patient was taking also increased the likelihood of readmissions.

**Team-based care.** A systematic review conducted by Hobbs et al. (2016) found it necessary to include different disciplines across the healthcare arena to decrease readmission rates of heart failure patients. An academic hospital implemented a program using an interprofessional team to decrease readmission rates. Through bundled interventions, increased home health referrals, and enhanced collaboration, the readmission rates for patients with heart failure decreased by 5.1% following the initiation of the program (House, Stephens, Whiteman, Swanson-Biearman, & Printz, 2016).
Including a pharmacist as a part of the interdisciplinary team is an important aspect when attempting to decrease readmission rates. Salas and Miyares (2015) realized a reduction in readmission rates in their study, which involved a pharmacy resident completing medication regimens and ensuring the patients received their medications. At the same time, Coen and Curry (2016) noticed major barriers for patients including adherence to self-care plan and difficulty with pharmacological therapies in the medication regimen; these barriers significantly influenced readmission rates. The interdisciplinary team should include an individualized plan of care for each patient based on individual overall health.

**Follow-up appointments.** The AHA (2019) highly recommends a follow-up appointment with a provider within seven days of discharge from a facility; however, one scheduled for the first seven-14 days after discharge is also acceptable. Lee et al. (2016) categorized patients into follow-up appointment groups of one to seven days after discharge, eight – 30 days after discharge, and no follow-up within 30 days of discharge. Patients who had a follow-up appointment within seven days of discharge also had a 19% decreased chance of readmission (Lee et al., 2016).

Furthermore, Eastwood et al. (2017) found a decreased chance of readmissions for patients who were provided written documentation of a follow-up appointment within seven days of discharge. Vesterlund, Granger, Thompson, Coggin, and Oermann (2015) completed a study examining an integrated care plan that entailed six interventions, including follow-up appointments with the primary care provider five to seven days after discharge and a follow-up phone call 48 hours after discharge. They found a 36.9% reduction in readmission rates.
Follow-up phone calls. Effects of follow-up phone calls with patients after they have been discharged from a healthcare facility have been examined in studies. These phone calls provide the opportunity to catch signs and symptoms of heart failure exacerbation before they become severe enough to require the patient be admitted to a hospital. Follow-up phone calls for the patients in the study completed by Salas and Miyares (2015) showed a significant reduction in readmission rates for heart failure patients from 28.1% to 16.6%. The initial phone call was completed within five days of discharge, with successive phone calls occurring monthly up to six months after discharge. The initial phone call included a pharmacy resident to discuss the medication regimen, as well as time to address any patient concerns and offered reminders of any upcoming appointments. Melton et al. (2012) utilized case managers to complete education and telephone follow-up calls three days after patients were discharged for the intervention group; an average of five days earlier than the control group. These findings also showed a statistically significant ($p < 0.005$) reduction in 60-day readmission rates.

Lee et al. (2016) compared readmission rates for heart failure patients with follow-up phone calls after discharge within one to seven days, eight to 30 days, and no follow-up. The study found that patients who completed a follow-up within seven days of discharge had 19% reduced odds of readmission. Versterlund et al. (2015) utilized six interventions, including upgrading education, a discharge packet, inclusion of discharge medication, use of a case manager, appointments with the primary care provider five to seven days post-discharge, and a follow-up phone call within 48 hours of discharge. The addition of these interventions reduced the readmission rate for heart failure patients from 20.9% to 13.2% (Vesterlund et al., 2015).
Similarly, Inouye et al. (2015) utilized an automated call system to contact patients twice after discharge. In the study, the first phone call was within 48 hours after discharge and the second was completed seven days after discharge. Patients responded to one general question on a 4-point Likert scale related to how they were feeling after discharge. Patients who responded to the general question had a statistically significant ($p = 0.03$) decreased readmission rate suggesting that responses to questions can identify patients who are at risk for readmissions. Ruggiri, Milner, and Buonocore (2019) also completed a study that examined a telephone call completed by a nurse 48 hours after discharge using a script that included questions from AHA resources. The call reduced readmission rates by 3% reduction.

**Patient Satisfaction with Heart Failure Care**

Assessing patients’ satisfaction with their care is an important aspect for any healthcare facility. Cajanding (2017) compared patient satisfaction in cardiac patients who received a structured discharge plan and those who did not. Patients completed satisfaction questions at discharge, then completed further questions 12 months later. The author found no statistical significance ($p = 0.84$) in patient satisfaction between the two groups (Cajanding, 2017).

Comparing an intervention group to a control group Gaines-Dillard (2015) found a 10-15% increase in patient satisfaction among the intervention group who received a telephone follow-up call three to seven days after discharge, whereas the control group obtained similar results in their study with follow-up phone calls after chemotherapy. Patients were satisfied with the phone call, and information was reported on symptoms and concerns the patients communicated (Boardman, Wilkinson, & Board, 2015).
Summary

Numerous research studies have been conducted looking at heart failure in conjunction with readmission rates (Cotter et al., 2016; Delaney et al., 2013; Hall et al., 2014; Koberich et al., 2015; Melton et al., 2012; Peter et al., 2015; Rosen, McCall, & Primack, 2017; Salas & Miyares, 2015; Smith, 2013). The literature review indicates education can help patients with controlling their heart failure symptoms and medication adherence; however, the delivery method can impact how the patient responds to education (Eastwood et al., 2017; Gerdes & Lorenz, 2013; Koberich et al., 2015; McLaughlin et al., 2015; Peter et al., 2015; Szkiladz et al., 2013; Vaillant-Roussel et al., 2016; White et al., 2013). In addition, it is important the type of education provided includes signs and symptoms to look for, when to call the doctor, as well as specifics on medication.

Throughout the research, authors presented many delivery methods for education and follow-up; however, evidence remains inconsistent regarding the delivery method that would work the best, as well as how often follow-up should be taking place. Another aspect not discussed is how to implement and complete follow-up. Discovering the implementation process for follow-up is important, as consistent implementation has the potential to decrease readmission rates for heart failure patients.

Conceptual Model and Framework

The conceptual framework for this study is the RE-AIM Framework, originally developed to evaluate interventions and the impact those interventions had on public health (Glasgow, Vogt, & Boles, 1999). The goal of the framework is to focus on the essential elements of a program to provide sustainable outcomes for evidence-based
interventions (RE-AIM, 2019). The RE-AIM framework fits this research with the evaluation of the follow-up protocol. Following the RE-AIM framework in the current study has allowed identification of the appropriateness of the protocol, what is working well, and areas for improvement. The findings allowed the researcher to modify the protocol for future studies.

The initial goal of the RE-AIM framework was to provide reliable research outcome reporting. The RE-AIM framework allowed analysis of the intervention of the implementation of a heart failure follow-up protocol completed by a registered nurse. In recent years, the RE-AIM framework has been used for program planning to help analyze ways to improve the programs and ensure success (RE-AIM, 2019). The framework focuses on the target population (reach); efficacy (effectiveness); initiation of the program (adoption); consistency, time, and cost (implementation); and effect over time (maintenance) (RE-AIM, 2019). All these elements impact overall program planning for researchers.

When implementing a program within the RE-AIM framework, one needs to determine the reach (R), or intended target population prior to beginning. This includes determining the number of individuals who are willing to participate in the program and how they represent the population. Efficacy (E) concentrates on the impact of a program on individual outcomes, which can include negative effects and the quality of life for individuals. Adoption (A) focuses on the individuals who are delivering the program and why they are willing to implement the program. Implementation (I) determines if the program was delivered as it was intended; this includes consistency of how the program is delivered, fidelity, time, and cost. Finally, maintenance (M) examines the long-term
implementation of a program and how it will become a routine part of practice.

Maintenance can also explore the long-term outcomes of a program once it has been implemented (RE-AIM, 2019). Figure 1 exhibits the Pragmatic Robust Implementation and Sustainability Model (PRISM), which is an extension of RE-AIM (RE-AIM, 2019).

Figure 1. Pragmatic Robust Implementation Sustainability Model (PRISM), extension of RE-AIM. Reprinted with permission of author (Appendix A)

This conceptual framework guided the current study with the implementation of a follow-up protocol for heart failure patients discharged from a healthcare facility. The follow-up protocol consisted of weekly telephone follow-up calls with the patient
following discharge. This study provides additional details related to the follow-up protocol in Chapter 3. The *reach* of the protocol focused on the target population of patients with heart failure. The *effectiveness* of the protocol examined readmissions occurring for the patients who participated in the study, as well as the impact of early interventions. The *adoption* phase focused on the information provided to and gained from the patient’s post-discharge. The protocol *implementation* analyzed the weekly telephone follow-up, use of the assessment worksheet (Appendix B), time factors, and cost factors. The researcher explored the *maintenance* of the protocol using the Customer Satisfaction Questionnaire (CSQ) (Appendix C), qualitative feedback provided, and the perceptions of the registered nurse. The impact of the protocol was appraised to determine changes that would be necessary when determining the needs for long-term protocol maintenance.

Utilizing the CSQ at the completion of the 30-day follow-up period allowed the current study to collect additional information from the participants about their experience with the follow-up protocol. Chapter 3 offers additional information about the CSQ. The assessment worksheet allowed the researcher to be efficient during follow-up phone calls and ensure the focus stayed on the key components that cause exacerbations. The developed follow-up protocol included weekly follow-up via telephone for 30 days. Upon completing the phone calls, the CSQ was also completed. The literature supports follow-up by phone call; however, consistent follow-up over a 30-day time period has not been completed.

Adoption of the protocol included identifying inclusion and exclusion criteria, as well as the information needed for the demographic data (Appendix D). Additional
important aspects to complete during the adoption phase included consent (Appendix E) of the participant, in addition to education (Appendix F) provided to each participant to ensure consistency. The current study analyzed the results and examined the opportunities for change, explored the future of follow-up for heart failure and how this protocol can impact that, and the limitations this study identified.

These measures were chosen as an extension of the original quantitative study that was to be completed. Better measures are available; however, due to time and recruitment efforts those measures could not be completed. A different satisfaction instrument could have been utilized; however, the researcher wanted the questions to be broad and the questionnaire short. The breadth of the questionnaire allowed the researcher to encompass the various pieces of the study. The qualitative questions added additional information gained from the participants. The researcher could have added additional questions to receive more detailed information; however, the goal was to keep the phone calls short and convenient for the participant. Patients and healthcare facilities alike identify time and cost as areas impacting follow-up. Identifying the amount of time the follow-up took, as well as the cost for patients and healthcare partners, was important information to gain. Below is a diagram of how this framework guided the study (Figure 2).
Figure 2. Depiction of how the conceptual model for the RE-AIM guides this study.
Chapter 3: Methods and Procedures

The following chapter discusses the research design and procedure utilized for the current study. The overall purpose of this study was to evaluate a follow-up protocol for heart failure patients using the RE-AIM Framework.

Original Research Plan

Originally, the nurse researcher proposed a quasi-experimental quantitative research study with a plan to enroll patients with heart failure and divide them into one of three groups: 1) a control group who would participate in the standard follow-up appointment with their primary care provider within a week of discharge; 2) an intervention group who would have a standard follow-up appointment with their primary care provider within a week of discharge and weekly in-person follow-up with the nurse researcher; and 3) an intervention group with the standard follow-up appointment with their primary care provider within a week of discharge, in addition to weekly telephone follow-up calls with the nurse researcher. The purpose of the proposed study was to examine correlations between the follow-up type and readmission rates.

The nurse researcher experienced many difficulties when attempting to recruit patients. While the nurse researcher communicated with several healthcare facilities who were interested in allowing recruitment at their locations, it soon became apparent that they lacked existing policies about research with patients; therefore, the sites could not be used. The nurse researcher then attempted to use a larger healthcare facility; however, could not gain human subjects’ approval without changing the recruitment process. Once recruitment methods were adjusted by the nurse researcher, the next barrier was related to getting patients to participate. There were many reasons for patients not participating,
often including work schedules interfering with weekly follow-ups and an inability to transport themselves to in-person visits. Furthermore, with the changes to the recruitment process to gain access to facilities, there was need for the researcher to rely on employees within the healthcare facility to make the initial contact with potential participants. Not being able to have the initial discussion with potential participants was a major barrier.

As the study proceeded and too few patients were enrolled, the nurse researcher decided there was a need to change the research design. Considering there were only two study participants recruited, there was still valuable information to be gleaned from the data; however, the quasi-experimental quantitative design was no longer appropriate.

**Research Design**

This study utilized a descriptive single-case study qualitative research approach with two participants. According to Patton (2015), case study research explores one or more cases over a period of time using detailed, in-depth data collection. This study explored a follow-up protocol developed for heart failure patients after discharge from a healthcare facility. Completing the case study allowed the researcher to explore the follow-up protocol and the required changes or improvements. During a case study, researchers analyze a case in depth, collecting data over a sustained period of time (Creswell & Creswell, 2018; Yin, 2018). In-depth analysis of this case was completed to discover the benefits and areas for improvement of a follow-up protocol for heart failure patients discharged from a healthcare facility.

**Follow-Up Protocol**

Upon discharge, the nurse researcher conducted the initial telephone follow-up within the first three to five days after discharge. During each telephone follow-up call,
the researcher used the assessment worksheet to guide the conversation and ensure the call entailed discussion of the important points, such as medication, weight, diet, and signs and symptoms of exacerbation. During each telephone call, the nurse researcher scheduled the next call until they were completed. While on the final call, the nurse scheduled a time to complete the CSQ with the participants two to four days later. If the participant was readmitted between any of the telephone follow-up calls, the telephone follow-up calls were cancelled, but the CSQ was still completed two to four days after the last call. Figure 3 depicts the algorithm used throughout the study to schedule follow-up calls and determine the next steps at each call.
Discharged from healthcare facility – Initial follow-up visit scheduled, demographic information completed

Follow-up visit 1 via telephone – utilization of assessment worksheet to discuss medications, signs and symptoms of exacerbations, when to call the physician.

If not readmitted

Follow-up visit 2 via telephone – utilization of assessment worksheet to discuss medications, signs and symptoms of exacerbations, when to call the physician

If readmitted

If not readmitted

Follow-up visit 3 via telephone – utilization of assessment worksheet to discuss medications, signs and symptoms of exacerbations, when to call the physician

If readmitted

No further follow-up calls completed

If readmitted

Follow-up visit 4 via telephone – utilization of assessment worksheet to discuss medications, signs and symptoms of exacerbations, when to call the physician

If not readmitted

Completion of Study

Client Satisfaction Questionnaire completed via telephone after follow-up calls are finished or after 30 days of discharge if readmitted.

Figure 3. Follow-up protocol algorithm
Discussion of Framework and Follow-up Protocol

The following section discusses the follow-up protocol and how it aligns with the RE-AIM framework. The section also discusses each aspect of the framework and how it relates to the follow-up protocol.

Reach. The target population of this study was patients with heart failure who were discharged from a healthcare facility. Moreover, the current study used a convenience sample that targeted individuals who have heart failure. Once an individual consented to participate in the study, education was provided, and the demographic information was collected. Participants had to be at least 18 years of age and living with a diagnosis of Class I, II, III, or IV heart failure. Participants must be able to read and speak English. Exclusion criteria included individuals who were under the age of 18 or unable to speak English.

The nurse researcher met with the appropriate personnel at each facility and explained the study before commencing the research. An individual at the facility was identified to notify the nurse researcher when a patient who meets the study criteria would be discharged from the hospital with a diagnosis of heart failure. Recruitment of patients occurred prior to discharge from the hospital for heart failure-related issues. The researcher selected participants from two healthcare facilities. Upon selection, the nurse researcher met with each patient in the hospital before discharge, explained the purpose of the study, and obtained consent to participate in the study. The nurse researcher completed all telephone follow-up calls, in addition to the CSQ upon completion of the follow-up period.
**Effectiveness.** To assess the follow-up protocol’s effectiveness, the nurse researcher evaluated the readmission rates of participants and early interventions. The goal during the 30-day follow-up period was to prevent participants’ readmissions to the healthcare facility. In addition, early interventions provided to the participant as a result of the weekly RN follow-up and completed during the 30-day follow-up period were considered effective if they succeeded in preventing readmission to the healthcare facility from occurring. These early interventions could include an appointment with the provider or medication change.

**Adoption.** Upon consent to participate, study participants received heart failure education provided by the researcher prior to discharge. This education included information on medication, diet, weight, signs and symptoms of exacerbations, in addition to when they should call their healthcare provider. The researcher also collected demographic information during this time. Once the nurse researcher was notified of the discharge date, the first follow-up phone call was scheduled.

**Implementation.** Study participants received weekly follow-up via telephone calls for one month from the date of discharge. Moreover, all participants attended a follow-up visit with their primary care provider within one week of discharge. The researcher used the assessment worksheet during each telephone follow-up call, in addition to examining time and cost factors.

**Assessment worksheet.** The researcher developed the heart failure follow-up assessment worksheet as a means to guide the telephone follow-up calls. Questions in the worksheet included information about the medication they were currently taking, including the number of medications they were on, any new medications prescribed
while they were in the hospital, and their understanding of why they were taking the medications along with the side effects of the medications. Also, questions were asked about any signs or symptoms that could indicate a potential problem. The researcher did not specifically use the worksheets information to collect data.

**Time factors.** The time each phone call took was observed when completing the follow-up calls; both for the participant and nurse researcher. There was also consideration for the time the nurse researcher took to discuss the study and provide all the information while the participant was still hospitalized. In addition to this, the researcher examined the time it took to prepare for each phone call, as well as enter the data once the phone call was completed.

**Cost factors.** The potential for any cost to occur for the participant was examined prior to beginning the study; it was determined the study would not incur any extra costs for the participant. Throughout the study, the cost for the nurse researcher was explored; consideration was taken for time, additional phone calls needed in case the participant was unable to talk during the first call, extra time the phone call may take due to participant questions, and data entry into the system.

**Maintenance.** The researcher administered the CSQ to all participants after their 30 days of follow-up care. Via telephone, the researcher contacted each participant two-to-four days after the 30-day follow-up to complete the patient satisfaction survey. The researcher verbally asked the participant each question on the patient satisfaction survey and recorded their answers, then asked two open-ended questions at the end of the questionnaire. The number assigned to each participant at the beginning of the study was placed at the top of the questionnaire.
The nurse researcher took responsibility for transcribing the results of each telephone follow-up call, as well as the open-ended questions following completion of the CSQ. All field notes were typed with each participant number assigned at the beginning of the study utilized when analyzing the field notes to maintain confidentiality. The researcher completed the content analysis of the field notes to identify the emergence of any themes or patterns.

**Client satisfaction questionnaire.** This researcher used the CSQ to determine participants’ satisfaction with the follow-up care they received post discharge. The eight-item questionnaire asks general questions related to services patients received, such as how satisfied the participant was with the service and the potential of using the protocol again. The CSQ has demonstrated validity and reliability in many studies throughout the world (CSQ Scales, 2012). The researcher developed two open-ended questions and asked them once each participant completed the CSQ.

Originally, the tool had 31 items, then it was decreased to 18 items prior to psychometric testing. Upon psychometric testing, the instrument was found to be valid and reliable; however, a subset of the scale, known as the CSQ-8, was found to be better than the CSQ-18 (Attkisson & Zwick, 1983). The researcher secured samples of four different versions of the CSQ. After examining these different versions, it was determined the CSQ-8 would be most beneficial and correlated appropriately with the conducted research.

The eight items exist on a 4-point Likert scale. The researcher used them in conjunction with two open-ended questions. The CSQ-8’s internal reliability showed a Cronbach’s alpha ranging from 0.83-0.93. When tested, the average item-correlation was
0.77, and the average inter-item correlation was 0.62. The study selected eight items for the instrument because they had the highest loadings during factor analysis during initial psychometric testing. Compared to other instruments, the CSQ had a high correlation with construct validity (Attkisson & Zwick, 1982).

The nurse researcher was responsible for collecting all CSQ data. The sum of the Likert scale items was completed, and the nurse researcher compared the data with the qualitative feedback derived from the open-ended questions. This allowed the nurse researcher to gain valuable information about the follow-up protocol, including improvements to the protocol and any concerns mentioned.

**Qualitative feedback.** The researcher analyzed the two open-ended questions for themes. The open-ended questions were 1) The things I like best about the follow-up care include… and 2) If you could change anything about the follow-up care, what would it be? By coding the collected data, the researcher was able to complete the content analysis. The emerged themes or patterns were placed into categories. Each case was examined in depth to analyze the information gained from the interviews. The researcher completed the analysis by taking the typed transcripts, as well as color coding the different responses depending on the category. The researcher then grouped the data depending on the similarity, resulting in the categories. The current research study presents the identified themes as findings.

**Perceptions of the registered nurse.** The perceptions of the registered nurse were important to examine when analyzing the data. Participants could ask questions during the follow-up phone calls or identify additional information to be shared, as well as extra data with potential to change additional studies. The researcher examined the
amount of time spent in the healthcare facility with the participant and the collection of data.

The nurse researcher examined how the telephone follow-up calls were completed. This included looking at the amount of time the phone calls required and how long it took to contact the patient by calling. The nurse researcher kept track of how many times the patient needed to be called before answering. There was also an examination of the conversations completed with the patients. Specifically, the nurse researcher observed the benefits and the type of rapport developed with the patient.

The nurse researcher also explored changes that could enhance both the patient and nurse experience. Protocol areas that could be improved were identified. Concerns regarding the study were also identified by the nurse researcher; this information was identified by both patient and nurse researcher experience with the follow-up protocol.

**Rigor and Trustworthiness**

The researcher maintained dependability by having the same researcher completing the enrollment process once consent was obtained, as well as the same researcher completing all telephone follow-up calls. This was essential to ensure questions were asked the same throughout the entire study. The risk of errors is always present when entering information, impacting results when information is inputted incorrectly. The researcher minimized this threat by transferring data into an excel spreadsheet.

A search of the literature failed to reveal something similar to the follow-up protocol used throughout this study. The current research stresses the importance of consistent follow-up calls within the 30-days after a patient has been discharged from a
healthcare facility. Some research even suggests a longer follow-up period. As evidenced by the research, nurses are a suitable person to complete the telephone follow-up calls with the appropriate training and a script provided.

Understanding of the protocol, when phone calls needed to take place, and when to complete the patient satisfaction survey were essential to completing the research study. Having a valid and reliable patient satisfaction survey is important for the study’s rigor. Completing the patient satisfaction survey later than two days after the 30 days had potential to skew participant responses. As more time that passes between the survey and end of the participants time, the greater chance for the researcher to lose important data that could be collected.

The researcher developed an assessment worksheet that guided the follow-up phone calls. Demographic information was described to establish transferability. The researcher ensured confirmability by asking open-ended questions and allowing the participant to lead the telephone follow-up call. Prior to completing this, the researcher understood preconceptions that could impact the research being conducted. This recognition allowed the researcher to acknowledge any bias that occurred, then act to remove it from the study.

**Human Subjects Protection, Confidentiality, and Informed Consent**

The researcher gained approval from the Institutional Review Board through the university and the healthcare facilities prior to beginning the research (Appendix G). When conducting the proposed research, databases being hacked and information stolen is always a potential; therefore, the researcher took measures to protect patient identity. The Health Information Portability and Accountability Act was followed throughout this
research study. The researcher was the only one with access to the data and responsible for keeping the information safe. The participants were de-identified when the researcher received the information. The researcher stored all data in a secure location, locked file cabinet and password protected computer, and patient information was only shared with those involved in the study. Informed consent was obtained from all participants. Participants were not compensated for their participation in the study.

Potential benefits for participants included the gain in knowledge about follow-up care for patients with heart failure. Participants who experience more frequent follow-up may have better patient outcomes. Minimal risks exist for participants. Some questions related to patient’s healthcare may be sensitive. Any pertinent, sensitive health information shared was provided to the social worker or case manager at the respective healthcare facility for follow-up. For example, if a participant expressed concerns about another medical condition, a mental health issue, or shares other information, the researcher notified the appropriate personnel at the respective healthcare facility. The potential for the researcher to share concerns was included in the patient consent form. The researcher could remove any participant from the study if it was in the best interest of the participant.
Chapter 4: Results and Analysis

Initially, this research meant to examine three modes of follow-up and compare the readmission rates of the different modes. As the research continued, it became clear, despite changes, that recruitment efforts were not achieving the numbers needed to obtain measurable data, leading to the researcher taking a different approach and exploring nursing follow-up protocol for heart failure patients as a single-case study. This chapter is organized to follow the aspects of the RE-AIM framework, guiding the study.

Reach

Recruitment for the study began in March 2019 and was completed in October 2019. The researcher included a total of six facilities in the recruitment efforts, with participants enrolled from two of the facilities. A total of nine individuals were eligible for the study, and three individuals chose to participate, though only two participants completed the study. The third participant passed away before the follow-up data could be collected.

Demographic data. The researcher collected demographic data within the hospital after each patient had consented to participate. Information collected included gender, age, race, distance from hospital, length of heart failure, heart failure classification, and chronic diseases.

Participant 1. Participant 1 was a 78-year-old Caucasian male who lived approximately one mile from the local hospital. He had just been diagnosed with heart failure and he presented with no other comorbidities. Heart failure classification for this patient was unknown.
**Participant 2.** Participant 2 was an 84-year-old Caucasian female who lived approximately half a mile from the local hospital. She had been diagnosed with heart failure for roughly six months and had previously been hospitalized twice for it. The participant had a history of arthritis, but no other significant comorbidities. Her heart failure classification was a level II.

**Effectiveness**

Upon the study’s completion, the nurse researcher analyzed the data to determine if either participant was readmitted within 30 days of discharge. Additionally, the researcher examined the data to identify any early interventions outside the follow-up call with the researcher that may have been completed during the follow-up period.

**Readmission rate.** Upon completion of the nursing heart failure follow-up protocol, neither participant had been readmitted within 30 days of discharge.

**Early interventions.** Each participant attended their scheduled follow-up appointment with their primary care provider within one week of discharge. Participant 1 had an additional appointment during the follow-up period due to excessive dizziness; the clinic visit took place between the third and fourth telephone follow-up call leading to medication changes. During the fourth and final telephone follow-up call for Participant 1, he notified the nurse researcher of his appointment with the physician due to excessive dizziness. The participant informed the nurse researcher about the continued, repetitive education delivered during the telephone calls that provided him with the knowledge he needed to understand the importance of contacting his provider for an appointment when the dizziness continued. Participant 2 had no additional appointments after the scheduled
follow-up; however, the participant was getting ready to move to an assisted living facility at the end of the follow-up protocol.

**Adoption**

Upon consent to participate in the follow-up protocol, the researcher provided each participant education related to their heart failure diagnosis. During this time, the initial telephone follow-up call was also scheduled. During each telephone follow-up call, the next follow-up phone call was scheduled based on the participants schedule.

**Heart failure education.** The researcher obtained material for heart failure education provided to the participant from the AHA website. Included in the education was information relating to medications, weight monitoring, diet recommendations, and signs and symptoms for which to monitor oneself. The researcher sat down with each participant in person and went through the necessary education. The participant was then sent home with the educational information. The researcher answered any questions that arose during this time.

**Scheduling the follow-up phone calls.** The nurse researcher and participant together scheduled the telephone follow-up calls. Participant 1 was still working and leading an active social life. His work took him away from home two to three days a week for long hours. At times, it was difficult to schedule the telephone follow-up call due to the participant’s schedule, leading to calls later in the evening when it worked better for the participant. Early on, the nurse researcher and participant established a plan in case the participant was busy when the nurse researcher called. If that were the case, the participant would notify the nurse researcher of a more appropriate time to call, then the call was completed at that time.
Participant 2 was retired, widowed, and living alone. Scheduling the telephone follow-up calls was easier with this participant; however, she was hard of hearing. This interfered with her ability to answer the phone at times. The nurse researcher would continue to call until the participant answered the phone. The nurse researcher quickly learned to provide an approximate time on the date during which the telephone follow-up call was to take place. This helped the participant to know when to wait for the telephone call.

Implementation

Each participant received weekly telephone follow-up calls for 30 days after discharge from the healthcare facility, as well as a follow-up appointment with their provider. During each telephone follow-up call, the nurse researcher used an assessment worksheet to help guide the calls. The assessment worksheet guided the nurse researcher in asking questions related to the participants medications, including inquiring about the number of medications the participant was taking, the understanding of the medications, side effects of the medications, and taking the medications as ordered and at the correct time. The participants’ weight was also discussed, in addition to signs and symptoms related to a possible exacerbation to determine if the participant required a visit with the provider. During these telephone calls, the participants asked questions related to their diagnosis. The nurse researcher provided additional education which correlated to the questions asked.

Results of follow-up phone calls. Each participant completed all the necessary telephone follow-up calls. The nurse researcher used the assessment worksheet during each follow-up call and recorded the questions and education provided to participants.
Anything that arose outside the researcher’s scope of practice would have been reported to the appropriate personnel at the facility; however, this did not happen during the research.

The researcher asked each participant about medications, including the reason for taking the medication, the side effects of the medications, and if they understood when to notify their provider of any side effects occurring. Additionally, the researcher asked participants about the dosage and timing of their current medications they were taking. Along with the medications, the most current weight of each participant was recorded during each follow-up telephone call. Prior to completing the telephone follow-up call, the nurse researcher would ask specific questions about symptoms to determine whether a possible exacerbation was occurring.

Depending on the responses provided to the nurse researcher, and based on the needs of the participant, the researcher offered additional information. The researcher provided education about specific medications when the participant voiced concerns and noted difficulty with the side effects related to the medications. Additional information related to the side effects and when to contact the provider was completed when the participant was having issues with a medication’s side effects.

**Participant 1.** The follow-up calls for participant 1 were completed on days six, 13, 20, and 27 post-discharge with the CSQ completed on day 30. Throughout the follow-up telephone calls, participant 1 reported a total weight loss of nine pounds. His provider added one medication during the initial follow-up visit. During the first two telephone calls, he expressed that he had no complaints and was taking his medications as instructed. On the third follow-up telephone call, he complained about having some
dizziness and lightheadedness since the last call. The researcher provided him with education regarding medications, signs and symptoms, and when to notify his provider about his symptoms. Participant 1 received additional education on the signs and symptoms of exacerbations due to what he was experiencing. The participant notified the nurse educator during the final telephone follow-up call that his dizziness had worsened, and that he had developed a dry hacking cough. An appointment with the provider took place prior to the final follow-up call due to these symptoms. The participant reported a change in his medications, including discontinuation of his diuretic.

**Participant 2.** The telephone follow-up calls for participant 2 were completed on day 6, 13, 20, and 27 post-hospital with the CSQ completed on day 30. Participant 2 lost a total of seven pounds during the follow-up period. Despite the weight loss, the participant continued to worry about her weight being high. Although she had lost weight since her hospitalization, she weighed more than she did prior to her exacerbation and being hospitalized. Education was provided about the importance of diet and weighing every day. Much of the time during these telephone follow-up calls was spent on discussing medications. The participant had over 10 medications prescribed to her, with no additional medications added at discharge. She was knowledgeable about what medications she was taking; however, she was unaware of the medications’ side effects. Time was spent educating the patient about the different side effects and when to notify the provider. The participant complained to the nurse researcher about her need to get up in the middle of the night to go to the restroom. The nurse researcher provided additional education about the diuretic and the best time of day to take that particular medication.
The participant presented no signs or symptoms of exacerbation during the telephone follow-up calls.

**Time factors.** The amount of time a telephone call takes is important to examine when completing any protocol. During the follow-up protocol, time was important for both the nurse and participant. The nurse researcher had the goal of keeping the follow-up appointments to 10 minutes or less, knowing the participant’s time was precious to him or her and the nurse researcher needed to have the ability to manage several patients if warranted.

The initial visit during the participants’ hospitalization involved discussing the study and gaining consent, which took approximately 30-60 minutes. This time included the collecting demographic data, education for the patient, and scheduling the first telephone follow-up call. Each telephone follow-up call took about 10-20 minutes depending on the information discussed and any additional education that a participant needed.

**Participants.** The initial visit during the hospitalization went well with the participants. Each individual was receptive to the nurse researcher and the information. Scheduling of the telephone follow-up phone calls was challenging, making flexibility important on the nurse researcher’s part when scheduling the telephone follow-up calls.

During the recruitment process, the nurse researcher found patients refusing to participate due to the amount of time the study would take. Individuals who worked were worried about completing the entire month of follow-up. The patients commented on the appeal of the convenience of the follow-up being completed by telephone instead of physically going to an appointment.
Nurse researcher. Timing was an important factor for the nurse researcher. During the telephone calls, the nurse researcher desired to acquire the necessary information for the study in a timely manner, while still providing quality follow-up care to the participants. The researcher quickly learned the telephone follow-up calls took longer than anticipated, thereby requiring an adjustment to scheduling on the nurse researcher part. Implementing a protocol similar to this in a facility would require more than one registered nurse completing the telephone follow-up calls, allowing for extra time if needed. Each patient was different in their requirements during the telephone follow-up calls, leading the nurse to adjust to what the patient needed.

Cost factors. One must always explore the costs of implementing a protocol similar to this in a healthcare facility. Employing telephone follow-up calls puts little to no cost on the patient. The patient does not need to travel anywhere, which could reduce stress when making the appointments. The major costs for this protocol come from the registered nurse completing the telephone follow-up calls. Depending on the type of facility, the number of patients, and the questions of patients, more than one registered nurse might need to be designated to complete the telephone follow-up calls on a daily basis. This has the potential to increase costs for the healthcare facility; however, if the result is decreased readmission rates, this type of protocol may decrease the monumental costs of readmission, not to mention improving health outcomes for patients.

When exploring the cost implications of a protocol such as this, the facility could use a licensed practical nurse or medical assistant to complete the telephone follow-up calls, which would result in a lower cost compared to a registered nurse completing the
telephone calls. Once having completed the follow-up telephone calls, a registered nurse could review the responses from the patient and follow-up when necessary.

**Maintenance**

During the maintenance phase of the research, the goal was to examine the process and determine changes necessary to make this protocol effective for implementation in healthcare facilities. Utilizing the CSQ and gaining qualitative feedback allowed the nurse researcher to identify areas for improvement, as well as what worked well throughout the study.

**Client satisfaction questionnaire.** Each participant completed the CSQ three days after the final telephone follow-up call. The researcher scored the CSQ by adding up the participants’ rating for each item on the scale. Scores can range from eight to 32, with a higher score demonstrating higher satisfaction with the protocol (C. Attkisson, personal communication, June 4, 2019). Participant 1 scored a 32, while participant 2 scored a 28. The participants were satisfied with the protocol and would definitely recommend the protocol to any individual who would qualify.

**Qualitative analysis.** Each participant completed the qualitative questions developed by the nurse researcher. The nurse researcher typed the field notes and completed content analysis to determine the themes and patterns that arose throughout the study. The participants expressed their desire to complete the protocol again if it was available, and one participant stressed the desire to continue the follow-up appointments even after the one-month time period. Common themes between the two participants were convenience, conversation, and education. Both participants stated they would not
change anything about the follow-up protocol. This was surprising because the nurse researcher identified changes that could enhance the protocol.

**Convenience.** Both participants expressed how they found the protocol convenient, and how they appreciated not having to travel to complete a follow-up appointment. They also acknowledged the ease of scheduling the appointments and the flexibility from the nurse researcher. Both participants voiced how they would change nothing about the protocol, and noted that they felt it was a great protocol to be involved in.

**Conversation.** The participants enjoyed the conversation that took place and felt like it was easy to discuss their health, as well as ask questions of the nurse researcher. They felt comfortable discussing their health information and indicated that they were satisfied with the discussions over telephone each week, including the repetitive education offered. The information provided during the conversations was helpful and helped them to develop a better understanding of their disease and what they needed to do to help themselves. Moreover, the ability to comprehend information provided by the nurse researcher was an important aspect of the conversations.

**Education.** In one form or another, both participants received education during each of their telephone follow-up calls. The education varied depending on the needs of the participant. Participant 1 explained the process of making an extra appointment with his provider between his third and fourth telephone follow-up call with the nurse researcher due to the education provided during these telephone follow-up call. He knew something was not right, and as a result of the education from the protocol did not want to wait until his symptoms became worse. The follow-up appointment with his provider
led to an adjustment in medication. Furthermore, he emphasized the importance of education and believed it helped prevent a hospitalization for him.

Participant 2 received education focused on medications. She stressed the appreciation for this and, by the end of the follow-up period, felt she had a better understanding of the medications she was taking and why. Upon receiving education specific to her diuretic medication, she remembered being informed of that during her hospitalization. The researcher provided her with a significant amount of information while in the hospital and she felt she did not fully understand everything.

Both participants felt the education at each follow-up was beneficial. Reviewing the signs and symptoms of exacerbation weekly was helpful for both participants. They felt the reminder of what they needed to watch for was beneficial. They each indicated the education provided during the hospitalization by the nurse researcher was valuable to them, and reiteration of such education throughout the telephone follow-up calls was appreciated.

Nurse researcher perception. The nurse researcher felt the telephone follow-up calls were successful, but sometimes went off topic. While these topics were still related to health in some way, they were not directly related to the heart failure and follow-up for which the participant was receiving the calls. This was most likely related to the timing discussed earlier. Although the convenience of short calls was beneficial, having the flexibility to meet the patient needs was also important. The nurse researcher felt the participants’ needs were met, and the follow-up was valuable for all those involved. The participants verbalized their appreciation for the telephone calls and discussed the knowledge they gained throughout the telephone calls.
The assessment worksheet to guide the telephone follow-up calls was beneficial; however, changes must be made to the worksheet based on the follow-up the nurse researcher completed. Not every question must be asked at each telephone follow-up call. Adding information to the worksheet about diet would be beneficial and ensure diet-related education during the telephone follow-up call. Adding a question related to over the counter medications may also be beneficial, especially when examining how different medications interact. The questions regarding symptoms and when to report them to the provider should be examined and revised toward better educating the patient.

**Summary**

This chapter discussed the content analysis of the case study research that is related to the RE-AIM framework that guided the study. Chapter 5 discusses conclusions of this study, implications of this study, limitations of this study, and recommendations for future research.
Chapter 5: Conclusions

The purpose of this study was to explore the use of a nursing follow-up protocol for heart failure patients using the RE-AIM framework. The researcher followed two participants for one month by means of weekly telephone follow-up calls after their discharge from a healthcare facility. This chapter discusses the researcher’s conclusions, as well as the literature review. Moreover, the chapter examines the implications this researcher has for the future of follow-up with patients, as well as the ease of follow-up for patients and registered nurses. Limitations of this research study, as well as recommendations for future research are also discussed.

Conclusions

Follow-up protocols can be advantageous for patients, healthcare facilities, and nurses. Implementation of follow-up protocols in healthcare facilities has potential to decrease readmission rates, as well as improve patient outcomes. Providing nurses with the opportunity to complete more than one intervention with a patient will enable them to ensure the patient receives individualized follow-up that will directly benefit him or her. The following will discuss specifics on scripts, methods, and satisfaction with the protocol.

**Scripted phone calls.** When completing follow-up calls, nurses should be trained and have scripts to utilize when carrying out the telephone calls (Lee et al., 2016; Ruggiri, Milner, & Buonocore, 2019). Throughout this research study, the nurse researcher employed an assessment worksheet to guide the telephone follow-up calls. This enabled the nurse researcher to be consistent when completing the telephone follow-
up calls by asking the same questions each time and in the same order. This also ensured each participant received the same information related to heart failure during each call.

Questions that the researcher anticipated arose throughout the telephone follow-up calls. If questions arose the nurse researcher was unable to answer, the participants were referred to their primary care provider and the patient’s contact person at the facility was notified. This research demonstrates the importance for a script to be available during follow-up, and it shows the need for a plan in the situation when the nurse cannot answer the question.

Having a script available for the individual completing the telephone call allows licensed practical nurses or medical assistants to complete the telephone call. In other research the use of a medical support assistant to complete telephone calls for appointments reminders and questions related to medication adherence were found to be safe, effective, and efficient. This also allowed the provider or registered nurse to visit with patients who had an increased acuity (Breaux-Shropshire et al., 2017).

More than one method. The current research utilized different interventions, including education related to heart failure, education related to medications, follow-up appointments with providers, and weekly telephone follow-up calls. Research has found that providing only one intervention is unrelated to a decrease in 30-day readmission rates (Ziaeian & Fonarow, 2016). More than one intervention, including detailed information, should be provided to patients. Throughout the telephone follow-up calls, the participants expressed how they were thankful for the education provided during the hospital visit, as well as the continued education during each of the telephone follow-up calls. Providing education throughout the follow-up period provides an opportunity to
understand the information being presented and to have questions answered. Participants recognized different interventions throughout this research, while the study provided information related to different interventions, this needs to be examined further with future research. Vesterlund et al. (2015) found that there was a reduction in readmission rates when using six different interventions to complete education and follow-up care for patients.

**Satisfaction.** When any type of protocol is developed, responsible research requires the evaluation of the protocol including those involved in the implementation process. The CSQ was administered two to three days after completing the telephone follow-up calls. This allowed the researcher to gain understanding of participants perception of the protocol. Overall, participants indicated that they were satisfied with the follow-up protocol. Throughout this research, participants were satisfied with how the protocol was completed and expressed their wish to continue having this type of follow-up. This provides evidence that follow-up via telephone calls can impact patient care and potentially outcomes (Lee et al., 2016; Melton et al., 2012; Salas & Miyares, 2015; Vesterlund et al., 2015).

**Implications**

The following will discuss what the results of this case study research means for the future of follow-up care for patients. The goal of follow-up care should be to provide effective care that prevents readmissions. Examining the entire situation for each patient could impact the follow-up care they receive. The next section discusses follow-up consistency, ease for patients, and the ease for the registered nurse.
**Consistent follow-up.** At the conclusion of this research, it was found that neither participant was readmitted to the hospital within 30 days of discharge. Providing consistent follow-up throughout the first 30 days, and possibly beyond, has the potential to reduce readmission rates among patients. Koberich et al. (2015) found consistent follow-up over a three-month time period led to positive impacts on patients. Salas and Miyares (2015) found monthly telephone follow-up calls were related to a reduction in readmission rates. The challenge going forward is finding effective strategies for consistent follow-up. Alongside strategies, hospitals may need to change how they schedule registered nurses, perhaps including changing the budget. A plan should be developed as to how the consistent follow-up will be carried out, in addition to what that follow-up will include. A variety of interventions can, and should, be included in the follow-up being developed.

**Ease for patient.** An important aspect of a follow-up protocol includes ensuring it does not burden the patient. Any form of follow-up should have the capability to cater to each individual patient completing the follow-up. Flexibility is important for the patient, but may make the follow-up more difficult for the nurse. This stresses the importance of having more than one individual trained to complete the telephone follow-up calls. Patients appreciate the ability to conduct the follow-up around their personal schedule. Completing the follow-up via telephone took the burden out of having to physically attend the facility. This also made it easier to schedule the appointments as they did not have to worry about travel time. Scheduling the appointment during a break at the individual patient’s job is also something to consider. Doing so also offers potential to keep the appointment during the day without disturbing the individual’s
evenings. Using a protocol that is easy to implement and provides education information in a quick, concise way positively impacts the behaviors of patients (Koberich et al., 2015).

**Ease for RN.** Scheduling appointments is important for the registered nurse as well, as it lets the nurse know when the calls will take place and plan accordingly. The scheduled call may also decrease the chance the registered nurse misses the patient and must call back at a different time or day to try and complete the follow-up. Flexibility from the registered nurse perspective is also important. Everyone experiences changes to their schedule and events that arise. Scheduling phone calls is important to ensure the nurse can complete the follow-up without spending too much time trying to reach the patient, which could take the nurse away from other necessary duties. The telephone call takes up significantly less time for a nurse compared to completing a home visit. This may allow the nurse to complete more than one role in a given day. Having a script available made it easy for the nurse to complete the telephone calls in a timely manner. Ruggiri, Milner, and Buonocore (2019) utilized scripts during the follow-up phone calls that were completed by nurses, providing a consistent process wherein the same information was available to each patient.

**Limitations**

The limitations discussed for this study include the sample size, sites utilized, and recruitment efforts. Additionally, there is a need to discuss ways to potentially decrease these limitations.

**Recruitment.** This protocol, which the case study explored, had a small sample size of only two participants. Additional participants would offer potential to provide
stronger evidence with the possibility of better results from analysis for the protocol. Additional patients would also offer the ability to gain quantitative information which could be analyzed and deliver statistics. A larger sample would provide further information about the protocol and the potential impact of it on readmission rates. A future study should accommodate a larger sample size to gain additional information and evidence.

**Different sites.** Recruitment from sites was a major limitation of this study. Extending recruitment to larger facilities would help the researcher gain additional participants. The researcher identified facilities within an hour drive of their home. Extending the radius would ensure recruitment had access to additional sites. Another possibility would be to have signed agreements in place prior to beginning the study. Beginning conversations are crucial to ensure recruitment can be attained from the site. Some sites backed out for various reasons after agreeing. Having contingency plans in place would have helped with recruitment.

**Recruitment efforts.** This research was conducted in rural facilities but expanding the study to include urban facilities would likely increase recruitment. Another limitation was having to rely on the facility to contact the nurse researcher when a patient was a potential candidate for the study. The nurse researcher attempted frequent contact with different sites to inquire about recruitment; however, more frequent contact may have yielded better results. Additionally, due to HIPPA requirements, the facility would talk to the patient before notifying the nurse researcher. Providing a script for the facility in advance would likely help with the recruitment. During discussion, it is important to word information in a way patients understand. This will allow them to know what they
will gain from participating in the study. Conversations prior to the nurse researcher becoming involved could have deterred the patient from wanting to participate in the study.

**Recommendations for Future Research**

The following section discusses the recommendations for future research in relation to the current study’s findings. There is still much work to complete in order to understand the full scope of a follow-up protocol. This includes ways to implement the follow-up, additional quantitative data, follow-up time period, additional disease processes, and the potential to incorporate telehealth into the follow-up protocol. The possibility of completing the follow-up using individuals in the clinic versus the hospital should also be explored. Additionally, there is a need for a larger sample size going forward if the study is to gain additional information and evidence.

**Quantitative study needed.** The original plan for this research still needs to be conducted. An intervention study using an experimental design has the potential to gain statistical data, providing greater evidence as to whether this type of follow-up will truly impact patients and their outcomes after discharge from a facility. The focus of a quantitative study would be to collect and analyze data over telephone follow-up calls and the impact on the 30-day readmission rate. Additionally, a control group should be included to provide the ability to compare the current methods to this newer follow-up method.

**Follow-up time period.** This study focused on the 30-day follow-up period after discharge from a healthcare facility. Currently, the focus is on the 30-day readmission rate resulting from stipulations set forth by CMS. Much research has been conducted on
30-day readmission rates; however, researchers must look beyond that and examine how the patient can stay out of the hospital for longer than 30 days. Research should extend to the 60-day, 90-day, 180-day, and even one year after discharge to be more effective. The longer a patient stays out of the hospital, the less money healthcare facilities and patients alike are spending, thereby reducing draw on resources from all involved. This extra timeframe may provide evidence that education and instructions following initial discharge also helps patients to maintain their health and learn to live with their disease process.

**Additional disease processes.** Stipulations on reimbursement surpasses heart failure, and additional studies should be completed with these disease processes, namely acute myocardial infarction, chronic obstructive pulmonary disease, pneumonia, coronary artery bypass graft surgery, and elective total hip or knee replacements, to determine if a follow-up method such as this could impact readmission rates for these patients.

**Telehealth methods.** Healthcare and technology continue to develop at a rapid pace, and many cannot keep up. The need to provide essential follow-up care through more than just a telephone call is a reality. Providing follow-up via a telehealth mode may allow the provider and/or nurse to provide more than just conversation and education. If capability allows, video follow-up visits would allow them to see the patient and visually assess them. This adds an additional dimension to the follow-up of the patient, which is an important aspect in healthcare. Looking at a patient and observing them can provide a wealth of knowledge to the provider on the situation.

Unfortunately, not everyone has access to follow-up via telehealth. This could include not having a computer and not having the internet. The possibility of having the
patient check out an iPad to complete the follow-up via telehealth may be something for healthcare facilities and providers to consider.

**Lessons Learned**

Throughout the research study, the researcher learned many lessons which could help guide further research completed in the future. As discussed earlier, barriers and challenges were encountered throughout this research study. How one handles these can have an impact on the research conducted. As barriers arose with recruitment efforts, the researcher changed how recruitment was completed and had to get creative to recruit from some healthcare facilities. This made it possible for the researcher to recruit from more than one facility. Organization was an important piece of the recruitment to ensure criteria was completed for each facility.

Upon establishing recruitment guidelines for each facility, the researcher continued to encounter challenges when enrolling participants into the study. While still complying with the needs of the facilities, the researcher continued to attempt recruitment and gained valuable knowledge throughout this process. Recognizing the valuable information gained with a small sample size was an important piece of this study. The researcher recognized the need for changes in future studies and gained valuable partnerships with healthcare facilities within the region. Also recognized, was the need to work with healthcare facilities to establish a means for future researchers to complete studies in those facilities.

**Summary**

This research focused on examining a follow-up protocol complete with heart failure patients discharged from a healthcare facility. Follow-up was completed once
weekly over a total of four weeks; the current study specifically looked at the readmission rate in that 30-day time period after discharge. The research provided evidence on the need to include a follow-up protocol of some type to help reduce readmission rates. The participant reactions supported the completion of follow-up via telephone after discharge from a facility. Although this study shows promise, much work is yet to be completed. Additional studies are required to provide statistical information on the modes of follow-up that would have the best impact on patient outcomes and reduction of readmissions. Furthermore, focus should extend beyond that initial 30-days after discharge to enable researchers to explore opportunities for decreasing readmissions for an extended time period. Ultimately, patient safety, patient outcomes and facilitating habits to enable the patient to maintain health for years to come is where any healthcare practitioner’s focus should lie, including those designing and implementing protocols such as the one in this study.
Appendix A

Permission to use PRISM Model

Yes- you certainly have our permission- the only catch is that to be double safe, you might want to also contact the publisher of the journal in which the figure appeared- I think? this specific figure was from recent Frontiers of Public health???

But definitely fine with me- that is what papers should be for- best of luck with your dissertation

Russell E. Glasgow, Ph.D.
Research Professor, Family Medicine
Director, Dissemination and Implementation Science Program of ACCORDS (Adult and Child Consortium for Health Outcomes Research and Delivery Science)
University of Colorado School of Medicine
Cell 303 807-9079 | ACCORDS D&I Homepage
@RussGlasgow

Hello,
My name is Danielle Schievelbein and I am a nursing PhD Student at South Dakota State University in Brookings, SD. I am working on my dissertation and have used the RE-AIM Framework to guide my study. In reviewing information related to the RE-AIM Framework, I came across the PRISM Model, an extension of the RE-AIM. I am wondering if it would be possible for me to get permission to use the PRISM Model Figure in my dissertation? I have placed the figure below I am discussing for reference. Per my advisor, permission via email will work fine. I have tried emailing Dr. Adrianne Feldstein as well; however, the email connected to the article is not working and I am unable to find another email address for her.
Thank you,
Danielle M. Schievelbein, MS, RN
SDSU Nursing PhD Student
danielle.schievelbein@jacks.sdstate.edu
605-695-2865
Appendix B

Heart Failure Follow-up Assessment Worksheet

Hello, my name is (insert name here) and I am going to be following up with you on a weekly basis for the next one month. During these follow-up visits I will be asking you questions regarding medications and other factors that can contribute to hospitalization. My understanding is your most recent discharge from the hospital was on (insert date here). Is this correct? By remaining in the study, you will contribute to improved health of individuals with congestive heart failure. The survey will take approximately 10 minutes at each of our visits. Please answer each of these questions to the best of your ability.

1. How many prescription medications do you currently take on a daily basis? This only includes medications that your doctor has told you to take that are filled by a pharmacist.
   Fewer than 3
   4-6
   7-8
   9-10
   More than 10

2. Were any new medications prescribed for you during discharge?
   Yes
   No

3. If so, do you understand why you are taking the medication?
   Yes
   No

4. Please list side effects for these medications (list three medications for patient). Patient can list the side effects of three of the medications at each visit?
   Yes
   No

5. Do you know what symptoms would prompt you to notify your physician? Patient can list three symptoms to notify the physician at each visit.
   Yes
   No

For questions 3, 4, & 5, if the respondent answers no, information and education will be provided on the medication.

6. Are you taking each medication at the correct time each day?
   Yes
   No
   Unsure
Do not know

7. Have you missed taking a dose of any medication in the past week?
   Yes
   No

8. Have you increased or decreased the dosage amount of any of your medications this week?
   Yes
   No
   Unsure
   Do not know

If patient answers yes to 7 or 8, please tell me what medications.

Once patient has answered that question, please tell me why you made these changes to your medication.

9. What is your current weight?

10. Has the patient gained more than 5 pounds in the last week?
    Yes
    No

11. Have you experienced any of the following symptoms?
    More shortness of breath than usual
    Difficulty breathing when lying down
    A dry hacking cough
    New or worsening confusion
    Having difficulty thinking clearly

If the patient is not taking their medications, has gained more than 5 pounds, or has any symptoms in question 11, the registered nurse will instruct the patient to set up an appointment with their primary care provider.

This concludes the questions for today’s visit. Thank you very much for your participation in this study. If you have any questions about the research, you can contact me, Danielle Schievelbein at 605-695-2865 or email me at danielle.schievelbein@sdstate.edu.
Appendix C

Client Satisfaction Questionnaire

CSQ-8 English

CLIENT SATISFACTION QUESTIONNAIRE

CSQ-8

Please help us improve our program by answering some questions about the services you have received. We are interested in your honest opinions, whether they are positive or negative. Please answer all of the questions. We also welcome your comments and suggestions. Thank you very much. We appreciate your help.

CIRCLE YOUR ANSWERS

1. How would you rate the quality of service you received?
   - 4 Excellent
   - 3 Good
   - 2 Fair
   - 1 Poor

2. Did you get the kind of service you wanted?
   - 1 No, definitely not
   - 2 No, not really
   - 3 Yes, generally
   - 4 Yes, definitely

3. To what extent has our program met your needs?
   - 4 Almost all of my needs have been met
   - 3 Most of my needs have been met
   - 2 Only a few of my needs have been met
   - 1 None of my needs have been met

4. If a friend were in need of similar help, would you recommend our program to him or her?
   - 1 No, definitely not
   - 2 No, I don’t think so
   - 3 Yes, I think so
   - 4 Yes, definitely

5. How satisfied are you with the amount of help you received?
   - 1 Quite dissatisfied
   - 2 Indifferent or mildly dissatisfied
   - 3 Mostly satisfied
   - 4 Very satisfied

6. Have the services you received helped you to deal more effectively with your problems?
   - 4 Yes, they helped a great deal
   - 3 Yes, they helped somewhat
   - 2 No, they really didn’t help
   - 1 No, they seemed to make things worse

7. In an overall, general sense, how satisfied are you with the service you received?
   - 4 Very satisfied
   - 3 Mostly satisfied
   - 2 Indifferent or mildly dissatisfied
   - 1 Quite dissatisfied

8. If you were to seek help again, would you come back to our program?
   - 1 No, definitely not
   - 2 No, I don’t think so
   - 3 Yes, I think so
   - 4 Yes, definitely
Various forms of the CSQ are available to serve a range of program evaluation and research applications within health, human services, public benefit, and governmental service programs.

Choose a version of the CSQ that best fits your specific application:
CSQ-8  CSQ-3  CSQ-4  CSQ-18A  CSQ-18B  CSQ-31

Assistance in making your choice can be found at www.CSQscales.com.

The CSQ-8 is available in over 35 languages. The CSQ-3 and CSQ-18B are also available in selected languages. The CSQ-8 is available in “Big Print” format in English and Spanish.


Every effort is made to respond rapidly to requests for information about use of the CSQ Scales.

Permission is never given for any modification of the text or format of the scales. Such changes violate copyright and invalidate findings from research regarding the validity and reliability of the scales.

For additional information:
Clifford Attkisson, Ph.D.
Tamalpais Matrix Systems, LLC
660 Amaranth Boulevard
Mill Valley, California 94941-2605
(415) 310-5396
Open-Ended Questions

The things I like best about the follow-up care include:

If you could change anything about the follow-up care what would it be?
Appendix D

Demographic Data

Gender: Male Female

Age: ______

Race:
- Caucasian
- Hispanic
- African American
- Other

Distance from Nearest Hospital: _______ miles

Length of heart failure diagnosis: _____months or _____ years

Heart Failure Classification: I II III IV

Comorbidities (List):
Appendix E

Heart Failure Follow-up Consent Form
Participation in a Research Project
South Dakota State University
Brookings, SD 57007

Department of Graduate Nursing
Project Director: Danielle M. Schievelbein Phone No.: 605-695-2865
E-mail: danielle.schievelbein@jacks.sdstate.edu Date: ------

Please read/listen to the following information:

1. This is an invitation for you, as a patient, to participate in a research project under the direction of Danielle Schievelbein. You will receive a copy of this consent form upon your decision to participate in the study.

2. The project is entitled Heart Failure Follow-up: A Comparison of Methods

3. The purpose of this project is to determine if weekly follow-up by a nurse will decrease the 30-day readmission rate for patients with heart failure.

4. If you consent to participate, you will be randomly assigned to one of three groups: Control Group, Intervention Group A, or Intervention Group B. Participants assigned to the Control Group will have a follow-up phone call with the patient 30 days after discharge. Participants in Intervention Group A will meet with the researcher once a week at the facility for a total of four weeks. These visits will take approximately 10 minutes each. A follow-up phone call will be completed 2-3 days after the final visit. Participants in the Intervention Group B will meet in the home with the researcher, which will take approximately 30 minutes, then will meet via a Telehealth Clinic Platform weekly for three additional weeks. These visits will take approximately 10 minutes. A follow-up phone call will be completed 2-3 days after the final visit.

5. Participation in this project is voluntary. You have the right to withdraw at any time without penalty (this will not affect the care you receive). Any pertinent, sensitive health information shared may be provided to the social worker or case manager at the respective healthcare facility for follow-up. The researcher may remove any participant from the study if it is in his/her best interest. If you have any questions you can contact the project director at the number listed above.

6. The risk is that you may find some of the questions regarding your heart failure management to be sensitive. You may choose to skip or not answer any of the questions.

7. The benefits to you would be the potential of not getting readmitted to the hospital after your current discharge.

8. There is no compensation for your participation in this study; however, you will be contributing to improved health of individuals with congestive heart failure.

9. Your responses are strictly confidential. When data analysis is completed, you will not be linked to the data by your name, title, or any other identifying item.
As a research participant, I have read the above, have had any questions answered, and agree to participate in the research project. I will receive a copy of this form for my information.

Participant Signature ___________________________________ Date _____________

Project Director Signature ________________________________ Date _____________

If you have any questions regarding this study you may contact the Project Director. If you have questions regarding your rights as a participant, you can contact the SDSU Research Compliance Coordinator at (605) 688-6975 or SDSU.IRB@sdstate.edu

This project has been approved by the SDSU Institutional Review Board, Approval No.: ______
Appendix F

Heart Failure Discharge Education

Medications

- Take all medications as prescribed by your physician and follow the directions on the bottle.
- Keep a list of all medications that includes: name, amount, how many times per day
- The medication list should include: prescription medications, over-the-counter medications, vitamins, supplements, and herbal medicines
- The medication list should be brought to every health care appointment
- You could use a pill box to help you with taking your medications
- Notify your healthcare provider if you have any side effects from your medications
- Do not stop taking any medication on your own. Always notify your healthcare provider first.
- If you have any questions about any of your medications, you can contact your healthcare provider or the pharmacist.

Weight

- Weigh yourself at the same time every day. Morning is better.
- Urinate before weighing and eat after weighing.
- Weigh yourself with no clothes on or with the same clothes every day.
- Use the same scale every day.
- Keep a daily log of your weight.

Diet

- You should decrease the amount of sodium you eat every day.
- Sodium is found in many different foods
- Reading food labels carefully will help you determine if the food has a lot of sodium and is healthy to eat.
- One teaspoon of salt has approximately 2300 mg of sodium

Signs and Symptoms

- Keep a log of any symptoms you experience (fatigue, Shortness of Breath, and swelling)
- Take your blood pressure and heart rate and write these in your log.
- Notify your health care provider if you experience any of the following:
  - Weight gain (2 pounds in one day or 5 pounds in one week)
  - Shortness of Breath when you are resting (not related to any exercise or activity)
  - Increased swelling in your legs or ankles
  - Swelling or pain in your stomach area
  - Difficulty sleeping (need to use pillows or sleep in a recliner, Shortness of Breath when you wake up)
  - Frequent dry, hacking cough
  - You feel tired all the time
- You should also notify your healthcare provider if you feel sad, hopeless, or helpless
Appendix G

Institutional Review Board

South Dakota State University
Institutional Review Board

Investigator: Danielle M. Schevelbein

Project Title: Heart Failure Follow-up: A Comparison of Methods

Determination: Expedited, Category 7

Approval #: IRB-1812007-EXP

Duration: December 11, 2018 - December 10, 2019

The project referenced above has been approved by the Institutional Review Board (IRB) for the protection of human subjects through expedited review. The proposed activity was deemed to be no greater than minimal risk and congruent with expedited category number (7) outlined in 45 CFR 46, section 110.

Note: Any changes to the protocol or related documents must be approved by the IRB before implementation. Unanticipated problems or adverse events must be promptly reported to the IRB. This approval is valid for one year. If you require additional time to complete your study, please submit an extension request. SDBOR regulations require that research data be retained for seven years following completion of a study, and research materials for three years. Please notify the IRB when your study concludes.

Dianne Nagy
Research Integrity and Compliance Officer
December 11, 2018
References


