

**A Standardized Nurse-Led Education and Outpatient Follow-up Intervention to Reduce
30-day Hospital Readmissions in Heart Failure Patients: A DNP Project**

Matthew Weems

University of Alabama

Capstone College of Nursing

Faculty Advisor: Paige Johnson

Clinical Advisor: Marci Barth

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PART I: DNP PROJECT PROPOSAL**Table of Contents**

Abstract.....	4
Introduction.....	6
Background.....	6
Problem Statement.....	7
Organizational “Gap” Analysis of Project Site.....	7
Review of Literature.....	8
Evidence-based Practice: Verification of Chosen Option.....	13
Theoretical Framework.....	13
Goals and Objectives.....	14
Methods.....	15
Project Design.....	15
Project Site and Population.....	16
Measurement Instrument.....	17
Data Collection Procedure.....	17
Data Analysis.....	18
Cost-Benefit Analysis.....	18
Timeline.....	19
Ethical Considerations/Protections of Human Subjects.....	19
Results.....	19
Discussion.....	20
Conclusion.....	22

References.....23

Appendix.....29

Abstract

Introduction/Purpose

Heart failure (HF) is a disease that progressively afflicts more and more of the American population. Its burden extends across clinical, financial, and organizational domains. CHF is the greatest cause of 30-day hospital readmissions which result in increased mortality and decreased quality of life.

Methods

Patients in a 25-bed critical access hospital were recruited. They were then educated using standardized materials from the American Heart Association (AHA) Rise Above Heart Failure toolkit. Self-care capacity was also assessed prior to discharge using the Self-Care in Heart Failure Index (SCHFI) questionnaire. After discharge, patients were contacted weekly and assessed using the AHA Target HF telephone follow up tool. After 30 days, patients were to be reassessed with a second SCHFI and scores compared. Data was collected pre and post intervention. Readmission rates in the sample were to be calculated and compared to data from the prior reporting year.

Results

During data collection period, 48 unique patients were admitted. Three patients met the inclusion criteria but one declined participation. Of the two remaining patients included, one was promptly readmitted prior to engagement and the other was lost to follow-up. While both patients received the education intervention, neither received the follow-up intervention.

Discussion

This project illustrated the challenges to recruitment and engagement that can be encountered by critical access hospitals that operate on a low daily census. Keys strategies for improvement in

future cycles are to increase sample pool by extending the collection period, incorporating additional units, and limiting exclusion criteria. Strategies to improve post-discharge engagement focus on in-person connections such as home health or outpatient HF clinics. These are under consideration for future cycles of improvement.

Keywords: heart failure, readmission, transitional care, education, discharge follow-up

Introduction

Heart failure (HF) is a condition where the heart, due to either structural or functional limitations, is unable to pump enough blood to meet the demands of the body (Malik et al., 2021). This debilitating condition is the greatest cause of 30-day hospital readmission in medical-surgical patient over age 65 and those readmissions translate to increased lengths of stay, decreased quality of life, and higher mortality risk for up to a year (Nair et al., 2020). The burden of congestive heart failure continues to grow progressively each year. Most recent data shows that 6.2 million people currently experience heart failure, and that number is expected to increase to 8 million by 2030 (Virani et al., 2020). Data also show that for all deaths in 2018, 13.4% listed HF as a contributing diagnosis (Centers for Disease Control and Prevention [CDC], 2020). Beside the clinical burden, HF represents a financial burden as well. The estimated cost-burden is approximately 108 billion annually (Lesyuk et al., 2018).

Background

The heart failure patient is at a significant risk for readmission in the first 30 days after discharge with up to 25% of discharged patients being readmitted within that timeframe (Hollenberg et al., 2019). There are many contributing factors such as comorbid disease, low health literacy, medication non-compliance, and poor adherence to treatment and self-care practice (Oscalices et al., 2019; Salam et al., 2020). The facility where this project will be conducted currently maintains a HF readmission rate of 22.4% that is slightly above averages for both the state (22.24%) and the nation (21.97%) (Illinois Department of Public Health [IDPH], n.d.). The 30-day mortality rate for HF in the facility is 14.2% compared to a state average of 10.94% and national average of 11.3% (IDPH, n.d.). It is therefore the goal of the facility to lower heart failure readmissions.

Principles of self-care and home management are often misunderstood by patients and that often results in non-compliance and treatment failure. To prevent the health repercussions of these readmissions, prevention strategies must be employed to better prepare patients for a successful transition to home. The American College of Cardiology recommends a structured discharge plan that is implemented at the time of admission where the patient is educated on disease process, medications, activity, dietary requirements, self-care principles, and signs of decompensation (Hollenberg et al., 2019). This is coupled with a prompt follow-up phone call within 48-72 hours to assess for signs of early decompensation and a clinic visit within the first 7-14 days (Hollenberg et al., 2019).

Problem Statement

With the anticipated exponential increase in heart failure diagnoses in the next ten years, and the proven impact of readmission on mortality and quality of life, facilities must develop mitigation strategies that emphasize self-care, smooth transition to home, and prevention of readmission. Therefore, this problem should be evaluated.

Organizational “Gap” Analysis of Project Site

To determine organizational need, current HF management practice in the setting of care was observed and compared to recommended best practice. Care measures were placed into three domains of clinical management: 1.) inpatient management, 2.) discharge planning and education, and 3.) outpatient follow up. Care processes were then analyzed for any gaps in the existing delivery of care and the recommended best practice.

Each of the three clinical management domains were analyzed and observed for needs. One priority need was selected from each domain and causal analysis was performed to identify contributing factors that could be successfully modified. Observation of patient throughput and

current transitional workflows revealed an operational care-coordination program that included inpatient education, discharge planning, and post-discharge patient follow up. However, the content delivered in these encounters lacked standardized methods of delivering information, assessing need, or initiating interventions.

Review of Literature

In March of 2022, a literature review was performed to assess the current state of the evidence regarding this problem. The CINAHL, PubMed, and Joanna Briggs Institute databases were searched using various combinations of the keywords, *heart failure, readmission, transitional care, discharge follow-up, education, telephone*. Filtering for full text, academic journal articles from 2017-2022 yielded a total of 305 articles. Additional articles were excluded if they consisted of a focus on disease processes beyond heart failure; proposed an intervention outside of a nursing scope; care location outside of inpatient hospital or home setting; did not evaluate readmission rates; or did not evaluate within the 30-day period. After exclusion, 43 articles remained which were evaluated for relevance to the scope of this project. Ultimately 12 articles were selected for final review that were divided into two key intervention categories: education and post-discharge phone follow-up.

Education

Of the studies selected, five illustrated the application of pre-discharge educational interventions to reduce readmission rates. A randomized controlled trial by Cui et al. (2019) analyzed self-care and readmission outcomes of a structured, nurse-led, pre and post discharge educational intervention in patients with heart failure. The resulting outcome was a decrease in readmission rate to 10.4% compared to 27.1% in the control group. Similarly, Son et al. (2020) conducted a systematic review that focused on nurse-led self-care education and its effect on

readmissions, mortality, and quality of life. Education among the studies covered topics of symptoms, diet, lifestyle, and therapy while interventions included pre-discharge education, phone calls, home visits, and clinical assessment. The resulting meta-analysis indicated that nurse-led education interventions produced a 25.2% reduction in all-cause readmissions and a 40.0% reduction in heart-failure-specific readmissions (Son et al., 2020).

Two of the studies looked more specifically at a teach-back method of education and a key intervention. A quasi-experimental study by Rahmani et al (2020) examined the effect of a teach-back method of education on heart failure patients' levels of knowledge and practice, quality of life, and readmission rates over period of 90 days. Patients in the intervention group received education using the teach back method while the control group received unstandardized education. The study found a significant decrease in readmission rates in the intervention compared to control. Another quasi-experimental study by Mesbahi et al. (2020) evaluated teach-back education and its effect on self-care and readmission in heart failure patients. They found that mean number of readmissions in patients that received the intervention was 0.52 compared to 1.05 in the control group (Mesbahi et al., 2020).

Post-discharge Telephone Follow-up

In a pragmatic randomized trial by Lee et al. (2018) researchers studied how a post discharge phone call would affect 30-day hospital readmissions in heart failure patients compared to a standard follow-up visit with a primary care provider. Data showed that those that all-cause readmission rates were 17% lower in the intervention group at 30 days after discharge with borderline statistical significance (Lee et al., 2018). The HF specific readmission rates were also lower, but those findings were not statistically significant (Lee et al., 2018). A retrospective program evaluation by Hall et al. (2020) studied how a telephone outreach program impacted

heart failure outcomes. Patients in the intervention group received a total of four automated follow-up calls within a 27-day period after discharge and results from the study found that only 1% of patients that received all four calls were readmitted within 30 days (Hall et al., 2020). Comparatively, those that received no calls had a 30-day readmission rate of 11.2% (Hall et al., 2020).

Multifactorial Interventions

Much of the reviewed literature looked at multifactorial interventions as a strategy to prevent readmissions. These interventions consistently included pre-discharge education, medication reconciliation coupled with early post-discharge primary care follow up and phone support. A quality improvement study by Charais et al. (2020) evaluated the impact that a multifactorial disease management program would have on readmission rates. The designed plan consisted of teach back education, medication reconciliation, early post-discharge follow-up call, and primary care follow-up within one week. The study found that implementing the management program decreased all-cause readmission rates by 38%. In an integrative literature review by Ba et al. (2020), studies were reviewed to evaluate the effect of transitional care interventions in heart failure patients. The interventions utilized in the studies consisted of pre-discharge assessment, education, medication reconciliation; post-discharge follow up calls and phone support, early discharge follow up visits, and home visits (Ba et al., 2020). Of the 25 studies reviewed, 55% of them resulted in a significant reduction in hospital readmission rates (Ba et al., 2020). Another randomized clinical trial conducted by Oscalices et al. (2019) studied how a combination of discharge education and telephone follow up affected adherence to therapy, readmission rates, and mortality. The resulting data showed a decrease in both 30 and 90-day readmission rates however only the 90-day values were found to be statistically

significant (Oscalices et al., 2019). Finally, a quality improvement study by Hart and Nutt (2020) implemented a bifocal intervention that consisted of standardized inpatient education and outpatient follow up dialogs that emphasized self-care principles. They found that then intervention group had a 19.4% readmission rate compared to 44.2 in the control group (Hart & Nutt, 2020).

Nurse-led interventions

An important theme in the literature was the efficacy of specifically nurse-led programs to improve outcomes in heart failure. In addition to Lee et al (2018) and Hall et al (2020) which were both nurse-led interventions that showed decreases in readmission rates, there were two other articles selected that examined this topic. A systematic review and meta-analysis by Qiu et al. (2021) examined nurse-led interventions' effect on readmission and mortality for heart failure patients. After a review of 95 selected articles encompassing 3282 patients with HF, patients in nurse-led intervention groups were found to have significantly lower readmission rates compared to the usual care group (Qiu et al., 2021). These findings were consistent at the three, six, 12, and 24-month evaluation periods (Qiu et al., 2021). Another meta-analysis of randomized control trials by Li et al. (2021) evaluated how nurse-led transitional care interventions impacted healthcare utilization for heart failure patients. 25 trials were reviewed, and final analysis showed a nurse-led interventions resulted 9% decrease in all-cause and 29% decrease in heart failure specific readmissions compared to the usual care group (Li et al., 2021).

American Heart Association Recommendations

Two standardized tools developed by the American Heart Association are the Rise Above Heart Failure (RAHF) Toolkit for Healthcare Professionals and the Target: HF Program. These two programs offer many individual resources for improving outcomes in heart failure.

Components of these programs have been used as resources and have been validated in previous quality improvement efforts.

This project will specifically use the RAHF Patient Education Checklist (see appendix C). Mondesir et al. (2019) implemented a home follow up intervention that used a modified form of the RAHF discharge checklist. Each encounter emphasized medication management, self-care, and HF behavior. They found that in the intervention group, readmission rates decreased to 11.5% compared to 21.3% for the comparison group (Mondesir et al., 2019). The second tool will be the Target: HF Telephone Follow-up Form (see appendix D). In a quality improvement project conducted, by Hoo et al (2021), an intervention bundle was created using the Target: HF strategies and clinical tools. They found that those in the intervention group had a readmission rate of 22% compared to 36% for the non-intervention group (Hoo et al., 2021).

Self-Care for Heart Failure Index

The Self-Care for Heart Failure Index (SCHFI) is an instrument that is used to measure self-care in HF. The 39-question questionnaire evaluates key components of patients' proficiency in the three HF self-care processes: maintenance, symptom perception, and management and concludes with an evaluation of confidence in self-management (Riegel et al., 2019). It has existed in many versions and translations that have been defined by the evolution of the Situation-Specific Theory of Heart Failure Self-Care on which it based. Each of these iterations have been validated. The most recent and the one used for this project is version 7.2.

SCHFI 7.2 has undergone psychometric testing on two different occasions. The first study evaluated 635 HF patients and found that calculated estimates of reliability were adequate at .70 or greater for all scales (Riegel et al., 2016). They also found a correlation between SCHFI scores and 36-Item Short Form Health Survey scores which illustrated the instrument's

predictive validity (Riegel et al., 2019). A second course of psychometric testing was performed by Vellone et al. (2020) with similar findings. They found the three SCHFI 7.2 scales to be validated and reliability estimates to be between .73 and .88 (Vellone et al., 2020). They also found correlation between SCHFI 7.2 scores, quality of life scores, brain natriuretic peptide levels, and NYHA heart failure class (Vellone et al., 2020).

Evidence-based Practice: Verification of Chosen Option

Based on the evidence reviewed, it has been determined that an effective intervention to decrease readmission in the target population would be to implement a nurse-led program that combines standardized pre-discharge self-care education utilizing teach back methods and early standardized post-discharge follow-up calls that emphasize assessment and education.

PICOT statement: Among adult patients with either a primary or secondary diagnosis of heart failure, does the implementation of a nurse-led intervention consisting of standardized teach back education and standardized post-discharge follow up decrease 30-day all cause readmission rates over a 90-day period compared to 30-day all cause readmission rates for the prior calendar year.

Theoretical Framework

The theoretical framework that will serve as the basis of this project will be The Situation-Specific Theory of Heart Failure Self-Care published by Riegel et al. (2016). This theory defines self-care as a process of decision-making that “influences actions that maintain physiologic stability, facilitate the perception of symptoms, and direct the management of symptoms (Riegel et al., 2016, p. 226). It designates three distinct processes of self-care that flow sequentially as part of a greater collective process: maintenance, symptom perception, and management (Riegel et al., 2016). The maintenance process reflects adherence to prescribed

treatments and ability to engage in healthy behaviors while the symptom perception process involves the ability to recognize, understand, and interpret changes in physical condition (Riegel et al., 2016). The final process, management, involves the ability to process the interpretation of symptoms and elicit an adequate response (Riegel et al., 2016).

According to the theory, self-care behaviors can be conscious or unconscious decisions that are often influenced by factors associated with person, problem, and environment (Riegel et al., 2016). Each of these factors affects individual self-efficacy and that self-efficacy directly influences self-care. When a patient can achieve a moderate to high level of self-care, outcomes improve (Riegel et al., 2016). Patients will proceed through the individual processes sequentially building knowledge and skill as they progress. Each process must be mastered before moving to the next. As progress is made through each process, general self-care capacity increases, and, as a result, outcomes improve.

Considering this theoretical framework, this project will reinforce maintenance behaviors such as medication and treatment adherence. It will provide education to enhance perception and interpretation of symptoms and that greater perception will improve management by facilitating early response in the outpatient setting. It will seek to establish and cultivate effective self-care behaviors that will enhance patients' knowledge, skill, and confidence at each level of the process and be instrumental in reducing exacerbations, emergency department visits, and hospital admissions.

Goals and Objectives

There are two goals for this project. The first is to improve heart failure patients' capacity for self-care. There is a wealth of evidence that expanding a patient's knowledge of their illness and self-management strategies will empower them toward the second goal which is

reducing readmission. In this project, the goal is reducing 30-day all cause hospital readmissions in heart failure patients, specifically.

There are four objectives that are designed to ensure this project meets the established goals:

- Evaluate self-care capacity using the SCHFI before and after the intervention.
- Deliver standardized patient education to adult HF patients prior to discharge.
- Early patient engagement via telephone follow-up calls within 72 hours of discharge to assess and continue education using standardized post-discharge dialog.
- Continue to engage patients at least weekly 30 days after discharge. The expected outcomes are that education will enhance patients' self-care ability and, as a result, readmission rates will decrease.

Methods

Project Design

Inclusion criteria for the project was patients over the age of 18 with either a primary or secondary diagnosis of heart failure and evidence of exacerbation (elevated brain natriuretic peptide, radiographic evidence of pulmonary congestion, peripheral edema, or administration of intravenous diuretics during stay). Exclusion criteria were cognitive deficit and discharge to a location other than home. At the time of admission, patients who met the inclusion criteria were allocated to the intervention group. As a part of the admission process, the patients received the initial SCHFI questionnaire and the "Rise Above Heart Failure" education guide and discharge checklist was placed on the chart. This document provides scripted guidance for talking points in the education plan and a checklist to ensure the critical elements are addressed. Finally, it

includes a discharge checklist to be completed with the discharge planning process that ensures the patient understands the discharge instructions (American Heart Association, n.d.). This document would be opened at admission and completed periodically throughout the stay by the principal investigator.

At the time of discharge, the education was reiterated, and written discharge education was provided. The discharged patient was scheduled for a primary care follow-up visit within seven days. Prior to that follow-up visit, patient was to receive an initial follow up call that consisted of an initial assessment and medication reconciliation. They would then receive weekly assessment calls for the duration of the first 30 days after discharge to assess their condition. The template for each follow-up call was the American Heart Association Target: HF Telephone Follow-up Form which is a structured follow-up call template that combines assessment, medication reconciliation, and education (American Heart Association, 2017). The initial followed the form entirely and subsequent calls omitted medication reconciliation. These calls were designed to assess early decompensation and facilitate primary provider engagement. Follow up engagement was also arranged by the principal investigator.

Project Site and Population

This project took place on a 25-bed medical unit of a critical access hospital in a small rural community. This county hospital serves a community of 21,488 people (United States Census Bureau, 2021). Patients on this unit vary from acute medical patients, early post-operative patients, and swing bed patients receiving rehabilitation therapy. The primary three diagnoses for admission are pneumonia, heart failure, and chronic obstructive pulmonary disease

Sample size was determined using power analysis in R. For an estimated effect size of 0.5, significance level of 5%, and 80% statistical power, a sample size of 34 would be required

for statistical significance. Based on previous census data, this sample size was determined to be feasible for the collection period. Inclusion criteria were patients that are 1.) over the age of 18, 2.) admitted with either a primary or secondary diagnosis of heart failure, 3.) signs of exacerbation (elevated brain natriuretic peptide levels greater than 100, pulmonary congestion on chest x-ray findings, peripheral edema, use of intravenous diuretics to manage heart failure) over the course of admission, and 3.) are discharged to home from the facility. Exclusion criteria were patients that have 1.) cognitive deficits that would limit understanding of the intervention, 2.) discharge to a location other than home.

Measurement Instrument

To measure the outcomes of this project, two instruments were utilized. The first was individual SCHFI scores before and after intervention. Permission was obtained for its use from the author (see appendix D) and a copy of the instrument can be viewed at <http://self-care-measures.com/project/patient-version-schfi-english-v7-2/>. The five-point Likert scores for each individual item on the instrument were to be compared along with total instrument score to evaluate effectiveness of the intervention. The second measurement was post-intervention 30-day all-cause readmission rates obtained from a combination of standardized electronic health record data reporting mechanisms and manual calculation from census data. These were to be obtained after the completion of the 30-day post-discharge period and then compared to mean all cause readmission rates from the prior year.

Data Collection Procedure

Data was collected from the period of 7/18/2022 to 8/25/2022. Patients that met the inclusion criteria were allocated to the intervention group and had the intervention applied for the duration of admission and 30-days after discharge. At the end of the 30-day post-discharge

period, each case was reviewed to determine if any of the exclusion criteria were met. Those that were not excluded were reviewed for readmission in the period. At the completion of the five-week collection period, electronic health record data reporting mechanisms were used to generate reports for all patients that were readmitted within a 30-day period after discharge. This was confirmed using manual calculation based on review of census data for the reporting period.

Data Analysis

Demographic, admission, and diagnosis data was tabulated using Microsoft Excel. Each new admission in the collection period was reviewed for inclusion/exclusion and readmission. These data will be compared to annual readmission rates reported for 2021 and paired t-test will be calculated. The t-test will be used to measure statistical significance of the outcome data.

Cost Benefit Analysis/Budget

This project did not incur significant cost (Appendix A). There is an existing process in place and labor allocations for those tasks. Members of the project committee met twice over the course of the project. Estimated cost for this time was \$50 per hour a total of eight hours collectively. Education and additional support for the intervention was provided by the primary investigator. The education guidance and checklist was provided for download free of charge by American Heart Association. There will be a small material cost associated with printing these materials that will be incurred by the organization.

The benefits of the project would be an improvement in outcome and quality of care. This may translate to a decrease in sunk cost associated with readmissions. The facility is a member of an accountable care organization (ACO) that distributes performance-based incentive reimbursement. An increase in performance in readmission metrics may result in an increase in reimbursement.

Timeline

After IRB approval was obtained, patient engagement began. Data was collected from the period of 7/18/2022 to 8/25/2022. Subjects were recruited throughout that period with plans for each patient to receive the intervention and 30 days of follow up. However, on 8/25/2022, no subjects were actively participating, and the project was concluded. The data analysis, results

Ethical Considerations/Protections of Human Subjects

The University of Alabama IRB approval was obtained prior to initiating the project. Patient privacy was protected according to both Health Insurance Portability and Accountability Act of 1996 (HIPAA) and facility security protocols. Clinical reports were deidentified by excluding patient identifiers. Hard copy data was scanned and stored securely inside the facility's secure data network. It was only accessible by the principal investigator. At project completion, files will be deleted from storage. The risk to patients participating in this project was no different from the risks of patients receiving standard heart failure care in the hospital.

Results

During the data collection period 48 unique patients were admitted to the unit. Eleven of those patients were excluded due to being admitted or discharged outside of the data collection period. 27 of the remaining 37 had no diagnosis of heart failure. Five more had a diagnosis of heart failure but did not meet the criteria for exacerbation. This left six total patients with a diagnosis of heart failure with exacerbation. Four of those patients were excluded. Two were transferred to a higher level of care; one was discharged to a long-term care facility; and one declined participation in the program. Ultimately two patients met inclusion criteria and had the intervention applied.

Both patients' hospital stays were 3 days total. This allowed for a single brief education session and another session to obtain the baseline SCHFI. During the second session, the SCHFI was given verbally by the principal investigator and education was reinforced during that process. Unfortunately, the follow-up component could not be implemented. The first patient was promptly readmitted prior to follow-up. The second patient was unable to be reached by phone after discharge and was ultimately lost to follow-up. The target sample size to achieve statistical significance was 34. That was not reached.

Discussion

Based on the outcome and findings of the project, there are two key areas of improvement that must be addressed prior to the next cycle: recruitment and engagement. Due to limitations imposed by daily census, and criteria of inclusion/exclusion, recruitment was quite low. In the entire 40-day data collection period, only six patients were candidates for inclusion and all but two of those fell under exclusion criteria. Some strategies to improve recruitment would be to extend the data collection period to allow for a larger population to sample from. Another strategy would be to sample from other facilities within the system as well. This would increase the size of the population but would compromise the intended unit-specific focus. Another strategy would be to expand the inclusion criteria by allowing heart failure patients without exacerbation to be included. There would be clinical benefit from the education but would not apply as directly to heart failure readmission rates.

The Second area of improvement is in the area of engagement. Continuing to engage patients after discharge proved challenging. One patient was unable to be contacted and was completely lost to follow up. The other patient was promptly readmitted with a single

unsuccessful attempt to contact prior to readmission. A possible strategy to better facilitate engagement would be to establish in-person meetings for the follow-up period.

Evidence supports various iterations of this in-person strategy. One consideration would be integrating the program into a home health care plan for the 30 day follow up period. A study by Padula et al. (2019) showed that a home care education/evaluation strategy may be effective in preventing readmissions in specific populations (permanent atrial fibrillation, age less than 90). Another study by Punchik et al. (2017) found that, among homebound patients, homecare was effective in decreasing hospitalizations and total in-hospital days. Another strategy would be incorporating the program into weekly visits to a dedicated nurse-led heart failure clinic. A study by Liljeroos and Stromberg (2019) found that implementing a nurse-led heart failure clinic in the primary care setting resulted in significant decreases in associated hospital admissions and ED visits. It also found that patients managed in that setting were treated closer to guidelines and more satisfied with their care (Liljeroos & Strömberg, 2018). A systematic review by Qiu et al. (2021)

The education intervention did not encounter obstacles while patient's were admitted though short stay admissions do not allow a large amount of time for multiple education sessions. These sessions would be better delivered if extended over the duration of the 30-day follow-up period. The telephone follow-up form, though well suited for a single 72-hour follow-up call, was found to be cumbersome for serial calls. Much of the information in the form would not change from call to call. One consideration would be to use the full form for the first 72-hour follow up call and a more abbreviated rapid assessment and education form for additional calls.

Unfortunately, the shortcomings of recruitment and engagement made it impossible to evaluate the effectiveness of the intervention as a whole. Through this project, however, weaknesses in initial design can be determined. New strategies to improve these shortcomings can then be considered, developed, and implemented in the next cycle.

Conclusion

Reducing hospital readmissions is a significant way to improve quality of life and decrease patient mortality. Since heart failure is the greatest cause of readmission, reducing readmissions in this population serves to provide the greatest benefit. This project was a quality improvement effort that standardized patient education and post-discharge telephone follow up with the goals of improving self-care capacity and reducing 30-day all cause hospital readmissions. This project has been valuable in revealing the challenges that critical access hospitals often face in recruiting and engagement for quality improvement efforts. These observations have prompted the development of new strategies to engage patients more effectively in future cycles.

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Appendix

Appendix A

Cost-Benefit Analysis

Items	Cost	Benefit
Printing expenses	\$50.00	Improved outcomes
Staff time required	\$0	Increased ACO reimbursement
Education/meeting time (\$50/hour x 8)	\$400	


Appendix B

Project Timeline Table

Date	Project Event
July 2022	Approval of project proposal
July 18, 2022-August 25, 2022	Application of intervention/collection of data
September 2022-October 2022	Data analysis and outcome interpretation
October 2022-November 2022	Dissemination of findings

Appendix C

Rise Above Heart Failure Toolkit Checklist

Healthcare Provider: Heart Failure Patient About Heart Failure 	
The following teaching points are intended to assist healthcare providers in talking with their patients about heart failure. Use these teach-back questions to steer your discussion.	
Teaching Points	Answers
What is heart failure? ¹ See Heart Failure animation ² See What is Heart Failure? pdf	<ul style="list-style-type: none"> • When you have heart failure, your heart doesn't pump as well as it should. • As a result, some parts of your body may not get enough blood and oxygen. • These problems may lead to the symptoms you feel. • Heart failure is a chronic problem, meaning that it has no cure. But it can be managed so you feel better.
What are the symptoms?	<ul style="list-style-type: none"> • Heart failure most often causes shortness of breath, tiredness, and swelling in certain parts of your body. • These symptoms can occur during activity or rest, even at night while you sleep.
What is ejection fraction? ³ See Ejection Fraction infographic	<ul style="list-style-type: none"> • Ejection fraction (EF) is a measure of the blood that the heart pumps out. It is the percentage of blood that the left ventricle moves with each beat. • A normal EF is between 50%-70%.
If heart failure can't be cured, why bother trying to treat it?	<ul style="list-style-type: none"> • As heart failure gets worse, your symptoms will likely get worse. This may make activities of daily living (such as dressing and bathing) much harder. • It may also make you too tired to do things that you enjoy, like spending time with friends and family. • Treatment can help you feel better and help keep your condition from getting worse.

More Resources

The American Heart Association offers more to help your patients understand their diagnosis and treatment plan. Visit riseabovehf.org to access these resources.

¹[Heart Failure \(animation\)](#)

²[What is Heart Failure?](#)

³[Ejection Fraction infographic](#)

[My Heart Failure Guide](#)

[Rise Above Heart Failure materials](#)

[Ejection fraction explained \(video\)](#)

Healthcare Provider: Heart Failure Patient Discharge Checklist



The following checklist is intended to assist healthcare providers in reducing the risk of readmission for patients with heart failure transitioning to home care. Use this checklist to ensure that your patient/caregiver understands the discharge instructions and has the ability to perform self-care.

Questions	Answers
Medication Management	<input type="checkbox"/> Was a prescription given? <input type="checkbox"/> Was the prescription filled? <input type="checkbox"/> Was the medication listed on insurance formulary? <input type="checkbox"/> Were medications listed for the patient? <input type="checkbox"/> Did the patient have an adverse reaction to the medications? <input type="checkbox"/> Is the medication list incomplete (i.e., patient did not inform caregivers of all the medications being taken at home)? <input type="checkbox"/> Did the patient choose to adhere to medications?
Self-Management	<input type="checkbox"/> Does the patient have access to transportation? <input type="checkbox"/> Does the patient have financial barriers? <input type="checkbox"/> Does the patient have language barriers? <input type="checkbox"/> Is the patient able to perform care? <input type="checkbox"/> Is the patient suffering from self-neglect or self-abuse? Did the patient adhere to: <ul style="list-style-type: none"> <input type="checkbox"/> Medication regimen? <input type="checkbox"/> Low-sodium diet? <input type="checkbox"/> Weight management? <input type="checkbox"/> Exercise/activity plan or recommendation to participate in cardiac rehab? <input type="checkbox"/> Monitoring new or worsening signs or symptoms of HF?
Lack of Communication (pending diagnostic results not communicated with PCP)	<input type="checkbox"/> Was transition/discharge summary sent to PCP? <input type="checkbox"/> Did a PCP note at the time of transition that a provider had been found prior to discharge?
Referral/Outpatient Needs Process	<input type="checkbox"/> Was a referral noted? <input type="checkbox"/> Was there a referral follow-up? Name: _____ <input type="checkbox"/> Was there a referral to an agency that was unable to meet individual needs? Name: _____ <input type="checkbox"/> Was there an unaddressed comorbidity? <input type="checkbox"/> Was mobility/home safety assessed?

More Resources

The American Heart Association offers more to help your patients understand their diagnosis and treatment plan. Visit riseabovehf.org to access these resources.

[My Heart Failure Guide](#)

[Rise Above Heart Failure materials](#)

[Ejection fraction explained \(video\)](#)





Admission and Duration:	
The following guidelines are intended to assist healthcare providers in talking with their patients about heart failure. Use these checklists to steer your discussion.	
1	<input type="checkbox"/> Heart failure overview a. Signs and symptoms b. Ejection fraction video c. Smoking cessation
2	<input type="checkbox"/> Call the doctor: What to do if symptoms worsen a. Weight gain of more than 2-3 lbs. in one day b. Increase in shortness of breath c. Increase in leg swelling
3	<input type="checkbox"/> Review all medications related to heart failure and cover potential for adverse reactions
4	<input type="checkbox"/> Give overview of diet and fluid restrictions
5	<input type="checkbox"/> Review activity and exercise level
6	<input type="checkbox"/> Refer to discharge instruction sheet for scheduled follow-up appointment with doctor

Patient signature:	Date:	Time:
Guardian signature and relationship:	Date:	Time:
RN signature/instructed by:	Date:	Time:

Note: Signature confirms that patient and/or guardian have received and understand the information provided in the teaching checklist above.

Healthcare Provider: Heart Failure Patient

Lifestyle Changes



The following teaching points are intended to assist healthcare providers in talking with their patients about the importance of making lifestyle changes to manage heart failure. Use these teaching points to guide your discussion.

Quitting Smoking and Using Other Tobacco Products

Teaching points:

- Quitting smoking is one of the most important changes for health and heart failure management.
- Each puff of a cigarette increases heart rate and blood pressure and robs the body of needed oxygen.
- No form of tobacco is safe. This includes e-cigarettes, cigars, chew, snuff, bidis, and clove cigarettes.
- Quitting takes patience and persistence.
- Making a quit-smoking plan will increase the likelihood of success.
- Using a quit-smoking product makes it much more likely to quit for good.

[AHA Resources for Quitting Smoking](#)

Restricting Sodium and Alcohol Intake

Teaching points:

- Patients with heart failure typically need to restrict sodium intake. Sodium increases fluid retention, which increases blood pressure and puts a greater strain on the heart. It also increases fluid buildup, leading to swelling in the legs and feet and shortness of breath.
- The AHA recommends no more than 1,500 mg of sodium daily for patients with mild heart failure. Patients with more severe heart failure may need to restrict it even further.
- One teaspoon of salt contains 2,300 mg of sodium and sodium is hidden in many foods (especially prepared and fast foods). Reaching sodium goals often requires patients to make significant changes in their eating habits.
- Patients with heart failure should have a conversation with their healthcare provider about whether they can drink alcohol. Patients might be instructed to abstain from alcohol completely, especially if alcohol intake contributed to their heart failure (alcohol-induced cardiomyopathy).

[AHA Sodium Reduction Initiative](#)

Staying Active

Teaching points:

- Having heart failure does not mean restricting activity. In fact, exercise is essential to help strengthen the heart. It helps increase energy levels and make the whole body healthier. Studies show that moderate exercise helps decrease the risk for needing hospitalization for worsening heart failure.
- Structured cardiac rehabilitation programs have been proven to improve patient outcomes. Medicare has covered cardiac rehabilitation for patients with chronic heart failure since 2014, but the treatment is currently underutilized. Patients should be enrolled in cardiac rehab programs and encouraged to attend.
- Barriers to attending cardiac rehab programs should be assessed. These include child care, finances, transportation, and lack of support.

More Resources

The American Heart Association offers more to help your patients understand their diagnosis and treatment plan. Visit riseabovehf.org to access these resources.

[My Heart Failure Guide](#)

[Rise Above Heart Failure materials](#)

[Ejection fraction explained \(video\)](#)



Healthcare Provider: Heart Failure Patient

HF Medications



The following list of medications is intended to assist healthcare providers in talking with their patients about the importance of medication adherence to treat heart failure. Use this list to guide your discussion.

Types of heart failure medications	What they do
ACE inhibitors	<ul style="list-style-type: none"> Relax blood vessels. Lower blood pressure and makes it easier for the heart to pump blood.
ARBs	<ul style="list-style-type: none"> Work in much the same way as ACE inhibitors and may be prescribed instead.
ARNIs	<ul style="list-style-type: none"> New class of medication that combines an ARB with a drug that helps the arteries open wider. Help the heart pump blood more efficiently. They also help the body rid itself of salt.
Aldosterone agonists	<ul style="list-style-type: none"> Help the body get rid of salt and fluids. Help reduce the work the heart has to do.
Blood thinners	<ul style="list-style-type: none"> Prevent blood clots from forming and blocking blood flow.
Beta blockers	<ul style="list-style-type: none"> Help slow the heart rate (how fast the heart beats) and help reduce blood pressure.
Calcium channel blockers	<ul style="list-style-type: none"> Help the heart relax more. Help control blood pressure and keep the heart from working so hard.
Digitalis (digoxin)	<ul style="list-style-type: none"> Sometimes used to strengthen the heart's pumping action.
Diuretics	<ul style="list-style-type: none"> Cause the body to rid itself of excess fluids and salt. Help reduce the work the heart has to do. Decrease the buildup of fluid in the lungs and other parts of the body, such as the ankles and legs.
Ivabradine	<ul style="list-style-type: none"> New class of medication that slows the heart rate and reduces blood pressure. It is sometimes prescribed for people for whom beta blockers don't reduce the heart rate enough.
Vasodilators	<ul style="list-style-type: none"> Widen the blood vessels, making it easier for blood to flow. Reduce strain on the heart.

Use this checklist to help your patients understand the importance of taking their medication.

- Take medications exactly as prescribed. Follow directions on the bottle carefully.
- Keep a list of all medications you take (including prescription and over-the-counter drugs, vitamins, supplements, and herbal remedies). Bring this list to all medical appointments. Also show it to your pharmacist when purchasing over-the-counter remedies. Some can interfere with your prescription medications.
- Refill your medications with plenty of time before they run out.
- Use a pill box to help you remember to take your medications and take them at the right times.
- Tell your healthcare provider if you have any side effects from the medications.
- Do not stop taking any medications on your own. Talk to your healthcare provider first.
- Ask your healthcare provider or pharmacist if you have any questions about your medications.

More Resources

The American Heart Association offers more to help your patients understand their diagnosis and treatment plan. Visit riseabovehf.org to access these resources.

[My Heart Failure Guide](#)


[Rise Above Heart Failure materials](#)

[Ejection fraction explained \(video\)](#)



Healthcare Provider: Heart Failure Patient

HF Symptom Monitoring



The following instructions are intended to assist healthcare providers to teach and help your patients learn self-management skills for heart failure. Use this guide to steer your discussion.

Skill to Teach	Instructions
Daily weighing	<p>Make sure the patient has a working scale. Instruct the patient to:</p> <ul style="list-style-type: none"> • Weigh at the same time of day every day, ideally in the morning • Weigh after urinating and before eating • Wear no clothing or the same clothing every day • Always use the same scale in the same spot • Write each day's weight down in a log
Symptom tracking	<p>Instruct the patient to:</p> <ul style="list-style-type: none"> • Track symptoms such as fatigue, shortness of breath, and swelling, and keep a daily log (on paper, online, or in a specialized app) • Test blood pressure and heart rate and log these as well • Get to know what feels "normal" for them • Report when symptoms worsen or new symptoms appear
Reporting symptom changes	<p>Instruct the patient to call his or her healthcare provider for the following symptoms:</p> <ul style="list-style-type: none"> • Rapid weight gain (often a gain of more than 2 pounds in one day or more than 5 pounds in one week, though may be individualized) • Shortness of breath while at rest, not related to exercise or exertion • Increased swelling of the lower limbs (legs or ankles) • Swelling of or pain in the abdomen • Trouble sleeping (awakening short of breath, using more pillows, needing to sleep in a chair) • Frequent dry, hacking cough • Loss of appetite • Increased fatigue or feeling tired all the time <p>In addition, the patient should let his or her provider know if he or she feels symptoms of depression (unrelieved sadness, hopelessness, or helplessness).</p>

More Resources

The American Heart Association offers more to help your patients understand their diagnosis and treatment plan.

Visit riseabovehf.org to access these resources.

[Heart Failure Self-Check Plan](#)

[My Heart Failure Guide](#)

[Rise Above Heart Failure materials](#)

[Ejection fraction explained \(video\)](#)



Appendix D

Target: HF Telephone Follow-Up Form



GENERAL INFORMATION	
Discharge date: (mm/dd/yyyy)	
Patient name:	
Date of birth: (mm/dd/yyyy)	
Primary care physician:	
Cardiologist:	
Homecare? <input type="checkbox"/> YES <input type="checkbox"/> NO	Assisted Care? <input type="checkbox"/> YES <input type="checkbox"/> NO
Labs ordered/done prior to first follow-up call or appointment?	<input type="checkbox"/> YES <input type="checkbox"/> NO
	Date: (mm/dd/yyyy)
PATIENT EDUCATION	
INTRODUCTION: My name is _____, I am calling from [INSERT HOSPITAL NAME]. I am doing a follow-up courtesy call to see how you are doing.	
Weight monitoring	
Do you have a scale at home that you can use to weight yourself?	<input type="checkbox"/> YES <input type="checkbox"/> NO If no: Comments _____
<i>[If patient answered no, advise the patient to buy a scale]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>[If patient answered yes to having a scale]</i> Can you see the numbers on the scale?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Have you been weighing yourself daily?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Dry weight (at home, 1 st day after discharge)	
Did you take your dry weight 1 day after discharge?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Do you have a weight diary?	<input type="checkbox"/> YES <input type="checkbox"/> NO
	<i>If no, was the patient provided with a weight calendar during this visit?</i> <input type="checkbox"/> YES <input type="checkbox"/> NO
Do you understand how and when to check your weight? <i>[Tell patient that he/she should check weight every AM, after first void, prior to PO intake; with same amount of clothing on]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
Do you understand the important of measuring and recording your daily weights? <i>[Tell patient that daily weights are important to self-monitor for fluid retention]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments: _____



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Fluid restriction (if applicable to this patient)	
Do you know why it is important to restrict your fluid intake?	<input type="checkbox"/> YES <input type="checkbox"/> NO
How many liters/cups of fluid do you consume a day? <i>[Tell patient that he/she should keep fluid intake to less than 2 L/day of fluid to lessen fluid overload and improve breathing.]</i>	<input type="checkbox"/> 1.5 L <input type="checkbox"/> 6 cups <input type="checkbox"/> 2.0 L <input type="checkbox"/> 8 cups <input type="checkbox"/> N/A <input type="checkbox"/> N/A
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Low-sodium diet	
Are you following a low-sodium diet? If yes, what is your sodium limit per day?	<input type="checkbox"/> YES <input type="checkbox"/> NO (reason):
Review low-sodium diet expectation in relation to patient's individual scenario (i.e., eats out, likes ethnic foods, is thirsty, uses salt when cooking, reads labels, someone else cooks, etc). <i>[Discuss "Salty Six food group"]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Exercise/Physical Activity	
Are you engaging in daily physical activity?	<input type="checkbox"/> YES <input type="checkbox"/> NO (reason):
Are you engaged in any exercise?	<input type="checkbox"/> YES <input type="checkbox"/> NO (reason):
Review importance of physical activity and exercise	<input type="checkbox"/> YES <input type="checkbox"/> NO
Habits	
Are you currently a smoker? <i>[A smoker is defined as someone who has smoked any time in the past year]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>[If patient answers yes]</i> Did you provide the patient with smoking-cessation counseling?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Do you consume alcohol? <i>[Patients with heart failure should be advised not to consume alcohol]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO Counseling ordered: <input type="checkbox"/> YES <input type="checkbox"/> NO
Do you take any illicit drugs? <i>[If yes, patients should be advised to stop using illicit drugs]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO Counseling ordered: <input type="checkbox"/> YES <input type="checkbox"/> NO
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:



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Signs and symptoms	
List the ways you know your heart failure is getting worse? If the signs or symptoms (above) get worse, what will you do? Whom will you call? <i>[Discuss practical ways to determine worsening symptoms]</i>	Factors (list): _____
<i>[Review with patient the contact information for whom to call in case they experience signs of symptoms of heart failure]</i>	PCP name: _____ Phone number: _____ Cardiologist: _____ Phone number: _____ APN/PA: _____ Phone number: _____
Weight/swelling	
Do you know what to do if you gain more than 4 pounds from your dry weight? <i>[Tell the patient that he/she should contact his/her physician if he/she gains excessive weight]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
Do you know what to do if you notice more swelling in the feet, ankles, or stomach region? Or if you wake up suddenly from a sound sleep or are urinating at night (more than previously)? <i>[Tell the patient that he/she should contact his/her physician if he/she gains excessive weight]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments: _____
Breathing	
Have you experienced worsening in shortness of breath? <i>[Review with patient what to do if they experience: -More shortness of breath than usual -Difficulty breathing when lying down -A dry hacking cough]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO If yes, when?: _____ <input type="checkbox"/> Review provided
Have you experienced worsening in shortness of breath?	<input type="checkbox"/> YES <input type="checkbox"/> NO If yes, when?: _____
Other symptoms	
<i>[Review with patient what to do if they are feeling more tired/have less energy, have a poor appetite/or early satiety, or are feeling uneasy; or "something is not right"]</i>	<input type="checkbox"/> Completed
Patient should go to the emergency room/call 911 if:	
<i>[Explain to patient that they should go to emergency room or call 911 if they experience any of the below symptoms: -Struggle to breathe or have unrelieved shortness of breath at rest]</i>	<input type="checkbox"/> Completed



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<p>-New or worsening chest pain or chest pain that is not reduced with 1 dose of nitroglycerine -New or worsening confusion or having trouble thinking clearly -Persistent palpitations (racing heart) -Lightheadedness that does not quick resolve -Passing out]</p>		
<p>Confirmed understanding by Teach Back? [The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement</p> <p>Comments:</p>	
Medications for Heart Failure Management		
<p>Medication Reconciliation Completed <input type="checkbox"/></p>	<p>Comments:</p>	
<p>Can you afford to buy your medications?</p>	<p><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (reason):</p>	
<p>Have you filled your prescription(s) as ordered?</p>	<p><input type="checkbox"/> YES <input type="checkbox"/> NO (reason):</p>	
<p>Do you have a prescription drug plan?</p>	<p><input type="checkbox"/> YES <input type="checkbox"/> NO (reason):</p>	
<p>Diuretic (if applicable to this patient)</p>		
<p>Are you taking a diuretic (water pill)?</p>	<p><input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> UNSURE</p>	
<p>[Provide patient education regarding the use/indication for this drug: water pill to remove excess water from legs, feet, lungs, and stomach]</p>	<p><input type="checkbox"/> Patient education provided <input type="checkbox"/> Patient education not provided due to medical contraindications to diuretic</p>	
<p>If patient is not on diuretics, indicate why (contraindications).</p>	<p>Patient had side effects that include:</p>	
<p>Confirmed understanding by Teach Back? [The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement</p> <p>Comments:</p>	
<p>ACE-inhibitor, angiotensin receptor blocker or angiotensin receptor neprilysin inhibitor if patient has reduced LVEF (LVEF <40%) (if applicable to this patient)</p>		
<p>Are you taking an ACEI, ARB, or ARNI?</p>	<p><input type="checkbox"/> YES <input type="checkbox"/> NO [If YES to ARNI, ensure that patient is NOT also taking an ACEI or ARB]</p>	
<p>[Provide the patient with education on how ACEI, ARB, or ARNI can serve to relax blood vessels, making it easier for heart to pump]</p>	<p><input type="checkbox"/> Patient education provided <input type="checkbox"/> Patient education not provided due to medical contraindications to ACEI, ARB, or ARNI</p>	
<p>If patient is not on ACEI, ARB, or ARNI, indicate why (contradictions).</p>	<p>Patient had side effects that include:</p>	
<p>Confirmed understanding by Teach Back? [The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement</p> <p>Comments:</p>	
<p>Beta-blocker if patient has reduced LVEF (LVEF<40%) (if applicable to this patient)</p>		



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Are you taking a beta blocker? <i>[If patient has reduced LVEF (EF<40%), preferred evidenced-based data beta blockers are carvedilol, metoprolol succinate (XL) and bisoprolol]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>[Provide the patient with education on how a beta blocker can help the heart pump better over time, and can block the body's response to certain substances that damage heart muscle]</i>	<input type="checkbox"/> Patient education provided <input type="checkbox"/> Patient education not provided due to medical contraindications to beta blocker
<i>If patient is not on a beta blocker, indicate why (contraindications).</i>	Patient had side effects that include:
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Aldosterone antagonist if patient has reduced LVEF (LVEF<40%) (if applicable to this patient)	
Are you taking an aldosterone antagonist? <i>[If patient has reduced LVEF (EF<40%), need to closely monitor K and Cr]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>[Provide the patient with education on how an aldosterone antagonist helps to block sodium and water reabsorption, helps prevent further damage to heart, and that at low doses (6.25-25mg/day) is not used as a water pill.]</i>	<input type="checkbox"/> Patient education provided <input type="checkbox"/> Patient education not provided due to medical contraindications to aldosterone antagonist
<i>If patient is not on an aldosterone antagonist, indicate why (contraindications).</i>	Patient had side effects that include:
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Hydralazine/nitrate for African American patients with reduced LVEF (LVEF<40%) (if applicable to this patient)	
Are you taking hydralazine/nitrate? <i>[If patient has reduced LVEF (EF<40%), and is of black race]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>[Provide the patient with education on how hydralazine/nitrate can help open up the vessels of the heart, and makes it easier for the heart to pump.]</i>	<input type="checkbox"/> Patient education provided <input type="checkbox"/> Patient education not provided due to medical contraindications to hydralazine/nitrate
<i>If patient is not on hydralazine/nitrate, indicate why (contraindications).</i>	Patient had side effects that include:
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Warfarin or other anticoagulant (if indicated for patients with chronic/recurrent AFib or mechanical valve)	
Are you taking warfarin or other oral anticoagulant?	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>[Provide the patient with education on how warfarin or other anticoagulants can help to prevent stroke by serving as a blood thinner.]</i>	<input type="checkbox"/> Patient education provided <input type="checkbox"/> Patient education not provided due to medical contraindications to warfarin or other anticoagulant



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<i>If patient is not on warfarin or other anticoagulant, indicate why (contraindications).</i>	Patient had side effects that include:
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Potassium/magnesium supplements (if applicable to this patient)	
Are you taking potassium/magnesium supplements? <i>[Provide the patient with education on how warfarin or other anticoagulants can help to prevent stroke by serving as a blood thinner.]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Patient education provided <input type="checkbox"/> Patient education not provided due to medical contraindications to potassium/magnesium supplements
<i>If patient is not on potassium/magnesium supplements, indicate why (contraindications).</i>	Patient had side effects that include:
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Lipid-lowering medication if patient has cardiovascular disease (CVD), peripheral vascular disease (PVD), or cerebrovascular accident (CVA) (if applicable to this patient)	
Are you taking lipid-lowering medications?	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>If patient is not on lipid-lowering medications, indicate why (contraindications).</i>	Patient had side effects that include:
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Omega 3 fatty acid supplementation (if applicable to this patient)	
Are you taking omega 3 fatty acids?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Diuretic self-management	
Is the patient an appropriate candidate for diuretic self-management?	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>[Review when it is appropriate to take extra diuretics +/- potassium based on weight gain and other symptoms]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<i>[If weight gain persists > 2 days, advise the patient to call provider]</i>	<input type="checkbox"/> YES <input type="checkbox"/> NO
Confirmed understanding by Teach Back? <i>[The patient or family member can verbalize your instructions back to you in their own words to confirm understanding.]</i>	<input type="checkbox"/> Yes <input type="checkbox"/> Patient needs reinforcement Comments:
Other questions	
Have you scheduled a follow-up appointment?	<input type="checkbox"/> YES <input type="checkbox"/> NO Comments:



JULY 2017 | PAGE 6

TAKING THE FAILURE OUT OF HEART FAILURE
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Do you have transportation to and from the hospital?		<input type="checkbox"/> YES <input type="checkbox"/> NO
Do you have any other questions related to:		Comments: _____
		<input type="checkbox"/> Diet <input type="checkbox"/> Activity <input type="checkbox"/> Medications
		<input type="checkbox"/> Other concerns (list): _____
GENERAL INFORMATION		
General comments: _____		
Further action needed post follow-up call?		<input type="checkbox"/> YES <input type="checkbox"/> NO
If yes, what follow-up action is needed/performed?	<input type="checkbox"/> Notify doctor	Name: _____
		Number: _____
		Date: _____
		Time: _____
		<input type="checkbox"/> Call in prescriptions to pharmacy
	<input type="checkbox"/> Call patient regarding _____	
	Set up appointment with doctor	Doctor name: _____
	Call in [] days for:	
	Other:	
Telephone: _____	Person interviewed: _____	<input type="checkbox"/> Patient <input type="checkbox"/> Other (name/relation): _____
Attempts to contact:		
Date:	Time:	Initials:
Date:	Time:	Initials:
Date:	Time:	Initials:
RN name (print): _____		
RN signature: _____		
Date:	Time:	



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TEMPLATE TELEPHONE FOLLOW-UP INTERVIEWER INSTRUCTIONS

COMPLETE FOLLOW-UP FORM (See below).

ITEMS REQUIRING FURTHER INTERVENTION:

CONTACT PROVIDER FOR:

- 01 Unfilled prescriptions
- 02 Questions on medications

CONTACT SCHEDULER FOR:

- 01 Follow-up appointment

CONTACT NURSE FOR:

- 01 Questions on diet, activity, weight monitoring
- 02 Further evaluation of worsening symptoms
- 03 Follow-up on weight monitoring



Appendix D

SCHFI Instrument Use Agreement

Instrument Use Agreement

I, Matthew Weems, am requesting to use the Self Care of Heart Failure Index v. 7.2 instrument in English.

I agree to these Terms and Conditions:

- Not to change the self-care instrument in anyway without explicit permission of the instrument author.
- To calculate scores in the manner prescribed (see website and publications).
- To properly cite the instrument in all publications using it, referring to the original publication.
- Not to include the instrument itself in any publication because that transfers the copyright to the journal publisher.

Note that we encourage all users of our self-care instruments to always measure confidence because confidence has been shown repeatedly to be associated with success in performing self-care. If the instrument you have chosen does not include items addressing confidence (usually the last section of the instrument), please request permission to use the Self care Self efficacy scale (available on the website).

The instrument authors agree to these Terms and Conditions:

- You have permission to use this instrument in your research now and in perpetuity, if the terms and conditions of this agreement continue to be met.

Signature of User:  Date: 4-20-22
(MATTHEW) WEEMS

Signature of Instrument Author: Barbara Riegel Date: 4-21-2022