

2020

## Staff Education on Heart Failure Guidelines and Self-Care Management Practices

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*Walden University*

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# Walden University

College of Health Sciences

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Mary Mitcheltree

has been found to be complete and satisfactory in all respects,  
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the review committee have been made.

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Walden University  
2020

Abstract

Staff Education on Heart Failure Guidelines and Self-Care Management Practices

by

Mary Mitcheltree

Project Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Nursing Practice

Walden University

August 2020

## Abstract

Heart disease is the leading cause of death in the United States with heart failure (HF) being one of the more prevalent diseases associated with heart disease. HF is reported to have a high mortality rate and presents an economic burden to the U.S. healthcare system. To improve patient outcomes and reduce the costs of treatment for HF-related symptoms, infusion nurses need adequate education and training. The purpose of this project was to train home infusion nurses on self-care management practices based on current HF guidelines. The Donabedian model, known for quality assurance, provided the framework to support the educational project. A panel of 4 experts were recruited to evaluate the program for content using a 5-point Likert scale questionnaire with an open-ended question for recommendations. The recommendations provided by each expert included symptom monitoring, fluid intake, medication adherence tips to improve medication compliance, and medication gold standards to treat HF. The feedback was incorporated into the final program to enhance overall program quality. Nine nurses at the local home infusion company in the Eastern United States participated in the 1-hour HF program on HF guidelines and self-care management practices. The Knowledge of Heart Failure Education Principles questionnaire was the tool used to measure participant pre and postknowledge. Analysis of the data showed a 13.9% improvement in the posteducation program test scores. Increasing the home infusion nurses' knowledge provides a positive social change that can ultimately improve patient outcomes and potentially reduce hospital readmissions.

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## Dedication

I dedicate this project to loved ones lost during this journey, motivating me to pursue and complete the program. To my family that has supported, encouraged, and loved me despite all odds. Above all, I thank God for with him all things are possible. God has given me the strength to persevere despite obstacles along the way.

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Lastly, I thank my husband and children for the sacrifices made to allow me the opportunity to fulfill my lifelong goals and dreams. If it were not for your love and support, this journey would not have been near as rewarding. You all make me aspire to be the best I can possibly be.

## Table of Contents

List of Tables .....	iv
List of Figures .....	v
Section 1: Nature of the Project .....	1
Introduction.....	1
Problem Statement.....	1
Purpose.....	3
Nature of the Doctoral Project .....	4
Significance.....	5
Summary.....	6
Section 2: Background and Context .....	8
Introduction.....	8
Concepts, Models, and Theories.....	9
Relevance to Nursing Practice .....	11
Disease Significance .....	11
Cost of Heart Failure.....	11
Staff Education Programs .....	12
Heart Failure Guidelines .....	13
Heart Failure Self-Care Management Principles .....	16
Home Infusion Nurses .....	20
Local Background and Context .....	21
Role of the DNP Student.....	22



Role of the DNP Project Team .....	23
Summary .....	24
Section 3: Collection and Analysis of Evidence.....	26
Introduction.....	26
Practice-Focused Question.....	26
Sources of Evidence.....	27
Literature Review.....	27
Stakeholders and Expert Panel.....	27
Protection .....	28
Participants.....	29
Procedures.....	29
Analysis and Synthesis .....	30
Summary .....	31
Section 4: Findings and Recommendations.....	33
Introduction.....	33
Findings and Implications.....	33
Participants' Pretest Results.....	39
Participants' Posttest Results .....	41
Participants' Education Evaluation Results .....	43
Recommendations.....	46
Contribution of the Doctoral Project Team .....	47
Strength and Limitations of the Project .....	47

Section 5: Dissemination Plan .....	49
Analysis of Self.....	49
Summary.....	51
References.....	52
Appendix A: PowerPoint.....	57
Appendix B: Evaluation Form.....	73
Appendix C: Permission to Use Nurses Knowledge of Heart Failures Education	
Principles Questionnaire .....	75
Appendix D: Nurses Knowledge of Heart Failures Education Principles Survey.....	78

## List of Tables

Table 1. Panel Experts' Education Evaluation Results (N=3).....	35
Table 2. Participants' Pretest Results (N=9).....	40
Table 3. Participants' Posttest Results (N=9).....	42
Table 4. Participant Education Evaluation Results (N=9).....	45

## List of Figures

Figure 1. Application of the Donabedian model.....	10
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## Section 1: Nature of the Project

### **Introduction**

Heart disease, a range of conditions affecting the heart, causes 1 in 4 deaths (Centers for Disease Control and Prevention [CDC], 2017) and is the leading cause of death in the United States. On an annual basis, more than 600,000 people die in the United States from heart disease (CDC, 2017). Heart failure (HF), a progressive disease that impedes the heart's ability to circulate blood, is one of the more prevalent conditions associated with heart disease. The aim of this project was to teach home infusion nurses HF guidelines and self-care management practices. Nurses will then be better prepared to teach HF patients in the home setting.

This section provides an overview of the problem and the purpose of the project, including the rationale behind addressing the problem and the gap in practice that will potentially be filled by the project. The section is also an explanation of the nature of the project, including sources of evidence collected and approaches used for organizing and analyzing the evidence. Finally, the significance of the problem, at the local level, is discussed. As a part of this discussion, stakeholders are identified, as well as potential contributions to the nursing practice and implications for social change.

### **Problem Statement**

More than 5 million people in the United States are diagnosed with HF (CDC, 2016), with the number of cases expected to grow through 2030 (Ziaeeian & Fonarow, 2017). Nearly 1 million HF hospitalizations occur each year in the United States with a 27% 30-day readmission rate (Kim et al., 2016). The United States spends an estimated

\$30.7 billion each year on HF, making it one of the most expensive cardiovascular diseases to manage and treat (CDC, 2016). The cost is expected to grow to \$69.7 billion over the next decade (Bryant & Himawan, 2019). The Affordable Care Act encourages the healthcare community to implement effective interventions such as education and enhanced patient care coordination to reduce HF hospital readmissions (Hobbs et al., 2016).

While a review of published findings and conclusions revealed successes with HF staff education programs, few studies could be found specific to home infusion nurses. It is important to provide guidelines-based staffing education to home infusion nurses so they can effectively educate HF patients on self-care management practices. Poor self-care management practices among HF patients is the leading cause of hospital readmissions (Zhang, Dindoff, Arnold, Lane, & Swartzman, 2015). These poor practices include noncompliance to prescribed medications, inconsistent weight monitoring, poor dietary habits, inadequate physical activity, and poor management and reporting of symptoms.

Home infusion nurses lack the knowledge and skills necessary to teach patients self-care principles to adequately manage their disease. Twenty-four-hour patient follow-up calls at the local setting identified a deficit in patient education provided by home infusion nurses during initial home visits. Patients asked common questions such as when to call their doctor, what happens if their infusion pump stops working, and how much weight gain is harmful. This information should have been addressed during the initial home visit. There were also calls from cardiology practices stating that their patients were

being readmitted to hospitals because they were failing to report symptoms. The patients informed the practices that they were not instructed when or who to call when symptoms worsened. The lack of education has led to emergent situations requiring more frequent hospitalizations for patients on home infusion therapy to treat heart failure.

### **Purpose**

The purpose of this project was to train home infusion nurses on self-care management practices based on the American College of Cardiology (ACC)/American Heart Association (AHA) HF guidelines so they can educate HF patients on performing self-care management practices at home. These guidelines are designed to improve the health outcomes for HF patients and recommend therapies, procedures, and treatments based on evidence-based practices. Key nonpharmaceutical elements of the guidelines are self-care management practices, which are defined as a set of practices designed to prevent and manage chronic illnesses (Yancy, 2013). The self-management practices contained in the guidelines focus on monitoring symptoms of HF and weight fluctuations, restricting sodium intake, staying physically active, and taking prescribed medications (Yancy, 2013). In a review of 35 patient education studies, HF patients who received education on self-care practices improved their knowledge, ability to self-monitor, compliance with medication requirements, and duration of hospital stays (Gupta, 2018).

For this project, I developed and delivered a staff education program to home infusion nurses who practice in a home care environment. Currently, the home infusion nurses, who are all registered nurses, lack sufficient knowledge in this area as identified and reported by the former HF clinical program director of the local infusion company.

The infusion company holds regular staff meetings and nurses have reported they do not feel comfortable caring for HF patients due to lack of training. Infusion nurses specialize in administering medication at home and caring for patients' intravenous access. They had not received prior formal training on HF guidelines or self-care management practices. The infusion nurse's primary focus pertains to reporting adverse reactions to a medication, concerns with intravenous access or dressing-related issues, and when to report a mechanical pump issue. Physicians report that patients managed by infusion nurses are not provided adequate HF education at home. Patients were not properly instructed by their home infusion nurse on how to report worsening symptoms, such as weight gain, swelling, and difficulties with breathing, resulting in unnecessary readmissions to the hospital.

The guiding practice-focused question for this doctoral project is: Will the implementation of a staff education program on HF guidelines-based self-care management practices increase the knowledge, skills, and confidence of home infusion nurses? To measure the success of the staff education program, a pre and posteducational questionnaire was administered to participating home infusion nurses to evaluate their knowledge of guidance-based HF self-care management practices. The educational program was evaluated by a qualified panel of cardiac experts prior to implementation.

### **Nature of the Doctoral Project**

A literature search was conducted using search engines such as Google Scholar, PubMed, Medline Plus, and CINAHL. A boolean literature search was conducted on the following key terms: *heart failure*, *heart failure guidelines*, *heart failure self-care*



*management practices, and staff education programs.* The search was limited to literature published between 2008 and 2019. The literature was reviewed in terms of usefulness and application to the project and was used to inform the design and development of the staffing education program. The Nurses Knowledge of Heart Failure Education Principles Questionnaire (NKHFEP) is a valid tool that was used as a pre- and postsurvey. Results of the pre/posttesting were analyzed using descriptive statistics with graphical representation.

### **Significance**

This project was in collaboration with a team of clinical experts, including the company's local leadership team and a panel of experts. The leadership team consists of the director of operations and the regional nurse manager. Both have approved the development and administration of the staff education program at the local care management center in Maryland. The panel of experts included the former clinical program director of HF, the current clinical manager of HF, the account manager servicing the HF population, and a cardiac nurse practitioner. The experts associated with this project are employed by a home infusion company located in the eastern United States. The panel of experts each have at least 10 years of experience in managing and educating nursing staff, and several are published in the area of HF. All experts have a minimum of a bachelor's of science in nursing degree.

Improving the management of patients with HF has the potential for social change. Through gained knowledge, the home infusion nurses participating in the program are better able to convey important information and instructions to patients. A

patient's ability to self-manage HF and to notify healthcare providers of changes in conditions can improve clinical outcomes and compliance with the medical regimen. Both patients and nurses can benefit from education on HF to guide home care management for HF symptoms. Improved nursing staff knowledge has the potential to assist patients to manage symptoms at home, thus improving the quality of life of patients and reducing hospital readmissions and the associated costs.

This project aligns with DNP Essential VI, which focuses on interprofessional collaboration for improving patient and population outcomes. Essential VI supports the need for communication and collaborative skills amongst the leadership team and participants (AACN, 2017). The project also aligns with DNP Essential VII, which focuses on bringing awareness and education to improve population health (AACN, 2017). If the project is successful, it could be expanded and adopted by the company at the national level. The education program could be deployed to offices across the nation, impacting many nurses and patients.

### **Summary**

With a changing healthcare system and an aging U.S. population, the number of HF patients receiving care at home is expected to increase over time. To provide optimal care, home infusion nurses need to stay current on HF self-care management practices. Organizations need to implement education-based programs when knowledge gaps are identified. Implementing this education program will promote the knowledge of guidelines-based HF self-care management practices in the home infusion nurse population and improve the delivery of information to patients and caregivers.

The next section includes theories, concepts, and models that guided the project. Significant writings of the applicable theorists and conceptual framework are summarized and presented. I link the relevance of the project to nursing practice and provide background and context for the local problem. The roles of the DNP student and the project team are also discussed.

## Section 2: Background and Context

### **Introduction**

Nurses play an instrumental role in educating patients; thus, it is important for home infusion nurses to be knowledgeable and equipped to educate HF patients on self-care management. The ACC and AHA (2018) recognized the need for nursing interventions in a home health setting. Today, there is an increasing emphasis on outpatient settings, particularly in-home healthcare, especially considering current efforts to reduce healthcare costs and improve patients' quality of care.

The cost of healthcare has increased, according to recent studies, indicating that home infusion nurses often lack knowledge of best practices for treating patients with HF (Fowler, 2016; Stern, Grossman, Migliardi, & Swallow, 2014; Sundel & Ea, 2018). This is due to the inability to remain current on frequently updated evidence-based practices. Such deficiencies in nurses' HF management skills can influence patient outcomes, especially outcomes related to patients' self-care.

The purpose of this project was to address the identified knowledge gap that home infusion nurses have on HF guidelines and patient self-care management. The guiding practice-focused question for this doctoral project is: Will the implementation of a staff education program on HF guidelines-based self-care management practices increase the knowledge, skills, and confidence of home infusion nurses? Section 2 is an exploration of the theories, concepts, and models that provided a framework for the project. The relevance of this project to the real-world practice of nurses will be discussed. This section will also provide background and context on the issue to be addressed by the

project, including a discussion on previous studies on or related to the issue. The role of the DNP student and the role of the DNP project team will also be covered.

### **Concepts, Models, and Theories**

The Donabedian model was selected to provide a framework for this project. The model was developed by Donabedian, a professor at the University of Michigan's School of Public Health, in the late 1960s (Ayanian & Markel, 2016). The model has influenced the theory and practice of quality assurance in the field of healthcare services (Ayanian & Markel, 2016). The model has pioneered efforts associated with outcomes in research, emphasizing three factors: structure, process, and outcomes (Gardner, Gardner, & O'Connell, 2014). The Donabedian model is simplistic and straightforward and focuses on patient outcomes. The model has been used to guide the formulation of research questions and interpret findings (Gardner et al., 2014).

In relation to the staff education project, the Donabedian model allowed for the ability to identify gaps in the structure or process in implementing an education program for home infusion nurses. The model allowed for continual process improvement in terms of the education program's design and delivery. The Donabedian model in Figure 1 showcases the application of the model in support of the proposed project.

## The Donabedian Model: Measuring the Quality of Staff Education

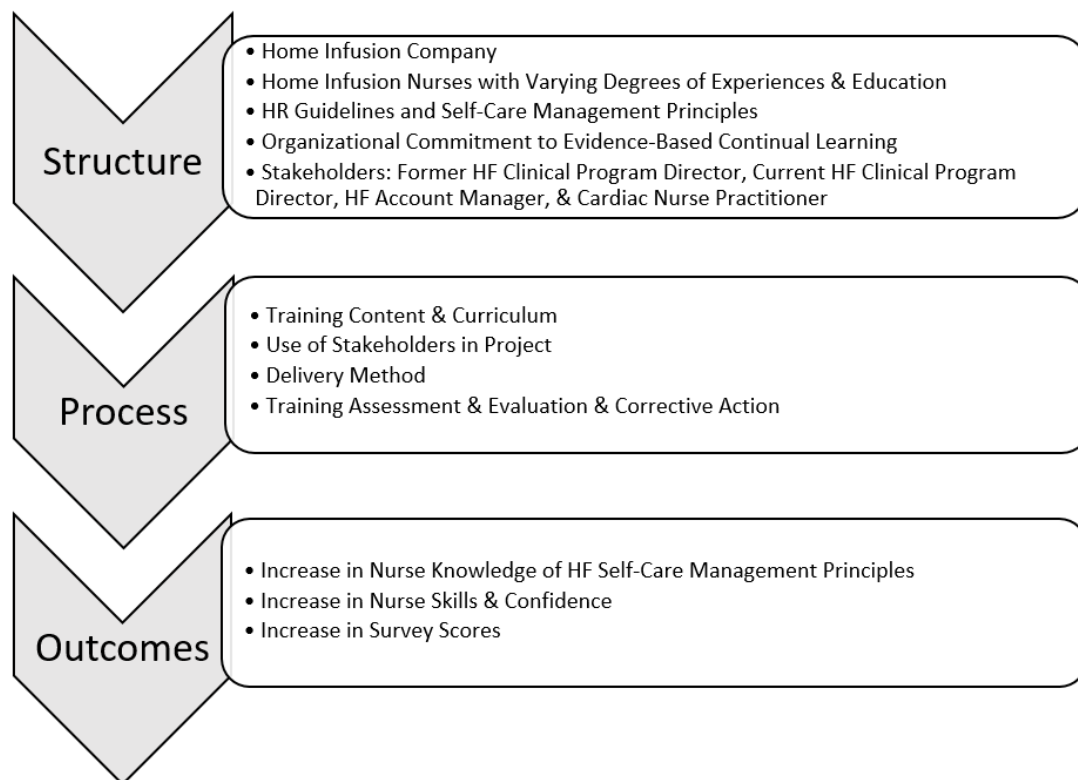


Figure 1. Application of the Donabedian model (Gardner et al., 2014).

## **Relevance to Nursing Practice**

### **Disease Significance**

HF, a growing health problem with high mortality rates, presents an economic burden on the U.S. healthcare system. The disease affects approximately 5 million adults in the United States (CDC, 2016). Approximately 550,000 new cases of HF are diagnosed each year (Papadimitriou et al., 2017). The diagnosis of HF results in premature death, with mortality rates as high as 50% within 5 years of diagnosis (McClintock et al., 2014).

Reducing the number of 30-day readmissions for HF will reduce costs and impact on the U.S. healthcare system. The Affordable Care Act, enacted in 2010, established a program called the Hospital Readmissions Reduction Program. Under the Hospital Readmissions Reduction Program, Medicare and Medicaid payments to hospitals are reduced for HF patients readmitted within 30 days of discharge (McClintock et al., 2014). This program ties payments to quality of care and provides an incentive for hospitals to improve disease management programs and implement intervention programs to reduce HF patient readmissions. According to the Medicare Payment Advisory Commission, 76% of hospital readmissions within 30 days may have been avoided (Lockman-Samkowiak et al., 2015).

### **Cost of Heart Failure**

According to the CDC (as cited by Lockman-Samkowiak et al., 2015), the United States spends about \$444 billion each year on heart disease. Close to \$30.7 billion is spent each year on HF treatment, making it one of the most expensive cardiovascular

diseases to manage and treat (CDC, 2016). Hospital admissions and readmissions for HF contribute to the economic burden. One in four Medicare patients discharged with a diagnosis of HF are readmitted to the hospital within 30 days (McClintock et al., 2014). While HF is often fatal, the disease can be managed by the patient at home. The responsibility of home infusion nurses is to instruct patients and caregivers on self-care practices for home management based on HF guidelines. Staff education programs are an important component for increasing nursing knowledge related to specific needs.

### **Staff Education Programs**

It is important infusion nurses understand HF guidelines and self-care practices to ensure staff become better educators for their HF patients. This program was tailored to home infusion nurses at a local care management center who provide nursing services to patients at home. As evidenced by the literature, staff education programs have been successful at reducing hospital readmission rates for HF patients. Stern et al. (2014) indicated that nurses who participated in a HF education program at a community hospital gained knowledge on HF self-management practices, which led to a reduction in 30-day readmission rates for HF patients under their care.

Fowler (2016) concluded that nurses gained knowledge of HF self-care education principles after participating in a yearlong education program. Sundel and Ea (2018) determined in their study of 40 nurses in an ambulatory care setting that nurses improved their knowledge of HF self-care principles after participating in a staff education program. Collectively, the findings of these studies indicate that staff education programs are effective at increasing knowledge of nurses trained on HF self-care principles. These



researchers have also indicated the importance of nursing education on HF and the self-care principles for patients at home.

Increasing nursing knowledge of HF guidelines and patient self-care practices has the potential to improve patient outcomes and decrease hospital readmissions. Patients can be taught signs and symptoms of HF exacerbations and when to notify the healthcare provider (Fowler, 2016; Stern et al., 2014; Sundel & Ea, 2018). The common theme from each study revealed the importance of education demonstrating that nurses who participated gained knowledge. The researchers implied a gained understanding of knowledge, but only one study directly addressed patient outcomes.

### **Heart Failure Guidelines**

Nurses who provide services to HF patients in the home healthcare setting are expected to be competent in treating and educating patients on self-care practices. However, nurses often lack knowledge of HF self-care principles. Because this knowledge deficiency has the potential to impact patient outcomes and hospital readmissions, it is critical for nurses to keep abreast of evidence-based practices on HF management. AHA and ACC HF Guidelines provide a framework for evidence-based learning. This framework will be used to develop the staff education program.

In 2002, the AHA and the ACC implemented the Get with the Guidelines Heart Failure program. The program was designed to improve the care of HF patients by promoting adherence to the most recent evidence-based guidelines (AHA, 2017). The program has been successful at improving patient outcome and reducing 30-day hospital readmissions (AHA, 2017). The content of the Get with the Guidelines Heart Failure

program is based on the ACC/AHA Guidelines for the Management of Heart Failure to improve the health outcomes for HF patients. While the focus of the guidelines is on pharmaceutical and device therapies, the guidelines also promote self-care management practices. To assist healthcare professionals, the AHA has created the Heart Failure Guidelines Toolkit. The toolkit is designed to provide healthcare professionals with the latest evidence-based HF guidelines to treatments and therapies (AHA, 2017). Featured tools of the kit include a go-to guide on heart failure guidelines, heart failure guideline decision tools, checklists, and patient education resources (AHA, 2017).

These evidence-based guidelines have facilitated the standardization of HF management practices and should continue to be applied by healthcare workers, including registered nurses, in the clinical setting. These guidelines have resulted in improved clinical outcomes in patients. For each 10% improvement in ACC/AHA HF guideline recommended care, the odds of 24-month mortality has been reduced by 13% (Tran & Fonarow, 2015).

A key to reducing hospital readmission rates rests with nurses and their ability to educate HF patients on guidelines-based self-care management practices. The strength of a nurse's knowledge can be determined by a simple assessment. Infusion nurses lack enough knowledge on evidence-based self-care management practices. Delaney et al. (2011) evaluated the knowledge of home care nurses on evidence-based education topics in managing. 94 home care nurses, representing four home care agencies, were administered a questionnaire to assess their knowledge and received an average score of 78.9% (Delaney et al, 2011).

Mahramus et al. (2013) determined the knowledge of nurses on HF self-care practices. Ninety registered nurses, from three patient care settings, were administered an online test to assess their knowledge of HF guideline and self-care practices (Mahramus et al., 2013). The average score received by the nurses was a 71%, indicating a lack of knowledge of HF guideline and self-care practices. Identifying home infusion nurses' lack of current knowledge of self-care management practices will be assessed by utilizing the NKHFP questionnaire before and after the staff education program.

HF symptom management is a collaborative effort involving the patient, family, physician, nurse, and additional healthcare providers involved in the care of the patient. The collaborative effort will improve the patients' chances of a better outcome. In the Hart et al. (2011) study, nurses responded incorrectly in more than 70% of the surveys pertaining to physician notification of non-symptomatic low blood pressure, short term dizziness, or lightheadedness when rising. Infusion nurses did not ask appropriate questions demonstrating a lack of their understanding of HF self-care practices. Nurses who do not understand the goals of therapy can cause harm to the patient (Hart et al., 2011). If the dosage of a blood pressure medication is prescribed to the patient and the nurse does not recognize symptoms despite the medication, this can contribute to medication noncompliance. When a nurse and patient understand symptoms and self-care management practices, they are better equipped to contact the attending physician when worsening symptoms occur to avoid a hospital readmission.

## **Heart Failure Self-Care Management Principles**

ACC/AHA HF guidelines include both pharmacological and nonpharmacological interventions. The medical and pharmacological treatment includes use of medications such as ACE inhibitors, ARBs, digoxin, beta blockers, statins, diuretics, aldosterone antagonists, and calcium channel blockers (Yancy et al., 2013). The complexity of medically managing HF symptoms makes medication adherence a priority.

Nonpharmacological interventions such as lifestyle modifications also play a significant role in managing HF symptoms including, diet, weight monitoring, exercise, symptom monitoring, smoke cessation, and keeping scheduled follow up appointments (AHA, 2018).

The critical period to teach HF patients is during the initial home visit. The education should be based on the patient's personal capabilities, cultural beliefs, and habits. The nurse's approach can improve adherence to the patient's treatment plan. Discussing challenges and having the patient commit to a realistic treatment plan will increase the likelihood of success in managing their chronic illness. The treatment plan may change based on the patients' needs and goals which will be assessed weekly. Having the patient utilize a tool, such as a daily tracker, provides a way to record pertinent information such as weight, abdominal girth, blood pressure, pulse, and physical activity. Patients will be instructed to weigh themselves in the morning daily wearing similar clothes for consistency. The nurse will also train patients on the significance of fluid restrictions. Documenting intake and output of fluids on the tracker along with weight and abdominal girth will allow patients to track fluid retention. The

daily tracker will provide the healthcare provider a glimpse of the patient's current medical status.

**Medication adherence.** All medications, prescribed and over the counter, must be reviewed for HF patients. Nonsteroidal anti-inflammatories (NSAIDS) antagonize the actions of diuretics and ACE inhibitors and promote increased systemic vascular resistance and decreased cardiac output in patients with established HF (Hart et al., 2011). The risk of rehospitalizations increases for patients on diuretics taking NSAIDS. Tylenol is recommended for pain relief in moderation to avoid liver damage.

A benefit of diuretics is that it lowers blood pressure and treats fluid retention by reducing edema by flushing sodium and excess water out of the body, increasing the production of urine. The nurse needs to instruct the patient to take diuretics in the morning or no later than early afternoon, or the patient will have frequent urination at night. Side effects of a loop diuretic include headache, dizziness, thirst, muscle cramps, low sodium levels, or increased blood sugar. It can also affect potassium levels through a loss of potassium through the renal tubules and decreasing blood potassium levels.

During a quarterly chart audit, assessing the home infusion nurse's clinical documentation, it was noted that the home infusion nurses were not addressing over the counter medications during the patient's in-home assessment. During monthly staff meetings in the office, the nurses noted listed prescribed medications only, not realizing the significance of over the counter medications or how they interacted with one another, demonstrating a lack of knowledge.

**Exercise.** Understanding the physiologic effect of exercise is necessary to understand the rationale for a long-term low intensity exercise routine. Albert (2002) found that 72% of nurses who participated in the NKHFP survey answered correctly to the importance of a low intensity program. However, 28% answered incorrectly and believed patients should decrease physical activity or avoid it all together.

Facilitating a low intensity exercise program for HF patients offers many benefits. It improves aerobic capacity and is associated with a decrease in pulmonary capillary wedge pressure and left ventricle wall stress. It also improves work capacity and peak oxygen consumption occurring 8-12 weeks after beginning a light exercise regime (Hart et al., 2011). The ACC/AHA Guidelines (2018) for the management of HF recommend exercises such as walking at a fast pace, jogging, riding a bike, and low impact exercise such as water aerobics. These are safe and effective ways in which HF patients can improve functionality. It is important for nurses to teach their patients that it is more beneficial to exercise every day for at least 10-20 minutes versus focusing on losing pounds (AHA, 2018). Exercise has attributed to lower cardiac mortality rates and reduced hospitalizations, which has shown that HF patients who exercise will live longer. A major trial on exercise and HF, involving 2,331 HF patients, concluded an 11% reduction in overall mortality, heart disease specific mortality, or hospitalizations, in the group of patients assigned to an exercise program (Gupta, 2018).

**Diet.** Dietary practices, such as a low sodium diet, helps control blood pressure and edema. Teaching patients to adhere to a low sodium diet will improve their ability to breathe. Sodium causes fluid retention; the recommended daily consumption of sodium

should be no more than 2,300 mg; less than 1,500 mg of sodium would be ideal. The ACC/AHA guidelines recommend no more than 1,500 mg of daily sodium intake for patients at high risk for HF, but with no heart disease, and patients with heart disease but no symptoms of HF (Gupta, 2018). Home infusion nurses especially lack knowledge around the use of lean delicatessen meats and potassium-based salt substitutes (AHA, 2018).

Fruits and vegetables are highly encouraged. Infusion nurses must understand the importance of diet and teach patients how to select foods that are low in sodium. They must reiterate the importance of using low-sodium or salt-free seasoning on food. Labels should be reviewed carefully to ensure the sodium content in food is low.

**Weight monitoring.** Hart et al. (2011) revealed 30% of nurses participating in the study knew how to assess weight gain in HF patients. As a part of the study, a convenience sample of 30 patients with HF were educated on daily weights, but only 43% of the patients exercised what they learned. Of these patients, 33% knew what action to take because of their weight change. The purpose behind daily weight monitoring is to capture a change in weight to ensure the heart is functioning at a stable level. An increase in weight of two pounds in a 24-hour period or three pounds in 1 week necessitates a call to the healthcare provider (AHA, 2018). This change in weight indicates a patient's HF is worsening and may require a change in medication or dosage determined by the HF guidelines. The worsening condition can be demonstrated by a patient exhibiting shortness of breath on exertion.

**Reportable symptoms.** In addition to weight gain, patients will be instructed to contact their healthcare provider of shortness of breath while at rest, wheezing, frequent dry hacking cough, difficulty breathing lying down, swelling and pain in the abdomen, increased fatigue, loss of appetite, decreased urinary output, or change in blood pressure outside of normal parameters (AHA, 2018). The infusion nurse will instruct patients to measure swollen lower extremities with a measuring tape daily, reporting a significant change. Also, the nurse will instruct patients to track intake and output daily, reporting a marked decrease in urinary output which could be a result of reduced cardiac output. Worsening HF can present with decreased urine output and increased lower leg edema.

### **Home Infusion Nurses**

With the population aging, the incidence of HF is expected to increase over time. The use of inotropic therapy to manage HF is also expected to increase. Inotropic therapy in the home setting is providing to three kinds of HF patients, those waiting for heart transplants or other procedures, and those receiving palliative care (Lockman-Samkowiak et al., 2015). In addition to being knowledgeable about inotropic therapy, home infusion nurses must also be able to instruct patients and caregivers on self-care management practices. Nurses have an obligation to ensure their knowledge is evidence-based and current (Lockman-Samkowiak et al., 2015). Lockman-Samkowiak (2015) studied 20 registered nurses employed by Medicare certified and accredited home healthcare agencies. It was found that their knowledge and confidence in caring for home inotrope therapy patients increased as a result of completing a web-based education module.



The literature review revealed a gap specific to home infusion nurses and their knowledge of HF self-care management practices based on HF guidelines. Home infusion nurses need to be better equipped to develop and implement realistic education and self-management plans for HF patients. I will address the gap in terms of not only assessing but increasing home infusion nurse's knowledge of HF self-care management practices based on HF guidelines. The quality of care delivered to HF patients may show improvement following the staff education program.

### **Local Background and Context**

Within the home infusion industry, inotropic therapy is administered to HF patients at home. Twenty-four-hour patients follow up calls made by patient service representatives (PSR) at the local center identified a deficit in patient education by home infusion nurses during the initial home visits. Patients lacked proper knowledge when the PSR asked specific questions pertaining to their vital signs, daily weight, and medication compliance. On average, two to five of the patients follow up calls per week were reported to the director of nursing due to concerns or questions with administration of therapy or managing diverse symptoms such as weight gain or shortness of breath. Reportable symptoms were not reported to the patient's physician, which is part of the teaching upon admission to the HF Program.

Implementing a staff education project to educate home infusion nurses on guidelines-based HF self-care management practices will decrease the knowledge gap to effectively manage HF symptoms and properly report outcomes. The setting for the project is a local infusion company that employs 15 registered nurses who specialize in

intravenous therapy that service patients at home. The nurses have received no formal training on guidelines-based HF self-care management practices. They are responsible to instruct patients on logging daily intake/output, weight, activity, and medication compliance with dietary recommendations. All 15 nurses will be asked to participate voluntarily in the staff education training after the panel of experts review the educational program content project and evaluate the project for applicability to clinical practice. Any necessary program improvements will be made prior to presenting the staff education.

### **Role of the DNP Student**

The purpose of a DNP project was to apply the current evidence-based practice guidelines for nurses to use in teaching HF patients. My role as a DNP student was to create a scholarly project to translate evidence into practice to improve clinical outcomes. I developed the educational program with the support of clinical experts and stake holders to form a valid and credible project. The proposed staff education training will allow nurses to effectively manage HF patients by incorporating knowledge and skills with current evidence-based practices, which may result in improved patient outcomes. As a regional nurse manager and corporate clinical manager for a national home infusion company, I have experience educating hospitalized HF patients on how to manage their condition in preparation for home discharge. I became knowledgeable on the causes for readmission to the hospital. In my role as a leader in the home infusion setting, it is my responsibility to improve practice by decreasing HF patient's hospital readmissions. Staff

education is important in providing nurses with knowledge to teach patients HF self-care principles at home.

The staff education project applies the DNP Essential VI relating to interprofessional collaboration for improving patient and population health outcomes (AACN, 2017). As a DNP student and project leader, I collaborated with the company's local leadership team along with the panel of experts to provide a staff education project with the potential to impact social change by providing nurses with EBP guidelines to improve patient outcomes at home decreasing hospital readmissions.

I have personally been inspired by my grandparents who both lost their lives due to HF complications. HF is prevalent in males on both my grandmother and grandfather's family tree. My strong desire to help improve clinical practice led me to become a DNP student. Creating a successful staff education program for HF self-care management practices will improve clinical outcomes in not only our patients but also our families.

### **Role of the DNP Project Team**

The DNP project team consisted of the identified clinical experts who included the former clinical program director in HF, the current clinical program manager of HF, the account manager servicing the HF population, and a cardiac nurse practitioner. The panel of four experts evaluated the staff education program for current content related to HF guidelines and self-care management practices. They completed an education evaluation tool to evaluate the program and provide recommendations for any needed changes. The expert evaluations were reviewed with data summarized and program modifications made as needed. This occurred prior to providing nursing staff with the

educational program. They reviewed the content of the project, validate the content is applicable to practice in a homecare setting, and confirm the content contains clinical practice guidelines applicable to patient self-care management practices.

The staff education program was presented to the panel members, in the form of a Power Point presentation. Panel members completed a Likert scale, responding to a series of questions about the staff education program. As part of the survey, panel members provided feedback on the program's potential to increase the knowledge of home infusion nurses on HF guidelines-based self-care management practices.

The staff education program was finalized based on feedback from panel members. Prior to the home infusion nurses participating in the education program, they were given a 20-question questionnaire (pretest) to assess their baseline knowledge of the HF guidelines-based self-care management practices. After participating in the program, the nurses were given the same 20 question questionnaire as a posttest to assess knowledge gained by the program. The pre and posttest results were evaluated to measure the effectiveness of the training program.

### **Summary**

The staff education program addressed the practice gap identified at the local care management center. Section 2 included an explanation of the theory to support this project, the relevance to nursing practice, and role of the project team. HF Guidelines and self-care management practices were summarized, emphasizing the importance of medication adherence, exercise, diet, weight monitoring, and reportable HF symptoms. The proper management of HF at home depends on the knowledge of the home infusion

nurse who is responsible for educating their patients on how to manage their condition.

Section 3 will include a description of the collection and analysis of evidence.

Specifically, sources of evidence including published outcomes and research, and evidence generated for this project, and approaches for analyzing and synthesizing the evidence will be addressed.

## Section 3: Collection and Analysis of Evidence

### **Introduction**

Nearly 1 million HF hospitalizations occur each year in the United States (Kim et al., 2016). The United States spends more than \$30 billion on HF annually, making it one of the most expensive diseases to manage and treat in the country (CDC, 2016). The healthcare community has embarked on an effort to reduce HF hospital readmissions and associated costs by improving disease management programs and implementing effective staff education programs. For this study, I focused on educating home infusion nurses on HF self-care management practices based on HF guidelines to improve the quality of care of HF patients. Section 3 includes an explanation of the sources of evidence for this project and how the evidence was collected, including tools and surveys. Procedures for project implementation will be explained and will follow the staff education manual. Participants, protections analysis, and the method for analyzing and synthesizing data were evaluated as needed.

### **Practice-Focused Question**

Within the home infusion industry, nurses administer inotropic therapy to HF patients at home. Physicians have reported that their patients are not provided adequate HF education at home. Patients are not properly instructed by their home infusion nurse on how to report worsening symptoms, such as weight gain, swelling, and difficulties with breathing resulting in unnecessary readmissions to the hospital. It is suspected that home infusion nurses at the local center lack adequate knowledge to properly instruct patients on managing and reporting their symptoms. Implementing a staff education

project to educate home infusion nurses on guidelines-based HF self-care management practices is expected to decrease the knowledge gap. The practice-focused question for this doctoral project is: Will the implementation of a staff education program on HF guidelines-based self-care management practices increase the knowledge, skills, and confidence of home infusion nurses?

### **Sources of Evidence**

#### **Literature Review**

A systematic literature review of nursing and health related databases for scholarly, peer-reviewed articles was conducted using the search engines Google Scholar, PubMed, Medline Plus, and CINAHL. A boolean literature search was conducted on the following key terms: *heart failure*, *heart failure guidelines*, *heart failure self-care management practices*, and *staff education programs*. The literature review as well as the ACC/AHA Heart Failure Guidelines provided evidence-based practices and current evidence to develop the content for the educational program to identify the sources of evidence used to address the practice-focused question.

#### **Stakeholders and Expert Panel**

The planning and support for this educational project at the home infusion company involved the approval of stakeholders, including the senior director of operations, director of clinical services, and area clinical director. After stakeholder approval, I developed the HF staff education program (Appendix A). The educational program was first evaluated by a panel of clinical experts. This expert panel consisted of the former clinical program director in HF, the current clinical program manager of HF,

the account manager servicing the HF population, and a cardiac nurse practitioner. Each expert has a minimum of 10 years of experience in cardiovascular nursing with a minimum of a bachelor's of science in nursing (BSN) degree. The four experts were asked to review the PowerPoint presentation and evaluate the staff education program for current content related to HF guidelines and self-care management practices. The experts completed a Likert-scale questionnaire rating the quality of the program (Appendix B) and provided recommendations for needed changes. The expert evaluations were reviewed with data summarized and program modifications were made as needed.

### **Protection**

Ethical protection of all participants was always maintained in this study. The Walden Institutional Review Board (IRB) is responsible for ensuring that all Walden University research complies with the university's ethical standards as well as U.S. federal regulations. IRB approval is required before the collection of any data. The names of the participants and organization were masked for privacy.

The nurses were recruited from the local home infusion company after a gap in clinical practice was identified with HF patients. The home infusion nurses were agreeable to participating in the staff education program. They were fully informed of the intent of the educational program. The nurses were informed that they would be provided a consent for an anonymous questionnaire prior to participating. Acceptance of this consent indicated their agreement to participate in the educational program and complete the anonymous questionnaire to evaluate the program. Test results were deidentified. The participants were also informed that they could leave the program at any time.



**Participants**

Participants for the educational program included the 15 registered nurses who specialize in intravenous therapy that service HF patients at home. The registered nurses included six nurses with a BSN degree and nine nurses with an associate degree in nursing (ADN). The group of nurses that participated have a range of 1-20 years of home infusion experience. The nurses reported that they have not received formal training on the current HF guidelines self-care management practices. The nurses focused mainly on the technical aspects of the infusion pump and central line care versus signs and symptoms of HF that would need to be reported. It is important for these nurses to teach patients to recognize and report worsening HF signs and symptoms and to teach patients self-care principles. Currently, the agency has noted that patients are not reporting these signs and symptoms to their primary care physicians.

**Procedures**

First, Walden IRB approval for the staff education project was obtained and the site agreement signed (Appendix B). The PowerPoint educational program was presented to the four members of the expert panel. They evaluated the program for content and applicability to the clinical setting using a 5-point Likert scale survey with an open-ended question for recommendations (Appendix C). Evaluations were used to determine if program changes should be made prior to presenting to the nursing staff.

Fifteen nurses were asked to participate in education program. All participants were provided the Consent for Anonymous Questionnaire. The staff education project is a one group pretest, posttest design utilized to determine the effect of an intervention on

home infusion nurses. The NKHFEP questionnaire results provided an evaluation of the program. Results were reported using descriptive statistics with graphical representation. Participants received the NKHFEP questionnaire as a pretest prior to the program to measure baseline knowledge on HF self-care practices.

Each participant read the 20 questions on the questionnaire and check either yes (true) or no (false). The pretest was collected immediately upon completion. I then presented the PowerPoint presentation (Appendix A), which took approximately 60-90 minutes conducted in the conference room at the local care management center.

The NKHFEP questionnaire was provided to measure knowledge post presentation. The questionnaire as anonymous and is a pencil and paper test. Participants were asked to place the responses in a manila envelope. There was an envelope marked pretest and another for the post test. The questionnaire consists of true, false questions focused on diet, weight monitoring, symptom management, medication compliance, and exercise. Permission to utilize the valid NKHFEP questionnaire tool was obtained by the author and purchased through AdeoExperts.com (Appendix D). The outcome of the program was assessed by comparing the pre and posttest results. These results were analyzed using descriptive statistics to assess if there was an increase in the nurses' knowledge after receiving the educational program.

### **Analysis and Synthesis**

Current literature and clinical practice guidelines on HF guided the development of the educational program. A panel of experts completed a survey to evaluate the program content and applicability to the clinical site prior to the nursing staff

participation in the program. Expert panel evaluations were analyzed using descriptive statistics and graphical representation. An open-ended question at the end of the survey provided the experts with an opportunity to list recommendations for program improvement. Program improvements were made as indicated prior to presenting to the nursing staff. Participant pre and post NKHFEP questionnaire tests results were analyzed and compared using descriptive statistics. All results were anonymous, and the systems used for recording, tracking, and organizing are a hard copy of data which will be kept secure under lock and key for at least 5 years.

### **Summary**

HF is the focus of a nation-wide effort to improve population health as is evidenced in many common literary themes of the promotion of self-care. Due to the nature of the disease, HF readmissions occur at a higher than expected level with substantial financial impact on the country (Grady et al., 2010). The nursing staff education program was developed and evaluated to improve care to HF patients to avoid hospital readmissions. The educational program is based on current HF guidelines, utilizing evidence-based practices that focus on self-care concepts for patients with chronic disease improving patient education on self-care management practices. The program will increase home infusion nurse's knowledge, skills, and confidence and will improve patient outcomes which will in turn reduce hospital readmissions. The goal is to engage home infusion nurses while improving their comprehension of self-care management practices. Section 4 will address the findings of the expert panel as well as

discussion on the relevance of the project, recommendations, and strengths and limitations.

## Section 4: Findings and Recommendations

### **Introduction**

HF is a growing health problem with high mortality rates. It affects approximately 5 million adults in the United States (CDC, 2016). Nearly 1 million HF hospitalizations occur each year in the United States, with a 27% 30-day readmission rate (Kim et al., 2016). The United States spends an estimated \$30.7 billion each year on HF, making it one of the most expensive cardiovascular diseases to manage and treat and the costs are expected to rise (CDC, 2016).

Nurses play a critical role in the education they provide patients. Infusion nurses at the local setting verbalized a lack of knowledge, skills, and confidence necessary to teach patients self-care management practices to adequately manage their disease at home. The lack of education has led to emergent situations requiring more frequent hospitalizations for patients on home infusion therapy treated for HF. Literature indicated HF patients who received education on self-care practices improved their knowledge, ability to self-monitor, compliance with medication requirements, and duration of hospital stays (Gupta, 2018). The practice-focused question for this doctoral project was: Will the implementation of a staff education program on HF guidelines-based self-care management practices increase the knowledge, skills, and confidence of home infusion nurses?

### **Findings and Implications**

An extensive literature review of nursing and health-related databases for scholarly, peer-reviewed articles was conducted. The most current ACC/AHA HF

guidelines providing evidence-based practices were used to develop the content for this program. Four panel experts were recruited to evaluate the educational program. The request was sent by e-mail to everyone separately along with the pre- and posttest prior to implementing the staff education program. The panel of experts also received and completed a 5-point Likert scale questionnaire with an open-ended question for recommendations. The feedback addressed three areas including the content of the presentation, the instructor, and the instructional methods. Questions were based on a Likert scale scoring system: strongly agree (5 points), agree (4 points), neutral (3 points), disagree (2 points), and strongly disagree (1 point). The scores are provided in Table 1. The fourth panel expert did not rate the program but provided constructive feedback to improve the program content. Most of the scores ranked the questions *agree* or *strongly agree*. The two areas identified as neutral pertained to “the method used to present the material held my attention” and “the teaching strategies were appropriate for the activity”; both questions appear more appropriate for participants of the educational program versus panel experts who received an e-mail with material to review independently. There was one *strongly disagree*: “the content expanded my knowledge related to HF guidelines and self-care management practices.” Though the expert rated the question strongly disagree, she commented in the open-ended question for recommendations that she wants to partner and incorporate information from the educational program to enhance the current HF program used by the institution. This too may not be an appropriate question for an expert who has extensive knowledge in HF. The evaluation tool should be tailored to the intended audience.

Table 1

*Panel Experts' Education Evaluation Results (N=3)*

	SD <i>n</i> (%)	D <i>n</i> (%)	N <i>n</i> (%)	A <i>n</i> (%)	SA <i>n</i> (%)
<b>Content</b>					
1. The content was interesting to me.				1 (33)	2 (67)
2. The content expanded my knowledge related to HF guidelines and self-care management practices.	1 (33)				2 (67)
3. The content was consistent with objectives.				2 (67)	1 (33)
4. The content was relevant for nursing staff care for HF patients.				1 (33)	2 (67)
5. Objectives were consistent with purpose/goal of activity.				2 (67)	1 (33)
<b>Instructor</b>					
1. The instructor demonstrated mastery of topic.				2 (67)	1 (33)
2. The method used to present the material held my attention.			1 (33)		2 (67)
3. How effective was the instructor's teaching method?				1 (33)	2 (67)
4. Was the instructor responsive to questions and feedback?				1 (33)	2 (67)
<b>Instructional methods</b>					
1. The instructional material was well organized.					3 (100)
2. The instructional methods illustrated the concepts well.				2 (67)	1 (33)
3. The teaching strategies were appropriate for the activity.			1 (33)		2 (67)
4. The audiovisual presentation was easy to understand.				1 (33)	2 (67)

*Note.* SD=Strongly disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly agree.

Panel Expert 1 commented that the slides contained too many words. She recommended adding bullet points and additional slides to ensure content was covered. There was a recommendation to add steps to take to improve medication adherence, such as using a pill organizer and placing medications in plain sight. She recommended enhancing the dietary content. Panel Expert 2 commented the educational program was a well-organized and helpful presentation. It was simple but applicable; the information provided was sufficient without being overwhelming. The survey was excellent covering all the bases and provided a simple way to verify applicable understanding. She was impressed with the questionnaire in addition to the presentation. She recommended staying consistent with the identified audience, explaining Stage D accounts for 10% of all patients with HF. She recommended expanding the presentation to all home health nurses who provide care for HF patients in lower stages of HF but to also include applicable caveats for advanced HF. She noted that advanced HF (Stage D) patients require more than one daily diuretic dosing; she recommended nurses be trained to teach patients to take all diuretic doses by mid-afternoon.

She noted the activity/exercise options are not realistic for advanced HF (Stage D) patients. She recommended adding content to speak specific to advanced HF. She recommended discussing sodium restrictions for all stages of HF when addressing diet. She stated portion control is key; it is an effective approach to decreasing sodium intake. She recommended discussing risks associated with dining out. Advise nurses to educate patients to request no salt added to food. She recommended adding the ARNI (Entresto) classification; this is the new gold standard for treating HF. She recommended adding



education discussing possible barriers of why patients missed taking medications in the past (financial barriers, getting prescriptions picked up, confusion, etc.). She recommended asking patients if they purposely skipped doses based on how they felt. She recommended adding that patients take their blood pressure at the same time every day.

Most HF patients experience shortness of breath; she recommended adding worsening shortness of breath. Patients at home rarely measure urinary output; she recommended changing to monitor change in frequency and change in color of urine. Panel Expert 2 commented this is a great start and this type of program is very necessary. She would love to continue working together and adopt this program as a teaching resource, if possible, at the organization.

Panel Expert 3 commented “awesome job.” She loved the colors and design of the presentation—perfect for HF. Information provided was great, learned NSAID antagonize diuretics and ACE inhibitors. She stated, “You have knocked this out of the park.” Panel Expert 4 did not complete the Likert scale evaluation. She recommended correcting grammar on the slide discussing diuretics, *treat* not *treats*. She recommended adding “they” not “it” can also affect potassium and magnesium levels. She recommended removing calcium channel blockers and add ARNIs per the updated 2017 ACC/AHA/HFSA guidelines. The updated guidelines recommend less than 3000 mg of sodium for Stage C and D and 1500 mg for Stage A and B. She recommended changing weight gain to 2-3 pounds in 24 hours and 5 pounds in 7 days. Intake and output were mentioned but no mention of what fluid intake should be. The guidelines state there is no

evidence for fluid restrictions except possibly Stage D HF when 2000 milliliters might be reasonable. Most facilities teach HF patients to consume a max of 2000 milliliters of fluid daily. She recommended educating patients that fruit, such as grapes, oranges, watermelon, and other items such as gelatin and ice cream, need to be included in their total fluid intake for the day. She commented that this is a wonderful project because this education is so desperately needed for all home care nurses.

After the panel of experts reviewed the educational program and their feedback was incorporated, the educational program was delivered to nine RNs. The educational training took place at the local infusion company. The participants were provided a consent form for anonymous questionnaires agreeing to participate in the educational program. There were five separate sessions with attendees ranging from one to four participants at each session. There were three envelopes on the conference room table labeled pre, post, and evaluation. Participants were informed that they would receive privacy during the pretest, posttest, and during completion of the program evaluation. Prior to the program, the participants were given a pretest. The participants were given the same test after the program. To minimize maturation, the time between the pretest and posttest was minimized. The pretest and posttest consisted of 20 true-false questions on HF self-management principles. A score of 20 is the highest score and indicates the greatest level of knowledge. The questions are grouped into five categories of HF self-management including diet, fluids and weight, worsening symptoms, medications, and exercise.

I used Microsoft's Excel Analysis Tool Pak to compare the pretest and posttest scores, using descriptive statistics. The pretests scores averaged 15.1, with a range from 11 to 18. The posttest scores averaged 17.2, with a range from 16 to 19. The average of the posttest scores increased by 2.1 from the average of the pretest scores, representing a 13.9% increase in test scores. Individual question responses were examined to identify trends specific knowledge gaps on the pretests and gains on the posttests.

### **Participants' Pretest Results**

Table 2 displays the results of the participants' pretests by question, including the number and percentage of participants responding true or false to the questions, and the number and percentage of correct responses.

Table 2

*Participants' Pretest Results (N=9)*

	T <i>n</i> (%)	F <i>n</i> (%)	Correct Response <i>n</i> (%)
Q 1	2 (22)	7 (78)	7 (78)
Q 2	1 (11)	8 (89)	8 (89)
Q 3	7 (78)	1 (11) <sup>a</sup>	7 (78)
Q 4	2 (22)	7 (78)	7 (78)
Q 5	1 (11)	8 (89)	8 (89)
Q 6	7 (78)	2 (22)	7 (78)
Q 7		9 (100)	9 (100)
Q 8	3 (33)	5 (56) <sup>b</sup>	5 (56)
Q 9	2 (22)	7 (78)	7 (78)
Q 10		8 (89) <sup>c</sup>	8 (89)
Q 11	2 (22)	7 (78)	7 (78)
Q 12	2 (22)	6 (67) <sup>d</sup>	6 (67)
Q 13	3 (33)	6 (67)	6 (67)
Q 14		9 (100)	9 (100)
Q 15	7 (78)	2 (22)	2 (22)
Q 16	5 (56)	4 (44)	4 (44)
Q 17	9 (100)		9 (100)
Q 18	6 (67)	3 (33)	3 (33)
Q 19	9 (100)		9 (100)
Q 20	9 (100)		9 (100)

*Note.* T=True, F=False

<sup>a</sup> One participant did not respond to Q3.

<sup>b</sup> One participant did not respond to Q8.

<sup>c</sup> One participant did not respond to Q10.

<sup>d</sup> One participant did not respond to Q12.

The questions with the least correct responses (< 60%) in the pretest included Q8 (medications), Q15 (fluid and weight), Q16 (worsening symptoms), and Q18 (worsening symptoms). The questions focused on the use of aspirin and other anti-inflammatory drugs, assessing weight results, blood pressure recordings, and dizziness or lightheadedness when arising. These questions fell under three of the five categories of HR self-care management indicating potential specific knowledge gaps, especially in the area of worsening symptoms as two of the questions with the least correct responses fell under this area. Questions with the most correct responses (> 80%) in the pretest included Q2 (diet), Q5 (fluid and weight), Q7 (medications), Q10 (fluid and weight), Q14 (fluid and weight), Q17 (worsening symptoms), Q19 (worsening symptoms), and Q20 (worsening symptoms). These questions fell under four of the five categories.

### **Participants' Posttest Results**

Table 3 displays the results of the participants' pretests by question, including the number and percentage of participants responding true or false to the questions, and the number and percentage of correct responses.

Table 3

*Participants' Posttest Results (N=9)*

	T <i>n (%)</i>	F <i>n (%)</i>	Correct Response <i>n (%)</i>
Q 1	2 (22)	7 (78)	7(78)
Q 2		9 (100)	9 (100)
Q 3	6 (67)	3 (33)	6 (67)
Q 4		8 (89) <sup>a</sup>	8 (89)
Q 5	2 (22)	7 (78)	7 (78)
Q 6	9 (100)		9 (100)
Q 7	1 (22)	8 (89)	8 (89)
Q 8		9 (100)	9 (100)
Q 9		9 (100)	9 (100)
Q 10	1 (22)	7 (78) <sup>b</sup>	7 (78)
Q 11		9 (100)	9 (100)
Q 12		9 (100)	9 (100)
Q 13		9 (100)	9 (100)
Q 14		9 (100)	9 (100)
Q 15	6 (67)	3 (33)	3 (33)
Q 16	1 (22)	8 (89)	8 (89)
Q 17	6 (67)	3 (33)	6 (67)
Q 18	5 (56)	4 (44)	4 (44)
Q 19		9 (100)	9 (100)
Q 20		9 (100)	9 (100)

*Note.* T=True, F=False

<sup>a</sup> One participant did not respond to Q4.

<sup>b</sup> One participant did not respond to Q10.

Questions showing the least correct responses in the posttests (< 60%) included Q15 (fluid and weight) and Q18 (worsening symptoms). These two questions focused on serial weight monitoring and dizziness when standing. They were answered least correctly (< 60%) in the pretests also indicating minimal improvement in the posttests. This may be more indicative of the unclear wording of these two questions and less indicative of the education program. Questions showing the most correct responses in the posttests (> 80%) included Q2 (diet), Q4 (exercise), Q6 (fluid and weight), Q7 (medications), Q8 (medications), Q9 (diet), Q11 (worsening symptoms), Q12 (exercise), Q13 (diet), Q14 (fluid and weight), Q16 (worsening symptoms), Q19 (worsening symptoms), and Q20 (worsening symptoms). Of the 20 questions, 11 questions showed improvement in the posttests and nine showed no improvement. Three of the nine questions showing no improvement were answered correctly by participants in both the pretests and posttests.

### **Participants' Education Evaluation Results**

After completing the pretest, the educational presentation, and the posttest, the participants were given an evaluation form to solicit feedback on the educational presentation. Specifically, feedback was collected in three areas including the content of the presentation, the instructor, and the instructional methods. Questions were based on a Likert scale scoring system: *strongly agree* (5 points), *agree* (4 points), *neutral* (3 points), *disagree* (2 points), and *strongly disagree* (1 point). In addition to the questions based on the Likert scale, a final open-ended question was asked of participants. The open-ended question asked for recommendations to improve the educational presentation. I will use

the feedback from the evaluation forms to make improvements to the educational presentation. Table 4 on the next page illustrates the results of the participant's evaluations. Most of the scores ranked the questions *agree* or *strongly agree*. The four areas identified as *neutral* pertained to "the method used to present the material held my attention," "the teaching strategies were appropriate for the activity," "the content expanded my knowledge related to HF guidelines and self-care management practices," and "the audiovisual presentation was easy to understand." There was only one comment made from all nine participants. The recommendation was to provide a handout for note taking to retain information. The evaluation ratings were favorable. The questions ranked as *neutral* can be evaluated and improved upon for future training.



Table 4

*Participant Education Evaluation Results (N=9)*

	SD <i>n</i> (%)	D <i>n</i> (%)	N <i>n</i> (%)	A <i>n</i> (%)	SA <i>n</i> (%)
<b>Content</b>					
6. The content was interesting to me.					9 (100)
7. The content expanded my knowledge related to HF guidelines and self-care management practices.			1 (11)		8 (89)
8. The content was consistent with objectives.				1 (11)	8 (89)
9. The content was relevant for nursing staff care for HF patients.					9 (100)
10. Objectives were consistent with purpose/goal of activity.					9 (100)
<b>Instructor</b>					
5. The instructor demonstrated mastery of topic.				1 (11)	8 (89)
6. The method used to present the material held my attention.			1 (11)	1 (11)	7 (78)
7. How effective was the instructor's teaching method?				1 (11)	8 (89)
8. Was the instructor responsive to questions and feedback?				1 (11)	8 (89)
<b>Instructional Methods</b>					
5. The instructional material was well organized.				1 (11)	8 (89)
6. The instructional methods illustrated the concepts well.				2 (22)	7 (78)
7. The teaching strategies were appropriate for the activity.			1 (11)		8 (89)
8. The audiovisual presentation was easy to understand.			1 (11)	1 (11)	7 (78)

*Note.* SD=Strongly disagree, D=Disagree, N=Neutral, A=Agree, SA=Strongly agree

The findings of the DNP project have practical significance. It was determined 5 years ago that an educational program was needed for home infusion nurses caring for HF patients at home. The local stakeholders and panel of experts have provided ongoing support for this program over the years recognizing the need to reduce the gap in knowledge. The findings following the staff education program support an increase in knowledge for the infusion staff. Though the sample size was less than the 15 participants expected along with a limited time frame, overall results indicated the targeted education could be a valuable tool for increasing nurses' knowledge of HF guidelines and self-care management practices.

### **Recommendations**

When providing an onsite educational in-service, it is optimal for ample time to be provided to staff, in the event they elect to participate. Due to the time of the program approval and the onsite site availability, there was short notice provided to the infusion staff. Due to the current COVID 19 pandemic, the use of virtual training may have increased the number of participants.

The content in the educational power point presentation was expanded upon based on expert feedback to address all stages of HF. Specific information for Stage D HF could use expounding since infusion nurses service end stage HF patients on inotropic therapy. It was noted by the experts and participants that this program served as a great foundation covering five self-care management practices that all nurses in homecare managing HF patients should be knowledgeable of.

Training onsite or virtually (live or recorded webinars) is recommended to ensure all infusion nurses receive the most current information pertinent to current HF guidelines and self-care management practices. Tools and resources with concise information should be accessible for infusion nurses to allow for ease of understanding.

### **Contribution of the Doctoral Project Team**

The DNP project team made up of four clinical experts, including the former clinical program director in HF, the current clinical program manager of HF, the account manager servicing the HF population, and a cardiac nurse practitioner each received the NKHFP questionnaire along with the educational PowerPoint presentation and evaluation form. Each expert provided valuable insight and guidance to enhance the educational program. The recommendations provided by each expert included symptom monitoring, fluid intake, medication adherence tips to improve medication compliance, medication golden standards to treat HF. Each expert offered information to expand knowledge in all stages of HF. The HF Clinical Program Manager expressed interest in using this program at a national level so all locations throughout the country would benefit from this program.

### **Strength and Limitations of the Project**

The HF educational program was highly effective based on the increase in knowledge from the pre and posttest results. The feedback from the participants supported the quality of the program. The information was not overwhelming or difficult to understand or retain. However, there was specific information related to advanced HF that was not included in the program. Inotropic patients serviced by the infusion company

are managed by the infusion nurses. Specific information for Stage D HF patients would have added value to the program. However, all participants expressed the importance of a HF program addressing self-care management practices as a foundation that every nurse in homecare should learn. The positive feedback supported the information provided in addition to the teaching method used during the staff education program.

This scholarly program had multiple limitations which impacted the number of participants that were able to attend the staff education program. The greatest limitation was the small sample size. The original number of participants were 15 infusion nurses. There are two nurse's no longer with the organization, last minute patient visits made nurses unavailable, and lastly COVID 19 created restrictions with the number of people in a confined space onsite at any given time. I was able to conduct multiple sessions and utilize social distancing practices while we all wore masks and remained 6 feet apart.

## Section 5: Dissemination Plan

This program was developed to increase the knowledge, skills, and confidence of home infusion nurses to improve patient outcomes and potentially reduce hospital readmissions. The clinical program manager of the HF program, also a panel expert, identified a deficit in the current HF education program at the infusion company. She requested a partnership to use this program based off current ACC and AHA HF guidelines. She provided recommendations to adequately address all stages of HF to add value to the educational program. After completing the DNP program, I will meet with the senior leadership team to discuss the possibility of disseminating the staff education program so it can be used at all the locations throughout the country.

### **Analysis of Self**

As I reflect on my journey over the past 5 years, I view my role in healthcare very differently today than when I started this program. I am a healthcare practitioner who is a highly engaged leader seeking to improve clinical practice by translating evidence into practice to improve clinical outcomes. This is a commitment I hold in the highest regard. It is my responsibility as a leader to identify knowledge gaps and teach nurses evidence-based practices to increase their knowledge so they too can become better practitioners. Incorporating an educational program to build on one's current skillset has enhanced the knowledge gained for this local group of infusion nurses.

As a scholar specializing in HF, I learned that it is not just what you know but recognizing there is still so much to learn. The DNP program itself has taught me not only to become an expert in a specific area of study but taught me how to become a better

student, writer, and educator. Through observation and feedback, I have learned how to customize my approach when training individuals. It is not “one size fits all” when it comes to an individual’s preferred method of learning. I have worked so hard to overcome learning barriers throughout the course of this program. It is from these challenges I sympathize with students who require extra guidance and support to fulfill their educational goals.

This is my first experience as a project manager. I found continual collaboration with local stakeholders and my panel of experts has produced a highly valuable educational program. The feedback received from my four panel experts made quite a contribution to my program making it more well-rounded. I have also learned how appreciative nurses are to receive training that will positively impact the lives of their patients. They were grateful for the opportunity to learn which made this entire program worth it.

I have struggled throughout this program and wanted to quit multiple times. My Chair has even asked me to take time off after multiple deaths in my family. I was also challenged by this steep learning curve trying to become an effective writer. I will say this, it takes a village and if I can successfully complete this program then anyone can. I have learned so much about writing, listening, and perseverance. It is my absolute hope that I can become an inspirational leader and eventually a professor to support those like me that exude passion but need a little extra encouragement.

### **Summary**

My number one goal was to develop a HF staff education program that would increase infusion nurse's knowledge of self-care management practices to help improve patient outcomes and potentially reduce hospital readmissions. It would be beneficial in the future to conduct a study with the organization to measure long term outcomes related to hospital readmissions. The more nurses know, the better they teach. The quality of the program has gained the interest of stakeholders, at a corporate level of the home infusion company. It is my hope that the program will be instituted at a national level to raise awareness on self-care management practices across the country. The volume of nurses that will receive formal training will benefit from knowledge gained. The program provides an easy to understand overview of what all nurses should know regarding five areas of self-care management practices. A quality program such as this will improve clinical practice and potentially reduce 30-day hospital readmissions. This program has the potential to decrease mortality rates as well as lessen the economic burden to the United States healthcare system.

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## Appendix A: PowerPoint

# *Staff Education Heart Failure Guidelines & Self-Care Management Practices*

MARY MITCHELTREE MSN, RN

## Objectives



Discuss the definition of heart failure



Explain the significance of the problem related to mortality rates and economic burden to healthcare



Identify the knowledge gap on HF guidelines and self-care management practices



Demonstrate knowledge in five areas of self-care management practices

Medication Adherence  
Exercise  
Diet  
Daily Monitoring  
Reporting Symptoms

## Definition of Heart Failure



Heart failure is a progressive disease that impedes the heart's ability to circulate blood (CDC, 2016).

## Problem

Heart disease is the leading cause of death in the United States. There are one in four deaths in the U.S. alone.

Annually more than 600,000 people die in the United States from heart disease.

Nearly 1 million HF hospitalizations occur each year in the United States

United States spends more than \$30 billion on HF each year, making it one of the most expensive diseases to manage and treat in the country

## Significance of Problem

- HF is a growing health problem with high mortality rates. It presents an economic burden on the US healthcare system. The disease affects approximately 5 million adults in the United States alone (CDC, 2016).
- There are approximately 550,000 new cases of HF diagnosed each year (Papadimitriou et al., 2017).
- The diagnosis of HF results in premature death with mortality rates as high as 50% within 5 years of diagnosis (McClintock et al., 2014).

## Significance of Problem Cont.

- Hospital admissions and readmissions for HF contribute to the economic burden. One in four Medicare patients discharged with a diagnosis of HF are readmitted to the hospital within 30 days (McClintock et al., 2014).
- According to the CDC (as cited by Lockman-Samkowiak et al., 2015), the United States spends about \$444 billion each year on heart disease. Close to \$30.7 billion is spent each year on HF treatment, making it one of the most expensive cardiovascular diseases to manage and treat (CDC, 2016).

## Significance of Problem Cont.

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- Reducing the number of 30-day readmissions for HF will reduce costs and impacts on the US healthcare system (McClintock et al., 2014).
- Poor self-care management practices among HF patients is the leading cause of hospital readmissions.

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## Significance of Problem Cont.

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**Nurses who do not understand the goals of therapy can cause harm to patient's (Hart et al., 2011). Heart Failure education for nurses can be difficult due to:**

- Evidence-based practices constantly changing
- Staffing demands & limitations
- Lack of formal training
- Educational resources unavailable



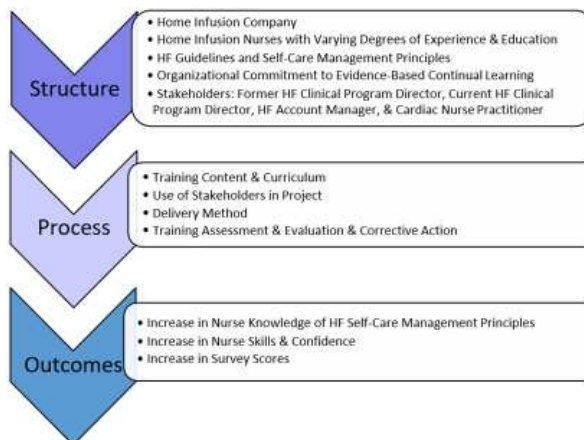


## Project Question

The purpose of this project is to train home infusion nurses on self-care management practices based on the American College of Cardiology (ACC) and American Heart Association (AHA) HF Guidelines to educate HF patients on performing self-care management practices at home.

- Will the implementation of a staff education program on HF guidelines-based self-care management practices increase the knowledge, skills, and confidence of home infusion nurses?

### The Donabedian Model: Measuring the Quality of Staff Education



## Theoretical Framework

GARDNER, G., GARDNER, A., & O'CONNELL, J. (2014).

## Heart Failure Self-Care Principles

Studies have shown that a better understanding of self-care principles lead to significantly lower HF readmission rates.

## Medication Adherence

Diuretics lower blood pressure and treat fluid retention by reducing edema by flushing sodium and excess water out of the body, increasing the amount of urine your body makes.

Side effects of a loop diuretic include: Headache, dizziness, thirst, muscle cramps, low sodium levels, or increased blood sugar. They can also affect potassium and magnesium levels.

Instruct patients to take loop diuretics in the morning, no later than early afternoon if ordered BID to avoid frequent urination at night. This could also reduce the risk of falls.

## Medication Adherence Cont.

The medical and pharmacological treatment includes use of medications such as ACE inhibitors, ARBs, digoxin, beta blockers, statins, diuretics, aldosterone antagonists, and calcium channel blockers (Yancy et al., 2013).

**Teach the importance of taking prescribed medications on time and without missing doses. The complexity of medically managing HF symptoms makes medication adherence a priority.**

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## Medication Adherence Cont.

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- **Review ALL patient medications including herbal supplements to avoid undesired interactions or side effects.**
  - **Advise patients to speak with their physician prior to taking new herbal supplements.**
- Encourage use of a pill organizer.**
- Store medications in plain sight.**



## Medication Adherence Cont.

- Nonsteroidal anti-inflammatories (NSAIDs) antagonize the actions of diuretics and ACE inhibitors and promote increased systemic vascular resistance and decreased cardiac output in patients with established HF (Hart et al., 2011).
- The risk of rehospitalizations increases for patients on diuretics taking NSAIDs. Decreased cardiac output leads to decreased renal function, NSAIDs can cause renal failure. Advise patients to speak with their physician prior to taking NSAIDs.
- Tylenol is encouraged for pain relief. However, a low dosage of Tylenol is recommended. High dosages can lead to liver damage. Teach patients to take the dosage prescribed by their physician.

## Medication Adherence Cont.

### **Barriers to Medication Adherence**

- Financial limitations
- Inability to pick up prescriptions
- Confusion
- Illness

Ask the question, did you skip your dose based on how you feel?

## Exercise

It is more beneficial to exercise every day for at least 10-20 minutes versus focusing on losing pounds (AHA, 2018).

Patient must be medically stable and cleared by a physician prior to initiating an exercise program.

The ACC/AHA Guidelines (2018) recommends the following exercises

•Walking at a fast pace

•Jogging

•Bike riding

•Low impact exercise such as water aerobics

## Exercise Cont.



Patients with HF benefit from long-term low intensity exercise routine. Follow doctor recommendations for stage D HF.



It improves aerobic capacity and is associated with a decrease in pulmonary capillary wedge pressure and left ventricle wall stress. It also improves work capacity and peak oxygen consumption occurs 8-12 weeks after beginning a light exercise regime (Hart et al., 2011).



A major trial on exercise and HF, involving 2,331 HF patients, concluded an 11% reduction in overall mortality, heart disease specific mortality, or hospitalizations, in the group of patients assigned to an exercise program (Gupta, 2018).



## Diet

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### Diet

Patients need to be taught to review labels carefully to ensure the sodium content in food is low. Teaching patients to adhere to a low sodium diet will improve their ability to breathe. A low sodium diet helps control blood pressure and edema.

Sodium retains fluid, the recommended daily consumption of sodium should be 1,500 mg of sodium or less for stages A & B. Discharge orders for stage D HF patients will include sodium/diet restrictions per the healthcare provider.

The ACC/AHA guidelines recommend no more than 1,500 mg of daily sodium intake for patients at high risk for HF but with no heart disease, and patients with heart disease but no symptoms of HF (Gupta, 2018).

## Diet Cont.



**Fluid intake should be limited to 2000 ml's of fluid daily for stage D heart failure**



In addition to water and other beverages, fruit (grapes, oranges, and watermelon), jello, and ice cream all need to be included in a patient's total fluid intake per day.

## Do's & Don'ts

- Recommend salt free seasoning (be cautious of potassium-based salt substitutes)
  - Excessive potassium will cause hyperkalemia requiring medical treatment.
  - Explain the meaning of hyperkalemia to the patient.
- Recommend fruits and vegetables
- Encourage high dietary potassium intake
- Encourage fiber rich whole grain foods
- Encourage portion control, especially when dining out
- Avoid high fat foods
- Avoid alcohol
- Avoid or limit caffeine to 1-2 cups per day, based on physician recommendation (AHA).

## Daily Monitoring



Instruct patients to :



Record daily weight. Weight should be taken in the morning in similar clothing for consistency



Record intake and output daily



Monitor B/P and pulse daily at the same time to assess for worsening in condition. Use the same arm for B/P checks



Measure abdominal girth daily to assess for fluid retention

## Reporting Symptoms

**Teach patients to call the doctor if they experience the following:**

- Weight gain of 2-3 lbs. within 24 hours or 5 lbs. within one week
- Increased swelling in legs or ankles
  - Educate patient to measure swollen areas with a measuring tape daily.
- Worsening shortness of breath (while at rest)
- Wheezing
- Frequent dry hacking cough
- Difficulty breathing lying down
- Swelling or pain in the abdomen
- Increased fatigue
- Loss of appetite
- Decreased urinary output (UO)
  - Measure intake and output daily. A marked decrease in UO indicates reduced cardiac output. Explain this is a symptom HF is worsening. If unable to measure UO, monitor change in frequency and color.
- Change in B/P outside of normal parameters



An increase in weight of 2 -3lbs. in a 24-hour period or 5 lbs. in 1 week necessitates a call to the healthcare provider (AHA, 2017). This change in weight indicates a patient's heart failure is worsening and may require a change in medication or dosage determined by HF guidelines.

- Instruct patients to report shortness of breath.



Provide information or resources on  
smoking cessation

# Questions?

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## Appendix B: Evaluation Form

### EDUCATION EVALUATION FORM (PANEL OF EXPERTS)

As a panel expert, please assist in the evaluation of this presentation. Please circle the number beside each statement that best reflects the extent of your agreement. Thank you.

		Disagree			Agree	
<b>Content</b>						
1.	The content was interesting to me.....	1	2	3	4	5
2.	The content extended my knowledge related to HF guidelines and self-care management practices .....	1	2	3	4	5
3.	The content was consistent with the objectives.....	1	2	3	4	5
4.	The content was relevant for nursing staff caring for HF patient's.....	1	2	3	4	5
5.	Objectives were consistent with purpose/goals of activity.....	1	2	3	4	5
 <b>Instructor</b>						
1.	The instructor demonstrated mastery of the topic .....	1	2	3	4	5
2.	The method used to present the material held my attention.....	1	2	3	4	5
3.	How effective was the instructor's teaching method.....	1	2	3	4	5
4.	Was the instructor responsive to questions and feedback.....	1	2	3	4	5
 <b>Instructional Methods</b>						
1.	The instructional material was well organized.....	1	2	3	4	5
2.	The instructional methods illustrated the concepts well.....	1	2	3	4	5
3.	The teaching strategies were appropriate for the activity.....	1	2	3	4	5
4.	The audiovisual presentation was easy to understand .....	1	2	3	4	5

**Comments:**

What recommendation(s) would you make to improve the educational presentation?

## EVALUATION FORM

## EDUCATION EVALUATION FORM (PARTICIPANTS)

As a voluntary participant, please assist in the evaluation of this presentation. Please circle the number beside each statement that best reflects the extent of your agreement. Thank you.

		Disagree			Agree	
<b>Content</b>						
1.	The content was interesting to me.....	1	2	3	4	5
2.	The content extended my knowledge <b>related to HF guidelines</b> and self-care management practices .....	1	2	3	4	5
3.	The content was consistent with the objectives.....	1	2	3	4	5
4.	The content was relevant for nursing staff caring for HF patient's.....	1	2	3	4	5
5.	Objectives were consistent with purpose/goals of activity.....	1	2	3	4	5
 <b>Instructor</b>						
1.	The instructor demonstrated mastery of the topic .....	1	2	3	4	5
2.	The method used to present the material held my attention.....	1	2	3	4	5
3.	How effective was the instructor's teaching method.....	1	2	3	4	5
4.	Was the instructor responsive to questions and feedback.....	1	2	3	4	5
 <b>Instructional Methods</b>						
1.	The instructional material was well organized.....	1	2	3	4	5
2.	The instructional methods illustrated the concepts well.....	1	2	3	4	5
3.	The teaching strategies were appropriate for the activity.....	1	2	3	4	5
4.	The audiovisual presentation was easy to understand .....	1	2	3	4	5

**Comments:**

What recommendation(s) would you make to improve the educational presentation?

## Appendix C: Permission to Use Nurses Knowledge of Heart Failures Education

## Principles Questionnaire

**From:** Albert, Nancy <[ALBERTN@ccf.org](mailto:ALBERTN@ccf.org)>  
**Sent:** Wednesday, March 4, 2020 12:04 AM  
**To:** Mitcheltree, Mary <[Mary.Mitcheltree@carefirst.com](mailto:Mary.Mitcheltree@carefirst.com)>  
**Cc:** Wochele, Amanda <[WOCHELA@ccf.org](mailto:WOCHELA@ccf.org)>; Stamp, Sarah <[stamps@ccf.org](mailto:stamps@ccf.org)>  
**Subject:** DNP Project

**CAUTION:** This email is from an EXTERNAL source. Ensure you trust this sender before clicking on any links or attachments.

Hi Mary.

The NURSE'S KNOWLEDGE tool you seek permission to use is available through our marketplace (there is a fee to use).

So, to receive permission, you must go to our website and click the link for the "Nurses Knowledge of Heart Failure Self Care Questionnaire", or use this link:  
<https://adeoexperts.com/catalog/page/2/>

- The tool has the cost, an agreement form, etc.
- The tool had 2 slight revisions from the original form (revised in 2012 and again in 2016), but the copyright is the original date
- Once purchased, you will receive the revised tool and "correct answer" sheet.
- The terms for use are listed on the website.
- Let me know if you have any questions, I am happy to respond.
- The website is: <https://Adeoexperts.com>; At the top of the site, click "Shop"; then scroll to page 2 (or use the link above!).

Before (or after) you purchase, If you need additional information, just let me know.

PS: There is a discount for students. I've cc'd my colleagues who can send you the discount code!

Best regards,

Nancy

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**Nancy Albert PhD, CCNS, CHFN, CCRN, NE-BC, FAHA, FCCM, FHFA, FAAN** | Associate Chief Nursing Officer - Research and Innovation, Cleveland Clinic Health System & CNS - Kaufman Center for Heart Failure, Heart and Vascular Institute |

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<http://clevelandclinic.org/researchconference>

**From:** Mitcheltree, Mary [<mailto:Mary.Mitcheltree@carefirst.com>]  
**Sent:** Tuesday, March 3, 2020 12:47 PM  
**To:** Albert, Nancy <[ALBERTN@ccf.org](mailto:ALBERTN@ccf.org)>  
**Subject:** [EXT] DNP Project

Hello Dr. Albert,

My name is Mary Mitcheltree. I am a doctoral student at Walden University in the DNP program. I am requesting permission to utilize your NKHFEP tool to assess home infusion nurse's knowledge of heart failure guidelines and patient's self-care practices. I would like to use this tool prior to my staff education project and post implementation to assess if the nurses gained



knowledge from my project. If you grant permission, your tool will be included in my scholarly project and will be implemented at my organization. Thank you for your time and consideration.

Sincerely,

Mary  
Mitcheltree

**From:** "AdeoExperts.com" <[notifications@fetchapp.com](mailto:notifications@fetchapp.com)>  
**Date:** March 3, 2020 at 2:38:07 PM EST  
**To:** [meliza74@aol.com](mailto:meliza74@aol.com)  
**Subject:** Downloads for Order TTL1175  
**Reply-To:** "AdeoExperts.com" <[contactus@adeoexperts.com](mailto:contactus@adeoexperts.com)>

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## Appendix D: Nurses Knowledge of Heart Failures Education Principles Survey

**Nurses Knowledge of Heart Failure Education Principles Survey****Healthcare Instrument****Dear Nurse:**

The attached survey was designed to assess your education needs related to self-management of heart failure. Specifically, we wish to learn your education needs in instructing patients about taking care of themselves in their homes (either after hospital discharge, or in general).

Please complete the following 20 item **yes (true) / no (false)** survey to help us determine your needs.

**Instructions:**

Please answer each question by placing an **X** in the yes or no answer box. If you would like more information on the topic in the question, place an **X** in the box to the left of each question marked *Need more Info on Subject?* If you do not know the correct answer, give us your best guess but please answer every question, even if you requested more information.

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Need more  
Info on subject?

**Question**

**Yes (T) No (F)**

- |                          |  |                          |                          |
|--------------------------|--|--------------------------|--------------------------|
| <input type="checkbox"/> | 1. Patients with heart failure should drink plenty of fluids each day. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 2. As long as no salt is added to foods, there are no dietary restrictions for patients with heart failure. ....   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 3. Coughing and nausea/poor appetite are common symptoms of advanced heart failure. ....   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 4. Patients with heart failure should decrease activity and most forms of active exercise should be avoided. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 5. If the patient gains more than 3 pounds in 48 hours without other heart failure symptoms, they should not be concerned. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 6. Swelling of the abdomen may indicate retention of excess fluid due to worsening heart failure. ....   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 7. If patients take their medications as directed and follow the suggested lifestyle modifications, their heart failure condition will not return. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 8. When patients have aches and pains, aspirin and non-steroidal anti-inflammatory drugs (NSAIDs like ibuprofen) should be recommended. ....   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 9. It is OK to use potassium-based salt substitutes (like No-Salt or Salt Sense) to season food. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 10. If patients feel thirsty, it is OK to remove fluid limits and allow them to drink. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 11. When a patient adds extra pillows at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 12. If a patient wakes up at night with difficulty breathing, and the breathing difficulty is relieved by getting out of bed and moving around, this does not mean that the heart failure condition has worsened. .... | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 13. Lean deli meats are an acceptable food choice as part of the patient's diet. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 14. Once the patient's heart failure symptoms are gone, there is no need for obtaining daily weights. ....   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 15. When assessing weight results, today's weight should be compared with the patient's weight from yesterday, not the patient's ideal or dry weight. ....   | <input type="checkbox"/> | <input type="checkbox"/> |

*The following 5 statements are signs and symptoms that patients may have. Please mark yes or no to reflect if the patient should notify their heart failure physician of these symptoms:*

Need more  
Info on subject?

**Yes No**

- |                          |  |                          |                          |
|--------------------------|--|--------------------------|--------------------------|
| <input type="checkbox"/> | 16. BP recording of 80/56 without any heart failure symptoms. ....                   | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 17. Weight gain of 3 pounds in 5 days without symptoms. ....                         | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 18. Dizziness or lightheadedness when arising that disappears within 5 minutes. .... | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 19. New onset or worsening of fatigue. ....  | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | 20. New onset of worsening leg weakness or decreased ability to exercise. ....       | <input type="checkbox"/> | <input type="checkbox"/> |

**THANK YOU** for completing this survey.

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## Nurses Knowledge of Heart Failure Education Principles Survey

### ANSWER KEY

**Dear Nurse:**

The attached survey was designed to assess your education needs related to self-management of heart failure. Specifically, we wish to learn your education needs in instructing patients about taking care of themselves in their homes (either after hospital discharge, or in general).

Please complete the following 20 item **yes (true) / no (false)** survey to help us determine your needs.

**Instructions:**

Please answer each question by placing an **X** in the yes or no answer box. If you would like more information on the topic in the question, place an **X** in the box to the left of each question marked *Need more Info on Subject?* If you do not know the correct answer, give us your best guess but please answer every question, even if you requested more information.

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Need more Info on subject?	Question	ANSWER KEY	
		Yes (T)	No (F)
<input type="checkbox"/>	1. Patients with heart failure should drink plenty of fluids each day. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	2. As long as no salt is added to foods, there are no dietary restrictions for patients with heart failure. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	3. Coughing and nausea/poor appetite are common symptoms of advanced heart failure. ....	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	4. Patients with heart failure should decrease activity and most forms of active exercise should be avoided. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	5. If the patient gains more than 3 pounds in 48 hours without other heart failure symptoms, they should not be concerned. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	6. Swelling of the abdomen may indicate retention of excess fluid due to worsening heart failure. ....	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	7. If patients take their medications as directed and follow the suggested lifestyle modifications, their heart failure condition will not return. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	8. When patients have aches and pains, aspirin and non-steroidal anti-inflammatory drugs (NSAIDs like ibuprofen) should be recommended. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	9. It is OK to use potassium-based salt substitutes (like No-Salt or Salt Sense) to season food. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	10. If patients feel thirsty, it is OK to remove fluid limits and allow them to drink. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	11. When a patient adds extra pillows at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	12. If a patient wakes up at night with difficulty breathing, and the breathing difficulty is relieved by getting out of bed and moving around, this does not mean that the heart failure condition has worsened. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	13. Lean deli meats are an acceptable food choice as part of the patient's diet. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	14. Once the patient's heart failure symptoms are gone, there is no need for obtaining daily weights. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	15. When assessing weight results, today's weight should be compared with the patient's weight from yesterday, not the patient's ideal or dry weight. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The following 5 statements are signs and symptoms that patients may have. Please mark yes or no to reflect if the patient should notify their heart failure physician of these symptoms:

Need more Info on subject?	Question	Yes	No
<input type="checkbox"/>	16. BP recording of 80/56 without any heart failure symptoms. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	17. Weight gain of 3 pounds in 5 days without symptoms. ....	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	18. Dizziness or lightheadedness when arising that disappears within 5 minutes. ....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	19. New onset or worsening of fatigue. ....	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	20. New onset of worsening leg weakness or decreased ability to exercise. ....	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**THANK YOU** for completing this survey.

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