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Healthier hearts for life: an inpatient support group for individuals with congestive heart failure

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Doctoral Project

HEALTHIER HEARTS FOR LIFE:

AN INPATIENT SUPPORT GROUP FOR INDIVIDUALS

WITH CONGESTIVE HEART FAILURE

by

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DEDICATION

I would like to dedicate this work to my wonderful husband, Thomas, to my very supportive parents, my sisters, Courtney and Alexandra, to my grandmother, and to my academic mentor, Craig Slater.

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ABSTRACT

Congestive heart failure (CHF) is a prevalent disease that leads to frequent hospital admissions secondary to its disabling symptoms (Shafazand et al., 2015). Despite a substantial amount of research available regarding CHF, this disease is still perplexing because it remains one of the most prevalent and costly diseases worldwide (Jonkman et al., 2016; Shao, et al., 2013). Even though many interventions have been researched for CHF, it is often poorly managed. Almost 25% of patients are readmitted to hospitals within 30 days from their initial admission (Kilgore et al., 2017) and approximately 50% are readmitted within 6 months (O'Connor, 2017). Research studies have typically focused on outpatient, home, and post-inpatient settings which neglects the inpatient setting where patients often spend much time. Therefore, this setting should be a focal interest for research. Consequently, the *Healthier Hearts for Life Pilot Program* was developed to address this gap.

This program is an interprofessional, inpatient support group for patients with CHF that are considered high risk for readmission. This program is led by occupational

therapists but involves many other healthcare professionals. The program's overall goal is to increase participants' feelings of self-efficacy for managing their CHF by providing participants with education and hands-on learning opportunities. This program adopts a Social Cognitive Theory (Bandura, 1989) lens to understand the problem, while interventions were guided by the Transtheoretical Model (Prochaska & DiClemente, 1983). Additionally, interventions were based on advantageous, evidence-based findings from the literature of the various medical professions. Overall, this program was designed to support patients to be more competent in the management of their CHF by targeting 'heart healthy' behaviors and lifestyle changes in order to reduce readmissions.

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LIST OF ABBREVIATIONS

ADL	Activities of Daily Living
CHF	Congestive Heart Failure
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CSE Scale	Cardiac Self-Efficacy Scale
HIPAA	Health Insurance Portability and Accountability Act
IADL	Instrumental Activities of Daily Living
IRB	Institutional Review Board
SCT	Social Cognitive Theory
SES	Socioeconomic Status
TTM	Transtheoretical Model

CHAPTER ONE: Introduction

Congestive Heart Failure

Congestive heart failure (CHF) is a prevalent disease that leads to frequent hospital admissions secondary to its disabling symptoms (Shafazand, Patel, Ekman, Swedberg, & Schaufelberger, 2015). Symptoms of CHF include, "shortness of breath (also called dyspnea), persistent coughing or wheezing, buildup of excess fluid in body tissues (edema), fatigue, lack of appetite, nausea, confusion, impaired thinking, and increased heart rate," (American Heart Association, 2017a, para. 1). CHF is a "condition in which the heart muscle is unable to pump enough blood to meet the body's needs for blood and oxygen," (American Heart Association, 2017b, para. 1).

CHF often impacts an individual's ability to engage in meaningful occupations due to reduced tolerance and endurance in functional activities. This often leads to decreased community access, and decreased social participation, which can be risk factors for depression. Other factors which impact people with CHF are socioeconomic status, home and community environments, and psychological factors.

Unfortunately, this disease not only impacts the individuals that have it but it also impacts the U.S. healthcare system. CHF has become a major financial burden on the healthcare system, especially given that nearly 25% of patients with CHF are readmitted to hospital within 30 days of discharge (Kilgore, Patel, Kielhorn, Maya, & Sharma, 2017) and approximately 50% are readmitted within six months (O'Connor, 2017). When a patient is readmitted to a hospital within thirty days from their initial discharge, the hospital becomes financially responsible for covering that patient's hospital stay due to

penalties imposed through the Hospital Readmissions Reduction Program (Hobbs, Escutia, Harrison, Moore, & Sarpong, 2016).

As it is now evident, many patients with CHF are struggling to manage their disease at home which has resulted in high hospital readmission rates. This national and international problem needs to be approached in a different way because current efforts to reduce readmissions, such as through imposed financial penalties, have not led to significant population-wide improvements in CHF management.

Medical Treatment for CHF

Medical intervention is typically the focus of CHF management in the hospital setting. Diuretics are often prescribed by the medical team to aid in the removal of the excess fluid and address the symptoms of heart failure. Diuretics often cause a reduction in edema, weight loss, and decreased venous pressure (Tannenbaum & Johnell, 2014). As a result, patients are often given urinary catheters to monitor the amount of urine being produced, and to more easily manage the increased urine output caused by the diuretics. Catherization can lead to a complication known as catheter-induced urinary tract infection which can cause pain, fever and vomiting among other symptoms (Tannenbaum & Johnell, 2014). In addition, patients that have urinary catheters tend to spend most of their time in bed because they do not need to physically go to the bathroom to urinate. This leads to decreased mobility and can result in even more adverse effects.

Other common treatments that are implemented in the hospital for patients with CHF include limiting patients' fluid intake (fluid restriction), tracking patients' daily weight to assess fluid retention, and providing patients with a 'heart healthy' diet

(American Heart Association, 2017a). While these treatment techniques are implemented in the hospital, patients often do not continue to maintain these lifestyle changes at home. Additionally, the importance of maintaining these lifestyle changes is often not addressed by the interprofessional team. Patients may also experience difficulties maintaining these changes due to financial barriers to buying 'heart healthy' foods at home. Therefore, patients are often readmitted to hospitals within short timeframes from their initial discharges from the hospital secondary to poor management of their disease at home.

Decreased Mobility During Hospitalization

Patients who are hospitalized due to CHF exacerbations can experience decreased mobility or immobility secondary to many factors during their hospital stay. For example, urinary catheters often reduce patients' mobility because they no longer need to get out of bed to go to the bathroom to urinate. This results in more time spent in the bed.

Frall prevention approaches can also lead to decreased mobility. Nursing staff or certified nursing assistants often use bed alarms with patients who have a high fall risk, so that the patient will not get up out of bed unless a staff member is present. This contributes to more time spent in the bed because staff members are not always accessible when a patient wants to get out of bed.

Decreased mobility can lead to other obstacles that a patient may encounter during their hospital admission. According to Stall (2012), immobility and long periods of bedrest can lead to many adverse outcomes such as functional decline, deep vein thrombosis, and pressure ulcers. It may also lead to "hospitalization- associated disability" in which an individual loses his or her "ability to complete one or more of the

basic activities needed to live independently, such as bathing, dressing and using the toilet" (Stall, 2012, p. 1666). These complications can lead to increased length of stay in the hospital. Patients may also require rehabilitation services once discharged from the hospital in order to address complications resulting from decreased mobility (Stall, 2012).

Socioeconomic Status, Environmental and Psychological Factors

Patient's ability to manage their CHF is multi-faceted and is influenced by many non-medical factors. Other considerations that must be accounted for when treating this population are socioeconomic status (SES), environmental and psychological factors. SES factors can be categorized as "education, occupation, employment relations, social class, income, housing characteristics, total assets, composite indicators, and area level measures," (Hawkins, Jhund, McMurray, & Capewell, 2012, p. 139). When looking at income, some patients with CHF may no longer be able to work due to the impact of their symptoms and, therefore, they may receive a social security disability allowance. This can affect where a patient resides, what groceries an individual can purchase, and the neighborhood a patient can afford to live in. If there is high neighborhood crime or inadequate recreational areas, a person with CHF will likely have reservations about mobilizing in the community. In addition, a fixed income can inhibit a person from affording housing that is conducive to their physical needs. Consequently, this can impact whether or not patients can afford physical assistance. All of these factors could contribute to isolation because an individual may not be able to handle the physical limitations of their residence such as stairs which can make a person become homebound.

Depression is also common for patients with CHF (Richardson, 2003). According

to Richardson (2003), “Patients with CHF who are depressed or who lack social support have been shown to have increased morbidity and hospital readmission rates, to be less adherent to their medical regimen, and to have an overall increase in cost of care” (p. 19). In addition, it is important to consider a patient’s locus of control and their religious beliefs because these can be major influences on a patient’s decisions regarding the management of his or her disease. These examples illustrate how SES, environmental, and psychological factors can impact an individual’s ability to maintain ‘heart healthy’ promoting activities. Therefore, when patients with CHF are being treated in hospitals, all healthcare professionals must look at these important contributing factors.

Poor Management of CHF at Home

This doctoral project addresses the issue of frequent readmissions of patients with CHF due to lifestyle factors and disease-management challenges at home. As many patients are cyclically readmitted to hospitals for the management of their CHF symptoms, it is apparent that a solely medical approach to managing CHF is not an optimal approach. Management of CHF through lifestyle changes and healthy heart behaviors at home is required to effect better outcomes.

Patients’ poor management of their CHF at home is a major problem because this often leads to hospitalizations/ readmissions. This problem is impacting patients, their families, and/ or their caregivers. Additionally, this problem is heavily impacting the healthcare system due to the financial costs associated with admissions/readmissions. Decreasing a patient’s number of hospitalizations is imperative because hospitalizations can lead to adverse consequences for a patient during their hospital stay, as previously

mentioned (Stall, 2012). Decreased hospital admissions will also lead to less emotional, physical, and financial strain on a patient and his or her family which can result from a hospital admission. For example, a hospital admission can lead to a patient requiring increased physical assistance from their family as a result of weakness that can result from a hospital admission and CHF symptoms. If a patient requires physical assistance which a family member cannot provide or if there is limited family support, the patient may require admission to a rehabilitation facility post discharge from the hospital to address physical limitations related to CHF as well as those that resulted from deconditioning experienced during their hospital admission.

CHF and Occupational Therapy

Any hospital admission for a patient with CHF will directly impact the interprofessional team of healthcare professionals responsible for that patient's care including the occupational therapists. This team of healthcare professionals collaboratively work with these patients to manage their symptoms and to ensure that each patient has a safe discharge from the hospital. This problem of patients' poor management of their CHF in the home setting directly affects occupational therapists, who are responsible for evaluating all occupational therapy domains during their evaluations. Occupational therapists utilize the *Occupational Therapy Practice Framework (OTPF): Domain and Process* (American Occupational Therapy Association, 2014), which provides explanations for concepts that the profession focuses on during clinical practice. Occupational therapists assess an individual's occupations, client factors, performance skills, performance patterns, and how their context and

environments either contribute or impede his or her daily occupations which are all components from the OTPF (American Occupational Therapy Association, 2014). Poorly controlled CHF can lead to increased weakness, decreased functional activity tolerance, and decreased balance, which negatively impact an individual's body functions, body structures, performance skills, and performance patterns (American Occupational Therapy Association, 2014). As a result, all of these consequences affect a patient's ability to perform their activities of daily living (ADL), also known as self-care activities, safely and independently, which is the core of occupational therapy (American Occupational Therapy Association, 2014). The contexts and environments within hospital settings are not conducive to all patients' needs. The lack of accessibility to the nursing staff, bathrooms, chairs, windows, hallways, and temperature controls are just a few examples of problems that patients often experience in hospitals. Patients also have decreased socialization because they are often confined to their rooms. Patients with decreased mobility are often limited or impeded from performing their daily routines including their ADL and their professional or individual roles

Key Factors Responsible for Poor Management of CHF at Home

There are many factors that contribute to patients' poor management of their CHF at home. Lack of patient, family, and/or caregiver education appears to be one of the most significant factors influencing CHF self-management. Unfortunately, many patients are not educated about how they can manage their disease and the negative consequences of poor management (Fradette, Bungard, Simpson, & Tsuyuki, 2014; Hope, Wu, Tu, Young, & Murray, 2004). For example, patients are often not educated about 'heart

healthy' diets and behaviors, exercise, energy conservation techniques that can be implemented during their ADL, instrumental activities of daily living (IADL), which are considered community and household activities, work, play, and/or leisure tasks.

Another contributing factor to patients' poor CHF management includes lack of encouragement and/or opportunities for patients to mobilize during their hospital stay which is carried over when they go home (Doherty-King & Bowers, 2013; Teodoro, 2013). For example, bed alarms discourage patients from mobilizing and often promote long periods of bedrest because patients are afraid of getting reprimanded by the hospital staff for setting off the alarm. Additionally, many hospital units do not have enough medical equipment to promote safe patient mobilization such as rolling walkers and canes. Lastly, hospital staff are habitually too busy or understaffed to assists patients with their mobility. All of these events that occur during a patient's hospital stay end up influencing a patient's behavior and/or management of one's CHF once they are discharged home from the hospital.

Additional contributing elements to the problem of patients' poor management of CHF at home include lack of patient education and knowledge about community resources, adaptive equipment, and environmental modifications that would make one's home atmosphere more conducive to their physical needs (Dahrouge et al., 2018). Some of the major community resources that this population would benefit from, especially if the individual is receiving social security disability services, include transportation services such as MTA Mobility Link which provides transportation at low costs for individuals with disabilities (Maryland Department of Transportation, n.d.), cardiac

rehabilitation, and Meals on Wheels. There are numerous services available for this population but they are often uninformed about these options and how to enroll in such services and/or programs.

Many factors during an individual's hospital stay can impact how they manager their disease at home. As previously mentioned, there is a lack of education being provided to patients with CHF. Therefore, many patients do not know how to monitor their symptoms, what to do if their symptoms begin to worsen, what to eat, what 'heart healthy' lifestyle behaviors are, and what community services they can benefit from. Lack of education has heavily contributed to this CHF problem. If a person does not know how to manage his or her disease, it is inevitable that they will return to the hospital time after time, and the discharge-readmission cycle perpetuates.

Proposed Solution

The Healthier Hearts for Life Program was developed for this doctoral project to address this problem of patients' poor management of their CHF at home. Core elements of this program include educating patients about the symptoms of CHF and how to better manage their disease within the home setting by discussing the consequences of poor management of CHF at home. Additionally, patients will be educated about energy conservation strategies that can be implemented during their ADL and IADL, home environmental modifications, adaptive equipment, home exercise regimens, and community support services. This will be accomplished via handouts, videos, PowerPoint presentations, group discussions, and hands-on opportunities to practice what the participants were taught during each session. Another key element of this program is

support. Participants will receive support from the group facilitators, all healthcare professionals involved in this program, and their peers during the inpatient support group sessions. In summary, knowledge and support are the core components of this inpatient support group. This program hypothesizes that patients that receive education during their hospitalization along with continued support will have better outcomes including increased CHF knowledge and consequently will become less reliant on hospitals resulting in decreased hospital readmissions.

CHAPTER TWO: Theoretical Basis of the Problem

Explanatory Model

This doctoral project addressed the problem of patients' poor management of their CHF at home. An explanatory model was developed to understand the problem. The explanatory model presented in *Figure 2.1* outlines how two factors heavily impact an individual's management of their CHF at home. The first factor is patient education about CHF. It is important that a people with CHF understand how to monitor their symptoms, recognize when their symptoms are worsening, know what to do when this happens, and know 'heart healthy' lifestyle behaviors that enable them to manage their disease at home. The other element is one's social factors. These include factors such as one's SES, income, community and home environments, and community accessibility. The explanatory model displays how lack of education about CHF and poor social factors can lead to poor management of one's CHF resulting in an exacerbation of symptoms and ultimately hospital admissions and/or readmissions.

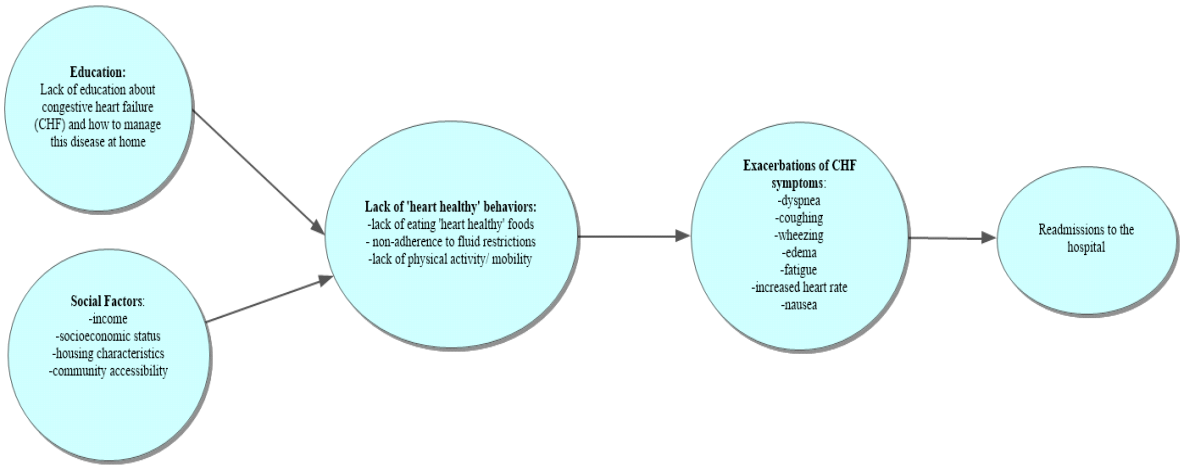

Figure 2.1. Explanatory model of the problem, patients' poor management of their CHF at home.

The explanatory model depicts the problem that patients are often poorly educated about how to manage their CHF symptoms while they are hospitalized, which leads to poor management at home. This is evident by the high levels of hospital readmissions of people with CHF. During their hospital stay, patients' fluid intake is monitored and they are restricted from ordering foods that are not considered to be 'heart healthy.' They are also being encouraged to move by the physical therapists, occupational therapists and the nursing staff. However, once they are discharged home they are no longer monitored by the hospital staff, and all food options are available to them. Often, there is little education provided to patients about continuing these 'heart healthy' behaviors at home, and consequently, these patients eat foods that are not 'heart healthy' and they do not follow their fluid restrictions. In addition, social factors such as income, an individual's SES, their housing characteristics, and restrictions to community accessibility may limit these individuals from being able to purchase 'heart healthy' foods and/or partake in other 'heart healthy' behaviors. Consequently, the lack of 'heart healthy' behaviors bring on exacerbations of one's CHF symptoms. As previously mentioned in chapter one, these symptoms may include, "dyspnea, coughing, wheezing, edema, fatigue, increased heart rate, or nausea," (American Heart Association, 2017a, para.1). Consequently, these patients are readmitted to the hospital in order to manage these symptoms.

Conceptual Framework

The conceptual theoretical framework that guided this doctoral project was the Social Cognitive Theory (SCT) (Bandura, 1989). Albert Bandura created the SCT to explain how learning occurs (Grusec, 1992). The SCT has many components because it

takes into account the complexity of humans (Bandura, 1989). For example, the SCT examines an individual's personal factors, motivational factors, physical abilities, and sense of self-efficacy that encompass an individual's behavior (Bandura, 1989). In addition, the SCT integrates both social and cognitive theories (Grusec, 1992). Therefore, it has been incorporated into interventions that focus on changing health behaviors such as physical activity levels and dietary habits (Annesi, Walsh, Greenwood, Mareno, & Unruh-Rewkowski, 2017; Sevick et al., 2018; Zolghadr et al., 2019). In light of this, the SCT is an appropriate theoretical framework to understand the problem of frequent hospital readmissions of people with CHF.

Societal Assumptions and SCT Principles and Concepts

The SCT has various components that support societal assumptions about the environment impacting an individual's behavior. For example, the assumption that people learn new behaviors by watching others is supported by Bandura's concept of modeling (Grusec, 1992). Modeling is a learning method used to obtain a new behavior by watching another person engage in that behavior (Bandura, 1989). In addition, this assumption can be supported by another component of the SCT known as vicarious learning; that is, learning by observing the behaviors of others and the consequences that follow those behaviors (Bandura, 1989). The assumption that, "behavior is largely controlled by external social influences," is also supported by Bandura's concept of modeling and vicarious learning (Bandura, 1989; Cohn & Coster, 2013, p. 481). In summary, Bandura's concepts of modeling and vicarious learning support assumptions that favor the idea that behaviors result from environmental influences.

According to the SCT, a change in an individual's behavior is influenced by multiple factors (Bandura, 1989). SCT puts forth the concept of triadic reciprocal causation/determinism. "Triadic reciprocal determinism argues that behavior, the environment, and cognition as well as other personal factors operate as interacting determinants that have a bidirectional influence on each other," (Grusec, 1992, p. 782). In simpler terms, Bandura purported that an individual's behavior, the environment, and personal factors can influence or be influenced by one another (Grusec, 1992). This explains that a change in behavior is multifactorial.

Another factor that determines an individual's change in behavior is the concept of self-efficacy. Self-efficacy is an individual's level of belief that he or she can complete a task (Grusec, 1992). Therefore, self-efficacy can either inhibit (poor sense of self-efficacy) or facilitate (strong sense of self-efficacy), an individual's change in behavior (Bandura, 1989).

It is important to note that Bandura's explanation of modeling is much more complex than just watching and imitating. Bandura explained that there are four components that encompass the process of modeling: attention, retention, reproduction, and motivation (Grusec, 1992). First, the observer must pay attention to the new behavior being performed. Next, the observer must retain this behavior to memory (Grusec, 1992). After that, the observer determines if he or she has the ability to apply the motor functions required to reproduce the actions that compose this behavior (Grusec, 1992). Finally, the observer must be motivated to perform the new behavior. In order for modeling or a change in behavior to occur these four components must be successfully

completed (Grusec, 1992). In addition, if a person has a strong sense of self-efficacy, the change in behavior is more likely to occur.

As aforementioned, a change in behavior is multifactorial and this is supported by the SCT. This notion is displayed in *Figure 2.1*, the explanatory model. This model demonstrates that an individual's education and social factors such as income, SES, housing characteristics, and community accessibility can have a tremendous impact on an individual's management of his or her CHF. Consequently, these social and educational factors can act as barriers preventing individuals with CHF from engaging in 'heart healthy' behaviors which will consequently lead to exacerbations of CHF and ultimately result in a hospital admission. These educational and social factors are catalysts for hospital readmissions amongst this population. As it is now evident, the SCT is an appropriate theoretical lens to examine this CHF problem.

Literature Review Regarding the Problem

A literature review was conducted to identify and synthesize the evidence relating to components of the explanatory model. The literature review explored three research questions:

1. *Is there evidence that people with CHF have increased readmission rates?*
2. *What are the reasons why people with CHF present to hospitals?*
3. *Why do people with CHF have trouble managing their disease at home?*

Three databases were searched to find relevant articles for each of the three questions. The PubMed database was searched because this database includes journal articles from various disciplines such as nursing, medicine, and healthcare fields. In order

to understand why individuals with CHF are being readmitted to hospitals, one must understand CHF in general. Articles in PubMed will likely have a medical focus and will be useful in developing a good understanding of the medical aspects of CHF. Additionally, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and PsycINFO databases were also searched because these databases include journal articles from various healthcare disciplines. In order to better understand why individuals with CHF present to hospitals, it is best to search the various healthcare fields. Also, articles in the rehabilitation disciplines, such as occupational therapy and physical therapy, are often found in CINAHL, and will be useful in understanding the functional and social aspects of CHF. Searches were narrowed to include only evidence-based, research articles, peer reviewed articles, and excluded dissertations.

A search strategy using key terms was employed when searching for articles in the databases. Examples of the search terms used are presented in *Table 2.1, Table 2.2*, and *Table 2.3*.

Table 2.1. *PsycINFO and CINAHL search terms for Research Question 1*

CHF (Title)		**Re-admission** (Title/Abstract)		**Hospital** (Title/Abstract)
"chronic heart failure" OR "congestive heart failure" OR "acute heart failure" OR "heart failure"	AND	"re-admission" OR "re-admitted" OR "re-admit" OR "re-presentation" OR " re-presented" OR "re-present" OR "re-hospitalization" OR "re-hospitalized"	AND	Hospital OR "emergency department" OR "emergency room" OR "acute care" OR "acute hospital" OR casualty

Table 2.2. *PubMed search terms for Research Question 2.*

CHF (Title)		**Present** (Title)		**Hospitals** (Title)		**Symptoms** (Title/ Abstract)
"chronic heart failure" OR "congestive heart failure" OR "acute heart failure" OR "heart failure"	AND	Admission OR Admit OR admitted OR present OR presented OR presentation OR hospitalized OR hospitalization	AND	Hospital OR "emergency department" OR "emergency room" OR "acute care" OR "acute hospital" OR casualty	AND	"shortness of breath" OR dyspnea OR fatigue OR weakness OR swelling OR edema OR coughing OR wheezing

Table 2.3. *PsycINFO and CINAHL search terms for Research Question 3.*

CHF (Title)		**Management** (Title)		**Home** (Abstract)		**Qualitative** (Abstract)
"chronic heart failure" OR "congestive heart failure" OR "acute heart failure" OR "heart failure"	AND	Management OR maintenance OR "symptom control"	AND	Home OR community OR "post-discharge"	AND	Qualitative OR interviews or "focus groups

A set of inclusion criteria was used to determine applicable research articles for each research question utilized in the literature review. These criteria are presented in *Table 2.4*. The first two research questions were based on quantitative studies while the last research question focused on qualitative studies because this question was focused on the CHF patient population. In order to better understand this population's struggles, qualitative research was examined to get both patients and caregivers experiences managing this disease in the home setting.

Table 2.4. *Criteria for research questions*.

Criteria for Research Questions 1, 2, & 3
1. Is there evidence that people with CHF have increased readmission rates? • Must have CHF diagnosis upon admission to the hospital • Re-admitted within the last 3 months for CHF diagnosis (i.e. CHF exacerbation) • Studies must be on readmissions NOT initial admission • Quantitative studies • Must be in peer-reviewed journals • Must be in English
2. What are the reasons why people with CHF present to hospitals? • Diagnosis of CHF upon admission to the hospital • Can be initial admission to the hospital or readmission to the hospital • Must be in peer-reviewed journals • Must be in English
3. Why do people with CHF have trouble managing their disease at home? • CHF diagnosis • Must be qualitative studies • Must be in peer-reviewed journals • Must be in English

Appendix A displays the summary tables of evidence which displays the articles that were appraised for each of the three research questions utilized in the literature review. It is important to note that titles of the research articles that were generated based upon the search terms were reviewed first. If the article seemed applicable based upon their titles then the abstracts were reviewed to determine their applicability.

Synthesis of the Evidence from the Literature Review

Lack of Education and Its Impact on the Problem

As aforementioned, lack of education is a major contributor to why patients with CHF are being readmitted to the hospital. CHF does not discriminate and, therefore, any

person can be diagnosed with CHF. That being said, interprofessional healthcare members collaborating with individuals that have CHF must account for each individual's holistic differences. Consequently, a vague description or discussion about CHF does not allow these individuals and their caregivers to understand what is expected of them and how to properly manage this disease at home. The most common reasons that people have trouble managing their CHF at home include insufficient disclosure of their diagnosis, insufficient education about their disease, symptoms, and ways to manage them at home, along with uncertainty regarding their care plan secondary to vague instructions or lack of collaboration with the doctors and the interprofessional team member (Schumacher, Hussey, & Hall, 2018; Sevilla-Cazes et al., 2018; Simmonds et al., 2015; Namukwaya, Grant, Downing, Leng, & Murray, 2017). Additionally, when individuals with CHF relied on their caregivers for assisting them with their management of this disease at home, the caregivers often experienced or felt the same way as the patients did regarding their lack of education to properly manage the disease symptoms at home. When individuals with CHF relied on their caregivers for managing their CHF at home, the caregivers often struggled the most when they experienced a lack of training and/ or education about HF management, the care plan, and/ or self-care which often led to uncertainty (Burke, Jones, Ho, & Bekelman, 2014; Sterling et al., 2018; Wingham et al., 2015).

Social Factors Contributing to the Problem

Social factors can also be major contributors as to why patients with CHF are being readmitted to the hospital. Many patients with CHF eventually qualify for Social

Security disability benefits as their disease progresses and symptoms become more intense. Therefore, a lot of people with CHF are on a fixed income which can impact the foods that they are able to purchase. According to Rehel (2013), “eating a healthy diet vs. an unhealthy one costs about $1.50 more a day, which might not sound like much, but works out to more than $2,000 more per year on the average family of four's grocery bill,” (A Healthy Diet vs Unhealthy Diet section, para. 1). In addition, people with a fixed income tend to live in lower socioeconomic areas which can also impact their CHF symptoms. For example, according to Mather and Scommegna (2017), “living in disadvantaged neighborhoods—characterized by high poverty—is associated with weak social ties, problems accessing health care and other services, reduced physical activity, health problems, mobility limitations, and high stress,” (How Neighborhoods Affect the Health and Well-being of Older Americans section, para. 2). Lastly, housing characteristics can impact a patient’s disease. For example, the number of stairs can severely impact an individual’s feelings of SOB and in extreme cases lead to people being home-bound which limits an individual’s mobility. It is evident that social factors have a considerable impact on an individual’s lifestyle and, consequently, health behaviors.

Lack of ‘heart healthy’ behaviors is also a common reason for rehospitalizations amongst people with CHF. Lack of adherence to salt and fluid restrictions are major risk factors for hospital readmissions (Andrietta, Lopes Moreira, & Bottura Leite de Barros, 2011). Additionally, lack of medication adherence, exercise, weight control, and diet control are also risk factors for rehospitalization (Andrietta et al., 2011). Patients that

have unhealthy vital sings such as increased heart rates, worsening orthopnea, and low systolic blood pressures are at higher risk for rehospitalization (Gheorghiade et al., 2102). Readmission rates are also higher amongst people with CHF that have decreased renal function and/ or a renal disorder (Bradford, Shah, Shane, Wachi, & Sahota, 2017; Gheorghiade et al., 2012). Lastly, rehospitalization is found to be higher in individuals with CHF that have a history of hospitalization for CHF exacerbations (Andrietta et al., 2011; Bradford et al., 2017; O'Connor et al., 2016). As it is now evident, lack of 'heart healthy' behaviors can lead to exacerbations of CHF symptoms which can ultimately lead to re-hospitalization.

When individuals with CHF symptoms do not engage in 'heart healthy' behaviors their symptoms exacerbate. As previously mentioned in Chapter 1, these symptoms can range from, "dyspnea, coughing, wheezing, edema, fatigue, increased heart rate, or nausea," (American Heart Association, 2017a, para. 1). Consequently, people that have exacerbations of CHF often present to hospitals with complaints of orthopnea, cough, edema, and dyspnea, which is the most popular reason/ symptom for hospital admissions (Born, Azzolin, & Nogueira de Souza, 2019; Claret et al., 2016; Darling et al., 2013; Fraticelli, Gesuita, Vespa, & Paciaroni, 1996; Wu et al., 2016). Other symptoms include fluid retention which can be seen as peripheral or pulmonary edema (Claret et al., 2016; Darling et al., 2013). Additionally, angina, fatigue/ tiredness, nausea, weight gain, cough, and bloating are common complaints for people with CHF upon their presentation to the hospital (Claret et al., 2016; Darling et al., 2013; Wu et al., 2016). People with CHF present to the hospitals with vitals sigs that reflect hypertension and atrial fibrillation or

flutter (Darling et al., 2013; Fraticelli et al., 1996). Lastly, patients with CHF often present to the hospital with preserved and decreased left ventricular systolic function (Malki et al., 2002). As it is now evident, people with exacerbations of CHF often present to hospitals for many reasons.

Existing Literature and Previous Attempts to Address the Problem

Based upon a review of the literature, people with CHF have been extensively studied within hospital settings by nurses and medical doctors. These studies primarily consisted of retrospective reviews, systematic reviews, and meta-analyses. Common themes identified in the literature regarding reasons as to why people with CHF had trouble managing their disease at home included lack of education and effective communication with patients and caregivers prior to their discharge from the hospital (Schumacher et al., 2018; Sevilla-Cazes et al., 2018; Simmonds et al., 2015; Namukwaya et al., 2017). Lack of education and effective communication with patients and caregivers often led to behaviors that were not 'heart healthy' which often resulted in CHF exacerbations and rehospitalizations. The literature supports that this snowball effect is continuing to happen amongst this population (Schumacher et al., 2018; Sevilla-Cazes et al., 2018; Simmonds et al., 2015; Namukwaya et al., 2017). It appears that the current CHF interventions and treatments are not suitable for this population due to their ineffectiveness evident by the high readmission rate for this population.

Popular interventions tend to focus on the use of medications such as diuretics in order to help remove the excess fluid (Tannenbaum & Johnell, 2014). As a result, diuretics often cause a reduction in edema, weight loss, and decreased venous pressure

(Tannenbaum & Johnell, 2014). Additionally, medical procedures such as coronary artery bypass grafts, heart valve surgeries, and plantable left ventricular assistive device placements are common. Hence, it can be deduced based upon the high readmission rate for this population, that many of the current treatment interventions are only providing the individuals with a medical solution for their CHF exacerbations and may not address key lifestyle or self-management issues fundamental to long-term CHF management at home.

It appears that there is a gap in the literature regarding proper education for management of CHF symptoms at home and in the community. As previously mentioned, most of the literature regarding CHF has been created by nurses and medical doctors. Therefore, more healthcare specialists should get involved in the care with this population in order to provide them with comprehensive education. Occupational therapists, physical therapists, registered dietitian nutritionists, social workers, case managers, and pharmacists appear to be missing links in the education of CHF management. These healthcare specialists, in addition to the nurses and doctors, could provide education about symptoms and how-to manage this disease, community resources, home management strategies, and increasing one's ability to advocate for himself or herself since these appear to be important topics that were identified as areas that led to hospital readmissions. Thus, new interprofessional interventions that target 'heart healthy' behaviors and lifestyle changes warrant trial and investigation. Moreover, healthcare employees in the hospital need to shift their treatment views for people with CHF from a reactive, short-term solution lens to a proactive, long-term solution lens in

order to better meet the needs of their patients.

CHAPTER THREE: Evidence-Base Informing the Project

Literature Review of Evidence-Based Interventions

A second literature review was completed to explore the evidence supporting interventions which are used in CHF support programs. Three research questions were addressed in this review:

1. *How effective are non-medical interventions used in CHF self-management programs?*
2. *What evidence is there that increasing self-efficacy for CHF management leads to decreased hospital admissions?*
3. *What evidence is there that inpatient hospital CHF programs can lead to successful self-management at home?*

In order to search the current approaches and methods that are most commonly utilized in the treatment and management of CHF, various articles were reviewed from different disciplines. These disciplines include nursing, medicine, and rehabilitation sciences. Rehabilitation sciences included occupational therapy, physical therapy, physiotherapy, dietary, nutrition, and speech language pathology. The databases used in order to search for these articles were CINAHL, PsycINFO, and PubMed. Searches were narrowed to include only evidence-based, research articles, peer reviewed articles, and excluded dissertations.

Again a search strategy was used to identify relevant articles. Examples of search terms used in this literature are presented in *Table 3.1, Table 3.2*, and *Table 3.3*.

Table 3.1. *PubMed search terms for Research Question 1.*

CHF (Title)		**Rehabilitation** (Title/Abstract) **Abstract)**		**Management** (Title/Abstract)
"chronic heart failure" OR "congestive heart failure" OR "acute heart failure" OR "heart failure"	AND	"Non-medical" OR "non-surgical" OR rehabilitation OR "occupational therapy" OR "physical therapy" OR "physiotherapy" OR "nutrition" OR "dietician" OR "speech language pathology" or "speech pathology" or "speech therapy" OR "language therapy" OR "social work"	AND	"self-management" OR "symptom management"

Table 3.2. *CINAHL and PsycINFO search terms for Research Question 2*

CHF (Title)		**Self-efficacy** (Abstract/Title)		**Admissions** (Abstract/Title) **Title)**		**Self-management** (Abstract/Title)
"chronic heart failure" OR "congestive heart failure" OR "acute heart failure" OR "heart failure"	AND	"self-efficacy"	AND	Admission OR Admit OR admitted OR present OR presented OR presentation OR hospitalized OR hospitalization	AND	"Self-management"

Table 3.3. *PubMed search terms for the Research Question 3*

CHF (Title)		**Inpatient** (Title)		**Programs** (Title)		**Self-management** (Title)
"chronic heart failure" OR "congestive heart failure" OR "acute heart failure" OR "heart failure"	AND	Inpatient OR hospital OR "acute care" OR "acute hospital" OR "inpatient rehabilitation" OR "inpatient rehab" OR "sub-acute"	AND	Program* or session* or group*	AND	"Self-management"

Synthesis of the Evidence to Support CHF Management Approaches

Although there is a substantial amount of research available regarding CHF, this disease is still perplexing because it remains one of the most prevalent and costly diseases worldwide (Jonkman et al., 2016; Shao, Chang, Edwards, Shyu, & Chen, 2013). Even though many medical and non-medical interventions have been researched for this disease, the best ways to intervene remain ambiguous. This is a result of inconsistent findings and gaps within the CHF literature (Jonkman et al., 2016). A majority of the research appears to have been done with patients in the outpatient, home, and post-inpatient settings. This is problematic because people with CHF often spend much time in the inpatient setting and therefore this setting should be a focal interest for research. Despite the inconsistencies and ambiguities found within the research, there appears to be some prevalent themes regarding advantageous and disadvantageous interventions for CHF management that have been examined.

Influence of Age on Patient Outcomes

Age appears to be an important factor in the outcomes of CHF patients. People with CHF that were less than sixty-five years old were discharged earlier than patients with CHF that were older than sixty-five years old (Jonkman et al., 2016). Additionally, Jonkman et al. (2016) discovered via their meta-analysis of self-management interventions that patients that were younger than sixty-five years old also benefited more from self-management interventions than people that were older than sixty-five years old. According to Jonkman et al. (2016) people with CHF that are sixty-five years old or older tend to have an increased risk for having comorbidities and some form of cognitive or functional decline. This explains why younger people with CHF usually have better outcomes. Jonkman et al. (2016) even cautioned the use of self-management interventions with patients that were older and/ or had more complex medical situations such as moderate to severe depression, because these patients could be unstable post-discharge from the hospital and have an increased rate for mortality. Careful consideration of intervention approaches is, therefore, necessary, especially for older adults with co-morbidities.

Importance of Non-Medical Interventions

There is a growing body of evidence which indicates the importance of non-medical interventions utilized in CHF self-management programs. For example, according to Tiede et al. (2017), a telephone-based health coaching intervention led to increased healthy behaviors amongst patients with CHF such as increased participation in physical activity and less consumption of unhealthy foods. Tiede et al. (2017) attributed

this change of increased engagement in healthy behaviors a result of the participants' shifts in their locus of control to be more externalized instead of internalized. Additionally, Welsh et al. (2013) also found that home visits and/or phone calls to be an effective strategy to ensure that patients are adhering to their self-management behaviors for their CHF.

Other research studies similarly discovered that non-medical interventions can be effective with patients with CHF. For example, Musekamp et al. (2017), Glatz, Muschalla, & Karger (2014), and Welsh et al. (2013) found that interventions focused on patient education are essential for self-management programs for patients with CHF. Welsh et al.'s (2013) study discovered that patient education was effective in reducing patient's sodium intake. In Musekamp et al.'s (2017) study, patients were educated about the importance of self-management skills such as engaging in exercise, social counseling, relaxation activities, and having psychological support. It is important to point out that Musekamp et al.'s (2017) research study utilized non-medical interventions in conjunction with medical interventions. However, Musekamp et al. (2017) highlighted the importance of implementing non-medical interventions such as patient education, with an emphasis on sustainability and suitability in order to align with each patient's lifestyle. These interventions resulted in improvements in self-management behaviors in the short- and intermediate term. The authors also suggested that further improvement may only become evident in the long-term. Further study of this is warranted.

Meng et al. (2016) also emphasized the importance of utilizing patient education and self-management interventions with patients with CHF. Although Meng et al. (2016)

discussed how important these components were, they also explained that there is a lack of knowledge regarding what specific material and educational strategies should be utilized in CHF management programs. This research study yielded results that showed small improvements in the patients' responses to management of their symptoms, their diets, and their level of physical activity (Meng et al., 2016). The authors cautioned that the use of patient-centeredness in self-management programs may be more effective than a generalized lecture-based intervention which tends to be the traditional format of patient education.

Joekes, Van Elderen, & Schreurs (2007) took a different approach to non-medical interventions for patients with CHF and discovered that it is important to focus on patients' sense of self-efficacy and the role of a patient's partner in their care. This study found that patients that felt like their partners were overprotective had a lower reported quality of life (Joekes et al., 2007). Joekes et al. (2007) emphasized that cardiac rehabilitation programs should focus on the different types of support that partners can give to their loved ones. Overprotection by one's partner can lead to decreased physical activity, decreased participation in tasks, and decreased functional status. Even though partners believe that they are helping their loved ones, they are ultimately making their loved ones less active and more dependent on them for care. Given that patients with CHF often suffer from anxiety and depression, it is imperative to discuss the types of support that they need and want from their caregivers in order to lessen the effects of their depression and anxiety (Joekes et al., 2007).

When people with CHF experience exacerbations of their symptoms they are

often admitted to the hospital. When these symptoms occur, detrimental effects can take place such as decreased functional activity tolerance and decreased muscle strength due to feeling tired, fatigued, and overexerted upon any physical activity (Houchen, Watt, Boyce, & Singh, 2012). Therefore, Houchen et al. (2012) emphasized the importance of getting the non-medical intervention, of rehabilitation services, immediately following a hospital admission to prevent or reverse these detrimental effects of CHF exacerbations. In their study, Houchen et al. (2012) reported that exercise led to short-term benefits such as decreased depression. Jolly et al. (2007) also emphasized the importance of exercise rehabilitation for this population. However, in their study, exercise rehabilitation was done in the home and the findings suggested that exercise programs are not appropriate for all people with CHF. Jolly et al. (2007) cautioned that disease severity, age, and/ or comorbidities may contraindicate exercise programs for certain individuals. Again, this appears to indicate that careful consideration is necessary when developing an intervention plan for older adults with co-morbidities.

Benefits of Post-Discharge Follow-Up

Post-discharge follow-up appears to have a beneficial impact for individuals with CHF. Cui et al. (2019) found that continued follow-up with patients' post-discharge from the hospital resulted in better self-care behaviors such as medication and dietary compliance and decreased hospitalizations. Therefore, continued follow-up by either phone calls or in-person sessions resulted in increased self-care behaviors (Cui et al., 2019). Barnason, Zimmerman, Hertzog, and Schulz (2010) also found that post-discharge telephone calls providing patients with either education or counseling services resulted in

better medication compliance and increased self-efficacy levels for patients regarding their self-care. Thus, the evidence suggests that following-up with patients' post-discharge from the hospital can lead to better CHF behaviors because patients are being given continued support. This may also be a result of patients being held accountable for their behaviors post-discharge from the hospital.

Self-Efficacy Increases Self-Management

Another advantageous theme within the CHF literature includes the concept of self-efficacy. According to Shao et al. (2013) self-efficacy, "is an important adjunct to assisting people to change their behaviors and achieve better health (Bandura, 1977a). Thus, self-efficacy links knowledge and action because belief in one's ability to do something is a prerequisite for self-management," (p. 2459). Clinically, interventions that attempt to increase patient's self-efficacy for CHF management appear to be very successful (Shao et al., 2013). Shao et al. (2013) found that the patients who received an intervention aimed at increasing one's self-efficacy had better adherence to salt and fluid restrictions and had decreased symptoms compared to patients that received usual care. Increasing one's sense of self-efficacy was accomplished by applying Bandura's concepts of modeling behaviors, the influence of social persuasion, being aware of one's physical and emotional conditions, as well as promoting patients' sense of self-mastery (Shao et al., 2013). According to Shao et al. (2013), patients' increase in their sense of self-efficacy ultimately led to improved self-management behaviors.

Falk, Ekman, Anderson, Fu, & Granger (2013) also found that when a patient with CHF had an increased sense of self-efficacy this often resulted in better patient

outcomes. Previous studies have yielded positive results when motivational interviewing was utilized in conjunction with a patients' health literacy level, especially with the elder CHF population (Falk et al., 2013). When these interventions were combined, patients often had an increased sense of self-efficacy and in turn improvement in their self-care management. Falk et al. (2013) states that "motivational interviewing is a focused, goal-directed, and person-centered approach to facilitate and support the individual motivation found within the person (Miller & Baca, 1983; Rogers, 1959)," (p. 252). Unfortunately, many stigmas are associated with the older adult population. One of these stigmas include the inability of older people to learn or perform as well as younger people. However, Falk et al. (2013) acknowledged that older patients can in fact achieve the same results as younger patients when the appropriate accommodations are made such as giving older patients increased time to learn or providing them with educational materials that align with their health literacy levels. In addition, allowing older patients to be involved in the learning process promotes better results. Lastly, increasing older patients' motivation results in better outcomes as well. This study indicates that successful outcomes can be achieved with CHF patients when their cognitive needs are met.

The Lived Experience of CHF Self-Management

Wingham, Harding, Britten, & Dalal (2014) study assessed CHF patients' experiences as well as feelings about self-management strategies. Wingham et al. (2014) discovered that too much information when a patient is first being diagnosed with CHF may be harmful and discouraging. Therefore, Wingham et al. (2014) suggested that patients must be given time to cope and react to their new diagnosis and that healthcare

professionals must consider the patient's psychological well-being at the time that the patient is learning about their new disease. Wingham et al. (2014) also suggested that patients who declined CHF services initially should be asked again about these options once they have time to cope and learn about their new diagnosis. It is important for healthcare professionals to respect every patient's attitude, belief, and understanding of their disease and to provide patient-centered care (Wingham et al., 2014). According to Wingham et al. (2014), "patients experienced a sense of disruption before developing a mental model of heart failure. Patients' reactions included becoming a strategic avoider, a selective denier, a well-intentioned manager, or an advanced self-manager," (p. 135). As with many life-changing events, people often experience different stages of emotions before they reach acceptance or healthier ways to cope. This staged approach to acceptance was evident in Wignham et al.'s (2014) study of CHF patients' lived experiences. Lastly, Wingham et al. (2014) emphasized that changes in one's behavior is dependent on one's motivation to change. This is, "influenced by a representation or mental model of the condition, emotional and cognitive responses and the patient's view of their ability to control their condition and life," (Wingham et al., 2014, p. 150).

Integrating a social component to non-medical CHF interventions appears to be important for ongoing self-management. Tully et al. (2010) found that peer group interactions of people with the same condition helped individuals to feel less isolated through the sharing of similar experiences. "These patients, who had felt "written off" elsewhere in the healthcare system and had been frustrated by deficiencies in care, by contrast felt valued in the rehabilitation program," (Tully et al., 2010, p. 4). In this type of

environment, patients felt supported by other participants and the medical staff which helped restore their self-esteem. Tully et al. (2010) indicated that knowledge about CHF is needed in order for patients to perform self-management behaviors. Additionally, increasing and maintaining one's morale is imperative for patients' adherence to CHF self-care guidelines (Tully et al., 2010). It is important to note that patients with CHF are often fearful of engaging in psychical activity because they believe that it will have a negative impact on how they feel. However, Tully et al. (2010) discovered that once patients were being supervised by health professionals, they overcame their reservations associated with physical activity because they felt supported and a sense of security. Lastly, it is important to note that patients often became non-adherent to their self-care guidelines when the program ended since they no longer had social supports (Tully et al., 2010).

In summary, some effective non-medical interventions for individuals with CHF include physical activity (exercise), group sessions, educational interventions focusing on self-management behaviors such as diets and sodium intake, as well as focusing on increasing people's self-efficacy and providing them with social and psychological supports (Glatz et al., 2014; Houchen et al., 2012; Joekes et al., 2007; Meng et al., 2016; Musekamp et al., 2017; Tiede et al., 2017; Tully et al., 2010; Welsh et al., 2013; Wingham et al., 2014). These are important interventions since individuals with CHF can use these in their everyday lives in order to help manage their CHF symptoms. When CHF symptoms are being properly managed, patients tend to have higher qualities of life (Houchen et al., 2012). Nevertheless, it is important to consider a person's age,

comorbidities, stage and severity of their disease, their motivational level, and the advantages along with disadvantages that partners and/ or caregivers can have on a patient's quality of life and management of their disease (Tiede et al., 2017; Wingham et al., 2014).

Limitations and Gaps Within the CHF Literature

According to the current available research on CHF, most of the studies have been done in outpatient, community, or home settings which neglects a very important setting, the inpatient setting. The inpatient setting is often the place where a diagnosis of CHF is determined and therefore sets the stage for the rest of that individual's CHF care. Additionally, most of the research that has been done regarding CHF is on older patients. Furthermore, the majority of studies on people with heart failure focuses on stages II, III, and IV of the disease. Therefore, studies on younger individuals with CHF is lacking and necessary. Younger patients tend to be more active and impacted by the disease because they often have multiple roles that they must continue to fulfill such as working and parenting. Moreover, there is a lack of research being done on the beginning stage of heart failure, stage I. This stage of heart failure is often considered pre-heart failure and individuals within this stage do not experience physical limitations (SynCardia Systems, 2020). However, education about non-medical interventions such as diet and exercise should be utilized in this stage because it may help decrease the severity of the disease or halt the progression of the disease. In the United States, the healthcare system tends to be more focused on being reactive to symptoms than proactive and preventative. This often leads to poorer health outcomes.

Other gaps in the current research include the types of studies being done and by whom. For example, the majority of research on CHF is being done by cardiologists, physicians, and nurses with a concentration on pharmacological and medical interventions. Given that lifestyle changes can lead to better self-management and better outcomes for people with CHF, further studies from social and rehabilitation professionals is warranted to better ascertain the efficacy of non-medical interventions. Additionally, many of the research studies have small sample sizes and non-diverse populations which does not represent or apply to the majority of people with CHF. The majority of current research studies are randomized controlled trials and meta-analyses which are mostly focused on quantitative data. As a result, there is a lack of emphasis on qualitative data which may better illuminate *why* people with CHF may struggle with self-management, and consequently inform health professionals' approaches to addressing those issues. In regards to geographical locations, the majority of CHF studies were done in the United States and Canada. However, CHF research studies were also done in other countries such as China, Brazil, the United Kingdom, Asia, Spain, Australia, and Germany. However, these studies were not always applicable to the United States because of the different types of healthcare systems that each country has. For example, financially disadvantaged individuals may be more likely to engage with health professionals or self-management programs in systems of universal healthcare given there are often no out of pocket expenses. Therefore, some CHF interventions that were utilized in these other countries are not available or accessible to all individuals in the United States.

Implications for Program Design

Based upon the findings from the review of the literature, some studies were inconclusive, some studies contradicted one another, and there was no unanimous agreement for best practice guidelines for this population. However, there were some effective and advantageous findings in regards to certain features of CHF interventions that were utilized in multiple studies. These advantageous features are imperative for the weekly, inpatient, CHF support group program.

The advantageous program features include focusing on educating patients about their disease and self-management strategies and behaviors such as sodium intake, diet, and physical activity along with contraindications for physical activity. Additionally, strategies that are commonly utilized to increase one's self-efficacy and motivation will be utilized. These include modeling behaviors, allowing opportunities to practice and implement these behaviors within the inpatient setting, and breaking down harder tasks into simpler, more accomplishable tasks. Moreover, participants of the inpatient CHF support group will be followed via phone call upon their discharge from the hospital in order to have social and psychological support, and to promote self-efficacy. Furthermore, educational materials will be tailored towards the health literacy levels of the group members. This group will be patient-centered and provided by interdisciplinary healthcare members in order to focus on meaningful goals and all aspects of their CHF management. These appear to be the most effective ingredients for patients with CHF.

Appendix B displays how each applicable article was appraised via the Modified CAT format. It is important to note that first the titles of the articles that were generated

from the research questions were reviewed to determine if the articles seemed applicable to the research question. If the titles seemed applicable, then the articles' abstracts were further reviewed.

CHAPTER FOUR: Description of the Proposed Program

Proposed Program

This proposed program, the *Healthier Hearts for Life Pilot Program*, is an inpatient, CHF support group that will be piloted at the Johns Hopkins Bayview Medical Center in Baltimore, Maryland. This program was specifically designed to address the problem of patients' poor management of their CHF symptoms at home. As previously mentioned in Chapter 1, these symptoms include "shortness of breath, persistent coughing or wheezing, buildup of excess fluid in body tissues, fatigue, lack of appetite, nausea, confusion, impaired thinking, and increased heart rate" (American Heart Association, 2017a, para. 1). This problem is evident by the overwhelming n of hospitalizations and readmissions amongst people with CHF each year. While the program will be piloted at John Hopkins Bayview Medical Center, this problem extends beyond Baltimore, Maryland and the United States. It is an international issue (Jonkman et al., 2016; Shao et al., 2013). According to Hobbs, Escutia, Harrison, Moore, and Sarpong (2016), "the current readmission rate for patients with HF is 40% (Rakhshan, Kordshooli, & Ghadakpoor, 2015)" (p. 145). Despite recent improvements and advancements with medical treatment for CHF and even imposed penalties for hospitals that experience patient readmissions within thirty days from those patients' discharged dates, healthcare providers are still struggling to properly address this problem (Hobbs et al., 2016). As a result, this inpatient CHF support group program is taking an interprofessional approach to view this problem in a new way. After a thorough review of the literature, an inpatient, CHF support group program was developed. Program

development was informed by the literature, as presented in in Chapter 3 of this dissertation. Interventions and intervention features that demonstrated advantageous results were included in the program and interventions that were inconclusive or discovered to be non-advantageous were disregarded.

Description of the Proposed Program

The *Healthier Hearts for Life Pilot Program* is a week-long program plus telephone follow-up for patients that have a diagnosis of CHF on the progressive care unit at the Johns Hopkins Bayview Medical Center. In these inpatient support groups, groups of five participants will meet six times over a week's timeframe in the inpatient rehabilitation gym. The program will involve didactic presentations, collaborative group discussions, application activities including homework assignments, hands-on training opportunities, and practice sessions, along with follow-up support post-discharge from the program and hospital via telephone calls. Participants will be educated about energy conservation techniques, 'heart healthy' nutrition, compensatory strategies, assistive devices, adaptive equipment, home modifications, and community resources in order to optimize their ADL and IADL at home and in their communities. The first five patients that meet the inclusion criteria and agree to participate in this inpatient support group will be the subjects for the pilot program each month. The pilot program will target patients that are considered a high risk for readmission based upon their previous admission history. It is likely that these individuals are having difficulty managing their CHF symptoms at home. This program is intended to expand and help more patients with CHF after the pilot program is evaluated and improved based upon the findings from the pilot

program's data.

Intended recipients of the program

Patients with a diagnosis of CHF who have been admitted to the progressive care unit at Johns Hopkins Bayview Medical Center will be invited to participate in the pilot program. To impact individuals who are high risk for readmission, the program will target patients who have been readmitted to the hospital within 30 days of discharge from the hospital and their previous length of stay at the hospital was greater than ten days. These patients will be identified by the CHF pilot study nurses at this hospital who already track this data. The CHF pilot study nurses have already agreed to inform the program coordinator when these patients are admitted to the hospital. Lastly, participants can be of any age.

Patients who are receiving palliative or hospice services will not be invited to participate as improving long-term management of CHF is not of clinical importance for these individuals. Patients who are bedbound at baseline will also not be invited as the program activities will be run in the rehabilitation gym. For the pilot program, individuals who do not have conversational English language skill will also not be invited to participate; however, following the pilot it is anticipated that the program will be able to be more inclusive of patients from non-English speaking backgrounds.

According to the Joekes et al. (2007) programs should focus on discussing the different types of support and what the patients want and need from their caregivers in order to lessen the effects of their depression, anxiety, and feelings of helplessness. Caregiver support will be discussed during a meeting with the participants. This will

allow participants to talk openly about their concerns and needs. The program will then help equip participants with strategies to communicate these to their caregivers effectively, sensitively and respectfully.

Delivery of the Program

The *Healthier Hearts for Life Pilot Program* is scheduled to last one week and will take place six times on Monday–Saturday evenings. Each session will focus on a different topic and last approximately an hour. Each session will begin with an introduction and explanation of the session's objectives followed by a short PowerPoint presentation. The facilitator will also use group discussions, handouts, and hands-on learning/ practice opportunities such as role-playing scenarios or practicing utilizing adaptive equipment to increase the participants' self-efficacy in managing their CHF at home. At the conclusion of each session, participants will be asked to complete homework assignments before the next session. After completion of the inpatient program, the program coordinator will follow up with a series of telephone calls to patient's post-discharge.

The introductory slide for each PowerPoint presentation will have the session's objectives listed so participants will know what to expect from each session along with the rules that the participants are responsible for adhering to. The facilitator will lead a discussion about the Health Insurance Portability and Accountability Act (HIPAA) and safe group environments so that confidentiality is maintained by participants, and participants feel safe to discuss their feelings and opinions. Led by the facilitator, the group will establish some ground rules for participation, including respectful

communication.

PowerPoint presentations will help to enhance the participants' learning by providing them with educational videos, graphics, and graphs in order to further explain the educational components in each session. The facilitators will lead group discussions by presenting topics, asking initial/ follow-up questions, encouraging participation, making connections with the participants' responses, and summarizing the key takeaway points of each discussion. Additionally, facilitator will be responsible for addressing questions/ concerns, and display that they are actively listening to the participants via body language and facial expressions.

Following the completion of the *Healthier Hearts for Life Pilot Program*, participants will receive a weekly phone call from the program developer for four weeks and then will receive a monthly phone call for the next five months to check in with each patient. The program developer will ask about their self-management of CHF. In particular, the program developer will ask if the patient is incorporating any content that they learned from this program such as 'heart healthy' behaviors including 'heart healthy' meals/ foods, monitoring their fluid intake, checking their daily weight, exercising, or utilizing energy conservation techniques, and to offer support. According to the literature, following up with participants is vital because it can lead to better CHF behaviors because participants are being given continued support, especially when they are struggling or when health promoting behaviors are lapsing (Barnason et al., 2010; Cui et al., 2019). As detailed above, participants will be provided with various opportunities to learn and improve their knowledge, skills, and self-efficacy via these methods of delivery

for this inpatient support group program.

Activities of the program

During the first session, the facilitators of the group will discuss what heart failure is, what the signs and symptoms are, along with how these symptoms can be tracked and monitored. Additionally, this session will include a jeopardy game in order for the participants to test what they have learned. Session two will be led by the facilitators and will focus on energy conservation techniques/ strategies to implement during ADL, IADL, work, play, and leisure tasks. Additionally, patients will be educated about adaptive equipment and provided with hands-on/ practice opportunities to utilize the adaptive equipment. Lastly, patients will be educated about various home set-ups and home modifications that they can incorporate in order to make their ADL/ IADL tasks easier and more conducive to their physical needs. Session three will have a registered dietitian nutritionist present in order to educate the group members about 'heart healthy foods', how to read food labels, what are considered 'heart healthy' foods, how to restrict their sodium intake, and lastly a 'heart healthy' cooking activity.

A physical therapist will be involved in session four. The physical therapist will teach the participants about various ways that they can navigate their stairs safely and how to utilize the various assistive devices for functional mobility. In order to practice utilizing the assistive devices, the participants will ambulate to the hospital gift shop and will be allowed to look around before they ambulate back to the rehabilitation gym. The gift shop was chosen because it is on the same floor as the rehabilitation gym but not too far away that it would exhaust the participants. Lastly, the facilitators and the physical

therapist will educate the participants about home exercise programs and how to modify exercises to meet their individualized needs.

Session five will focus on educating participants about medications and community resources. Spouses and caregivers will be invited to participate in session five in order to learn about the importance of medication compliance and the local, community resources that are available to patients with CHF. A nurse will discuss the common types of medications for CHF, explain dosages and how to read medication bottles, while a pharmacist will explain contraindications of medications, the side effects of medications, and interactions of various medications. The facilitators will explain the importance of being medically compliant and will implement a medication activity utilizing pill boxes. A case manager and social worker will also be a part of session five in order to educate the participants and/or caregivers about the different types of community resources such as Meals on Wheels, MTA mobility, how to get medications delivered, and what is covered by insurance. Additionally, the facilitators will educate the participants about the various types of therapy and what each one entails such as subacute inpatient rehabilitation, acute care rehabilitation, home therapy, outpatient cardiac rehabilitation, outpatient pulmonary rehabilitation, and outpatient therapy.

The final session, will focus on advocacy and empowering patients to become active members in their healthcare. Additionally, the facilitators will discuss the various types of support that caregivers can give and which type the participants want to have and how to navigate this conversation with their caregivers. Participants will engage in a role-playing scenario to practice this discussion. Lastly, the facilitators will discuss patients'

rights and advocacy and how they can advocate for themselves during their hospital stays.

In summary, each session has educational and hands-on learning components in order to enhance each participant's knowledge and feelings of self-efficacy when it comes to managing their CHF at home. Group discussions will help participants reflect, problem solve, and support one another. These are important components to a successful program. Detailed information about each session including the PowerPoint Presentations that will be utilized in sessions one and two are available in *Appendix C.*

Theoretical Underpinnings of the Program

In order to better understand and accommodate this population of patients with CHF that are considered higher risk for readmission to the hospital based upon their admission history, concepts and constructs from the Transtheoretical Model (TTM) (Prochaska and DiClemente, 1983) and the SCT (Bandura, 1986) guided the development of this program's interventions. The TTM was utilized because it takes a different approach to behavior change viewing it as a, "process rather than an outcome," (Suppan, 2001, p. 152). According to this model, "the individual progresses through six stages of change: precontemplation, contemplation, preparation, action, maintenance, and termination. In this model, it is thought that individuals may lapse into previous stages in the process without being viewed as failures," (Suppan, 2001, p. 152). Therefore, this model acknowledges that making changes in one's health behaviors is not always a linear process and that it is human to have setbacks. This is critical information for the participants of this program who are likely to have setbacks in their self-management of

CHF. They need to understand that this process is a lifelong journey and that they can overcome the obstacles that they will encounter.

Since participants will have agreed to participate in this program once hearing about it, it can be deduced that many are at least in the contemplation stage, meaning that they are interested and/or intend to make a change (Suppan, 2001). Therefore, the precontemplation stage was not a main focus of this program. The contemplation stage will be supported by the community resources that the participants will be educated about, the social support they get from the other participants and the group facilitators, and from the activities that are intended to increase their feelings of self-efficacy. During the preparation stage, an individual intends to make a change in the future and has a plan to help him or her do so (Suppan, 2001). This stage will be supported by the education and self-efficacy increasing activities that participants will receive from the facilitators of this program to support incorporation of these changes into their daily routines. Post-discharge, participants will receive follow-up phone calls from the program developer to support them during the action stage when behaviors have been implemented. It is hopeful that these health-promoting behavior changes will continue through the maintenance stage, with the support of community resources identified by the facilitators. This is an important component because the participants need to know that they are not alone on this journey and that the program coordinator is concerned about their welfare and is there to assist them when they need it. The termination stage of the TTM will not be included in this program because CHF is a lifelong disease and therefore, these participants will always need to be incorporating these behaviors or modifying them to

meet their individualized needs based upon the progression of their disease. Additionally, this pilot program is not long enough for a person to reach the termination stage which, "lasts from 6 months to 5 years," (Suppan 2001, p. 153).

As discussed in Chapter 2 of this dissertation, the SCT (Bandura, 1986) is a helpful theoretical lens when examining the problem of poor management of CHF at home. It is also, however, an appropriate theoretical lens to help address this problem. The SCT concept of modeling will be incorporated in the support group sessions by having demonstrations and hands-on training opportunities. This will allow the participants to learn new 'heart healthy' behaviors by observing the healthcare team and their peers model these behaviors during the support group sessions. The SCT concept of vicarious learning, which is simply learning by observing the behaviors of others and the consequences that follow those behaviors, will also be incorporated in these support group sessions (Bandura, 1989). The participants' will be able to see their peers benefiting from these 'heart healthy' behaviors during these sessions as well as see the positive reinforcement that they receive from the group facilitators when these behaviors are implemented.

Another factor that determines an individual's change in behavior according to the SCT is the concept of self-efficacy. As mentioned above with the TTM, opportunities to perform hands-on learning/ practice sessions will be utilized in order to enhance participants' feelings of self-efficacy. This is a very important feature because it can either inhibit (poor sense of self-efficacy) or facilitate (strong sense of self-efficacy) an individual's change in behavior (Bandura, 1989).

Changes in an individual's behavior is complex and multifactorial. For that reason, the *Healthier Hearts for Life Pilot Program* utilized two theoretical models to inform the development of this program's educational content. This program has resources and various types of support in order to accommodate each participant's stage of behavior change according to the TTM. It is important to note that the participant must be the one to implement the behavior and can only be supported and/ or reinforced by other people (Suppan, 2001). Additionally, implementing components from the SCT into this program will further promote behavior changes.

Role of Personnel

The nurses associated with the hospital's CHF pilot study program, the program coordinator, the director of rehabilitation, pharmacists, the hospital's registered dietitian nutritionist, social workers, case managers inpatient physical therapists and occupational therapists are considered key stakeholders of this program. The program coordinator will be responsible for screening the medical records of the potential participants to see if they are appropriate for the program based upon the inclusion criteria. Then, the program coordinator will inform these patients about the program and invite them to participate in the program if they would like to. Lastly, the program coordinator will be responsible for overseeing this whole program and helping to address any issues or barriers that may occur.

The occupational therapists involved in this program will be responsible not only for facilitating the group sessions but will educate the participants about the symptoms of CHF, home management strategies for managing these symptoms such as energy

conservation strategies to implement during ADL and IADL, and home modifications and/ or adaptations in order to make their home set-ups more conducive to their physical needs. In addition, occupational therapists will educate the patients about adaptive equipment that can help these patients better manage their symptoms at home and home exercise programs.

The nurses participating in the CHF pilot study program are already acting as champions for people with CHF and are likely to be motivated to endorse programs that create better outcomes for this population. The CHF pilot study nurses and the pharmacist will be presenting in session five about medications along with the social workers and case managers who will be presenting on community resources. The registered dietitian nutritionist will present in session three about 'heart healthy' diets because this is imperative for managing CHF symptoms. Physical therapists will present in session four about home exercise programs, stair management, assistive devices, and community mobility. In session six, the facilitators of the program will educate the participants on how they can develop or improve their self-advocacy skills. Lastly, the director of rehabilitation will help to ensure that all resources are available and accessible when needed for the inpatient support group meetings. Each stakeholder is vital to the success of this program because they are considered experts within their domain and can properly educate these patients on how they can properly manage their CHF symptoms at home.

In order to engage these clinicians to participate in the *Healthier Hearts for Life Pilot Program*, the program coordinator will discuss statistics about hospital readmission rates and length of stays for this population at an interprofessional team meeting, and

invite relevant professionals to be involved in the program. Additionally, the program coordinator will provide these healthcare professionals with data regarding advantageous and disadvantageous interventions from the literature review along with how they can help be a part of an innovative program that is looking at this problem of poor management of CHF at home, with a different lens. The program coordinator will emphasize that each healthcare professional is considered an expert in their field and that their knowledge will be invaluable to this program. Additionally, they will be informed that their participation in this program can be added to their resume, their annual performance review, or both. Lastly, these clinicians will be informed that they only have to attend one session for approximately a half hour. Clinicians will be asked to obtain approval to from the head of their respective department to participate in the program.

Methods to Recruit Participants

The participants will be recruited when the CHF pilot study nurses make the program coordinator aware of these patients' admissions to the progressive care unit. Then, the program coordinator will screen the medical records of these patients to identify those who have a diagnosis of CHF and are appropriate for the program based upon the inclusion criteria. Participants that are deemed appropriate candidates for the program will receive an explanation of this inpatient support group and be asked if they would like to participate. The program coordinator will then invite the patient to participate in the program and indicate that patients may choose to participate, not participate or withdraw their participation without impacting their inpatient care, or their relationships with the clinical team. The first five patients that meet the inclusion criteria

and agree to participate in the inpatient support group will be the subjects each month for this pilot study. The program will be offered on a rolling monthly basis so patients newly admitted to the unit will be able to participate in the program.

Desired Outcome of the Healthier Hearts for Life Pilot Program

The program is expected to increase the participants' knowledge of their CHF and increase their self-efficacy in managing their symptoms at home. Participants' increased senses of self-efficacy will aid in empowering them to take control in managing their disease. Moreover, patients will be educated about community resources to help them become better advocates for themselves. In conclusion, this program's ultimate goals are to reduce hospital readmissions for participants, decrease the participants' length of stay during a hospital admission (s), and increase participants' knowledge of CHF and how to manage this disease.

The short-term, intermediate, and long-term outcomes are the goals of this inpatient CHF support program. Each inpatient support group session will be specifically designed in order to help the participants increase their knowledge about their disease and consequently, make better health decisions in their futures. Additionally, increased knowledge is intended to make the patients better advocates for themselves when navigating the healthcare system. *Table 4.1* displays the short-term, intermediate, and long-term outcomes of this program. The short-term goals are intended to be achieved following the inpatient support groups sessions while the intermediate outcomes are projected to take place three months post-discharge from the inpatient support group program. The intermediate outcomes will take longer for participants to implement since

behavior changes take time to become adjusted to. This can be further explained by the stages in the TTM. Lastly, the long-term outcomes will be achieved within a year's timeframe. These goals were created based upon the objectives created for each support group session and based upon the estimated amount of time it would take to incorporate these lifestyle changes.

Table 4.1. *Short-term, intermediate, and long-term outcomes of the group inpatient CHF support group program*

Short-term Outcomes	**Intermediate Outcomes**	**Long-term Outcomes**
Following inpatient support groups sessions patients will have: • Increased knowledge about how to manage their symptoms, how to manage their disease at home, energy conservation techniques, community resources, environmental modifications, adaptive equipment, and home exercise programs. • Individualized discharge plans to help prepare them for integration of these components at home. • Increased senses of self-efficacy in managing their CHF at home.	At three-months post discharge from the inpatient support group program: • 50% of one's weekly meals will be considered 'heart healthy'. • Participants will incorporate energy conservation techniques during their ADL/IADL tasks. • Participants will be able to identify at least one community resource that will increase his or her quality of life. • Participants' home set-up will be more conducive to their physical needs. • Participants will do their home exercise program routines at least two times a week. • Participants will log their weights daily. • Participants will monitor their fluid intakes.	• Participants will decrease their length of stay (number of days) during inpatient hospital admissions. • Participants will decrease their hospital readmissions for CHF exacerbations within a year.

Evidence-Base Informing Program Development

As discussed in Chapter 3, there is evidence in the literature to support inclusion of several interventions in CHF self-management programs. The *Healthier Hearts for Life Pilot Program* included many of the advantageous components found within the literature such as incorporating group sessions and focusing on self-management behaviors such as diet, sodium intake, and fluid restrictions (Glatz et al., 2014; Houchen et al., 2012; Joekes et al., 2007; Meng et al., 2016; Musekamp et al., 2017; Tiede et al., 2017; Tully et al., 2010; Welsh et al., 2013; Wingham et al., 2014). Additionally, this program incorporated the advantageous components of providing the participants with opportunities to increase one's self-efficacy, and providing the participants with social, psychological, and post-discharge support (Joekes et al., 2007; Meng et al., 2016; Musekamp et al., 2017). Caregivers were also included in the program; the various types of support that they can provide, and some of disadvantages that partners and/ or caregivers can have on a patient's quality of life and management of their disease according to the literature (Tiede et al., 2017; Wingham et al., 2014).

These interventions and approaches were identified as the most effective for a CHF program and thus were included in the *Healthier Hearts for Life Pilot Program*. Lastly, this program is designed to address the gaps found within the literature because this program is being implemented in the inpatient setting, with participants of all ages, is focusing on non-medical interventions, and diverse populations based upon their varying stages of the disease.

Relevant Policy

Since this program is going to be taking place in the hospital with patients that have CHF, it had to be approved by the nurse administrators and nurse managers on the progressive care unit, the administrator of physical medicine and rehabilitation, the director of rehabilitation, along with the acute care occupational therapy clinical coordinator and the acute care physical therapy clinical coordinator. Additionally, according to the director of rehabilitation, the group sessions have to take place after the inpatient rehabilitation staff members are done working so this does not interfere with their work schedules. Furthermore, the group sessions have to take place at 4:30 p.m. so the inpatient rehabilitation gym is no longer open to therapists to work with patients in order to promote patient privacy and to not interfere with the inpatient gym's hours of operation. Lastly, participants including the patients and the clinicians involved in this program will have to adhere to HIPAA regulations.

Potential Barriers/Challenges

Since this pilot program is taking place in a hospital setting, there are potential challenges to consider. Patient participation may be a challenge as participation is voluntary. If patient's do not see the benefit in the program, then it may be difficult to create a group. Furthermore, patients' medical status can change daily, there can be scheduling conflicts for testing/ procedures, or the participants can feel ill and refuse on a given day. To address these challenges, the program sessions were scheduled later in the day to avoid commonly scheduled times for tests and procedures. Furthermore, nurses, registered dietitian nutritionists, social workers, case managers, inpatient physical

therapists and occupational therapists, doctors, residents, and physician assistants working on the progressive care unit will promote this program in order to increase patients' interest and participation. Another potential barrier includes, employee participant rates may also be barriers to this program. For example, the facilitators of this program or the interdisciplinary clinicians involved in this program may not be able present due to sickness, scheduled leave, or unexpected urgent clinical priorities. To address these issues, multiple occupational therapists will be trained facilitators who can step in if needed.

Summary and Conclusion

The *Healthier Hearts for Life Pilot Program* was designed to address the major problem of patients' poor management of their CHF symptoms at home which is evident by the high readmission rates for this population. This program is targeting patients that are considered higher risk for hospital readmissions based upon their admission history because these individuals appear to be struggling the most with managing their disease at home. Lastly, this program was designed based upon evidence-based practice, advantageous findings from the literature, two theoretical models of behavior, and was specifically created in order to address the gaps found within the CHF literature.

CHAPTER FIVE: Evaluation Plan

Program Scenario and Stakeholders

As mentioned in Chapter 1, CHF is a prevalent disease that leads to frequent hospital admissions (Shafazand et al., 2015). This problem, of individuals with CHF inadequately managing their CHF symptoms at home evident by high readmission rates, will be addressed with an inpatient CHF support group. As previously discussed in Chapter 4, the *Healthier Hearts for Life Pilot Program* will involve a collaborative approach amongst various disciplines but will be led by occupational therapists. The occupational therapists will facilitate the group meetings in order to address health promotion, prevention of frequent hospital admissions, and enabling patients to take control in the management of their disease. This support group will be centered around education. In these support group meetings, discussions about symptoms and how-to manage this disease, community resources, home management strategies, and increasing one's ability to advocate for himself or herself will be addressed.

The nurses associated with the hospital's CHF pilot study program, the director of rehabilitation, program developer, registered dietitian nutritionists, case managers, pharmacists, social workers, inpatient physical therapists and occupational therapists at the hospital are considered key stakeholders. These stakeholders will be invited to participate in the confirmatory process. The nurses participating in the CHF pilot study program are already acting as champions for people with CHF and thus are motivated to endorse programs that create better outcomes for this population. The CHF pilot study nurses and the pharmacists will be responsible for educating the patients about their

medications. The director of rehabilitation will help to ensure that all resources are available and accessible when needed for the inpatient support group meetings. The occupational therapists that want to be involved will be responsible not only for facilitating the group sessions but will educate the participants about the symptoms of CHF, home management strategies for managing these symptoms such as energy conservation strategies to implement during ADL and IADL tasks, and home modifications and/ or adaptations in order to make their home set-ups more conducive to their physical needs. In addition, occupational therapists will educate the patients about adaptive equipment and assistive devices that can help these patients better manage their symptoms at home. The registered dietician nutritionists will be responsible for educating patients about 'hearty healthy' diets because this is imperative for managing CHF symptoms. Physical therapists will be responsible for educating patients about home exercise programs, stair management, assistive devices, and community mobility. Lastly, social workers and case managers will be responsible for educating these patients about community resources. Each stakeholder is vital to the success of this program because they are considered experts within their domain and can properly educate these patients on how they can properly manage their CHF symptoms at home.

Vision for the Program Evaluation Research

The program evaluation research will provide the stakeholders with the data that is needed in order to make changes to optimize the program's service delivery. In addition, the program evaluation's results will help guide future decisions about this program in order to increase the value of it for all individuals involved. The information

from the program evaluation will inform the stakeholders that are delivering the program's services about the impact that they are making upon this population. Dissemination of the research data will improve awareness about the importance of this program towards reducing readmissions and inspire other hospital staff members to promote this program's value and identify additional patients who may benefit from this intervention. This can generate interest in the program from patients in the target population. In summary, the research from the program evaluation will be invaluable.

Engaging the Stakeholders

It is important to note that each stakeholder will decide his or her level of participation throughout the evaluation process. The stakeholders have busy schedules, so key stakeholders can decide how involved they want to be throughout this program. For example, the registered dietician nutritionists, want to be considered 'subjects' in this process, meaning, they have an interest in the evaluation but want little power in the final decision-making authority over the evaluation, that is their choice (Bryson & Patton, 2015). Meanwhile the occupational therapists will be considered 'players' in the evaluation because they will have both significant interest and power in the evaluation process (Bryson & Patton, 2015). All ideas and suggestions will be written down and explored amongst the members involved in this group. This will help to ensure that the stakeholders feel valued and part of the process. In order for this evaluation process to run smoothly, the stakeholders need to be respected, valued, and given opportunities to have a say.

Simplified Logic Model for Use with Stakeholders

Appendix A illustrates the simplified logic model that displays how the inpatient CHF support group program will work in order to solve the problem of individuals with CHF inadequately managing their CHF symptoms at home. This model explains the program's expectations for its patients and what the key stakeholders will be held accountable for. The short-term, intermediate, and long-term outcomes are the goals of the program. The resources are the materials needed during the inpatient support group meetings. Lastly, the intervention activities displayed below are critical to attaining the program's outcomes. This model gives an overall understanding of the program and can help the stakeholders identify any problems with the program, missing information, or gaps that have not been identified.

Preliminary Exploration and Confirmatory Process

The confirmatory process will take place over a series of in-person meetings with the key stakeholders. The meetings will be concise and as short as possible being cognizant of all the key stakeholders' time. The preliminary meeting will explore the overall problem of poor management of CHF at home which is evident by the hospital's high readmission rates for this population. Dissemination of background information such as the hospital's statistics for the past few years regarding admission/ readmission rates for individuals with a CHF diagnosis and the length of stay for these patients will be presented to the stakeholders. In addition, the hospital's expenses for this population over the past few years will also be presented. This data has already been collected by the CHF pilot study program. Evidence-based research will be shared during the initial

meeting regarding the most effective types of interventions for this population. For example, according to Clark et al. (2016), the most effective interventions for individuals with CHF involved increasing the patient's sense of self-efficacy and psychosocial well-being, as well as their understanding of the disease and symptom management. This information will help explain the thought process behind the components of the inpatient support group. Additionally, there will be an open discussion regarding the staff members perceptions about what the contributing factors are to the overall problem, what has worked from their personal experiences with this population, and what has not worked.

Then the stakeholders will be presented with the first draft of the logic model and this will visually display the program's expectations including the short-term, intermediate, and long-term outcomes. The short-terms outcomes that will be measured include the level of knowledge, level of self-efficacy, and patient's creation of their individualized discharge plans. The intermediate outcomes will be assessed one month following the patients' discharges from the hospital in order to determine if they are applying the knowledge that they learned from the inpatient support group meeting into their daily lives. The long-term outcomes include decreased length of inpatient stays and decreased hospital readmissions for CHF exacerbations within a year. The outcomes of this program will determine the research design for this program evaluation.

Moreover, the strategic plan to meet the short-term, intermediate, and long-term goals and the program evaluation plan will be discussed to ensure that the goals are feasible and the objectives are relevant. Lastly, the importance of maintaining the HIPAA legislation will also be discussed. Before ending each meeting, the stakeholders will be

invited to ask questions and encouraged to write down or email questions that they think of before the next meeting so they can be addressed at the subsequent meeting. Each meeting will have an agenda that will be emailed to all stakeholders in order for the meetings to remain to concise and on task. The stakeholders will have three meetings, each lasting thirty minutes, at the beginning part of this evaluation process in order to set all of the components up but then the group will meet on a consistent, quarterly basis once this pilot program is implemented for an hour each meeting.

Program Evaluation Research Questions by Stakeholder Group

The research questions lead to the program evaluation's research design, the variables that will be measured, and the analysis that will be performed based upon the level of data gathered. The various stakeholders also influence the program evaluation's design by bringing forth their own research questions that they would like the program evaluation to answer. It is important to note that the various key stakeholders have different levels of involvement in this evaluation process, as previously mentioned, and therefore may not be concerned about every part of the program evaluation. That is why the short-term goals and intermediate goals involve all of the key stakeholders because they are directly involved in delivering the interventions whereas the long-term outcomes mainly involve the CHF pilot study nurses, the program developer, and the occupational therapists because they are the primary intended users of this program evaluation's data. *Table 5.1* displays the program's evaluation questions asked by the various stakeholders.

Table 5.1. *Questions by stakeholder group for program evaluation*.

Questions	Stakeholder Group
Are patients who attended the support group more knowledgeable about the symptoms and how to manage their disease at home after attending?	• All key stakeholders
Do the patients that attended the support group, have less readmissions within a year compared to their readmissions rates from the previous year?	• CHF pilot study nurses • Occupational therapists • Director of rehabilitation
Are the patients that attended the inpatient CHF support group, having shorter length of stays in the hospital compared to their previous length of stays?	• CHF pilot study nurses • Occupational therapists • Director of rehabilitation
Were the short-term goals met?	• All key stakeholders
Were the intermediate goals met?	• All key stakeholders
Were the long-term goals met?	• CHF pilot study nurses • Occupational therapists • Director of rehabilitation
Were participants satisfied with the support group?	• All key stakeholders

Research Design

The CHF inpatient support group pilot program will use a quasi-experimental pre-test post-test single group design. In addition, both formative and summative methods will be included in the research design. Both formative and summative approaches are important because the stakeholders need to know if the program is doing what it is set out to do and to see if the process can be adjusted in order to maximize its impact and benefits for the participants. It is important to look at within person measurements because all patients are different and some patients may be more complex than others. Therefore, a patient is acting as their own control and will give a more accurate representation of the inpatient support group's impact (Henry, 2015). Pre-tests, post-tests, Likert scale surveys, and open-ended questions will be utilized in this research.

Methods

Participants, Inclusion, and Exclusion Criteria.

As previously mentioned in Chapter 4, the inpatient CHF support group is going to have a small number of subjects each month since this is a pilot study. Each monthly group is anticipated to have five participants. As previously discussed, inclusion criteria include a patient who is admitted to the hospital with a diagnosis of CHF, must have been readmitted to the hospital within 30 days of discharge from the hospital, and their previous length of stay at the hospital was greater than ten days. Exclusion criteria include any patients that are receiving palliative or hospice services and have an admission diagnosis other than CHF. This pilot study is targeting those patients that are at a higher risk for readmission based upon their previous admission history. These high-risk readmission patients appear to be having the most trouble managing their CHF symptoms at home.

Recruitment of Participants and Ensuring Confidentiality.

These participants will be recruited when the CHF pilot study nurses make the program developer aware of these patients' admissions. Then these patients will receive an explanation of this inpatient support group and be asked if they would like to participate. The first five patients that meet the inclusion criteria and agree to participate in the inpatient support group will be the subjects each month for this pilot study. Confidentiality will be ensured by having the inpatient support group meetings in the rehabilitation gym after work hours when the rehabilitation gym is no longer available to other patients. The rehabilitation gym is a closed area where the patients do not have to

worry about other visitors, patients, and/ or staff members that are not involved within this group interrupting, listening, or walking by. Additionally, at the beginning of each of the inpatient support group meetings, participants will be asked to sign a HIPAA form. All data will be gathered and stored according to the hospital's Institutional Review Board (IRB) policies.

Since this program is going to be taking place in the hospital, the research proposal will need to be reviewed and approved by the hospital's IRB, and then follow the IRB rules and regulations for research. In order to maintain confidentiality participants will be assigned a code instead of their name for the interviews. Information connecting the participants' names with the codes will be kept in a separate location as per the IRB's request. Only the primary investigator will have access to the names and contact information. Additionally, the patient satisfaction surveys are going to be anonymous and therefore be confidential by nature.

Formative or Process Research Data Gathering

Formative evaluation measures will be implemented in the form of semi-structured interviews, after patients with a CHF diagnosis who participated in the inpatient CHF support group have been discharged from the hospital. These patients will receive a follow-up phone call from a trained interviewer, a CHF pilot study nurse, in order to ask if the patients have achieved their intermediate outcomes and explain how they achieved them. The decision to follow-up one-month post-discharge was rationalized by the intermediate goals requiring the participants to incorporate lifestyle changes which are not going to be incorporated overnight. These new habits will take a

few weeks for the participants to implement them into their daily routines. These participants will also be provided with an open-ended section on their patient satisfaction surveys at the conclusion of the final support group meeting. These open-ended questions will be asking why patients came to the hospital and what is difficult about managing their disease at home. All responses from the phone interviews will be transcribed from audio file to written transcripts utilizing the hospital's dictation software, Dragon.

The patient satisfaction survey questions will include both open-ended and fixed choices. The survey questions related to the service delivery will be fixed choice, in a Likert-style of quantitative rating. On the other hand, questions regarding what the participants would add, remove, or change to the group sessions, liked and disliked the most, and why managing their disease at home is difficult will be open-ended format (qualitative information) because the stakeholders want to have unanticipated and reflective responses because these are very valuable (Thayer-Hart et al., 2015). If all the questions were open-ended, some participants may be uninterested in writing in all their responses. On the other hand, the fixed choice questions lack reasoning behind the participants' responses. Having both open-ended and fixed choice questions will provide the stakeholders with a wider range of answers to their questions.

Lastly, the surveys will be conducted in a written, pencil and paper format. At the last group session, the participants will be given the surveys to fill out after they are educated about the purpose of the survey. The participants will be informed that the survey is anonymous and is intended to give the facilitators valuable feedback regarding the participants' experiences during these group sessions. This survey will be very

valuable to the stakeholders and easy for the participants to complete because they do not need to be contacted after they have been discharged from the hospital. The survey responses will be based upon the participants' initial impressions of the group because they are being administered at the conclusion of the final, intervention session instead of days after the program has ended. The timing of the administration of the surveys was decided because the stakeholders want as much feedback as possible when this intervention is still in the participants' immediate recall. Pertinent feedback might be forgotten if the survey is given days after. The stakeholders want to optimize this program and believe that immediate, written feedback provided by open-ended and fixed choice questions will provide them with the most useful data.

Formative or Process Data Management and Analysis

The semi-structed interviews that were collected from each participant will be analyzed utilizing a content analysis approach. MAXQDA, which is an analytic software program, will be utilized to analyze the interviews, finds themes, and then transfer this data into charts, tables, and concept maps (VERBI GmbH, n.d.). These visual depictions will break down the findings into a simpler and more comprehensible format for the key stakeholders. In addition, MAXQDA will be utilized to analyze the open-ended questions on the survey to determine if there were any themes within the participants' responses. The Likert scale portion of the patient satisfaction surveys will be analyzed utilizing non-parametric post-test statistics such as the Wilcoxon rank-sum test. This statistical test was chosen because it is often utilized with ordinal data and does not assume a normal distribution as parametric statistics do (Wild, 1997). In addition, the patient satisfaction

surveys will be inputted into a spreadsheet and then statistical analysis will be performed to determine the overall satisfaction with this intervention group. The open-ended questions will be compiled into a spreadsheet and given to the key stakeholders to provide them with some insight into this program's service delivery and allow the stakeholders to make changes to the process as needed. The patient satisfaction surveys with the open-ended questions will be collected at the last support group meeting and stored according to the hospital's IRB policies along with the interview data.

The primary goals of the qualitative inquiries would be to understand the patient's perspective and experience about their illness, this educational intervention program, and why managing their disease at home is so difficult. For example, it would be helpful to know if patients with CHF are not following their 'heart healthy' diets because of financial barriers that restrict them from purchasing these healthy foods. In addition, the information regarding the patients' experience during the group sessions will be very helpful to let the stakeholders know if their service delivery styles need to change or if topics need to be added and/ or changed.

Summative or Outcome Research Variables and Measurement

The summative program design will measure several dependent variables. These dependent variables include the participants' knowledge about their disease pre- and post- meetings via a multiple-choice quiz and a patient's level of self-efficacy in terms of managing their CHF symptoms, via quantitative surveys pre-and post-meetings. Participant's knowledge will be assessed by a pre-and post-multiple-choice questionnaire that was created specifically for this program to ensure relevance. None of the currently

available measures seemed to fully encompass the various components that the participants are going to be educated about in the inpatient support group. For example, knowledge regarding energy conservation techniques, environmental modifications, adaptive equipment, and home exercise programs need to be assessed in addition to the traditional questions regarding symptoms of CHF and 'heart healthy' diets. Although reliability and validity have not been established for this questionnaire, it will provide the stakeholders with valuable data regarding their service delivery of educational information.

Participant's self-efficacy levels will be measured utilizing the Cardiac Self-Efficacy (CSE) Scale. This assessment tool was chosen because the, "CSE Scale has been used in patients with coronary heart disease to evaluate correlations between CSE Scale scores and readmission to hospital, health status and additional predictors," (Fors, Ulin, Cliffordson, Ekman, & Brink, 2015, p. 537). This scale specifically evaluates a patient's confidence when it comes to controlling their cardiac symptoms and maintaining their function (Fors et al., 2015). The CSE Scale was also chosen because it has good validity and reliability (Fors et al., 2015). Lastly, the number of hospital re-admissions and length of stays for patients with a CHF diagnosis that attended this inpatient support group will be tracked at three months, six months, nine months, and twelve months. In this program evaluation, the independent variable is patients' poor CHF symptom management at home while the dependent variable is increased CHF symptom management at home. As previously mentioned, education is the intervention that this inpatient CHF support group is providing.

Summative or Outcome Data Management and Analysis

Each patient's pre-and post-tests regarding patient's knowledge of their disease will be inputted into a spreadsheet to determine if patients have better knowledge after this intervention compared to their pre-tests. Additionally, the self-efficacy surveys will be inputted into a spreadsheet and statistical data will be generated to determine if the participants' level of self-efficacy increased post-intervention compared to their pre-test scores. These data will be analyzed using pre-test post-test nonparametric statistics such as the Wilcoxon sign-rank test.

Hospital readmissions and length of stay for individuals with a CHF diagnosis are already being gathered and monitored by the CHF pilot study nurses. These nurses agreed to share this information with the inpatient CHF support group pilot study stakeholders. Then the inpatient CHF support group stakeholders will be responsible for dividing this information into three, six, nine, and twelve-month statistics for length of stay and readmission rates for the participants of the inpatient support group. As mentioned earlier, the participants of this support group will be acting as their own control to determine the impact of this program. For example, if a participant has less readmissions and decreased length of stays once her or she is admitted to the hospital, then this participant achieved their long-term outcomes. This data is the most important because it will determine the overall success of this program. If the outcomes are not met, then the program did not do what it set out to do and therefore must be completely re-examined. This data will also be stored according the hospital's IRB policies.

Disseminating the Findings of Program Evaluation Research

Dissemination of the findings from the program evaluation will be presented to all of the inpatient occupational therapists, the CHF pilot study nurses, the director of rehabilitation, the registered dietician nutritionists, the pharmacists, the social workers, the case managers, and the inpatient physical therapists. This data will be presented in a two-page executive summary report. This type of report is the most appropriate for this audience because it hones in on the important information while being concise (Boston University, n.d.). This report "focuses on stating outcomes and benefits, substantiating benefits using the data, applying the benefits to the reader's particular context, and recommending a solution that addresses a problem (Sant, 2004)" (Boston University, n.d., Types of Program Evaluation Reports section, para. 5). Therefore, all of the data referring to the outcomes of this program including the short-term, intermediate, and long-term goals, as well as the research questions that each of the stakeholders had will be addressed in this summary. Highlighting the successes of this pilot program and discussing strategies to improve future implementations and outcomes based upon the data will help make this inpatient support group a more viable intervention within the hospital. The use of headings, subheadings, and different colors will give this report an appealing appearance and thus an efficient mechanism for disseminating the findings (Boston University, n.d.). This executive summary report will be emailed to all of the stakeholders so they can review and reflect upon it before the in-person meeting to discuss the program evaluation's findings is held.

Conclusion

In conclusion, the poor management of CHF symptoms at home is being addressed by the inpatient CHF support group intervention in order to increase the patients' management of their CHF symptoms at home and consequently reduce the length of stay and hospital readmissions amongst this population. The program evaluation measurements will provide the key stakeholders with the necessary information to guide and improve future decisions about this program in order to increase the program's performance. The program evaluation for this pilot study will help decide the feasibility of this program's future on the cardiac units of this hospital.

CHAPTER SIX: Funding Plan

Project Overview

As previously mentioned, the *Healthier Hearts for Life Pilot Program* is an interprofessional, inpatient support group for patients with a diagnosis of CHF that are considered high risk for readmission based upon their admission history. It was specifically designed to address the problem of patients' poor management of their CHF symptoms at home. This program cannot be implemented without the appropriate funds. Funding for the program's inputs including client resources and intervention activities need to be considered.

Funding Plan Overview

In order to determine the budget for the *Healthier Hearts for Life Pilot Program*, the program's inputs including the client resources and the intervention activities were considered. The program's inputs include funding for the staff members involved in this program, the space needed to run the inpatient support group meetings, the program's curriculum, and the client (patient) resources needed during the inpatient support group meetings such as a projector, a laptop, chairs, wheelchairs, and copies of handouts. Lastly, the materials needed to complete the program's activities such as the provision of educational handouts, homework assignments/journals, surveys, pens, vitals machines, pulse oximeters, blood pressure monitors, adaptive equipment, assistive devices, as well as food, utensils, and storage for the 'heart healthy' meals were also factored into the budget. Each of these resources is considered essential for the *Healthier Hearts for Life Pilot Program*.

Program Resources

Resources necessary to run the *Healthier Hearts for Life Pilot Program* were broken down into two major categories consisting of either personnel or materials. Personnel include the program developer, the program facilitators, the physical therapists, the social workers, the case managers, the registered dietician nutritionists, the registered nurses the pharmacists, and the researcher. The materials include every item and/ or piece of equipment needed for the inpatient support group sessions ranging from a laptop and computer projection equipment needed for the PowerPoint presentations to the food and utensils needed for the 'heart healthy' meal activities. *Table 6.1* provides a brief justification for personnel included in the budget while *Table 6.2* provides justification for the resources included in the budget.

Table 6.1. Justification for personnel included on the Healthier Hearts for Life Pilot Program budget.

Personnel	Rationale
Program Developer	Responsible for screening the medical records of the potential participants to see if they are appropriate for the program based upon the inclusion criteria. Then, the program developer will inform these patients about the program and invite them to participate in the program if they would like to. Moreover, the program developer will be responsible for overseeing this whole program and helping to address any issues or barriers that may occur. Lastly, the program developer will be responsible for making follow-up phone calls to the participants post-discharge from the program.
Program Facilitators-Occupational Therapists	The occupational therapists are responsible for facilitating the inpatient support group meetings. The facilitators are also responsible for coordinating with the other interdisciplinary professionals involved in this group.
Physical Therapist(s)	Responsible for teaching the participants about home exercise programs, stair management, assistive devices, and community mobility.
Social Worker(s)	Responsible for educating the participants about developing self-advocacy skills.
Case Manager(s)	Responsible for educating the participants about community resources.
Registered Dietitian Nutritionist(s)	Responsible for educating the participants about 'heart healthy' diets because this is imperative for managing CHF symptoms. The registered dietician nutritionist(s) is also responsible for leading the 'heart healthy' group meal activity.
Registered Nurse(s)	Responsible for educating the participants about medications and their dosages.
Pharmacist(s)	Responsible for educating the participants about their medications, side effects, and interactions of their various medications.
Researcher	Responsible for conducting the research and program evaluation for the *Healthier Hearts for Life Pilot Program*.

Table 6.2. *Justification for resources included on the Healthier Hearts for Life Pilot Program budget.*

Resources	Justification
Rehabilitation gym	Quiet space for the inpatient support group meetings
Wheelchairs	To transport the patients from their rooms to the rehabilitation gym and back
Chairs	For the participants to sit in during the inpatient support group meetings
A Laptop	Needed to run the PowerPoint presentations
Computer Projection Equipment	Needed to make the PowerPoint presentations visible for the participants' viewing
Stove	Needed to cook the 'heart healthy' meals
Refrigerator	Needed in order to store the food (ingredients) for the 'heart healthy' meal
Kitchen utensils	Needed to prepare and eat the 'heart healthy' meals
Food (ingredients)	Needed to cook the 'heart healthy' meals
Adaptive equipment for lower body dressing	Tools to utilize in order to implement energy conservation techniques
Adaptive equipment for the bathroom	Needed so the facilitator can demonstrate how to properly utilize/transfer to/from the various pieces of equipment. These assistive devices can increase a participant's safety and also act as an energy conservation tool
Printer	Needed to print the educational tools/ handouts for the participants
Copier	Needed to make copies of the educational tools/ handouts for the participants
Handouts (paper)	Needed because these will provide the participants with the educational information that was discussed during the inpatient support group meetings so they can refer to them when needed
Ink	Needed in order to make the handouts on the printer and copier
Pens	Needed for the participants to write in their homework journals
Assistive devices for functional mobility	Needed for practice and educational purposes in the support group session with the physical therapist
Vitals Machines	Needed so the participants can learn how to take their vitals and understand what their vitals are indicating
Automatic Digital Blood Pressure Monitors	Needed to act as incentives (prizes) during the 'What is Heart Failure Jeopardy?' activity

Pulse oximeters	Needed to act as incentives (prizes) for the 'What is Heart Failure Jeopardy?' activity
Homework Journals	Needed so the participants can complete their homework assignments
Phone	Needed to make follow-up phone calls with the participants post-discharge from the program
MAXQDA	Needed to analyze the Healthier Hearts for Life Pilot Program research data

Locally Available Resources

Many of the resources listed above may be procured or provided by the pilot program site. Johns Hopkins Bayview Medical Center is a not-for-profit organization as well as a teaching hospital. In Cheney (2017), Yvette Doran, a chief operating officer at a large hospital, states that "The culture at for-profits is business-driven. The culture at nonprofits is service-driven" (para. 3). Consequently, this type of environment allows employees leeway to do research/projects and focus on quality of care instead of quantity of care. Additionally, this type of culture grants employees' access to the hospital's equipment and resources. As a result, there are many in-kind local resources that the hospital can use for the Healthier Hearts for Life Pilot Program. *Table 6.3* displays the potential personnel resources which the hospital may provide in kind. *Table 6.4*, displays the in-kind materials that can be utilized for this program. Fortunately, the majority of the materials needed for this program are in-kind resources that can be found within the inpatient rehabilitation gym or the inpatient rehabilitation department.

Table 6.3. *Johns Hopkins Bayview Medical Center in-kind personnel*.

In-kind Personnel	
Personnel (Employee Volunteers)	**Time** (in hours)
Physical therapist(s)	Approximately 1 hour a month
Registered dietitian nutritionist(s)	Approximately 1 hour a month
Pharmacist(s)	Approximately 1 hour a month
Case manager(s)	Approximately 1 hour a month
Social worker(s)	Approximately 1 hour a month
Registered nurse(s)	Approximately 1 hour a month

Table 6.4. *Johns Hopkins Bayview Medical Center in-kind materials*.

In-Kind Local Resources: Materials	
Materials	**Cost**
Rehabilitation gym	None
Wheelchairs	None; the rehabilitation department and each of the units have wheelchairs that can be utilized by staff members for transportation
Chairs	None; the rehabilitation gym has an adequate number of chairs to meet the program's needs
A Laptop	None; each employee has their own laptop provided by the hospital
MAXQDA, the analytic software program	None; the hospital computers already have access to this software program
Computer projection equipment	None; the rehabilitation department already has computer projection equipment
Phone	None; the rehabilitation department and gym have telephones
Stove	None; there is a stove in the inpatient gym where the activities of daily living (ADL) kitchen is located
Refrigerator	None; there is a refrigerator in the inpatient gym where the ADL kitchen is located
Kitchen utensils: (Forks, knives, plates, cups, spoons, bowls, mixing bowls, cutting boards, measuring cups)	None; these utensils are already in the drawers and cabinets of the ADL kitchen in the inpatient gym
Food (heart healthy meals created during the support group meeting with the registered dietician nutritionist)	None; this will be considered the participants' dinner for that day; the heart healthy food/ingredients will be provided by the dietary department

Adaptive equipment for lower body dressing: (Long-handled sponges, reachers, sock aids, long-handled shoehorns)	None; this equipment is stocked in the supply closet and can be given out to any patient admitted to the hospital free of charge
Adaptive equipment for the bathroom. (Shower chair, tub transfer bench, 3-in-1 commode)	None; the rehabilitation gym has a shower chair, a tub transfer bench, and a 3-in-1 commode so therapists can demonstrate how to properly utilize/transfer to/from them. Shower chairs and tub transfer benches are not covered by most insurances. Therefore, patients will be educated about the various community resources such as Maryland's Loan Closet Directory, that they can call to see if these pieces of equipment are available, if they are interested. Sometimes insurance companies cover 3-in-1 commodes.
Printer	None; in the rehabilitation office
Copier	None; in the rehabilitation office
Handouts	None; staff can use printers and copiers whenever they want
Assistive devices: (Rolling walkers, standard walkers, rollators, standard cane, quad cane	None; these are in the rehabilitation gym. These assistive devices will be utilized for practice and educational purposes only in the support group sessions. If a patient needs an assistive device before their discharge from the hospital, this will be addressed by their physical therapist/ occupational therapist they are working with on the inpatient unit.
Vitals Machines	None; in the rehabilitation gym

It is important to note that employees of the rehabilitation department at Johns Hopkins Bayview Medical Center are expected to participate in, "research project(s), program development, performance improvement [projects], continuing education offering(s), teaching outside of the department, [and] authoring/submitting for publication," (Johns Hopkins Hospital System, n.d., Staff Clinical Education section, para. 1). These requirements are part of the rehabilitation department's midyear and annual performance reviews. Consequently, one's level of participation in such research/projects will directly impact their yearly raise. Another important factor in an

employee's performance review is whether or not that employee participates in, "opportunities to contribute to the offerings of the department and the Medical Center," (Johns Hopkins Bayview Medical Center, n.d., p. 7). As a result, having various rehabilitation employees volunteer an hour of their time every month is a reasonable request that will also benefit their yearly performance reviews. There are many physical therapists, registered dietitian nutritionists, social workers, case managers, registered nurses, and pharmacists at Johns Hopkins Bayview Medical Center, therefore, these professionals can alternate and/or make a schedule with their co-workers to determine who will present each month at the *Healthier Hearts for Life* support group meetings. Many healthcare professionals at Johns Hopkins Bayview Medical Center have already informally indicated that they are willing to be a part of this program.

Resources Requiring Funding

Even though there are numerous in-kind resources regarding personnel and materials, there are still some resources that require funding. These include the personnel that would be required to invest many hours into this program's implementation, program evaluation, and research. Additionally, funding for materials such as prizes for the support group games are needed. *Table 6.5* provides the proposed costs for the resources included in the budget for the *Healthier Hearts for Life Pilot Program* to run for two years.

All of the personnel and materials included in the budget were strategically chosen and are considered essential resources for the Healthier Hearts for Life Pilot Program to be successful. This inpatient support group is focused on patient and

caregiver education. In order to test the participants' knowledge of what they learned in each session, they must be given assignments that include retrieval practice questions as well as homework assignments and hands-on learning opportunities where feedback is provided in order to enhance each patient's knowledge.

Table 6.5. *Proposed two-year budget for the Healthier Hearts for Life Pilot Program*.

	Proposed Budget for the Healthier Hearts for Life Pilot Program						
Personnel	**Item**	**Time**	**Hourly Rate**	**Breakdown of costs**	**Year 1 Budget**	**Breakdown of costs**	**Year 2**
	Group Facilitators (Occupational Therapists)	~6 hrs a month	$50/ hr (prn rate)	$50/ hr x6 hrs a month x12 months	$3,600	$50/hrx6 hoursx12 months	$3,600
	Program Developer	~8 hrs a month for follow-up phone calls	$50/ hr (prn rate)	$50/hr x8 hrs a month X12 months	$4,800	50/hr x8 hrs a month x12 months	$4,800
	Researcher (occupational therapist)	100 hrs a year	$50/ hr (prn rate)	$50/ hr x100 hrs	$5,000	$50/ hr x100 hrs	$5,000
Materials	Pulse oximeters (prizes for patients) Zacurate Pro Series 500DL Fingertip Pulse Oximeter	3 per inpatient support group x12 groups a year	$18.99 for 1 (Walmart.com)	$18.99x3 per group x12groups	$683.64	$18.99 x3 per group x12groups	$683.64
	Automatic Digital Wrist Cuff Blood Pressure Monitor (prizes for patients)	2 per inpatient support group x12 groups a year	$20.99 (Walmart.com)	$20.99x 2 per group x12 groups	$503.76	$20.99x 2 per group x12 groups	$503.76
	Homework Journals (Norcom Graphing Composition Book)	1 per participant x5 participants per group x12 groups	$7.98 for a 6 pack (Walmart.com)	5 patients per month x12 months= 60 patients a year; $7.98x 10 packs of 6	$79.80	5 patients per month x12 months= 60 patients a year; $7.98x 10 packs of 6	$79.80
	Pens (BIC Round Stic Xtra-Life Ballpoint Pen, 60/pack)	1 pack per year	$5.00 per pack (Staples. com)	$5.00x1	$5.00	$5.00x1	$5.00

	Program Dissemination Costs					$3,000 for traveling expenses (flights, food, hotels, conference fees, transportation) $100 for gas $300 for publishing fees)	$3,400
Total					$14,672.20		18,072.20

Financial Impact on the Hospital

The *Healthier Hearts for Life Pilot Program* was created to address a major problem within the healthcare system which is patients' poor CHF management at home which is leading to high hospital readmission rates. The current readmission rate for patients with HF is 40% (Rakhshan et al., 2015). Due to the imposed penalties for hospitals that experience patient readmissions within thirty days from those patients' discharged dates, this diagnosis has imposed major financial burdens to hospitals all over the country (Hobbs et al., 2016). Unfortunately, almost 25% of patients with HF are readmitted within 30 days (Kilgore et al., 2017).

According to Jackson, Tong, King, Loustalot, Hong, and Ritchey (2018) many hospitalizations for CHF are considered preventable. These preventable readmissions within thirty days from an individual's discharge from the hospital procure expenses that hospitals become responsible for because the average cost per inpatient day for a non-profit hospital in Maryland is $2,419 (Rappleye, 2015). According to a national inpatient sample research study (Tashtish, Al-Kindi, Oliveira, and Robinson, 2017) the median length of stay was seven days for a heart failure hospital admission. Based upon this data, at a minimum, Johns Hopkins Bayview Medical Center would lose approximately 16,993 per CHF per CHF readmission within 30 days, if the patient's length of stay was only seven days long. Therefore, if the *Healthier Hearts for Life Pilot Program* can provide the participants with increased knowledge, skills, and senses of self-efficacy regarding management of their disease and as a result reduce these participants' readmissions, the hospital can realize a substantial cost savings. *Table 6.6* presents the projected cost

savings for the hospital due to the *Healthier Hearts for Life Pilot Program*. Johns Hopkins Bayview Medical Center is currently losing a significant amount of money due to the high readmission rate this population has been experiencing within thirty days from their discharges from the hospital.

Table 6.6. *Projected cost savings for year one and year two for the Healthier Hearts for Life Pilot Program.*

Projected cost savings for the Healthier Hearts for Life Pilot Program			
Mathematical Equation	**Year 1 Projected Cost Savings**	**Year 2 Projected Cost Savings**	**Combined Projected Cost Savings**
5 participants per group x12 groups per year= 60 participants; 60 participants x 25% readmission rate = 15 participants readmitted within 30 days from D/C; 15 participants x $2,419 per day x7 days	$253,995	$253,995	$507,990

Based upon the projected expenses included in the Healthier Hearts for Life budget and the projected cost savings from reduced readmissions, the Healthier Hearts for Life Pilot Program's costs can be offset and also save the hospital a significant amount of money each year. The cost savings were projected based on the average length of stay for a CHF admission, the average cost of an inpatient stay per day, and the average rehospitalization rate for a CHF admission within thirty days of a patient's discharge from the hospital. Therefore, these numbers are just projections and can change relative to a patient's length of stay increasing or decreasing. *Table 6.7* displays the projected savings the Heathier Hearts for Life Pilot Program can produce within a two-year span. Based upon the projected data below the Healthier Hearts for Life Pilot

Program has the potential to save the hospital a couple of hundred thousand dollars a year instead of losing that money to pay for patients' preventable hospital readmissions.

Table 6.7. *Projected savings produced by the Healthier Hearts for Life Pilot Program after two years.*

Year 1 Budget	Year 2 Budget	Total Budget for the 2 years	Year 1 Cost Savings	Year 2 Cost Savings	Combined Projected Cost Savings
$14,672.20	**$18,072.20**	**$32,744.40**	**$253,995**	**$253,995**	**$507,990**

Potential Funding Sources

The Healthier Hearts for Life Pilot Program is projected to cost $32,744.20 for implementation of this program for two years. Funding to cover this cost can be obtained through local community grants, state grants, and national grants. *Table 6.8* lists potential funding sources that are appliable to this program's strategic goals and objectives.

Table 6.8. Potential funding sources for the Healthier Hearts for Life Pilot Program

Funding Source	Requirements and Examples	Amount
Agency for Healthcare Research and Quality -Small Research Grant Program (R03)	• This grant supports pilot and feasibility studies for various healthcare services (National Institutes of Health, n.d.). • One of the current conditions that is of interest for research projects due to Medicare, Medicaid, and SCHIP programs, is cardiovascular disease, which is the umbrella term that CHF falls under (National Institutes of Health, n.d.) • Additionally, this grant has funded projects that were aimed at determining the effectiveness of healthcare treatment interventions (National Institutes of Health, n.d.).	• Limited to $100,00 • Project time-frame is limited to two-years
The National Institutes of Health Small	This grant supports research projects including pilot and feasibility studies that do not require many resources, are considered small projects, and can be	• $50,000 per year

Research Grant Program (R03)	completed within a short-time period (National Institutes of Health, 2020).	• Projects limited to two-years
Gladys Brooks Foundation: Grants for Hospitals and Clinics	According to the Gladys Brooks Foundation (n.d.), a grant proposal for a hospital project must, "reduce health costs with better patient outcomes," (Grants for Hospitals and Clinics section, para. 1).	$50,000 – $150,000
Leonard & Helen R. Stulman Charitable Foundation	This grant supports research and/or projects in Maryland focused on improving management of a chronic disease (Baltimore Community Foundation, 2020).	$25,000 – $150,000
Walmart Local Community Grant	Walmart and Sam's Club award grants to various organizations within the United States as long as they have a current tax-exempt status which, Johns Hopkins Bayview Medical Center has since it is a not-for-profit organization (Walmart Incorporation, 2020).	$250– $5,000

Conclusion

The *Healthier Hearts for Life Pilot Program* has the potential to improve health outcomes while saving the hospital a significant amount of money from preventable hospital readmissions. This program is focused on a very prevalent and costly disease and therefore research aimed at reducing this financial burden is always being sought. Fortunately, the majority of the equipment and the personnel needed for this program are in-kind hospital resources. However, the extensive hours and professional investment that the program developer, facilitators and the researcher will be responsible for necessitates appropriate compensation. Funding for the *Healthier Hearts for Life Pilot Program* can be obtained in many different ways. If this pilot program yields positive results, future avenues for potential funding such as insurance reimbursement or monies from the hospital's budget will be explored.

CHAPTER SEVEN: Dissemination Plan

Overview of Program

As previously mentioned, the *Healthier Hearts for Life Pilot Program* is an interprofessional, inpatient support group for patients with a diagnosis of CHF that are considered high risk for readmission based upon their admission history. As it is now known, this pilot program is going to take place at Johns Hopkins Bayview Medical Center in Baltimore, Maryland. Once the research for this pilot program is conducted including the program evaluation, the *Healthier Heart for Life Pilot Program* results will be disseminated to the other hospitals that are within the Johns Hopkins Health System Corporation. After the hospitals within the Johns Hopkins Health System are provided with the research data including strengths and weaknesses that were discovered from the research, this research will be shared with various hospitals across the country. The program developer, the program researcher, and the facilitators of this program want to disseminate the pilot program's outcomes in the hopes that other hospitals across the country will implement this program.

Dissemination Goals

The Johns Hopkins Health System Corporation consists of three major hospitals including Johns Hopkins Hospital, Johns Hopkins Bayview Medical Center, and Howard County General Hospital (Johns Hopkins Medicine, n.d.a). Their mission is, "to improve the health of the community and the world by setting the standard of excellence in medical education, research and clinical care," (Johns Hopkins Medicine, n.d.b, para. 1). This is accomplished by first, sharing research done by any one of these institutions with

the other hospitals included in the healthcare system. Then, research can be shared nationally and/ or internationally. Consequently, before this pilot program has the potential to be disseminated at the national level or international level, it has to become an established program within the Johns Hopkins Health System Corporation first.

The program developer, the program researcher, and the facilitators of the *Healthier Hearts for Life Pilot Program* hope to achieve various goals within the Johns Hopkins Health System Corporation and beyond by disseminating some key messages from the pilot study's research. Table *7.1* displays the *Healthier Hearts for Life Program's* dissemination goals.

Table 7.1 *The Healthier Hearts for Life Program's short-term and long-term dissemination goals*.

Short Term Goals
The *Healthier Hearts for Life Pilot Program* research will be disseminated to the directors of rehabilitation, the directors of social services, the directors of inpatient pharmacy, the directors of the department of clinical nutrition, and the directors of inpatient cardiology at Johns Hopkins Hospital and Howard County General Hospital during a one-hour PowerPoint presentation, delivered by the program developer, the facilitators, and researcher of the pilot program. Each hospital will receive their one-hour PowerPoint presentation within the same week.
The *Healthier Hearts for Life Program* will have an established curriculum and manual including the program's goals and objectives that will be utilized amongst the three major hospitals of the Johns Hopkins Health System Corporation within three months from the end of piloting.
Long-term Goals
The *Healthier Hearts for Life Pilot Program* research will be presented at the 2021 Multidisciplinary Approach to the Contemporary Management of Heart Failure Conference in order to disseminate this program to various professionals from hospitals all over the nation.
The *Healthier Hearts for Life Pilot Program* research will be published in a professional, peer reviewed journal in order to increase professionals' knowledge about this program.

Target Audiences

The primary, target audience of the *Healthier Hearts for Life Pilot Program* dissemination plan is the inpatient department at Johns Hopkins Hospital and Howard County General Hospital. This includes the occupational therapists, the physical therapists, the social workers, the case managers, the registered dietitian nutritionists, the registered nurses, and the pharmacists. This group of professionals is considered the primary, target audience because they would be responsible for implementing the Healthier Hearts for Life Program within their own hospitals. The secondary audience, would be the doctors including residents and the physician assistants working on the cardiac units of hospitals all over the country in order to advertise, promote, and encourage their patients to participate in this program.

Key Messages for the Inpatient Rehabilitation Staff

- The *Healthier Hearts for Life Pilot Program* was specifically designed in order to hone in on participants' feelings of self-efficacy regarding the management of their disease. Self-efficacy was a common, advantageous theme found within the CHF literature. Consequently, this pilot program strategically included various opportunities where participants have to implement what they learned in hands hands-on learning/ practice activities. The overarching idea behind self-efficacy for this pilot program is that when patients are given opportunities to increase their feelings of self-efficacy, they become better at managing their health at home and consequently less reliant on hospitals to manage their health.

- Support was another important pillar behind the design of the *Heathier Hearts for Life Pilot Program*. The program was designed to include follow-up phone calls once the participants are discharged from the hospital in order to provide them with further education, answers to their questions, guidance, along with emotional and psychological support. This component of the program was included because patients have healthcare professionals monitoring their symptoms, weight, medications, and what they eat and drink 24/7 during their hospitalization. However, once these patients go home, they no longer have this 24/7 support. This can often be a difficult transition and that is why continued support via follow-up phone calls was considered a vital component when designing this program. This is a simple tactic that has the potential to reduce unnecessary and/or preventable hospital readmissions.
- Providing a social component via peer group discussions/ interactions was another important component in the design of this program. Patients often feel isolated and alone during their hospitalizations. However, according to Tully et al. (2010), peer interactions can help patients feel less isolated when they realize that other patients experience the same struggles and/ or emotions as them. Additionally, peers often provide each other with support, encouragement, and motivation (Tully et al., 2010). Consequently, many opportunities for peer group discussions and interactions were included in this pilot program.

Key Messages for the Doctors and Physician Assistants on the Cardiac Units

- The *Healthier Hearts for Life Program* is a relatively inexpensive program that

has the potential to save hospitals a great deal of money by focusing on increasing patients' feelings of self-efficacy when it comes to managing their CHF at home. Opportunities for hands on learning/ practice activities were included in this program's curriculum in order for participants to increase their feeling of self-efficacy. A person's feelings of self-efficacy can determine whether a person can manage their disease at home or not (Falk, et al., 2013; Shao et al., 2013). This program included opportunities for participants to practice cooking 'heart healthy' foods, utilizing energy conservation strategies during their ADL, monitoring their vitals and understanding what their vitals are indicating about their bodies, utilizing adaptive equipment during ADL, utilizing assistive devices for functional mobility, learning about their medications and the importance of taking their medications, and learning about local community resources such as MTA mobility which can help them access the community when they need to. Additionally, this program provides participants with homework assignments to complete before the next inpatient support group session in order to challenge the participants to apply what they have learned. All of these activities were strategically designed to focus on increasing the participants' feelings of self-efficacy.

- Due to the imposed penalties that hospitals experience from patient readmissions within thirty days from those patients' discharged dates, this diagnosis has led to major financial burdens to hospitals all over the country (Hobbs et al., 2016). Unfortunately, almost 25% of patients with HF are readmitted within 30 days

(Kilgore et al., 2017). According to a national inpatient sample research study (Tashtish et al., 2017) the median length of stay was seven days for a heart failure hospital admission. Additionally, the average cost per inpatient day for a non-profit hospital in Maryland is $2,419 (Rappleye, 2015). Based upon this data, at a minimum, a hospital would lose approximately $16,993 per CHF readmission within 30 days, if the patient's length of stay was only 7 days long. The *Healthier Hearts for Life Pilot Program* is projected to have five participants per group and twelve groups per year which would equate to sixty participants a year. If approximately 25% of those patients are readmitted within 30 days from their initial discharge from the hospital, that would equate to fifteen participants a year. Therefore, if those fifteen patients stayed the average of seven days per readmission and the admission cost $2, 419 per day, that would equate to the hospital losing $253, 995 a year. The *Healthier Hearts for Life Program* is designed to provide patients with the skills and feelings of self-efficacy in order to manage their CHF at home in order to reduce these preventable CHF hospital readmissions. The *Healthier Hearts for Life Program* has the potential to save hospitals approximately $253, 995.

- The *Healthier Hearts for Life Program* is already developed including its resources such as the program's manual, PowerPoint presentations, and educational handouts in order for this program to be dispersed to hospitals across the country. This program was designed to tackle the national problem of patient's poor CHF management at home which leads to hospital readmissions

and poor health outcomes.

Spokespersons for the Key Messages

Spokespersons were carefully selected to deliver the key messages to the primary and secondary target audiences based upon their influential status. A spokesperson can influence audience buy-in. Therefore, spokespersons chosen to deliver the key messages to the primary, target audiences consisting of the inpatient department staff, were the directors of the inpatient rehabilitation services, the director of social services, the director of inpatient pharmacy, the director of the department of clinical nutrition, the program developer, and the nurse managers on the cardiac units at Johns Hopkins Hospital and Howard County General Hospital. This was decided because the directors of department are very credible and they are also used to delivering messages to their employees. Directors are often responsible for implementing changes within their departments and are well versed on persuasion and conflict resolution. The program developer will provide further information about this program and answer any questions regarding the implementation of this program.

The spokespersons for the secondary, target audiences consisting of doctors including residents along with physician assistants on the cardiac units will be the director of inpatient cardiology at Johns Hopkins Hospital, the medical director of invasive cardiology at Howard County General hospital, along with the directors of inpatient cardiology at other hospitals throughout the country. The program developer will also be a key spokesperson to the secondary audiences in order to give further information about the program and answer any questions about this program's design and

implementation. These individuals were chosen because they are prestigious experts in the field of cardiology and they are accustomed to delegating roles, tasks, and initiatives, In addition, they are responsible for ensuring that their department implement evidence-based practice which is what the *Healthier Hearts for Life Program* was built on based upon the review of advantageous and non-advantageous findings from the literature. In conclusion, the chosen spokespersons for the primary and secondary target audiences are authoritative and knowledgeable professionals that have a lot of experience with delivering important messages to their employees.

Dissemination Tools

Before the selected spokesperson can deliver the takeaway messages of the *Healthier Hearts for Life Program*, they must attend a one-hour PowerPoint presentation from the program developer, the facilitators, and the program researcher of the *Healthier Hearts for Life Pilot Program*. At this meeting, the provision of flyers about this program will be given to all of the spokesperson to utilize during their meetings with their employees. The first tool that will be utilized to present the *Healthier Hearts for Life Program* to the primary, target audience will be in-person PowerPoint presentations displaying the takeaway messages along with an overall description of the program. The directors of each department will deliver this PowerPoint presentation during one of their monthly, staff meetings.

The healthcare professionals involved in this program at each hospital will be given the *Healthier Hearts for Life Program* manuals including the curriculum and access to the PowerPoint presentations. Changes to the PowerPoint presentations and/ or

manuals are permitted in order to better accommodate each hospital's needs. However, changes to the manuals or PowerPoint presentations must be referenced. The *Healthier Hearts for Life Program* will be expected to be implemented within three months following the meeting where the program manuals and the program's PowerPoint presentations were distributed.

A PowerPoint presentation will be delivered by the spokespersons of the secondary, target audiences at the hospitals within the Johns Hopkins Health System Corporation. Additionally, copies of flyers that describe this program will be given to the secondary audience in order to hand-out to patients with CHF to promote and encourage their patients to participate in this program. These flyers will be created by the program developer and facilitators of the *Healthier Hearts for Life Pilot Program* and will be designed to accommodate the average literacy level in the United States in order to be an appropriate, informative tool for patients. Other important dissemination tools that will be utilized to reach the secondary audiences include presenting at conferences about this program in order to inform more doctors and physician assistants working on the cardiac units of various hospitals across the country. One particular conference that the program developer and the program researcher hope to present at is the 2021 Multidisciplinary Approach to the Contemporary Management of Heart Failure Conference. Additionally, the program developer, the program facilitators, and the program researcher hope that the *Healthier Hearts for Life Pilot Program* research will be published as an article in a peer reviewed journal in order for this program to be disseminated to more medical professionals. In summary, the primary audience is responsible for implementing the

Healthier Hearts for Life Program and the secondary audience is responsible for promoting and encouraging participants to participate in this program.

It is important to note that the *Healthier Hearts for Life Pilot Program's* facilitators, program developer, and the program researcher created tools such as the program manuals and the PowerPoint presentations for the support group meetings in the hopes that these will help this program grow by being easily replicated across the Johns Hopkins Health System Corporation and beyond to hospitals across the nation.

Dissemination Budget

As previously mentioned in chapter 6, Johns Hopkins Bayview Medical Center, is a not-for-profit, teaching hospital that grants employees' access to the hospital's equipment and resources. Resources include making copies of handouts, manuals, and flyers. These resources will be free of charge since staff members are allowed to utilize printers and copiers whenever they need to. Additionally, employees of the rehabilitation department at Johns Hopkins Bayview Medical Center are expected to participate in teaching outside of the department, (Johns Hopkins Hospital System, n.d.). Therefore, many resources needed for the dissemination plan do not require a budget.

However, $3,400 will be allocated for dissemination efforts including traveling expenses, publishing charges, and conference fees. One hundred dollars will be designated for gas reimbursement for the vehicles carpooling the program developer, the facilitators, and the program researcher of the Healthier Hearts for Life Pilot Program to/from Johns Hopkins Bayview Medical Center, Howard County General Hospital, and Johns Hopkins Hospital for the initial PowerPoint presentations to the directors of each

department. Additionally, a designated budget of $3,000 will be allotted for the program developer and the program researcher to present at the 2021 Multidisciplinary Approach to the Contemporary Management of Heart Failure Conference, including the cost of flights/ travel, hotels, food, and admission to the conference. Lastly, a budget of $300 will be allocated for the submission of the *Healthier Hearts for Life Pilot Program* research to peer-reviewed journals for potential publication. In summary, the budget for the dissemination of the *Healthier Hearts for Life Program* is needed in order to advertise and promote this program to diverse healthcare professionals.

Evaluation of the Dissemination Efforts

The efforts put forth during the dissemination of the *Healthier Hearts for Life Program* will be evaluated based upon whether the goals displayed in *Table 7.1* were achieved or not. Indicators of successful dissemination include having the pilot study's research published in a peer reviewed journal, presenting this program at a national conference, presenting to local hospitals, and creating a manual after the completion of the Healthier Hearts for Life Pilot Program. Table *7.2* displays the program's dissemination goals and the indicators of success for each goal. Any goal that does not get achieved will be reviewed to determine why the goal was not met. Then, further efforts to contribute to that goal can be made and/or adjustments to the goals can be made as needed.

Table 7.2 *The Healthier Hearts for Life Program' short-term and long-term dissemination goals and indicators of successful dissemination*.

Goals	Indicators of Successful Dissemination
The Healthier Hearts for Life Pilot Program research will be disseminated to the directors of rehabilitation, the directors of social services, the directors of inpatient pharmacy, the directors of the department of clinical nutrition, and the directors of inpatient cardiology at Johns Hopkins Hospital and Howard County General Hospital during a one-hour PowerPoint presentation, delivered by the program developer, the facilitators, and researcher of the pilot program. Each hospital will receive their one-hour PowerPoint presentation within the same week.	Successful dissemination of this goal would be achieved if this program receives support and positive commentary from the directors of each department.
The Healthier Hearts for Life Program will have an established curriculum and manual including the program's goals and objectives that will be utilized amongst the three major hospitals of the Johns Hopkins Health System Corporation within three months from the end of piloting.	Successful dissemination of this goal would be achieved if the Healthier Hearts for Life Program manual was created within three months from the pilot program's completion.
The Healthier Hearts for Life Pilot Program research will be presented at the Multidisciplinary Approach to the Contemporary Management of Heart Failure in 2021 in order to disseminate this program to various professionals from hospitals all over the nation.	Successful dissemination of this goal would be achieved if the program developer and the researcher presented at the 2021 Multidisciplinary Approach to the Contemporary Management of Heart Failure Conference.
The Healthier Hearts for Life Pilot Program research will be published in a professional, peer reviewed journal in order to increase professionals' knowledge about this program.	Successful dissemination of this goal would be achieved if a research article about the program was published in a peer, reviewed journal.

Conclusion

As previously mentioned, the *Healthier Hearts for Life Program* was specifically designed to address the problem of patients' poor management of their CHF symptoms at home. As mentioned in chapter 4, this problem extends beyond Baltimore, Maryland and

the United States. It is an international issue (Jonkman et al., 2016; Shao et al., 2013). In order to address this ongoing problem, a new approach was taken that consisted of interprofessional contributing their knowledge and expertise to the program's overall goal of increasing the participants' feelings of self-efficacy when it comes to managing their CHF. This was achieved via education and hands-on learning/ practice opportunities. This program viewed the problem via a SCT lens and created an intervention that was guided by the TTM. Additionally, interventions were based on advantageous, evidence-based findings found during a thorough review of the literature of the various medical professions. In summary, the Healthier Hearts for Life Program was designed to make patients with CHF more competent in the management of their disease in order to reduce hospital readmissions. Therefore, targeted dissemination if the program is needed to positively impact more patients and hospitals.

CHAPTER EIGHT: Conclusion

As it is now evident, the problem of patients' poor management of their CHF symptoms at home is an international problem (Jonkman et al., 2016; Shao et al., 2013). The traditional and previous approaches for CHF have proven to be suboptimal as this disease remains one of the most prevalent and costly diseases worldwide (Jonkman et al., 2016; Shao et al., 2013). As previously mentioned, the majority of research studies on CHF have been done with patients in the outpatient, home, and post-inpatient settings which neglects the inpatient setting which is where patients spend a lot of their time. This is evident by the high readmission rates amongst this population. That is why the *Heathier Hearts for Life Pilot Program* is taking place in the inpatient setting at Johns Hopkins Bayview Medical Center.

The *Healthier Hearts for Life Pilot Program* is an innovative program because its interventions were developed with a proactive, long-term solution lens in order to address patients' poor management of their CHF at home with a new approach. Current treatment interventions are only providing these individuals with a temporary, medical solution for their CHF exacerbations instead of addressing key lifestyle or self-management issues that are fundamental to long-term CHF management at home which is why hospital readmission rates are too high. Additionally, as previously mentioned, the *Healthier Hearts for Life Pilot Program* viewed the problem with a SCT lens and created a program with interventions that were based on advantageous, evidence-based findings found from the literature of various medical professions and guided by the TTM.

Furthermore, this program included an interprofessional approach by healthcare

professionals contributing their knowledge and expertise to the program's overall goal of increasing the participants' feelings of self-efficacy when it comes to managing their CHF. Previous attempts at CHF management have consisted of multidisciplinary approaches which involved various healthcare professionals but often lacked coordination of care amongst all members to achieve unified goals. It is vital to have various disciplines involved in a patient's CHF care as each profession has their own unique contribution and knowledge. However, all healthcare professionals should focus on increasing patients and/or patients' caregivers' self-efficacy when it comes to managing this disease because self-efficacy can either inhibit or facilitate an individual's change in behavior (Bandura, 1989). Therefore, a person's feelings of self-efficacy can determine one's adherence to medical advice. That is why the various healthcare professionals involved in the *Healthier Hearts for Life Pilot Program* included hands-on learning/ practice opportunities during the inpatient sessions in order to allow participants to increase their feelings of self-efficacy for their CHF management.

Hospitals tend to put patients in a passive role. Patients are monitored 24/7 from their admission into the hospital until their discharge from the hospital. As previously mentioned, almost every aspect of a patient's life is monitored while they are in hospitalized including their food and fluid intake, urinary and fecal output, medications, and vitals. However, once patients are discharged from the hospital they are responsible for taking care of themselves. This type of care cannot promote an individual's feelings of self-efficacy, competency, or independence with their own care. That is why the *Healthier Hearts for Life Pilot Program* strategically incorporated multiple hands-on

learning opportunities in order for participants to increase their self-efficacy and competence by receiving positive reinforcement when patients are performing tasks correctly and incorporating feedback when needed in order to enhance their learning and understanding of the content being discussed in each session. Furthermore, participants will receive follow-up phone calls upon their discharges from the hospital so they have continued support during their transition from the hospital back to the community. This will remediate any problems that might arise. Continued support is a key component to any program that is addressing lifestyle behaviors. In summary, this program is providing the participants with the knowledge and tools that are needed in order for them to be better caretakers of their symptoms at home.

Moreover, this program contributes to the profession of occupational therapy. This program is facilitated by occupational therapists as they have an essential role in the evaluation and treatment of patients with CHF because they focus on helping people engage in one's meaningful daily occupations/ activities (American Occupational Therapy Association, 2020). Unfortunately, occupational therapy can sometimes be overshadowed by other professions within the hospital system. Some doctors focus on if patients can walk rather than considering patients' abilities to perform ADL or IADL tasks. Therefore, having a program that is led by occupational therapists will help increase healthcare professionals' awareness of occupational therapy's unique contribution to treating patients with CHF.

In conclusion, the *Healthier Hearts for Life Program* was designed to make patients with CHF more competent in the management of their disease in order to reduce

hospital readmissions. As it is now evident, this program is focused on a very prevalent and costly problem. Unfortunately, previous and traditional approaches to CHF have been substandard. Therefore, the *Healthier Hearts for Life Program* incorporated new, innovative interventions that were based on advantageous, evidence-based findings found during a thorough review of the literature of the various medical professions. Therefore, patients are being transformed into informed and active, members of their healthcare instead of passive recipients of care.

Appendix A: Evidence Summary Table for Literature Review

Citation 1-1	Miller, A., Edenfield, E. E., Roberto, J., & Erb, J. K. (2017). Reduction in Re-Hospitalization Rates Utilizing Physical Therapists Within a Post–Acute Transitional Care Program for Home Care Patients With Heart Failure. Home Health Care Management & Practice, 29(1), 7–12. https://doi.org/10.1177/1084822316654881		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Controlled Study	**Inclusion:** Patients referred to the home agency service, aged 18+ and primary diagnosis of HF. **Demographics:** 51% female, mean age = 80.9.	USA	Post-acute transitional care
Variables & measures	**Procedures**	**Key Findings**	**Application**
Discharge & Re-admission dates Demographic and OASIS forms.	Review of patient records for two groups: 1. Control Group (before implementation) 2. Intervention Group (received MDTC program)	16% decrease in re-hospitalization in intervention group, despite intervention group receiving less home care visits. (39.5% re-hospitalization in control VS 23.4% rehospitalization in intervention group)	1. Re-hospitalization is high for people with HF (39.5%). 2. Re-hospitalization rates can be reduced through targeted intervention. 3. The content of the home care visits is more important than the frequency. (Patient education and self-monitoring appear critical).

Citation 1-2	Bradford, C.D., Shah, B.M., Shane, P.A., Wachi, N., & Sahota, K.M. (2017). Patient and clinical characteristics that heighten risk for heart failure readmission. Research in Social & Administrative Pharmacy, 13(6), 1070-1081 .		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Retrospective observational analysis	**Inclusion:** -18y.o.or > primary diagnosis of heart failure utilization of healthcare services at least least 6 months prior to hospitlaization **Demographics:** average age: 72 y.o.; predominantly male (55%); predominantly white (55%) not employed (91%); Medicare as payer (68%) ; 42% married	USA	Sharp Healthcare System: Acute care hospital in California
Variables & measures	**Procedures**	**Key Findings**	**Application**
patient charactierisits (socio-demographic variables) **Clinical:**Charlson Comobidity Index **Clinical/Lab parameters** **Healthcare utilization:** within 90 days **Hospital LOS** **D/C disposition**	HF patients were split into 2 groups: 1) **Intervention Group:** Information therapy, information prescription, written information intervention 2) **Comparison Group:** Non- written information/education intervention	**Increased risk of readmissions:** 1) Retired/ Disabled 2) Had at least 1 ED visit in 90 days 3) LOS is greater than 5 days 4) At D/C BUN > 45 mg/dL; **Most common reasons for readmission:** 1) Heart failure (36%) 2) renal disorders (8.4%) 3) other cardiac diseases (6.9%)	1). Re-hospitalization is higher for people that have HF and are retried/ disabled. 2). Re-hospitalization is higher for people that have HF and who have had at least 1 ED visit in 90 days and had a length of stay in the hospital greater than 5 days. 3). Re-hospitalization is higher for people that have HF that have a BUN level greater than 45 mg/dL, have a renal disorder, and/ or other cardiac diseases.

Citation 1-3	Andrietta, M.P., Lopes Moreira, R.S., & Bottura Leite de Barros, A.L. (2011). Hospital discharge plan for patients with congestive heart failure. Revista Latino-Americana de Enfermagem, 19(6), 1445-1452. https://dx.doi.org/10.1590/S0104-11692011000600023		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
integrative review	14 papers reviewed **Authors:** 3 (21.42%) were written by 1 author; 2 (14.29%) by 2 authors; 9 (64.29%) papers were written by 3 or > authors. **Published:** (2004-2008): 1(7.14%) in 2004; 2 (14.29%) in 2005; 4 (28.57%) in 2006; 2 (14.29%) in 2007 and 5 (35.71%) in 2008. **Authorship:** 10 (71.43%) written by nurses; 3 (21.43%) written by nurses and physicians; 1 (7.14%) was written by physicians. **Periodical:** 2 (14.29%) papers were published in Brazilian periodicals and 12 (85.71%) in international periodicals **Language:** 12 (85.71%) were in English and 2 (14.29%) in Portuguese Papers addressed: discharge planning, heart failure, and nurses.	Brazil	Hospital D/C
Variables & measures	**Procedures**	**Key Findings**	**Application**
Analyzed by **identification** (authors, authors' background, year, language, database, and periodical) & **characteristics of the paper** (title, objective, study's design, result and conclusion)	Papers were separated into 2 categories: 1) Health Education 2) Nursing Care	discharge plans are very important for HF patients; nurses have an essential role in D/C planing and education; The discharge plan should be individualized; the interdisciplinary team is responsible for educating the patients about the importance of 1) adhering to their treatment 2)sodium restrictions 3) fluid restrictions 4) recognition of signs an symotoms of disease progression 5) pharmacological therapy and their disease 6) healthy beahviors; D/C plans should promote health education and self-care	1) Re-admission rates are higher for HF patients that do not adhere to the salt and fluid restrictions, medication regime, diet, weight control, exercises, or do not notice when symptoms are progressing 2) patients with HF that have been discharged from the hosptial have a 50% re-hospitiliation rate within 1 year

Citation 1-4	Kwok T., Lee J, Woo J, Lee DT, Griffith S. (2008). A randomized controlled trial of a community nurse-supported hospital discharge programme in older patients with chronic heart failure. Journal of Clinical Nursing, 17(1), 109-117. doi:10.1111/j.1365-2702.2007.01978.x		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Randomized controlled trial	**Inkcusion:** > 60 years old residing within the region at least 1 hospital admission for CHF in 12 months **Demographics:** 105 subjects > 60 years old	China	Home post D/C from hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
# of unplanned readmissions; Demogrpahic data Functional status (6 minute walking test) Cognitive Function/ psychological state/ handicap state: Abbrevaited Mental Test; General Health; Questionnare; London Handicap Scale; patients were assessed at baseline, follow-up clinics, and 6 months post intervention	Participants were randomly assigned to two groups: 1) Intervention: (49 subjects) receiving a visit from a community nurse before D/C from hospital, within 7 days from D/C from hospital, weekly for 4 weeks, then monthly up until 6 months 2) Control Group: (56 subjects)	at 6 months re-admissions rates were not significantly different between the intervention and control group; median # of re-admissions tended to be lower in intervention group; Intervention group had less handicap in independence scores; no difference in 6-minute walking distances; no significant difference in medial total public healthcare and personal care costs	Community nurse-supported D/C programs can help preseve patients' independence but did not significanlty impact re-admission rates

Citation 1-5	Radhakrishnan, K., Jacelon, C.S., Bigelow, C., Roche, J.P., Marquard, J.L., & Bowles, K.H. (2013). Use of a homecare electronic health record to find associations between patient characteristics and re-hospitalizations in patients with heart failure using telehealth. Journal of Telemedicine and Telecare, 19(2), 107-12 .		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
retrospective chart review of electronic patient records	**Inclusion criteria:** patients admitted to the homecare agency with HF as a diagnosis who had used telehealth from 2008 to 2010 **Demographchis:** Caucasian (94%) over 75 years in age (>70%) female (55%) urban (89%) lived with caregivers (69%) had chronic HF (81%) experienced some dyspnea (84%) The average # of co-morbidities was 5.2. Blood pressure disorders (69%) vascular disorders (67%) cardiac arrhythmia (53%) average # of medications prescribed 13.6. Diuretics were the most common (85%) About half of the patients (51%) were prescribed (ACEI/ARB)	New England	home-care agency
Variables & measures	**Procedures**	**Key Findings**	**Application**
1) The Medicare dataset Outcome and Assessment Information Set (OASIS) 2) Electronic nursing visit notes, telehealth logs and scanned intake forms 3) variables were collected when the telehealth service began to 60 days of telemonitoring, or less if the subject was discharged earlier from the agency	403 Medicare subjects with a diagnosis of HF receiving telehealth services separated into two groups: 1) all-cause rehospitlization 2) cardiac-related re-hospitalizations within 60 days of being admitted to the homecare agency	**Increased risk for re-hospitalization:** 1) # of medications 2) type of cardiac medications 3) psychiatric co-morbidity, pulmonary and obesity co-morbidities within gender; beta blocker prescription in females and primary HF diagnosis in the oldest age stratum 4) HF as a primary diagnosis had higher likelihood of cardiac-related re-hospitalizations than patients admitted with HF as a secondary diagnosis 5) Primary HF diagnosis was also found to be a predictor of all-cause and cardiac related re-hospitalizations in the oldest age stratum (>85 years)	Re-hospitalization is higher for patients that take a lot of medications, have renal or psychiatric related co-morbidities, and amongst females that are taking a beta blocker prescription

Citation 1-6	Zarea Gavgani, V., Kazemi Majd, F., Nosratnejad, S., Golmohammadi, A., & Sadeghi-Bazargani, H. (2015). The Efficacy of Written Information Intervention in Reduction of Hospital Re-admission Cost in Patients With Heart Failure; A Systematic Review and Meta-Analysis. Journal of Cardiovascular and Thoracic Research, 7(1), 1–5. doi:10.15171/jcvtr.2015.01		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
systematic review and meta-analysis of randomized controlled clinical trial studies	**Inclusion criteria:** 1) randomized controlled clinical trial studies 2) primary outcomes of reducing the cost of hospital readmission after written health information intervention **Demographics:** 3 RCT including (754 patients); **main interventions**: written information based education for HF patients 2 out of 3 included in studies were performed in Spain and one in the US. The earliest included trial was published in 1995 the mean age of HF patients 74.33	Iran	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
# of hospital re-admissions, cost, expenditure of quality criteria; The Critical Appraisal Skills Program (CASP) tool & consumer price index (CPI) and exchanged rate to US $ From the World Bank's list of indicators	Cardiac failure or heart failure patients were split into 2 groups: 1) **Intervention Group:** Information therapy, information prescription, written information intervention 2) **Comparison Group**: Non-written information/education intervention	The mean of estimated saving readmission cost in intervention group versus control group was US $2751; mean of total saving cost in intervention group versus control group was US $2047	Providing patients with information in a written-format (i.e written information regarding prescriptions) can be an effective factor for minimizing the healthcare cost and preventing hospital re-admissions

Citation 1-7	Gheorghiade, M., Pang, P.S., Ambrosy, A.P., Lan, G., Schmidt, P., Filippatos, G., Konstam, M., Swedberg, K., Cook, T., Traver, B., Maggioni, A., Burnett, J., Grinfeld, L., Udelson, J. & Zannad, F. (2012). A comprehensive, longitudinal description of the in-hospital and post-discharge clinical, laboratory, and neurohormonal course of patients with heart failure who die or are re-hospitalized within 90 days: analysis from the EVEREST trial. Heart Failure Review, 17(3), 485-509. doi: 10.1007/s10741-011-9280-0.		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Retrospective analysis	**Inclusion criteria:** 4,133 patients hospitalized for worsening HF with left ventricular ejection fraction (LVEF) less than or equal to 40% and signs of fluid overload. all patients had signs and symptoms of AHFS at the time of enrollment and were well treated with background evidence-based therapies; **Demographics:** Patients were 18 years of age or older; the mean age of patients was 66 predominantly male (75%) with a mean EF of 28%.	USA	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
Clinical and laboratory parameters were obtained within 48 hours of admission, during hospitalization, and post-discharge at weeks 1, 4, 8, and every 8 weeks thereafter for a median of 9.9 month; clinical symptoms New York Heart Association (NYHA) Functional Classification; physical exam findings	4,133 patients were separated into 2 groups: 1) Tolvaptan in addition to standard therapy. 2) placebo in addition to standard therapy.	**Increased risk for re-admission or death within 90 days of initial hospitalization:** 1) low systolic blood pressure 2) low serum sodium 3) decreased renal function 4) higher heart rate 5)worsening orthopnea 6) increased levels of neurohormones such as AVP and aldosterone 7) lower albumin levels	Re-hospitalization is higher for patients that have low systolic blood pressure, low serum sodium levels, decreased renal function, increased heart rates, worsening orthopnea, increased levels of neurohormoes, and lower albumin levels.

Citation 1-8	Gonseth, J., Guallar-Castillón, P., Banegas, J.R. & Rodríguez-Artalejo, F. (2004). The effectiveness of disease management programmes in reducing hospital re-admission in older patients with heart failure: a systematic review and meta-analysis of published reports. European Heart Journal, 25, 1570 - 1595. doi:10.1016/j.ehj.2004.08.004		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Systematic review and meta-analysis o	**Inclusion criteria:** Randomized and non-randomized controlled studies assessing disease management programs targeting people 65 years old or older with a primary or secondary diagnosis of HF **Demographics:** average age of patients in most studies was greater than 70 years old; EJ less than 40%; +co-morbidities; +ACE-Inhibitors; +Diuretics	Spain	Disease management programs preventing hospitalization
Variables & measures	**Procedures**	**Key Findings**	**Application**
intervention components (disease management programs); participant characteristics; re-admission with 1)HF or cardiovascular cause 2) all-cause re-admission; 3) combined even re-admission or death	54 studies were separated into 2 groups: 1) randomized controlled studies (27 arctiles) 2) non-randomized controlled studies (27 articles)	Randomized controlled studies: DMPs decrease the frequency of re-admission for HF or CVD by 30%; reduce all-cause re-admission by 12%; reduce combined even re-admision or death by 18%	Disease Management Programs can be effective in reducing re-admissions for elderly patients with HF

Citation 2-2	Darling, C., Saczynski, J. S., McManus, D. D., Lessard, D., Spencer, F. A., & Goldberg, R. J. (2013). Delayed hospital presentation in acute decompensated heart failure: clinical and patient reported factors. Heart & lung : the journal of critical care, 42(4), 281–286. doi:10.1016/j.hrtlng.2013.01.007		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
cross sectional study	**Inclusion criteria:** Meet Framingham diagnostic criteria for HF: Need 2 two major criteria, or 1 major and 2 minor criteria Major criteria: rales, acute pulmonary edema, and an S3 gallop among other clinical findings Minor criteria: bilateral ankle edema, pleural effusion, and dyspnea on ordinary exertion. English speaking **Demographics:** Average age was approximately 73 years old 53% were men 91% were white 72% had been previously diagnosed with HF	USA and Canada	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
Demographic and clinical characteristics Framingham criteria for HF	Patients that met Framingham criteria for HF were asked to consent to the study by trained interviewers within 72 hours of admission to the hospital. If patients consented to participate in the study, they participating in a 30-minute standardized interview during their hospital stay	patients who delayed more than >5.3 hours after acute symptom onset were more likely to be older, white, married, or living with someone. Plus, they were more likely to complain of peripheral edema or 'bloating' Patients who presented <5.3 hours usually had symptoms of chest pain, anxiety, dyspnea, palpitations, and a feeling of 'impending doom'. Patients that had hypertension, contacted somebody prior to go to the hospital and used ambulance had decreased delay times.	Patients with acute decompensated heart failure present to hospitals for symptoms consisting of peripheral edema, bloating, chest pain, anxiety, dyspnea, palpitations, hypertension.

Citation 2-3	Chaudhry, S. I., McAvay, G., Chen, S., Whitson, H., Newman, A. B., Krumholz, H. M., & Gill, T. M. (2013). Risk factors for hospital admission among older persons with newly diagnosed heart failure: findings from the Cardiovascular Health Study. Journal of the American College of Cardiology, 61(6), 635–642. doi:10.1016/j.jacc.2012.11.027		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
longitudinal study	**Inclusion criteria:** 65 years old or older diagnosis of heart failure from a physician must be receiving medical treatment (e.g., a diuretic agent, ACE inhibitor, or digitalis) The presence of cardiomegaly and pulmonary edema on chest x-ray, or evidence of left ventricular dysfunction by echocardiography or ventriculography Potential cases of heart failure were adjudicated by an expert panel **Demographics:** mean age at the time of heart failure diagnosis = 79.7 years nearly one-fifth were obese The majority of the cohort had preserved ejection fraction, 30.3% were NYHA functional class III or IV. ACE inhibitors were being used in 40.7% of participants beta-blockers in 15.7%.	USA	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
Demographics Heart Failure Status Body Mass Index Comorbid Diseases Geriatric Conditions (muscle strength, gait speed, cognitive function, and psychological status) All-cause hospital admissions	1)data about the development of heart failure and potential risk factors for hospital admission were collected every 12 months from 1989 to 1999 through in-person interviews and examinations 2) hospital admissions from 1989- 2009 were ascertained	N=758 participants with a new diagnosis of heart failure mean rate of hospital admission was 7.9 per 10 person-years Independent risk factors for hospital admission included diabetes mellitus, New York Heart Association functional class III or IV, chronic kidney disease, slow gait, depressed ejection fraction depression, and muscle weakness	1). Patients with heart failure often present to hospitals because of slow gait, depressed ejection fraction, muscle weakness, or if the patient is in the NYHA functional class III or IV. 2). Patients with heart failure often present to hospitals if they have co-morbidities such as diabetes mellitus, depression, or chronic kidney disease.

Citation 2-4	Malki, Q., Sharma, N. D., Afzal, A., Ananthsubramaniam, K., Abbas, A., Jacobson, G., & Jafri, S. (2002). Clinical presentation, hospital length of stay, and readmission rate in patients with heart failure with preserved and decreased left ventricular systolic function. Clinical cardiology, 25(4), 149–152. doi:10.1002/clc.4960250404		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
prospective cohort study	**Inclusion criteria:** admission diagnosis of CHF clinical and radiographic evidence of pulmonary vascular congestion not related to acute myocardial infarction. **Demographics:** The majority of participants with (EF <50%), were: Male African American Hx of previous stroke previous stroke	USA	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
Initial admission and re-admission dates & follow-up at 2, 4, and 6 months post- D/C from hospital Demographics including clinical presentation hospital LOS hospital length of stay	187 patients were separated into 2 groups: 1) Patients with LV EF <50% 2) Patients with LV EF ≥50% Further separated into 4 categories: 1)EF <25% 2)EF 26–49% 3) EF 50–59% 4)EF ≥60%)	1) EF <50% 130 patients Mean LOS: 5.9 days Median LOS: 4 days LOS range: of 1 to 33 days Re-admission rate within 6 months of D/C: 43 patients (33%) 2) EF ≥50% 57 patients Mean LOS: 5.2 days Median LOS: 4 days LOS range: of 1 to 33 days Re-admission rate within 6 months of D/C: 15 patients (26%) Patients in the EF group of ≤25% were admitted more than any other group	Patients with CHF present to the hospital with preserved and decreased left ventricular (LV) systolic function

Citation 2-1	Claret, P. G., Stiell, I. G., Yan, J. W., Clement, C. M., Rowe, B. H., Calder, L. A., & Perry, J. J. (2016). Hemodynamic, management, and outcomes of patients admitted to emergency department with heart failure. Scandinavian journal of trauma, resuscitation and emergency medicine, 24(1), 132. doi:10.1186/s13049-016-0324-2		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
prospective cohort studies	**Inclusion criteria:** adults > 50 years of age presented with SOB secondary to CHF exacerbation or new-onset heart failure diagnosis of heart failure SOB or fatigue clinical sings of fluid retention either pulmonary or peripheral underlying cardiac abnormality of cardiac structure or function **Demographics:** (± SD) age of 77.1 (10.7) years 54 % were male a 73 % had a history of heart failure. mean (± SD) SBP of 141 (27.6) mm Hg 73 % (1,194) of them had a known history of heart failure mean (± SD) NT-proBNP level of 8,616.5 (12,175.7) ng/L. Initial ECGs showed signs of atrial fibrillation/flutter in 599 (37 %) cases 47 (3 %) showed signs of acute ischemia 14 % (232) overall serious adverse event. 830 (51 %) were hospitalized	Canada	Emergency department
Variables & measures	**Procedures**	**Key Findings**	**Application**
ED health records &Hospital health records Clinical symtpoms Lab values/ vital signs	1,638 patients were classified into 9 groups according MHR and SBP: **Groups 1, 2, & 3:** patients with SBP < 120 mm Hg (normal). **Groups 4, 5, & 6:** are related to patients with SBP between 120 and 140 mm Hg (prehypertension). **Groups 7, 8, & 9:** are related to patients with SBP > 140 mm Hg (hypertension). Then patients were classified into 3 other groups based on MHR formula: 220 - age (<50 %, between 50 and 75 %, > 75 %).	Patients with heart rates < 50 % MHR and SBP > 140 mmHg had the lowest rate of serious adverse events (6 %) and had the lowest rate of admissions to hospital (38 %). Patients with MHR > 75 % MHR had the highest rate of serious adverse events, regardless of the SBP. Patients with MHR > 75 % the proportion of serious adverse events decreased as SBP increased (30 % when SBP < 120 mmHg, 24 % when SBP between 120 and 140 mmHg, and 21 % when SBP > 140 mm Hg)	1). Patients with chronic heart failure or new-onset heart failure often present to hospitals because of SOB or fatigue. 2). Patients with CHF or new-onset HF that present to hospitals often have clinical signs of fluid retention (peripheral or pulmonary).

Citation 2-5	Chin, M.H., Goldman, L. (1996). Correlates of major complications or death in patients admitted to the hospital with congestive heart failure. Archives of Internal Medicine, 156(16), 1814–1820. doi:10.1001/archinte.1996.00440150068007		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Prospective cohort study	**Inclusion criteria:** Complaints of SOB or fatigue Had pulmonary edema or interstitial edema or pulmonary vascular redistribution was seen on chest x-ray Had primary or secondary D/C diagnosis of congestive heart failure	USA	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
Post D/C from hospital Physical examination Medical chart review Charlson Comorbidity Index Vitals Labs Scans Hospital LOS Hospital charges	352 participants were separated into 2 categories: 1)Hx of CHF 2)New- onset HF	**Mean LOS in the hospital:** 8 days Of the total hospital days, 50% were spent on a regular hospital floor, 35% in the intermediate care unit, and 15% in the ICU **Mean hospital charges:** $ 16, 592 Patients with a hx of CHF tended to have longer LOS than patients with new-onset HF **correlated with major complications or death:** -systolic blood pressure of 90mm Hg or less - respiratory rate higher than 30 breaths per minute -serum sodium level of 135 mmol/L or less, -electrocardiographic changes of ischemia	Patients with CHF and new-onset HF often present to hospitals with symptoms of SOB Fatigue Pulmonary edema Interstitial edema Pulmonary vascular redistribution

Citation 2-6	Maraísa Carine Born, Karina de Oliveira Azzolin, & Emiliane Nogueira de Souza. (2019). How long before hospital admission do the symptoms of heart failure decompensation arise? Revista Latino-Americana De Enfermagem, 27(0), Revista Latino-Americana de Enfermagem, 01 February 2019, Vol.27.		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
cross-sectional study	**Inclusion Criteria:** Patients aged ≥ 18 years old medical diagnosis of decompensated HF **Demographics:** **Age range:** 42- 98 years old **Mean age**: 71.2 years old	Brazil	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
Sociodemographic clinical data signs and symptoms of HF	Patients that met inclusion criteria were approached within 48 hours of hospital admission Those who agreed to participate completed the structured questionnaire in an average time of 15 minute	**most prevalent signs and symptoms:** dyspnea (79.8%) cough (29.8%) orthopnea (27.7%) edema (23.4%) fatigue (22.3%).	1)Patient present to the hospital for decompensated HF with symptoms of -dyspnea -cough -orthopnea -edema 2). Dyspnea is the most popular reason people with decompensated HF present to the hospital

Citation 2-7	Yousufuddin, M., Abdalrhim, A., Wang, Z., & Murad, M. (2016). Cardiac troponin in patients hospitalized with acute decompensated heart failure: A systematic review and meta-analysis. Journal of Hospital Medicine, 11(6), 446-454.		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
A systematic review and meta-analysis	**Inclusion criteria:** -randomized or nonrandomized clinical trials involving adults hospitalized with ADHF -comparator groups stratified by cardiac troponin (cTn) level as defined by individual study investigators -studies reporting 1 or more of the following clinical outcomes: (1) in-hospital mortality, (2) hospital LOS, (3) major adverse events during hospitalization (defined as persistent dyspnea, worsening of heart failure, worsening of renal function [creatinine ≥0.3 mg/dL], or recurrent myocardial ischemia after hospitalization for ADHF), (4) postdischarge readmission, (5) postdischarge mortality rate, and (6) the composite of readmission and mortality. **Demographics of studies:** -observational cohorts with postdischarge median follow-up from 30 days to 472 days. -13 were single-center study - 5 were multicenter studies -4 were substudies of large multicenter phase III clinical trials -4 were registries. -Except for one abstract, all studies were peer-reviewed publications - Sample size ranged from 34 to 69,259 patients.	USA	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
hospital LOS readmissions mortality	1, 317 articles found with Database searches 1, 317 excluded immediately 179 articles reviewed in detail 82 Full-text assessment of articles n= 26 studies included in the final study	A detectable or elevated Elevated cardiac troponin (cTn) was associated with increased LOS, increased in-hospital mortality, and a composite of mortality and major adverse events during hospitalization. ADHF patients with a detectable or elevated cTn were at increased risk for mortality and composite of mortality and readmission over the short term	1). Patient with ADHF often present to the hospital with a detectable or elevated cTn. 2). Patients with ADHF that have a detectable or elevated cTn have an increased risk for adverse clinical outcomes during their hospitalization and are at a higher risk for post-discharge mortality and composite of readmission and mortality.

Citation 2-8	Wu, J., Lee, K., Dekker, R., Welsh, J., Song, E., Abshire, D., . . . Moser, D. (2016). Prehospital Delay, Precipitants of Admission, and Length of Stay in Patients With Exacerbation of Heart Failure. American Journal of Critical Care : An Official Publication, American Association of Critical-Care Nurses, 26(1), 62-69.		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
retrospective chart review	**Inclusion criteria:** discharge code (ICD-9 codes) related to heart failure exacerbation of heart failure was the primary or secondary cause of admission that either met the Framingham criteria for exacerbation of heart failure or resulted in the patient receiving treatment for exacerbation of heart failure. history of heart failure **Demographics:** mean age of = 62 years about half were male More than half of the patients had systolic dysfunction with a left ventricular ejection fraction of 40% or less. A total of 26 patients (5.4%) died before discharge The majority of the patients were white. About one-fifth of the patients lived alone at homehistory of heart failure	USA	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
signs and symptoms experienced before the patients sought treatment responses to worsening signs and symptoms by patients and caregivers factors (demographic, psychosocial, and behavioral) that precipitated hospital admission for exacerbation of heart failure medication regimen before admission D/C details.	All admissions in 12 full months to a tertiary medical center were reviewed if the patient had a discharge code related to heart failure A total of 482 patients charts' met the criteria	Patients experienced about 5 signs or symptoms before admission. Dyspnea was the most common (93%) then (64%), exertional dyspnea (42%), orthopnea (36%), angina (34%), cough (33%), paroxysmal nocturnal dyspnea (23%), nausea (22%), weight gain (18%), and excessive tiredness (17%). More than 1/3rd of the patients (36.3%) did not do anything (ie, no action taken was documented in the medical record) when they had signs or symptoms. A few patients called their physicians or nurses (4%) or took a diuretic (3%) before seeking care. Approximately 1/5th of the patients (20.3%) waited until they were severely dyspneic before seeking treatment. Less than half of the patients came to the hospital by ambulance (45%) others were transported by family (12%), other mode of transport (4%), and even by self (2%). mean delay time from symptom awareness to seeking treatment was 16 days mean length of stay during the index hospitalization was 7 days	1). Patients with heart failure often present to hospitals because of dyspnea, exertional dyspnea, orthopnea, angina, cough, paroxysmal nocturnal dyspnea, nausea, weight gain, or excessive tiredness

Citation 2-9	O'Connor, M., Murtaugh, C. M., Shah, S., Barrón-Vaya, Y., Bowles, K. H., Peng, T. R., … Feldman, P. H. (2016). Patient Characteristics Predicting Readmission Among Individuals Hospitalized for Heart Failure. Medical care research and review : MCRR, 73(1), 3–40. doi:10.1177/1077558715595156		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Literture review	**Inclusion Criteria:** (1) written in English (2) published after January 1, 1992 (3) reported the frequency of hospital readmission within a defined follow-up period for adults hospitalized for HF (4) identified statistically significant patient risk factors for readmission measured prior to index hospital stay discharge (5) studies that reported outcomes within 6 months of the index hospital discharge **Demographics:** 34 studies= total 29 were retrospective 5 were prospective 27 studies conducted in the United States. Other countries included Canada, France, South Korea, Switzerland and Thailand	USA	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
(1) patient characteristics (2) readmission rates	34 studies were categorized into 1 of 3 groups: (1) low (studies reporting only bivariate associations) (2) medium (studies using multivariate methods but the sample size is <100, which limits the number of patient characteristics that can be examined simultaneously, or multifacility studies that do not report adjusting for clustering) (3) high (studies with 100+ sample size using multivariate methods with multifacility studies adjusting for clustering).	The length of follow-up: approximately 30 days in 21 studies; 90 days in five studies; and 180 days in five studies. 2 studies measured readmission at both 30 and 90 days and another study measured readmission at both 7 and 30 days. The most common outcome measure was 30-day all-cause hospital readmission The number of recent prior hospital admissions and a prior diagnosis of HF both raise the probability of readmission.	1). Patients with a recent hospital admission or prior diagnosis of heart failure are more likely to be readmitted to the hospital

Citation 2-10	Fraticelli, A., Gesuita, R., Vespa, A., & Paciaroni, E. (1996). Congestive heart failure in the elderly requiring hospital admission. Archives of Gerontology and Geriatrics, 23(3), 225-238.		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
prospective analysis of CHF patients	**Inclusion criteria:** >60 y.o. diagnosis of CHF was established either on admission or during hospital stay on the basis of clinical findings of CHF chest X-ray therapeutic response to diuretics and inotropic drugs. **Demographics:** 50 patients total: 25 (50%) were male mean age was 76.6 years Ischemic (66%) heart diseases hypertensive (58%) heart diseases valvular heart disease, both of a rheumatic and of a degenerative type, was commonly found (44%). Right heart failure due to chronic lung disease was less frequent (10%). 2 or more etiologies of heart disease coexisted in the majority of patients (66%). A hx of prior hospital admission for CHF in 40 (80%), of which 19 (38%) in the previous 6 months. 6 months.	Italy	Hospital
Variables & measures	**Procedures**	**Key Findings**	**Application**
clinical evaluation (history, with emphasis on symptoms of heart failure, risk factors, heart disease, associated disease; physical findings, particularly pulmonary rales, third heart sound, liver enlargement, ankle edema; drugs given during hospital stay) **Cognitive evaluation** and psycho-logical aspects were explored with questionnaires related to mental performance (Mini-Mental State Examination and depression (Geriatric Depression Scale **The instrumental evaluation** = lab tests	CHF patients above 60 years of age admitted to our in May- August of 1995. If patients met the criteria they were admitted to the study Study examined their 1) clinical 2) instrumental 3) cognitive characteristics.	Ischemic (66%) heart disease hypertensive (58%) heart disease valvular heart disease, both of a rheumatic and of a degenerative type= (44%). Right heart failure due to chronic lung disease was less frequent (10%). 2 or more etiologies of heart disease coexisted in the majority of patients (66%). The most common symptom reported on admission was exertional dyspnea (86%) dyspnea at rest or orthopnea in three quarters (74%) of our patients Atrial fibrillation or flutter were found in 38% of patients. Ultrasound evaluation evidenced left ventricular dysfunction of a systolic type in 49% and of a diastolic type in 28.6% of subjects. Diuretics and cardiac glycosides were the most widely administered drugs, followed by ACE-inhibitors, nitrates and dobutamine. Moderate to severe mental deficit was present in 20.8%	1). Patients with heart failure often present to the hospital with exertional dyspnea, dyspnea at rest, or orthopnea. 2). Patient with heart failure also present to the hospital for atrial fibrillation or flutter.

Citation 3-1	Cameron, J., Rhodes, K., Ski, C., & Thompson, D. (n.d.). Carers' views on patient self-care in chronic heart failure. Journal of Clinical Nursing., 25(1-2), 144-152.		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
qualitative study	**Inclusion criteria:** an individual providing informal care to a person diagnosed with CHF who is unpaid in their role considered themselves as a carer for the patient 18 years or above English language proficient and without cognitive impairment. **Demographics:** -12 informal carers of patients with CHF participated in individual interviews. -The carers were cohabitant family members who provided informal care and support to the patient -median age of the carers was 67 (range 50–82) years. -4 (33%) of the carers were male -4 four (33%) reported that English was not their first language -3 (25%) reported they did not suffer from any chronic health conditions. - median year of education for the group: Year 12, with 66% reporting secondary school as their highest achievement.	Austrailia	Home-setting
Variables & measures	**Procedures**	**Key Findings**	**Application**
examined the carer's perspectives on patient barriers and facilitators to successful engagement in CHF self-care and found 4 themes: 1)hindrance to engagement 2) roles and relationships 3) social support and community engagement 4) carer-perceived competency	1)recruited participants through the CHF Hospital Admission Risk Program (HARP) of a health care network 2)Potential participants were identified and first approached by the CHF nurse providing HARP services to a patient. 3)Once the participant had indicated an interest in the study they were contacted by the postgraduate nurse who explained the study and gained their consent before arranging a face-to-face interview. 4) Interviewed to examined the carer's perspectives on patient barriers and facilitators to successful engagement in CHF self-care	1)Carers were asked to describe what they perceived to hinder their care recipient's engagement in CHF self-care. fatigue and inactivity'; mood and coping' 'memory losses'. Carers viewed fatigue and physical inactivity as common in CHF and resulting in patients being less able to engage in relevant self-care behaviours such as regular exercise: 2)Carers viewed their role and relationship with the patient as important in the uptake of self-care. Often they perceived their role as one of support and providing encouragement. Four categories emerged under this theme: 'emotional support', 'encouragement', 'independence' and 'organized routine'. Carers viewed emotional support – reassurance and sympathy – as a means of encouraging self-care: 3)social support and community engagement were identified as having a major positive influence on the motivation to be independent and subsequently the wellbeing of the patient. Support from a variety of sources was apparent and three categories emerged under this theme: 'family', 'community' and 'health care providers' 4)Carers were asked about the role both they and the patient played in managing CHF and more specifically whether there were specific aspects they undertook. Carers' provision of support was dependent on their view as to how well patients were able to self-care. Two categories emerged under this theme: 'experience' and 'knowledge'. Carers felt that patients became more competent at self-care the longer they had the lived with CHF.	1) Physical, cognitive and emotional limitations in patients with CHF can hinder their ability to engage effectively in self-care. 2)Fatigue, inactivity, mood, poor coping skills, and memory loss in CHF patients can be major hindrances to self-care.

Citation 3-2	Sevilla-Cazes, J., Ahmad, F. S., Bowles, K. H., Jaskowiak, A., Gallagher, T., Goldberg, L. R., … Kimmel, S. E. (2018). Heart Failure Home Management Challenges and Reasons for Readmission: a Qualitative Study to Understand the Patient's Perspective. Journal of general internal medicine, 33(10), 1700–1707. doi:10.1007/s11606-018-4542-3		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Observational qualitative	**Inclusion criteria:** 1)Heart failure patients that were hospitalized for heart failure at least twice within 30 days 2) Patients who had been recently discharged after their first heart failure admission. **Demographics:** mean age= 59 years	USA	Home setting
Variables & measures	**Procedures**	**Key Findings**	**Application**
1)Open-ended, semi-structured interviews. 2)focus groups. Questions addressed the experience of living with heart failure and perceptions about managing heart failure at home	Patients were separated into 2 groups 1) patients with a readmission following a prior heart failure admission (readmission group) 2) patients recently discharged from a heart failure admission (index admission group).	These interviews revealed a combination of physical and socio-emotional influences on patients' home management ability and decisions for readmission. Two main themes emerged from interview data: 1)home management as a struggle between adherence and adaptation 2) hospital readmission as a rational choice in response to distressing symptoms.	1).Patient with CHF that perform cycles of limit testing have increased trouble managing their disease at home. (Limit testing=perceived lack of association between behavior and symptom onset decreased future motivation to follow recommendations; As the cycle progressed, deteriorating function went unperceived until their health status was too poor to manage at home) 2). Patients with CHF that experience the feeling of despair have increased trouble managing their disease at home. 3). Patient with CHF that have feelings of fear and stress have increased trouble meaning their disease at home. 4). Patients with CHF that were uncertain about recommendations caused by inadequate or vague instructions upon their discharge from the hospital were more likely to have trouble managing their disease at home.

Citation 3-3	Wingham, J., Frost, J., Britten, N., Jolly, K., Greaves, C., Abraham, C., … REACH-HF research investigators (2015). Needs of caregivers in heart failure management: A qualitative study. Chronic illness, 11(4), 304–319. doi:10.1177/1742395315574765		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
qualitative study informe	**Inclusion criteria:** at least 6 months experience as a caregiver caregiver for a person with HF **Demographics:** 22 participants performed individual interviews (21 were in the caregiver's home and one was in the research unit at a general hospital) Interviews mean time= 62 minutes The participants were aged 39–84 years 16 were women 20 were in spousal or partner relationships	United Kingdom	Primarily home setting
Variables & measures	**Procedures**	**Key Findings**	**Application**
demographic and social factors of caregivers Semi-structured face-to-face interviews were thematically analyzed	1)Caregivers were contacted by community-based cardiac nurses or the cardiac rehabilitation team in three geographical settings reflecting the diversity of the United Kingdom population 2)The clinical team sent the caregiver a participant information sheet, a questionnaire and a letter inviting them to participate in the research. 3)A questionnaire, collecting demographic and socioeconomic information with a free text section to allow caregivers to provide their contact details, was sent to all participants together with a stamped addressed envelope. 4) A purposive sample of caregivers was selected by the research team 5)Participants were invited to be interviewed in relation to their caregiving responsibilities. 6). Following completion of the individual interviews, a focus group was conducted with a different group of caregivers in Cornwall alone.	uncertainty about HF management -coping with the variability of HF symptoms and many reported there was no average day as a caregiver. This had a direct impact on their role as it required them to discern when to encourage self-management and physical activity or when to step in and take control. -there was evidence of 'hyper vigilance', constantly monitoring (day and night) for signs and symptoms of HF even when the person they were caring for is well. -much concern about medications -many caregivers reported that they provide emotional support and encouragement at the same time as managing their own emotions. -caregivers who were providing physical care were concerned about skin integrity and manual handling Supporting depression management	1). People with CHF have trouble managing their symptoms at home when their caregivers are uncertain about HF management.

Citation 3-4	Simmonds, R., Glogowska, M., McLachlan, S., Cramer, H., Sanders, T., Johnson, R., … Purdy, S. (2015). Unplanned admissions and the organisational management of heart failure: a multicentre ethnographic, qualitative study. BMJ open, 5(10), e007522. doi:10.1136/bmjopen-2014-007522		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
longitudinal, patient-led	Inclusion criteria: -adult patients with an unplanned hospital admission for HF during the preceding 6 months - referring clinician considered had severe or difficult to manage HF Demographics: -31 patients with severe or difficult to manage HR followed for up to 11 months (16-patients were male, 10 patients lived alone, 5 lived in deprived areas and the average age was 72 years) - 9 carers -55 healthcare professionals (23 clinicians participated in in-depth interviews across research sites including: 7 GPs; 4 community nurses; 5 heart failure specialist nurses; 5 senior hospital doctors (including 3 consultant cardiologists) and 2 cardiac rehabilitation therapists. -44 recorded impromptu interviews with patients, carers and clinicians -10 patient and carer diaries (four patients and 6 carers) -18 patient medical records -22 patient and/or carer in-depth interviews -interviews with 24 clinicians.	England, UK.	healthcare clinics
Variables & measures	**Procedures**	**Key Findings**	**Application**
Participating patients were followed individually using ethnographic methods (observation, impromptu interviews) throughout their interactions with healthcare, for a period of up to 11 months during 2011–2013 Observational data were recorded in notebooks and audio recordings	Three social scientists (RS, SM, MG) carried out all data collection Participating patients were followed individually using ethnographic methods (observation, impromptu interviews) throughout their interactions with healthcare, for a period of up to 11 months during 2011–2013	Insufficient disclosure of diagnosis and educating patients about heart failure -Lack of patient information and education about HF was a key barrier to the development of patient self-help strategies that can help prevent readmissions. -Having multiple comorbidities which made managing heart failure more challenging. -Some GPs lacked knowledge of heart failure and specialist services, resulting in ‘mismanaged patients.H4	1). People with HF have trouble managing their disease at home when they are given insufficient disclosure of their diagnosis and/or education about HF 2). People with HF have increased trouble managing their disease at home when they have multiple comorbidities which consequently makes managing heart failure more challenging.

Citation 3-5	Ahmad, F. S., Barg, F. K., Bowles, K. H., Alexander, M., Goldberg, L. R., French, B., … Kimmel, S. E. (2016). Comparing Perspectives of Patients, Caregivers, and Clinicians on Heart Failure Management. Journal of cardiac failure, 22(3), 210–217. doi:10.1016/j.cardfail.2015.10.011		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
qualitative study	**Inclusion criteria:** Patients that were admitted to a cardiology or general medicine service with a primary diagnosis related to HF. Caregivers were identified by the patient and asked if they were able to participate Clinician participants were those working on interdisciplinary teams caring for HF patients at the two hospitals. These included physicians, NPs, RNs, PAs, social workers, and care coordinators (nurses who provide case management and discharge planning services). **Demographics:** 58 patients; Mean age = 64±19 years old with 28% of patients older than 70 years old. 32 caregivers, 66% of whom were female; Slightly more than half of the caregivers were spouses of the patient, and the second-largest group of caregivers was patients' adult children (31%). The median number of hours of care was 35 per week. 67 clinicians (25 physicians; 25 RNs, NPs, and PAs; and 17 social workers and care coordinators.	UA	Hosptial
Variables & measures	**Procedures**	**Key Findings**	**Application**
demographic and clinical characteristics socio-demographic clinical variables responses to script questions for the interviews	1) 30-minute interviews from written script were audio recorded transcribed for analysis. 2) Then individual lists were inspected to combine synonyms and similar ideas and to standardize word forms or phrases. 3) Then the medical anthropologist and her research assistant reviewed the comments from other team members and revised the lists. The list of standardized words and phrases were then entered into Anthropac© 4.98 4) A data list was created for each of the three questions for each role (patient, caregiver, and provider) for a total of 9 data lists. 5) Our primary analyses focused on describing salient terms for the group as a whole, and then comparing salient terms for patients, for caregivers, for clinicians, and for subgroups of clinicians.	Patients, caregivers, and clinicians view challenges to HF management differently Patients/caregivers cite very different reasons for readmission than clinicians Patients/caregivers state distressing symptoms as the cause of admission In contrast, clinicians cite patient behaviors as the primary drivers Understanding these differences may help to reduce readmissions	1). People with HF have trouble managing their disease at home because of symptoms such as trouble breathing and swelling and their diseases. 2). People with HF have increased trouble managing their disease at home because of their physical limitations, activities of daily living, and diet as salient terms.

Citation 3-6	Namukwaya, E., Grant, L., Downing, J., Leng, M., & Murray, S. A. (2017). Improving care for people with heart failure in Uganda: serial in-depth interviews with patients' and their health care professionals. BMC research notes, 10(1), 184. doi:10.1186/s13104-017-2505-0		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
Serial qualitative in-dept	Inclusion criteria: -18 years or older -had to have 4 out of the 5 criteria of the definition of advanced HF by Metra et al. -if they lived within 30 km from Kampala -Had to speak Luganda or English Demographics: 48 face-to-face qualitative longitudinal interviews were conducted with 21 patients and 9 carers. -36-patient alone -4 paired-patient and family carer, -8 with bereaved carers Eight one-off interviews were conducted with 5 doctors, 2 nurses and a social worker involved in their care.	Uganda	hospital and their home context
Variables & measures	**Procedures**	**Key Findings**	**Application**
socio-demographic characteristics of the patients and the perceptions of the patients, caregivers/ families, doctors, RNs, social workers	1)Patients were interviewed in the hospital 2)Patients were followed up monthly by mobile phone calls to maintain contact and relationship and to provide an alert if there was change in health status which would trigger a subsequent interview in order to capture needs at the time. 3)Repeat interviews were conducted at 3 and 6 months thereafter if the patients' clinical condition remained stable, and earlier if there was marked deterioration. Bereavement interviews were conducted with family carers of those patients who died before they had completed the three interviews. Interviews were conducted with HPs involved in the care of the patients. 4)All interviews were audio recorded and field notes were written 5)Audio recorded interviews of the HPs were transcribed verbatim and then translated into English. Transcripts were exported into QSR Nvivo software with the field notes. 6)3 authors discussed and agreed on codes and themes that were generated from the data.	This study demonstrated that the current care for Ugandan patients with HF that is based on the biomedical approach to illness, that stresses management of physical needs, was insufficient to meet the multidimensional of these patients.	1). People with HF have trouble managing their disease at home when they are not given sufficient information about their diagnosis and/or education about HF

Citation 3-7	Schumacher, C., Hussey, L., & Hall, V. (2018). Heart failure self-management and normalizing symptoms: An exploration of decision making in the community. Heart & Lung, 47(4), 297-303.		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
qualitative	Inclusion criteria: 1)able to understand and speak English sufficient for informed consent and participation in an interview, 2) had experienced a heart failure exacerbation requiring hospitalization in the previous 3months 3) had received self-management education 4) over the age of 18 years. Demographics: 18 face-to-face interviews were completed. Interview recordings lasted between 16.16 minutes and 39.07 minutes Participants were primarily White(n=17) With 11 females and 7 males. Mean age= 74.27years	Canada	Community healthcare agency
Variables & measures	**Procedures**	**Key Findings**	**Application**
Basic demographics health information Participants responses to interview questions	1)face-to-face interview (During the interview observations and contextual data were hand written as field notes). While researcher reflections were immediately documented after leaving the participants home. 2)Audio recordings were transferred to a computer, analyzed with Dragon speech recognition, and converted to a Word document. The automated transcription was checked against the audio for accuracy by (N1) and uploaded into an NVivo11 Pro for Windows project file for storage. 3)Field notes and researcher reflections were transcribed and added to assist with interpretation and theory building. Constant comparison within and between cases were used to generate codes. 4)Thematic development using word frequencies and cross-referencing modes 5)Analysis meetings	Individuals with heart failure were found to implement normalizing behaviors to minimize, eliminate, and avoid symptoms, these normalizing behaviors consequently reduced participation in exertional activities and overall physical functioning, resulting in progression towards a more sedentary lifestyle. -Daily symptoms were not noted or taken into account as part of self-management monitoring. -Collaborative patient-physician relationships as indicated in self-management education decision aids are not demonstrated, which signals that system mechanisms need to be developed and supported.I9	1). People with HF have trouble managing their disease at home when they implement normalizing behaviors to minimize, eliminate, and avoid symptoms. 2). People with HF have trouble managing their disease at home when they implement normalizing behaviors because these consequently reduced participation in exertional activities and overall physical functioning, resulting in progression towards a more sedentary lifestyle 3). People with HF have trouble managing their disease at home when their daily symptoms were not noted or taken into account as part of self-management monitoring. 4). People with HF have trouble managing their disease at home when they are not are given opportunities to engage in collaborative self-management education with their physicians.

Citation 3-8	Sterling, M. R., Silva, A. F., Robbins, L., Dargar, S. K., Schapira, M. M., & Safford, M. M. (2018). Let's talk numbers: a qualitative study of community-dwelling US adults to understand the role of numeracy in the management of heart failure. BMJ open, 8(9), e023073. doi:10.1136/bmjopen-2018-023073		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
qualitative	**Inclusion criteria:** patients must have had a diagnosis of HF for at least 1 year had an office visit at the clinic within the last year must have been admitted to the hospital with a primary diagnosis of HF within the last 6 months. **Demographics:** 30 participants mean age = 67 years On average, participants had HF for 11 years (SD 7.8)	USA	primary care practice
Variables & measures	**Procedures**	**Key Findings**	**Application**
sociodemographic Medication use was ascertained through pill bottle review 10-item Centre for Epidemiological Studies Depression Scale Subjective Numeracy Scale (SNS) Participants responses to interview questions	1) Interviews were audio-taped 2) professionally transcribed 3) data were managed with ATLAS.ti Software. The data were analysed using grounded theory. A constant comparative approach was used at each stage of the analysis. Once all transcripts were coded, the three investigators then compared common codes using dimensions and properties and consolidated them into 13 categories by consensus. The categories were then consolidated into five unifying themes, which a fourth investigator reviewed (MMS).	Many patients with HF lack basic understanding and numeracy skills required for adequate self-care. As such, patients rely on caregivers who may lack HF training.	1) People with HF have trouble managing their disease at home when they lack basic understanding and numeracy skills required for adequate HF self-care. 2) People with HF have trouble managing their disease at home when they lack basic understanding and numeracy skills required for adequate HF self-care and rely on caregivers who lack HF training.

Citation 3-9	Burke, R., Jones, J., Ho, P., & Bekelman, D. (2014). Caregivers' Perceived Roles in Caring for Patients With Heart Failure: What Do Clinicians Need to Know? Journal of Cardiac Failure, 20(10), 731-738.		
Type of Report	**Participant Characteristics**	**Location**	**Context of Study**
qualitatibe study	Inclusion criteria: >18 years old Diagnosis of HF New York Heart Association functional class II-IV Cardiologist of the research team needed to confirm diagnosis of HF Demographics: 20 caregivers Median age= 64 y.o. Majority had NYHA functional class III-IV	USA	outpatient cardiology & geriatrics clinics
Variables & measures	**Procedures**	**Key Findings**	**Application**
Demographics and characteristics Caregivers responses to interview questions	1) 60–90-minute semi-structured interviews with the patients and caregivers 2) They analyzed the responses of all 20 caregivers with the use of a general inductive approach31 at the individual transcript level 3) Initial codes were developed by a primary coder (REB), who then met regularly with content experts familiar with the interviews from previous work (JJ, DBB) to discuss coded data and reach consensus on code labels 4) They developed themes based on this analysis, and then looked within and across caregivers for variation, similarities, and differences	Heart failure caregivers fulfilled 3 roles but felt unsupported by clinicians. Roles included health manager, quality of life advocate, and expert in HF at home.	1). People with HF have trouble managing their disease at home when their caregivers experienced difficulty in understanding what the care plan was or how to best manage the illness at home secondary to poor communication with the doctors.

Appendix B: Modified CAT

Tiede, M., Dwinger, S., Herbarth, L., Härter, M., & Dirmaier, J. (2017). Long-term effectiveness of telephone-based health coaching for heart failure patients: A post-only randomized controlled trial. *Journal of Telemedicine and Telecare*, *23*(8), 716–724. doi: 10.1177/1357633X16668436

CAT Author: Allyson Lancey **Date:** 1/14/20

Bottom Line(s):

The non-medical intervention, telephone-based health coaching, resulted in higher levels of physical activity, lower intake of non-prescribed drugs, and lower levels of stress compared to those who did not received this non-medical intervention.

Summary of key evidence:

1. Study design: Post-only randomized controlled trial
2. Population: 184 patients with heart failure
3. Procedure: Patients with a diagnosis of heart failure were assigned to either the intervention group (the telephone-based health coaching) or the control group
4. Outcome measures: Data were collected at 24 and 48 months after the beginning of the coaching. The primary outcome was change in quality of life. Secondary outcomes were changes in depression and anxiety, health-related control beliefs, control preference, health risk behavior and health-related behaviors.
5. Results: Our results suggest that telephone-based health coaching has no effect on QoL, anxiety and depression of heart failure patients, but helps in improving certain risk behaviors and changes the locus of control to be more externalized. The telephone-based health coaching, resulted in higher levels of physical activity, lower intake of non-prescribed drugs, and lower levels of stress compared to those in the control group. Results also showed a different external locus of control and higher reduction in unhealthy nutrition in the intervention group compared to the control group.

Appraisal and comments:

1. **Strengths:** The health-status of heart failure patients may improve through telephone-based health coaching
2. **Limitations:** The majority of the participants of this study were females and therefore cannot be generalized to both sexes.
3. **Other comments:** Data was collected at long-term points (24 and 48 months after the beginning of the coaching) which is important when thinking about a lifestyle changes for disease management.

Meng, K., Musekamp, G., Schuler, M., Seekatz, B., Glatz, J., Karger, G., … Faller, H. (2016). The impact of a self-management patient education program for patients with chronic heart failure undergoing inpatient cardiac rehabilitation. *Patient Education and Counseling, 99*(7), 1190–1197. doi: 10.1016/j.pec.2016.02.010

CAT Author: Allyson Lancey **Date:** 1/16/2020

Bottom Line(s):

1. The non-medical intervention, self-management, is an essential part of HF treatment.
2. Information on successful group program features for CHF management is lacking.
3. There is evidence for the effectiveness of the non-medical, self-management and patient education interventions for patients with HF regarding knowledge, self-efficacy, self-management, health-related quality of life, hospitalization and mortality.

Summary of key evidence:

1. **Study design:** A multi-center cluster randomized controlled trial
2. **Population:** Inclusion criteria: participants were a diagnosis of chronic systolic heart failure, left ventricular ejection fraction (LVEF) of ≤ 40, and New York Heart Association (NYHA) functional classification II or III. Exclusion criteria: were acute events of decompensation, cognitive impairment, inadequate German language ability, and severe visual or hearing impairment.
3. **Procedure:** Clusters were patient education groups that comprise HF patients recruited within two weeks after commencement of inpatient rehabilitation. Clusters were randomly assigned to the two treatment groups: in the intervention group (IG), patients received the new patient-centered self-management educational program, whereas in the control group (CG), patients received a short lecture program (usual care). Intervention group: Patients in the intervention condition received a self-management educational program that consisted of five patient-centered, interactive sessions of either 60 or 75 min each, which were provided in small groups of a closed format. The program was manual-based and interdisciplinary with sessions led by a physician, a nurse, a psychologist and a physiotherapist. Didactic materials included presentations, flipcharts, and two patient booklets. Contents of the lessons included HF disease and treatment knowledge with regard to individual information needs of the participants. Furthermore, the program focused on self-management behaviors and medication adherence. To promote physical activity, theory-based intervention techniques were applied. Additionally, illness related problems in everyday life and signs of emotional distress with regard to HF and coping strategies were discussed. Control group: Control condition was one lecture of basic illness related education given by a physician with a duration of about 60 min. Information was mostly presented in a vertical manner. Contents included basic medical HF disease information and self-management recommendations. Patients received three handouts, which comprised main information on HF, and worksheets.
4. **Outcome measures:** Self-monitoring and insight, skill and technique acquisition: Two scales of the German version of the Health Education Impact Questionnaire

(heiQ) were administered. Self-efficacy: The Self-efficacy sub-scale of the Kansas City Cardiomyopathy Questionnaire (KCCQ). Symptom control: A new measure was developed based on existing instruments and program-content consisting of 10 items. Items were divided into 3 subscales—symptom monitoring (3 items; e.g., "I weight myself every day"), response to symptoms (3 items; e.g., "If my medical condition deteriorates I contact my doctor"), and prevention/diet (4 items; e.g., "I mind eating a low salt diet"). Physical activity: Participants reported how often per week and how long per session they performed strenuous, moderate, and light physical exercise (modified version of the Godin Leisure-Time Exercise Questionnaire) outside of work duties. A total physical activity score (in minutes per week) was calculated by total number of sessions per week in each domain multiplied by minutes per session in each domain. *Medication adherence*: Patients completed the German version of the Medication Adherence Report Scale (MARS-D, *HRQL (disease specific):* Patients completed the German version of the KCCQ. 23 items are used to quantify physical function, symptoms (frequency, severity and recent change), social function, self-efficacy, and quality of life. *Treatment satisfaction:* Patients were asked to judge
5. **Results:** At discharge, rehabilitants of the IG indicated significant higher treatment satisfaction with the educational program they attended as compared to the CG. They showed higher satisfaction in general as well as with regard of "content," and "group/interaction.". At 6-months, both IG and CG showed significant, small improvements in symptom control, that is symptom monitoring, response to symptoms and prevention/diet, and the amount of physical activity. SESs indicate that the IG improved more than the CG regarding physical activity. There was no significant increase for medication adherence in both groups, possibly due to high baseline-scores.

Appraisal and comments:

1. Strengths: This study found a significant, albeit small between-group intervention effect on certain dimension of patients' self-management competence at discharge from inpatient rehabilitation. Participants of the IG, as compared to the CG, showed superior self-monitoring and insight and by trend on skill acquisition but not on self-efficacy.
2. **Limitations:** All outcomes were measured by self-report, albeit with validated questionnaires. Objective measures are preferable but not possible in this context.
3. **Other comments:** Comprehensive patient education is warranted, but specific information on group program features is lacking. A patient-centered self-management group program might be more effective than a lecture-based ucare education within inpatient cardiac rehabilitation.

Joekes, K., Van Elderen, T., & Schreurs, K. (2007). Self-efficacy and overprotection are related to quality of life, psychological well-being and self-management in cardiac patients. *Journal of Health Psychology*, *12*(1), 4–16.

CAT Author: Allyson Lancey **Date:** 1/18/2020

Bottom Line(s): Succinct statements regarding implications of findings *for the project*.

1. It may be useful to pay attention during cardiac rehabilitation to the role of the partner and the manner in which they support the cardiac patient. Although partners tend to be included in rehabilitation programs (to a varying extent), it is unclear whether there is any focus on the style of 'support' given.
2. The findings from this study confirm the importance self-efficacy, with respect to psychological well-being and, in particular for CHF patients, subjective experience of HRQoL.
3. Findings have implications for cardiac rehabilitation, where attention may usefully be focused on enhancing non-medical interventions consisting of health-related behaviors such as self-efficacy and dealing with issues of support and overprotection by the partner.

Summary of key evidence:

1. **Study design:** Repeated-measures study
2. **Population:** The sample consists of two sub-groups of cardiac patients, including 41 CHF patients and 41 MI patients
3. **Procedure:** CHF patients were recruited from four general hospitals and myocardial infarction (MI) patients from one cardiac rehabilitation center and one general hospital in the Netherlands. Inclusion criteria: Heart failure patients who had a Left Ventricular Ejection Fraction (LVEF) of < 40 per cent, a New York Heart Association (NYHA) classification II or III and experienced breathlessness. MI patients who experienced an MI between six weeks to 12 months previously were included. Exclusion criteria: if patients were older than 75 years, were hospitalized during the last month or lived in a nursing home, were undergoing psychiatric treatment or were unable to complete a questionnaire.
4. **Outcome measures:** *Demographics data. Questionnaires* to be completed at home (T1). A follow-up questionnaire after three months (T2). *Overprotection* was assessed using a subscale of questionnaire measuring support styles, which was developed by Buunk and colleagues (1996) based on work by Coyne (Coyne, Ellard, & Smith, 1990; Coyne & Smith, 1994). (The OverprotectionSubscale). *Self-efficacy with respect to self-management* was assessed using a subscale taken from a self-efficacy questionnaire based on Lorig et al. (1996). *Anxiety and depression* were measured using the Hospital Anxiety and Depression Scale. *Health-related quality of life* was measured by way of the MacNew Heart Disease Health-related Quality of Life Questionnaire. *Self-management* was assessed by a self-constructed scale, which assesses to what extent patients have adhered to the advised medical regimen during the past week.

5. **Results:** The results show that CHF patients report higher levels of anxiety and depression than MI patients. Since CHF patients tend to be in a worse physical condition, suffering more pervasive symptoms with a worse prognosis, these findings may not be surprising. However, the health-related quality of life scores did not differ between the two patient groups. CHF and MI patients report similar (high) levels of self-management and they appear to feel equally highly efficacious regarding these self-management behaviors. The perception of overprotection is associated with feelings of distress and lowered quality of life.

Appraisal and comments:

1. **Strengths:** Heart failure patients and the MI patients were included in this study if he or she had a partner. This study examined the impact of patient's feeling overprotected by their partners.
2. **Limitations:** This study does not explain non-medical interventions and/or medical interventions utilized with this population. Assesses patients' feelings. The study sample was fairly small, in particular with reference to women. This both restricts the possibilities for data analysis, and limits the generalizability of the findings. Furthermore, the two patient groups (i.e. MI and CHF patients) differ inherently form each other, with CHF patients being older, sicker and tending to have a longer history of cardiac disease.
3. **Other comments:** Overprotection can be seen as a multi-dimensional construct. A patient can feel overprotected in different ways (e.g. emotionally or practically), and this can vary in intensity, from moment to moment and from situation to situation. There is a conceptual overlap between overprotection and solicitous behavior by a significant other, although it is suggested here that a perception of 'overprotection' contains a more negative connotation. Research on solicitous behavior (e.g. indicating concern about the patient's physical condition, discouraging activity, taking over tasks) initially focused on pain patients, identifying a relationship between solicitous behavior, and worse pain reports and disability in chronic pain patients (Romano et al., 1995; Turk, Kerns, & Rosenberg, 1992). Similarly, solicitous behavior has been associated with worsened fatigue and functional status in patients suffering from chronic fatigue syndrome (Schmaling, Smith, & Buchwald, 2000), and greater illness severity, disability and depressive symptoms in angina patients (Itkowitz, Kerns, & Otis, 2003).

Glatz, J., Muschalla, B., & Karger, G. (2014). Patientenschulung bei Herzinsuffizienz verbessert krankheitsbezogenes Wissen und Verhalten während kardiologischer Rehabilitation [Patient education in heart failure improves disease-related knowledge and behavior during cardiac rehabilitation]. *Die Rehabilitation*, *53*(3), 155–160. doi:10.1055/s-0033-1351312

CAT Author: Allyson Lancey **Date:** 1/20/2020

Bottom Line(s): Succinct statements regarding implications of findings *for the project*.

1. Cardiac rehabilitations can benefit from implementing the non-medical intervention, an educational program, in order to improve patients' disease-related knowledge and self-management skills.
2. Patients that were a part of the intervention group (educational program) had a sustained higher knowledge (about their disease), were better adjusted to medication after 6 months and documented their self-tests more frequently.

Summary of key evidence:

1. **Study design:** Randomized controlled trial
2. **Population:** Patients with heart failure admitted to cardiac rehabilitation
3. **Procedure:** Patients that were admitted to a cardiac rehabilitation were randomly assigned to either an intervention group or a control group at the beginning of rehabilitation. Both received a rehabilitation specifically geared to heart-failure-patients. The intervention group received additionally the education program, the control group a single lecture on the disease.
4. **Outcome measures:** At the end of rehabilitation and 6 months later the knowledge and integrity of the recommended self-tests were collected. In addition, the disease severity and pharmacotherapy were determined.
5. **Results:** Both groups showed improvements in disease status.

Participants of the education program had a sustained higher knowledge, were better adjusted to medication after 6 months and documented their self-tests more frequently.

Appraisal and comments:

1. **Strengths:** This study assessed participants 6 months post discharge from cardiac rehabilitation. This time-frame helps determine if the intervention had somewhat of a lasting impression on the participants. There was an educational component to both participant groups and both groups showed improvements in disease status which helps support the influence of disease-related education.
2. **Limitations:** This study only examined patients with heart failure who attended a cardiac rehabilitation program.
3. **Other comments:** Rehabilitation aims to improve self-management abilities.

Houchen, L., Watt, A., Boyce, S., & Singh, S. (2012). A pilot study to explore the effectiveness of "early" rehabilitation after a hospital admission for chronic heart failure. *Physiotherapy Theory & Practice*, *28*(5), 355–358. doi:10.3109/09593985.2011.621015

CAT Author: Allyson Lancey **Date:** 1/20/2020

Bottom Line(s):.

This pilot study suggests that rehabilitation, which is a non-surgical intervention, was able to significantly improve exercise capacity, decrease depression, and reduce CHF-associated health care utilization in patients with CHF who have recently experienced an exacerbation that required a hospital admission.

Summary of key evidence:

1. **Study design:** Single group, pretest and post-test design
2. **Population: Inclusion criteria:** All patients were inpatients recruited from cardiology wards at Glenfield Hospital. Patients needed a confirmed diagnosis of CHF and had to be admitted with an exacerbation (i.e., fluid overload); were optimally medically managed; and had impaired exercise tolerance (NYHA classifications II–IV. Exclusion criteria were those admitted for planned surgery; those unable to perform the rehabilitation intervention due to significant musculoskeletal or neuromuscular comorbidities; and psychiatric or neurological conditions rendering the patient unable to comply.
3. **Procedure:** The Rehabilitation commenced within 4 weeks of discharge from the hospital, and patients attended our outpatient HF rehabilitation clinical service, which was already established.
The rehabilitation program included exercise and self-management education. This was delivered by a multidisciplinary team in a supervised session once a week for 6 weeks. The six education sessions delivered by a multidisciplinary team lasted for 1 hour and were diet, exercise, disease education, self-management, medications, and living with a long-term condition.
The exercise component of the class was a circuit that lasted for 1 hour (a warm-up, aerobic walking and cycling, resistance exercises with free weights, and a cool-down).
4. **Outcome measures:** Outcomes measures were assessed at *baseline* (within 2 weeks of hospital discharge) and *after rehabilitation* (within 1 week of completion). *Hospital anxiety and depression scale (HADS)* (Zigmond and Snaith, 1983). *The incremental shuttle walking test (ISWT)* (Singh et al., 1992). *Endurance shuttle walking test (ESWT)* (Revill et al., 1999)

5. **Results:** These results show that, in the short-term, exercise tolerance and depression improved significantly after rehabilitation.
There was a modest improvement in the HADS anxiety score, but this change did not reach statistical significance.

Appraisal and comments:

1. **Strengths:** Rehabilitation can be beneficial for patients with CHF who have recently experienced an exacerbation that required a hospital admission.
2. **Limitations:** Small sample size (pilot study)
3. **Other comments:** One of the characteristic features of chronic heart failure (CHF) is the longitudinal decline in physical activity that leads to physical deconditioning, skeletal muscle dysfunction, and worsening exercise tolerance (Graham et al., 2007). People with CHF experience acute exacerbations of their symptoms, also known as episodes of "acute decompensation." These episodes have detrimental effects for patients in terms of decreased muscle strength and reduced physical activity; they often require a hospital admission, which presents a huge burden to the patient and the health service (Cleland, 2002).

Jolly, K., Tayor, R., Lip, G., Greenfield, S., Davies, M., Davis, R., . . . Stevens, A. (2007). Home-based exercise rehabilitation in addition to specialist heart failure nurse care: Design, rationale and recruitment to the Birmingham Rehabilitation Uptake Maximization study for patients with congestive heart failure (BRUM-CHF): A randomized controlled trial. *BMC Cardiovascular Disorders, 7*, 9.

CAT Author: Allyson Lancey **Date:** 1/27/20

Bottom Line(s): Succinct statements regarding implications of findings *for the project*.

1. According to this study, exercise programs appear to be appropriate for only a minority of patients with heart failure.
2. Factors that could contraindicate exercise programs include: disease severity; co-morbidities accounted can account for individuals not being suitable for exercise; > age of patients with heart failure means that there will be a higher chance of having a co-morbidity/ co-morbidities.

Summary of key evidence:

1. **Study design:** Randomized controlled trial
2. **Population:** 169 patients with stable heart failure, defined as systolic impairment (ejection fraction ≤ 40%); with one or more hospital admissions with clinical heart failure or NYHA II/III within previous 24-months were recruited.
3. **Procedure:** Comparison of specialist heart failure nurse care alone (control group) with specialist heart failure nurse care plus a structured exercise intervention (intervention group). Intervention group received the exercise program which commenced with three supervised exercise sessions to provide the patient with confidence and to plan an individualized exercise program. This was followed by a home-based program with home visits at 4, 10 and 20 weeks, telephone support at 6, 15 and 24 weeks and a manual.
4. **Outcome measures:** Follow-up by postal questionnaire and clinical assessment occurs at 6 months and by postal questionnaire at 1 year.

Minnesota Living with Heart Failure Questionnaire

Secondary outcome measures at 6 months are: 1) composite of death or admission with heart failure or myocardial infarction, 2) admission with heart failure, 3) mortality (all-cause and vascular, 4) EuroQol (a new facility measurement for health-related quality of life), 5) HADS (The hospital anxiety and depression scale), 6) blood pressure, 7) self-reported physical activity, 8) distance walked on the ISWT (Shuttle-walk test).
At 12 months the ISWT and blood pressure measurements are omitted.
Process measures to determine the comparability of intervention received from the specialist heart failure service included self-reported smoking cessation, salt reduction and alcohol intake. Uptake and adherence to the exercise intervention are assessed by 1) attendance at the hospital training sessions 2) patient completed exercise diaries at 4, 10 and 20 weeks in the intervention group.

5. **Results:** The remaining 186 (12% of all initially reviewed patients) agreed to participate in the study, 2% of these failed to attend the assessment or changed their mind at assessment. The remaining 181 patients all gave written and informed consent and were assessed by incremental shuttle walk test for suitability before randomization. We identified contraindication to home exercise in 12 of the assessed patients at the ISWT. Overall, only 10% of all currently alive patients referred to the three heart failure nurse services in the two years prior to commencing the study and during the 19 months of recruitment were actually randomized.

Appraisal and comments:

1. **Strengths:** The home program was predominantly aerobic training based largely on progressive walking with self-completion activity logs. Exercise prescription was based upon the participant's baseline exercise tolerance as measured by the incremental shuttle walking test. An individually prescribed walking program was identified from this test at a speed that corresponded to 70% of peak performance. During the first two weeks of rehabilitation the speed of walking was secured by the patient with the help of the rehabilitation team. Targets were set weekly for the duration and frequency of walks, which largely depended on an individual's baseline exercise capacity. The program aimed for the patients to achieve 20 to 30 minutes of walking 5 times a week after 10 weeks of rehabilitation. This was monitored with home training diaries. Strength training was low intensity, using the patient's own body weight for resistance. The focus of the strength training was both upper and lower limb. The "milk bottle regime" currently used in the rehabilitation program in Leicester are used. Patients complete sets of up to 10 repetitions of 8 key exercise using milk bottles filled with gradually increasing volumes (thus weights) of water. Targets are set and level of difficulty assessed. Individual exercises are omitted in patients with particular needs or difficulties. Specific support for the exercise intervention ceases after six months but patients are encouraged to continue to maintain their activity levels.
2. **Limitations:** Due to safety considerations for home-exercise less than half of patients treated by specialist heart failure services were eligible for the study. Many patients had co-morbidities preventing exercise and others had concerns about undertaking an exercise program.
3. **Other comments:** Reasons for non-participation given included a perception of being too old, too unwell or too busy. This is an issue which will need to be considered when planning rehabilitation services for patients with heart failure.

Wingham, J., Harding, G., Britten, N., & Dalal, H. (2014). Heart failure patients' attitudes, beliefs, expectations and experiences of self-management strategies: A qualitative synthesis. *Chronic Illness, 10*(2), 135-154.

CAT Author: Allyson Lancey **Date:** 1/27/20

Bottom Line(s): Succinct statements regarding implications of findings *for the project*.

1). This synthesis has indicated that patients are confronted with a considerable amount of information at the time of diagnosis and that providing too much information too early may be counterproductive, with a risk that this may lead to a reaction of strategic avoidance. We suggest that patients and their family members are given limited information at diagnosis while they come to terms with the diagnosis and that they are subsequently offered further information and support that focuses on the psychological aspects of becoming a person having to live with HF. Health care professionals must listen to and negotiate with their patients (and their family members) about how they wish to be involved in their care, taking into account the patient's understanding of HF.
2) A well-designed intervention based on the attitudes, beliefs, expectations, and experiences of people living with HF may enable more people to become advanced managers.
3). Comprehensive cardiac rehabilitation is a complex intervention that includes exercise, education, and psychological components that can facilitate behavior change and enhance self-management in the long term. Our model suggests that patients who decline cardiac rehabilitation or alternative interventions should be offered it again at a later stage.

Summary of key evidence:

1. **Study design:** A synthesis of 19 qualitative research studies using the method of meta-ethnography.
2. **Population:** Patients with heart failure
3. **Procedure:** Meta-ethnography, a technique for qualitative synthesis involves induction and interpretation; Inclusion criteria were qualitative studies that recruited adults with HF who lived in their own home. They focused on papers concentrating on attitudes, beliefs, and expectations of self-management. Studies about palliative care were excluded. Search terms were scrutinized by an information retrieval specialist and refined using the Setting Perspective Intervention Comparison Evaluation (SPICE) tool Our systematic search used five electronic databases—Medline, Embase, CINAHL, PsycINFO, and ASSIA—for papers published between January 1990 and October 2010 and was limited to papers published in English. Abstracts were screened to remove papers not relevant to the study. Two researchers independently screened the remaining 84 full papers for relevance to the research question, and assessed rigor by using the unmodified Qualitative Critical Appraisal Skills Programme (CASP) assessment tool. After discussion among the team, 19 key papers were identified for the synthesis. The conceptual model includes the attitudes, beliefs, expectations, and experiences that influence self-management of HF.

4. **Outcome measures:** Memorandum notes were used to make explicit our decision to extract these particular data and our interpretation of each paper. We distinguished direct quotes from the research participants (referred to as first order constructs) and the authors' quotes (second order constructs). Our own constructs (third order constructs) were developed after comparison of the second order constructs across the papers. We developed a 'line of argument' which 'constitutes the synthesis' by ordering our third order constructs along a timeline. Through an iterative process and dialog, we refined our third order constructs to generate a conceptual model, for example, physical symptoms, emotional disturbance including depression and anxiety, and disruption to social roles and relationships were all subsumed under the heading of disruption. Our conceptual model includes the attitudes, beliefs, expectations, and experiences that influence self-management of HF. Our 'line of argument' derived from the model is that patients pass through five stages as they seek a sense of safety and wellbeing when living with HF.
5. **Results:** Patients experienced a sense of disruption before developing a mental model of heart failure. Patients' reactions included becoming a strategic avoider, a selective denier, a well-intentioned manager, or an advanced self-manager. Patients responded by forming self-management strategies and finally assimilated the strategies into everyday life seeking to feel safe.

Appraisal and comments:

1. **Strengths:** This study focused on the feelings of patients with heart failure**.**
2. **Limitations:** This study only examined qualitative studies.
3. **Other comments:** Although the phases identified in this model are specific for HF, they resonate with the existing Leventhal et al. and Bandura's theories of behavioral change. Behavior change is therefore dependent on motivation for change influenced by a representation or mental model of the condition, emotional and cognitive responses and the patient's view of their ability to control their condition and life.

Welsh, D., Lennie, T., Marcinek, R., Biddle, M., Abshire, D., Bentley, B., & Moser, D. (2013). Low-sodium diet self-management intervention in heart failure: Pilot study results. *European Journal of Cardiovascular Nursing, 12*(1), 87-95.

CAT Author: Allyson Lancey **Date:** 1/28/20

Bottom Line(s):

1). Individualized instruction in the home with well-organized, specific teaching strategies can produce dietary changes such as low-sodium diet adherence among patients with newly diagnosed or long-standing HF.
2). When providing patients with an educational intervention about sodium intake, patients were effective in reducing their dietary sodium intake in patient with HF.

Summary of key evidence:

1. **Study design:** A randomized, repeated measures (baseline, 6 weeks, and 6 months) experimental design was used.
2. **Population:** Confirmed diagnosis of HF due to left ventricular systolic dysfunction or with preserved systolic function and New York Heart Association Class II–IV
3. **Procedure:** 6-week education intervention group received instruction and advice on low-sodium diet adherence from the intervention nurse during home visits and phone calls and the other group received usual care (control group)
4. **Outcome measures: Food diaries:** Patients provided detailed 3-day food diaries at baseline, 6 weeks, and 6 months to document dietary sodium intake. Patient instruction included return demonstrations on weighing foods on digital scales, measuring portion sizes with standardized kitchen utensils, and estimating portion sizes with the use of diagrams and models after demonstration of the skills by the intervention nurse. Dietary Sodium Restriction Questionnaire: Attitudes, Subjective Norm, and Perceived Behavioral Control, the constructs of the TBP, were measured using the DSRQ. The DSRQ consists of statements related to resources, barriers, referents, and attitudes/beliefs towards following a low-sodium diet. Attitudes subscale: This 7-item subscale measured the patient's attitude towards following a low-sodium diet. Subjective Norm subscale: This 4-item subscale measured the patient's motivation to comply with the beliefs of significant others. Perceived Behavioral Control subscale: This subscale was used to measure perceived control.
5. **Results:** Daily dietary sodium intake decreased from baseline in the intervention group at 6 months. In contrast, the sodium intake of the usual care group increased from baseline at 6 months. Attitudes towards following a low-sodium diet was also improved at 6 weeks in the intervention group.

Appraisal and comments:

1. **Strengths:** Self-care management of a low-sodium diet is a critical component of comprehensive heart failure

2. **Limitations:** Self-report of dietary intake is subject to bias when social desirability of responses is high.
3. **Other comments:** The intervention consisted of six weekly sessions by home visit or phone call during the first 6 weeks of the study to provide instruction on behaviors to promote low-sodium diet adherence. Patients received instructions on the relationship between high dietary sodium intake and symptoms of fluid volume excess, identifying high- and low-sodium foods, strategies for reducing dietary sodium intake, and tips for choosing low-sodium food items while dining away from home.

Tully, N. E., Morgan, K. M., Burke, H. M., & McGee, H. M. (2010). Patient experiences of structured heart failure programmes. *Rehabilitation research and practice*, *2010*, 157939. doi:10.1155/2010/157939

CAT Author: Allyson Lancey **Date:** 1/28/20

Bottom Line(s): Succinct statements regarding implications of findings *for the project*.

1) Participants felt that the information sessions had imparted an understanding of the disease that they had lacked prior to attending. Knowledge of the condition is a prerequisite to self-management, and enabling patients to become expert at managing their condition is a core factor in reducing the burden of heart failure on health care services. Whilst participants in this study had received information about heart failure prior to attending the clinic, it seems that they had had difficulty in assimilating it.
2) Attending the rehab clinic improved considerably the morale of participants in this study. A diagnosis of HF causes fear and worry in patients, and many experience anxiety and depression; however, maintaining morale is important to succeed in adhering to a self-care regimen. Interaction with a peer group, all of whom had the same condition, enabled participants to share experiences, counteracting feelings of isolation. These patients, who had felt "written off" elsewhere in the healthcare system and had been frustrated by deficiencies in care, by contrast felt valued in the rehabilitation program. The quality of care in the program—the support of medical staff who were friendly and encouraging, combined with the tailoring of care to their individual needs—restored their self-esteem

Summary of key evidence:

1. **Study design:** Focus groups were conducted with fifteen participants attending one of two heart failure rehabilitation programs.
2. **Population:** Patients with HF that attended heart failure rehabilitation program
3. **Procedure:** All participants had been diagnosed for at least one year. Two focus groups were carried out, one in each hospital. One researcher facilitated both focus groups and another researcher co-facilitated the focus group held in the rural hospital. Sessions were guided by a semi-structured interview schedule, with questions covering various aspects of the patient's illness experiences including:
   i. experience of the cardiac rehabilitation program
   ii. beliefs about their diagnosis of heart failure,
   iii. maintenance and self-care for their condition, and
   iv. the role of the GP in caring for patients with heart failure.

Each session lasted approximately one hour and was taped with the participants' permission. The focus groups were transcribed verbatim and the resulting data was qualitatively analysed using content analysis. This generated a more concise set of

emergent codes. These codes were further examined, and this led the researcher to identify the major themes that emerged from the data.
4. **Outcome measures:** Sessions were guided by a semi-structured interview schedule covering participants' experiences of the program, maintenance, and GP role. Focus group transcripts were analyzed qualitatively.
Themes identified from the focus group discussions included improvements in confidence and morale, difficulties in maintaining self-care, attitudes to GP services, frustrations with quality of care in other healthcare settings, coping with the medication regime, and attitudes to the term “heart failure”.
5. **Results:** Taking part in a heart failure management program was a key element in participants' recovery, helping to rebuild their confidence to resume the normal activities of daily life. Prior to participation, the fear surrounding any physical activity had had a debilitating effect on patients. In the program environment, however, participants felt secure in being active because they were supervised by professionals. This enabled patients to negotiate and adjust to the limitations placed upon physical activity by the condition.

Appraisal and comments:

1. **Strengths:** Those who were managed through a multidisciplinary chronic disease management program tailored for heart failure were enthusiastic about its contribution to their quality of care, their quality of life and their self-care and lifestyle management.
2. **Limitations:** The small size of the focus groups carried out does not allow for statistically significant generalization of responses to the greater heart failure patient population. The fact that patients were recruited by the heart failure program coordinator in each hospital and that participants attended the meeting voluntarily also means that the participant group may not represent views held by the wider population of heart failure patients.
3. **Other comments:** There were signs that patients neglected self-maintenance in other respects once the program ended, in the absence of the supports of the formal care setting. Lack of motivation, however, was also a factor. A psychological support as well as a significant social outlet had been severed, leaving a number of participants feeling directionless. A need for continued external input was felt in both groups in order to maintain the health-promoting behaviors that they had started on the program.

Falk, H., Ekman, I., Anderson, R., Fu, M., & Granger, B. (2013). Older patients' experiences of heart failure-An integrative literature review. *Journal of Nursing Scholarship, 45*(3), 247-255.

CAT Author: Allyson Lancey **Date:** 2-5-2020

Bottom Line(s): Succinct statements regarding implications of findings *for the project*.

1. According to this study person-centered interventions such as motivational interviewing shows promising results in improving self-efficacy in this age group.
2. Brodie and colleagues (2008) showed that motivational interviewing, tailored to the health literacy level of the older patient, promoted greater performance of self-care maintenance and self-efficacy. Several studies in other populations have shown similar results (Hettema, Steele, & Miller, 2005).
3. Motivational interviewing is a focused, goal-directed, and person-centered approach to facilitate and support the individual motivation found within the person (Miller & Baca, 1983; Rogers, 1959).

Summary of key evidence:

1. **Study design:** Literature review
2. **Population:** Older patients with heart failure
3. **Procedure:** 1). Literature search methods were used to conduct searches during May through August 2011. **Inclusion criteria:** The search was limited to primary research studies; samples that included patients at least 75 years of age with a confirmed diagnosis of HF; and studies that explored illness experience, self-reported symptoms, or self-care management. **Exclusion criteria:** included studies on effects of cardiothoracic surgery, pharmacological treatment, care pathways, clinical signs, estimates of incidence and prevalence, diagnostic criteria, prognostic factors, mortality, and healthcare expenditures and staff perceptions of HF management.
2). To answer the research question, 23 articles were analyzed, both quantitative studies deductively examining self-reported symptoms and self-care management among older patients with HF, as well as qualitative studies inductively exploring different aspects of their illness experiences. After synthesizing the results from 23 articles, four themes emerged: (a) self-reported symptoms of HF, (b) symptoms and age, (c) living with HF, and selfcare management and understanding illness.
4. **Outcome measures:** Of the 23 articles: Both published and unpublished instruments measuring self-reported symptoms of HF were used:
Kansas City Cardiomyopathy Questionnaire (Green, Porter, Bresnahan, & Spertus, 2000). Profile of Mood States (Curran, Andrykowskin, & Studts, 1992). Multidimensional Fatigue Inventory (Smets, Garssen, Cull, &, Haes, 1996). Epworth Sleepiness Scale (Johns, 1991). Minnesota Living with Heart Failure Questionnaire (Rector & Cohn, 1992). Short Form-36 (Rand Health, 2012)
EuroQol-5D (Brooks, 1996). The Geriatric Depression Scale (Yesavage et al., 1983)

Hospital and Anxiety Depression Scale (Zigmond & Snaith, 1983). The Katz ADL-index (Katz et al., 1963, 1970). Disability Rating Index (Salen, Spangfort, Nygren, & Nordemar, 1994)
5. **Results:** Older patients with HF have poor health-related quality of life compared with controls and experience severe and frequent symptoms of fatigue and dyspnea that limit several aspects of their life, making them dependent on others for survival. The variety of ways in which older patients cope with these consequences is determined by how they understand their illness, with the majority showing poor health literacy in relation to HF. Neither self-management nor symptom monitoring is ideal in older patients with HF, although person-centered interventions such as motivational interviewing show promising results in improving self-efficacy in this age group.

Appraisal and comments:

1. **Strengths:** This study examined half of the HF population. **(**Although half of all patients with heart failure (HF) are older than 75 years (Roger et al., 2012)
2. **Limitations:** This study only examined studies with patients at least 75 years of age.
3. **Other comments:** According to Jessup et al. (2009), almost every component of the healthcare system fails in the goal of promoting self-care for older patients with HF. Although older patients may learn more slowly, often in need of more practical training, it has been shown that they can achieve the same results as younger patients, given sufficient time, motivation, and involvement in the learning process (Boulton-Lewis & Tam, 2012).Riegel and colleagues (2010) showed that, compared with younger age groups, older patients had more difficulty in detecting and interpreting symptoms of dyspnea, and they were twice as likely to report a different level of shortness of breath than that noted by the healthcare professional.

Shao, J., Chang, A., Edwards, H., Shyu, Y., & Chen, S. (2013). A randomized controlled trial of self-management programme improves health-related outcomes of older people with heart failure. *Journal of Advanced Nursing, 69*(11), 2458-2469.

CAT Author: Allyson Lancey **Date:** 2-5-20

Bottom Line(s):

Participants who received the intervention programmed had significantly better self-efficacy for salt and fluid control, self-management behavior and their heart failure-related symptoms were significantly lower than participants in the control group.

Summary of key evidence:

1. **Study design:** Randomized controlled trial
2. **Population:** Heart failure patients attending cardiac clinics in northern Taiwan
3. **Procedure:** Patients were randomly assigned to two groups: **control** (n = 46) and **intervention** (n = 47). The intervention was designed to enhance self-management by promoting self-efficacy through four primary sources of information: mastery of experience, social modelling, social persuasion, and awareness of physical and emotional states (Bandura 1997). The intervention integrated these sources of information into each of five sessions: home visit within 3 days after enrolment, telephone follow-ups at 1, 3, 7, and 11 weeks, completion of a diary of daily sodium and fluid intake and daily self-recording of weight. The activities in the self-management program were provided through a home visit and four telephone follow-ups. Patients in the experimental group received usual care, one home visit, and four phone calls, while the control group received usual care plus three phone calls with no self-management content. The control group received phone calls to overcome the potential effect of attention on participants (Harkness et al. 2005).
4. **Outcome measures:** Data were collected from both groups before the intervention began (baseline or Time 1) and at weeks 4 (Time 2) and 12 (Time 3) following recruitment. Self-efficacy for salt and fluid control: The SeSFC scale was modified from a self-efficacy scale for health-related diet (Chiou & Ka 2000). The resulting 15-item SeSFC scale has two subscales that assess HF patients' self-efficacy for resisting salt (nine items) and fluid (six items) intake. Modification comprised adding one item Heart failure self-management behavior scale. Specific HF-related behavior was assessed using a scale modified from an instrument that measures 12 self-care behaviors of patients with HF. Heart failure symptom distress scale. Heart failure patients' symptom distress was measured using the HFSD scale (Bondmass 2002), which includes 17 physical problems/symptoms frequently attributed to HF subjects. Health services use: Health services use data included patients' clinical and emergency visits and hospitalizations. These data were collected on all patients for the 12 weeks prior to commencing the study and for the 12-week study period.
5. **Results:** Participants who received the intervention program had significantly better self-efficacy for salt and fluid control, self-management behavior and their heart

failure-related symptoms were significantly lower than participants in the control group. However, the two groups did not differ significantly in health service use.

Appraisal and comments:

1. **Strengths:** A central concept in self-management is self-efficacy, which provides an effective model for promoting behavioral change (Burckhardt 2005, Wenget al. 2010).Self-efficacy has long been shown to be a powerful predictor of health-related behaviors (Bandura 1977b) and is an important adjunct to assisting people to change their behaviors and achieve better health (Bandura 1977a). Thus, self-efficacy links knowledge and action because belief in one's ability to do something is a prerequisite for self-management. In addition, although self-management has been shown to help maintain and improve the health-related behaviors and health status of HF patients in the US (Naylor et al. 2004)
2. **Limitations:** Older heart failure patients were selected from cardiac clinics in northern Taiwan which limits the diversity of this study population. The two groups did not differ significantly in health service use.
3. **Other comments:** Managing salt and fluid intake is important and can be enhanced by improving patients' self-efficacy in changing their behavior.

Barnason, S., Zimmerman, L., Hertzog, M., & Schulz, P. (2010). Pilot testing of a medication self-management transition intervention for heart failure patients. *Western Journal of Nursing Research, 32*(7), 849-870.

CAT Author: Allyson Lancey **Date:** 2-5-20

Bottom Line(s): Succinct statements regarding implications of findings *for the project*.

1. Patients with HF benefit from multidisciplinary and hospital transition of care models that use patient education and counseling, often in conjunction with disease management, to improve self-care behaviors and health-related quality of life (HRQoL) outcomes (Adams et al., 2006; Hunt et al., 2005).
2. In previous research, patient education and counseling are the primary mechanisms used to improve medication adherence across a wide range of patient populations (Higgins & Regan, 2004; van Eijken et al., 2003).

Summary of key evidence:

1. **Study design:** prospective, repeated measures experimental design
2. **Population:** The sample was composed of 40 participants, aged 65 years and older, who had been hospitalized in a Midwestern tertiary medical center, with either a primary or secondary diagnosis of HF. Inclusion criteria: ability to speak and read English, having access to a telephone, no cognitive impairment as assessed by the Short Portable Mental Status Questionnaire (SPMSQ; Pfeiffer, 1975), and at risk for impaired medication adherence. Risk for impaired medication adherence was operationalized as five or more routinely scheduled prescription medications (Billups, Malone, & Carter, 2000) and at least one of their medications requiring more frequent dosing than once per day (Corsonello et al., 2009).
3. **Procedure:** Assigned either to the usual care or transition intervention group
Both the control and transition groups received the standard HF education program administered by staff nurses prior to hospital discharge. The standard education included verbal instruction by a registered nurse reinforcing key content in a teaching booklet on HF, which included a description of HF, content on diet modification (sodium and fluid restrictions), medications used to manage HF (including specific information on medications prescribed to patient), signs and symptoms related to HF, and recognizing signs and symptoms of HF. The intervention group also received hospital transition modules and counseling components composed of written, health literacy–adapted educational materials (provided at baseline data collection to all participants in the intervention group) and the subsequent telephone education and counseling sessions delivered by telephone within the first 2 to 3 weeks after hospitalization (hospital to home transition period).
4. **Outcome measures:** Baseline and follow-up data (1- and 3-months after hospitalization) were obtained using: Medication Regimen Complexity Index, Brief Medication Questionnaire, Drug Regiment Unassisted Grading Scale, Kansas City Cardiomyopathy Questionnaire

5. **Results:** The intervention group had higher levels of medication adherence, self-efficacy for HF self-care, and had significantly fewer HF related symptoms that impaired health related quality of life

Appraisal and comments:

1. **Strengths:** In this study, several relevant medication use outcomes (medication adherence, medication use barriers, and medication use skills) were examined
2. **Limitations:** Small sample size of 40 participants**.**
3. **Other comments:** Today, with more effective pharmacologic regimens available to treat HF (Hunt et al., 2009), patients are less likely to be hospitalized when they are adherent to their therapeutic drug regimen (Sokol, McGuigan, Verbrugge, & Epstein, 2005). Poor medication adherence is a prevalent problem following acute hospitalization (Kerzman, Baron-Epel, & Toren, 2005), especially among older patients with HF who are at risk for HF exacerbations and rehospitalization following transition from hospital to home (Boling, 2009; Naylor, 2002; Naylor et al., 2004).In comparison to younger patients, older adults more frequently continue to take discontinued medications, fail to start newly prescribed medications or take incorrect doses of medication (Beckman et al., 2005; Gray, Mahoney, & Blough, 2001; Higgins & Regan, 2004), and are more likely to have a more complex medication regimen (are prescribed more drugs, with a higher frequency of scheduled medication doses; Russell, Conn, & Jantarakupt, 2006).

Cui, X., Zhou, X., Ma, L., Sun, T., Bishop, L., Gardiner, F., & Wang, L. (2019). A nurse-led structured education program improves self-management skills and reduces hospital readmissions in patients with chronic heart failure: A randomized and controlled trial in China. *Rural and Remote Health, 19*(2), 5270.

CAT Author: Allyson Lancey **Date:** 2-12-20

Bottom Line(s):

1. This study has demonstrated that a structured education program was associated with a significant improvement in medication adherence, dietary modifications, social support, and symptom control in rural CHF patients. Furthermore, this program was associated with a significant reduction in hospital readmission.
2. The present study's programs involved 8-weekly clinic visits, and monthly telephone and/or face-to-face consultations, which resulted in a higher rate of self-care behavior improvement 12 months after hospital discharge. These results indicate regular consultations either by phone or in person within the first year of discharge improve patient's adherence to dietary and self-monitoring recommendations. This result is consistent with findings from Anker et al. in their meta-analyses, which found that telemedicine in the management of patients with heart failure can reduce morbidity and mortality

Summary of key evidence:

1. **Study design:** Randomized controlled trial
2. **Population:** Ninety-six patients in the Chinese province of Shandong with CHF
   Inclusion criteria: The diagnosis of CHF was based on presenting symptoms, such as exertional shortness of breath or pedal edema, and echocardiography studies; those aged 18 years or older, with presenting symptoms classified as II or above as per the New York Heart Association classes of heart failure[1], with left ventricular ejection fraction of 45% or less at initial admission diagnosis of CHF.
3. **Procedure:** Participants were divided into intervention and control groups. A structured education program was delivered to the intervention group during hospitalization and after discharge. Control group patients were managed as per clinical guidelines without structured education. Medication adherence, dietary modifications, social support, and symptom control were assessed 12 months after the educational intervention. The control group received no structured education at hospital or after discharge, but did receive two clinic follow-ups per month, as per standard hospital practice. All control group participants received standard education on self-management during admission, completed in group sessions, with an information pamphlet given upon discharge. General advice on management and the monitoring of clinical factors/features, including fluid and salt restrictions, monitoring of blood pressure, pulse rate, body weight and urinary output, was given by nurses and doctors as per departmental management protocols before discharge. A structured educational intervention was implemented in the

intervention group, in addition to the conventional clinical management of CHF. Nursing staff who completed nationally accredited training in heart failure management provided a 1-hour education session to each of the participants, after their heart failure symptoms were stabilized at the hospital. A second education session of 1 hour was provided before discharge to address any concerns or questions from the participants in relation to the self-care management measures, with families encouraged to attend to discuss patient support requirements. There were six intervention areas, associated with education, self-management skills, positive feedback and interviews, social support, exercises, and rehabilitation.

4. **Outcome measures:** The primary endpoint of the study was all-cause mortality and hospital admission due to cardiac problems, such as shortness of breath, chest pain, arrhythmia, and syncope. **Information on hospital readmission** was obtained from the patients and confirmed by reviewing the medical charts at the cardiology or emergency department. The secondary endpoint was **self-management ability for heart failure**. The self-management ability was assessed by a Chinese version of the questionnaire originally developed by DeVellis and DeVellis. There are four domains in the assessment scale: medication management, diet control, social adaptation, and symptom management. The self-management scales were completed by patients before discharge and at the end of the 12-month follow-up. Patients' cognition, comprehension and language skills were assessed before the forms were completed, and assistance from the investigators was provided to those who had difficulties with the self-assessment questionnaires.
5. **Results:** This study has demonstrated that a structured education program was associated with a significant improvement in medication adherence, dietary modifications, social support, and symptom control in rural CHF patients. Furthermore, this program was associated with a significant reduction in hospital readmission. This study indicates that implementation of a nurse-led education program improves self-management and clinical outcomes of rural CHF patients, who may not have regular access to cardiac management services as per metropolitan populations.

Appraisal and comments:

1. **Strengths:** As per the patients' educational level and knowledge on health care (i.e. health literacy), a combination of face-to-face teaching and tutorials, printed materials and pictures was provided to the participants and their relatives.
2. **Limitations:** Limited study population (not diverse because the participants were from eastern Chinese province of Shandong with CHF)
3. **Other comments:** There has been a growing body of evidence to support the use of programs to enhance self-management for CHF. Traditional programs, such as hospital-based cardiac rehabilitation (CR) programs, have been found to be effective in improving patient medical outcomes, and are perceived as beneficial by attending patients; however, these programs have inadequate attendance rates. Furthermore, the majority of CR programs are located in major cities, requiring rural and remote patients to travel large distances (>200 km round trip) multiple times per week. This is not

always feasible for chronic disease patients, especially older rural and remote patients. While these programs are effective, the value of the present study and program is that rural patients can access a medically effective management intervention remotely in addition to face-to-face medical support, thus potentially lowering attendance barriers, which are a significant problem in other chronic disease management services in rural and remote areas.

Meng, K., Musekamp, G., Schuler, M., Seekatz, B., Glatz, J., Karger, G., … Faller, H. (2016). The impact of a self-management patient education program for patients with chronic heart failure undergoing inpatient cardiac rehabilitation. *Patient Education and Counseling, 99*(7), 1190–1197. doi: 10.1016/j.pec.2016.02.010

CAT Author: Allyson Lancey **Date:** 2/12/2020

Bottom Line(s):

1. Information on successful group program features for CHF management is lacking.
2. There is evidence for the effectiveness of self-management and patient education interventions, for patients with HF regarding knowledge, self-efficacy, self-management behaviors, health-related quality of life, hospitalization and mortality.

Summary of key evidence:

1. **Study design:** A multi-center cluster randomized controlled trial
2. **Population: Inclusion criteria:** participants were a diagnosis of chronic systolic HF, left ventricular ejection fraction of ≤ 40, and NYHA functional classification II or III. **Exclusion criteria:** were acute events of decompensation, cognitive impairment, inadequate German ability, and severe visual/hearing impairment.
3. **Procedure:** HF patients recruited within two weeks after commencement of inpatient rehabilitation. Clusters were randomly assigned to the two treatment groups: in the intervention group (IG), patients received the new patient-centered self-management educational program, whereas in the control group (CG), patients received a short lecture program (usual care). Intervention group. Patients in the intervention condition received a self-management educational program that consisted of five patient-centered, interactive sessions of either 60 or 75 min each, which were provided in small groups of a closed format. The program was manual-based and interdisciplinary with sessions led by a physician, a nurse, a psychologist and a physiotherapist. Didactic materials included presentations, flipcharts, and two patient booklets. Contents of the lessons included HF disease and treatment knowledge with regard to individual information needs of the participants. Furthermore, the program focused on self-management behaviors and medication adherence. To promote physical activity, theory-based intervention techniques were applied. Additionally, illness related problems in everyday life and signs of emotional distress with regard to HF and coping strategies were discussed. Control group. Control condition was one lecture of basic illness related education given by a physician with a duration of about 60 min. Information was mostly presented in a vertical manner. Contents included basic medical HF disease information and self-management recommendations. Patients received three handouts, which comprised main information on HF, and worksheets.
4. **Outcome measures:** Self-monitoring and insight, skill and technique acquisition: Two scales of the German version of the Health Education Impact Questionnaire (heiQ) were administered. Self-efficacy: The Self-efficacy sub-scale of the Kansas City Cardiomyopathy Questionnaire (KCCQ). Symptom control: A new measure was developed based on existing instruments and program-content consisting of 10 items.

Items were divided into 3 subscales—symptom monitoring (3 items; e.g., "I weight myself every day"), response to symptoms (3 items; e.g., "If my medical condition deteriorates I contact my doctor"), and prevention/diet (4 items; e.g., "I mind eating a low salt diet"). Physical activity: Participants reported how often per week and how long per session they performed strenuous, moderate, and light physical exercise (modified version of the Godin Leisure-Time Exercise Questionnaire) outside of work duties. A total physical activity score (in minutes per week) was calculated by total number of sessions per week in each domain multiplied by minutes per session in each domain. *Medication adherence*: Patients completed the German version of the Medication Adherence Report Scale (MARS-D, *HRQL (disease specific):* Patients completed the German version of the KCCQ. 23 items are used to quantify physical function, symptoms (frequency, severity and recent change), social function, self-efficacy, and quality of life. *Treatment satisfaction:* Patients were asked to judge.
5. **Results:** At discharge, rehabilitants of the IG indicated significant higher treatment satisfaction with the educational program they attended as compared to the CG. They showed higher satisfaction in general as well as with regard of "content," and "group/interaction." At 6-months, both IG and CG showed significant, small improvements in symptom control, that is symptom monitoring, response to symptoms and prevention/diet, and the amount of physical activity. SESs indicate that the IG improved more than the CG regarding physical activity. There was no significant increase for medication adherence in both groups, possibly due to high baseline-scores.

Appraisal and comments:

1. Strengths: This study found a significant, albeit small between-group intervention effect on certain dimension of patients' self-management competence at discharge from inpatient rehabilitation. Participants of the IG, as compared to the CG, showed superior self-monitoring and insight and by trend on skill acquisition but not on self-efficacy.
2. **Limitations:** All outcomes were measured by self-report, albeit with validated questionnaires. Objective measures are preferable but could not be used in this context.
3. **Other comments:** For HF patients' comprehensive patient education is warranted, but specific information on group program features and educational strategies is lacking. A patient-centered self-management group program might be more effective than a lecture-based usual care education within inpatient cardiac rehabilitation.

Barnason, S., Zimmerman, L., Hertzog, M., & Schulz, P. (2010). Pilot testing of a medication self-management transition intervention for heart failure patients. *Western Journal of Nursing Research, 32*(7), 849-870.

CAT Author: Allyson Lancey **Date:** 2-12-20

Bottom Line(s):

1. Patients with HF benefit from multidisciplinary and hospital transition of care models that use patient education and counseling, often in conjunction with disease management, to improve self-care behaviors and health-related quality of life (HRQoL) outcomes (Adams et al., 2006; Hunt et al., 2005).
2. In previous research, patient education and counseling are the primary mechanisms used to improve medication adherence across a wide range of patient populations (Higgins & Regan, 2004; van Eijken et al., 2003).

Summary of key evidence:

1. **Study design:** prospective, repeated measures experimental design
2. **Population:** The sample was composed of 40 participants, aged 65 years and older, who had been hospitalized in a Midwestern tertiary medical center, with either a primary or secondary diagnosis of HF. Inclusion criteria**:** ability to speak and read English, having access to a telephone, no cognitive impairment as assessed by the Short Portable Mental Status Questionnaire (SPMSQ; Pfeiffer, 1975), and at risk for impaired medication adherence. Risk for impaired medication adherence was operationalized as five or more routinely scheduled prescription medications (Billups, Malone, & Carter, 2000) and at least one of their medications requiring more frequent dosing than once per day (Corsonello et al., 2009).
3. **Procedure:** Assigned either to the usual care or transition intervention group
Both the control and transition groups received the standard HF education program administered by staff nurses prior to hospital discharge. The standard education included verbal instruction by a registered nurse reinforcing key content in a teaching booklet on HF, which included a description of HF, content on diet modification (sodium and fluid restrictions), medications used to manage HF (including specific information on medications prescribed to patient), signs and symptoms related to HF, and recognizing signs and symptoms of HF. The intervention group also received hospital transition modules and counseling components composed of written, health literacy–adapted educational materials (provided at baseline data collection to all participants in the intervention group) and the subsequent telephone education and counseling sessions delivered by telephone within the first 2 to 3 weeks after hospitalization (hospital to home transition period).
4. **Outcome measures:** Baseline and follow-up data (1- and 3-months after hospitalization) were obtained using: Medication Regimen Complexity Index, Brief Medication Questionnaire, Drug Regiment Unassisted Grading Scale, Kansas City Cardiomyopathy Questionnaire

5. **Results:** The intervention group had higher levels of medication adherence, self-efficacy for HF self-care, and had significantly fewer HF related symptoms that impaired health related quality of life

Appraisal and comments:

1. **Strengths:** In this study, several relevant medication use outcomes (medication adherence, medication use barriers, and medication use skills) were examined
2. **Limitations:** Small sample size of 40 participants
3. **Other comments:** Today, with more effective pharmacologic regimens available to treat HF (Hunt et al., 2009), patients are less likely to be hospitalized when they are adherent to their therapeutic drug regimen (Sokol, McGuigan, Verbrugge, & Epstein, 2005). Poor medication adherence is a prevalent problem following acute hospitalization (Kerzman, Baron-Epel, & Toren, 2005), especially among older patients with HF who are at risk for HF exacerbations and rehospitalization following transition from hospital to home (Boling, 2009; Naylor, 2002; Naylor et al., 2004).In comparison to younger patients, older adults more frequently continue to take discontinued medications, fail to start newly prescribed medications or take incorrect doses of medication (Beckman et al., 2005; Gray, Mahoney, & Blough, 2001; Higgins & Regan, 2004), and are more likely to have a more complex medication regimen (are prescribed more drugs, with a higher frequency of scheduled medication doses; Russell, Conn, & Jantarakupt, 2006).

Jonkman, N., Westland, H., Groenwold, R., Ågren, S., Atienza, F., Blue, L., . . . Hoes, A. (2016). Do self-management interventions work in patients with heart failure? An individual patient data meta-analysis. *Circulation, 133*(12), 1189-1198.

CAT Author: Allyson Lancey **Date:** 2/15/20

Bottom Line(s): Succinct statements regarding implications of findings *for the project*.

1. Furthermore, we observed that particularly younger patients with HF (<65 years of age) benefited from self-management interventions; those patients showed a 10-fold decrease in length of hospital stay for HF.
2. Self-management interventions increased the risk of all-cause mortality in patients with moderate/severe depression

Summary of key evidence:

1. **Study design:** An individual patient data meta-analysis.
2. **Population:** Patients with a diagnosis of HF; This resulted in inclusion of data of 20 RCTs, representing 5624 patients in total.
3. **Procedure:** The electronic databases of PubMed, EMBASE, CENTRAL, PsycINFO, and CINAHL were searched from January 1985 through June 2013, as well as reference lists of systematic reviews. Studies were included if they (1) met the definition of self-management intervention, (2) had an RCT design, (3) included patients with an established diagnosis of HF, (4) compared the self-management intervention with usual care or another self-management intervention, (5) reported data on 1 or more of the selected outcomes, (6) followed up patients for at least 6 months, and (7) were reported in English, Dutch, French, German, Italian, Portuguese, or Spanish. Self-management interventions were defined as interventions providing information to patients and at least 2 of the following components: (1) stimulation of sign/symptom monitoring, (2) education in problem-solving skills, and enhancement of (3) medical treatment adherence, (4) physical activity, (5) dietary intake, or (6) smoking cessation.
4. **Outcome measures:** This study focused in the analysis on 8 main outcomes divided into HF-related outcomes and general outcomes. HF-related outcomes were time to the combined end point of HF-related hospitalization or all-cause death, time to first HF-related hospitalization, total days of HF-related hospital stay at 12 months, and HF-QoL at 12 months (measured with the Heart Failure Symptom Scale, Kansas City Cardiomyopathy Questionnaire, MacNew Heart Disease Health-Related Quality of Life Instrument, or Minnesota Living With Heart Failure Questionnaire).General outcomes were generic QoL at 12 months (measured with Short Form Health Survey-12 or -36), time to all-cause death, time to first all-cause hospitalization, and total days of all-cause hospital stay at 12 months. In addition, outcomes at 6 months and binary outcomes for mortality and hospitalization at 6 and 12 months were collected and analyzed.

5. **Results:** The subgroup analysis showed that younger patients (<65 years of age) benefited more from self-management interventions than older patients. Younger patients in intervention groups were discharged sooner from hospitalization for HF during follow-up than their counterparts in control groups.
There was no intervention effect in older patients. Older hospitalized patients have an increased risk of functional decline and cognitive dysfunction and generally suffer from more comorbid conditions, complicating their overall functioning and recovery time once hospitalized. Older persons especially are at high risk in the period after hospitalization as a result of deprived sleep, poor nutrition, stress, symptoms, new treatments, and inactivity. Equipping patients with self-management skills might not be sufficient in such complex situations. Post-discharge instability may need new approaches beyond targeting HF itself for a safer transition from hospital to home. Self-management interventions increased the risk of all-cause mortality in patients with moderate/severe depression.

Appraisal and comments:

1. **Strengths:** This study included data from 20 RCTs, representing 5624 patients in total.
2. **Limitations:** the effect modification by age was not consistent across other health outcomes studied, and the number of patients <65 years of age included in the analysis was relatively small (n=139). The findings should therefore be considered hypothesis generating
3. **Other comments:** Self-management interventions in patients with HF improve outcomes directly related to their disease. Although self-management interventions might be more effective in younger patients in reducing length of hospital stay, we did not observe consistent subgroup effects across different health outcomes. This study does not endorse limiting self-management interventions to specific subgroups of patients with HF, but increased mortality in depressed patients warrants caution in applying self-management strategies in these patients.

APPENDIX C: Healthier Hearts for Life: PowerPoint Presentation for Session 1

Welcome to Healthier Hearts for Life: An Inpatient Support Group for Individuals with Congestive Heart Failure

Photo by Eventbrite.com taken from www.evensi.us

Health Insurance Portability and Accountability Act (HIPAA)

Photo by Cyber PSA Blog taken from itegrit.com

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Support Group Rules

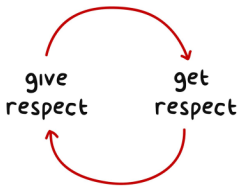

Photo by CogniFit taken from cognifit.com

Session 1: What is Heart Failure?

Schedule:

- Icebreaker Activity (5 minutes)
- PowerPoint Presentation (20 minutes)
  - What is heart failure?
  - Prevalence of heart failure
  - Signs and symptoms of heart failure
  - How to monitor symptoms of heart failure
- Group Discussion about heart failure (15 minutes)
- Activity: Heart Failure Jeopardy (15 minutes)
- Provision of homework assignment, wrap-up and questions (5 minutes)

Objectives:

- After this session, participants will be able to:
  - Define heart failure
  - Identify at least 3 sign/ symptoms of heart failure
  - Identify at least 3 ways to monitor their symptoms

Photo by blog.planview.com

What is Heart Failure?

- According to the American Heart Association (2017a), "heart failure is a term used to describe a **heart that cannot keep up with its workload. The body may not get the oxygen it needs**," (What is Heart Failure section, para. 1).

Photo by comedical group.com

- "As blood flow out of the heart slows, blood returning to the heart through the veins backs up, **causing congestion in the body's tissues** (American Heart Association, 2017a, What is Congestive Heart Failure section, para. 2)
- Often swelling (edema) occurs in the:
  - Legs
  - Ankles
  - Abdomen

  (American Heart Association, 2017a)

What is Heart Failure?

- Pulmonary Edema:
  - Fluid can collect in the lungs → which affects breathing → shortness of breath
  - Often happens when a person is lying down
  - If left untreated → respiratory distress

  (American Heart Association, 2017a)

Photo by canstockphoto.com

- Heart failure also affects the kidneys
  - Kidneys can no longer dispose of sodium and water→ retained water→ increased swelling throughout the body (American Heart Association, 2017a)

Photo by pngio.com

Classes of Heart Failure

- "**Class I:** No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea (shortness of breath).
- **Class II:** Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea (shortness of breath)," (American Heart Association, 2017b, Classes of Heart Failure section, para. 1)
- "**Class III:** Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, or dyspnea.
- **Class IV:** Unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases," (American Heart Association, 2017b, Classes of Heart Failure section, para. 1)

Classes of Heart Failure

- "**Class A**: No objective evidence of cardiovascular disease. No symptoms and no limitation in ordinary physical activity.
- **Class B**: Objective evidence of minimal cardiovascular disease. Mild symptoms and slight limitation during ordinary activity. Comfortable at rest," (American Heart Association, 2017b, Classes of Heart Failure section, para. 2).
- "**Class C:** Objective evidence of moderately severe cardiovascular disease. Marked limitation in activity due to symptoms, even during less-than-ordinary activity. Comfortable only at rest.
- **Class D**: Objective evidence of severe cardiovascular disease. Severe limitations. Experiences symptoms even while at rest," (American Heart Association, 2017b, Classes of Heart Failure section, para. 2).

Video: Rise Above Heart Failure: Get the Facts

- American Heart Association (2015, December 8). *Rise above heart failure: Get the facts* [Video]. YouTube. https://www.youtube.com/watch?v=d8PzoTr95ik&feature=youtu.beart-failure

Symptoms of Heart Failure

- Shortness of breath (dyspnea)
- Persistent coughing or wheezing
- Build up of excess fluid in body tissues (edema)
- Fatigue
- Lack of appetite
- Nausea
- Confusion
- Impaired thinking
- Increased heart rate

(American Heart Association, 2017c)

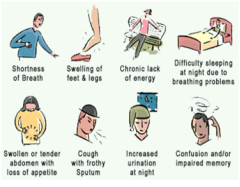

Photo by Rehabilitate Your Heart taken from rehabilitateyourheart.wordpress.com

Video: American Heart Association: Heart Failure Warning Signs and Symptoms

- American Heart Association. (2017, February 9). *Heart failure warning signs and symptoms.* [Video]. YouTube. https://www.youtube.com/watch?time_continue=6&v=4qd7fwcBwek&feature=emb_logo

How to Monitor Your Symptoms

- Monitor your shortness of breath
  - What activities make this worse?
  - How far can you walk before you get SOB?
- Want O2 SAT: Above 90%
- Below 88% qualify for supplemental O2

(American Heart Association, 2017d)

- Pulse Oximeter

Photo by theprepared.com

How to Monitor Your Symptoms

- Monitor your heart rate
- To make up for the loss in pumping ability→ heart beats faster = increased heart rate
- Feel like your heart is racing or throbbing
- Usually want HR between 60-100 bpm

(American Heart Association, 2017d)

- Monitor HR
  - Pulse oximeter
  - Apple watch

Photo by theprepared.com

Photo by support.apple.com

How to Monitor Your Symptoms

- Weigh yourself daily
  - weight gain of > 2 -3 pounds in 24 hours
  - weight gain of > 5 pounds in a week

(American Heart Association, 2017d)

Photo by Pixabay taken from insider.com

How to Monitor Your Symptoms

- Monitor Swelling:
  - Ankles
  - Feet
  - Legs
  - Abdomen

(American Heart Association, 2017d)

Photo by A.D.A.M taken from mountsinai.org

How to Monitor Your Symptoms

- Monitor your blood pressure daily
  - What is your norm?

(American Heart Association, 2017d)

Photo by aliexpress.com

How to Monitor Your Symptoms

Blood Pressure Categories

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

American Heart Association. (2017e, November 30). *Understanding blood pressure readings.* Retrieved from https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings

How to Monitor Your Symptoms

- Monitor your cognitive status
  - Memory loss
  - Depression
  - Confusion

(American Heart Association, 2017d)

Photo by outrackdiabetes.com

Photo by Neurology Today taken from journals.lww.com

How to Monitor Your Symptoms

- Also monitor:
  - Sleep
  - Appetite

(American Heart Association, 2017d)

Photo by health blog.uofmhealth.org

Photo by Panjatak Ayurvdea taken from panjatak.com

American Heart Association: Symptom Tracker

(American Heart Association. (n.d.). Heart failure tools and resources. Retrieved from https://www.heart.org/en/health-topics/heart-failure/heart-failure-tools-resources)

American Heart Association: Symptom Tracker

- Phone App
  - HF Path

(American Heart Association, n.d.)

Questions?

Photo by familytree.com

Group Discussion

Photo by geophytes.com

Heart Failure Jeopardy

Photo by theverge.com

Homework Assignment

- In your journal log your:
  - Weight
  - Blood pressure
  - Oxygen
  - Heart Rate
  - Symptoms of heart failure

Photo by clipartkey.com

Photo womenshealthmag.com

Photo by beechfieldhealthcare.ie

Photo by cnet.com

Questions?

Photo by familytree.com

Reminder

- Please bring your homework for the next session

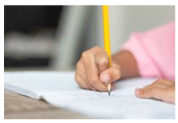

Photo by gradepowerlearning.com

Resources

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- American Heart Association. (2017e, November 30). *Understanding blood pressure readings*. Retrieved from https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings
- American Heart Association. (2015, December 8). *Rise above heart failure: Get the facts* [Video]. YouTube. https://www.youtube.com/watch?v=d8PzoTr95ik&feature=youtu.be

Healthier Hearts for Life: PowerPoint Presentation for Session 2

Healthier Hearts for Life: An Inpatient Support Group for Individuals with Congestive Heart Failure

Photo by Eventbrite.com taken from www.evensi.us

Health Insurance Portability and Accountability Act (HIPAA)

Photo by Cyber PSA Blog taken from itegriti.com

Photo by featurepics.com

Photo by amazon.com

Support Group Rules

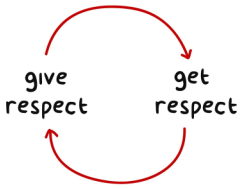

Photo by CogniFit taken from cognifit.com

Session 2: Work Smarter, Not Harder

Schedule:

- Discussion group about last session's homework assignment (10 minutes)
- PowerPoint Presentation (20 minutes)
  - Energy Conservation techniques/ strategies to implement during ADL, IADL, work, play, and leisure tasks
  - Adaptive equipment for ADL
- Activity: Provision of long-handled sponges, long-handled shoehorns, reachers, and sock aids to participants. Practice utilizing this equipment. (15 minutes)
  - Home Modifications PowerPoint (15 minutes)
- Provision of Homework assignment, wrap-up and questions (5 minutes)

Objectives:

After this session, participants will be able to:

- Identify at least 5energy conservation techniques/ strategies that he or she can implement during ADL/IADL tasks
- Properly utilize a sock aid, reacher, long-handled shoehorn and long-handled sponge
- Identify at least 2 home modifications that would make their home more conducive to their physical needs

Group Discussion

- How many times did you track your vitals in your journals?
- Did you see any differences in your vitals throughout the day? For example, in the morning before your medication compared to before lunch?
- Were your vitals stable or abnormal?
- Was your blood pressure hypertensive, hypotensive, or considered within the norm?
- Do you feel like checking your vitals is something you can add to your daily routine if you do not do so already?
- Do you have a better understanding about what your vitals mean?
- What was the hardest part about this homework assignment?
- Do you have any questions?

Photo by clipart.email

Energy Conservation Techniques/ Strategies to Implement During ADL, IADL , Work, Play, & Leisure Tasks

- Being in the hospital for management of your CHF symptoms, it is common to feel:
  - Tired/ getting tired easily
  - Fatigued
  - Short of breath
  - Have less energy

  (Saint Joseph's Healthcare: Hamilton, 2013)
- Conserving your energy allows you to:
  - Feel less fatigued
  - Save your energy for tasks you want to do
  - Work smarter, not harder
  - Feel less short of breath
  - Reduce the strain on your heart

  (Saint Joseph's Healthcare: Hamilton, 2013)

Photo by ntsakmanager.com

Energy Conservation Techniques/ Strategies to Implement During ADL, IADL , Work, Play, & Leisure Tasks

- Prioritize
  - What do you have to do today?
  - What needs to get done 1st?
  - What can wait until later?
  - What is the mot important task of the day?

  (Saint Joseph's Healthcare: Hamilton, 2013)

Photo by depositphotos.com

Photo by awesomd.com

Energy Conservation Techniques/ Strategies to Implement During ADL, IADL , Work, Play, & Leisure Tasks

- Plan
  - Avoid extra trips (e.g. gather all your clothes and put them in the bathroom to change after you take a bath/ shower)
  - Gather all supplies prior to starting a task
  - Make a schedule of all activities that need to get done within a week and divide tasks throughout the week
  - Ask for help when needed

  (Saint Joseph's Healthcare: Hamilton, 2013)

Energy Conservation Techniques/ Strategies to Implement During ADL, IADL , Work, Play, & Leisure Tasks

- Pace
  - Slow and steady pace
  - Take rest breaks when you need to
  - Do not push yourself or race through a task
  - Ask for help when you need it
  - Spread tasks out
  - Practice pursed lip breathing
    - "Breathe in through your nose for a count of 2 [seconds] and out from your mouth for a count of 4 [seconds]. This is like blowing out a candle on a cake," (Saint Joseph's Healthcare: Hamilton, 2013, p. 2).

Photo by drugs.com

Energy Conservation Techniques/ Strategies to Implement During ADL, IADL , Work, Play, & Leisure Tasks

- Position
  - Try to sit and stand in an upright position→ allows more oxygen to get to your lungs
  - Do not hunch over when sitting or standing
  - Avoid bending over and reaching as much as possible→ makes you more short of breath
  - Try to perform tasks in sitting position instead of standing position
    (Saint Joseph's Healthcare: Hamilton, 2013)
  - "Sitting reduces energy use by 25%," (Saint Joseph's Healthcare: Hamilton, 2013, p. 2)

Proper Sitting & Standing Positions


Photo by dreamstime.com

Photo by lifehacker.com.au

ADL Energy Conservation Tips

Photo by istudentnurse.com taken from pinterest.com

- Perform tasks in seated position when you can
- Plan ahead and gather all supplies
- Dress your lower body first as this is often more difficult than dressing your upper body
- Pick clothes that are easier to put on (e.g. looser clothing; avoid tight clothes)
- Use warm water instead of hot when bathing/ showering → makes it easier to breathe
- Use adaptive equipment when you can
- Use an electric razor
- Use an electric toothbrush
  (Saint Joseph's Healthcare: Hamilton, 2013)

Shopping Energy Conservation Tips

- Make a list
- Organize list by aisle/ section of the store if possible (avoid going back and forth to various aisles for items)
- Use a shopping cart
- Try to slide/ push items instead of lift when possible
- Do not go when the store is busy (have to stand in lines longer)
- Ask for help when needed
- Order groceries online if possible
  (Saint Joseph's Healthcare: Hamilton, 2013)


Photo by clipartkid.com taken from pinterest.com

Energy Conservation Techniques for IADL

- Sit whenever possible (e.g. sit while cutting vegetables/ meal prepping instead of standing)
- Make a chore list and separate/ divide tasks to perform throughout the week
- Take a break when you need it
- Clean one room at a time
- Slide or pull objects instead of trying to lift them
- Use long handled dusters to avoid reaching
- Use a Swiffer Wet Jet or mop instead of getting on your hands and knees to wash the floor
- Use dishwasher instead of handwashing dishes
- Avoid cleaning products that impact your breathing due to strong odors/ smells
- Have cleaning products stored throughout the house (e.g. have bathroom cleaning supplies in the bathroom so you do not have to run all over the house to get the supplies)

(Saint Joseph's Healthcare: Hamilton, 2013)

Energy Conservation Strategies for Cooking

- Perform tasks in sitting whenever possible
- Arrange your kitchen so items that you utilize frequently are easily accessible (e.g. do not put common cooking appliances in high cabinets or low cabinets)
- Use electrical appliances when possible (e.g. can opener, blenders, mixers, dishwasher)
- Use lighter plates and cookware if possible
- When cooking for a lot of people consider paper plates and plastic utensils so you do not have to spend a lot of time cleaning up afterwards
- Make bigger portions so you have leftovers → not having to cook for every meal
- Plan ahead and gather all supplies and utensils before beginning to cook
- Ask for help when needed
- Take a break when needed

(Saint Joseph's Healthcare: Hamilton, 2013)


Photo by gograph.com

Energy Conservation Strategies for Work

- Plan ahead
- Perform tasks in sitting position when possible
- Take breaks when you need them
- Work on harder tasks when you feel more energized and save easier tasks for when you feel less energized during the work day
- Arrange your work environment (desk, office, cubicle) so you can easily access equipment and supplies without having to bend, reach, or get up
- Park closer to your building
- Take the elevator instead of stairs
  (University of California San Francisco Health, n.d.)

Energy Conservation Tips for Play & Leisure Activities

- Do activities with another person (friend/companion/ family member)
- Select a leisure or play activity based upon your energy level
- Think about how the weather might impact your breathing (e.g. hot versus cold weather)
- Take rest breaks as needed
- Rest before you get too tired
- Pace yourself
  (University of California San Francisco Health, n.d.)

Adaptive Equipment for ADL

- Sock Aid
  - Helps you don your socks without having to bend over/ overexert yourself
  - Demonstration


Photo by healthproductsforyou.com

Adaptive Equipment for ADL/IADL

- Reacher
  - Helps you pick up light objects off the floor without having to bend down
  - Helps you grab light objects from higher surfaces/ cabinets without reaching
  - Adjust your socks (e.g. pull up or take off)
  - Don pants
  - Don undergarments
  - Demonstrations


Photo by rosemed.com


Photo by dailycaring.com


Photo by Walmart.com

Adaptive Equipment for ADL

- Long-handled sponge
  - Reach your back
  - Reach your legs/ feet without having to bend
  - Demonstration

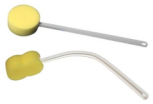
Photo by caregiverproducts.com

Adaptive Equipment for ADL

- Long-handled shoehorn
  - Helps you don your shoes without having to bend down
  - Easier to use with slip-on shoes
  - Can use with reacher when needed
  - Easier to use if you tied your shoes first
  - Demonstration


Photo by rehabmart.com

Practice Activity: Utilizing Adaptive Equipment for ADL/IADL (15 minutes)

- Provision of long-handled sponges, long-handled shoehorns, reachers, and sock aids to participants
- Practice utilizing this equipment
- Ask questions

Home Modifications

- Makes your home a safer environment
- Makes your home more conducive to your physical needs
- Allows you to conserve energy

Photo by pinclipart.com

Home Modifications: Entrances

Exterior pathways (outside of the house)
- check for loose bricks, uneven pavement, slipping hazards
  - Must fix these

- Entrances
  - ramps
  - stair glides
  - free from clutter
  - handrails for steps on both sides (at least 1 side)
  - appropriate lighting

(American Association of Retired Persons (AARP), 2015)


Photo by expressramps.com

Home Modifications: Bedrooms

- Can you have a first floor set-up if stairs are difficult to navigate?
- Do not have a cluttered bedroom→ increased risk for tripping/ falling
- Furniture is strategically placed to allow for clear walking pathways
- Electrical wires and phone cords are securely placed along the wall/ in a safe spot
- Large area rugs are secured to the floor
- Get rid of throw rugs
- Bedrails installed
- Proper lighting/ night lights throughout the room
- Adjustable beds (e.g. head of bed elevates →helps with breathing
- Bedside commode placed near bed at night if you frequently have to get up to go to the bathroom and it is not close to your bedroom

(AARP, 2015)


Photo by ritewaymed.com

Home Modifications: Bathrooms

- Toilet has grab bars by it
- Toilet is raised (bedside commode over it; raised toilet seat)
- Secure grab bars in the shower/ tub (do not use suction grab bars)
- Non-slip/ non-skid rugs/ mats in the bathroom
- Walk-in shower easier than tub
- Shower chair with a back
- Tub transfer bench
- Adjustable, handheld shower head
- Chair near the sink if possible to perform grooming/ dressing tasks in seated position

(AARP, 2015)

Adaptive Equipment for the Bathroom


Raised toilet seat

Photo by mccauusmedical.com


Bedside commode

Photo by amazon.com


Raised toilet seat with handles

Photo by vitalitymedical.com

Home Modifications for the Toilet


Photo by lpdconstruction.en.made-in-china.com


Photo by nextdaysuccess.com

Home Modifications for the Shower/ Tub


Photo by agingintplace.org

Adjustable shower head/ hand-held shower head


Photo by buymedical.com

Shower chair with a back


Photo by amazon.com

Shower chair without a back


Photo by ebay.com

Tub transfer bench


Photo by seniorsafetydevices.com

Tub transfer bench

Home Modifications for the Tub


Photo by tripadvisor.com

Home Modifications for the Shower


Photo by thetrianglenchlog.handypro.com taken from pinterest.com

DO NOT USE THESE AS GRAB BARS/ PUSH OFF OF /PULL-UP ON


Photo by antiquephumber.com


Photo by agingintplace.org


Photo by homedepot.com


Photo by homedepot.com

Home Modifications: Stairs Glides


Photo by pennsylvania.cainsmobility.com


Photo by bruno.com/stair-lift-guide

Video: AARP HomeFit: *HomeFit: Smart solutions for making your home comfortable, safe and a great fit*

- AARP. (2013, July 5). *AARP HomeFit: Smart solutions for making your home comfortable, safe and a great fit* [Video]. AARP Real Possibilities. Retrieved from https://videos.aarp.org/detail/video/4076489694001/aarp-homefit:-smart-solutions-for-making-your-home-comfortable-safe-and-a-great-fit---aarp)

Homework Assignment


Photo by kindpng.com

- Identify at least 2 bathroom modifications that will make your bathroom safer/ more conducive to your needs
- Identify at least 2 bedroom modifications that will make your bedroom safer/ more conducive to your needs
- Identify at least 2 IADL energy conservation techniques/strategies that you can implement at home
- Identify at least 2 ADL energy conservation techniques/ strategies that you can implement at home
- Practice utilizing your sock aid, reacher, long handled sponge, and long handled shoehorn and log in your journal when you do

Questions?


Photo by familytree.com

Reminder

- Please bring your homework for the next session

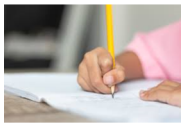
Photo by gradepowerlearning.com

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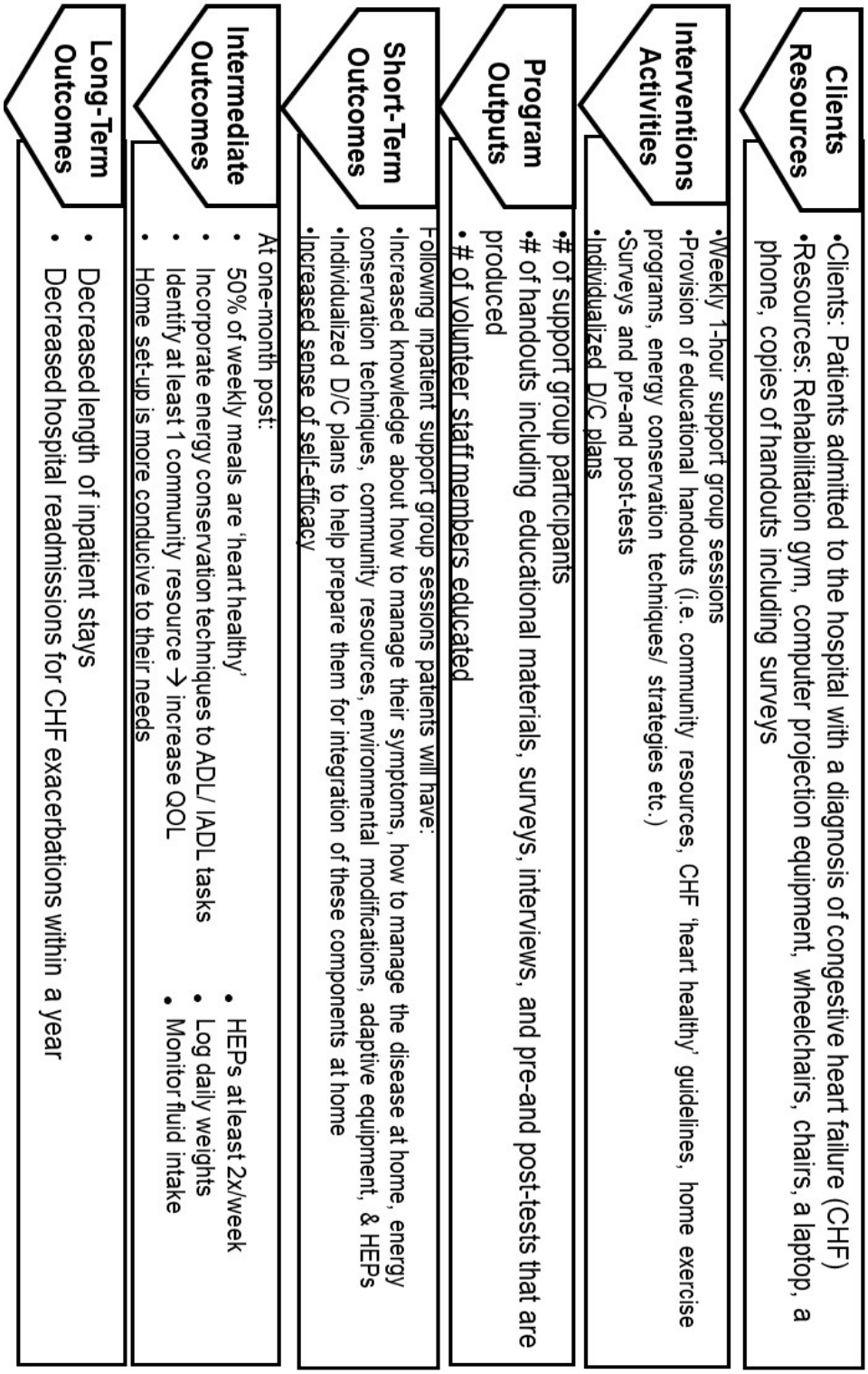
Appendix D: Simplified Logic Model



Appendix E: Fact Sheet

BOSTON UNIVERSITY

Healthier Hearts for Life: An Inpatient Support Group for Individuals with Congestive Heart Failure

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Congestive Heart Failure (CHF)

CHF is a , "condition in which the heart muscle is unable to pump enough blood to meet the body's needs for blood and oxygen," (American Heart Association, 2017a, para. 1). Symptoms include, "shortness of breath (also called dyspnea), persistent coughing or wheezing, buildup of excess fluid in body tissues (edema), fatigue, lack of appetite, nausea, confusion, impaired thinking, and increased heart rate," (AOTA, 2017b, para.1). These symptoms often negatively impact an individual's functional activity tolerance/ endurance needed to perform one's everyday activities.

The Problem

CHF is often poorly managed at home, and people with CHF have frequent readmissions to the hospital. **Almost 25%** of patients with CHF are **readmitted within 30 days** (Kilgore et al., 2017) and **approximately 50%** are readmitted by **6 months** (O'Connor, 2017). Many of the **current treatment interventions** only provide individuals with a **temporary, medical solution** for their CHF exacerbations *instead* of addressing key lifestyle or self-management behaviors that are fundamental to long-term CHF management at home. Additionally, there is a need for healthcare employees in hospitals to shift their treatment views from a reactive, short-term solution lens to a proactive, long-term solution lens in order to better meet the needs of CHF patients.

The Proposed Solution

- *The Healthier Hearts for Life Pilot Program* is an interprofessional, inpatient support group for patients with a diagnosis of CHF that are considered high risk for readmission based upon their admission history.
- **This program was designed to equip patients with the knowledge, skills and support to be able to manage their CHF at home through lifestyle modifications and self-management behaviors.** Consequently, the program adopts a continuous approach to managing chronic and complex aspects of CHF.
- This pilot program will be taking place at Johns Hopkins Bayview Medical Center (JHBMC) in Baltimore, Maryland and will be led by occupational therapists (OTs).

Goals

The program aims to:

- Reduce hospital readmissions for participants
- Decrease the participants' length of stay during subsequent hospital admissions
- Increase participants' knowledge of CHF and how to better manage the disease

Funding & Potential Cost Savings

- Implementation of this program is projected to cost $32,744.40 over 2 years.
- Funding to cover this cost can be obtained through local community grants, state grants, and national grants.
- Hospitals have responsibility for expenses relating to readmissions within 30 days from a patient's discharge from the hospital. In Maryland, the average cost per inpatient day for a non-profit hospital is $2,419 (Rappleye, 2015), and the mean length of stay for HF-related hospitalization is 7 days (Kilgore et al., 2017). Therefore, at a minimum, JHBMC would lose approximately $16,993 per CHF readmission within 30 days, if the patient's length of stay was only 7 days long.
- By reducing readmissions, the program can result in cost savings of approximately $507, 990 in 2 years.

Healthier Hearts for Life Program Details

- Five participants will meet daily for 6 consecutive days, Monday-Saturday, in the inpatient rehabilitation gym. A new group of 5 participants will be selected each month.
- Each session will focus on a different topic and last approximately an hour.
- Personnel involved include registered nurses, registered dietitian nutritionists, inpatient physical therapists and occupational therapists, pharmacists, social workers, and case managers. Each of these experts will educate the participants about their profession and how to better manage their CHF.
- Participants will complete homework assignments and participate in hands-on learning activities to increase their self-efficacy in managing their CHF at home.
- Participants will receive follow-up phone calls post discharge in order to check in on their progress, provide support and troubleshoot any difficulties they have with their healthier lifestyle changes.

Provision of Occupational Therapy Services

- OTs have an essential role in the evaluation and treatment of patients with CHF because they focus on helping people engage in one's meaningful daily occupations/ activities (AOTA, 2020). OTs will be responsible for educating patients about energy conservation techniques, 'heart healthy' behaviors, compensatory strategies, assistive devices, adaptive equipment, home modifications, and community resources in order to optimize their daily occupations/ activities at home and in their communities.
- This program will also increase healthcare professionals' awareness of OT's unique contribution to treating patients with CHF.

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Appendix F: Executive Summary

Introduction

Congestive heart failure (CHF) is a prevalent disease that leads to frequent hospital admissions secondary to its disabling symptoms (Shafazand, Patel, Ekman, Swedberg, & Schaufelberger, 2015). Symptoms of CHF include, "shortness of breath (also called dyspnea), persistent coughing or wheezing, buildup of excess fluid in body tissues (edema), fatigue, lack of appetite, nausea, confusion, impaired thinking, and increased heart rate," (American Heart Association, 2017a, para.1). CHF is a, "condition in which the heart muscle is unable to pump enough blood to meet the body's needs for blood and oxygen," (American Heart Association, 2017b, para.1). Additionally, CHF often negatively impacts an individual's functional activity tolerance/ endurance needed to perform one's everyday activities. This often leads to decreased community access, decreased social participation, and consequently results in depression. According to Richardson (2003), "Patients with CHF who are depressed or who lack social support have been shown to have increased morbidity and hospital readmission rates, to be less adherent to their medical regimen, and to have an overall increase in cost of care," (p. 19). Other considerations that must be accounted for when treating this population are their socioeconomic status, environmental, and other psychological factors. When looking at income, some patients with CHF may no longer be able to work due to the impact of their symptoms and therefore they may receive a social security disability allowance. The amount of the allowance can affect where a patient resides, what groceries an individual can purchase and the neighborhood a patient can afford to live in.

In addition, a fixed income can inhibit a person from affording housing that is conducive to their physical needs and can impact whether or not patients can afford physical assistance. Unfortunately, this disease not only impacts the individuals that have it but it also impacts the U.S. healthcare system. CHF has become a major financial burden on the healthcare system, especially given that almost 25% of patients with CHF are readmitted within 30 days (Kilgore et al., 2017) and approximately 50% are readmitted by 6 months (O'Connor, 2017). Unfortunately, when a patient is readmitted to a hospital within thirty days from his or her initial discharge, the hospital becomes financially responsible for covering that patient's hospital stay/ costs due to the Hospital Readmissions Reduction Program's imposed penalties (Hobbs et al., 2016).

Although there is a substantial amount of research available regarding CHF, this disease is still perplexing because it remains one of the most prevalent and costly diseases worldwide (Jonkman et al., 2016; Shao, Chang, Edwards, Shyu, & Chen, 2013). Even though many medical and non-medical interventions have been researched for this disease, CHF is often poorly managed, and people with CHF often have frequent readmissions to hospital. This is a result of inconsistent findings and gaps within the CHF literature (Jonkman et al., 2016). Research studies have typically been done with patients in the outpatient, home, and post-inpatient settings. This is problematic because people with CHF often spend much time in the inpatient setting and therefore this setting should be a focal interest for research. This project was developed to address this gap and the shortcomings discovered within the evidence-based literature. Specifically, this project was designed to address the problem of patients' poor management of their CHF

symptoms at home.

Traditional Hospital Approaches to CHF Management

Popular interventions for CHF management tend to focus on the use of medications such as diuretics in order to help individuals remove the excess fluid from their bodies or medical procedures (Tannenbaum & Johnell, 2014). Diuretics are a fast-acting solution for edema because they decrease one's fluid buildup and produce rapid weight loss (Tannenbaum & Johnell, 2014). However, it can be deduced based upon the high readmission rate for this population that many of the current treatment interventions are only providing the individuals with a temporary, medical solution for their CHF exacerbations instead of addressing key lifestyle or self-management issues that are fundamental to long-term CHF management at home. It appears that the current CHF interventions and treatments are not optimal for this population due to their ineffectiveness evident by the high readmission rate for this population. Thus, new multidisciplinary interventions that target 'heart healthy' behaviors and lifestyle changes warrant further investigation. Moreover, there is a need for healthcare employees in hospitals to shift their treatment views for people with CHF from a reactive, short-term solution lens to a proactive, long-term solution lens in order to better meet the needs of their patients. This is what the *Healthier Hearts for Life Pilot Program* does.

Lack of CHF Education

The most common reasons that people have trouble managing their CHF at home include insufficient disclosure of their diagnosis, insufficient education about their disease, symptoms, and ways to manage them at home, along with uncertainty regarding

their care plan secondary to vague instructions or lack of collaboration with the doctors and the interdisciplinary team members (Schumacher, Hussey, & Hall, 2018; Sevilla-Cazes et al., 2018; Simmonds et al., 2015; Namukwaya, Grant, Downing, Leng, & Murray, 2017). Additionally, caregivers of individuals with CHF often feel ill-equipped to manage the disease symptoms, and also receive inadequate education about CHF. According to the research, the caregivers often struggled the most when they experienced a lack of training and/ or education about HF management, the care plan, and/ or self-care which often led to uncertainty (Burke, Jones, Ho, & Bekelman, 2014; Sterling et al., 2018; Wingham et al., 2015).

Key Findings for CHF Management

Despite the inconsistencies and ambiguities found within the research, there appears to be some prevalent themes regarding advantageous interventions for CHF management that have been examined. Some effective non-medical interventions for individuals with CHF include physical activity (exercise), group sessions, educational interventions focusing on self-management behaviors such as diets and sodium intake, as well as focusing one increasing people's self-efficacy and providing them with social and psychological supports (Glatz et al., 2014; Houchen et al., 2012; Joekes et al., 2007; Meng et al., 2016; Musekamp et al., 2017; Tiede et al., 2017; Tully et al., 2010; Welsh et al., 2013; Wingham et al., 2014). These are important interventions since individuals with CHF can use these in their everyday lives in order to help manage their CHF symptoms. When CHF symptoms are being properly managed, patients tend to have a higher quality of life (Houchen et al., 2012). Nevertheless, it is always important to consider a person's

age, comorbidities, stage and severity of their disease, their motivational level, and the advantages along with disadvantages that partners and/ or caregivers can have on a patient's quality of life and management of their disease (Tiede et al., 2017; Wingham et al., 2014). The Healthier Hearts for Life Pilot Program implemented these key findings into their program's design and curriculum in order to best serve their participants.

Overview of Program

The Healthier Hearts for Life Pilot Program is an interprofessional, inpatient support group for patients with a diagnosis of CHF that are considered high risk for readmission based upon their admission history. This program was designed to address the problem of patients' poor management of their CHF symptoms at home. This pilot program will be taking place at Johns Hopkins Bayview Medical Center in Baltimore, Maryland. In these inpatient support group sessions, groups of approximately five participants will meet daily for 5 consecutive days, Monday-Friday, in the inpatient rehabilitation gym. Each session will focus on a different topic and last approximately an hour. Overall, participants will be educated about energy conservation techniques, 'heart healthy' nutrition, compensatory strategies, assistive devices, adaptive equipment, home modifications, and community resources in order to optimize their activities of daily living and instrumental activities of daily living at home and in their communities. At the conclusion of each session, participants will be asked to complete homework assignment(s) aimed at increasing self-efficacy before the next session. Healthcare professionals involved in this program include registered nurses, the director of rehabilitation, registered dietitian nutritionists, social workers, inpatient physical

therapists and occupational therapists (program facilitators), pharmacists, social workers, and case managers. Following the completion of the *Healthier Hearts for Life* pilot program, participants will receive a weekly phone call from the program developer for four weeks and then will receive a monthly phone call for the next five months to check in on their progress, provide support and troubleshoot any difficulties they have with implementing healthier heart lifestyle changes.

Desired Outcome of the Healthier Hearts for Life Pilot Program

This program is expected to increase the participants' knowledge of their CHF and increase their self-efficacy in managing their symptoms at home. Participants' increased senses of self-efficacy will aid in empowering them to take control in managing their disease. Moreover, patients will be educated about community resources to help them become better advocates for themselves. Ultimately, this program aims to reduce hospital readmissions for participants, decrease the participants' length of stay during a hospital admission (s), and increase participants' knowledge of CHF and how to manage this disease. Additionally, increased knowledge is intended to make the patients better advocates for themselves when navigating the healthcare system. Some of the goals will take longer for participants to implement since behavior changes require time for adjustment.

Funding and Potential Cost Savings

The *Healthier Hearts for Life Pilot Program* has the potential to improve health outcomes while saving hospitals a significant amount of money from preventable hospital readmissions. This program is focused on a very prevalent and costly disease and

therefore research aimed at reducing this financial burden is always being sought. Fortunately, the majority of the equipment and the personnel needed for this program are in-kind hospital resources. However, the extensive hours and professional investment that the program developer, program facilitators and the researcher will be responsible for necessitates appropriate compensation. The *Healthier Hearts for Life Pilot Program* is projected to cost $29,344.40 for implementation of this program for two years. However, funding to cover this cost can be obtained in many different ways such as through local community grants, state grants, and national grants. If this pilot program yields positive results, future avenues for potential funding such as insurance reimbursement or monies from the hospital's budget will be explored.

According to Jackson, Tong, King, Loustalot, Hong, and Ritchey (2018) many hospitalizations for CHF are considered preventable. These preventable readmissions within thirty days from an individual's discharge from the hospital procure expenses that hospitals become responsible for because the average cost per inpatient day for a non-profit hospital in Maryland is $2,419 (Rappleye, 2015). According to a retrospective, research study on a national sample of Medicare beneficiaries conducted by Kilgore et al. (2017), "The mean length of stay for HF-related hospitalization was 7.07 days," (p. 66). Based upon this data, at a minimum, Johns Hopkins Bayview Medical Center would lose approximately $16,993 per CHF readmission within 30 days, if the patient's length of stay was only seven days long. Therefore, if the *Healthier Hearts for Life Pilot Program* can provide the participants with increased knowledge, skills, and senses of self-efficacy regarding management of their disease and as a result reduce these participants'

readmissions, the hospital can experience a substantial cost savings.

Conclusion

The *Healthier Hearts for Life Program* was specifically designed to address the problem of patients' poor management of their CHF symptoms at home. In order to address this ongoing problem, a new approach was taken. Health professionals in an interprofessional team each contribute their knowledge and expertise to the program's overall goal of increasing the participants' feelings of self-efficacy when it comes to managing their CHF. Interventions were based on advantageous, evidence-based findings found during a thorough review of the literature of the various medical professions. In summary, the *Healthier Hearts for Life Program* was designed to make patients with CHF more competent in the management of their disease in order to reduce hospital readmissions.

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