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# Implementation of a Nurse Visit Model for Patients with Congestive Heart Failure in a Federally Qualified Health Center

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# Scholarly Project Title Page

Implementation of a Nurse Visit Model for Patients with Congestive Heart Failure in a Federally Qualified Health Center

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By

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**Abstract**

**Background**: Chronic congestive heart failure is the primary cause for hospitalizations among people 65 and over in the United States, resulting in two-thirds of all heart failure costs (Lambrinou, Kalogirou, Lamnisos, & Sourtzi, 2012). Research demonstrates that helping CHF patients acquire self-care management skills and behaviors promotes clinical stability and reduces the amount of unscheduled acute care (Shively, Gardetto, Kodiath, Kelly, Smith, Stepnowsky, Maynard, & Larson, 2013).

**Project Design:** A chronic disease nurse visit model was piloted at the Oregon Health and Science University (OHSU) Family Medicine at Richmond (FMR) Clinic, a Federally Qualified Health Center (FQHC). The quality improvement project focused on improving congestive heart failure patient self-care management skills and behaviors. Improvement in self-care management of 15 patient participants was evaluated using the Care Model (CM) as a guide. Physical assessment data, medication and diet adherence, and pre and post validated survey mean scores were used to measure change in patient self-care management skills and behaviors. The Self Care of Heart Failure Index version 6.2 (SCHFIv6.2) is divided into three sections: maintenance, management, and confidence with a total of 23 questions answered using a Likert type scale (Vellone, et al., 2013).

**Results:** There was a 6% improvement overall in patient's pre and post survey mean scores. Sixty percent (9 out of 15) of patients demonstrated a weight loss of one pound or more over the 90-day project, while 27% (4 out of 15) of patients experienced a 5% or more improvement in blood pressure and positive change in orthopnea. There were no significant changes in reported paroxysmal nocturnal dyspnea (PND), and at 90-day follow-up100% of patients reported the ability to recognize personal symptomology of worsening heart failure and what to do if experiencing symptom. Additionally, none of the patient participants experienced CHF related emergency room visits or hospitalizations.

**Conclusion:** Implementation of a chronic disease nurse visit model focused on patient education demonstrated improvement in FMR CHF patient's self-care management skills and behaviors improving patient's management of their chronic illness.

Keywords: *chronic disease management, nurse visit, nurse managed care, nurse-led care, chronic care model.*

## Introduction

### Problem Description

The pervasiveness of congestive heart failure (CHF) is a major factor in the increasing numbers of people with chronic illness, and contributes to a significant international burden on healthcare services (Franco, et al., 2014). Chronically ill patients are often the highest utilizers of the healthcare system, including outpatient clinics and emergency room settings (Wilson, Brooks, Procter, & Kendall, 2011). An effective care delivery model for chronic disease management can facilitate improvements in self-care management skills and behaviors (Koberich, Lohrmann, Mittag, & Dassen, 2015). Care delivery for CHF patients at Family Medicine at Richmond (FMR) lacked consistency, formal structure, and a self-care symptom management focus

presenting an opportunity to resolve potential gaps in CHF patient's knowledge related to self-efficacy of heart failure management putting them at risk for avoidable complications.

**Available Knowledge**

In order to identify the practice question, search for evidence, and perform evidence appraisal, The John Hopkins Nursing-Based Practice Model (JHNEBPM) was used to guide the process (Dearholt & Dang, 2012). The practice question identified was: Does implementation of a chronic disease nurse visit care delivery model focused on education result in improvement of physical symptoms as well as self-care management skills and behaviors?

The literature review identified high quality sources supporting two common themes: patient self-care management and nurse-led care. These two topics underpin the scholarly project. See Appendix A for articles reviewed and evaluated for this project. The first common theme to emerge from the literature review was patient self-care management. Examination of the literature revealed five level 1A randomized controlled trials with evidentiary support demonstrating improvement in patient self-care management after nursing intervention was implemented. Otsu & Moriyama (2011) showed a six month educational program resulted in improvement of CHF symptoms in the intervention group. A second study demonstrated a significant positive influence on overall heart failure self-care, but not in quality of life (Koberich, Lohrmann, Mittag, & Dassen, 2015). Willard-Grace, et al. (2015) conducted a study over a 12 month period showing improvements in self-care management after receiving health coaching. Two additional studies (Chouinard, et al., 2013; Shao, Chang, Edwards, & Shyu, 2013) focused on nurse-led programs and found CHF support groups and education focused on self-care

management led to improvement in patient self-care management positive patient outcomes.

The second common theme was nurse-led care. Studies demonstrated nurse visit models for chronically ill patients resulted in decreased hospital admissions, positive lifestyle changes, improved quality of life, self-care and compliance (Shao, Chang, Edwards, & Shyu, 2013), increased prevention (Dean, et al., 2014), reduction in wait times and cost, and an increase in disease-related knowledge (Pagels, et al., 2008). Additionally, studies found nurse-led care was as effective as traditional provider care (Arts, et al., 2013) and led to a decreased risk in cardiovascular disease directly related to nursing interventions such as patient education, improved communication, and follow up (Bove, et al., 2011; Chow & Wong, 2014; Dean, et al., 2014).

## Rationale

The Care Model (CM), (Appendix B) was the theoretical model used to guide the project, and is based on six elements: the health care system, self-management support, decision-making support, clinical information systems, community support, and delivery system design (Mallow, et al., 2014). Permission to use the model in this project was received by the publisher (Appendix C).

### health care system.

Fundamental to the model is the health care system itself promoting a culture of safe, high-quality care. Health system characteristics have a direct effect on patient outcomes, and are conversely affected by patient outcomes (Mallow, et al., 2014). FMR utilized education and teaching materials used in OHSU Cardiology to promote alignment and continuity of care which contributes to a more positive patient experience as many FMR patients are also patients of OHSU Cardiology.

**self-management support.**

Chronic disease self-management refers to mindfulness of factors and symptoms related to the chronic condition (Mallow, et al., 2014). As part of symptom management CHF patients must monitor their daily weight, blood pressure, medication adherence and compliance, diet and fluid intake, and have regular communication with healthcare professionals (Mallow, et al., 2014). The nurse care managers at FMR utilized the teach-back method to ensure patient's understanding of education provided. Often when asked whether they understand information, patients are confused but will simply—and inaccurately—answer "yes" (Koh, et al., 2013). When using the teach-back method, nurses or providers ask patients to explain back to them what they have learned and their understanding of the information allowing the nurse or provider to assess patients understanding (Koh, et al., 2013).

**decision support.**

Decision-making support is described as embedding evidence-based guidelines into everyday clinical practice (Koh, et al., 2013). FMR nurse care managers utilized evidence-based practice currently used by CHF specialists in the cardiology department at OHSU. Standardized patient education materials used by the cardiology department were adapted for use at FMR. This facilitated shared goal-setting and decision-making while providing patient education ideally leading to better patient engagement which ultimately promotes better self-management practice (Koh, et al., 2013).

**clinical information systems.**

Clinical information systems assist with organization of data at both patient and population levels to assist in the delivery of appropriate, outcomes-oriented care (Koh, et al., 2013). Methods such as secure messaging, electronic visits, home monitoring with feedback, and

social network services are examples of such modalities (Mallow, et al., 2014). Secure messaging was used in this project. Physical assessment data collected at each nurse visit was documented into the Electronic Medical Record (EMR) to monitor patient status, and was available so all members of the patient's healthcare team could access this information. Additionally, the EMR patient access portal was used to communicate with patients securely.

**community resources.**

Patients typically pursue health information in three ways: independently, from healthcare providers, and from family and friends (Ahern, Woods, Lightowler, Finley, & Houston, 2011). The CM acknowledges community influences patient outcomes whether positive or negative (Kabagambe, et al., 2011). Patients can access most aspects of their health care electronically including health information, clinics, secure email, medication refills online, and schedule appointments requiring the definition of community to include those who interact through online networks, or the online community (Mallow, et al., 2014). FMR patient participants were able to access their medical records electronically, and communicate with the nurse care managers via the secure patient portal.

**delivery system design.**

Developing an effective model of healthcare delivery is essential to the success of CHF patients and self-care management. The previous CHF care delivery model at FMR lacked structure, and was based on reactivity to acute situations. A delivery model utilizing innovative technology affords a low-cost, flexible means to supplement formal healthcare and may be taken into consideration when reshaping a care delivery model (Mallow, et al., 2014). Technologies should be easy to use, include face-to-face communications, have low or no cost to patients, and include back-up interventions for technical issues that cannot be resolved (Mallow, et al., 2014).

While the CM was used to develop the intervention, The Kellogg logic model was used as a framework to identify and organize these project components (Kaplan, & Garrett, 2005). Details describing the logic model process can be found in the Interventions section of this report.

### Specific Aims

The purpose of the project was to improve the care delivery model for chronic disease management in patients with CHF at FMR by implementing a nurse visit model focused on educating patients regarding self-care management skills and behaviors to better manage their chronic illness. Additionally, OHSU is working toward a common definition of care coordination for the organization, and the project provides additional information regarding the impact of the registered nurse's (RN) role in care coordination and chronic disease management further aligning the project with organizational goals.

## Methods

### Context

The project focused on CHF patients assigned to a primary care provider (PCP) at FMR. As a Federally Qualified Health Center (FQHC), the primary mission of the clinic is to enhance the provision of primary care services in the medically-underserved community where it is located (Department of Health and Human Services, 2016). FMR has an average of 250-300 visits per day with the following payer mix: approximately 50% Medicaid, 25% of patients Medicare or uninsured, and the remaining 25% are either self- pay or commercially insured (OHSU, 2017). CHF visits during the project were categorized as non-billable, and at no cost to the patient.

FMR is located in an urban setting with a diverse neighborhood composition. The Richmond neighborhood is home to a diverse selection of residents, from young professionals

and families to transient citizens. There are many different religions, races, genders, languages, and individuals of varying socio-economic status that co-exist within the neighborhood. FMR also has a significant population of patients with mental illness. Patients with severe debilitating mental illness or cognitive impairment were not included in this project.

Key stakeholders in the project were CHF patients, nurse care managers, primary care providers, ancillary clinic staff, and other primary care areas at OHSU. CHF patients continued to see their PCP as part of usual care, so providers still had a vested interest in the process of chronic disease management nurse visits. Implementation of the nurse visit model required significant engagement on the part of both nurses and patients at FMR. The Department of Family Medicine, as well as other primary care clinics at OHSU, were also considered stakeholders in this project because they may also benefit from a formal chronic disease management nurse visit model adaptable to other chronic conditions.

Through discussion with providers and nurses, the need for better chronic disease management at FMR was identified. Both primary care providers and nurses agreed a structured CHF nurse visit model did not exist, and utilizing nursing resources would be a positive step toward improving overall chronic disease management. Although the OHSU Cardiology department is a source of specialty care for many CHF patients, many FMR patients continue to seek chronic disease management at the primary care level contributing to the need for a successful chronic disease management care delivery model.

Strengths of the project include leadership and financial support from FMR, and ample support found in the literature. Additionally, development of a new care delivery model for chronic illness also enhances the value of the project as the nurse visit model may be easily translated to other chronic diseases making it transferrable to other primary care areas.

Competing organizational priorities was identified as a significant potential weakness of this project. Implementation of a new organizational care management program could have threatened the ability to implement the project in the FMR clinic successfully, but ultimately did not affect the project. Additional weaknesses of this project were a decrease in patient participation and participant attrition. Initially 16 patients were selected for participation, but only 15 completed the project. Data on patients that did not complete the project were not reported.

**Interventions**

The project was designed to utilize nurse care managers as a primary resource for management of CHF patients. A chronic disease nurse visit model related to patient self-care management skills and behaviors was developed and implemented to promote better self-care management among the CHF population at FMR, taking a proactive approach to chronic disease management and in alignment with the Care Model element of delivery system design.

In order to develop and implement a nurse visit model, buy-in from stakeholders was necessary. Many meetings took place to facilitate discussion around nurse visits, and visit structure. Due to the nature of the provider schedules at FMR, the final decision was made to make the chronic disease visits nurse only with PCP support available. After buy-in was established, an Institutional Review Board (IRB) Authorization Agreement was completed and submitted to OHSU (Appendix D). Additionally, a Memorandum of Understanding was signed between the project leader and the FMR Executive Director outlining the approval of project implementation at FMR (Appendix E).

IRB approval (Appendix F) was received later than anticipated, pushing the timeline of the project out two weeks but did not significantly impact the project. Activities performed prior to IRB approval were the development of visit templates for EMR documentation. A template

was created for the face-to-face visit (Appendix G), as well as follow up phone calls (Appendix H). Each visit and phone call was documented in the standardized template supporting the clinical information element of the Care Model.

Six nurse care managers whose primary role is to work with the primary care team were invited to participate and were provided with an information sheet explaining the project. Consent was obtained (Appendix I), and it was communicated that participation in the project was voluntary, and would not impact their performance review. After IRB approval was received, participating nurse care managers were administered the Nurse's Knowledge of Heart Failure Self-Management Principles Survey (Appendix J) to measure current level of knowledge. Permission to use the survey was obtained by the publisher (Appendix K).Surveys were administered and collected without any identifying information, and a collective score was calculated for each question as well as a total mean survey score. Gaps in knowledge were identified, and related content was included in the subsequent RN education session conducted by the Cardiology Acute Care Nurse Practitioner for OHSU.

The FMR CHF registry was reviewed to identify 16 potential patient participants that met inclusion criteria. Inclusion criteria was as follows: 18 years of age or older, established patient assigned to an FMR PCP seen within the last 18 months, English speaking, no cognitive or decisional impairment, not enrolled in hospice, New York Heart Association (NYHA) heart failure classification I-IV. Criteria applied for exclusion was non-English speaking, enrolled in hospice, and cognitive or decisional impairment.

This list was given to nurse care managers for review so they could provide input on which patients might benefit most from participation in the project. Following this feedback, potential patient participants were contacted by phone or while in the clinic for another

appointment. After obtaining consent and initial face-to-face visit, one patient withdrew from the project leaving the final number of patient participants at 15.

The nurse visit project took place over 90 days and was designed to include one face-to-face visit per month, and a weekly phone call between face-to-face visits totaling three face-to-face visits and nine follow up phone calls. If possible, nurse care managers approached identified patients while in the clinic for PCP or other appointment to see if the patient was willing to participate in the project using the patient informed consent form (Appendix L). If contacting the patient by phone, nurse care managers utilized a script (Appendix M) when contacting the patient. These appointments were scheduled by nurse care managers or patient access specialist (PAS) staff with a notation placed in the EMR to identify it as a CHF RN visit, and if the patient needed to be consented and surveyed.

CHF nurse visits were integrated into the nurse care manager's schedule template. Nurse visits were conducted independently, with the opportunity for provider consultation as needed for medication changes or comprehensive changes to the treatment plan. Due to reimbursement requirements, providers were required to sign off on visits requiring new or significant changes in medication and treatment regimen. Initial face-to-face visit activities included patient consent, administration of the Self Care of Heart Failure Index Survey version 6.2 (SCHFIv6.2) (Vellone, et al., 2013.) (Appendix N), physical assessment, medication review, symptom review, symptom management review, and patient education. Permission to use the SCHFIv6.2 (Vellone, et al., 2013) was received from the publisher (Appendix O). Patient education focused on following a low sodium diet, daily symptom management (Appendix P), identified needs, and what to do if unable to self-manage symptoms. The nurse care manager contacted the patient weekly by phone between each face-to-face visit, which consisted of a brief overview of symptoms and symptom

management, as well as answering any questions or concerns the patient may have. Documentation of follow up phone calls was entered into the designated EMR template. Patients were able to access the secure patient portal, which included access to their history, visit summaries, request prescription refills, and secure messaging to PCP or nurse care manager. Patient participants were administered the SCHFIv6.2 again at the last visit, and then a comparison of pre and post patient survey scores was performed. Additionally, after the last visit, physical assessment data collected during the project was analyzed to determine if patient's clinical stability improved. The final phase of the project consists of a follow-up phone call made to patient participants 90 days after project completion to inquire about their ability to maintain self-care management skills and behaviors.

The Kellogg logic model was used as a framework for this project (Kaplan & Garrett, 2005) (Appendix Q). A logic model can also be described as a visual way to present the project leader's perspective on how the project will transpire (Zaccagnini & White, 2014). The following narrative describes 11 short term outcomes, and one long term outcome (Appendix R):

Project development outcomes –

1. Nurse visit electronic documentation template created and built in EMR by April 15, 2017.
2. Six nurse care managers selected to participate in the project by April 30, 2017.
3. Nurses' Knowledge of Heart Failure Self-Management Principles Survey administered to participating nurse care managers to measure CHF knowledge by May 31, 2017.
4. CHF education intervention for participating nurse care managers focused on basic CHF knowledge, and gaps in CHF knowledge identified in the Nurses' Knowledge of Heart Failure Self-Management Principles Survey administered to nurse care managers by June

7, 2017.

5. 16 patients meeting inclusion criteria were selected to participate in the project by July 31, 2017.

Project implementation outcomes -

6. Nurse care managers scheduled and completed 100% of initial face to face nurse visits by July 31, 2017.
7. Patient participants were administered the SCHFIv6.2 by July 31, 2017.
8. Nurse care managers conducted follow up phone calls weekly between monthly nurse visits to document patient self-report of symptoms and symptom management by August 4, 2017, and one follow up call 90 days after project completion.
9. The SCHFIv6.2 was administered to patients at the last nurse visit to assess improvement in CHF self-care management indicated by a minimum of one point, or one percent increase in mean survey score by September 30, 2017.
10. Determined if patient participants demonstrated at least a 5% improvement in blood pressure, change in weight, change in PND and orthopnea, and 100% adherence to medication and diet regimen based on physical assessment data and patient self-report by September 30, 2017.
11. CHF patients had no CHF related ER visits, hospital admissions, or hospital readmissions during 90-day project ending September 30, 2017.

There is one long-term outcome related to this project:

By June 2018, the chronic illness nurse visit model will be adopted and implemented into practice by the Department of Family Medicine at OHSU for CHF and other chronic diseases.

**Timeline**

The timeline for this project began in the fall of 2015 when the project need was identified. The implementation phase began April 15, 2017, and was completed September 30, 2017. The final follow up call to patient participants occurred in December 2017. A detailed table of this timeline can be seen in Appendix S.

**Measures**

Outcomes measured were categorized into two groups; project development outcomes, and project implementation outcomes. The first project development outcome (Outcome 1) was the creation of customized electronic medical record (EMR) templates were for face-to-face visits and follow up calls. Templates included areas for documentation of physical assessment data, as well as record of symptoms and symptom management. Next, six nurse care managers were selected to participate in the project (Outcome 2). Nurse care manager's baseline CHF knowledge was measured by administering the Nurses' Knowledge of Heart Failure Self-Management Principles Survey (Outcome 3). CHF education intervention for participating nurse care managers focused on basic CHF knowledge, and gaps in CHF knowledge identified in the Nurses' Knowledge of Heart Failure Self-Management Principles Survey. A score of three or higher, on a five-point scale with five being strongly agreed with the question asked, indicated sufficient knowledge base (Hart, 2011). Training was focused on CHF nursing assessment skills and knowledge related to blood pressure, weight, PND and orthopnea, medication and diet adherence, and patient education regarding self-care management skills and behaviors. The education intervention consisted of a one-hour didactic session taught by the acute care nurse practitioner in the OHSU Cardiology Department that manages patients with heart failure (Outcome 4). The final step before project implementation was selection of 15 patients meeting inclusion criteria to participate in the project using the FMR CHF patient registry (Outcome 5).

After patient participant selection, nurse care managers scheduled and completed initial face to face visits where baseline weight, blood pressure, presence of orthopnea, presence of PND, and adherence to medication and diet were collected (Outcome 6). Additionally, patients were administered the SCHFIv6.2 which consists of a series of questions divided into three sections: maintenance, management, and confidence (Vellone, et al., 2013) at the initial visit and again at the end of the 90-day project (Outcomes 7 and 9). Section A consists of ten questions focusing on how often common instructions given to heart failure patients, or maintenance, are followed. Section B is comprised of six questions related to physical symptoms and self-management intervention, and section C consists of six questions regarding patient's confidence in maintaining self-management behaviors (Vellone, et al., 2013). All questions were answered using a Likert type scale. A simple means comparison was used to evaluate improvement in self-care management behaviors and skills after nurse visit implementation. A minimum of one point difference (total points possible 89) in SCHFIv6.2 scores was used to indicate whether improvement in patient self-care management occurred after nurse visit implementation. A higher value indicated improvement in self-care management skills and behaviors (Vellone, et al., 2013). Nurse care managers conducted follow up phone calls weekly between monthly face-to-face visits to document patient self-report of symptoms and symptom management in the EMR (Outcome 8). Physical assessment data was evaluated after completed visits to determine if improvement was made in blood pressure, weight, PND, orthopnea, and medication and diet compliance (Outcome 10). Additionally, patient participants had no CHF related emergency room visits, hospital admissions, or hospital readmissions during the 90-day project. The structure of the nurse visit itself was analyzed after the 90-day project to determine if methods used for patient education were appropriate and efficient, as well as efficiency of nurse visit

structure (Outcome 11). Participating nurse care managers were included in this analysis, as well as participating patient's primary care providers, if desired. A follow up phone call was conducted 90 days after completion of the project to determine if self-care management skills and behaviors were sustained (Otsu, 2011) per patient report, and documented into the EMR (Outcome 8).

**Analysis**

The impact the nurse visit model had on CHF patient self-care management skills and behavior was determined by calculating the change between pre and post SCHFIv6.2 scores (Outcomes 7 and 9). A higher pre-intervention survey score indicated a higher level of CHF self-care knowledge, and the ability to better manage CHF symptoms. An increase of at least one point in the post-intervention survey score, when compared to pre-intervention survey score, indicated improvement occurred in CHF self-management skills and behaviors after participating in the nurse visit project.

Changes in physical assessment data collected at the initial face-to-face nurse visit were compared to physical assessment data collected at subsequent face-to-face visits to determine whether positive changes in physical symptoms had occurred. Improved clinical stability was determined by: no change in baseline or five percent improvement in blood pressure if baseline not within normal parameters as recommended per patient's PCP, stable weight or unremarkable weight gain that did not require intervention, improved PND and orthopnea, and patient self-report of adherence to recommended diet and medication regimen (Outcome 10). Additionally, CHF related emergency room (ER) visits or hospitalizations of the patient participants were tracked over the project period (Outcome 11) (Appendix R).

**Ethical Considerations**

The project was designed as an evidence-based quality improvement project to promote improvements in the health status of a particular patient population. IRB approval was received prior to project implementation. Potential ethical concerns were identified, and addressed as discussed below.

An EMR template for CHF nurse visits was developed for nurse care manager's documentation during each CHF visit and follow up phone call to ensure standardized data collection by each nurse care manager. The project leader reviewed each CHF visit to ensure the template was followed. Nurse care managers working with a primary care team were invited to participate in the project. As direct reports of the project leader, this was a potential source of ethical concern. Clear communication was given to all nurse care managers their participation in the project was voluntary, and would not affect their performance evaluation.

Informed consent was obtained for all patients participating in the nurse visit project, and all participants received written and verbal information describing the project before informed consent was obtained. The information given emphasized participation was voluntary and may be terminated at any time. In order to maintain participant confidentiality physical assessment data was documented in the secure EMR which has patient confidentiality safeguards in place, and reviewed only by authorized members of the health care team. The completed SCHFIv6.2 patient surveys were secured in the project manager's office in a locked drawer. Additionally, data collection for evaluation was kept on an OHSU encrypted computer.

Potential bias for the project was acceptability by the nurse care managers. Many recent changes in the clinic could have potentially affected their willingness to participate in the project, however this was not a problem. Established nurse-patient relationships had potential to alter interactions with patient participants creating bias. Potential bias was also a concern on the part

of the patient, as some patients may prefer nurse visits over provider visits which could influence their participation or change in self-care skills and behaviors.

Another potential threat to the quality of the project was lack of leadership support which could have impacted the ability to launch or sustain the new nurse visit model. New leadership was supportive of the project and agreed it aligns with efforts to improve chronic disease management and patient access. An additional threat to quality was potential for inconsistent data collection. Participating nurse care managers were instructed to follow the CHF nurse visit protocol for each visit without variation. To accurately evaluate internal validity of the project, it must be possible to determine whether CHF patients improved self-care management skills and behaviors as a result of patient education focused nurse care visits.

## Results

### Nurse Care Managers

Nurse care managers were given the Nurses' Knowledge of Heart Failure Self-Management Principles Survey to assess baseline CHF knowledge and identify areas additional education was needed (Hart, 2011). The survey consisted of 20 questions measuring nurse knowledge of basic heart failure management using a Likert scale. Survey results identified two questions answered incorrectly by all six nurse care managers addressing patient dry weight, and if low blood pressure without heart failure symptoms always required contact with the heart failure provider. These two concepts were emphasized in the education session taught by the OHSU Cardiology Heart Failure Nurse Practitioner, and provided the information needed for the nurse care managers to be knowledgeable in those areas.

### Patient Demographics

Shortly after project implementation, one patient missed several phone calls and a face-to-face appointment and was excluded from the project moving forward resulting in 15 patient participants. Fifteen patients ranging in ages from 37 to 86 years completed the project. There were 10 males and 5 females that participated in the project. Patient participants were white, Hispanic, or African-American with the majority of participants identifying as white according to demographic information in the electronic medical record. Additionally 9 of the patient participants were categorized as New Your Heart Failure Association (NYHA) Class III, while 6 were categorized as NYHA Class I-II. A demographic table can be found in Appendix T.

**SCHFIv6.2**

To measure patient's current level of self-care management of heart failure, the SCHFIv6.2 was administered at the initial face to face visit (Outcome 7). The SCHFIv6.2 is a 22 item validated survey that measures three components of heart failure self-care (Vellone, et al., 2013). Section A focused on self-care maintenance consisting of 10 questions measuring patient's abilities to monitor symptoms, as well as adherence behaviors performed to avoid heart failure exacerbation. Section B is comprised of 6 items measuring patient's abilities to recognize symptoms when they occur, treatment in response to symptoms, and evaluation of treatment effectiveness. Section C uses 6 questions to evaluate patients' ability, or level of confidence, to engage in each phase of the self-care process. Pre and post survey scores were compared to determine improvement in patient self-care management skills and behaviors. An increase of one or more points indicated improvement, and scores in each section were compared to determine improvement in self-care.

Overall 60% (9 out of 15) of patient participants scored at least one point higher on the SCHFIv6.2 post-intervention when compared to pre-intervention scores (Outcome 9). Individual

pre SCHFIv6.2 scores ranged from 46% to 73%, while post individual SCHFIv6.2 scores ranged from 47% to 90%. A total mean score for all participants was calculated comparing pre and post scores and found an overall increase of 6% in the mean score as measured by the SCHFIv6.2 (Appendix U). Fifty-six percent (8 out of 15) of Class III CHF patients scored one or more points higher on the post SCHFIv6.2 than baseline while 33% scored lower on the post-intervention survey than baseline. One Class III participant had no change in score. Sixty-seven percent (10 out of 15) of Class I and II patients scored higher on the post-intervention survey than baseline, while 33% scored lower on the post survey than baseline.

Sixty percent (9 out of 15) of patients scored higher on Section A (self-care maintenance) post-intervention than pre-intervention indicating improvement in their ability to maintain self-care management (Outcome 9). Most significantly six of the nine patients that demonstrated improvement in Section A indicated they would frequently or always check their ankles for swelling after participating in the project when compared to pre-intervention survey scores indicating they would only sometimes or never check their ankles for swelling. Checking for ankle swelling was the most significant change in Section A. As a result, 93% (14 out of 15) of patients responded frequently or always to checking their ankles for swelling daily compared to 60% (9 out of 15) prior to the intervention. Also a significant change, only 60% (9 out of 15) of patients reported weighing themselves daily prior to the intervention while 87% (13 out of 15) reported weighing themselves daily post-intervention.

In Section B (self-care management) 67% (10 out of 15) patients demonstrated improvement overall in self-care symptom management post-intervention (Outcomes 9 and 10). Six of the ten patients demonstrating improvement in Section B indicated they were likely or very likely to call their doctor or nurse for guidance if they had shortness of breath or ankle

swelling post-intervention. Pre-intervention survey results indicated they were not likely or only somewhat likely to contact their doctor or nurse for guidance on symptom management. Contacting the nurse care manager was the most significant change in self-care symptom management resulting in 80% (12 out of 15) of patient participants indicating they would contact the nurse care manager if they had trouble breathing or ankle swelling compared to 47% (7 out of 15) pre-intervention (Outcomes 7, 9, and 10).

In Section C (self-care confidence), post-intervention results demonstrated 73% (11 out of 15) patients improved their confidence to manage heart failure symptoms overall. Six of the 11 patients demonstrating improvement in Section C responded they were very confident or extremely confident evaluating the importance of their heart failure symptoms post-intervention when compared to pre-intervention survey results of not confident or somewhat confident. This resulted in 87% (13 out of 15) of patient participants demonstrating increased confidence in evaluating the importance of heart failure symptom compared to 60% (9 out of 15) of patients pre-intervention. This was the most significant change in Section C, or patient's confidence in self-care management.

**Physical Assessment Data**

Physical assessment data collected at each nurse visit included weight, blood pressure, presence or absence of PND and orthopnea, medication and diet adherence. When comparing patient participant's weight 60% (9 out of 15) of patients demonstrated a weight loss of one or more pounds post-intervention, and 53% (8 out of 15) of patients lost three or more pounds post-intervention when compared to pre-intervention data (Outcome 10). Additionally, 40% (6 out of 15 patients) of patient participants gained one or more pounds during the project. No patients required an intervention for weight gain. When looking at patient participant's weight by heart

failure class, 56% (5 out of 9) of Class III CHF participants (n=9) gained one or more pounds during the project. 44% (4 out of 9) of Class III CHF participants lost one or more pounds during the project. 83% (5 out of 6) of CHF Class I and II (n=6) patients lost one or more pounds during the project while only one gained weight (Appendix V) (Outcome 10).

When comparing pre and post blood pressure data 93% (14 out of 15) of patient participants had a blood pressure within normal range as indicated by PCP recommendation in patient's medical record at the beginning and end of the 90-day project, while only one patient was hypertensive (Outcome 10). 93% of patients had no change in blood pressure, and remained at baseline post- intervention. Overall 26% (4 out of 15) of patients demonstrated a 5% or greater improvement in blood pressure as indicated by patient's PCP. Three of the four patients demonstrating a 5% improvement in blood pressure were NYHA Class III CHF, and one patient was Class II. The one patient with hypertension was mildly hypertensive at the end of the project (Appendix W).

All patient participants reported varying degrees of orthopnea at baseline. Seventy-three percent (11 out of 15) of patients reported experiencing no changes in orthopnea post-intervention. Twenty-seven percent (4 out of 15) of patients reported a positive change in orthopnea, measured by the ability to sleep flat or use fewer pillows post-intervention. Sixty-four percent (10 out of 15) of patients reporting no change in orthopnea were NYHA Class III CHF, while 36% (5 out of 15) of patients reporting no change were NYHA Class I or II heart failure (Appendix V). Only one patient reported PND at baseline and reported the same level of PND at 90 days (See Appendix U). One hundred percent of patient participants reported following medication and diet regimens as prescribed at baseline and post intervention (Appendix W). Additionally no patient participants were seen in the ER, admitted to the

hospital, or readmitted to the hospital for CHF related causes during the project. The final step in the project was a follow-up phone call 90 days after face to face visits were completed to determine if patient participants maintained a level of self-care management skills and behaviors.

**Ninety-Day Follow Up**

The final step in the project was a ninety-day follow up phone call to all patient participants to determine whether or not they maintained the same level of self-care management skills and behaviors as measured at the end of the project (Outcome 8). The 90 day follow up phone call consisted of five sections with each section addressing a different area of self-care. The first section consisted of three separate questions related to confidence in recognizing CHF symptoms, ability to manage CHF symptoms, and interventions to manage symptoms. The next section asked if patients were weighing themselves daily and if they knew what to do if they gained weight. The third section asked if patients felt they knew their personal red flags, or what symptoms caused their CHF to worsen. Section four asked participants if they continued to follow a low sodium diet after completing the project. The final section asked if patients had any barriers to obtaining medications, and if medications were being taken as prescribed (Appendix X).

Responses to section one demonstrated that 87% (13 out of 15) of participants reported feeling more confident in recognizing symptoms after the intervention than before, while 13% (2 out of 15) reported no change in level of confidence (Outcome 9). Eighty-seven percent (13 out of 15) of participants stated they feel they are able to manage their CHF symptoms better now than prior to the intervention, while 13% (2 out of 15) responded there is no change in their ability to manage symptoms. When asked if they would do something different to manage symptoms after participating in the project, 80% (12 out of 15) responded they would do

something different to manage CHF symptoms now as a result of skills and behaviors learned through the project. Twenty percent (3 out of 15) of participants stated they would not manage their symptoms differently after participating in the project.

Sixty-seven percent (10 out of 15) reported weighing themselves daily, while 33% (5 out of 15) of participants stated they weigh themselves intermittently or not at all. One hundred percent (15 out of 15) of participants reported they would notify the nurse care manager if they experienced a weight gain of two or more pounds overnight, five pounds in one week, or any weight gain resulting in shortness of breath or edema atypical from patient's baseline. Additionally, 100% (15 out of 15) responded they are able to identify red flags, or symptoms that typically result in worsening CHF, and would contact the nurse care manager for advice.

Ninety-three percent (14 out of 15) participants responded they continued to follow a low sodium diet after participating in the project, while only 7% (1 out of 15) did not. When asked if there were any barriers to obtaining prescribed medications, 100% (15 out of 15) of participants stated no barriers to obtaining medications. However, only 87% (13 out of 15) reported taking medications as prescribed all the time, while 13% (2 out of 15) reported taking medications as prescribed inconsistently.

There were no unintended consequences or costs associated with the project. The most significant cost related to this project was personnel, and could be expensive to reproduce in a different setting (Appendix Z). All expenses for this project were in kind, and stayed within the projected budget (Appendix AA). The nurse visits were integrated into the nurse care manager's current schedule and workflow eliminating the need for additional staff or work hours. Providers were available for consultation, and their time was accounted for in the project cost and

development (Appendix BB). During the project, no costs were incurred by the patient and no revenue was generated from the nurse visits (Appendix CC).

There was no missing data related to the project, however there were initially 16 patient participants with one dropping from the project after the first two weeks. Data collected from this patient was not included in any data reporting for the project.

## Discussion

### Summary

This project aimed to improve the care delivery model for chronic disease management in patients with CHF at FMR by implementing a nurse visit model focused on educating patients regarding self-care management skills and behaviors to better manage their chronic illness. Although the project focused on patients with CHF it was successful in improvement of patient's self-care management skills and behaviors, and can be translated to other chronic diseases. Patient participants demonstrated an overall improvement in self-care management skills and behaviors as measured by the SCHFIv6.2. Additionally, 90 day follow up demonstrated a minimum of 80% (12 out of 15) of patient participants reported feeling more confident in CHF symptom recognition, the ability to manage symptoms better, and stated they would use different methods to manage symptoms as a result of improved self-care management skills and behaviors.

The six elements of the Care Model (Appendix B) were used as a guide, and integrated into the project. The OHSU Cardiology department was resourced to provide education to the nurse care managers. Patient education tools used in Cardiology were also used in the project to promote continuity of care aligning the project with the first element of the care model – the health care system. Nurse care managers were essential in providing self-care management and

decision-making support (element two) at face-to-face visits and through follow up phone calls. Standard EMR templates were created for documentation to ensure accurate data collection. Patients had the ability to access their health information as well as the ability to secure messaging to the nurse care manager through a secure patient at any time, providing an electronic means of support from the patient's medical community (elements 4 and 5). The overall aim to improve the care delivery model for patients with CHF, and ultimately other chronic diseases, was successful (element 6).

Strengths of the project included costs supported by the clinic, and patients improved overall self-care management skills and behaviors. Additionally, a significant and unanticipated strength of the project was an increase in nursing job satisfaction. Informal reporting from participating nurse care managers demonstrated a high level of satisfaction in the project because they felt positive about proactively engaging patients in chronic disease management rather than reactively managing patients with chronic illness. RNs working in primary care generally prefer familiarity with a specific group of patients as this makes the nurse-patient relationship more meaningful while increasing patient trust. Research has shown that patients like to get to know members of their care team, and want their team to know them (Bodenheimer, Bauer, Syer, & Olayiwola, 2015). Including RNs in the team-based approach improves patient, provider, and RN satisfaction and demonstrates improved clinical outcomes when compared with physician-only care (Bodenheimer, Bauer, Syer, & Olayiwola, 2015).

The primary care nursing role has become a vital component to the primary care team. Continued expansion of this role should be considered and recognized by health policy and nursing leaders as it contributes to quality outpatient care and a reduction in hospital admissions (Bodenheimer, Bauer, Syer, & Olayiwola, 2015). Empowering the role of registered nurses, and

encouraging them to work at the top of their license, contributes to nursing job satisfaction as well as the overall transformation of primary care.

**Interpretation**

The results of the project aligned with project outcomes. The first outcome of the project was to create an EMR template for standard documentation of data collected throughout the project (Outcome 1). EMR templates were created and implemented successfully allowing the project leader to easily locate and abstract data for analysis. Project outcomes related to the nurse care managers were: selection of participating nurse care managers (Outcome 2), administration of a validated survey to nurse care managers to measure baseline knowledge of CHF (Outcome 3), and providing a CHF education intervention to nurse care managers based on knowledge gaps identified in the survey (Outcome 4). The nursing education intervention was given by a nurse practitioner from the Cardiology department at OHSU to reinforce knowledge of patient self-care management concepts. Next, using inclusion criteria, patients were selected to participate in the project (Outcome 5). Nurse care managers scheduled patients for initial face-to face visit where informed consent was obtained (Outcome 6), and patients were administered the SCHFIv6.2 to measure baseline knowledge of CHF self-care concepts (Outcome 7).

Self-care is a decision-making process that patients use to choose behaviors such as symptom monitoring and treatment adherence that facilitate self-care maintenance (physiological stability) and self-care management (response to symptoms when they occur) (Vellone, et al., 2013). Self-care behaviors are greatly influenced by self-efficacy, or the confidence CHF patients have in each area of self-care. The literature shows higher SCHFI scores are associated with patients who adhered to treatments, were engaged in self-monitoring, able to manage

symptoms of CHF exacerbation, and confident in dealing with the illness (Vellone, et al., 2013). Patients with lower SCHFI scores had negative attitudes about CHF, were less attentive over time, and were less skilled in managing CHF (Vellone, et al., 2013). Sixty percent (9 out of 15) of patients scored higher on the SCHFIv6.2 post intervention demonstrating improvement in overall self-care knowledge. Sixty percent (9 out of 15) of patients also lost one or more pounds post intervention indicating an improvement in symptom management. Additionally, 90-day follow up demonstrated 100% (15 out of 15) of patients reported they felt confident recognizing personal symptoms that cause their CHF to worsen, and they know what to do if they experience CHF symptoms. These findings are supported through literature finding successful nurse-led interventions motivate, empower, and encourage patients to make informed decisions and assume responsibility for self-care (Evangelista & Shinnick, 2008). Patient participants showed improvement over the course of the project, and had no ER visits, hospitalizations, or hospital readmissions which supports the participant's improvement in self-care management.

Overall, the Class III patients scored lower on the SCHFIv6.2 post intervention when compared to Class I and II. One contributing factor to these results may be inconsistent follow up. Per nurse care manger feedback, and chart review, several Class III patients were difficult to reach and missed and rescheduled several appointments during the project. CHF affects all aspects of a patient's life, and engagement in management of their chronic illness can improve self-efficacy which is an important part of successful self-management (Smeulders, et al., 2010). Class I and II patients more consistently followed scheduled appointments and phone calls without changes. Class I and II patients also lost more weight than Class III patients during the project. Again, inconsistency in follow up may have contributed to these results.

Because heart failure is a chronic condition, patients might find it challenging to consistently follow a prescribed treatment plan (Vellone, et al., 2013). Just as in this project, the concept of self-care reinforces many nursing interventions intended to promote the ability of individuals to better manage their chronic illness (Richard & Shea, 2011).

Expenses for the project were funded by the organization. The projected budget was met with the exception of RN salaries which increased due to a higher than anticipated number of nurse care managers participating in the project. Those changes are reflected in expense report found in Appendix Y. Total cost of this project was just under $53,000.00. Additional expense information can be found in the following appendices: preliminary budget (Appendix Z), data and cost development (Appendix AA), statement of operations (Appendix BB), and a projected three to five-year project budget (Appendix CC).

**policy implications.**

CHF is an important health care issue due to its high prevalence, cost of care, morbidity, and mortality (Heidenreich, et al., 2013). Improving management of chronic diseases such as heart failure, as well as others, can improve the overall health of individuals. Adults with chronic illness like CHF, and multiple chronic conditions, are the highest utilizers of health care services accounting for greater than two-thirds of all health care spending (Tinetti, Fried, & Boyd, 2012). Due to their knowledge, skills, and abilities nurses are in a prime position to contribute to the creation of health policy and population health guidelines with the goal of improving health and ultimately reducing the amount of health care spending on chronically ill patients.

In order to initiate progress toward changes in health care policy, the way we care for individuals with chronic illness must change. Interventions that actively involve the patient, and encourage self-care management skills and behaviors are vital to successful chronic illness care

(Wagner, et al., 2001). The project implemented at the FMR clinic demonstrated a small yet significant impact on chronic disease management by focusing on the promotion of CHF patient's self-care management through nurse visits. This is significant because it shows nurses are an essential component in the on-going challenge of providing cost effective quality health care. Nurse-led care has been shown to be as effective as provider care, and can be an affordable alternative in many areas of chronic disease management.

The results of the FMR CHF project can be used as an example of nursing's ability to influence positive change in patient's health. Sharing the results of the project at the department and institutional levels demonstrates the significance nursing's role has in chronic disease management which subsequently can be translated into financial benefits of care management. Specific to the FMR clinic, the ability to successfully care for CHF patients is significant because it strengthens the case for the need to continue community health center funding. Hundreds of thousands of Health Center Advocates nationwide have taken a stand and commanded a fix to health center funding. Congress recently voted to extend health center funding for two years which ensures continued care to millions (NACHC, 2017).

As fiscal concerns continue to be at the root of health care policy at all levels it is imperative to focus on cost-effective ways to manage chronic conditions. Results of the FMR project will be shared with the OHSU Family Medicine Department Board of Directors, as well as with other primary care and care coordination groups across the organization. Demonstrating the effectiveness of nurse-led care on patient self-care management of chronic illness will contribute to on-going efforts to restructure the focus of care coordination and care management programs.

These programs should be aligned with quality metrics designed to measure patient outcomes related to chronic illness in order to collect data to support the importance of care management by nurses. Evidence supporting positive patient outcomes as a result of improved self-care management skills and behaviors can be used to influence health care policy and legislation at the state and national levels.

**Limitations**

One limitation of this project is that the project was conducted at a single site with a small number of participants. Another limitation of the study was that only 80 % of patients kept all face to face appointments and follow up phone calls as scheduled. It is possible that if the 20% that did not complete all contacts would have engaged at scheduled intervals, their outcomes may have been different. Several patients were difficult to reach by phone, and either missed or rescheduled appointments during the project. Verification of the ability to communicate via phone at the beginning of the project could have been helpful to the nurse care managers when conducting weekly phone calls. Additionally, it will be important to evaluate long-term benefits of this type of care model to determine if the improvements in knowledge and skills in CHF symptom management persist over time or does the education require periodic reinforcement; and what is the optimal interval(s). Expenses for this project were in kind, and existing nursing resources were utilized. In order to replicate this project in a different setting, the nursing role should be reviewed and revised to accommodate the nurse visit model prior to adding additional nursing resources in order to mitigate salary costs.

**Conclusion**

As chronic illness continues to be a major cause of illness in the U.S., innovative approaches must be implemented to improve chronic disease management (Bodenheimer &

Smith, 2013). Patients with chronic diseases experience better outcomes when they have the knowledge, skills, and behaviors to manage their disease. As the role of the ambulatory RN continues to expand (Bodenheimer, Bauer, Syer, & Olayiwola, 2015), their knowledge and skills are essential in providing targeted education that enhances and supports patients in chronic disease self-management. Utilizing ambulatory nurse care managers to provide chronic disease education on self-care leads to improvements in patient's management of their disease which translates into fewer disease complications and a reduction in health care costs. This project demonstrated small yet significant improvements in CHF patient's self-care management skills and behaviors related to maintenance, management, and confidence in self-care management. Continuing this project, and expanding it to other chronic diseases may provide further benefits that lead to improved outcomes in patients with chronic illness. A sustainable nurse visit program for chronic disease management has the potential to make a positive long-term impact on FMR, as well as department and organizational levels. As a result of this project, recommended next steps are to explore possibilities of translating the nurse visit model to other chronic illness within Family Medicine and OHSU.

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Appendix A: Evidence Summary Table

EBP Question: Do nurse visits focused on congestive heart failure patient education improve patient self-care management skills and behaviors?

| Article | Author & Date | Evidence Type | Sample, Sample Size & Setting | Study findings that help answer the EBP question | Limitations | Evidence Level & Quality |
|---|---|---|---|---|---|---|
| 1 | Dean, S.<br>Kerry, S.<br>Kerry, S.<br>Khong, T.<br>Oakeshott, P.<br>2014 | Randomized Control<br>Trial | 353 patients<br>Mean age 62<br>(age range 18-99)<br>Last recorded BP> or =to British Htn Society audit standard randomly allocated to nurse-led clinic or usual care,<br>Two Inner City general practices | Nurse-led clinic had > decrease in SBP, although all patients experienced decrease in SBP. Nurse-led clinic included comprehensive health history questionnaire, nurse education regarding med compliance, visit with RN, and consultant back-up. Lends to RN independent practice capability for RN model visit. | The method of randomization was at high risk of bias. Unable to assess whether blood pressure measurements done by practice staff were performed according to protocol. Extractions of final BP readings from the records were not blinded. A final limitation was the 11% loss to follow up; however patient turnover is high in inner city practices. | 1A |
| 2 | Chow, S.<br>Wong, F.<br>February 2014 | Randomized Controlled Trial | Conducted in 2010-2012. 281 patients completed the study. Randomized into three arms. | Interventions demonstrated significant differences in hospital readmission rates. The two intervention groups had lower rates than the control group. | Patient recruitment-participants might be more health conscious and already independent. Participants only recruited from a single setting. Further studies in diverse settings recommended. | 1A |

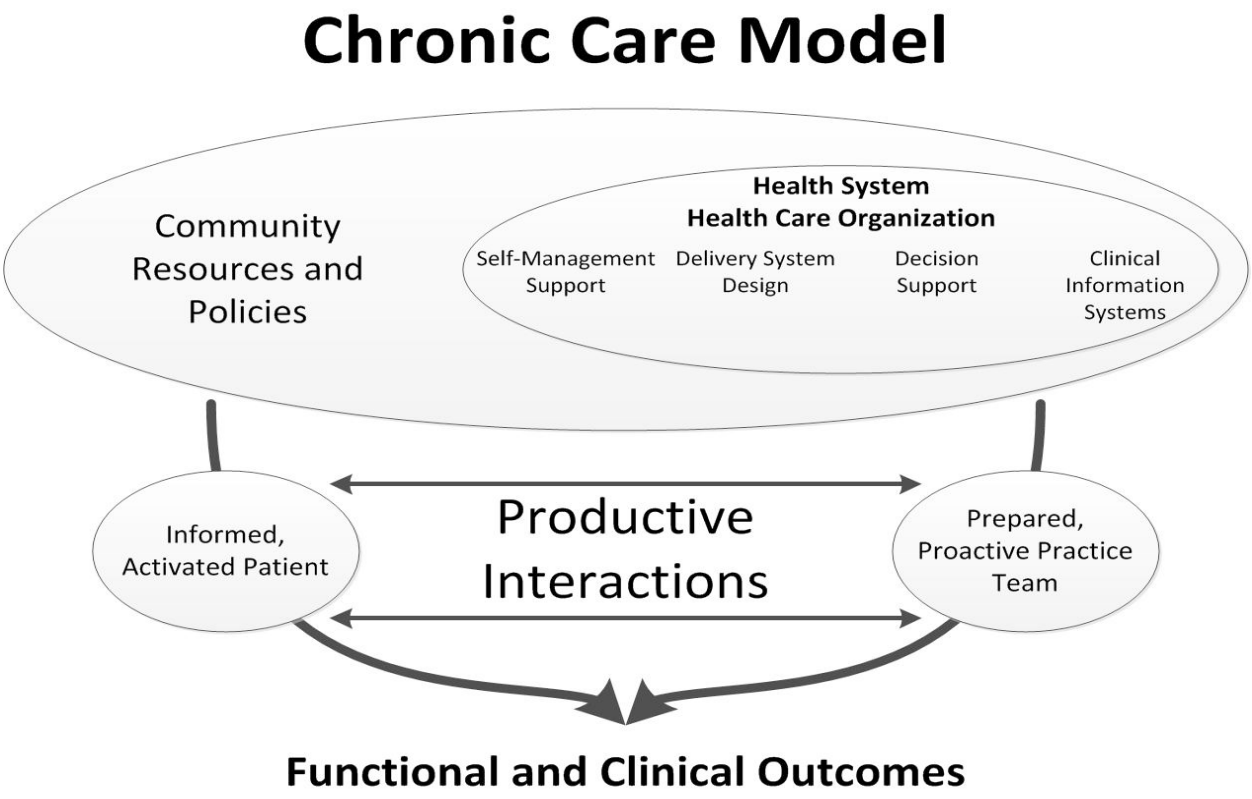
| Article | Author & Date | Evidence Type | Sample, Sample Size & Setting | Study findings that help answer the EBP question | Limitations | Evidence Level & Quality |
|---|---|---|---|---|---|---|
| 3 | Koberich, S.<br>Lohrmann, C.<br>Mittag, O.<br>Dassen, T.<br>2015 | Randomized Control Trial | Single Center, multi-site, non-blinded RCT. Conducted at two sites of a university affiliated medical center.64 patients allocated to either intervention or control group | A single education session with a consecutive telephone follow up is able to improve overall self-care behaviors, but not necessarily quality of life. Care dependency was not influenced by the education session. Self-care education had a significant influence on overall heart failure self-care but not quality of life or care dependency. | There was no effect on quality of life and care dependency. To improve quality of life and to influence care dependency, different measures have to be applied. | 1A |
| 4 | Chouinard, M.<br>Hudon, C.<br>Dubois, M.<br>Roberge, P.<br>Loignon, C.<br>Tchouaket, E.<br>Fortin, M.<br>Couture, E.<br>Sasseville, M.<br>2013 | Randomized Control Trial | Four categories of informants will be interviewed: Doctors/nurses (n=6), managers, participating patients and their families (n=4), and identified partners of case management. Four strategies used: focus groups, individual interviews, document review, intervention checklist. | Integration of nurse case management and self-management support groups in family medicine has the potential to impact patients in a positive manner. This is also indicated in the logic model. | A contamination bias could occur between the case management nurses involved with the patient control group. Possible cluster effect at the analysis level due to the presence of eight nurses. | 1A |

| Article | Author & Date | Evidence Type | Sample, Sample Size & Setting | Study findings that help answer the EBP question | Limitations | Evidence Level & Quality |
|---|---|---|---|---|---|---|
| 5 | Arts, E.<br>Landewe, S.<br>Schaper, N.<br>Vrijhoef, H.<br>2011 | Randomized Control Trial | A convenience sample of four Registered Nurse specialists was recruited for this study. All four nurses had extensive experience in diabetes care. The institution involved has a general academic position in a catchment area of 190,000 people. The specialized nurses were doctoral- or Master's-prepared Registered Nurses and they could be defined as advanced practice nurses who focus on a specific patient population in a specialized area of nursing practice i.e. diabetes mellitus types 1 and 2. | The aim of this study is to assess the economic value of diabetes nurse specialists as substitutes for physicians in particular areas in diabetes care and the effect of such a centralized role for nurse specialists on the quality of life of patients. It is hypothesized that nurse specialists will give care that is of least equal quality, and care that will not generate significantly higher costs compared to usual care during the 2-year follow-up. | Convenience sampling was carried out rather than purposive sampling. Although patients were randomized, only diagnosed patients receiving treatment in this particular hospital were considered. | 1A |
| 6 | Shao, J.<br>Chang, A.<br>Edwards, H.<br>Shyu, Y.<br>Chen, S.<br>Feb 2013 | Randomized Controlled Audit Study | Control n=46<br>Intervention n=47<br>Intervention group received 12 week self-management programme emphasizing HF related symptoms<br>Baseline data, 4 week, and 12 week data collected | Intervention group had significantly better self-efficacy for HF symptoms, lower symptoms than control group.<br>Repeated measures ANOVA models used for data analysis and hypotheses.<br>Nursing interventions to improve health-related outcomes for patients with HF should emphasize self-efficacy in the self-management of their disease. | Could not conclude which aspects of the self-management intervention were more effective because could not determine the relative effectiveness of the four information sources.<br>Study was limited by the relatively short follow-up for measuring study outcomes.<br>Study sample was selected from two medical centers in Taiwan, which limits | 1A |

| Article | Author & Date | Evidence Type | Sample, Sample Size & Setting | Study findings that help answer the EBP question | Limitations | Evidence Level & Quality |
|---|---|---|---|---|---|---|
| | | | | | the generalizability of the findings. | |
| 7 | Otsu, H.<br>Moriyama, M.<br><br>2011 | Randomized Controlled Trial | 102 Outpatients with CHF<br><br>Intervention group n=50, Control group n=52<br><br>Control group received medical treatment and standard care, Intervention group received educational program in addition.<br><br>Six nurse directed sessions, once per month x six months. Follow up sessions at 3, 6, 9, and 12 months. | Significant differences were observed in the primary and secondary outcomes and in the process indicators between the two groups after the program began. In other words, all aspects improved in the intervention group but not the control group. Program considered to be effective. | Implementation thought to be difficult for hospitals with >200 beds without charging for medical treatment. Further large scale trials recommended in order to generalize results, even though successful for the outpatients in the intervention group. | 1A |
| 8 | Willard-Grace, R.<br>Chen, E.<br>Hessler, D.<br>DeVore, D.<br>Bodenheimer, T.<br>Thom, D. | Randomized Controlled Trial | 12 month trial of 441 patients<br><br>2 Safety Net Primary Care Clinics in San Francisco<br><br>Coaching arm, control group | Participants in the coaching arm more likely to achieve primary and secondary goals. However, the proportion of patients meeting the systolic blood pressure goal did not differ significantly. Medical assistants served as health coaches. Results highlight the need to understand the relationship between patient's clinical conditions, interventions, and contextual features. | Participating clinics were part of the safety net caring for uninsured or low income populations. Only 3 coaches delivered the intervention, so generalizability to other settings, participants, and coaches may be limited. | 1A |
| 9 | Shively, M.<br>Gardetto, N.<br>Kodiath M.<br>Kelly, A<br>Smith, T.<br>Stepnowsky, C.<br>Maynard, C.<br>Larson, C. | Randomized, Repeated Measures Design | 84 participants<br><br>Usual care n=41, Usual care plus the intervention n=43<br><br>SCHFI used<br><br>6 month program to increase activation and improve self-management behavior. | Intervention group showed a significant group-by-time effect with the intervention group improving more over time. Intervention group had fewer hospitalizations compared to usual care group. | Sample size<br>Age and gender demographics<br>Attrition<br>Missing Data<br>Instrumentation issues<br>Clinical practice changes during study. | 2A |

| Article | Author & Date | Evidence Type | Sample, Sample Size & Setting | Study findings that help answer the EBP question | Limitations | Evidence Level & Quality |
|---|---|---|---|---|---|---|
| 11 | American Academy of Ambulatory Care Nursing July/August 2012 | Position Statement | N/A | This paper articulates the essential role of the RN in ambulatory care, and achieving the goals put forth. RN's are critical to improving quality and safety and reducing costs in ambulatory health care systems. Over the past ten years, professional nurses in ambulatory care have increased their organizational leadership expertise and identified a unique body of nursing knowledge specific to ambulatory care environments. | This paper states there is often confusion about scope of practice and lack of clear understanding about the appropriate utilization of registered nurses. | 4A |

Appendix B: Care Model




**(Mallow, Theeke, Barnes, Whetsel, & Mallow, 2014)**

# Appendix C: Permission to use Care Model Figure



## American College of Physicians LICENSE TERMS AND CONDITIONS

May 23, 2017

This is a License Agreement between Heather Colegrove ("You") and American College of Physicians ("American College of Physicians") provided by Copyright Clearance Center ("CCC"). The license consists of your order details, the terms and conditions provided by American College of Physicians, and the payment terms and conditions.

**All payments must be made in full to CCC. For payment instructions, please see information listed at the bottom of this form.**

| | |
|---|---|
| License Number | 4114881238614 |
| License date | May 23, 2017 |
| Licensed content publisher | American College of Physicians |
| Licensed content title | Effective clinical practice : ECP |
| Licensed content date | Jan 1, 1998 |
| Type of Use | Thesis/Dissertation |
| Requestor type | Author of requested content |
| Format | Print, Electronic |
| Portion | chart/graph/table/figure |
| Number of charts/graphs/tables/figures | 1 |
| Title or numeric reference of the portion(s) | Requesting to use Figure 1. on page 3 of the article in Doctor of Nursing Practice scholarly project. |
| Title of the article or chapter the portion is from | Chronic Disease Management: What Will It Take To Improve Care for Chronic Illness? |
| Editor of portion(s) | Edward H. Wagner, MD, MPH |
| Author of portion(s) | Edward H. Wagner, MD, MPH |
| Volume of serial or monograph. | 1 |
| Issue, if republishing an article from a serial | August/September |
| Page range of the portion | page 3 |
| Publication date of portion | August/September 1998 |
| Rights for | Main product and any product related to main product |
| Duration of use | Life of current edition |
| Creation of copies for the disabled | no |
| With minor editing privileges | yes |
| For distribution to | United States |
| In the following language(s) | Original language of publication |

Appendix D: IRB Institutional Authorization Agreement

# Institutional Review Board (IRB) Authorization Agreement

OREGON HEALTH & SCIENCE UNIVERSITY
Research Integrity Office
Mail code **L106-RI**
3181 S.W. Sam Jackson Park Road
Portland, Oregon 97239-3098
tel: 503 494-7887 | fax: 503 346-6808

***Use this form when OHSU is providing IRB oversight for another institution.***

**Name of Institution Providing IRB Review:**

| | |
|---|---|
| **Oregon Health and Science University (OHSU)** | |
| IRB Registration #: | **IRB00000471** |
| Federalwide Assurance (FWA) #: | **FWA00000161** |

**Name of Institution Relying on the OHSU IRB:**

| | |
|---|---|
| **Boise State University** | |
| FWA #, if applicable: | **FWA00000097** |

The Officials signing below agree that Boise State University may rely on OHSU for review and continuing oversight of its human subjects research described below: (*check one*)

(X) This agreement is limited to the following specific protocol:

| | |
|---|---|
| OHSU eIRB #: | **17195** |
| Name of Research Project: | Implementation of a Nurse Visit Model for Patients with Congestive Heart Failure in a Federally Qualified Health Center |
| Name of Principal Investigator: | Emily Myers, MD Co-PI/BSU Student: Heather Colegrove |
| Sponsor or Funding Agency: | Richmond Family Medicine Clinic Award Number, if any: |

(___) This agreement covers all research in which _____ is engaged.*

(___) Other *(describe):* _____

OHSU will provide IRB review for the above-specified research in accordance with the Terms of Authorization detailed on the remaining pages of this Agreement. Emily Myers, MD and Heather Colegrove agree to abide by the Terms of Authorization and all applicable OHSU Policies and Procedures. This Agreement is effective the date of the last signature indicated below and remains in effect until terminated. Either party may terminate this agreement by providing 30 days written notice to the other party. If the Agreement pertains to a specific research protocol, the Agreement automatically terminates upon termination of the study in the OHSU eIRB system. This Agreement must be kept on file by both parties and provided to OHRP upon request.

Signature of Signatory Official for OHSU:

David P. Holmgren Date: 5/15/17

Print Full Name: David P. Holmgren Institutional Title: IRB Manager

Signature of Signatory Official for Relying Institution:

Date:

## OHSU IRB Terms of Authorization

I. **Compliance with Federal Laws and Regulations.** Both parties agree to adhere to all pertinent Federal laws and regulations involving the protection of human subjects in research, including 45 CFR 46, 21 CFR 50 and 56, and others as applicable.

II. **Federal-Wide Assurance (FWA).** The relying institution will maintain an FWA as required for DHHS-supported research and will abide by its terms. The oversight provided by the OHSU IRB per this Agreement will satisfy the terms of the relying institution's FWA, if applicable. The OHSU IRB will not review research on behalf of institutions collaborating with the relying institution unless applicable FWA requirements are satisfied.

III. **IRB Membership and Registration.** The OHSU IRB is registered with OHRP in accordance with 45 CFR 46, Subpart E, and satisfies the criteria for membership designated in 45 CFR 46.107 and 21 CFR 56.107. Current and past member rosters and registration information are publicly available on the OHSU IRB website.

IV. **IRB Review.** The OHSU IRB will provide IRB oversight in compliance with 45 CFR 46 and 21 CFR 50 and 56 for the research specified on Page 1 of this Agreement.
- This includes initial review, continuing review at intervals not to exceed once per year, and review of proposed changes in the research.
- Project submission, review, approval, and communication of IRB determinations will take place according to OHSU IRB Policies and Procedures, which are publicly available on the OHSU IRB website.
- The OHSU IRB will review requests for waivers or alterations of authorization under the HIPAA Privacy Rule (45 CFR 164.512) as well as authorization language that is included in the consent form. Upon the request of the relying institution, the OHSU IRB will also review standalone authorization documents associated with the research.
- Minutes of relevant IRB meetings will be made available to the relying institution's Signatory Official, designated Local Contact Person, or other designee upon written request. Per OHSU IRB policy, minutes are considered confidential.

V. **Reportable Events.** The relying institution is responsible for reporting Unanticipated Problems, Protocol Deviations, complaints, and other non-compliance to the OHSU IRB as required by OHSU IRB Policies and Procedures.
- The OHSU IRB will review reported events in accordance with federal regulations and OHSU Policies and Procedures to determine corrective actions and whether the event requires further reporting.
- If a complaint from a subject or other person regarding the research or the IRB review process is received, the parties will communicate the concern and work together to determine next steps.
- When investigation into a particular incident or situation is warranted, the parties will work together to thoroughly evaluate the situation and determine next steps. The parties agree to provide each other with reasonable access to documents and information relevant to the investigation.
- The OHSU IRB will follow written procedures for reporting unanticipated problems involving risks to subjects or others, serious and/or continuing non-compliance, and suspension or termination of research to the appropriate federal officials, the sponsor or funding agency if applicable, and institutional officials at both OHSU and the relying institution. The relying institution may request to review and/or revise the report before submission and may choose to submit its own additional report.

VI. **Responsibilities of Relying Institution:**

- ***Institutional oversight of research activities.***
  - Ensure compliance with all determinations and requirements of the OHSU IRB.
  - Ensure safe and appropriate conduct of the research at the relying institution. This includes, but is not limited to, monitoring study compliance and reporting events as specified in this Agreement.
  - Perform any ancillary reviews required by the institution and provide the OHSU IRB with any requirements or results of such reviews that are relevant to the OHSU IRB's review of the research.
  - Require the PI at the relying institution to maintain appropriate documentation of IRB approvals and other OHSU IRB correspondence.
  - Ensure compliance with all applicable requirements of the HIPAA Privacy Rule pertaining to uses and disclosures of PHI by the relying institution.
  - Ensure that all personnel involved in conducting the research at the relying institution are appropriately qualified to conduct human subjects research, and provide evidence of such qualification in accordance with OHSU IRB Policies and Procedures.
  - Ensure that researcher conflicts of interest are disclosed and managed in a manner consistent with federal regulations and OHSU Policies and Procedures.
- ***Facilitating review by the OHSU IRB.***
  - Provide the OHSU IRB with any relevant information regarding local context, including, but not limited to, state and local laws and regulations, local community information, and institutionally required consent form language. The OHSU IRB will rely on this information in performing its review.
  - Provide OHSU IRB staff with the current name and contact information of at least one Local Contact Person who has the authority to communicate for the IRB at the relying institution. This individual will be the OHSU IRB's main contact person for all necessary communication with the relying institution.
  - Notify OHSU IRB staff immediately if there is a suspension or restriction of a Principal Investigator (PI) conducting the research, a change in the status of the relying institution's FWA, or any other change that affects the OHSU IRB's review of research under this Agreement.

**Purpose**

The purpose of the DNP project is to improve the care delivery model for chronic disease management in patients with CHF at FMR by implementing a nurse visit model focused on educating patients regarding self-care management skills and behaviors in order to better manage their chronic illness.

**Intended Project Outcomes**

- Improved CHF patient self-care management skills and behaviors
- Structured chronic disease nurse visit model
- Reduction in unscheduled CHF patient clinic and ER visits

**Reporting**

The DNP student, Heather Colegrove, will present a Final Project Report to Family Medicine at Richmond stakeholders in March of 2018. Interim reports will be provided to Executive and Medical Directors in October of 2017, and January of 2018. The DNP student will also submit a Final Project Report for publication in ScholarWorks. ScholarWorks is a collection of services designed to capture and showcase all scholarly output by the Boise State University community, including doctoral dissertations and doctoral project reports.

**Duration**

Project activities to include project planning and coalition building will begin March of 2016. Implementation of the 90 day pilot project will begin June 2017 and go through August 2017. Project activities will conclude as of May of 2018.

**Student Contact Information**

Heather Colegrove Date: 3-2-17
(*DNP Student signature*)
Heather Colegrove, Boise State University DNP student

Date: 3.2.17
(*Organizational Contact signature*)
(*Contact Name, Organizational Position, Organization name*)

Appendix E: Memorandum of Understanding

## Memorandum of Understanding

### Memorandum of Understanding

Between

Heather Colegrove, Doctor of Nursing Practice (DNP) student

Boise State University

And

Family Medicine at Richmond

This Memorandum of Understanding (MOU) sets forth the terms and understanding between Heather Colegrove, a DNP student at Boise State University, and Family Medicine at Richmond, to pilot a Congestive Heart Failure (CHF) chronic disease management nurse visit model.

**Background**

Chronically ill patients are often the highest utilizers of the healthcare system, including both the clinic and emergency room (ER) settings. Studies have shown chronic disease management programs reduce hospital admissions, length of stay, emergency room visits, and unscheduled care as well as improve disease self-management in patients with heart failure. Nursing has been identified as playing a significant role in assisting patients in the management of chronic conditions which aligns with a shift from acute care models to a model that includes the patient as a participant in their care. FMR will expand on the role of the ambulatory nurse care manager by implementing a structured chronic disease nurse visit model utilizing patient education to improve CHF patient's self-care management skills and behaviors.

**Problem**

The current care delivery model for CHF patients at FMR lacks consistency, formal structure, and a self-care management focus. This has resulted in a disjointed approach to CHF management. Promoting self-care is a fundamental component in the therapy of heart failure, and has been associated with improvement in functional status.

**Purpose**

The purpose of the DNP project is to improve the care delivery model for chronic disease management in patients with CHF at FMR by implementing a nurse visit model focused on educating patients regarding self-care management skills and behaviors in order to better manage their chronic illness.

**Intended Project Outcomes**

- Improved CHF patient self-care management skills and behaviors
- Structured chronic disease nurse visit model
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**Student Contact Information**

Heather Colegrove Date: 3-2-17
(*DNP Student signature*)
Heather Colegrove, Boise State University DNP student

Date: 3.2.17
(*Organizational Contact signature*)
(*Contact Name, Organizational Position, Organization name*)

# Appendix F: OHSU IRB Approval

May 26, 2017

OREGON HEALTH & SCIENCE UNIVERSITY

IRB MEMO

Research Integrity Office
3181 SW Sam Jackson Park Road - L106RI
Portland, OR 97239-3098
(503)494-7887 irb@ohsu.edu

Dear Investigator:

On May 25, 2017, the IRB reviewed the following submission:

| | |
|---|---|
| IRB ID: | STUDY00017195 |
| Type of Review: | Initial Study |
| Title of Study: | Implementation of a Nurse Visit Model for Patients with Congestive Heart Failure in a Federally Qualified Health Center |
| Principal Investigator: | Emily Myers |
| Funding: | None |
| IND, IDE, or HDE: | None |
| Documents Reviewed: | • Telephone Visit Note with Script<br>• Collaboration Agreement - IAA Signed by Boise State<br>• HIPAA - Prep to Research Form<br>• Patient Survey - SCHFIv6.2<br>• EMR nurse visit note<br>• Nurse Survey<br>• HIPAA Waiver - Edited -05-17<br>• Protocol<br>• Consent-and-Authorization- Patients<br>• PPQ<br>• Telephone Script - Recruitment and Screening OHSU.pdf<br>• Consent-Information Sheet- Nurse Care Managers |

The IRB granted final approval on 5/25/2017. The study is approved until 6/24/2017. Review Category: Expedited Category # 5, 7b

Copies of all approved documents are available in the study's **Final** Documents (far right column under the documents tab) list in the eIRB. Any additional documents that require an IRB signature (e.g. IIAs and IAAs) will be posted when signed. If this applies to your study, you will receive a notification when these additional signed documents are available. Version Date: 06/30/2016 Page 1 of 2

**Ongoing IRB submission requirements:**

- Six to ten weeks before the expiration date, you are to submit a continuing review to request continuing approval.
- Any changes to the project must be submitted for IRB approval prior to implementation.
- Reportable New Information must be submitted per OHSU policy.
- You must submit a continuing review to close the study when your research is completed.

**Guidelines for Study Conduct:** In conducting this study, you are required to follow the guidelines in the document entitled, "Roles and Responsibilities in the Conduct of Research and Administration of Sponsored Projects," as well as all other applicable OHSU IRB Policies and Procedures.

**Requirements under HIPAA:** If your study involves the collection, use, or disclosure of Protected Health Information (PHI), you must comply with all applicable requirements under HIPAA. See the HIPAA and Research website and the Information Privacy and Security website for more information.

**IRB Compliance:** The OHSU IRB (FWA00000161; IRB00000471) complies with 45 CFR Part 46, 21 CFR Parts 50 and 56, and other federal and Oregon laws and regulations, as applicable, as well as ICH-GCP codes 3.1-3.4, which outline Responsibilities, Composition, Functions, and Operations, Procedures, and Records of the IRB.
Sincerely,

The OHSU IRB Office

Appendix G: Face-to-Face Clinic Note

**PCP:**
**Patient stated age:**

**Today's visit:**

**Vitals:** BP, Weight

SOB at rest: Yes/No
DOE: Yes/No
Sleeping on: Bed/chair with _____ Pillows
PND: Yes/No
Abdominal bloating: Yes/No
Edema: Yes/No Description:
Chest pain:
Dizziness and lightheadedness:
Palpitations:

ALLERGIES: *(populated by EMR)*
CURRENTMEDICATIONLIST: *(populated by EMR)*

**Physical Exam:**
VS: *(populated by EMR)*
Lungs: bilateral breath sounds, lungs clear to auscultation
Extremities: warm, well perfused, no edema

**Labs:** *(populated by EMR)*

**Plan:**
Heart failure education provided today to (patient name). We specifically discussed symptom recognition and reporting, daily weights and recording, and the importance of diet and medication adherence.
1.
2.
3.
4.

NYHA class:
Symptom management:
ACE or ARB:
Beta Blocker:
Aldosterone Antagonists prescribed today:
Education and counseling:
Discussion regarding goals of car

Appendix H: RN Telephone Follow Up

| **Edema/Weight monitoring** | |
|---|---|
| Have you been weighing yourself daily? | YES NO<br>**Review importance of daily weight** |
| Do you know what to do if you notice weight gain?<br><br>*(2 pounds/day or 5 pounds/week to call nurse care manager)* | YES NO |
| What was your weight today?<br>Are you keeping a weight log?<br>*Remind patient to bring weight log to follow up visit* | KGS LBS<br><br>**Review proper technique for daily weight:**<br>*Tell patient that he/she should check weight every AM, after first void, prior to PO intake; with same amount of clothing on* |
| **Red Flags** | |
| **What are your red flags?**<br>*Some people experience warning signs before they are SOB.* | **Personal S/S:** |
| Are you having shortness of breath at rest?<br>□ *Shortness of breath with activity?*<br>□ *Can you go up 8 stairs without SOB?*<br>□ *Can you go up 16 stairs?* | YES NO<br>YES NO<br>YES NO MAYBE<br>YES NO MAYBE |
| How are you sleeping at night?<br>□ *Are you sleeping on flat bed?*<br>□ *How many pillows?*<br>□ *Do you wake up unable to breathe?*<br>□ *Do you wear a CPAP at night?*<br>□ *How many nights per week do you wear it?* | Good Okay Poor<br>YES NO<br>**# pillows:**<br>YES NO<br>YES NO<br>**# nights:** |
| Have you been experiencing fatigue? | YES NO |
| Do you have any swelling?<br>□ *Do you have abdominal bloating?*<br>□ *Do you have swelling in legs?*<br>□ *Is it better or worse than your last office visit?* | YES NO<br>YES NO<br>YES NO<br>Better Worse Same |
| These are red flags, what would do if you had this? *(If increased notify nurse, even without weight gain)* | YES NO |

| | |
|---|---|
| Do you have a cough?<br>□ *Have you been coughing at night?*<br>□ *Coughing during the day?* | YES NO<br>YES NO<br>YES NO |
| **Low-sodium diet** | |
| How is your appetite?<br>Have you been able to limit salt in your diet?<br><br>*If patient does not know sodium intake recommend he/she keep a food log and document the amount of sodium in foods.*<br><br>*Review how to read food labels.*<br><br>*At the end of the day have the patient add up the sodium content.* | YES NO<br>YES NO<br>Approx. Mg per day:<br><br>*Goal is 2000mg/day*<br>*Foods with hidden sodium:*<br>□ *Frozen Meals*<br>□ *Prepared Meals (eating out, senior center, a caregiver preparing meals)*<br>□ *Sauces and gravy*<br>□ *Milk*<br>*If p does not have control over the above items guide him/her to limit portion size, request sauces, dressings, and gravy be served on the side* |
| **Other symptoms?** *more tired/have less energy, have a poor appetite/or early satiety, or are feeling uneasy; or "something is not right"* | |
| **Remind patient he/she should go the emergency room/call 911 if they get CP, SOB, weakness, dizziness** | |
| **Medications** | |
| Medication Reconciliation Completed *(Have copy of med rec to review with patient)* | Comments: |
| Are you able to get your medications? | YES NO<br>(reason):_____ |
| Have you filled your prescription(s) as ordered? | YES NO<br>(reason):_____ |
| Have you been able to take your medications consistently? | YES NO<br>(reason):_____ |
| Were any of your medications changed after you left the hospital? | YES NO<br>If yes: |
| **Other questions** | |
| Do you have any other questions: | diet activity medications<br>other concerns (list): _____ |

Appendix I: RN Consent

OREGON HEALTH & SCIENCE UNIVERSITY

**Information Sheet**

IRB#_____

**TITLE**: Implementation of a Nurse Visit Model for Patients with Congestive Heart Failure in a Federally Qualified Health Center

**PRINCIPAL INVESTIGATOR**: Emily Myers, MD (503) 418-3900

**CO-INVESTIGATORS**: Heather Colegrove, MN (503) 418-3975

**PURPOSE**:

You have been invited to be in this research study because you are a nurse care manager at Richmond Clinic. The purpose of this study is to see if nurse visits focused on education of self-management skills and behaviors improve patient's capability to better manage their chronic illness.

**PROCEDURES**:

1) Nurse care managers will take the Nurses' Knowledge of Heart Failure Self-Management Principles Survey
2) Patient participants scheduled for monthly nurse visit once per month for three months
3) Patient participant consent for participation at first nurse visit
4) Patient participants administered the Self-Care Heart Failure Index Survey at first nurse visit
5) Physical assessment data collected at each nurse visit and documented in HER
6) Follow up phone calls to patient participants made weekly between nurse visits by nurse care managers
7) Patient participants administered the Self-Care Heart Failure Index Survey at last nurse visit
8) Follow up phone call by nurse care managers or study team to patient participants 90 days after last nurse visit

If you have any questions, concerns, or complaints regarding this study now or in the future, or you think you may have been injured or harmed by the study, contact Heather Colegrove at 503-418-3975.

**RISKS**:

Although we have made every effort to protect your identity, there is a minimal risk of loss of confidentiality.

**BENEFITS**:

You may or may not benefit from being in this study. However, by serving as a subject, you may help us learn how to benefit patients in the future.

**CONFIDENTIALITY:**

In this study we are not receiving any identifiable information about you so there is little chance of breach of confidentiality.

**PARTICIPATION:**

This research is being overseen by an Institutional Review Board ("IRB"). You may talk to the IRB at (503) 494-7887 or irb@ohsu.edu if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research subject.
- You want to get more information or provide input about this research.

You may also submit a report to the OHSU Integrity Hotline online at https://secure.ethicspoint.com/domain/media/en/gui/18915/index.html or by calling toll-free (877) 733-8313 (anonymous and available 24 hours a day, 7 days a week).

You do not have to join this or any research study. If you do join, and later change your mind, you may quit at any time. If you refuse to join or withdraw early from the study, there will be no penalty or loss of any benefits to which you are otherwise entitled.

The participation of OHSU students or employees in OHSU research is completely voluntary and you are free to choose not to serve as a research subject in this protocol for any reason. If you do elect to participate in this study, you may withdraw from the study at any time without affecting your relationship with OHSU, the investigator, the investigator's department, or your grade in any course. If you would like to report a concern with regard to participation of OHSU students or employees in OHSU research, please call the OHSU Integrity Hotline at 1-877-733-8313 (toll free and anonymous).

Appendix J: Nurses' Knowledge of Heart Failure Self-Management Principles Survey (revised version**)** (Hart, 2011)

Using the Likert scale provided, please rate each question based on your knowledge of heart failure.

**1 – Strongly disagree 2 - Disagree 3 – Neither 4 – Agree 5 – Strongly Agree**

1. Patients with heart failure should drink plenty of fluids each day **1 2 3 4 5**

2. As long as no salt is added to foods, there are no dietary restrictions for patients with heart failure **1 2 3 4 5**

3. Coughing and nausea/poor appetite are common symptoms of advanced heart failure **1 2 3 4 5**

4. Patients with heart failure should decrease activity and most forms of active exercise should be avoided 1 **2 3 4 5**

5. If the patient gains more than 3 pounds in 48 hours without other heart failure symptoms, they should not be concerned **1 2 3 4 5**

6. Swelling of the abdomen may indicate retention of excess fluid due to worsening heart failure **1 2 3 4 5**

7. If patients take their medications as directed and follow the suggested lifestyle modifications, their heart failure condition will not return **1 2 3 4 5**

8. When patients have aches and pains, aspirin and non-steroidal anti-inflammatory drugs (NSAIDSs like ibuprofen) should be recommended 1 **2 3 4 5**

9. It is OK to use potassium-based salt substitutes (like No-Salt or Salt Sense) to season food **1 2 3 4 5**

10. If patients feel thirsty, it is OK to remove fluid limits and allow them to drink 1 **2 3 4 5**

11. When a patient adds extra pillows at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened **1 2 3 4 5**

12. If a patient wakes up at night with difficulty breathing, and the breathing difficulty is relieved by getting out of bed and moving around, this does not mean that the heart failure condition has worsened **1 2 3 4 5**

13. Lean deli meats are an acceptable food choice as part of the patient's diet **1 2 3 4 5**

14. Once the patient's heart failure symptoms are gone, there is no need for obtaining daily weights 1 **2 3 4 5**

15. When assessing weight results today's weight should be compared with the patient's weight from yesterday not the patient's ideal or dry weight **1 2 3 4 5**

The following five statements reflect signs or symptoms that patients may have. Use the scale provided to indicate whether a patient should notify their HF physician of these signs or symptoms

16. BP recording of 80/50 without any heart failure symptoms 1 **2 3 4 5**

17. Weight gain of three pounds in five days without symptoms **1 2 3 4 5**

18. Dizziness or lightheadedness when arising that disappears within 10–15 minutes **1 2 3 4 5**

19. New onset or worsening of fatigue **1 2 3 4 5**

20. New onset of worsening leg weakness or decreased ability to exercise **1 2 3 4**

# Appendix K: Permission to Use Nurse Survey



## JOHN WILEY AND SONS LICENSE TERMS AND CONDITIONS

May 23, 2017

This Agreement between Heather Colegrove ("You") and John Wiley and Sons ("John Wiley and Sons") consists of your license details and the terms and conditions provided by John Wiley and Sons and Copyright Clearance Center.

| | |
|---|---|
| License Number | 4114560869616 |
| License date | May 22, 2017 |
| Licensed Content Publisher | John Wiley and Sons |
| Licensed Content Publication | Journal of Clinical Nursing |
| Licensed Content Title | Nurses' knowledge of heart failure education principles survey: a psychometric study |
| Licensed Content Author | Patricia L Hart,LeeAnna Spiva,Laura P Kimble |
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Appendix L: Patient Informed Consent

| | |
|---|---|
| OREGON HEALTH&SCIENCE UNIVERSITY<br><br>**IRB#: 17195** | |

**Research Consent Summary**

You are being asked to join a research study. You do not have to join the study. Even if you decide to join now, you can change your mind later.

1. The purpose of this study is to learn more about self-care management skills and behaviors of congestive heart failure patients.
2. We want to learn
    a. If nurse visits that provide education on how to manage heart failure help patients manage their illness better.
    b. If patients with heart failure improve their ability to manage their illness does it decrease the number of heart failure related clinic visits, emergency room visits, and hospitalizations.
3. Everyone who joins the study will fill out surveys.
4. If you join the study you will complete three face to face nurse visits, and nine follow up phone calls over three months. We will then call you three months after completion of the nurse visits to check on your heart failure.
5. There is a small risk of breach of confidentiality.

| | |
|---|---|
| OREGON HEALTH&SCIENCE UNIVERSITY<br><br>**IRB#: 17195** | |

**Research Consent and Authorization Form**

**TITLE**: Implementation of a Nurse Visit Model for Patients with Congestive Heart Failure in A Federally Qualified Health Center

| | |
|---|---|
| **PRINCIPAL INVESTIGATOR**: | Emily Myers, MD (503) 418-3900 |

| | |
|---|---|
| **CO-INVESTIGATORS**: | Heather Colegrove, MN (503) 418-3975 |
| | |

**PURPOSE**:

You have been invited to be in this research study because you have congestive heart failure, and are an established patient at the Richmond Clinic. There will be 20 congestive heart failure patients enrolled in this study. The purpose of this study is to see if nurse visits focused on education of self-management skills and behaviors improve patient's capability to better manage their chronic illness.

The study will last for three months, and requires three face to face nurse visits at Richmond Clinic and weekly follow up phone calls between face to face visits. There is a total of nine follow up phone calls, with one additional call three months after study completion to follow up on your heart failure.

**PROCEDURES**:

If you agree to take part in the study, the following standard heart failure care will occur:

9) We will schedule you for three monthly nurse visits (once per month for three months). During these visits we will collect physical assessment information related to your congestive heart failure, and provide you with education materials on how to better manage your heart failure at home.
10) Physical exam will take place at each nurse visit- this will become part of your medical

record

11) Follow up phone calls
    - Weekly between nurse visits- study staff will call you to ask how about your heart failure symptoms, and how you feel you have been able to manage them.
    - Three months after your last nurse visit- one additional call with a nurse care manager will occur to see how study participation has affected your self-care management skills and behaviors asking the same questions used in weekly follow up phone call

    In addition to the above standard care, patient participants will be asked to complete the Self-Care Heart Failure Index Survey at the first and last nurse visit. The survey will ask questions about how you take care of your heart failure symptoms and will take 15 minutes to complete.

We will also review your medical record to collect information related to your heart failure. Data collected from your medical record will include your age, heart failure class, history of blood pressure and weight over the last 18 months, if you are English speaking, if you have any decisional or cognitive impairment, if you have a FMR primary care provider, the number of PCP appointments you have had within the last 18 months, and if you are on hospice.

**ACCESS TO YOUR RESULTS**

We will provide you with any physical assessment information related to your heart failure collected at all nurse visits. Survey results will be provided to you at the end of the three month study period.

**RISKS AND DISCOMFORTS**:

We have made every effort to protect your identity, however there is a small risk of loss of confidentiality.

**BENEFITS**:

You may or may not personally benefit from being in this study. However, by serving as a subject, you may help us learn how to benefit patients in the future.

**ALTERNATIVES**:

You may choose not to be in this study.

**CONFIDENTIALITY**:

We will take steps to keep your personal information confidential, but we cannot guarantee total privacy.

We will create and collect health information about you as described in the Purpose and Procedures sections of this form. Health information is private and is protected under federal

law and Oregon law. By agreeing to be in this study, you are giving permission (also called authorization) for us to use and disclose your health information as described in this form.

The investigators, study staff, and others at OHSU may use the information we collect and create about you in order to conduct and oversee this research study.

We may release this information to others outside of OHSU who are involved in conducting or overseeing research, including:

- The Office for Human Research Protections, a federal agency that oversees research involving humans

Those listed above may also be permitted to review and copy your records.

We will not release information about you to others not listed above, unless required or permitted by law. We will not use your name or your identity for publication or publicity purposes, unless we have your special permission.

However, if we learn about abuse of a child or elderly person or that you intend to harm yourself or someone else, or about certain communicable diseases, we will report that to the proper authorities.

We may continue to use and disclose your information as described above indefinitely.

Some of the information collected and created in this study may be placed in your OHSU medical record. While the research is in progress, you may or may not have access to this information. After the study is complete, you will be able to access any study information that was added to your OHSU medical record. If you have questions about what study information you will be able to access, and when, ask the investigator.

**COMMERCIAL DEVELOPMENT:**

Information about you or obtained from you in this research may be used for commercial purposes, such as making a discovery that could, in the future, be patented or licensed to a company, which could result in a possible financial benefit to that company, OHSU, and its researchers. There are no plans to pay you if this happens. You will not have any property rights or ownership or financial interest in or arising from products or data that may result from your participation in this study. Further, you will have no responsibility or liability for any use that may be made of your information.

**COSTS**:

There will be no cost to you or your insurance company to participate in this study.

**LIABILITY:**

If you believe you have been injured or harmed as a result of participating in this research and require treatment, contact Emily Myers, MD (503) 418-3900 or Heather Colegrove, MN (503) 418-3975.

If you are injured or harmed by the study procedures, you will be treated. OHSU does not offer any financial compensation or payment for the cost of treatment if you are injured or harmed as a result of participating in this research. Therefore, any medical treatment you need may be billed to you or your insurance. However, you are not prevented from seeking to collect compensation for injury related to negligence on the part of those involved in the research. Oregon law (Oregon Tort Claims Act (ORS 30.260 through 30.300)) may limit the dollar amount that you may recover from OHSU or its caregivers and researchers for a claim relating to care or research at OHSU, and the time you have to bring a claim.

If you have questions on this subject, please call the OHSU Research Integrity Office at (503) 494-7887.

**PARTICIPATION**:

If you have any questions, concerns, or complaints regarding this study now or in the future, contact Emily Myers, MD (503) 418-3900 or Heather Colegrove, MN (503) 418-3975.

This research is being overseen by an Institutional Review Board ("IRB"). You may talk to the IRB at (503) 494-7887 or irb@ohsu.edu if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research subject.
- You want to get more information or provide input about this research.

You may also submit a report to the OHSU Integrity Hotline online at https://secure.ethicspoint.com/domain/media/en/gui/18915/index.html or by calling toll-free (877) 733-8313 (anonymous and available 24 hours a day, 7 days a week).

Your participation in this study is voluntary. You do not have to join this or any research study. You do not have to allow the use and disclosure of your health information in the study, but if you do not, you cannot be in the study.

If you do join the study and later change your mind, you have the right to quit at any time. This includes the right to withdraw your authorization to use and disclose your health information. If you choose not to join this study, or if you withdraw early the study, there will be no penalty or loss of benefits to which you are otherwise entitled, including being able to receive health care

services or insurance coverage for services. Talk to the investigator if you want to withdraw from the study.

If you no longer want your health information to be used and disclosed as described in this form, you must send a written request or email stating that you are revoking your authorization to:

***Heather Colegrove – FMR***

***3930 SE Division St.***

***Portland, OR 97202***

***colegrov@ohsu.edu***

Your request will be effective as of the date we receive it. However, health information collected before your request is received may continue to be used and disclosed to the extent that we have already acted based on your authorization.

You may be removed from the study if you are no longer capable of making decisions on your own, or if your health status declines to the point of requiring hospice services.

We will give you any new information during the course of this research study that might change the way you feel about being in the study.

Your health care provider may be one of the investigators of this research study and, as an investigator, is interested in both your clinical welfare and in the conduct of this study. Before entering this study or at any time during the research, you may ask for a second opinion about your care from another doctor who is in no way involved in this project. You do not have to be in any research study offered by your physician.

**SIGNATURES:**

Your signature below indicates that you have read this entire form and that you agree to be in this study.

We will give you a copy of this signed form.

| Subject Printed Name | Subject Signature | Date |
|---|---|---|
| Person Obtaining Consent Printed | Person Obtaining Consent Signature | Date |

## Appendix M: Recruitment Script

Hello (*patient name*),

My name is (*nurse manager introduces themselves and their role at FMR)*. I am reaching out to you to ask if you would be interested in participating in a 90 day project at FMR related to heart failure.

The project consists of one in-office visit per month with a registered nurse, as well as one phone call per week between in-office nurse visits. At each nurse visit you will go over any concerns or questions you have about your heart failure, as well as receive education on how to recognize and manage heart failure symptoms at home.

Participation is voluntary, and choosing not to participate will not impact the care you receive at FMR in any way. If you choose to participate your initial nurse visit will be scheduled for the first week of June where the nurse will review what you can expect during the project, as well as review and obtain your consent to participate in the project.

Thank you for your time today, and we look forward to seeing you in the clinic!

Appendix N: Self-Care of Heart Failure Index Survey version 6.2

## **SELF-CARE OF HEART FAILURE INDEX** (Vellone, et al., 2013)

*All answers are confidential.*

Think about how you have been feeling in the last month or since we last spoke as you complete these items.

**SECTION A:**

Listed below are common instructions given to persons with heart failure. How routinely do you do the following?

| | **Never or rarely** | **Sometimes** | **Frequently** | **Always or daily** |
|---|---|---|---|---|
| 1.Weigh yourself? | 1 | 2 | 3 | 4 |
| 2.Check your ankles for swelling? | 1 | 2 | 3 | 4 |
| 3.Try to avoid getting sick (e.g., flu shot, avoid ill people)? | 1 | 2 | 3 | 4 |
| 4.Do some physical activity? | 1 | 2 | 3 | 4 |
| 5.Keep doctor or nurse appointments? | 1 | 2 | 3 | 4 |
| 6.Eat a low salt diet? | 1 | 2 | 3 | 4 |
| 7.Exercise for 30 minutes? | 1 | 2 | 3 | 4 |
| 8.Forget to take one of your medicines? | 1 | 2 | 3 | 4 |
| 9.Ask for low salt items when eating out or visiting others? | 1 | 2 | 3 | 4 |
| 10. Use a system (pill box, reminders) to help you remember your medicines? | 1 | 2 | 3 | 4 |

**SECTION B:**

Many patients have symptoms due to their heart failure. Trouble breathing and ankle swelling are common symptoms of heart failure.

In the past month, have you had trouble breathing or ankle swelling? Circle one.

0) No

1) Yes

11. If you had trouble breathing or ankle swelling in the past month…

| | Have not had these | I did not recognize it | Not Quickly | Somewhat Quickly | Quickly | Very Quickly |
|---|---|---|---|---|---|---|
| How quickly did you recognize it as a symptom of heart failure? | N/A | 0 | 1 | 2 | 3 | 4 |

(Circle **one** number)

Listed below are remedies that people with heart failure use. If you have trouble breathing or ankle swelling, how likely are you to try one of these remedies?

| | Not Likely | Somewhat Likely | Likely | Very Likely |
|---|---|---|---|---|
| 1. Reduce the salt in your diet | 1 | 2 | 3 | 4 |
| 2. Reduce your fluid intake | 1 | 2 | 3 | 4 |
| 3. Take an extra water pill | 1 | 2 | 3 | 4 |
| 4. Call your doctor or nurse for guidance | 1 | 2 | 3 | 4 |

(Circle **one** number for each remedy)

5. Think of a remedy you tried the last time you had trouble breathing or ankle swelling,

| | I did not try anything | Not Sure | Somewhat Sure | Sure | Very Sure |
|---|---|---|---|---|---|
| How sure were you that the remedy helped or did not help? | 0 | 1 | 2 | 3 | 4 |

(Circle **one** number)

**SECTION C**:

In general, how confident are you that you can:

| | Not Confident | Somewhat Confident | Very Confident | Extremely Confident |
|---|---|---|---|---|
| 6. Keep yourself free of heart failure symptoms? | 1 | 2 | 3 | 4 |
| 7. Follow the treatment advice you have been given? | 1 | 2 | 3 | 4 |
| 8. Evaluate the importance of your symptoms? | 1 | 2 | 3 | 4 |

| | | | | |
|---|---|---|---|---|
| 9.Recognize changes in your health if they occur? | 1 | 2 | 3 | 4 |
| 10. Do something that will relieve your symptoms? | 1 | 2 | 3 | 4 |
| 11. Evaluate how well a remedy works? | 1 | 2 | 3 | 4 |

# Appendix O: Permission to Use SCHFIv6.2

**JOHN WILEY AND SONS LICENSE TERMS AND CONDITIONS**

May 23, 2017

This Agreement between Heather Colegrove ("You") and John Wiley and Sons ("John Wiley and Sons") consists of your license details and the terms and conditions provided by John Wiley and Sons and Copyright Clearance Center.

| | |
|---|---|
| License Number | 4114560957045 |
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| Licensed Content Author | Ercole Vellone,Barbara Riegel,Antonello Cocchieri,Claudio Barbaranelli,Fabio D\'Agostino,Giovanni Antonetti,Dale Glaser,Rosaria Alvaro |
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| Expected completion date | May 2018 |
| Expected size (number of pages) | 75 |
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Appendix P: Patient Education Tool

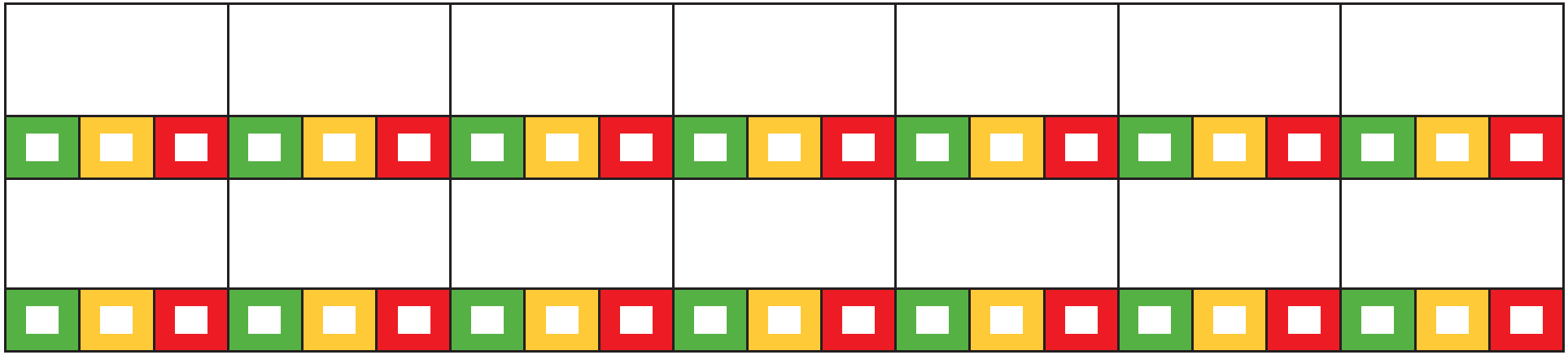
Patient Daily Weight and Zone Calendar (OHSU, 2017)

# Daily Weight & Zone Calendar

Record your weight on this calendar every morning after you urinate and before breakfast.

**MONTH:** _____ Place a check in the box that represents the color of your zone that day.

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |



Please bring this calendar with you whenever you have an office visit.

# Heart Failure Zones

**Help yourself feel better and stay out of the hospital by assessing what zone you are in: Green, Yellow, or Red.**

## GREEN ZONE:

**You are in the green zone if you have:**

- No shortness of breath
- No swelling
- No weight gain
- No chest pain
- No decrease in your ability to maintain your activity level

**Action:**

- Continue taking your medication as ordered
- Continue daily weights
- Follow low salt diet
- Keep all provider appointments

## YELLOW ZONE:

**You are in the yellow zone if you have:**

- Weight gain of 3 or more pounds in 3 days
- Increased cough
- Increased swelling
- Increase in shortness of breath with activity
- Increase in number of pillows needed
- Anything else unusual that bothers you

**Action:**

- Call your provider if you are going into the yellow zone; you may need an adjustment of your medications.
- Contact information for physician, nurse coordinator or home health nurse:

**NAME:** _____

**NUMBER:** _____

**INSTRUCTIONS:** _____

| RED ZONE: | |
|---|---|
| **You are in the red zone if you have:**<br>• Unrelieved shortness of breath: shortness of breath at rest<br>• Unrelieved chest pain<br>• Wheezing or chest tightness at rest<br>• Need to sit in chair to sleep<br>• Weight gain or weight loss of more than 5 pounds in 2 days<br>• Confusion | **Action:**<br>• Call your provider IMMEDIATELY; you need to be evaluated by a provider right away.<br>• Contact information for provider:<br>**NAME:**_____<br>**NUMBER:** _____ |

## EVERY DAY:

- Weigh yourself the morning before breakfast and write it down
- Take your medicine
- Check for swelling in your feet, ankles, legs and stomach
- Eat low-salt food
- Balance activity and rest periods
- Determine which zone you are in: Green, Yellow, or Red.

# Appendix Q: Logic Model

| Inputs | Activities | Outputs | Objectives | Outcomes Short Term | Outcomes Long Term | Impact |
|---|---|---|---|---|---|---|
| Nurse visit electronic documentation template created and built by April 15, 2017. | -Develop EHR template<br><br>-Review EHR template with nurse care managers | -Template built into EHR for use by nurse care managers | -Consistent and accurate documentation of assessment data collected at each nurse visit | -Consistent and accurate documentation of assessment data collected at each nurse visit | -Consistent and accurate documentation of assessment data collected at each nurse visit | -Consistent documentation of data in EHR template will provide accurate data for analysis |
| Six nurse care managers selected to participate in the project by April 30, 2017. | -Review staffing availability and schedule<br><br>-Select six nurse care managers to participate in project | -Six nurse care managers selected for participation | -Select six nurse care managers to participate in project while still maintaining nurse coverage for the clinic | -Six nurse care managers selected to participate in project by April 30, 2017 | -Nurse care managers selected to participate will continue throughout project to be completed September 30, 2017 | -Selection of six nurse care managers to ensure all able to participate throughout project |
| Nurses' Knowledge of Heart Failure Self-Management Principles Survey administered to participating nurse care managers to measure CHF knowledge by May 31, 2017. | -Administer Nurse's Knowledge of Heart Failure Self-Management Survey to participating nurse care managers by May 31, 2017 | -Assessment of knowledge gaps to guide education intervention | -Accurately assess participating nurse care managers base line CHF knowledge, and use results to guide education intervention | -100% of participating nurse care managers will take the Nurse's Knowledge of Heart Failure Self-Management Principles Survey by May 31, 2017 | -Utilize data collected to guide content of education intervention | -Nurse care managers will have sufficient and appropriate knowledge to manage and educate FMR CHF patients. |
| CHF education intervention for participating nurse care managers focused on basic CHF knowledge, and gaps in CHF knowledge identified in the survey developed and conducted by June 7, 2017. | -Create and implement CHF education intervention for nurse care managers | -Education intervention for nurse care managers of basic CHF self-care management skills and behaviors | -Provide education to nurse care managers to improve their knowledge related to CHF patient self-care management skills and behaviors | -Utilize data collected to guide content of education intervention | -Improve nurse care managers knowledge related to CHF self-care management | -Nurse care managers will have sufficient and appropriate knowledge to manage and educate FMR CHF patients. |
| 16 patients meeting inclusion criteria selected to participate in project project by July 31, 2017. | -Select a minimum of 20 FMR CHF patients from the FMR CHF registry to participate in the nurse visit project. | -CHF patient participants will by identified to nurse care managers<br>- Nurse care managers will reach out to selected patients by telephone | -Select a minimum of 20 patients that meet inclusion criteria to participate in project. | -A minimum of 20 FMR CHF patients are selected that meet inclusion criteria by July 31, 2017 | -At least 50% of patients selected complete nurse visit project ending September 30, 2017 | -Selected FMR CHF patients will participate in project through end date of September 30, 2017 in order to receive maximum CHF education and support from nurse visits |
| Nurse care managers scheduled and completed 100% of initial face to face nurse visits by July 31, 2017. | Nurse care managers will contact 100% of selected patients participants to schedule initial nurse visit | -100% of patient participants contacted agree to participate in project<br>-100% of patients | -100% of patient participants are scheduled and completed initial nurse visit by July 31, 2017 | -100% of patient participants are scheduled for initial nurse visit by July 31, 2017 | -100% of patient participants complete initial nurse visit by July 31, 2017 | -Completing initial nurse visit by June 9, 2017 will allow patient participants to start at the beginning of project as planned, |

| | | | | | | |
|---|---|---|---|---|---|---|
| | -Nurse care managers will complete 100% of initial nurse visits by July 31, 2017 | complete initial nurse visit by July 31, 2017 | | | | providing the patient participants adequate time to participate in the full project ending September 30, 2017 |
| Patient participants were administered the SCHFIv6.2 by July 31, 2017. | -Administer SCHFIv6.2 to patient participants by July 31, 2017 | -Baseline data for CHF patient participants knowledge related to CHF self-care management skills and behaviors | -Establish baseline patient participant knowledge related to CHF self-care management skills and behaviors. | -100% of patient participants will take the SCHFIv6.2 at initial nurse visit | -Baseline SCHFIv6.2 scores will be compared with post SCHFIv6.2 scores | -Baseline data will be essential in order to determine improvement in CHF patient participant's self-care management skills and behaviors. |
| Nurse care managers conducted follow up phone calls weekly between monthly nurse visits to document patient self-report of symptoms and symptom management by August 4, 2017. | -Nurse care managers conduct initial follow up phone call the week of August 4, 2017<br><br>-Nurse care managers document patient's physical status in EHR telephone documentation template. | -Documentation in EHR related to CHF physical symptoms | -Phone follow up between nurse visits will occur throughout project for continuity of care, as well as providing more frequent and consistent follow up | -Nurse care managers conduct initial follow up phone call the week of August 4, 2017 | -A minimum of 1 phone call per week between nurse visits will occur throughout the project ending on September 30, 2017 | -Nurse visits and telephone follow up used together will provide a comprehensive plan for managing CHF patients. |
| The SCHFIv6.2 was administered to patients at the last nurse visit to assess improvement in CHF self-care management indicated by a one point or more increase in mean survey score by September 30, 2017. | -Administer SCHFIv6.2 to patient participants at last nurse visit by project completion date of September 30, 2017 | -Post intervention SCHFIv6.2 results for CHF patient participants | -Obtain post intervention SCHFIv6.2 mean scores for patient participants in order to compare baseline and post intervention mean scores in order to determine improvement in knowledge related to CHF self-care management skills and behaviors. | -100% of patient participants will take the SCHFIv6.2 at last nurse visit by project completion date of September 30, 2017 | -Baseline SCHFIv6.2 mean scores will be compared with post SCHFIv6.2 mean scores | -Baseline SCHFIv6.2 mean scores will be compared to post intervention SCHFIv6.2 mean scores to determine improvement in CHF patient participant's self-care management skills and behaviors. |
| Determined if patient participants demonstrated a 5% improvement in blood pressure, change in weight, change in PND and orthopnea, and 100% adherence to medication and diet regimen based on physical assessment data and patient self-report by September 30, 2017. | -Collect baseline physical assessment data at initial nurse visit by July 31, 2017 and document in EHR<br>-Collect physical assessment data | -Consistent data collected and documented in nurse visit template in EHR throughout project | -Collect baseline data, and same data at each visit and phone call throughout project in order to determine improvement in patients | -Patient participants will demonstrate a lower than baseline blood pressure if high at baseline, stable weight indicated by no weight gain requiring additional | -Patient participants will sustain changes in physical assessment data at 90 day post project follow up check in during December 2017. | -Chronic nurse visits will have a positive impact on CHF patient's self-management skills and behaviors resulting in improvement in physical assessment data after |

| | | | | | | |
|---|---|---|---|---|---|---|
| | at each nurse visit and phone call and document in HER throughout project ending September, 2017 | | clinical stability by September, 2017 | intervention, decreased or absent PND and orthopnea, and 100% adherence to medication and diet regimen by September 30, 2017 | | participating in a 90 day nurse visit project. |
| CHF patients had no CHF related ER visits, hospital admission, or hospital readmissions during project from July 31, 2017 through September 30, 2017. | -Patient participants records will be tracked for CHF related ER visits and hospitalizations | -Patient participants contact nurse care manager regarding worsening of CHF symptoms | -Through education of CHF patients improve self-care management skills and behaviors, avoiding need for acute CHF treatment and will contact the nurse care manager if needed rather than seeking emergency care | -CHF patient participants will contact nurse care manager as needed regarding worsening of CHF symptoms | -CHF patient participants will have no CHF ER visits, hospitalizations, or hospital readmissions during project conducted June 1, 2017 through September, 2017 | -Nurse visits focused on education of self-care management skills and behaviors will show a reduction in the amount of ER visits and hospitalizations for CHF patients. |

# Appendix R: Outcomes Evaluation Analysis

| Outcome | Outcome Instrument/Data | Analysis Goal | Analytic Technique |
|---|---|---|---|
| **Outcome 1)** By April 15, 2017 the project leader will have created the nurse visit documentation template for FMR that includes CHF related physical assessment data, and have it built into the electronic health record for use by nurse care managers. | **Instrument:** The project leader will create a documentation template for the Ochin EMR for use by the nurse care managers. Documentation will occur at each nurse visit as well as follow up phone calls. Documentation template will include physical assessment data related to CHF including blood pressure, weight, PND and orthopnea, medication and diet adherence.<br><br>**Data:** Data included in EMR documentation template will include physical assessment data related to CHF. As many elements of the EMR as possible will be automatically populated into the nurse visit documentation. Template created using existing documentation templates used by OHSU Cardiology as a guide. | Create an EMR documentation template outlining important CHF physical assessment data to be collected, as well as promote consistent data collection throughout nurse visit project | No data analysis will be used to create the EMR template. |
| **Outcome 2)** By April 30, 2017 the project leader will select six nurse care managers in the FMR clinic based on staffing availability to participate in the nurse-led chronic illness project. | **Instrument:** The project leader will select six FMR nurse care managers to participate in the nurse visit project. Selection will be based on which nurse care managers have the most availability, and flexibility, in their daily scheduled. Additionally, the project leader will ask for input from the nurse care managers regarding their interest and willingness to participate in the project for consideration in the selection.<br><br>**Data:** Nurse care managers existing schedules will be reviewed for availability, as well as flexibility of adding CHF nurse visit appointments. Current staffing schedules are created two months ahead of time, and can be revised if needed. | Select six nurse care managers to participate in the nurse-led chronic illness project based on staffing and schedule availability. | No data analysis will be used to select participating nurse care managers. |
| **Outcome 3)** By May 31, 2017 the project leader will administer the Nurse's Knowledge of Heart Failure Self-Management Principles Survey to participating nurse care managers to measure | **Instrument:** The Nurse's Knowledge of Heart Failure Self-Management Principles Survey (as adapted by Hart, 2011) will be used to assess nurse care manager knowledge related to CHF management by May 31, 2017. The psychometric survey is comprised of 20 questions which are answered using a Likert scale. The original survey used a true and false answer format, but was adapted in a separate study later to a Likert scale in order to show the degree of knowledge the nurse demonstrated rather than yes or no. A score of 80% or more | Assess baseline CHF of knowledge of participating nurse care managers using a psychometric survey. Identified gaps in CHF knowledge by the survey will be used to guide the | A score of 80% or more questions correct on the Nurse's Knowledge of Heart Failure Self-Management Principles Survey will indicate the nurse care manager is knowledgeable in heart failure, |

| | | | |
|---|---|---|---|
| CHF knowledge. Results will be analyzed. These results will establish baseline knowledge prior to the education intervention. | questions correct indicates the RN is knowledgeable in heart failure and feels at ease regarding patient education of CHF self-care management. The instrument has been previously used and validated in the literature. A sample of the survey can be found in Appendix E.<br><br>**Data:** Results from the survey will be used to develop appropriate training for nurse care managers focusing on identified gaps in CHF knowledge. | content of nursing education intervention. | and demonstrates feeling at ease educating patients about CHF self-care management. |
| **Outcome 4)** By June 7, 2017 the project leader will plan, implement, and evaluate a CHF education intervention for nurse care managers focused on gaps in CHF knowledge identified in the Nurse's Knowledge of Heart Failure Self-Management Principles Survey administered to participating nurse care managers. | **Instrument:** The Nurse's Knowledge of Heart Failure Self-Management Principles Survey (as adapted by Hart, 2011) will be used to assess baseline nurse care manager knowledge related to CHF management by June 7, 2017. Survey will be administered and scored by the project leader. Identified gaps in CHF knowledge demonstrated by survey results will be used to guide content of nurse care manager education intervention.<br><br>**Data:** Content of nursing education intervention will be aligned with current patient education used by OHSU Cardiology. Additional focus will be placed on gaps in knowledge identified in the results of the Nurse's Knowledge of Heart Failure Self-Management Principles Survey. | Develop a nursing education intervention aligned with OHSU patient education materials and teachings, as well as address identified gaps in CHF knowledge in order to improve nurse care manager's CHF knowledge related to patient self-care management skills and behaviors. | Results from the Nurse's Knowledge of Heart Failure Self-Management Principles Survey will identify gaps in CHF knowledge. The nursing education intervention will address identified knowledge gaps, as well as include patient education used in OHSU Cardiology. |
| **Outcome 5)** By July 31, 2017 the project leader will select a minimum of 20 current FMR CHF patients to participate in the nurse-led chronic illness project by identifying patients from the FMR CHF registry that fit inclusion criteria and are willing to participate in project. Patients will be contacted by nurse care managers by telephone to see if they are willing to | **Instrument:** The FMR CHF registry will be used to identify patients with a CHF diagnosis. Patients identified will then be further evaluated using inclusion criteria to determine if appropriate for chronic disease management nurse visit.<br><br>**Data:** FMR CHF registry will be used to select CHF patients meeting inclusion criteria, and agree to participate in project when contacted by nurse care manager. Selected patient participants must meet inclusion criteria that include: 18 years of age or older, established patient at FMR assigned to a PCP, seen within the last 15 months, English speaking, no cognitive impairment, and NYHA Class I-IV by July 31, 2017. | Select 15 FMR CHF patients willing to participate in the nurse-led chronic illness visit project by July 31, 2017. | The FMR CHF registry will be utilized to select a 15 patient participants for the nurse visit project. Selected patient participants must meet inclusion criteria. |

| | | | |
|---|---|---|---|
| participate in the nurse visit project. | | | |
| **Outcome 6)** By August 4, 2017 the nurse care managers will schedule and complete initial nurse visit for 100% of selected CHF patient participants. | **Instrument:** Selected nurse care managers will contact selected patient participants by phone to inquire if they would like to participate in the nurse visit project. Nurse care managers will communicate to patients participation is strictly voluntary, as well as what patients can expect throughout the 90 day project.<br><br>**Data:** Baseline physical assessment data including blood pressure, weight, PND, orthopnea, medication and diet adherence will be collected and documented into the EHR at initial visit as well as throughout the project conducted from July 2017 through September 2017. | Complete initial nurse visit for 100% of patient participants by July 31, 2017 as well as collect baseline physical assessment data. | No data analysis will be used to schedule patient participants for initial nurse visit. |
| **Outcome 7)** By July 31, 2017 the nurse care manager will administer the SCHFIv6.2 at initial nurse visit to assess patient participant knowledge about CHF self-care management. Results will establish baseline data, and will be used in comparison with post project data to determine level of improvement in patient participant's self-care management related to CHF. | **Instrument:** The SCHFIv6.2 will be administered to CHF patients participating in the nurse visit project at the initial nurse visit conducted by July 31, 2017 to assess baseline CHF knowledge related to self-care management skills and behaviors. A mean score will be calculated, and compared to post project SCHFIv6.2 mean score. The SCHFIv6.2 is a validated assessment tool used to measure CHF patient's self-care abilities. A sample of the survey can be found in Appendix D.<br><br>**Data:** The SCHFIv6.2 will be used to assess participating patient's baseline knowledge related to CHF patient's self-care management skills and behaviors. Results will be used to calculate a mean score which will be compared to post survey mean scores to determine level of improvement in patient's CHF knowledge by project completion date of September 30, 2017. | Obtain patient participant's baseline level of CHF knowledge related to self-care management skills and behaviors. | SCHFI6.2 will be used to obtain baseline mean score for patient participant knowledge of CHF self-care management at first nursing visit by July 31, 2017. The higher the mean score, the more knowledgeable the patient regarding CHF self-care management skills. |
| **Outcome 8)** By August 4, 2017 the nurse care managers selected to participate in project will conduct initial follow up phone call, and subsequent calls will be made weekly between monthly nurse visits. The nurse care manager will use a telephone encounter template in the electronic | **Instrument:** Documentation will occur after each follow up phone call. Documentation template will include physical assessment data related to CHF including blood pressure, weight, PND and orthopnea, medication and diet adherence per patient self-report.<br><br>**Data:** Physical assessment data will be collected through patient self-report during each follow up phone call, and will be documented into the EHR documentation template. As many elements of the EHR as possible will be automatically populated into the documentation template. Template created using existing documentation templates used by OHSU Cardiology as a guide. | Conduct weekly follow up phone calls between scheduled nurse visits, with initial follow up call conducted by the first week of August, 2017. | Patient self-report will be used to collect physical assessment data during follow up phone calls, and will be documented into the EHR template. |

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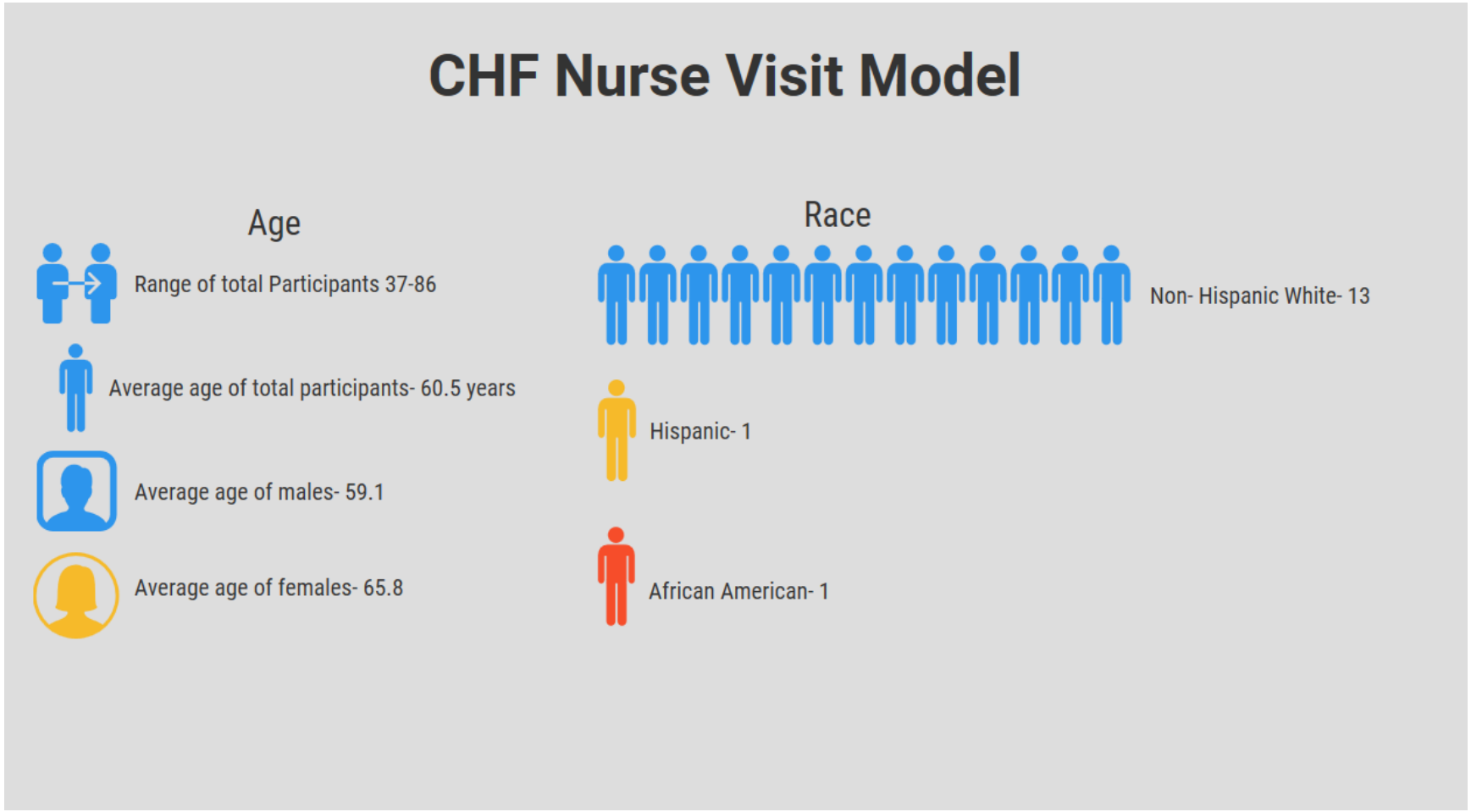
| health record to document any symptoms, as well as patient's physical status at the time of each phone call. | | | |
| **Outcome 9)** By September 30, 2017 the nurse care manager will administer the SCHFIv6.2 at last nurse visit of project to assess patient participant knowledge about CHF self-care management. These results will be compared to baseline data to determine level of improvement in patient participant's self-care management knowledge related to CHF. | **Instrument:** The SCHFIv6.2 will be administered to CHF patient participants by completion of project on September 30, 2017. Post SCHFIv6.2 mean scores will be compared to initial SCHFIv6.2 mean scores to determine level of improvement in CHF patient participant's knowledge related to CHF self-care management skills and behaviors.<br><br>**Data:** SCHFIv6.2 pre and post intervention mean scores will be compared to determine level of improvement in patient participant's CHF self-care management knowledge. A minimum of one point increase in mean score will indicate improvement in self-care management skills and behaviors. An increase in post mean score which will indicate an improvement in CHF patient self-management skills and behaviors. | Administer the SCHFIv6.2 post intervention to assess level of improvement in SCHFIv6.2 mean score. | A simple means comparison will be used to determine if patient participant's knowledge related to CHF self-care management has improved. A minimum of one point increase in mean score will indicate improvement in self-care management skills and behaviors. An increase in post mean score which will indicate an improvement in CHF patient self-management skills and behaviors. |
| **Outcome 10)** By September 30, 2017 CHF patient participants will demonstrate baseline or 5% decrease in than blood pressure, stable weight indicated by no weight gain requiring additional intervention, decreased or absent PND and orthopnea, and patient self-report of adhering to medication and diet regimen. | **Instrument:** Physical assessment data collected throughout project will be used to determine whether CHF chronic disease management nurse visits made a positive impact on patient self-care management skills and behaviors. Project costs are in kind, but will be continuously monitored by project leader to determine if projected resources are sufficient for proposed project.<br><br>**Data:** Physical assessment data including blood pressure, weight, PND, orthopnea, medication and diet adherence will be assessed at end of project on September 30, 2017. Improved clinical stability will be determine by: baseline or 5 % decrease in blood pressure, stable weight indicated by no weight gain requiring additional intervention, decreased or absent PND or orthopnea, and patient self-report of adhering to recommended medication and diet regimen. | Patient participants will demonstrate an improvement in clinical stability and heart failure status at completion of 90 day project ending September 30, 2017. | Improvement in CHF patient clinical stability will be determined by reviewing physical assessment data collected throughout 90 day project. Improvement will be indicated by: baseline or 5 % decrease in blood pressure, stable weight indicated by no weight gain requiring additional intervention, decreased or absent PND or orthopnea, and patient self-report of adhering to recommended medication and diet regimen. |

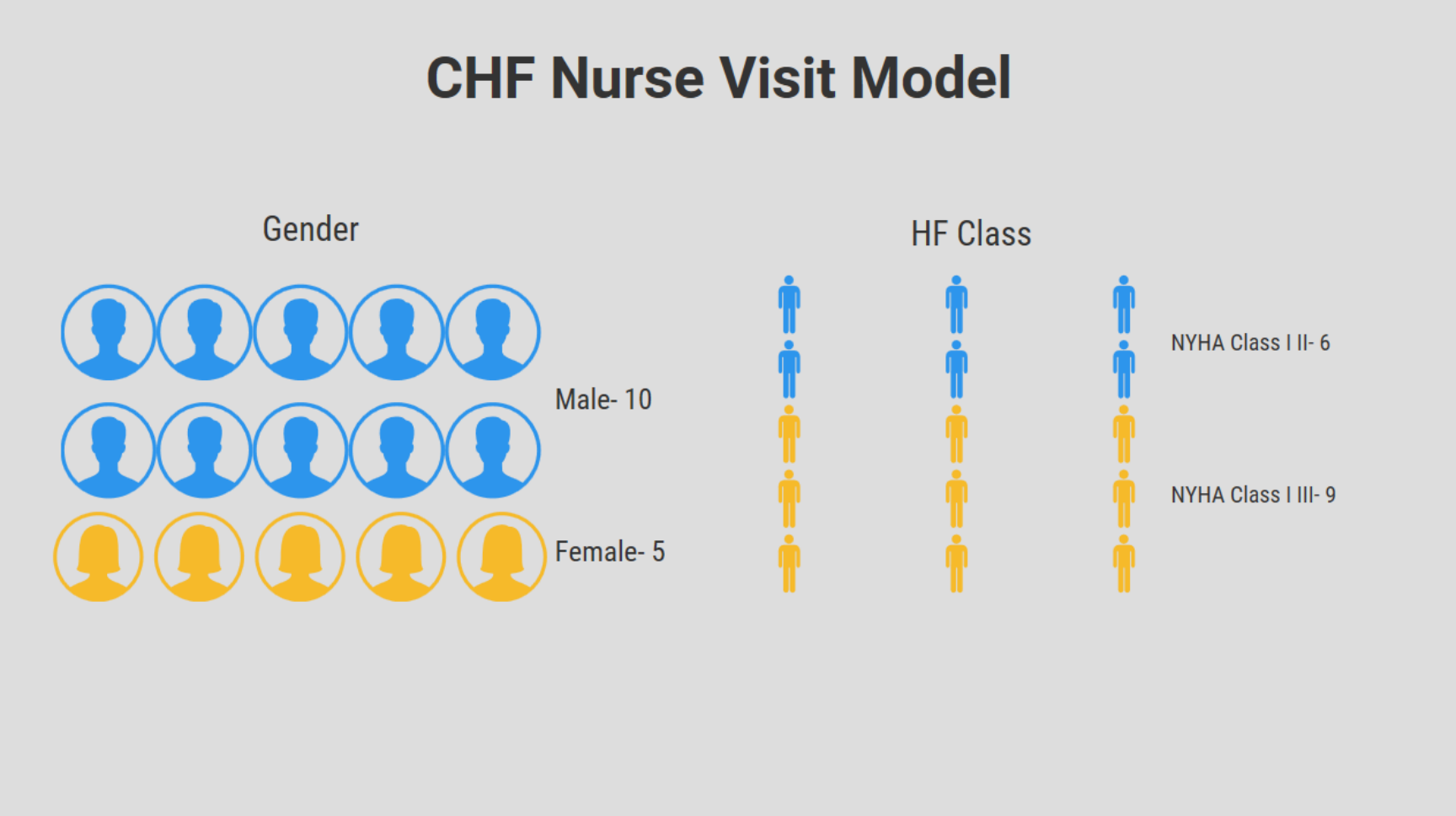
| | | | |
|---|---|---|---|
| **Outcome 11)** From July 31 through September 30, 2017 CHF patients will have no CHF related ER visits, hospitalizations, or hospital readmissions. | **Instrument:** Nurse visits and follow up phone calls will provide patient education related to CHF self-care management skills and behaviors reinforcing patient's knowledge related to recognition of worsening symptoms. Patient participants will be encouraged to contact nurse care manager before seeking emergency room care.<br><br>**Data:** Physical assessment data collected at each nurse visit, and during each follow up phone call, will be reviewed by nurse care manager at time of encounter to establish plan for symptom management as needed. | Close follow up with patient participants throughout nurse visit project will facilitate improved outpatient management of CHF, reducing patient CHF related ER visits, hospitalizations, and readmissions. | No data analysis used. |

# Appendix S: Project Timeline

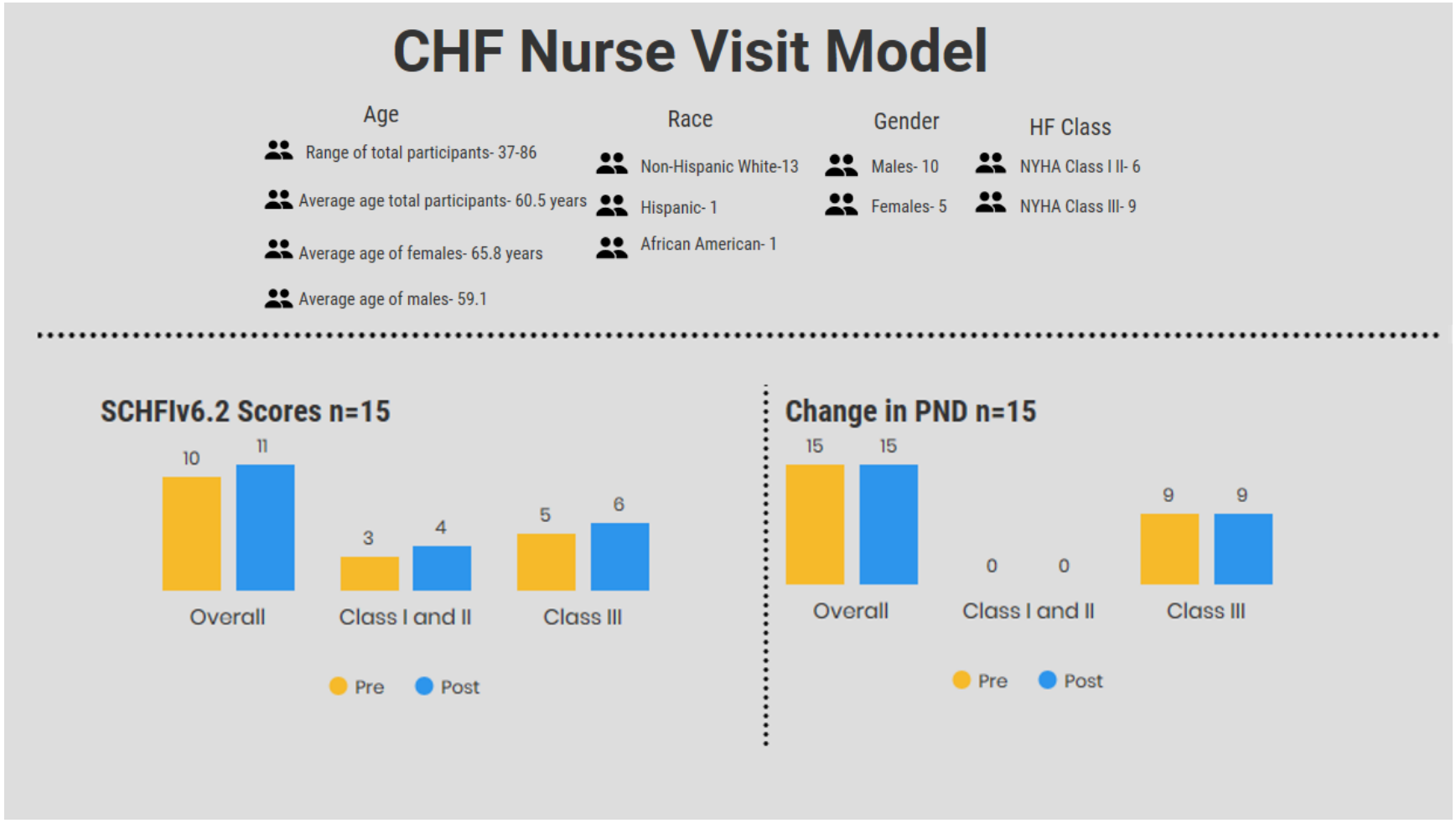
| Timeline | Activity | As Projected | Delayed | Impact | Completed |
|---|---|---|---|---|---|
| Fall 2015 | Project Need Identified | Yes | No | No | Yes |
| | Problem Statement | Yes | No | No | Yes |
| Spring 2016 | Goals/Objectives | Yes | No | No | Yes |
| | Logic Model | Yes | No | No | Yes |
| | Timeline | Yes | No | No | Yes |
| Summer 2016 | Research Training | Yes | No | No | Yes |
| Spring 2017 | Project Proposal | Yes | No | No | Yes |
| | Project Approval | Yes | No | No | Yes |
| | IRB Approval | No | Yes | No | Yes |
| Fall 2017 | Project Implementation | No | Yes | No | No |

Appendix T: Patient Participant Demographics

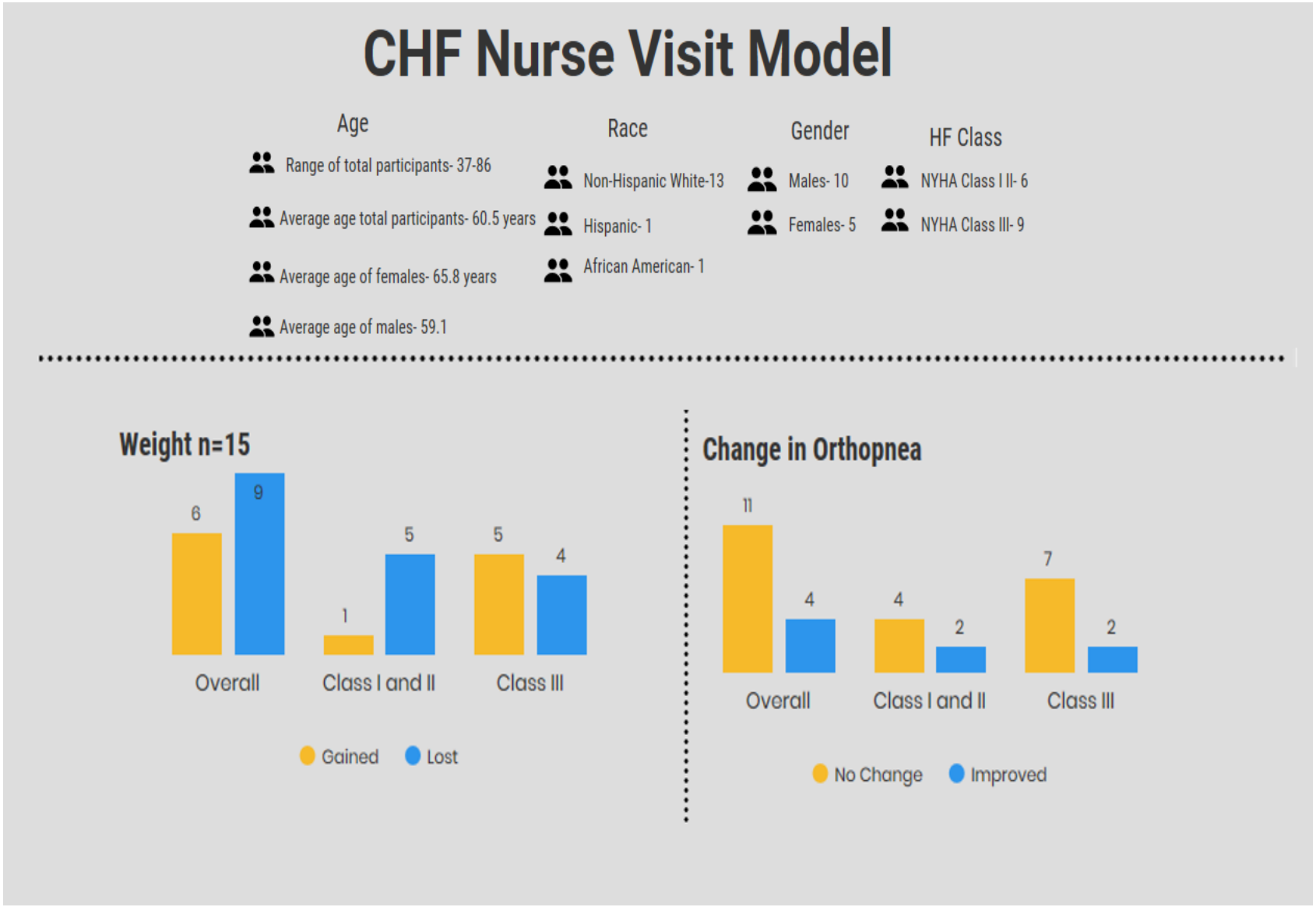



CHF Nurse Visit Model
Gender
Male- 10
Female- 5
HF Class
NYHA Class I II- 6
NYHA Class I III- 9

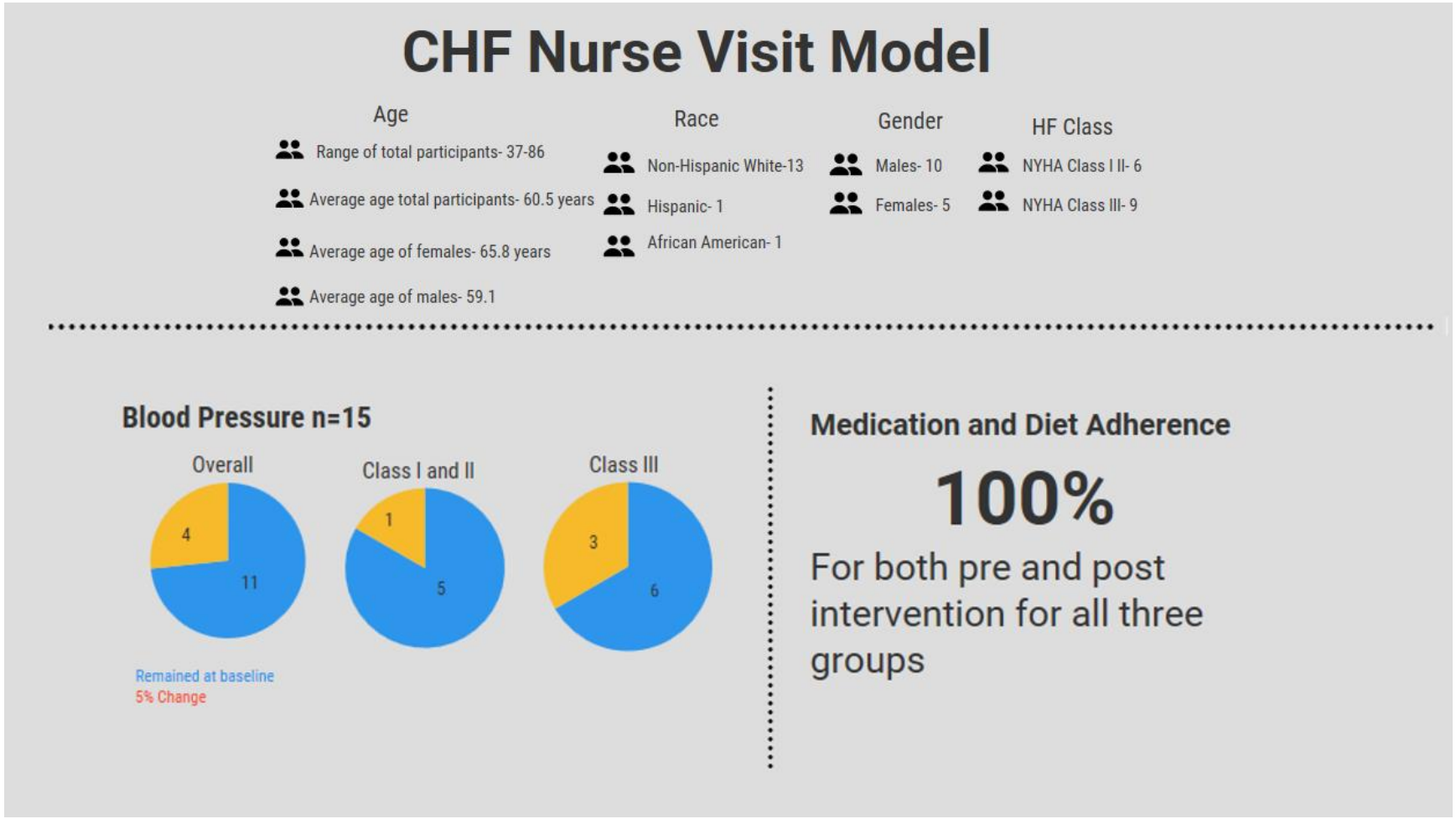
Appendix U: Changes in SCHFIv6.2 Scores and Paroxysmal Nocturnal Dyspnea (PND)



Appendix V: Changes in Weight and Orthopnea



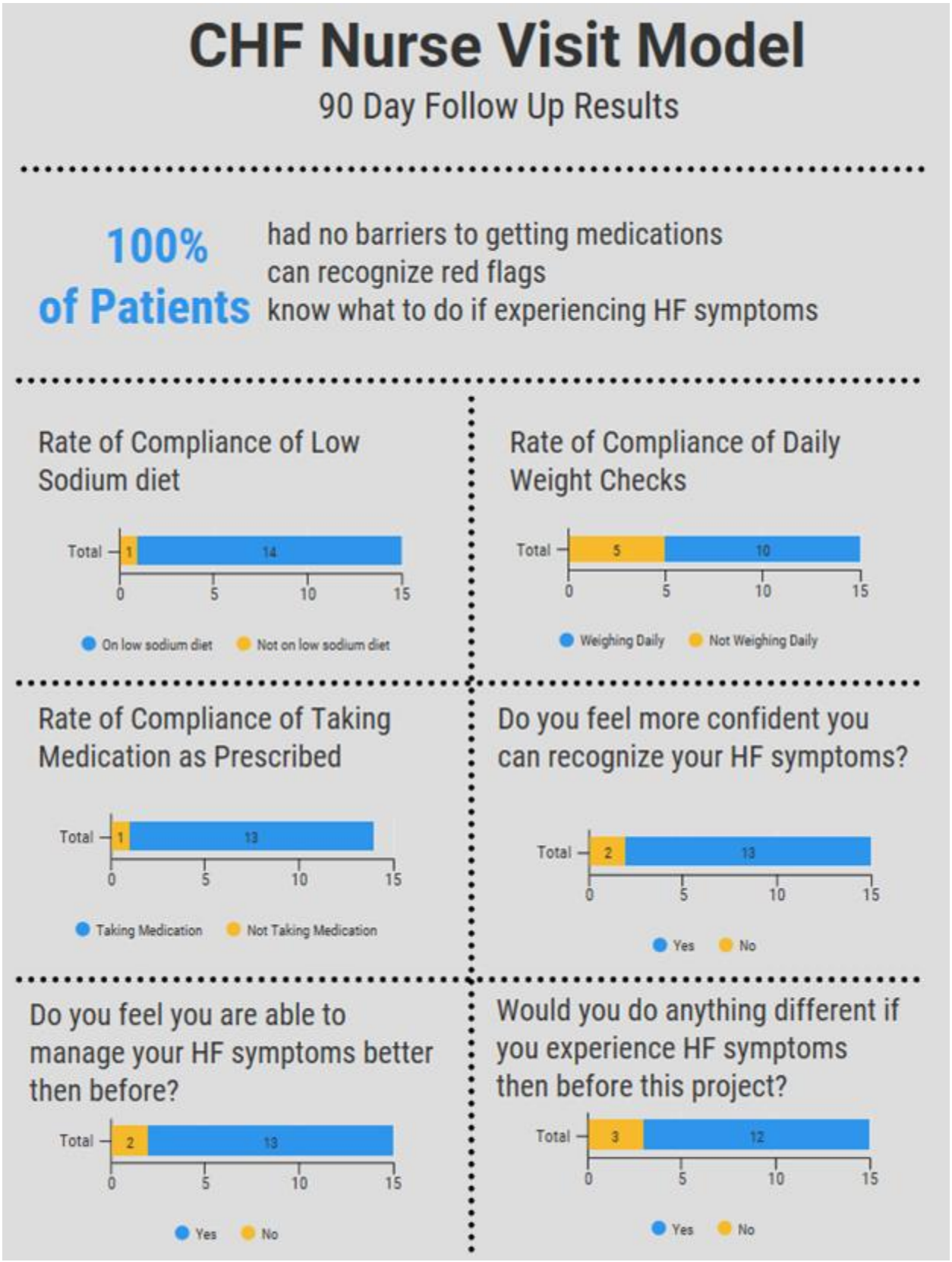
Appendix W: Changes in Blood Pressure and Medication and Diet Adherence



Appendix X: 90 Follow-Up Phone Call Template

| | |
|---|---|
| After participating in the heart failure project, do you feel more confident you can recognize your heart failure symptoms? | YES NO Comments: |
| After participating in the heart failure project, do you feel you are able to manage your heart failure symptoms better than before the project? | YES NO Comments: |
| After participating in the heart failure project, would you do anything different if you experience heart failure symptoms than before the project? | YES NO Comments: |
| **Edema/Weight monitoring** | |
| Have you been weighing yourself daily? | YES NO Comments: |
| Do you know what to do if you notice weight gain? *(2 pounds/day or 5 pounds/week)* | YES NO Comments: |
| **Red Flags** | |
| **What are your red flags?** *(Some people experience warning signs before they are SOB.)* | **Personal S/S:** |
| **Low-sodium diet** | |
| Have you been able to limit salt in your diet? | YES NO Comments: |
| **Medications** | |
| Are you able to get your medications? | YES NO Comments: |
| Are you taking medications the way your provider prescribed? | YES NO Comments: |

Appendix Y: 90 Day Follow-Up Results



# Appendix Z: Expense Report

| Source of Expense | Expense Description | Dollar Value | Type of Cost | Description of Cost | Estimated Volume | Expense Per Unit |
|---|---|---|---|---|---|---|
| Richmond Clinic | | Cost $ | Fixed or Variable | | | |
| Administrative Supplies | Printer supplies, paper, copying, pens, general office use. $50.00/month | $600.00 | Fixed | Supplies – Office | Per year | $2.50/patient/ month |
| | Communications – cell phone stipend $120.00/month | $1,440.00 | Fixed | Communications | Per year | $120.00/month |
| | Exam room/Office visit supplies (20 patients/month) $200.00/month | $2,400.00 | Fixed | Supplies - Clinical | Per year | $10.00/patient/ month |
| Management and Operations Salaries | | Cost $ | | | | |
| RN Salaries (6 RNS) | 50.00/hour x 6 hours per month x 6 RNs | $21,600.00 | Variable | Regular pay for nurse care managers | Per year | $1,250.00/month |
| Provider Salaries (1 per 4 hour session) | $300.00/four hour session x 5 sessions per week | $18,000.00 | Variable | Provider salary | Per year | $300.00 per four hour session |
| Project Leader | $60.00/hour (approximate per annual salary) | $12,000.00 | Variable | Salary | Per year | $60.00/hour |
| Providers | $75.00/hour for meeting attendance x 10 providers x 2 one hour meetings per month based on attendance | $18,000.00 | Variable | Salary | Per year | $75.00/hour |
| | Total requested | $72,000.00 | | | | |
| Training and Workflow Revision | | Cost $ | | | | |
| RN Training | $50.00/hour x 3 hours x 6 RNs | $900.00 | Fixed | Time spent in training for | Per hour | $50.00/hour |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | RN visit model | | |
| RN Workflow | $50.00/hour x 6 hours per month – Lead RN and 2 RNs<br>$60.00/hour x 6 hours per month – Project Leader | $900.00<br>$360.00 | Fixed<br>Fixed | Time spent revising work flows<br>Time spent revising work flows | Per hour<br>Per hour | $900.00/month<br>$360.00/month |
| EHR Reports | | Cost $ | | | | |
| Project Leader<br><br>Lead RN | $60.00/hour x 10 hours<br><br>$50.00/hour x 5 hours | $600.00<br><br>$250.00 | Fixed<br><br>Fixed | Time spent creating and running reports for CHF registry | Per hour<br><br>Per hour | $60.00/hour<br><br>$50.00/hour |
| | Total requested | $850.00 | | | | |
| | **Grand Total Requested** | **$75,000.00** | | | | |

Appendix AA: Preliminary Budget

| **Preliminary Budget Spreadsheet** | **Year 1**<br>**1/1/2017-12/31/2017** | **Year 2**<br>**1/1/2018-5/18/2018** |
|---|---|---|
| **Staff Salaries and Benefits** | | |
| RNs - ($50.00/hr. x 10 hours/week x 6 RNs x 8 months starting 5/2017) | $24,000.00 | *x 5 months* $15,000.00 |
| Provider - ($300.00 per 4 hour session, 1 at all times during RN visits) | $24,000.00 | *x 5 months* $15,000.00 |
| Provider - Time Spent at meetings $75.00 per 1 hour meeting monthly | $24,000.00 | *x 5 months* $375.00 |
| Project Leader - $58.00/hour (total time TBD) | $900.00 | $5,800.00 |
| | $11,600.00 | |
| **Total Salaries and Benefits** | **$56,500.00** | **$33,675.00** |
| **Communications** (phone, postage, etc.) | | |
| Project Leader – cell phone stipend @ $40.00/month for 12 months | $480.00 | $200.00 |
| RN – cell phone stipend x 2 @ $40.00/month for 12 months | $960.00 | $400.00 |
| | **$1440.00** | **$600.00** |
| **Printing**<br>Patient After Visit Summary at each visit<br>Photocopying of various materials | $250.00 | $250.00 |
| **Printed Materials**<br>Patient education materials | $300.00 | $300.00 |
| **Supplies** | | |
| Office supplies (computer paper, printer ink, pens, etc.) general use | $500.00 | $500.00 |
| Exam room/Office Visit Supplies | $800.00 | $500.00 |

| | | |
|---|---|---|
| ($10.00 average per visit x 5 new visits per RN per week x 2 RNs x 8 months if implemented 6/17) | **$1,300.00** | **$1,000.00** |
| **Equipment** | | |
| Printer (located in all exam rooms, and all common areas of clinic) | $300.00 | $300.00 |
| Point of Care Testing Equipment: INR, Glucometer, A1C (clinic) | $500.00 | $500.00 |
| **TOTAL EXPENSES:** | **$60,590.00** | **$36,625.00** |

# Appendix BB: Data and Cost Development

| Outcome(s) | Resources | Data (Indicators) | Method to gather data | Technical assistance needed | Potential cost |
|---|---|---|---|---|---|
| **Outcome 1) By April 15, 2017 the project leader will have created the nurse visit documentation template for FMR that includes CHF related physical assessment data, and have it built into the electronic health record for use by nurse care managers.** | -FMR nurse care managers<br>-Ochin site specialist | -Discussion with providers and nurse care managers regarding what physical assessment data should be collected | -Discussion with providers and nurse care managers regarding what physical assessment data should be collected | -OCHIN site specialist | -RN and provider salaries for time spent on project<br>-Salary for time spent by nurse manager/DNP student<br>-Cost for time for Ochin site specialist hours |
| **Outcome 2) By April 30, 2017 the project leader will select five nurse care managers in the FMR clinic based on staffing availability to participate in the nurse-led chronic illness project.** | - FMR nurse care managers<br>-Nurse care manager schedule | -Number of nurse visits in existing schedule | -Nurse manager schedule used to determine which nurse managers most available to participate in project | -No technical assistance needed | -Cost of RN salary for time spent working on scheduling template |
| **Outcome 3) By May 31, 2017 the project leader will administer the Nurse's Knowledge of Heart Failure Self-Management Principles Survey to participating nurse care managers to measure CHF knowledge. Results will be analyzed. These results will establish baseline knowledge prior to the education intervention.** | -Participating nurse care managers<br>-Nurse's Knowledge of Heart Failure Self-Management Principles Survey | -Gaps in CHF knowledge identified by results of Nurse's Knowledge of Heart Failure Self-Management Principles Survey | -Nurse's Knowledge of Heart Failure Self-Management Principles Survey | -No technical assistance needed | -RN salary costs |
| **Outcome 4) By June 7, 2017 the project leader will plan, implement, and evaluate a CHF education intervention for nurse care managers focused on gaps in CHF knowledge identified in the Nurse's Knowledge of Heart Failure Self-Management Principles Survey administered to participating nurse care managers.** | -Nurse care managers<br>-Project leader<br>-Space to hold education intervention<br>-Education materials | -Results of Nurse's Knowledge of Heart Failure Self-Management Principles Survey. | - Nurse's Knowledge of Heart Failure Self-Management Principles Survey | -No technical assistance needed | -RN salary costs<br>-Cost of education materials |

| | | | | | |
|---|---|---|---|---|---|
| **Outcome 5) By July 31, 2017 the project leader will select a minimum of 20 current FMR CHF patients to participate in the nurse-led chronic illness project by identifying patients from the FMR CHF registry that fit inclusion criteria and are willing to participate in project. Patients will be contacted by nurse care managers by telephone to see if they are willing to participate in the nurse visit project** | -FMR CHF registry<br>-CHF patient participants<br>-Participating nurse care managers<br>-FMR CHF Registry | -CHF patients that meet inclusion criteria | -FMR CHF registry<br>-Nurse care managers | -Ochin site specialist | -RN salary costs<br>-Ochin site specialist salary costs |
| **Outcome 6) By July 31, 2017 the nurse care managers will schedule and complete initial nurse visit for 100% of selected CHF patient participants.** | -CHF patient participants<br>-RN care managers<br>-Ochin EMR | -Nurse manager schedule<br>-CHF patient schedule | -CHF patient participant's ability to schedule and complete appointment | -No technical assistance needed | -RN salary costs |
| **Outcome 7) By July 31, 2017 the nurse care manager will administer the SCHFIv6.2 at initial nurse visit to assess patient participant knowledge about CHF self-care management. Results will establish baseline data, and will be used in comparison with post intervention data to determine level of improvement in patient participant's self-care management related to CHF.** | -Nurse care managers<br>-CHF patient participants<br>-SCHFIv6.2 | -Need to assess patient participant's baseline knowledge related to self-care management skills and behaviors | -SCHFIv6.2 | -No technical assistance needed | -RN salary |
| **Outcome 8) By August 4, 2017 the nurse care managers selected to participate in project will conduct initial follow up phone call, and subsequent calls will be made weekly between monthly nurse visits. The nurse care manager will use a telephone encounter template in the electronic health record to document any symptoms, as well as patient's physical status at the time of each phone call.** | -Nurse care managers<br>-CHF patient participants<br>-EHR telephone encounter template | -Physical assessment data and patient reported symptomology | -Patient self-report during phone call | -No technical assistance needed | -RN salary |

| | | | | | |
|---|---|---|---|---|---|
| **Outcome 9) By September 30, 2017 the nurse care manager will administer the SCHFIv6.2 at last nurse visit of project to assess patient participant knowledge about CHF self-care management. These results will be compared to baseline data to determine level of improvement in patient participant's self-care management knowledge related to CHF. A minimum of one point increase in score will indicate improvement in self-care management skills and behaviors.** | -Nurse care managers<br>-CHF patients<br>-SCHFIv6.2 | -SCHFIv6.2 change in mean score | -SCHFIv6.2 | -No technical assistance needed | -RN salary |
| **Outcome 10) By September 30, 2017 CHF patient participants will demonstrate a lower than baseline blood pressure if high at baseline, stable weight indicated by no weight gain requiring additional intervention, decreased or absent PND and orthopnea, and improvement in self-reported adherence to medication and diet regimen.** | -Nurse care managers<br>-CHF patient participants<br>-Ochin EMR | -Physical assessment data collected at nurse visits and follow up phone calls documented in the EMR nurse visit template | -Review physical assessment data collected and documented in the EMR during nurse visits and phone calls | -No technical assistance needed | -RN salary cost |
| **Outcome 11) From July 31, 2017 through September 30, 2017 CHF patients will have no CHF related ER visits, hospitalizations, or hospital readmissions.** | -Ochin EMR | -EMR ER and hospital admission data | -Review Ochin EMR for ER visits and hospitalizations | -No technical assistance needed | -RN salary cost |

Appendix CC: Statement of Operations

| **Statement of Operations** | |
|---|---|
| **Revenue** (in kind) | $52,775.00 |
| **Expenses** | |
| Personnel Expenses<br>*RN salaries, provider comp for time, project leader* | $35,900.00 |
| Facilities | $10,000.00 |
| Other operational expenses<br>*Evaluation/Chart audits/EMR Reports* | $835.00 |
| Education & Training | $2,000.00 |
| Supplies<br>*Includes communication, printing, education materials* | $4,040.00 |
| Annual total expenses: | $52,775.00 |
| **OPERATING INCOME** | |
| Total Expenses | $52,775.00 |
| Total Revenue (In Kind) | $52,775.00 |
| Annual operating income: | $0.00 |

Appendix DD: 3-5 Year Budget

| **Revenues** | Budget Year 1 | Budget Year 2 | Budget Year 3 | Budget Year 4 | Budget Year 5 |
|---|---|---|---|---|---|
| Revenue (In Kind) | $77,000.00 | $65,428.00 | $66,272.00 | $67,188.00 | $68,121.00 |
| **Expenses** | | | | | |
| Administrative Supplies *(.02% increase/year)* | $5400.00 | $5508.00 | $5618.00 | $5730.00 | $5844.00 |
| Initial Training *(.02% wage increase/year)*<br>RN Training- 16 hours per year (2 RNs)<br>RN Workflow- Revision (Year 1) | <br>$1600.00<br>$10,052.00 | <br>$1632.00 | <br>$1664.00 | <br>$1697.00 | <br>$1730.00 |
| Management and Operations Salary *(.02% increase/year)* | | | | | |
| RN Salaries | $15,000.00 | $12,540.00 | $12,735.00 | $12,988.00 | $13,246.00 |
| Providers – per session | $24,000.00 | $24,480.00 | $24,969.00 | $25,468.00 | $25,977.00 |
| Project Leader | $900.00 | $918.00 | $936.00 | $955.00 | $974.00 |
| Providers – per hour for meetings | $19,500.00 | $19,500.00 | $19,500.00 | $19,500.00 | $19,500.00 |
| Evaluation/Chart Audits/EMR Reports | | | | | |
| Project Leader | $600.00 | $600.00 | $600.00 | $600.00 | $600.00 |
| Lead RN | $250.00 | $250.00 | $250.00 | $250.00 | $250.00 |
| **Total** | $77,000.00 | $65,428.00 | $66,272.00 | $67,188.00 | $68,121.00 |
| **Operating Income** | 0 | 0 | 0 | 0 | 0 |

| Grade Options | Faculty Project Mentor Member Initials Recommendation |
|---|---|
| a. **Accept the proposal** (Faculty Project Mentor will files approval of the DNP Scholarly Project Proposal on behalf of the Doctoral Project Team. | |
| b. **Conditionally accept with minor revisions and no re-review**. The student will file a final/revised project proposal to Faculty Project Mentor within one month of the proposal presentation. | |
| c. **Require minor or major revisions and re-review**. *Revisions required:* The student must develop a significantly revised or new proposal. The Faculty Project Mentor will work with the student on the revision. The Project Team will review the new proposal and all prior steps will be repeated. | |
| d. **Reject the proposal**. The student must develop a significantly revised or new proposal. The Faculty Project Mentor will work with the candidate on the revision. The DNP Student Project Team will review the new proposal and all prior steps will be repeated. | |
| Comments: | |

Date:

Faculty Project Mentor Chair or Designee Signature:

_____

DNP Student Project Team Member's Signature:

_____

**Doctoral student's Signature**