Nurse-Led Heart Failure Education:
Improving the Quality of Life for Home Hospice Patients

Nancy James

College of Nursing, East Carolina University

Doctor of Nursing Practice Program

Dr. Diane Marshburn

April 24, 2023

Acknowledgments

First and foremost, I would like to thank my project site champion, Dr. Jennifer Pursley. Without your guidance and support, this would not have happened. I am also thankful for my colleagues who helped with the implementation of the project. Thank you, Dr. Marshburn, for always reminding me to “keep the faith” and “stay focused” and to Dr. Tillman for helping me to “trust the process.” I could not have done all this without the love, support, and encouragement of my friends and family. Special gratitude goes to the Cooke family for being my village and loving my beautiful Bisi.

Statement of Dedication

This project is dedicated to all the patients and their loved ones who have honored me by sharing their most precious journey. I am the nurse I am because of you.

Abstract

Heart disease is the leading cause of death in the United States. It is also healthcare’s costliest illness. Many people with advanced heart failure are now choosing to remain in their homes and focus on the comfort-directed care that hospice can provide rather than spending their last days in a hospital. Many hospices now can provide parenteral furosemide for symptom management in the home. This project focused on nurses providing education to patients and their families on how to recognize and better manage these symptoms. Nurses were asked to have patients fill out the palliative care outcome scale. This scale is a Likert scale with scores from zero to four. If patients scored a two or higher on any symptom, the nurse was asked to use the heart failure pamphlet as a guide to provide additional education to that patient. The goals of the project included increasing patient education, reducing after-hours phone calls, and improving self-symptom management. The data showed nurses were providing additional education to patients who had higher POS scores. The primary feedback from the nursing staff revealed that the project made them more mindful of what symptoms patients were experiencing.

Keywords: heart failure, hospice, nurse-led education, palliative care outcome scale, symptom management

Table of Contents

Section I. Introduction

Background

Heart disease is the leading cause of death of adults in the United States (Murphy et al., 2021). An estimated six million Americans over the age of 25 are living with heart failure, and approximately $31 billion is spent annually on healthcare related to heart failure (Virani et al., 2021). According to Yim et al. (2017), more money is spent on heart failure than any other medical diagnosis. Approximately 80% of patients with heart failure were hospitalized one or more times during their last six months of life. Yim et al. showed that heart failure patients who were enrolled in hospice had fewer emergency department (ED) visits, hospital admissions, and intensive care unit (ICU) admissions. Patients who did seek acute medical care were likely to visit the ED because of worsening heart failure symptoms. Those symptoms included dyspnea, weight gain, and pain (Yim et al., 2017).

Heart failure patients enrolled in hospice are less likely to use high-cost medical care, including ED, ICU, and skilled nursing facility (SNF) admissions (Gelfman et al., 2018). Gelfman et al. estimate that this represents savings of over $3.5 billion annually in healthcare costs alone. In addition, these patients lived longer, and only 3% of them died in a hospital.

[redacted], a large, multi-county hospice agency in Louisville, Kentucky developed a cardiac care program based on guidance from the American Heart Association (AHA) and National Partnership for Healthcare and Hospice Innovation (NPHI) ([redacted], personal communication, June 3, 2022). The program included parenteral diuretics in the home, left ventricular assist device (LVAD) support, and nurse-led patient education on end-stage heart failure management. After implementing the program, the heart failure ED admission rate declined from 13% to 1%. The heart failure patients' average length of stay or number of days enrolled in hospice increased from 17 days to over three months (personal communication, June 3, 2022).

The site for this project was a suburban hospice agency in North Carolina serving people with terminal diagnoses who wish to stop aggressive treatment and focus on comfort-directed care provided by their hospice benefit. Hospice is a Medicare-regulated service that provides patient-centered, comfort-directed care with dignity and respect (National Hospice and Palliative Care Organization [NHPCO], n.d.). Hospice services are covered under Medicare, Medicaid, and most private insurance agencies. Many people with terminal illnesses have expressed a desire to avoid hospital admissions and pass away at home (Kaiser, 2017). The project site provided this opportunity by providing symptom management and 24-hour nursing support.

Organizational Needs Statement

In 2021, the project site collaborated with a local heart and vascular institute to develop a new heart failure protocol. Previously, heart failure patients under hospice care did not receive aggressive treatments, such as parenteral furosemide, intravenous (IV) inotropes, and LVAD support. Cardiologists were thus reluctant to refer patients with advanced heart failure to hospice care. As a result of this project, the site could provide in-home parenteral furosemide to heart failure patients experiencing dyspnea or fluid overload based on the new protocol, thus, potentially eliminating the need to be transferred to the inpatient unit (IPU) or the ED and improving the quality of life.

The project site uses data from the previous year's benchmarks to set the next year's annual goals. These data were collected by the Consumer Assessment of Healthcare Providers and Systems (CAHPS) ([redacted], personal communication, March 28, 2022). CAHPS sends out quarterly surveys to the primary caregivers of deceased hospice patients. The CAHPS survey consisted of multiple questions regarding the patients' and caregivers' experiences with a hospice agency. The survey assessed experiences rather than satisfaction with the hospice agency (Center for Medicare and Medicaid Services [CMS], 2020). This information available to the public allows consumers to view objective comparisons between agencies. The project site scored 80% on pain and symptom management, exceeding the national goal of 75%. This score is based on data collected from 01/01/2019 to 12/31/2019 and 07/01/2020 to 06/30/2021 (Medicare, 2022). The site uses results to improve the nursing care of patients enrolled in hospice and their experience (CMS, 2020).

This project aligns with Quadruple Aim, which is a framework developed by the Institute for Healthcare Improvement. The goal of the framework was to improve population health, reduce cost, increase team well-being, and enhance the patient experience and population health (Institute for Healthcare Improvement, n.d.; Arnetz et al., 2020). It provided a low-cost alternative to transferring patients to the ED or the IPU. Allowing patients to remain home while appropriately managing their symptoms can improve patients' and caregivers' experience with hospice. When a patient's symptoms are well palliated, their quality of life significantly improves. When given appropriate tools and end-of-life symptom management education, staff caring for these patients may also experience less burnout and more satisfaction when they have successfully alleviated a person's suffering.

The heart failure protocol was launched at the project site in March 2021 during the COVID-19 pandemic. Because of the COVID protocols, the nursing staff were not allowed to gather for in-person staff meetings or education. The nursing staff believed this diminished the effectiveness of the necessary training they needed to carry out this program. In addition, no nurse-led education for heart failure patients was developed.

Problem Statement

The nursing staff have had limited formal education on integrating the heart failure protocol into their patient care. Patients and their primary caregivers were not given any written material with information on how to recognize symptoms or self-manage end-stage heart failure. As a result, patients and their primary caregivers may not recognize early heart failure symptoms which created unnecessary delays in care or symptom improvement. These delays can also lead to after-hours nursing visits, transfers to the IPU, and ED admissions.

Purpose Statement

This quality improvement project aimed to create a nurse-led education program to improve the current heart failure protocol at the project site. The intent was to foster improved self-management in patients with heart failure symptoms, increasing their level of comfort and confidence. Nurses reviewed the *Heart Failure and Hospice* pamphlet with patients and their caregivers (Appendix A). Patients were asked to complete the Palliative Care Outcome Scale (POS) to assess their perception of their heart failure symptoms (Appendix B).

Section II. Evidence

Literature Review

To guide this project a literature search was conducted using three databases: PubMed, Ovid, and the Cumulative Index of Nursing and Allied Health Literature (CINAHL). The search was conducted in two phases. The first. completed in March 2022, included the following key terms*: hospice, hospice enrollment, heart failure, hospital readmission, Medicare,* and *mortality*. It aimed to find evidence on the benefit of hospice enrollment for heart failure patients. Inclusion criteria were a publication date of March 2017 to June 2022, in full text, and in the English language. This produced 267 articles. After a brief review of the articles, 12 were retained. Most articles were excluded for not being relevant to end-of-life care, not being specific to in-home treatment, or because they were editorial pieces not containing references. The 12 retained articles were further evaluated for appropriateness of the content. Three were kept on the basis that they pertained to the benefits of hospice enrollment for heart failure patients. Two of the three articles were Level IV on the hierarchy scale of qualitative research; one was Level III (Melnyk & Fineout-Overholt, 2019).

The second literature search. conducted in June 2022 used the same databases. The key terms were *nurse-led education, heart failure,* and *patient outcomes*. Inclusion criteria used for this search were the same as for the first search: published from June 2017 through June 2022, in full-text, and in English language. No results were found. A third search eliminated the word “hospice” and produced 46 results. The abstracts of the 46 articles were reviewed; four were kept and 42 were eliminated. The four retained articles concerned outpatient nurse-led education. They were read through in their entirety. One was excluded as it was focused primarily on hospital discharge education. The three articles retained had levels of evidence between II and III (Melnyk & Fineout-Overholt, 2019).

Current State of Knowledge

There was scant literature on nurse-led education for heart failure patients enrolled in hospice. However, studies have been conducted about patients who are not under hospice care. These studies have found that, because heart failure is a complex disease with a high symptom burden, nurse-led education for heart failure patients is effective. Patients under hospice care also need assistance with self-management. For these reasons, literature that was not directly related to hospice patients was used to inform this project.

Son et al.'s (2020) systemic review of eight articles found that nurse-led, in-home education for heart failure patients, reduced the heart failure-specific hospital readmission rate by 40%, and the all-cause readmissions rate by 25.2%. There was no statistical evidence to suggest that nurse-led education improved the quality of life for heart failure patients. The intervention that examined this issue used three-, six-, and 12-month follow-up periods. Son et al. recommended that further studies be completed with longer follow-up intervals to assess the impact of nurse-led education on quality-of-life. They argued that when providing heart failure education, nurses were the most effective because of the relationship between nurse and patient; patients with a trusting relationship with their nurse were more compliant with their treatment plan (Son et al., 2020).

Huesken et al. (2021) enrolled 150 heart failure patients in a one-hour nurse-led heart failure education class between March 2018 and March 2019. Questionnaires were given to patients about their disease process and their adherence to their treatment program, including daily weight measurements, medication compliance, and fluid restriction. The patients completed the questionnaires one day before the education, one day after the education, and again six months after the education. The questionnaire included nine Likert-scale questions with responses that ranged from “I completely agree” (1) to “I do not agree at all” (5). Total scores could range from nine to 45. Average scores decreased from 42.34 pre-education to 25.69 the following day and 29.66 at the six-month follow-up test. Huesken et al. concluded that patients who better understood their disease process and effectively managed it had higher adherence and lower hospital readmission rates.

In a randomized control trial of 63 patients conducted by Pereira Sousa et al. (2021), the intervention group, consisting of 30 patients, was educated through written material and one-on-one training by a nurse. The training covered recognizing signs and symptoms of heart failure, the importance of monitoring daily fluid intake, and when to notify a provider. Compared to the control group, the intervention group had fewer ED admissions, a better understanding of heart failure, better compliance with weight and fluid monitoring, and enhanced quality of life (Pereira Sousa et al., 2021).

Nurse-led patient education has been shown effective not only for heart failure patients but also for patients with other chronic health conditions. Beauvais et al. (2021) conducted a randomized control trial of nurse-led education for patients with inflammatory arthritis. One hundred twenty-nine patients were enrolled in the study, 64 of whom were assigned to the intervention group. The control group received the standard diabetic care education; the intervention group received the standard education and an additional 24 weeks of nurse-led diabetic education. Only post-education questionnaires were administered. The questionnaires focused on several safety aspect skills: infections, vaccinations, fever, dental care, surgery, pregnancy, and medication adherence. In a six-month follow-up survey, the intervention group scored higher than the control group on knowledge (81.2, compared to 75.6 for the control group). In addition, patients reported better coping skills (Beauvais et al., 2021).

Azami et al. (2018) studied the effectiveness of nurse-led education for patients with type 2 diabetes. The study consisted of 142 patients. The 71 patients in the intervention group of received nurse-led education beyond the usual care set forth by the Iranian Ministry of Health Guidelines. This included a booklet, short videos, group sessions, and follow-up telephone calls. After 12 weeks of ongoing nurse-led education, 47.9% of the intervention group had glycated hemoglobin (HbA1c) levels lower than the control group. After six months, 62% of the intervention group had lower HbA1c levels than the control group, with 21% achieving an HbA1c under 7%. The intervention group also showed a slight weight loss and lower blood pressure.

Current Approaches to Solving Population Problem(s)

With a yearly cost of nearly $31 billion, heart failure patients have been the largest users of healthcare dollars in the United States (Virani et al., 2021). Patients living with end-stage heart failure have often been burdened with increasing symptoms such as dyspnea, fatigue, and weight gain. According to Cross et al. (2019), heart failure rates were expected to increase as more people survive cardiac events that had previously been considered fatal. Patients with end-stage heart failure also reported poorer quality of life than patients with other chronic illnesses. Too often patients and caregivers are not prepared for the increase in symptoms at the end of life. With a focus on comfort-directed care, hospice can often improve or palliate most symptoms, making patients less likely to be admitted to the emergency department (ED) (Gelfman et al., 2018).

The project site identified a deficit in nurse-led education for heart failure patients. Evidence has shown that heart failure patients benefit from nurse-led education. Patients enrolled in hospice care were no longer part of the local heart institute and lost access to the heart failure navigator. As their disease progressed, they could experience new and worsening symptoms. The ongoing education could help patients recognize these symptoms and better understand how to manage them.

Evidence to Support the Intervention

The six articles reviewed demonstrate the benefit of nurse-led education for patients with heart failure and other chronic diseases. When nurse-led education was provided, hospital readmission rates and the number of ED admissions were lowered (Son et al., 2020; Pereira-Sousa et al., 2021). Nurse-led education increased patient compliance and their understanding of their disease (Pereira-Sousa et al., 2021; Huesken et al., 2021). Pereira-Sousa et al. (2021) found that patients enrolled in nurse-led education were not only better able to recognize symptoms of heart failure but were also capable of identifying how and when to contact a provider. These patients also showed improvement in self-management of their disease. Patients with inflammatory arthritis improved coping skills and showed better safety skills after participating in nurse-led education (Beauvais et al., 2021). Patients with type 2 diabetes who enrolled in nurse-led education lowered and sustained their HbA1c at the six-month follow-up (Azami et al., 2018).

The project utilized a patient-reported outcome measure (PROM) scale called the Palliative care Outcome Scale (POS) to assess which symptoms are important to patients. Nurses used this information to tailor their education to their patients. In a study conducted by Hogberg et al. (2019) found that the use of a PROM helped patients in a palliative care home setting. It facilitated conversations between patients and their nurses. Patients were reminded to alert their nurses about symptoms they may have previously forgotten. Patients also said their treatment plans were tailored directly to their needs when the PROM was used. The PROM scale also allowed for trends in a patient's health to be easily tracked.

Evidence-Based Practice Framework

The Plan-Do-Study-Act (PDSA) is an essential framework for implementing quality improvement projects (The Deming Institute, 2022). It was originally adapted from Dr. W. F. Deming's Plan-Do-Check-Act (Moen & Norman, 2009). After further development, it now utilizes a four-step process that allows the investigator to evaluate and make changes to a project frequently. In 1994, three questions were added to the PDSA protocol: "What are we trying to accomplish?, How will we know that a change is an improvement?, What changes can we make that will result in improvement?" (Moen & Norman, 2009, p. 9). These questions were used to implement the project.

The first steps of the PDSA process were to define the problem and develop a plan to change current processes. During this phase, a gap was identified in the project site's heart failure program. There was minimal formal nursing education and patients were not educated on process of their disease. A plan was developed to implement nurse-led patient education on heart failure for hospice patients.

The second part of the PDSA process was implementing the plan. The project lead developed a tri-fold pamphlet on heart failure for hospice patients (Appendix A). Nurses were then educated on how to review the pamphlet with their patients and how to assess whether the pamphlet was effective. The project lead reviewed the Palliative care Outcome Scale with nurses

(Appendix B). An electronic message was sent via e-mail to each nurse with a follow-up the questionnaire (Appendix C).

During the study portion of the process, the data was collected, evaluated, and compared to the predicted outcome. Barriers to implementing the education were identified and addressed at the end of each cycle. Necessary changes were then made to improve the project, and the process began again.

Ethical Consideration & Protection of Human Subjects

Healthcare workers have an obligation to uphold the ethical principle of nonmaleficence. This is to ensure that no harm is caused to any patient. In addition to not causing harm, it is important to make certain that all participants are treated fairly and equally. To have a better understanding of these principles, both the project lead and the project site champion completed the Collaborative Institute Training Initiative (CITI) modules (*Collaborative Institutional training initiative*, n.d.). These modules concentrated on behavioral and social research.

The formal approval process began with a letter of support from the Clinical Operations Manager at the project site. The project lead completed the self-certification form which was then reviewed by the faculty advisor and submitted through the university Qualtric review process. The project was deemed a quality improvement project, so no further Institutional Review Board (IRB) involvement was required. The project plans were also submitted to the Human Research Protection Program and IRB at [redacted], which also exempted it from needing IRB review due to being a quality improvement project.

This project integrated the ethical principles of autonomy, justice, and beneficence. The principle of autonomy is that patients should be treated with dignity and should be given all the opportunity to make decisions for themselves. By offering nurse-led education, patients were better able to make decisions about their illness. Patients' identities were kept confidential and no identifying patient information was recorded. The principle of justice was met by ensuring each patient was provided the opportunity to receive the same education. The principle of beneficence is that the project will serve the patients' best interest. The education provided gave patients a better understanding of their disease and how to better self-manage it.

Section III. Project Design

Project Site and Population

The project site was a nonprofit community hospice agency owned by a large nonprofit healthcare system in the Piedmont region of North Carolina. The population included primary care nurses who functioned as case managers. The facilitators of the project included specific staff (the project site champion, a DNP-prepared nurse practitioner, and the Clinical Operations Manager of the branch), and an existing heart failure protocol (Appendix B). Potential barriers to the project included nurse participation and time limitations. At the beginning of implementation, the project site was at a high census, with nurses having caseloads of 14 patients.

Description of the Setting

The project site serviced residents of Cabarrus, Rowan, Mecklenburg, and Stanley Counties; most patients lived in Cabarrus County. Medicare was the primary source of payment for the patients. Most of the patients were home care patients, but the site also had an inpatient unit, which could house up to 12 patients. The agency had an average daily census of 200 patients. Each hospice team consisted of a primary registered nurse, who served as the case manager, a medical social worker, a chaplain, a home health aide, and the medical director. The site offered 24-hour patient and caregiver access to a registered nurse. All patients were seen at least once a week, and many are seen twice weekly. As case managers, the nurses were responsible for managing the number of nursing and home health aide visits a patient receives each week, performing weekly medication reconciliation, monitoring patient status and symptoms, and updating the interdisciplinary team.

Description of the Population

The primary nursing team at the project site was made up of 25 registered nurses. Eighteen of these nurses were full-time salaried staff, five were part-time hourly, and the remaining two were contracted on an as-needed basis. The team was comprised entirely of female nurses, and 96% are Caucasian/non-Hispanic. The mean age of the nurses was 44.87 years. Fourteen nurses were assigned as case managers and were responsible for, on average, 12 to 16 patients. Four nurses functioned as admission coordinators; three worked in phone triage, three worked the on-call night shift, and one worked on-call weekends. Two clinical supervisors managed the nurses.

At the start of the project, the hospice census was 202. Twenty-two of the 202 (11%) patients were admitted with a primary hospice diagnosis of heart failure. One patient was eliminated from the project because she was a minor. Of the remaining heart failure patients, 60% were female, 4% Hispanic, 22% Black, and 74% were non-Hispanic White. The patients ranged in age from 62 to 97 with an average age of 82.57 years.

Project Team

The project team consisted of the project lead, the project site champion, the faculty mentor, and the hospice nursing staff. The project lead was responsible for developing the education tool and educating the nurses on how to use the tool. The lead also collected, managed, and analyzed the data. The project champion provided guidance on the implementation of the project. The faculty mentor guided all phases of the project. The hospice nurses delivered nurse-led education to the patients and administered the Palliative care Outcome Scale.

Project Goals and Outcome Measures

This project aimed to improve the quality of life of heart failure patients enrolled in hospice care. This was accomplished by providing nurse-led patient education. The purpose of the education was to help patients recognize heart failure symptoms early and provide the means to self-manage those symptoms. Providing patients with the tools and knowledge to better self-manage their heart failure symptoms can improve their quality of life (Pereira Sousa et al., 2021). A tri-fold pamphlet was created for nurses to review with patients. Patients evaluated their symptoms weekly. The number of after-hours nursing visits and patient transfers to a higher level of care were also tracked. This project had an upstream component in that better symptom management could prolong patients' lives. In the future, this would be measured by tracking the length of stay in hospice care.

Description of the Methods and Measurement

The patient education included a tri-fold pamphlet titled *Heart Failure and Hospice* (Appendix A). This pamphlet was developed by the project lead. It was approved by the project site champion, the Clinical Operations Manager, and the medical director. Due to time constraints, the marketing team for the project site's healthcare system was not able to approve the pamphlet for patient use. However, the pamphlet was allowed to be used by the nursing staff as a guide for the nurses to use to educate their heart failure patients. The pamphlet used easy-to-understand language to briefly explain heart failure. It offered recommendations for nurses to pass along on how to reduce symptom burden. The pamphlet also provided guidance on how and when to use the medication that is part of the project site's routine comfort kit. It provided a symptom list in a stop-light fashion. The health status in the green box indicated the patient was doing well. The health status in the yellow box indicated symptoms may be worsening and the patient should call the project site’s 24-hour line for directions. When health status was in the red box this suggested the patient would likely benefit from a nursing visit.

The project used a weekly questionnaire (Appendix D) developed by the project lead to collect adherence data from the nurses. The questionnaire was sent electronically, and nurses were able to add a shortcut to the questionnaire directly on the home screen of their device. The project lead entered the survey data into an Excel spreadsheet (Appendix E). During the “study” portion of each PDSA cycle, interviews were conducted with nurses to gain insight into which parts of the project were working for them and which parts could be improved.

The Palliative care Outcome Scale (POS) was a validated scale used to assess patients’ perception of their symptom burden (Appendix C). The scale was developed in 1999 to provide better outcome measurement by assessing several meaningful outcomes in palliative care. The POS comprises 12 questions that are answered on a Likert scale of zero to four and took fewer than 10 minutes to complete (Cicely Saunders Institute, 2012). The POS’s Cronbach’s alpha was 0.65 and was found to have acceptable reliability (Hearn & Higginson, 1999).

Discussion of the Data Collection Process

Information about after-hours phone calls, nursing visits related to heart failure symptoms, and any unplanned ED visits or transfers to the inpatient unit were collected by the project lead using the project site’s electronic medical record. The case managers were asked to complete a pre-education POS prior to delivering the written education to patients. The nurses were also asked to have patients complete the POS once a week during a routine nursing visit.

The electronic nursing questionnaire asked nurses questions regarding the number of eligible visits they conducted, how often the pamphlets were used to educate patients on heart failure, and if any patients scored a two or higher on any symptom found on the POS. They were also asked if they provided additional education to patients whose POS indicated they had a high symptom burden. Nurses were also asked if any of their heart failure patients required a dose of parenteral furosemide (Appendix D).

Implementation Plan

The implementation phase began with nurse participation in a short in-service on administering the POS and using the *Heart Failure and Hospice* pamphlet. These training sessions were conducted at two separate times during the weekly interdisciplinary group meetings. The education also covered the benefits of nurse-led education and how it can influence patient outcomes and quality of life.

Nurses were instructed to request that the heart failure patients complete a POS before reviewing the pamphlet and then weekly going forward. The nurses were asked to review the patient's responses to the POS. Nurses were then able to individualize the education to each patient. Additional education was provided to patients with a score of two or higher on the POS.

The Plan-Do-Study-Act reviews were conducted every two weeks. Questionnaires were provided to the nurses each week. These questionnaires asked if the nurses were using the pamphlets, if they were providing ongoing education for patients with high POS scores, and if any patients had received a dose of parenteral furosemide per the heart failure protocol. The number of POS scales and questionnaires was compared to the number of eligible visits. After-hours nursing visits and phone calls were also tracked. With low participation from the nursing staff, the project lead sent reminder e-mails to the nursing staff. When needed, the project lead also conducted further education with an emphasis on the importance of early symptom recognition. There was an ongoing dialogue with the site champion throughout the project.

Timeline

After identifying an organizational need to improve the current heart failure protocol, the project began in January 2022. After the project site champion was identified and organizational support for the project was acquired, a quality improvement project which required no formal IRB review was implemented. The project implementation took place over 12 weeks between August 2022 and November 2022 (Appendix F).

Section IV. Results and Findings

Results

The purpose of the project was to improve the quality of life for heart failure patients enrolled in hospice care by implementing nurse-led patient education. The goal of the patient education was to foster better self-management of heart failure symptoms thus increasing patients' confidence and comfort. In the two weeks prior to the implementation period, there were a total of 225 eligible in-home nursing visits to hospice patients admitted with a heart failure diagnosis. Of the nursing visits completed; nurses had patients complete the Palliative care Outcome Scale (POS) 73 (32%) times.

The nurse surveys began two weeks after the beginning of the implementation. After the patients completed the POS, nurses were asked to provide additional patient education if the patient scored their discomfort greater than two on any given symptom. The nurses were asked to use the heart failure pamphlet as a guideline for the education they provided. The number of POS scores greater than two increased as nurses administered the form more often. Throughout the intervention, nurses completed the additional education an average of 93% of the time. During four weeks of the nine-week intervention, the nurses complied with the protocol 100% of the time (See Appendix G).

The project site's electronic health record was used to review on-call coordination notes for patients with a heart failure diagnosis. In the two weeks leading up to implementation, there were an average of nine after-hours calls related to heart failure symptoms. A high number of after-hours calls were made during weeks three and four (Appendix H). The family of one patient made multiple after-hours calls during her last two weeks of life.

Discussion of Major Findings

To encourage greater participation, the project lead met with the nurses several times during the implementation phase, both in person and via telephone. Following the Plan-Do-Study-Act (PDSA) framework, an incentive was added to encourage nursing participation. Nurses who completed the questionnaire were entered into a drawing to win a $10 gift card to the coffee shop of their choosing. The project site champion is the provider who handles symptom management calls from the in-home nurses during daytime hours. At week seven of implementation, the project champion began prompting the nurses by asking if they were providing increased education for heart failure patients. This significantly increased the number survey of responses received from the nurses.

As expected, as the number of nurses completing the survey increased, the number of patients who scored two or greater on symptom also increased. There was a total of 57 patients who rated their symptom burden two or greater. As this number increased, the number of patients who received additional education specific to their symptoms also increased. In addition, there was a decrease in after-hours calls made by the heart failure patients.

An unexpected finding were the symptoms the patients perceived as most distressing. According to Yim et al. (2017), patients with heart failure seek medical attention primarily for dyspnea, weight gain, and pain. The POS revealed the most concerning symptoms were weakness, shortness of breath, and drowsiness (See Appendix I). Immobility and poor appetite were also distressing. This was an important finding as it showed that healthcare workers' perceptions were not always in line with how patients felt. It also showed the importance of individualizing the patient's plan of care. Having this information should impact how nurses educate their heart failure patients. This is also true for any chronic disease. The healthcare team needs to be aware of the importance of individualizing patient care.

Section V. Interpretation and Implications

Costs and Resource Management

The primary costs associated with this project were the wages for planning and implementing the project. The largest cost was for project development, which included an extensive literature review, meetings with the project site champion, and project development. A total of 89.5 hours were spent on planning. With the average hourly nursing wage at the site being $35.71, this equaled $3196.05 (Appendix J). In addition to planning time, a total of 72.25 hours were spent on implementation which included education, meetings with the project site champion and administration, and data review, which was estimated at a total of $2580.05. Nurses spent an estimated 4.82 hours completing and reviewing the POS and providing additional education. This added an additional $169.84 to the cost.

Additional costs related to the project were minimal. This included photocopying the pamphlet and the hard copy of the Palliative care Outcome Scale (POS) which was estimated at $85.50. The incentives included candy, costing $15.00, which was distributed during education sessions and four $10.00 gift cards used in the drawing for nurses who returned the completed POS.

When the POS was completed digitally, it took an average of one minute and 45 seconds to complete. If the POS were added to the current electronic health record program where the nurses chart, the cost would be nominal to implement and would also eliminate the cost of a paper tool. When the project summary was submitted to the project site, it was recommended that the Health Information Technology committee build the POS into the current charting system. By doing this, nurses will spend an additional 5.5 minutes of charting each week and would eliminate the need for a paper copy of the POS. Educating patients and their caregivers is a part of every nursing visit. Having each patient's POS scores will help to streamline and individualize the education nurses are providing.

In 2022, Medicare paid $203.40 per day for routine home care patients during their first 60 days enrolled in hospice. After day 61, Medicare paid $160.74 per day. When patients have a better understanding of their disease process and how to manage their disease, they are less likely to require hospital admission (Huesken et al., 2021; Son et al., 2020; Pereira Sousa et al., 2021). The project site paid an average of $2,548.95 each time a patient was transported to the hospital. This amount covered transportation to and from the hospital, emergency department provider fees, hospital charges, and diagnostic testing.

Implications of the Findings

Implications for Patients

In addition to providing end-of-life care and patient and family support services, the goal of hospice is to improve and/or maintain quality of life. One way of doing this is by increasing patients' knowledge about their disease process. Rather than offering broad nurse-led patient education, nurses using the POS can tailor their education to the specific needs of the patient and the patient's family. This decreases the amount of information a patient needs to absorb at one time and could lead to better understanding.

After receiving individualized education, patients can have a better understanding of their disease process and which symptoms they should be aware of. Additionally, patients and their caregivers can also gain knowledge and tools on how to manage symptoms at home. Once approved, the heart failure educational pamphlet would be available to patients in the home and can serve as a resource to patients and family members on symptom management. Having the pamphlet in the home could provide patients with reminders about treatments, such as dietary changes they can make, oral medications available, and parenteral furosemide that can be provided in the home, thus avoiding a potentially costly trip to the emergency department.

Patients' in-home caregivers will also be impacted by the project findings. They are part of the education process and are invaluable in helping to recognize and manage signs and symptoms of heart failure. These caregivers play a pivotal role in supporting patients to remain in their homes at end of life. It is equally important that caregivers are fully educated on the patient's disease process, possible symptoms, and available interventions to assist in managing the symptoms. This increased knowledge will contribute to patients and families having a better experience with hospice. This will directly affect the patient satisfaction scores collected by Medicare. Patient's and caregiver's awareness of 24-hour support from a hospice-trained registered nurse helps to alleviate anxiety.

Implications for Nursing Practice

The project site nurses contributed a fundamental part in this project. They were responsible for monitoring patients' symptoms and then tailoring the patient's education to those specific symptoms. The data obtained from the POS showed that in addition to the common heart failure symptoms of pain and dyspnea, patients were also concerned with weakness, lack of mobility, and decreased appetite. Nurses need to be aware that patients will experience symptoms that may not be expected.

The nurses at the project site were required to provide backup support to the night and weekend on-call nursing staff. They were also expected to help with additional unexpected nursing visits for symptom management that occurred during regular business hours. When patients have the necessary tools and knowledge to manage their symptoms early, they are less likely to need additional nursing visits, which will decrease the workload of the nursing staff.

With patients having better symptom management at home, they are less likely to be readmitted to the hospital. This helps to decrease the burden on the acute care nursing staff.

Impact on Healthcare System(s)

The greatest impact on the healthcare system is cost savings. The cost of implementing nurse-led patient education for heart failure patients at this project site would be nominal. However, the cost savings are vast. Research has found that admission decreases healthcare costs at end-of-life (Gelfman, et al., 2018). Between February 2022 and September 2022, 129 patients were converted from palliative care to hospice every month. This was estimated at a total of $4536.40 in revenue per patient for the project site ([redacted], personal communication, March 2023). With improved collaboration between the heart and vascular center and the project site, it may be possible to get appropriate patients referred to hospice and/or palliative care earlier. This would potentially decrease the number of hospital readmissions for heart failure patients. It also has the potential of improving patient satisfaction rates.

The project aligned with the Quadruple Aims in that it could improve population health with better symptom recognition and management improving quality of life. Healthcare costs will be reduced when hospital transfers are lessened. With patients being empowered to better manage distressing symptoms, this will enhance the patient’s experience. Finally, with fewer after-hours visits and calls, nurses report better work satisfaction.

Sustainability

The project has excellent sustainability. The work that was required of the nurses during their scheduled in-home nursing visits is consistent with what they are currently charting. If the project is implemented by the project site, the POS would be added as a coordination note in the patient’s visit by the senior application specialist. This note would be tagged as a “must chart” note which would ensure 100% completion by the nursing staff. In the future, this data could be used to make further adjustments to the program. Once approved by marketing, the heart failure pamphlet could be inserted into the admission booklet and introduced at the time of admission.

Dissemination Plan

The project site is part of a large healthcare system. Within the system are two other hospice agencies and a growing palliative care program. The project was presented to [redacted] [redacted] (which includes both hospice and community palliative care), [redacted], and [redacted] in May 2023. The project will also be submitted to the local Hospice and Palliative Nurses Association (HPNA) to provide information to other local hospice agencies. The project was submitted to the East Carolina University (ECU) College of Nursing faculty and other Doctor of Nursing Practice students as a poster presentation on April 11, 2023. The final project paper was submitted to the ECU repository, “The ScholarShip.” on April 24, 2023.

Section VI. Conclusion

Limitations and Facilitators

Multiple factors limited the outcome of this project. The leading limitation was low nursing participation in requesting patients to complete the POS and completing the nursing questionnaire. The low participation could be attributed to several factors. Across the nation, there is a crisis-level nursing shortage, and the project site was not immune to this shortage. The staffing goal for the site is for each nurse to have an average of 12 patients. Due to a higher-than-normal census and inadequate staffing, each primary care nurse was case-managing an average of 15 patients at the time of this project. In addition to managing their caseload, the nurses were required to see patients needing symptom management and to provide support to families at the time of patients' deaths. The nursing staff was also required to function as backup staff for the overnight and weekend shifts. Nurses were already feeling overwhelmed prior to the intervention and the perceived increased workload led to low participation in the project.

For several months leading up to and throughout implementation, the agency was preparing for the upcoming visit from the Joint Commission, the national healthcare accreditation organization. There were multiple daily e-mails and surveys being sent to nursing staff by leaders. Nurses were also required to participate in mock surveys and had increased supervisory visits. This preparation increased the workload of the nursing staff and led to e-mail fatigue.

Historically, the project site has a perception of reduced engagement from the nursing staff. Indicators of this include the absence of a Unit-Base Practice Council and at the start of the project, only three nurses held the Certified Hospice and Palliative Nurse (CHPN) certification. During the implementation period of the project, it was learned the project site educator was working on a similar project and the physician responsible for spearheading the hospice heart failure program left the project site. This physician was a strong advocate for utilizing the heart failure protocol and was the primary liaison between the project site and the heart and vascular institute.

The final limitation was the lack of a post-project survey of the heart failure patients who were given additional education. Understanding whether the patients themselves found the education valuable would have been beneficial. The project could have been further modified to meet individual patient needs. Additionally, this would provide caregivers insight into how to better assist with symptom management.

There were also several facilitators for the project. The primary stakeholder for the project was the project site champion. In addition to managing patients admitted to the inpatient unit, she is also primarily responsible for symptom management phone calls from the primary care nurses. The Palliative care Outcome Scale (POS) that was used to evaluate patients' symptoms could be easily integrated into the current electronic charting system. There have been ongoing conversations with the Director of Clinical Support Services on how to incorporate patient education into the heart failure pathway. If the intervention is approved by the project site, the pamphlet will be resubmitted for marketing approval. Once approved, the pamphlet could be added to the current admission packet given to heart failure patients. Finally, the cost to permanently implement the patient education project into service would be minimal.

Recommendations for Others

There are several recommendations that could make the project more successful if replicated in another agency. Providing a pre-and post-survey to patients would give better insight into the effectiveness of the project. It would be beneficial to have patients' feedback on their understanding of the disease process and their perception of ways to recognize and manage their symptoms. It would also help to individualize the education for each specific patient. Evaluating the health literacy of patients is also important, as this would alter how patients participate in education.

For successful project implementation, it is essential to have buy-in from the nursing staff and other key stakeholders. With further education about the importance and effectiveness of nurse-led patient education, nurses may be more inclined to participate in patient education. The education could be formalized and become part of the mandatory yearly training. An active unit-based council would also be beneficial to the project site.

Recommendations for Further Study

In addition to serving hospice patients, the project site also includes a community palliative care program. The palliative care team recently acquired many heart failure patients when the local heart and vascular institute eliminated its navigator program. Incorporating the palliative care patients into the project would have offered insight on patients whose disease had not progressed to the point to being hospice eligible. By having palliative care patients complete the POS, the team could learn what heart failure symptoms they should be monitoring. With a way to easily see when symptoms are worsening, patients could be referred to hospice earlier. This information could then be shared with the heart and vascular institute to promote continuity of care.

Nurse-led education for hospice patients is not exclusive to heart failure. Many patients at end-of-life experience distressing symptoms regardless of their diagnosis. Including all patients in the project would provide additional data to support nurse-led patient education in hospice patients. A final recommendation would be to incorporate the POS into the project’s site electronic charting system. This would improve participation as the nurses were not inclined to complete the POS either on paper or via e-mail. The POS would be completed while they are completing their patient documentation and the added charting time would be nominal.

Final Thoughts

The goal of this project was to increase nurse-led education for hospice patients with a diagnosis of heart failure. When the patients completed the POS, the nurses knew exactly how to tailor their education. This increased education can empower patients to take better control of their symptoms. It would give them not only the confidence to recognize their symptoms and know how to intervene to manage those symptoms but also the comfort of knowing how and when to get help.

The nursing staff remains at the front line for providing education to patients. To ensure compliance, it will be imperative that nurses feel the improvements to the current heart failure protocol are easy to implement and use. This can best be accomplished by incorporating the POS into the electronic charting system to streamline documentation and provide easy-to-follow guidelines.

References

Agency for Healthcare Research and Quality. (2015, February). *Plan-do-study-act (pdsa) directions and examples*. AHRQ. https://www.ahrq.gov/health-literacy/improve/precautions/tool2b.html

American Heart Association. (2017, May 17). *Types of heart failure*. https://www.heart.org/en/health-topics/heart-failure/what-is-heart-failure/types-of-heart-failure

Arnetz, B. B., Goetz, C. M., Arnetz, J. E., Sudan, S., vanSchagen, J., Piersma, K., & Reyelts, F. (2020). Enhancing healthcare efficiency to achieve the quadruple aim: An exploratory study. *BMC Research Notes*, 13(1). https://doi.org/10.1186/s13104-020-05199-8

Azami, G., Soh, K. L., Sazlina, S. G., Salmiah, M. S., Aazami, S., Mozafari, M., & Taghinejad, H. (2018). Effect of a nurse-led diabetes self-management education program on glycosylated hemoglobin among adults with type 2 diabetes. Journal of Diabetes Research, 2018, 1–12. https://doi.org/10.1155/2018/4930157

Beauvais, C., Fayet, F., Rousseau, A., Sordet, C., Pouplin, S., Maugars, Y., Poilverd, R. M., Savel, C., Ségard, V., Godon, B., L'amour, C., Perdriger, A., Brin, F., Peyrard, P., Chalier, F., Pallot-Prades, B., Tuffet, S., Griffoul, I., & Gossec, L. (2021). Efficacy of a nurse-led patient education intervention in promoting safety skills of patients with inflammatory arthritis treated with biologics: A multicentre randomized clinical trial.

RMD Open, 8(1). https://doi.org/10.1136/rmdopen-2021-001828

Cicely Saunders Institute. (2012). POS early development. Palliative care outcome scale (POS) – pos background https://pos-pal.org/maix/background.php

Collaborative Institutional training initiative. CITI. (n.d.). https://www.citiprogram.org/members/index.cfm?pageID=50

CMS. (2020, September). Cahps hospice survey quality assurance guideline v7.0 September 2020 [PDF]. Centers for Medicare and Medicaid Systems. https://www.cms.gov/files/document/cahps-hospice-survey-quality-assurance-guideline-v70-september-2020.pdf

Cross, S. H., Kamal, A. H., Taylor, D. H., & Warraich, H. J. (2019). Hospice use among patients with heart failure. *Cardiac Failure Review*, *5*(2), 93–98. https://doi.org/10.15420/cfr.2019.2.2

The Deming Institute. (2022). *PDSA cycle.* https://deming.org/explore/pdsa/

Gelfman, L. P., Barrón, Y., Moore, S., Murtaugh, C. M., Lala, A., Aldridge, M. D., & Goldstein, N. E. (2018). Predictors of hospice enrollment for patients with advanced heart failure and effects on health care use. *JACC: Heart Failure*, *6*(9), 780–789. https://doi.org/10.1016/j.jchf.2018.04.009

Hearn, J., & Higginson, I. J. (1999). Development and validation of a core outcome measure for palliative care: the palliative care outcome scale. Palliative Care Core Audit Project Advisory Group. Quality in health care: *QHC*, 8(4), 219–227. https://doi.org/10.1136/qshc.8.4.219

Hogberg, C., Alvariza, A., Beck, I. (2019). Patients' experiences of using the Integrated Palliative care Outcome Scale for a person-centered care: A qualitative study in the specialized palliative home-care context. *Nursing Inquiry*, *26(4).* https://doi.org/10.1111/nin.12297

Huesken, A., Hoffmann, R., & Ayed, S. (2021). Persistent effect of nurse-led education on self-care behavior and disease knowledge in heart failure patients. *International Journal of Nursing Sciences*, *8*(2), 161–167. https://doi.org/10.1016/j.ijnss.2021.03.002

Institute for Healthcare Improvement. (n.d.). *The IHI triple aim*. Institute for healthcare improvement. http://www.ihi.org/Engage/Initiatives/TripleAim/Pages/default.aspx

Kaiser Family Foundation. (2017, April). *Views and experiences with end-of-life medical care in the U.S,* www.files.kff.org. https://files.kff.org/attachment/Report-Views-and-Experiences-with-End-of-Life-Medical-Care-in-the-US

Medicare. (2022, February 16). *Medicare.gov*. https://www.medicare.gov/care-compare/details/hospice/341508?city=Kannapolis%26state=NC&zipcode=&measure=hospice-family-caregiver-experience

Melnyk, B. M., & Fineout-Overholt, E. (2019). *Evidence-Based Practice in Nursing & Healthcare.* Philadelphia: Wolters Kluwer.

Moen, R., and Norman, C., (2009). Evolution of the PCDA cycle. In Proceedings with the 7th ANQ Congress Tokyo. Microsoft Word - NA01_Moen Norman fullpaper.doc (tue.nl)

Murphy, S. L., Kochanek, K. D., Xu, J., & Arias, E. (2021). *Mortality in the United States, 2020* (Brief No. 427).

National Hospice and Palliative Care Organization. (n.d.). *Hospice care: What is it and what are the benefits – caring info*. CaringInfo. Retrieved from https://www.caringinfo.org/types-of-care/hospice-care/

Palliative Care Outcome Scale. (2012). *Palliative care outcome scale (pos) - home*. Palliative care outcome scale. https://pos-pal.org/

Pereira Sousa, J., Neves, H., & Pais-Vieira, M. (2021). Does symptom recognition improve self-care in patients with heart failure? A pilot study randomised controlled trial. *Nursing Reports*, *11*(2), 418–429. https://doi.org/10.3390/nursrep11020040

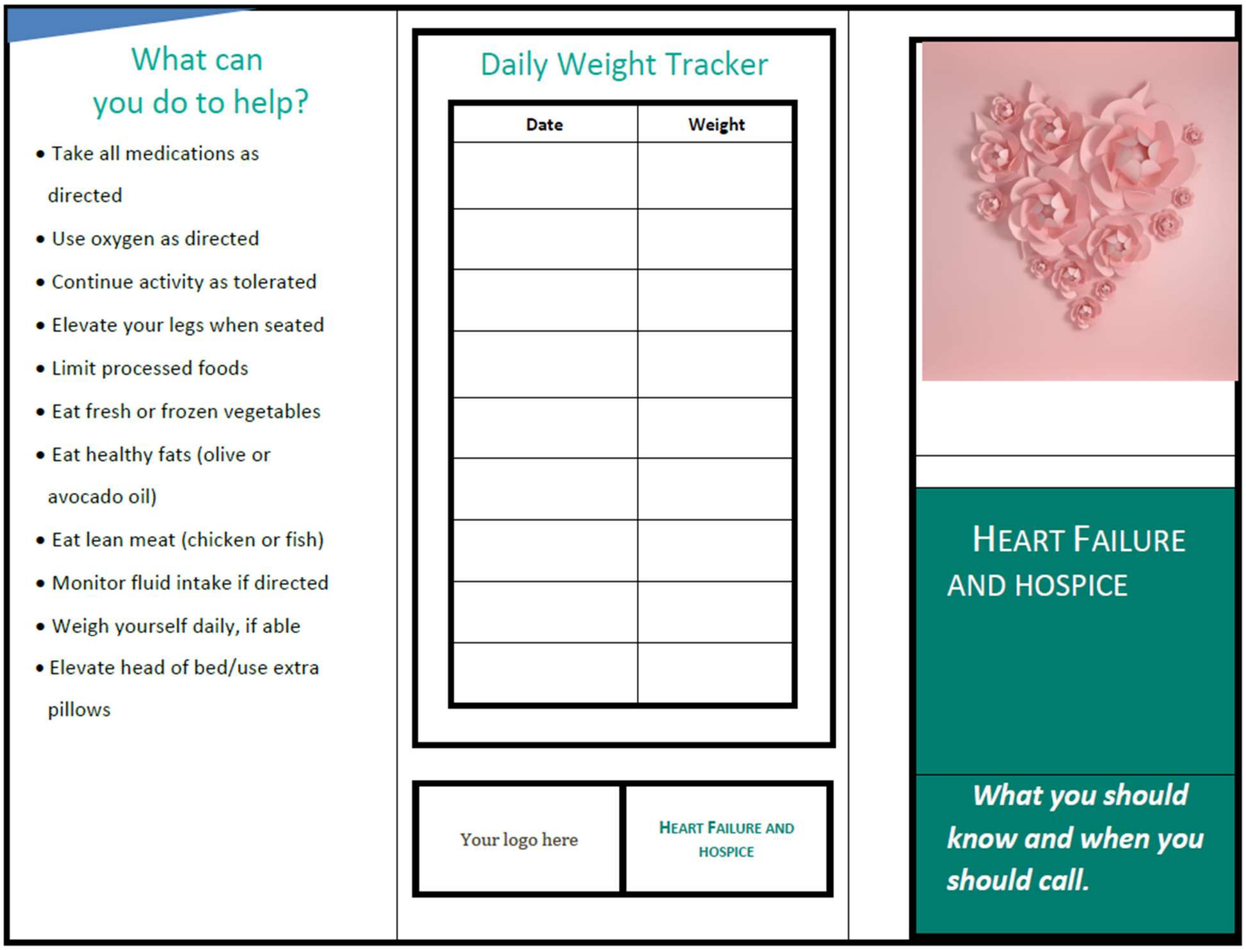
Son, Y.-J., Choi, J., & Lee, H.-J. (2020). Effectiveness of nurse-led heart failure self-care education on health outcomes of heart failure patients: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, *17*(18), 6559. https://doi.org/10.3390/ijerph17186559

Virani, S. S., Alonso, A., Aparicio, H. J., Benjamin, E. J., Bittencourt, M. S., Callaway, C. W., Carson, A. P., Chamberlain, A. M., Cheng, S., Delling, F. N., Elkind, M. S., Evenson, K. R., Ferguson, J. F., Gupta, D. K., Khan, S. S., Kissela, B. M., Knutson, K. L., Lee, C. D., Lewis, T. T.,...Tsao, C. W. (2021). Heart disease and stroke statistics—2021 update. *Circulation*, *143*(8). https://doi.org/10.1161/cir.0000000000000950

Yim, C. K., Barrón, Y., Moore, S., Murtaugh, C., Lala, A., Aldridge, M., Goldstein, N., & Gelfman, L. P. (2017). Hospice enrollment in patients with advanced heart failure decreases acute medical service utilization. *Circulation: Heart Failure*, *10*(3). https://doi.org/10.1161/circheartfailure.116.003335

Appendix A

Heart Failure Pamphlet



What can you do to help?

- Take all medications as directed
- Use oxygen as directed
- Continue activity as tolerated
- Elevate your legs when seated
- Limit processed foods
- Eat fresh or frozen vegetables
- Eat healthy fats (olive or avocado oil)
- Eat lean meat (chicken or fish)
- Monitor fluid intake if directed
- Weigh yourself daily, if able
- Elevate head of bed/use extra pillows

Daily Weight Tracker

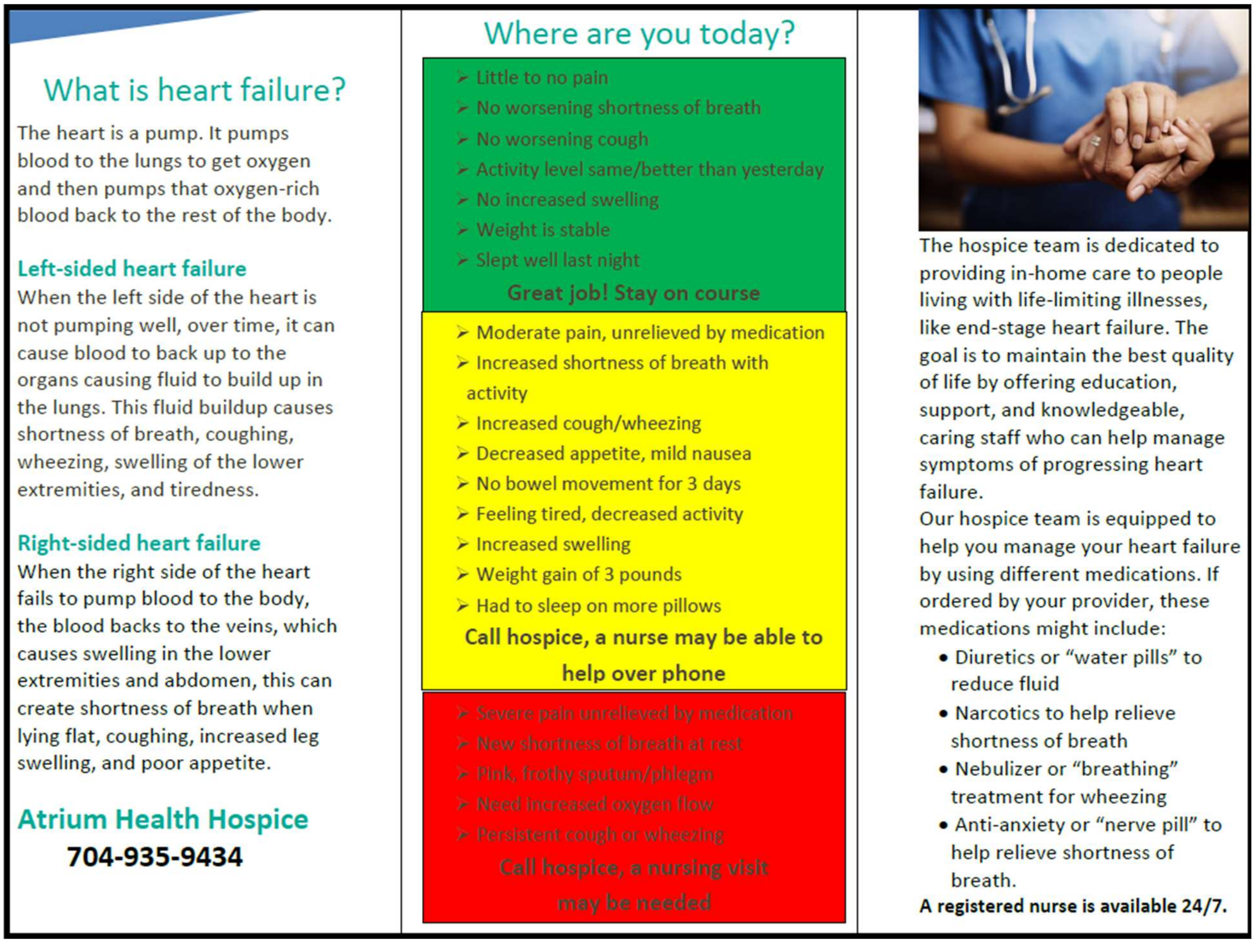
Date	Weight

Your logo here

HEART FAILURE AND HOSPICE

HEART FAILURE AND HOSPICE

What you should know and when you should call.



What is heart failure?

The heart is a pump. It pumps blood to the lungs to get oxygen and then pumps that oxygen-rich blood back to the rest of the body.

Left-sided heart failure

When the left side of the heart is not pumping well, over time, it can cause blood to back up to the organs causing fluid to build up in the lungs. This fluid buildup causes shortness of breath, coughing, wheezing, swelling of the lower extremities, and tiredness.

Right-sided heart failure

When the right side of the heart fails to pump blood to the body, the blood backs to the veins, which causes swelling in the lower extremities and abdomen, this can create shortness of breath when lying flat, coughing, increased leg swelling, and poor appetite.

Atrium Health Hospice

704-935-9434

Where are you today?

- Little to no pain
- No worsening shortness of breath
- No worsening cough
- Activity level same/better than yesterday
- No increased swelling
- Weight is stable
- Slept well last night

Great job! Stay on course

- Moderate pain, unrelieved by medication
- Increased shortness of breath with activity
- Increased cough/wheezing
- Decreased appetite, mild nausea
- No bowel movement for 3 days
- Feeling tired, decreased activity
- Increased swelling
- Weight gain of 3 pounds
- Had to sleep on more pillows

Call hospice, a nurse may be able to help over phone

- Severe pain unrelieved by medication
- New shortness of breath at rest
- Pink, frothy sputum/phlegm
- Need increased oxygen flow
- Persistent cough or wheezing

Call hospice, a nursing visit may be needed

The hospice team is dedicated to providing in-home care to people living with life-limiting illnesses, like end-stage heart failure. The goal is to maintain the best quality of life by offering education, support, and knowledgeable, caring staff who can help manage symptoms of progressing heart failure.

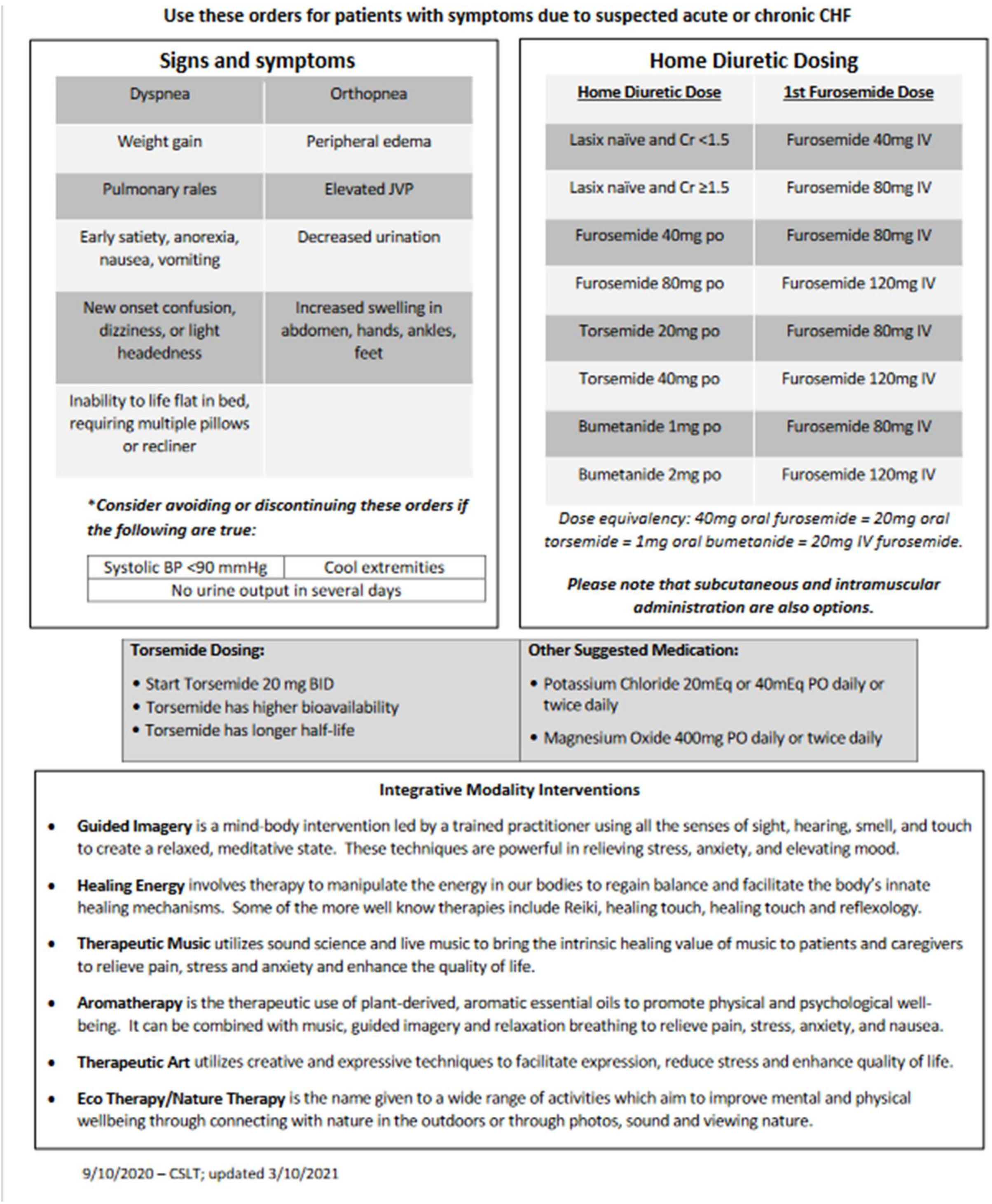
Our hospice team is equipped to help you manage your heart failure by using different medications. If ordered by your provider, these medications might include:

- Diuretics or "water pills" to reduce fluid
- Narcotics to help relieve shortness of breath
- Nebulizer or "breathing" treatment for wheezing
- Anti-anxiety or "nerve pill" to help relieve shortness of breath.

A registered nurse is available 24/7.

Appendix B

Heart Failure Protocol



Use these orders for patients with symptoms due to suspected acute or chronic CHF

Signs and symptoms

Dyspnea	Orthopnea
Weight gain	Peripheral edema
Pulmonary rales	Elevated JVP
Early satiety, anorexia, nausea, vomiting	Decreased urination
New onset confusion, dizziness, or light headedness	Increased swelling in abdomen, hands, ankles, feet
Inability to life flat in bed, requiring multiple pillows or recliner	

Consider avoiding or discontinuing these orders if the following are true:

Systolic BP <90 mmHg	Cool extremities
No urine output in several days	

Home Diuretic Dosing

Home Diuretic Dose	1st Furosemide Dose
Lasix naïve and Cr <1.5	Furosemide 40mg IV
Lasix naïve and Cr ≥1.5	Furosemide 80mg IV
Furosemide 40mg po	Furosemide 80mg IV
Furosemide 80mg po	Furosemide 120mg IV
Torsemide 20mg po	Furosemide 80mg IV
Torsemide 40mg po	Furosemide 120mg IV
Bumetanide 1mg po	Furosemide 80mg IV
Bumetanide 2mg po	Furosemide 120mg IV

Dose equivalency: 40mg oral furosemide = 20mg oral torsemide = 1mg oral bumetanide = 20mg IV furosemide.

Please note that subcutaneous and intramuscular administration are also options.

Torsemide Dosing:

- Start Torsemide 20 mg BID
- Torsemide has higher bioavailability
- Torsemide has longer half-life

Other Suggested Medication:

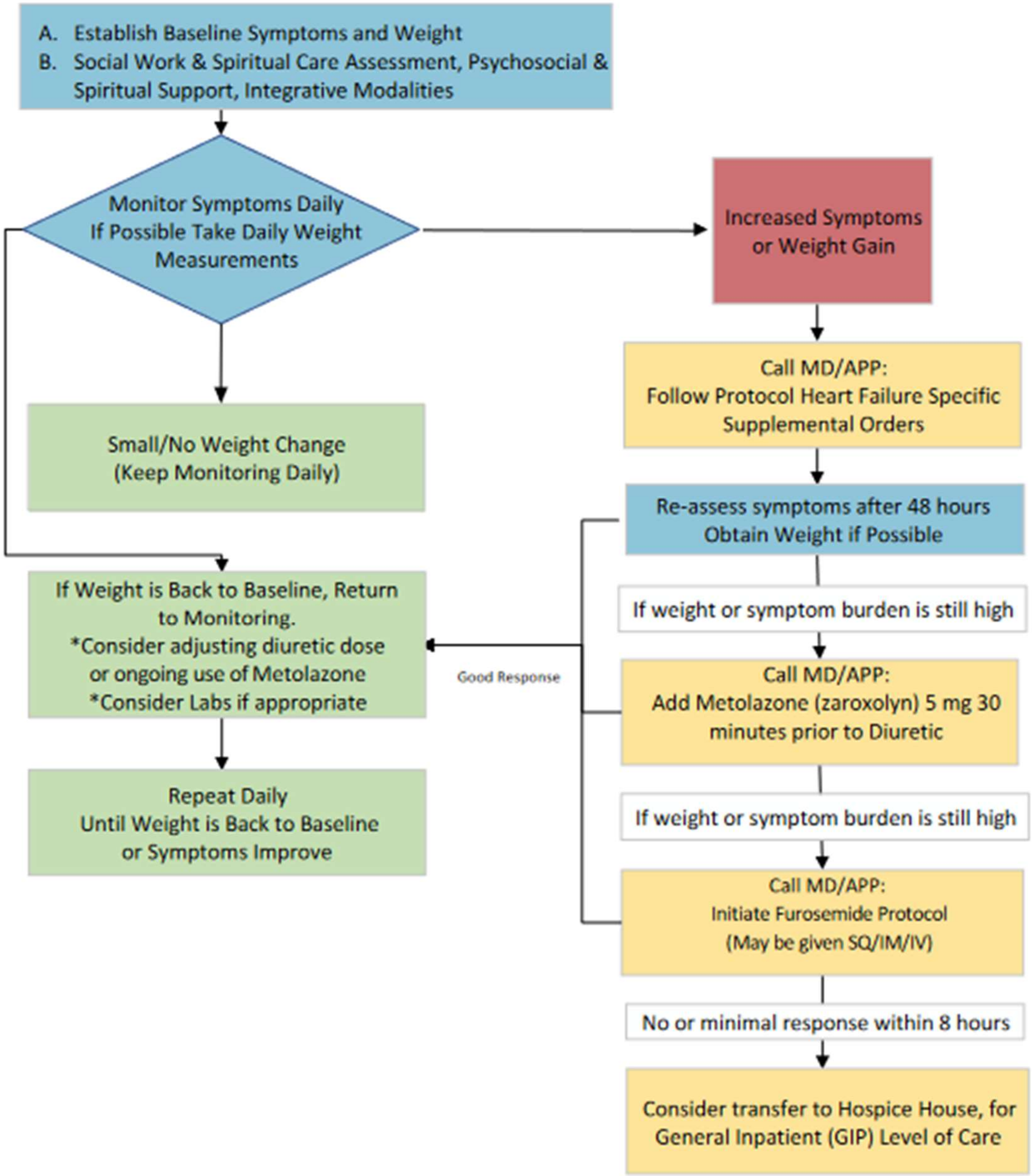
- Potassium Chloride 20mEq or 40mEq PO daily or twice daily
- Magnesium Oxide 400mg PO daily or twice daily

Integrative Modality Interventions

- **Guided Imagery** is a mind-body intervention led by a trained practitioner using all the senses of sight, hearing, smell, and touch to create a relaxed, meditative state. These techniques are powerful in relieving stress, anxiety, and elevating mood.
- **Healing Energy** involves therapy to manipulate the energy in our bodies to regain balance and facilitate the body's innate healing mechanisms. Some of the more well know therapies include Reiki, healing touch, healing touch and reflexology.
- **Therapeutic Music** utilizes sound science and live music to bring the intrinsic healing value of music to patients and caregivers to relieve pain, stress and anxiety and enhance the quality of life.
- **Aromatherapy** is the therapeutic use of plant-derived, aromatic essential oils to promote physical and psychological well-being. It can be combined with music, guided imagery and relaxation breathing to relieve pain, stress, anxiety, and nausea.
- **Therapeutic Art** utilizes creative and expressive techniques to facilitate expression, reduce stress and enhance quality of life.
- **Eco Therapy/Nature Therapy** is the name given to a wide range of activities which aim to improve mental and physical wellbeing through connecting with nature in the outdoors or through photos, sound and viewing nature.

9/10/2020 – CSLT; updated 3/10/2021

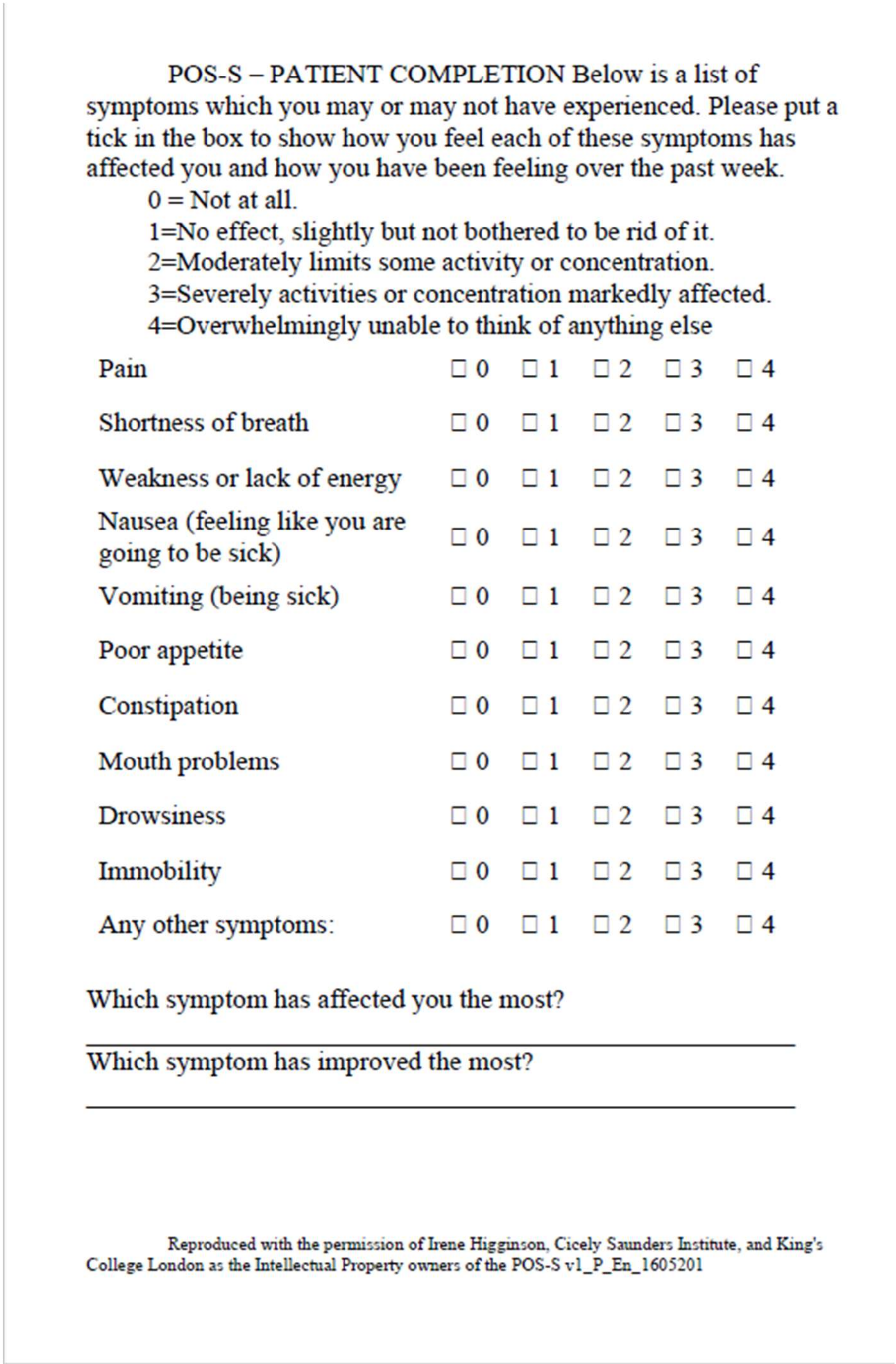
Patient and Family Centered Heart Failure Care Plan



9/10/2020 – CSLT; updated 3/10/2021

Appendix C

Palliative care Outcome Scale



POS-S – PATIENT COMPLETION Below is a list of symptoms which you may or may not have experienced. Please put a tick in the box to show how you feel each of these symptoms has affected you and how you have been feeling over the past week.

0 = Not at all.
1=No effect, slightly but not bothered to be rid of it.
2=Moderately limits some activity or concentration.
3=Severely activities or concentration markedly affected.
4=Overwhelmingly unable to think of anything else

Pain	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Shortness of breath	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Weakness or lack of energy	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Nausea (feeling like you are going to be sick)	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Vomiting (being sick)	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Poor appetite	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Constipation	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Mouth problems	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Drowsiness	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Immobility	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4
Any other symptoms:	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4

Which symptom has affected you the most?

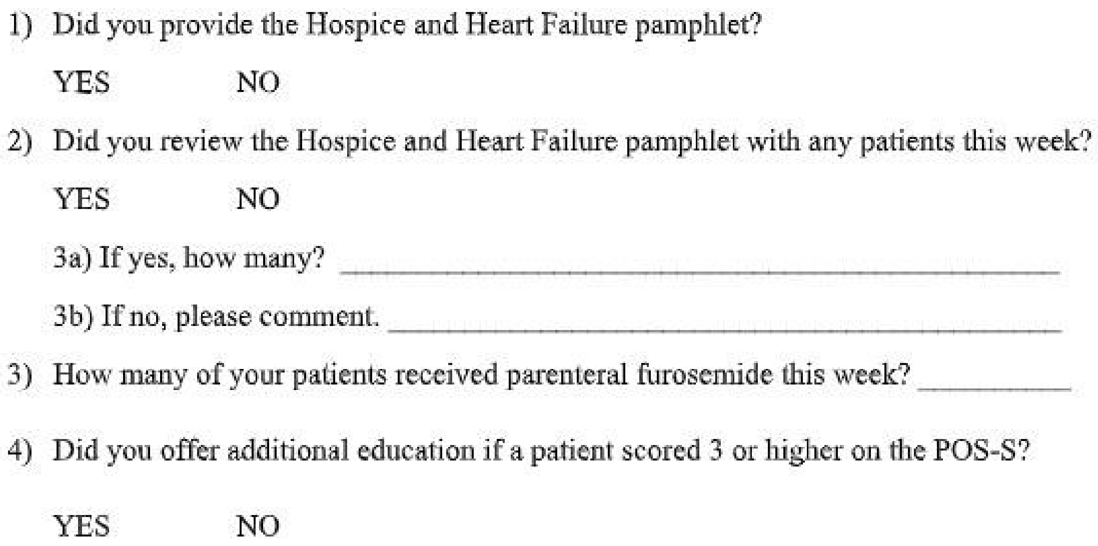
____

Which symptom has improved the most?

____

Appendix D

Nursing Staff Weekly Questions



1) Did you provide the Hospice and Heart Failure pamphlet?

   YES NO

2) Did you review the Hospice and Heart Failure pamphlet with any patients this week?

   YES NO

   3a) If yes, how many? ____

   3b) If no, please comment. ____

3) How many of your patients received parenteral furosemide this week? __________

4) Did you offer additional education if a patient scored 3 or higher on the POS-S?

   YES NO

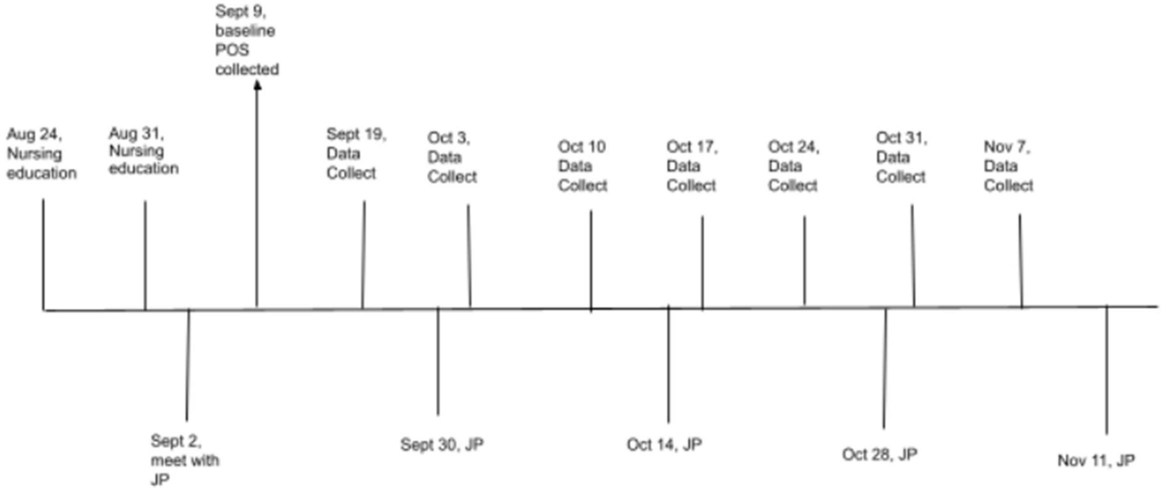
Appendix E

Weekly Data Collection Tool

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Number of eligible visits								
Number of pamphlets used								
Triage/afterhours calls								
Doses of Parenteral lasix given								
Symptoms present								
Further education provided								

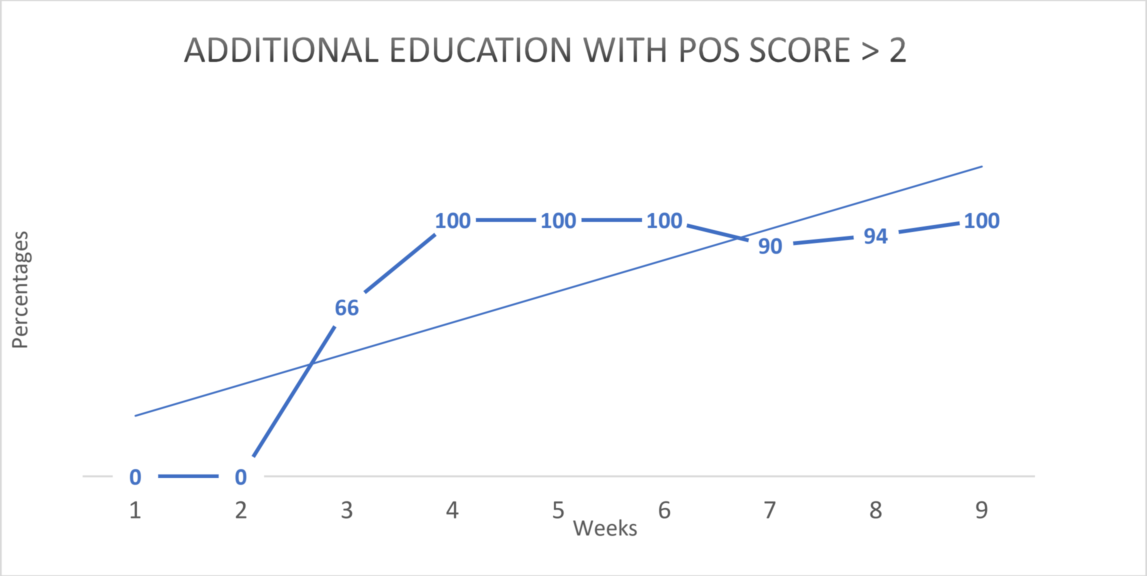
Appendix F

Project Timeline



Appendix G

Increased Patient Education with Higher POS Score



Appendix H

Comparison of Higher POS Scores to After-hours Calls

Column1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
After-hours calls	5	4	12	13	6	4	2	3	4
POS scores >2			3	1	5	6	10	17	15
Further education provided			67%	100%	100%	100%	90%	94%	100%

Appendix I

Average Score of Each POS Symptom

Symptoms	**Average Score**	**Symptoms**	**Average Score**
Weakness	2.59	Pain	1.02
Shortness of breath	2.46	Constipation	0.79
Drowsiness	1.99	Nausea	0.57
Immobility	1.67	Mouth Problems	0.11
Poor appetite	1.15	Vomiting	0

Appendix J

Project Budget

Personnel	
Project development	$3196.05
Project implementation	$2580.05
Nursing time	$169.84
Materials	
Pamphlet (50@ $1.33)	$66.50
Hard copy POS (100@ 0.19)	$19.00
Incentives	
Candy for education meetings	$15.00
$10 gift cards (4@ $10)	$40.00
Total Cost	$6086.44

Appendix K

Doctor of Nursing Practice Essentials

	Description	Demonstration of Knowledge
Essential I ***Scientific Underpinning for Practice***	**Competency** – Analyzes and uses information to develop practice **Competency** -Integrates knowledge from humanities and science into context of nursing **Competency** -Translates research to improve practice **Competency** -Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes	• Information gathered from literature review used to tailor a project specific to hospice patients with heart failure.
Essential II ***Organizational & Systems Leadership for Quality Improvement & Systems Thinking***	**Competency** –Develops and evaluates practice based on science and integrates policy and humanities **Competency** –Assumes and ensures accountability for quality care and patient safety **Competency** -Demonstrates critical and reflective thinking **Competency** -Advocates for improved quality, access, and cost of health care; monitors costs and budgets **Competency** -Develops and implements innovations incorporating principles of change **Competency** – Effectively communicates practice knowledge in writing and orally to improve quality **Competency** – Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems	• Developed an intervention to help improve patients' quality of life at end of life. • Prior to implementing the intervention the project leader completed multiple modules on ethics through the CITI modules.
Essential III ***Clinical Scholarship & Analytical Methods for Evidence-Based Practice***	**Competency** – Critically analyzes literature to determine best practices **Competency** – Implements evaluation processes to measure process and patient outcomes **Competency** – Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients **Competency** – Applies knowledge to develop practice guidelines **Competency** – Uses informatics to identify, analyze, and predict best practice and patient outcomes **Competency** – Collaborate in research and disseminate findings	• Part of the project utilized an electronic form for nurses to complete with the patients. • Project leader also developed a QI project that will increase patient comfort at end of life.
Essential IV ***Information Systems – Technology & Patient Care Technology for the Improvement &***	**Competency** - Design/select and utilize software to analyze practice and consumer information systems that can improve the delivery & quality of care **Competency** - Analyze and operationalize patient care technologies **Competency** - Evaluate technology regarding ethics, efficiency and accuracy **Competency** - Evaluates systems of care using health information technologies	• Project leader met with the Director of Clinical Support Services to discuss making this part the project site's

Transformation of Health Care		electronic charting record.
	Description	**Demonstration of Knowledge**
Essential V ***Health Care Policy of Advocacy in Health Care***	**Competency**- Analyzes health policy from the perspective of patients, nursing and other stakeholders **Competency** – Provides leadership in developing and implementing health policy **Competency** –Influences policymakers, formally and informally, in local and global settings **Competency** – Educates stakeholders regarding policy **Competency** – Advocates for nursing within the policy arena **Competency**- Participates in policy agendas that assist with finance, regulation and health care delivery **Competency** – Advocates for equitable and ethical health care	• Project leader completed an extensive literature review and used the information to work with the primary stakeholders at the agency in strengthening the project.
Essential VI ***Interprofessional Collaboration for Improving Patient & Population Health Outcomes***	**Competency**- Uses effective collaboration and communication to develop and implement practice, policy, standards of care, and scholarship **Competency** – Provide leadership to interprofessional care teams **Competency** – Consult intraprofessionally and interprofessionally to develop systems of care in complex settings	• Project leader collaborated with the project site champion throughout the project timeline. • Project leader worked with the nursing staff to improve participation
Essential VII ***Clinical Prevention & Population Health for Improving the Nation's Health***	**Competency**- Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery **Competency** – Synthesizes information & cultural competency to develop & use health promotion/disease prevention strategies to address gaps in care **Competency** – Evaluates and implements change strategies of models of health care delivery to improve quality and address diversity	• Project leader identified a gap in care for hospice heart failure patients and designed the project around that information.
Essential VIII ***Advanced Nursing Practice***	**Competency**- Melds diversity & cultural sensitivity to conduct systematic assessment of health parameters in varied settings **Competency** – Design, implement & evaluate nursing interventions to promote quality **Competency** – Develop & maintain patient relationships **Competency** –Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes **Competency** – Mentor and support fellow nurses **Competency**- Provide support for individuals and systems experiencing change and transitions **Competency** –Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures	• Pamphlet will be resubmitted to marketing for approval. • This pamphlet will be used to help patients identify and manage heart failure symptoms.