IMPROVED EDUCATION FOR CAREGIVERS OF HOSPICE HEART FAILURE PATIENTS TO REDUCE HOSPITAL ADMISSIONS: AN INTEGRATIVE REVIEW

A Scholarly Project
Submitted to the
Faculty of Liberty University
In partial fulfillment of
The requirements for the degree
Of Doctor of Nursing Practice
By
Sierra Spain Sanford
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Scholarly Project Chair Approval:

Dr. Sharon Kopis, Ed.D., MS, RN, FNP-C, CNE '91, April, 2023

ABSTRACT

Heart disease is the second-leading cause of death in the United States, excluding the COVID-19 pandemic. Despite being the leading cause of death, heart failure only comprises 15% of hospice deaths and remains the most likely to be discharged from hospice services due to acute hospitalizations compared to all other hospice diagnoses. This leads to low patient and family satisfaction as well as high medical costs. This integrative review synthesizes current published evidence highlighting the need to improve caregiver education for symptom management of terminal heart failure patients in hospice. The literature supports that improved caregiver education can lead to reduced rates of revocation and inpatient hospitalization at end of life. This integrative review serves as a catalyst for change for healthcare providers for improved collaboration, communication, and education for patients and families at end of life.

Keywords: heart failure OR congestive heart failure; hospice OR end-of-life care OR palliative care; caregiver education OR caregiver training; patient education OR patient teaching; hospital admissions OR readmissions OR revocation

Table of Contents

LIST OF TABLES

LIST OF FIGURES

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SECTION ONE: INTRODUCTION

Heart failure patients comprise 15% of hospice deaths across the United States, despite being the leading cause of death. Heart failure affects over six million adults in America with 40% of heart failure patients dying within the first year of their first hospitalization (Kavalieratos et al., 2017; Russell et al., 2019). Russell et al. (2019) further found that hospice patients with heart failure are more likely to be discharged from hospice services due to acute hospitalizations than any other hospice diagnosis. This supports that there is room for improvement in symptom management in this population to avoid acute hospitalizations and revocation from hospice services prior to death. Research has supported that improved education for healthcare providers results in improved patient outcomes. However, hospice patients are unique in that family members and paid caregivers are providing symptom management in the home with guidance from a healthcare team. The disproportionate hospice hospitalizations for heart failure patients compared to other diagnoses confirms the difficulty in symptom management for this population and suggest improved education for caregivers on symptom management would reduce these hospitalizations and improve patient outcomes at end of life (Baik et al., 2021).

Background

Hospice Eligibility

The Centers for Medicare and Medicaid (CMS, 2022b) regulate guidelines for admittance into hospice. In general, any patient considered to have a life expectancy of fewer than six months will meet the guidelines for hospice care if the goals of care are consistent with the hospice plan of care. Per guidelines, “a progression of disease as documented by worsening clinical status, symptoms, signs and laboratory results” will meet hospice eligibility requirements (CMS, 2022b, n.p.); this can be noted with 10% weight loss, decreasing serum albumin or cholesterol, and inadequate oral intake. This can also be supported by a declining Karnosfsky Performance Status (KPS) or Palliative Performance Score (PPS) and/or dependence on activities of daily living as well as an increased history of emergency room visits or hospitalizations related to the hospice primary diagnosis (CMS, 2022b).

For heart failure specifically, patients are terminal once they are diagnosed with Class IV heart failure according to the New York Heart Association (NYHA) guidelines (American Heart Association, 2017). An ejection fraction of less than 20% supports this diagnosis but is not required to meet the guidelines for hospice eligibility. The patient should also not be a candidate for surgical procedure, or the patient has declined further aggressive treatments and procedures (CMS, 2022b). The following supports eligibility to hospice for heart failure patients but is not necessary: “treatment-resistant symptomatic supraventricular or ventricular arrhythmias, history of cardiac arrest or resuscitation, history of unexplained syncope, brain embolism of cardiac origin, and/or concomitant HIV disease” (CMS, 2022b, n.p.).

Terminal Heart Failure

Currently, it is estimated that 6.2 million adults in the United States are diagnosed with heart failure. In 2018, 379,800 patients died with heart failure as the primary diagnosis on death certificates, which compromised 13.4% of the patient deaths in the United States during 2018 (Centers for Disease Control and Prevision [CDC], 2022). By 2030, it is estimated that more than eight million patients will be diagnosed with heart failure, equating to a prevalence of one in every 33 individuals within the United States. The annual cost for heart failure patients is estimated to be $30,000 per patient and over 49% of this cost is due to inpatient care during hospitalizations. By 2030, this total is estimated to reach $160 billion per year (Heidenreich et al., 2022).

Heart failure patients are more likely to be hospitalized within the last thirty days of their lives than any other terminal illness. From 2000 to 2007, 80% of heart failure patients were hospitalized in the last six months of their lives (Yim et al., 2017).

In 2009, it was found that 11% of hospice heart failure patients revoked hospice services at least once within the first year of enrollment and half of these patients died in the hospital during an acute admission. This study also found that hospice enrollment did significantly decrease hospital admissions for this patient population (Yim et al., 2017).

Defining Concepts

The following concepts need to be defined for this integrative review: hospice care, palliative care, end-stage heart failure, symptom management, and caregiver. In this integrative review, hospice is defined as care at end of life for a patient with an advanced illness with a focus on comfort and quality of life. Palliative care is defined as a subspecialty of medicine that focuses on relieving patients' symptoms of discomfort, such as pain and respiratory distress for patients with advanced illness, with the goal of improving quality of life. The difference between hospice and palliative care is the goals for treatment. With hospice, patients have chosen to forego any aggressive treatments, while with palliative, patients may still be seeking aggressive treatment (National Institute on Aging, 2021). Due to the similarities between the two, some studies analyzed throughout this integrative review utilize the two terms interchangeably.

End-stage heart failure or terminal heart failure will be defined as congestive heart failure that meets the criteria for NYHA Class IV. With Class IV, symptoms of heart failure are present at rest and may be supported by an ejection fraction of less than or equal to 20% (CMS, 2022b).

Symptom management is defined as

care given relieve the symptoms of a disease and the side effects caused by treatment of

> the disease. Symptom management may help a person feel more comfortable, but it does not treat or cure the disease. It may involve taking certain medicines to relieve pain or nausea or using guided imagery or deep breathing exercises to reduce stress or anxiety. (National Cancer Institute, 2022, n.p.)

Symptom management for terminal heart failure will include improving respiratory distress, pain, especially chest pain, confusion, and anxiety. Symptom management is a crucial element for both hospice and palliative care and failure to manage symptoms appropriately leads to undesired hospitalizations.

A caregiver is defined as a "person who tends to the needs or concerns of a person with short- or long-term limitations due to illness, injury or disability" (Johns Hopkins University, 2022, n.p.). A caregiver may be a family member, a friend, or a formally hired caregiver from a professional agency. It is estimated that 40 million Americans are currently acting as a caregiver, but do not define themselves as caregivers, highlighting the need for further education for both caregivers and patients (Johns Hopkins University, 2022). For this integrative review, a caregiver will be defined as anyone providing care and support for the patient, whether formally or informally.

Problem Statement

As stated, the prevalence of heart failure patients in the United States is projected to continue to increase to one in every 33 individuals with a concurrent cost of over $160 billion per year (Heidenreich et al., 2022). There is ample evidence of the need to reduce readmission rates for heart failure patients to improve patient outcomes and decreased medical costs (Urbich et al., 2020). However, there is a gap in the literature on the reduction of readmissions for hospice heart failure patients. Due to the difficulty in symptom management for heart failure patients at end of life, many of these patients revoke hospice services and admit to an inpatient hospital despite goals to die at home. This correlates with increasing medical costs and poorer family and patient satisfaction with care. Kleinpell et al. (2016) found that hospice admissions significantly increase patient satisfaction, hospital admissions, and hospital deaths. Gelfman et al. (2018) found that there is an estimated medical cost saving of $2,300 per hospice heart failure patient, which equates to an estimated savings of $3.5 billion per year. These cost savings are lost when the patient revokes services and requires inpatient admission for symptom management.

Purpose of the Scholarly Project

Research supports that caregiver-directed education does improve patient and family satisfaction with hospice care (El-Jawahri et al., 2020). The purpose of this project is to identify if current evidence supports that the implementation of improved caregiver education on symptom management would lead to a decrease in hospital readmissions in hospice heart failure patients. If the literature does support this, then the implication of future research on this population of interest would lead to identifying best practices for healthcare provider education to improve the quality of life for hospice patients at end of life as well as decrease associated total medical costs.

Significance of the Project

There is a consensus in the healthcare community on the negative impacts of readmission rates for heart failure patients and healthcare organizations. However, there is little research and support for improving the quality of life for these patients at end of life. The following evidence will be used to support the significance of this scholarly project:

1) Heart failure is the most common cause of readmission rates in hospitals and evidence

supports this is due to poor symptom management and decreased knowledge of symptom management and disease processes (Awoke et al., 2019).

2) The burden of caregiving at end of life usually falls on family members who have little to no training.
3) Heart failure patients have the lowest rates of utilization of hospice care despite being the leading cause of death.
4) Heart failure patients have the highest rates of revocation from hospice care and the shortest duration on hospice (averaging from 12 to 20 days) (Warraich et al., 2017).
5) One-on-one education for patients and caregivers improves the quality of life and family and patient satisfaction.

Clinical Questions

In heart failure hospice patients does symptom management education for caregivers reduce hospital admissions?

Project Goals

The goals for this project are to:

1) To provide an integrative review that highlights current research on education for caregivers of terminal heart failure patients and the reduction of hospital admissions.
2) To summarize and synthesize evidence-based recommendations that inform future research studies and implementation of protocols to practice.

SECTION TWO: METHODS

This project will be designed as an integrative review based on Harris Cooper's guidelines (Cooper, 1982). The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 flow diagram is utilized to outline the systematic identification, screening, and inclusion or exclusion of studies for the review (McKenzie et al., 2021).

Conceptual Framework/Model

The conceptual framework for this integrative review is guided by Toronto and Remington's (2020) *A Step-by-step Guide to Conducting an Integrative Review* which is based on Cooper's (1982) guidelines for conducting an integrative review. An integrative review is defined as a review that

> looks more broadly at a phenomenon of interest than a systematic review and allows for diverse research, which may contain theoretical and methodological literature to address the aim of the review. This approach supports a wide range of inquiry, such as defining concepts, reviewing theories, or analyzing methodological issues. (Toronto & Remington, 2020, p. 17)

The six steps outlined in this framework provide a systematic approach to conduct an integrative review include "formulate a purpose, systematically search and select literature, quality appraisal, analysis and synthesis, discussion and conclusion, and dissemination of findings" (Toronto & Remington, 2020, p. 21).

Data analysis and evaluation is guided by the framework outlined by Whittemore and Knafl (2005), which is utilized within Toronto and Remington's (2020) guide for completing an integrative review. Whittemore and Knafl (2005) outline a four-step systematic approach to ensure a comprehensive analysis of the subject matter, which is utilized in this integrative review to analyze the information collected to improve patient and family satisfaction at end of life in the context of heart failure: problem identification, literature search, data evaluation, and data analysis. Each of these steps is outlined clearly within this integrative review.

The benefit of integrative reviews compared to systematic reviews and meta-analyses is that they allow for the inclusion of both quantitative and qualitative studies, which provides a holistic inclusion of necessary evidence-based interventions. This integrative review requires the inclusion of descriptive studies to better understand the benefits of improved quality of care at end of life from the patient perspective and the caregiver perspective. Utilizing a methodology that includes these studies within this integrative review provides the reader with a true understanding of the implications and potential benefits (Whittemore & Knafl, 2005).

There has been contention in the academic world on the rigor and biases of integrative reviews. Research has supported the benefit of integrative reviews on evidence-based practice for nursing but emphasizes the importance of adhering to a systematic methodology to reduce these biases and increase the reliability and accuracy of the results (Whittemore & Knafl, 2005). This integrative review follows a systematic approach to the literature search and appraisal, as outlined through the PRISMA statement, and limitations are discussed separately at the end of the integrative review.

The goal of PRISMA is to transparently present how and why an integrative review or systematic review is completed, which allows for replication of the study by peers for reliability and accuracy. The updated 27-item checklist and six-phase flow diagram are utilized to visually display the inclusion and exclusion of studies for the integrative review (see Appendix D; McKenzie et al., 2021). The PRISMA framework allows for the inclusion of both qualitative and quantitative data to provide a comprehensive analysis of the chosen clinical problem. The 27-item checklist provides minimum set standards for the inclusion of articles for the integrative review or systematic or meta-analysis. The PRISMA guideline also ensures that the objective or purpose of the analysis is clearly stated alongside inclusion and exclusion criteria, databases and sources are listed with the search strategy, as well as any risk or bias (McKenzie et al., 2021).

Each of these elements is clearly discussed throughout this integrative review.

Theoretical Framework

This integrative review is guided by the theoretical framework of the Theory of Unpleasant Symptoms. This theory is a middle-range nursing theory that consists of three parts: the symptoms, the influencing factors for the symptoms, and the outcomes. Influencing factors can include physiological, psychological, and situational factors. These can include age, gender, illness, current treatments, mood, cognition, and environment. Each of these factors affects how the patient perceives the symptoms and how treatment should be aimed holistically to reduce the perception of the unpleasant symptoms (Lenz, 2018).

This theory is a middle-range theory and is able to connect research with practice. This theory was first created in 1995 by Elizabeth Lenz and Linda Pugh to be used for a wide range of symptoms for a broad patient population for clinical practice (Lenz et al., 1997). The theory has since been modified to address the complexity of multiple symptoms and instead of addressing one symptom at a time, it is written to correlate multiple unpleasant symptoms (Lenz, 2018).

This integrative review is aiming to identify gaps in caregiver education that have the potential to lead to distressing symptoms at end of life for heart failure patients.

Ethical Considerations

This integrative review was not classified as a human subjects' research and was in accordance with the Office for Human Research Protections and Food and Drug Administration regulations as well as Liberty University Institutional Review Board (IRB) policies (see Appendix B). Training was completed through the Collaborative Institutional Training Initiative (CITI) to ensure compliance with ethical standards throughout the study (see Appendix C).

Timeline

Table 1

Timeline

Milestone	Deliverable	Description	Estimated Completion Date
CITI training	CITI training certificate	CITI training modules completed and certificate obtained.	Fall 2022 B term (NURS 947)
Proposal Defense	PowerPoint Presentation	Presentation and defense was presented to chair, Dr. Kopis for approval.	Fall 2022 B term (NURS 947)
IRB submission	IRB acceptance letter	Submitted required documentation for IRB approval.	Fall 2022 D term (NURS 948)
Sections I-III draft/final	Sections I-III of integrative review documented	First three sections of the integrative review were drafted and revised at the guidance of chair.	Fall 2022 D term (NURS 948)
Sections IV-V draft/final	Sections IV-V of integrative review documented	Final sections of integrative review were drafted and revised at the guidance of chair.	Spring 2023 B term (NURS 949)
Appendix material	Appendices completed and documented in integrative review	Completion of all appendices were drafted and revised at the guidance of chair.	Spring 2023 B term (NURS 949)
Final defense	PowerPoint presentation	Final defense was presented to Liberty University's panel for approval.	Spring 2023 D term (NURS 950)
Publication	Published integrative review	Final integrative review will be published to Scholars Crossing and sent to professional publications as appropriate.	Spring 2023 D term (NURS 950)

Problem Formulation Stage

The first stage of the integrative review according to Cooper's (1982) guideline is the formulation of the problem, which provides a broadly stated purpose and reviews the questions. The review questions identify the gap in knowledge and provide the basis for inclusion and exclusion criteria within the integrative review (Toronto & Remington, 2020).

The problem identified in this integrative review is the lack of education provided to caregivers for terminal heart failure patients in the hospice setting, resulting in increased use of inpatient services and costs despite patient and family preferences for end-of-life care. Variables of interest for this integrative review include terminal heart failure patients who have opted for hospice care at some point in their disease trajectory and their respective caregivers, both informal and informal. Other variables of interest include education provided to caregivers and patients, especially on symptom management. Additional variables of interest include revocation from hospice and/or admission to inpatient hospitalization during hospice care.

The purpose of this integrative review is to synthesize findings of evidence-based research on the implementation of caregiver education for symptom management of hospice heart failure patients and the effects of revocation from hospice and inpatient hospitalization for symptom management at end of life. A secondary purpose of this integrative review is to highlight the benefits of early referral to hospice services for patient and family satisfaction at end of life, addressing the gap in knowledge for healthcare providers. These specified variables and review questions highlight the purpose of the integrative review and guide the systematic approach (Toronto & Remington, 2020).

Data Collection

Data collection needs to be systematic to allow for reproducible results for reliability and accuracy: “The literature search should be systematic in its approach and comprehensive using two or more methods, such as the use of multiple electronic databases and ancestry and hand search” (Toronto & Remington, 2020, p. 22). The purpose of the broad and systematic approach is to reduce researcher bias. Information sources and eligibility criteria are outlined to achieve this goal (see Table 1; see Appendix A).

Information Sources

Primary search strategies were conducted using bibliographic databases, ancestry approach, and descendancy approach. An ancestry approach involves finding earlier research in relevant studies through the analysis of citations within the study. A descendancy approach involves finding more relevant studies from earlier studies that involve relevant information (Nurse Key, 2017).

The bibliographic approach was used with a comprehensive systematic search of Medical Literature Analysis and Retrieval System Online (MEDLINE) Ultimate, ProQuest, the Cumulative Index of Nursing and Allied Health Literature (CINAHL) Ultimate, and PubMed through Liberty University's access. Relevant sources were included from 2016 to 2023. The ancestry and descendancy approaches were utilized with these sources to include relevant sources prior to and after the initial studies identified.

Eligibility Criteria

This review prioritizes studies set in the United States to reduce variability among various hospice organizations throughout the world; however, it is necessary to include studies not set in the United States due to the lack of available studies. The population that was reviewed includes terminal heart failure patients who have elected for hospice care. Inclusion criteria were expanded to include heart failure patients in addition to terminal heart failure patients, readmission rates, and education. The integrative review includes formal and informal caregivers for these patients including friends, family members, and paid caregivers. Further inclusion criteria include studies in the English language and relevant time periods from 2016 to 2023. The relevant time period was also expanded beyond the recommended five years due to a lack of available literature on the population of interest (see Table 1).

Literature Search Results

The literature search initially identified over 56,817 results. After adding all inclusion criteria and removing duplicates, the results were narrowed to 472 results. Of these, 238 results were sought for retrieval and 152 were assessed for eligibility based on inclusion and exclusion criteria (see Table 2). The 22 additional articles were sought for retrieval through additional sources via descendancy and ancestry approaches to determine eligibility. In total, 33 studies were included in the systematic review (see Appendix D). The literature analysis is included in Appendix A for review.

Table 2

Inclusion and Exclusion Criteria

Inclusion	Exclusion
Publications from 2016-2023	Publications prior to 2016
Patients with terminal illnesses or heart failure older than the age of 18	Patients with terminal illness or heart failure younger than the age of 18
Caregivers of terminal patients (family members, friends, agency workers)	Skilled nursing facilities providing primary care for patients
Peer-reviewed literature	Non-research articles
English language	Studies written in a foreign language
Full-text articles	Abstract only articles

Data Evaluation Stage

Each study was evaluated and ranked based on Melnyk and Fineout-Overholt’s (2019) hierarchy of evidence. According to Melnyk’s Levels of Evidence, the highest level of evidence is a systematic review and meta-analysis of randomized controlled guidelines, and five have been included in this integrative review (Melnyk & Fineout-Overholt, 2019; see Table 3). The gold standard for research is randomized controlled trials, and six are included in the integrative review (see Table 3). In addition to this, there are eight non-randomized controlled trials, six case-controlled studies, two systematic reviews of qualitative studies, two qualitative studies, and four expert opinions (Melnyk & Fineout-Overholt, 2019; see Figure 1). This totals 33 studies that were evaluated for inclusion in the integrative review.

A limitation noted through multiple studies is small sample sizes and outdated information (greater than five years old), limiting the ability to generalize the information to other patient populations and locations. A table of evidence is provided for reference (see Appendix A). Limitations are further discussed at the conclusion of this integrative review.

Table 3

Levels of Evidence for Reference

Numeric Level	Evidence Category	Number of Articles Included
1	Systematic Review & meta-analysis of randomized controlled guidelines	5
2	One or more randomized controlled trials	6
3	Non-randomized controlled trial	8
4	Case-control or cohort study	6
5	Systematic review of qualitative or descriptive studies	2
6	Single descriptive or qualitative study	2
7	Expert opinion	4

Data Analysis Stage

The goal of analyzing the data is to synthesize smaller data points to create new evidence to be utilized in practice or future research: “the goal is to make a new whole by integrating smaller pieces of data from different literature sources in the sample” (Toronto & Remington, 2020, p. 108). Data analysis in this integrative review is completed through the literature matrix that analyzes the purpose of the study, sample size, study methods, level of evidence, and applicable results.

Whittemore and Knafl (2005) provide the steps to ensure a comprehensive and systematic method to analyze data collected for the integrative review. These include data reduction, data display, data comparison, and conclusion drawing and verification (Toronto & Remington, 2020,

p. 114).

Data Reduction

The first step for data analysis is the reduction of the broad primary results to subcategories that allow for efficient sorting and understanding of the results in relation to the themes (Toronto & Remington, 2020).

Data Display

The next step for data analysis is displaying the data in a simple method to allow the reader to process the information easily. A frequently used method to easily display information is matrices, which is utilized within this integrative review (Toronto & Remington, 2020).

Data Comparison

Data comparison is completed by identifying common themes, relationships, and patterns noted through the reduction and display. The creation of common themes allows for a simplified and efficient method to allow the reader to comprehend the information. These common themes are outlined within the results and discussion and displayed in flowcharts for easy deciphering (Toronto & Remington, 2020).

Conclusion Drawing and Verification

The conclusion of the information is the results of the analysis. The conclusion is accomplished by synthesizing the results of the themes and creating a broad conclusion (Toronto & Remington, 2020). This step also includes verification of results to confirm reliability and accuracy by colleagues, which includes verification by Dr. Kopis, the chair, and Liberty University's panel.

Presentation of Results

Results for this integrative review are presented in multiple methods including charts, tables, PRISMA flowchart, and concept maps. The tables and figures reduce data into simple conclusions to allow the reader to easily discern the information presented. The PRISMA flowchart easily maps out the systematic approach utilized to identify studies for the integrative review to allow for reproducible results. Concept maps were utilized to simplify the themes and conclusions that were produced through data analysis and allow the reader to understand the broader conclusion of the integrative review with direct correlation to the included evidence-based studies.

SECTION THREE: RESULTS

The integrative review included 33 studies. The studies included in the integrative review vary by research and design. Quantitative and qualitative studies were both included for the scholarly project. The types of designs included five systematic reviews of randomized controlled guidelines (Dionne-Odom et al., 2017; Kavalieratos et al., 2017; Rice et al., 2018; Schichetel et al., 2020; Urbich et al., 2020); six randomized controlled trials (Bidwell et al., 2018; Cui et al., 2019; Dionne-Odom et al., 2020; El-Jawahri et al., 2020; Enguidanos et al., 2019; Padula et al., 2019); eight non-randomized controlled trials or quasi-experimental designs (Awoke et al., 2019; Agarwal et al., 2016; Elkhateeb et al., 2018; Kleinpell et al., 2016; Luo et al., 2020; Radhakrishnan et al., 2018; Russell et al., 2019; Yim et al., 2017); six case control or cohort studies (Creber et al., 2019; Gelfman et al., 2018; Jordan et al., 2020; Liu et al., 2020; Seow et al., 2017; Starr et al., 2022), two systematic reviews of qualitative or descriptive studies (Ament et al., 2021; Luo et al., 2016); two single descriptive or qualitative studies (Baik et al., 2021; Chuzi et al., 2021). Four expert opinions were included in the integrative review to further explain concepts and variables related to hospice care and symptom management for heart failure patients (Cross et al., 2019; Jaarsma et al., 2021; Spiess, 2017; Warraich et al., 2017). All studies were published between 2016 and 2021. Results were further analyzed through descriptive narratives as well as displayed through concept mapping.

Patient Outcomes

Does education decrease readmission rates of terminal heart failure patients? Readmission rates in the context of heart failure patients were analyzed and/or discussed in nine of the 33 studies included in this integrative review (Agarwal et al., 2016; Awoke et al., 2019; Cui et al., 2019; Elkhateeb & Salem, 2018; Gelfman et al., 2018; Kleinpell et al., 2016; Padula et al., 2019; Radhakrishnan et al., 2018; Rice et al., 2018). In total, these studies analyzed 173,689 heart failure patients and the correlating readmission rates to acute inpatient services. Only two studies specified the stage of heart failure of the patients included in the studies and these two studies included NYHA Class II to IV (Cui et al., 2019; Elkhateeb & Salem, 2018). Gelfman et al. (2018) was the only study to include only hospice heart failure patients as their intervention group for analysis of readmission rates. The other studies included all heart failure patients and did not specify a needed classification of severity.

One of these studies concluded that there is no correlation between education and readmission rates (Elkhateeb & Salem, 2018), whereas the majority concluded that there was a significant outcome change with the addition of education (Agarwal et al., 2016; Gelfman et al., 2018; Kleinpell et al., 2016; Rice et al., 2018; Yim et al., 2017). Agarwal et al. (2016) found that those patients that had documented caregiver education had lower readmission rates than those without ($p = 0.03$). Those that elected for hospice services were more likely to have reduced readmission rates and utilization of emergent services (Gelfman et al., 2018).

Others concluded that there was not a significant change in admission rates following education, based on *p*-values, but there was a decrease in readmission rates, showing promising results for future studies (Awoke et al., 2019; Padula et al., 2019). Padula et al. (2019) found that there was a difference in hospital admission rates following caregiver education but the results were not significant between the two groups ($p = 0.061$). However, when the results were further analyzed, there was a significant reduction in readmission rates following education in patients with permanent atrial fibrillation, less than 90 years old, and a Barthel score equal to or greater than 50 ($p = 0.048$, $p = 0.036$, $p = 0.011$, respectively) (Padula et al., 2019). Radhakrishnan et al. (2018) found a reduction in readmission rates following the implementation of a transitional care model with an emphasis on education, but this was only concluded in the first phase and the study remains ongoing into the second phase to determine the significance in the context of a larger population.

Awoke et al. (2019) found that nurse-led heart failure education improved heart failure patients' knowledge and self-care maintenance significantly ($p < 0.001$; $p < 0.001$, respectively). However, this study did not demonstrate a significant change in readmission rates between the two patient groups. They did see a reduction from 12 patients to five, suggesting a decrease related to nurse-led education, but the change was not significant. Their small sample size was a limit to the accuracy and reliability of the results (Awoke et al., 2019). Cui et al. (2019) demonstrated similar results with nurse-led education identifying a reduction in readmissions for heart failure patients from 27.1% to 10.4% ($p = 0.036$).

As analyzed further in this review, the method in which education was provided differs between studies as well as the intention of the audience and topics discussed.

Decreased Cost

As noted throughout the integrative review, there is a correlation between increased healthcare costs and readmission rates for terminal heart failure patients. There are six out of the

33 studies that evaluated and provided evidence on the associated cost savings related with the reduction in readmissions (Luo et al., 2020; Rice et al., 2018; Spiess, 2017; Starr et al., 2022; Urbich et al., 2020; Yim et al., 2017). The total sample included in these studies was 52,187, excluding the meta-analysis of Urbich et al. (2020), which included studies that had population samples 135 to 11,723,008 patients. The method of analyzing the cost savings or total costs was not implicitly identified in any of the studies. Outcomes were measured through estimates of Medicare or Medicaid reimbursement and estimates of total hospital costs. Rice et al. (2018) did analyze cost related to nurses' time, readmission costs, and medical and non-medical costs; however, other studies did not specify what was included in their total cost analyses. Another limitation is that these studies identified the high cost related to poor symptom management at end of life, but did not determine how to reduce these costs.

Starr et al. (2022) found that Medicaid patients were more likely to have readmission and have increased healthcare costs related to hospitalization. Spiess (2017) contradicts this finding through a study in Alabama, which found that only five percent of Medicare patients that were referred to hospice were readmitted within the last thirty days of their lives compared to a rate of 41% of heart failure patients not in hospice services. Even though there was a significant reduction in readmissions to acute services, there was no difference in total cost by Medicare in the final six months of life (Spiess, 2017).

Yim et al. (2017) found through a meta-analysis of Medicare patients, that over 60% of heart failure patients were hospitalized in the last six months of their lives. Heart failure patients are more likely to utilize acute inpatient services in the last thirty days of their lives when compared to cancer patients. This cost equates to more than $32 billion annually in the United States for the treatment of heart failure patients at end of life (Yim et al., 2017). This identifies the cost savings that are available if interventions are conducted to reduce healthcare cost at heart failure patients' end of life:

> In patients with cancer, hospice disenrollment is associated with higher healthcare use, including higher rates of hospitalization, ED and ICU admissions, and increased length of stay once hospitalized. On average, patients with advanced cancer who disenroll cost Medicare almost five times as much as those who remain with hospice until death. (Yim et al., 2017, p. 4)

The rates of revocation from hospice for heart failure patients are significantly higher for heart failure patients than those with terminal cancer diagnoses, thus the cost of revocation is significantly higher.

There were two systematic reviews included in this integrative review discussing costs. Rice et al. (2018) was the only systematic review included that analyzed cost in addition to other quality measures following the introduction of nurse-led education. The results were conflicting and highlighted that nurse-led education decreased costs when introduced to early NYHA stages of heart failure, and therefore, may not demonstrate significant decreases in cost with terminal heart failure patients participating in hospice care. This analysis did highlight that costs were decreased in additional studies included in the systematic review, but they were not significantly decreased (Rice at al., 2018).

Urbich et al. (2020) found that the median medical cost for a heart failure patient is $24,383, but increases to greater than $100,000 when readmissions to the hospital are included in the summary. This study found that "Patients with HF who died within one year after an index HF encounter incurred markedly higher per-patient-per-month costs than patients in the survivor cohort, with the majority of costs attributable to hospitalizations for both patient cohorts"

(Urbich et al., 2020, p. 1227).

Decreased Symptom Burden

Even though there was a limitation in studies surrounding cost and education, there is a consensus among research highlighting evidence correlating the relationship between education and decreased symptom burden as evidenced by improved patient and caregiver satisfaction. Nine of the 33 included studies referenced the improvement of patient and family satisfaction with education for the patient and family (Baik et al., 2021; Cui et al., 2019; Kavalieratos et al., 2017; Kleinpell et al., 2016; Liu et al., 2020; Luo et al., 2016; Radhakrishnan et al., 2018; Rice et al., 2018; Schichetel et al., 2020). In total, these studies provided an integrated population size of 347,295, with the exclusion of Kavalieratos et al. (2017) who included studies with sample sizes ranging from 36 to 117. Each study represented decreased symptom burden through different measuring outcomes including increased confidence with self-management from caregivers, improved pain control, increased patient satisfaction, and improved quality of life. Some studies did not specify which symptoms were improved, but did show an overall symptom improvement (Kavalieratos et al., 2017; Liu et al., 2020; Radhakrishnan et al., 2018).

A correlation between individual or personalized education for the patient and/or family was seen with improved satisfaction related to decreased symptom burden (Cui et al., 2019). Rice et al. (2018) found that quality of life continued to improve post discharge with nurse-led education, whereas the control group experienced a decline in quality of life. Quality of life is correlated to the control of displeasing symptoms.

Baik et al. (2021) utilized a semi-quantitative analysis to analyze the needed education for hospice workers involved with heart failure patients. Two of the six themes needed were assisting patients with physical symptom management and symptom recognition and assessment

(Baik et al., 2021). Kleinpell et al. (2016) utilized a secondary analysis to support that hospice care is associated with an improvement in patients' experiences or quality of life but does not address the disparity of terminal heart failure patients and the high symptom burden that leads to revocation from hospice services. Liu et al. (2020) further support these findings through a cohort study and find that hospice services for terminal heart failure patients do have improved symptom management and quality of life; however, they are referred to hospice services much later than patients with cancer. These symptoms include an improvement in pain, anxiety, and dyspnea ($p < 0.001$, $p = 0.08$, $p < 0.001$, respectively). Interestingly, Liu et al. (2020) did find that due to this late referral, heart failure patients also experienced increased hospitalization lengths when compared to cancer patients (4.6 days versus 3.9 days), which correlates with the increase in costs. Terminal heart failure patients were also referred once they reached a significantly decreased Palliative Performance Scale, which indicates a higher symptom burden and needs to improve for the patients' quality of life (Liu et al., 2020).

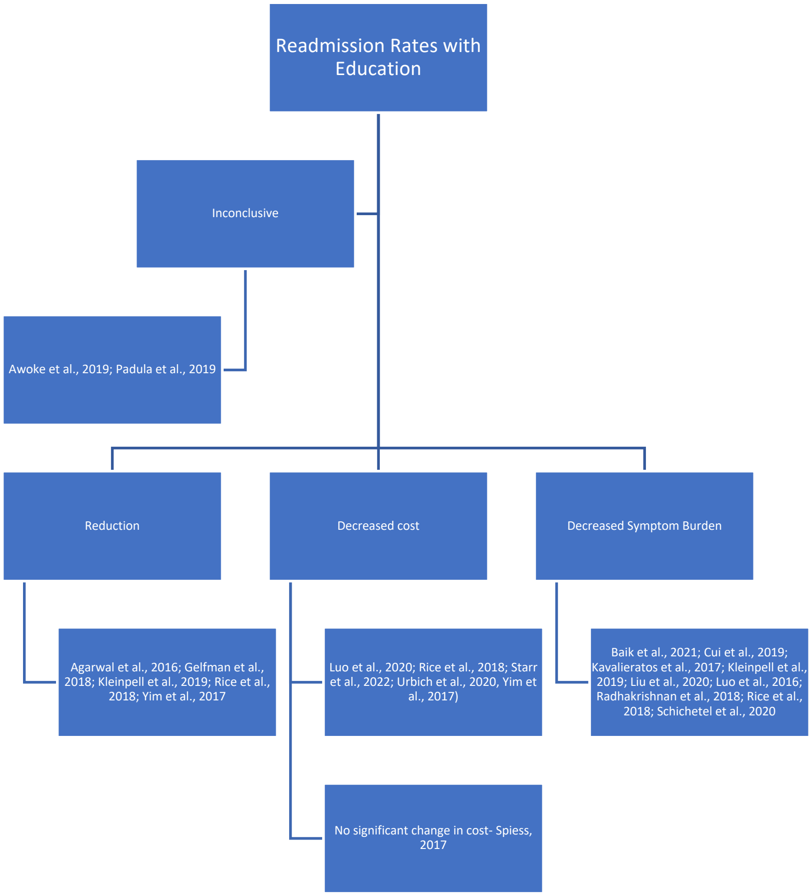
Schichetel et al. (2020) found that when education includes advanced care planning there is a correlated significant improvement in quality of life and patient satisfaction for heart failure patients ($p < 0.009$, $p = 0.003$, respectively). An important concept noted by Luo et al. (2016) is that patient satisfaction was improved with palliative care due to the increased communication, which addressed advance directives to ensure that the patient receives the care at end of life that they wanted: "Almost 30% of elderly Americans require surrogate decision-making at the end of life; those with documented advance directives will have a higher likelihood of receiving the care they wanted" (p. 733).

Two expert opinions were included in this for inclusion of symptom burden specific to heart failure patients. Jaarsma et al. (2021) utilized evidence-based recommendations through the

European Society of Cardiology highlighting the specific symptoms unique to heart failure patients and provides a guideline for the symptoms that need to be suppressed to improve quality of life. Kavalieratos et al. (2017) utilized evidence-based recommendations through the American College of Cardiology. These recommendations for symptom management align with Jaarsma et al. (2021) supporting the utilization of these recommendations within topics for education for caregivers of terminal heart failure patients.

Figure 1

Flowchart of Readmission Rates with Education and Associated Themes



Education

What education is currently needed for caregivers of heart failure patients? As discussed, there is benefit in providing education, but there is limited research on education for terminal heart failure patients and their families to identify the improvement in quality of life for these patients. Six of the 33 articles in this integrative review discussed education topics that should be provided for patients and their caregivers and the effects of this education (Baik et al., 2021; Chuzi et al., 2021; Creber et al., 2019; El-Jawahri et al. 2020; Liu et al., 2020; Schichetel et al., 2020). These topics include a variety of symptom management, strategies for coping, the prognosis of terminal heart failure, and advance care planning.

Baik et al. (2021) utilized caregivers of hospice heart failure patients to determine themes for education that are needed. These themes include how to cope with grief, how to handle behavioral changes, how to best improve the patient's quality of life, and symptom management with symptom recognition and assessment (Baik et al., 2021). Chuzi et al. (2021) support these themes using a descriptive study with clinicians and caregivers on terminal heart failure patients but specifically studied patients with destination therapy left ventricular assist devices (LVAD). Due to this specific population for the descriptive study, themes that emerged also included perceiving the healthcare team as invincible and the ability to communicate uncertainty while also providing hope and support (Chuzi et al., 2021).

A large portion of education needs to be directed toward estimating survival or determining the prognosis of heart failure patients as this is much more challenging than other disease trajectories and is noted to be a point of contention for many caregivers when determining satisfaction with care for their loved ones (Creber et al., 2019; Liu et al., 2020). Creber et al. (2019) found the best tool to determine the prognosis for terminal heart failure patients is the Palliative Performance Scale Version Two (a lower score correlates with decreased survival time) and should be included in education. They found that the highest predictive value in this tool was found within seven days of admission to hospice (AUC =

0.802).

Another aspect of education that provides improved quality of life and patient satisfaction is education on advance care directives or planning (Schichtel et al., 2020). This theme also emerged within the descriptive studies of Baik et al. (2021) and Chuzi et al. (2021). Schichtel et al. (2020) found that education surrounding advance care directives and planning was most effective at correlating with an improved quality of life ($p < 0.009$) when it was discussed at significant moments in the trajectory of the disease, was culturally considerate, and involved family members or caregivers. This education can also include the role of hospice, clarifying expectations and benefits, who covers hospice financially, and when it is appropriate to enroll based on the diagnosis (El-Jawahri et al., 2020). These aspects of education center around preparing the expectations for the caregivers and patients on disease trajectory and ensuring autonomy is maintained for the patient, which increases the quality of life.

Audience

When discussing educational topics, it is important to note who the education should be geared toward. Four of the 33 studies differed on who the target audience of the education should be: healthcare providers, patients, and/or caregivers (Ament et al., 2021; Chuzi et al., 2021; Jordan et al., 2020; Padula et al., 2019; see Figure 2).

As discussed through this integrative review, early referral to hospice services allows for increased opportunity for education, translating to improved symptom control and increased quality of life; however, there is a delay in referral to hospice services for heart failure patients by other providers. Chuzi et al. (2021) included providers in their descriptive study and identified that providers, too, need education and feel uncomfortable with the variability of the trajectory of terminal heart failure. Ament et al. (2021) further expand upon this highlighting a need to educate on various tools that increase a provider's comfort with understanding when to refer to palliative or hospice services for heart failure patients.

Jordan et al. (2020) found that education within an advanced cardiac care program for terminal heart failure patients was best provided by providers to educate patients and families. Education that was most effective in preventing patients from seeking acute emergent services was centered on expectations for hospice utilization and understanding that hospice is available and will be routinely assessing the patient and providing care (Jordan et al., 2020). Padula et al. (2019) also found a trend toward decreasing readmissions to acute services following education sessions provided by a provider, which did including nursing staff.

Method

Among the studies, there is variation in the design, delivery, and follow-up of the education provided (see Figure 2). Seven of the 33 studies specified a method for the delivery of education. The designs and delivery ranged from telephone calls to group education programs to in-person meetings with nurses. Some studies utilized nursing staff to provide education whereas others utilized healthcare providers at the bedside or other practitioners within the hospice and/or palliative care programs. The majority of the studies followed up and evaluated outcomes of the education for one year (Jordan et al., 2020; Padula et al., 2019; Radhakrishnan et al., 2018; Rice et al., 2018). The shortest follow-up was within four weeks (El-Jawahri et al., 2020). The follow-up for educational outcomes did not seem to correlate with the significance of the study.

Design of the education ranged from one educational session to weekly follow-ups with monthly in-person meetings. The studies with more frequent sessions identified significantly improved outcomes (Awoke et al., 2019; Cui et al., 2019; Rice et al., 2018).

The method of how the education was provided seemed to be the most significant variable in determining if the education is beneficial for the caregiver and patient. One method of education is through nurse-led education and transitional care programs (Jordan et al., 2020; Padula et al., 2019; Radhakrishnan et al., 2018; Rice et al., 2018). According to the current guidelines by the American College of Cardiology Foundation and the American Heart Association, education should be conducted through nurse-led education:

> guidelines recommend one-on-one nurse-led education by specialist nurses who can promote adherence to treatments and healthy lifestyles for individuals with heart failure. Improving knowledge about signs and symptoms of disease progression, treatment plan, and actions to engage in to manage symptoms has been reported to minimize exacerbation and frequent hospitalization. (Awoke et al., 2019, p. 16)

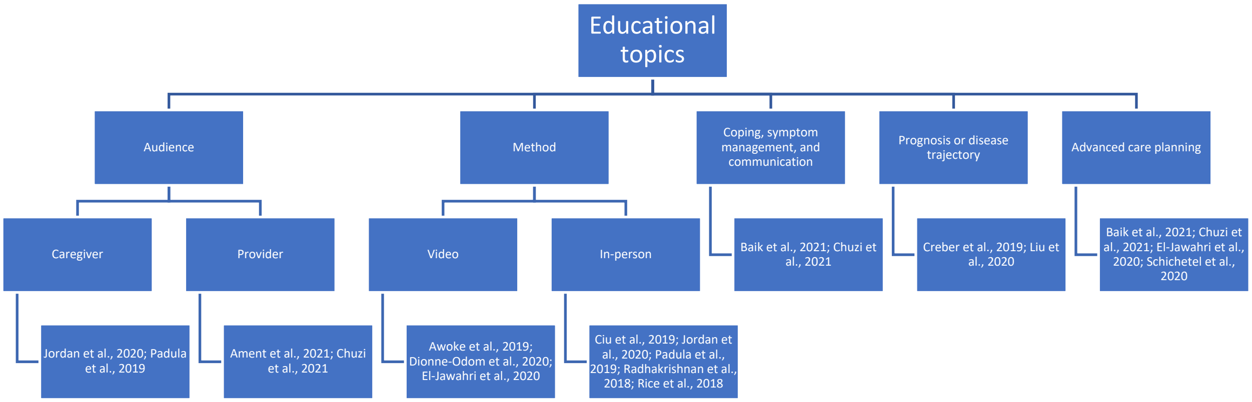
Jordan et al. (2020) found that an advanced cardiac care program for hospice enrollment improves quality of life and reduces utilization of acute healthcare services. Their program also utilized a video for orienting to hospice services followed by in-person visits with healthcare providers and registered nurses who supported the initial education. Education included an emphasis on symptom management and the effectiveness of the program was evaluated through the percentage of heart failure patients included in the program (increased from 7.9% to 9.5%). They did find contradictory evidence that as the program continued in length there was a decrease in the length of stay from 98.8 days to 82 days. This was hypothesized to be due to the expansion of services that encompassed more acutely ill terminal patients, reducing the length of stay, but live discharges or revocation for acute services could also contribute to this number (Jordan et al., 2020).

Rice et al. (2018) utilized in-person nurse-led education and also found a decrease in hospital admissions, improved quality of life, and decreased overall cost. Cui et al. (2019) further support in-person nurse-led education as a significant determinant for reducing readmissions in the heart failure patient setting (p = 0.036).

Another method for providing education includes telehealth either via telephone or video. Awoke et al. (2019) did not find a statistically significant difference in 30-day readmission rates following telephone education for the caregiver (p > 0.05). El-Jawahri et al. (2020) utilized telehealth through a pre-recorded video tool for education on hospice services. Their study did find a significant improvement in the retention of education perceived by caregivers following the video education (p = 0.001) (El-Jawahri et al., 2020). Dionne-Odom et al. (2020) also determined that there was not a significant improvement with weekly telephonic education for caregivers; however, this study did discuss a significant limitation was that the caregivers did not rate any discomfort or burden prior to the start of the study; therefore, there was not a significant change following the intervention.

Figure 2

Flowchart of Recommended Education, Audience, and Methods



Synthesis of Results

While the evidence in the literature is strong in addressing interventions to reduce readmissions related to heart failure patients, there was a lack of evidence surrounding the population of interest for this integrative review, terminal heart failure patients and their caregivers and/or families. Therefore, this integrative review had to include studies and evidence that is for heart failure patients in general, and not necessarily terminal heart failure patients who had elected for hospice care.

The integration of these studies does point to a significant census that education does result in improved quality of life for heart failure patients. Most studies correlate this improved quality of life with improved symptom management, which also directly correlates with fewer admissions for acute care services. However, there is no consensus on what the education should include, the audience it should be provided to, or the method by which it is provided. The integration of the studies does show a correlation between more frequent follow-ups and a significant benefit in perceived confidence in understanding the education provided. Research for hospice care in general is underwhelming and highlights a future need in research, discussed further at the conclusion of this scholarly project.

Additional Analysis

While there were no studies that addressed the clinical question for this integrative review directly, the studies that were chosen for the integrative review provide the opportunity to integrate common themes for the literature and evidence that do address the needs proposed by the clinical question. The strength of these studies was moderate to high as 76% of the studies included in the integrative review were level one to four according to the Melnyk levels of evidence (see Table 1). The lower-strength articles provided more insight and context to the resulting themes, while also supporting the need for increased research on this clinical problem.

The articles chosen for integration were less than seven years old, with 79% of the articles being within the last five years (see Appendix A). This increases the reliability and accuracy of the resulting integrated themes.

The evidence acknowledges heart failure patients as a population of interest but does not specify terminal heart failure patients as separate from their studies, limiting the results for this integrative review (Agarwal et al., 2016; Awoke et al., 2019; Bidwell et al., 2018; Cui et al., 2019; Elkhateeb & Salem, 2018; Luo et al., 2016; Padula et al., 2019; Schichetel et al., 2020; Urbich et al., 2020). Due to the lack of information specifying terminal heart failure patients in hospice as the population of interest, it was imperative to include some evidence that provided insight on education and the correlation in the hospice setting, but the patient population was generalized to anyone on hospice (i.e., cancer patients and heart failure patients). The addition of this evidence also provided a comparison of the utilization of hospice services and the statistically significant difference in utilization and revocation rates based on diagnosis (Ament et al., 2021; El-Jawahri et al., 2020; Kleinpell et al., 2016; Liu et al., 2020; Starr et al., 2022)

Evidence identifies education as a need, but only a few studies designate caregivers as an important stakeholder to receive the education (Baik et al., 2021; Chuzi et al., 2021; Jordan et al., 2020; Padula et al., 2019). Many studies that identified caregivers as a stakeholder, also included patients within the group responsible for understanding the information and contributing to factors associated with readmission (Bidwell et al., 2018; Elkhateeb & Salem, 2018; Jaarsma et al., 2021; Radhakrishnan et al., 2018; Rice et al., 2018).

SECTION FOUR: DISCUSSION

Summary of the Evidence

The goal of this integrative review was to determine if the current body of evidence supports that improved education for caregivers of terminal heart failure patients would reduce hospital admissions. The limitation of this integrative review is that only six of the 33 studies directly compared education to readmission rates (Awoke et al., 2019; Baik et al., 2021; Cui et al., 2019; Elkhateeb & Salem, 2018; Padula et al., 2019; Rice et al., 2018); and, out of these studies only one focused specifically on hospice heart failure patients, education, and readmission rates (Baik et al., 2021). Many of the studies discussed heart failure and the symptom burden associated with the terminal disease trajectory, the caregiver and provider roles, the burden of readmission on healthcare costs, and the method by which education is best received. If anything, this integrative review highlights the need for further research in focusing on the population of interest of terminal heart failure patients and if and how these variables are correlated within hospice care.

Unique Challenges Facing Terminal Heart Failure Patients

The research presented did show that heart failure patients, regardless of their point in the disease trajectory, have unique challenges that make management difficult both from a caregiver and provider point of view. Each of these challenges can be modified with improved education, but further research is needed to determine how best to present this education, who should present the information, and when. Cross et al. (2019) discuss the unique challenges faced by terminal heart failure patients compared to other diseases, including the "inability to predict disease trajectory, difficulty keeping patients home due to symptom burden, geographic and socioeconomic disparities, late referrals, and professional factors including providers discomfort in discussing end of life and advance directives" (p. 93). These challenges are supported by the integration of the studies in this integrative review as the highest priority to improve care for this population.

Symptom Burden

One of the biggest challenges in caring for heart failure patients at end of life is symptom burden. Symptom burden for this population is uniquely challenging when compared to other disease processes in the complexity of managing these symptoms. Common symptoms experienced at the end of life for heart failure patients include dyspnea, pain, fatigue, and delirium. The management of these symptoms requires the knowledge of the caregiver to assess the symptoms and administer the appropriate pharmacological and non-pharmacological interventions to alleviate the unpleasant symptoms (Spiess, 2017).

Many times, this requires the management of multiple medications and the knowledge of when and how to administer the medications (Spiess, 2017). Polypharmacy seen at end of life in heart failure is due to the frequent coinciding comorbidities seen with cardiovascular disease including diabetes and hypertension, in addition to the symptom burden of progressing heart failure. It was shown that on average, by end of life, these patients are prescribed 12.5 medications (Warraich et al., 2017). Guidelines by experts recommend that shared decision-making between providers and patients should include education on necessary medications and reduction in polypharmacy at end of life to improve adherence to medication regime and improve symptom management at end of life (Jaarsma et al., 2021).

With the knowledge and understanding of the complexity of managing symptoms at end of life for heart failure patients, education for caregivers and patients must be prioritized. As outlined in the results section of this integrative review, there is no consensus on the best method to provide this education, but there is a correlation between the frequency of the education and the perceived confidence in the ability to care for the patient. With this knowledge, education on symptom management should be provided regularly and frequently to ensure the comfort of the patient and improve the quality of life. This will also require an increase in the utilization of hospice services, which have the resources to provide education through an in-person method.

Prognosis

Cross et al. (2019) supports that one of the biggest challenges within heart failure is determining when to refer to hospice:

> According to the WHO, nearly 39% of adults needing palliative care at the end of life have cardiovascular disease. Exacerbations in symptoms and carers being unprepared for this are likely to contribute to HF being a leading cause of hospital readmissions. Hospice care can ameliorate distress at the end of life for patients with HF, yet it is underused in this population. Increasing the use of hospice care among this population should be a priority, although determining when a patient with HF should be referred to hospice care remains a challenge. (p. 94)

This hesitancy to utilize and refer to hospice at appropriate times results in a decreased utilization of hospice and continued utilization of acute inpatient services. Even when providers do choose to refer to hospice, in heart failure, these patients are referred late into their terminal disease progression. Heart failure patients are not typically referred until the last three days of their lives, which limits the time available to educate caregivers on symptom management and preparation for end of life, which can contribute to the high revocation rates and readmissions at end of life (Yim et al., 2017). This increase in revocation is supported by Davis et al. (2019), “Even among patients with HF who are referred to hospice, the median time from enrollment to death is 12 to 20 days, with 20% to 22% of patients dying within three days of enrollment” (p. 686). The U.S. Department of Health and Human Services recommends that for a patient to receive the full benefit of hospice services, they must be enrolled in hospice for at least a minimum of thirty days (Yim et al., 2017). Education surrounding the prognosis of the patient for both healthcare providers and caregivers is essential in increasing the utilization of hospice services as well as preparing the caregiver to better be able to manage the patient at end of life, by providing those necessary resources. This will in turn reduce the utilization of acute care services, improve the patient’s quality of life, and decrease the overall healthcare utilization costs.

Limitations

For this integrative review to be accurate and reliable, it was necessary to follow a strict systematic approach to the literature review and the inclusion or exclusion of studies. The lack of studies surrounding the population of focus for this integrative review forced the project leader to broaden the inclusion criteria both for dates of studies and for the population of interest. Due to the lack of studies on hospice heart failure caregivers, studies that included any heart failure patients and caregivers were necessary to include and translate the findings to the population of choice. It was also necessary to include studies from 2016 to present, limiting the reliability of this integrative review.

While a systematic approach through PRISMA guideline is recommended, it was necessary to also utilize ancestry and descendancy approaches to identify relevant sources for the integrative review, limiting the ability to reproduce this integrative review by an independent project leader.

One limitation of this integrative review is that it was necessary to include studies from other countries due to the lack of studies in the United States on this topic. This is limiting as the healthcare system is set up uniquely within the United States compared to other countries, and the concept of hospice and palliative care around the globe is affected by cultural connotations, as is the availability of caregivers for terminal heart failure patients versus the increased use of skilled nursing facilities within the United States, who have some medical training on symptom management and medication administration. This highlights the need for further research focusing on Medicare’s system of hospice services to allow for comparison to other countries.

Implications for Research

Terminal heart failure patients have been excluded from the vast research surrounding the improvement of evidence-based care for heart failure patients. This integrative review indicates the need to implement research surrounding terminal heart failure patients as the population of interest. Research can be conducted across specialties surrounding providers’ perspectives on hospice referrals and education on benefits as well as typical disease progression. Research should include patients and their caregivers in the home setting and interventions that improve patient satisfaction and caregiver satisfaction.

While there was consensus that education helps to improve patient and caregiver satisfaction, further research is needed to determine the best way to provide education. Heart failure remains difficult to manage due to symptom burden and unpredictability through the progression of the disease. As technology continues to advance and treatments continue to develop, research needs to be reinforced in identifying how these advancements can be applied to terminal heart failure patients and reduce symptom burden to improve quality of life at end of life.

Implications for Practice

As has been highlighted throughout this integrative review, an emphasis on education surrounding hospice utilization and symptom management for heart failure patients should be prioritized for all patients in the clinical setting. There is a consensus among the literature that supports that hospice provides improved symptom management, higher patient and family satisfaction ratings, and improved quality of life, but there is a clinical need to keep these patients in the hospice setting by providing improved symptom management. Common barriers to this include symptom burden unique to heart failure, the discomfort of caring for the patient due to lack of knowledge by the caregiver, and limited understanding of hospice resources by providers across acute care specialties. Russell et al. (2019) provide an overview of these qualitative themes found in their study:

> Providers spoke of patients and families who "come into hospice not having any idea what it's about," "don't understand the whole prognosis," are "expecting a miracle," and "use hospice to get the service that they need," without acknowledging that they "are at the end." Limited understanding of "the hospice concept" and "resistance" to educational interventions by hospice nurses were described as barriers to keeping patients continuously enrolled in hospice, especially in cases in which patients held perceptions that "if they call 911 and they go to the hospital, they feel that if they hear it from the hospital or doctor there, that's different." Clinicians spoke of educating patients and managing their expectations about what services to expect through hospice. Some patients and families were described as being "pro-hospice," whereas others were described as harboring views that "hospice is not doing anything." Providers also described needing to manage expectations among patients that nurses and other staff will "be there 24/7 (all the time)." (p. 552)

Interventions at the bedside should center on increasing education on hospice services and interventions appropriate to control symptom burden.

An emphasis needs to be placed on healthcare providers to recognize healthcare and socioeconomic disparities that place patients at a greater risk of readmission into acute care services from hospice. Starr et al. (2022) found that Medicaid patients were 2.4 times more likely to have a 30-day readmission following admission to hospice than any other patient (p = 0.004). They also found that African Americans were 1.4 times more likely to be readmitted (p = 0.02) than any other race. Russell et al. (2019) confirm these socioeconomic disparities by identifying that Hispanic patients and African American patients were at the highest risk for readmission to acute care services following hospice when compared to other races (AOR: 2.99; 95% CI: 1.99 to 4.50; AOR: 2.06; 95% CI: 1.31 to 3.24, respectively).

Another important implication for practice is the emphasis on including caregivers during education and decision making for the terminal heart failure patient. In doing this, it is important for the healthcare provider to assess the caregivers' education level and any barriers to understanding and applying the education (Elkhateeb & Salem, 2018). Education directed toward caregivers and patients for discharge from acute care services relies on the assumption that these caregivers and patients have normal cognition and no barriers to understanding the directions, which cannot always be assumed (Agarwal et al., 2016).

DNP Essentials

Essential I

This integrative review aimed to provide a scientific underpinning to practice that involves terminal heart failure patients and integrates current evidence to encourage the adoption of interventions to improve caregiver education, improve the quality of life for this population of interest, and reduce revocation rates from hospice care to acute care services. *Essential I* involves the integration of multiple bodies of knowledge ranging from science underpinnings to philosophy and other human behavioral sciences (Zaccagnini & White, 2017). This integrative review brings the biological underpinnings of the trajectory of heart failure in the terminal patient while integrating the understanding and education of caregivers to reduce unpleasant symptoms and improve quality of life. It is essential when aiming to improve care at the end of life that the understanding of human love and grief is considered, as well as the ethical principle of autonomy; both of which affect the quality of life and patient and family satisfaction of care (American Nurses Association [ANA], 2015; Tyrell et al., 2022).

The result of this integrative review is that further research will be advocated for to include terminal heart failure patients and their caregivers to determine improved evidence-based practices with the underpinning of current scientific evidence.

Essential II

The second essential for the doctoral-prepared nurse involves the ability to participate in organization and system leadership for quality improvement (American Association of Colleges of Nurses [AACN], 2006). As outlined in this integrative review, the results of the integration of this evidence not only will improve a population's health but will have significant improvements in healthcare costs and help to improve organizations. Within the United States, hospice organizations are evaluated nationally through the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Survey. This survey evaluates each hospice organization's ability to communicate with the family, receive timely help, provide training to the family to care for the patient, and if they would recommend others to utilize the organization. This survey is through Medicare and is tied to federal funding for hospice organizations. By emphasizing caregiver education for heart failure patients as a priority for each organization, these surveys would hypothetically improve in ratings, and ultimately the hospice organizations themselves will benefit from increased patient and family satisfaction and improved financial stability (CMS, 2022a).

Essential III

Essential III is clinical scholarship and analytical methods for evidence-based practice (AACN, 2006). In summary, this essential ensures the DNP is prepared to translate research to practice and evaluate the outcomes:

> DNP graduates engage in advanced nursing practice and provide leadership for evidence-based practice. This requires competence in knowledge application activities: the translation of research in practice, the evaluation of practice, improvement of the reliability of health care practice and outcomes, and participation in collaborative research. (AACN, 2006, p. 11)

An integrative review is the ability to "address: (1) the current state of evidence of a particular phenomenon, (2) the quality of the evidence, (3) gaps in the literature, and (4) identify the future steps for research and practice" (Toronto & Remington, 2020, p. 19). This integrative review addresses the current lack of evidence around terminal heart failure patients and interventions to reduce readmissions through education for caregivers. Through this integrative review, the evidence is rated by quality and integrated from similar populations of interest to provide evidence and suggestions for future research and practice. In doing so, clinical scholarship that is available through current evidence has been translated to evidence-based interventions for practice, meeting the standards for *Essential III* (AACN, 2006).

Essential IV

Essential IV involves informatics and the use of informatics to improve and transform healthcare: "DNP graduates are distinguished by their abilities to use information systems/technology to support and improve patient care and healthcare systems, and provide leadership within healthcare systems and/or academic settings" (AACN, 2006, p. 12). The use of technology throughout this integrative review for gathering and evaluating current evidence was imperative to systematically evaluate each level of evidence and integrate the highest results. The initial search through electronic databases yielded 56,817 studies. Without the proficiency to utilize informatics, it would not have been possible to exclude non-pertinent studies and complete the integrative review in a systematic method.

Essential V

The fifth essential assures that the doctoral-prepared nurse is able to advocate for patients or populations and participate in healthcare policy as a leader (AACN, 2006). The goal of this integrative review is to improve the quality of life for a subset population that tends to be ignored by large studies and health advocating organizations. For example, the World Health Organization's (2023) *Healthy People 2030* encourages the focus on health improvement for a multitude of conditions and populations; and yet, terminally ill patients are not included in the objectives for health promotion. Cross et al. (2019) further support this finding:

> Insufficient funding for palliative care research has contributed to an inadequate evidence base for improving symptom management, communication skills, care coordination, and the development of care models. Less than 0.2% of the annual budget of the National Institutes of Health in the US has been spent on palliative care research. (p. 95)

The Bible states, "For we will surely die and are like water spilled on the ground which cannot be gathered up again" (*King James Bible,* 1769/2023, 2 Samuel 14:14). The only truth in life is that everyone will die, and yet, this population is not advocated for frequently for improved quality of life. This integrative review aims to bring awareness for the need to focus on terminal patients' quality of life and implement interventions to improve both patient satisfaction and family satisfaction. In that, advocating for improved utilization of both palliative and hospice care services across specialties in healthcare is another needed result from the evidence found in this integrative review.

Essential VI

Essential VI is met for the doctoral-prepared nurse with interprofessional collaboration to improve both patient and population outcomes (AACN, 2006). Successful management of patients across the lifespan requires strong communication between all members of the healthcare team. As highlighted within this integrative review, the collaboration and communication between transitions in levels of care for patients is the key to reducing readmissions to acute care services. The interventions outlined in this integrative review aim to encourage future research to determine the best practices to increase this collaboration amongst interprofessional teams during the transition from acute services to hospice care.

There is a theme of discomfort in the utilization of hospice services for heart failure across specialties for healthcare providers due to the difficult nature in predicting the unpredictability of terminal heart failure patients' prognoses: "Humility about the inability to predict the actual time of death is an important attribute for the healthcare professional regardless of discipline or area of expertise" (Institute of Medicine, 2015, p. xii). An important concept within the education provided to caregivers for hospice heart failure patients is the prognosis of the patient, which requires that the healthcare team collaborate and agree with the prognosis and management for the patient. This is going to require an emphasis on improving education for healthcare providers and increasing comfort around typical chronic disease progression and when patients are appropriate for referral to palliative or hospice services.

Essential VII

Essential VII involves focusing on clinical prevention and population health to improve the nation's health (AACN, 2006). Within the hospice population, the focus for care transitions from a goal of prevention to health quality and well-being promotion. While this integrative review does not aim for disease prevention, the direct goal of the clinical question is to prevent readmissions to acute health services for hospice heart failure patients, which directly correlates to improved quality of life for this population, as outlined through the integrative review. Education does help to decrease readmissions within the heart failure patient population in general, and hypothetically, should help improve hospice heart failure patients, indicating a need for further research.

Essential VIII

The last essential is advanced nursing practice (AACN, 2006):

> These experiential opportunities should be sufficient to inform practice decisions and understand the patient care consequences of decisions. Because a variety of differentiated roles and positions may be held by the DNP graduate, role preparation for specialty nursing practice, including legal and regulatory issues, is part of every DNP program's curricula. (AACN, 2006, p. 16)

This integrative review afforded the opportunity to review the laws and regulations underlying hospice services within the United States and how these regulations for admittance into hospice services can hinder referrals due to practitioners' lack of confidence in determining prognosis. This integrative review provided the opportunity to present the resulting information in hopes of guiding future practices to incorporate education for both caregivers and providers across specialties to improve patient care for hospice heart failure patients.

Conclusions

In conclusion, hospice patients have been a notoriously underrepresented population in today's research and evidence-based practices. This review identifies the need to increase research to determine interventions that will increase the quality of life of these patients and their families by improving symptom management and caregiver knowledge. Clinically, there is a need to increase healthcare providers' comfort level with hospice services, while increasing their knowledge of terminal disease progression in heart failure and how to communicate with caregivers. This integrative review does highlight the important relationship between education, patient outcomes, and healthcare cost utilization. This review did not answer the clinical question of does symptom management education for caregivers reduce hospital admissions; however, through inference, it can be assumed that there is a need for improved caregiver education and future research and clinical protocols need to prioritize the evolution into practice.

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APPENDIX A: Literature Matrix

Source	**Study Purpose**	**Sample Characteristics**	**Methods**	**Study Results**	**Level of Evidence (Melnyk Framework)**	**Study Limitations**	**Would Use as Evidence to Support a Change?**
Baik, D., Leung, P. B., Sterling, M .R., Russell, D., Jordan, L., Silva, A. F., & Creber, R. M. M. (2021). Eliciting the educational needs and priorities of home care workers on end-of-life care for patients with heart failure using nominal group technique. *Palliative Medicine*, *35*(5), 977-982. https://doi.org/1//0d.o1i1.o7rg7/102.16197271/06236291291693929169399	The purpose of this study is to address the educational needs and priorities for home care worker acting as caregivers for hospice patients with the goal of improving symptom management and quality of life at end of life.	41 home care workers through 17 different caregiving agencies within New York were interviewed. Median age of participants was 52, all were women, and 54% were Hispanic.	This study utilized a semi-quantitative group interview to determine the top three challenges found while caring for a hospice patient. Responses were divided into five categories ranked by priority.	The study found that paid caregivers' top five priorities for challenges during caring for heart failure hospice patients is "how to cope and grieve," "assisting patients with behavior changes," "supporting patients to improve their quality of life," "assisting patients with physical symptom management," and "symptom recognition and assessment."	Level VI: Qualitative or descriptive studies (Melnyk & Fineout-Overholt, 2019).	Limitations for this study include a small sample size limited to only paid caregivers through an agency who does have minimal training. Future studies would need to be generalized to home populations with families as caregivers and identify specific educational needs and preferred method in receiving education.	Yes, this study supports that there are educational needs for caregivers that would improve the care of heart failure patients at end of life, but does not identify how to complete this education and how to generalize this to the home hospice setting, which supports the need for further research.
Elkhateeb, O., & Salem, K. (2018). Patient and caregiver education levels and readmission rates of congestive heart failure patients. *Eastern Mediterranean Health Journal*, *24*(4), 345-350.	The purpose of this study was to determine the correlation between caregiver and patient educational levels to cardiac	The sample included 101 heart failure patients admitted to King Abdullah Medical Center in Saudi Arabia that were enrolled in the CHF disease	Patients that met the criteria for NYHA II-IV were included in the study and followed for a 12-month period. Data was collected on hospital	Study found that the HEL group was younger in age than the LEL group (52 vs. 61; $p < 0.001$). There were no significant differences in mortality or readmission rates between the two	Level III: Quasi-experimental trial (Melnyk & Fineout-Overholt, 2019).	Limitations for this study include small sample size, limiting ability to generalize the results and the location of the study is in Saudi Arabia introducing cultural	Yes. While this study found no significant correlation between readmissions and educational levels of caregivers and HF patients, it did highlight the

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
	readmissions and mortality outcome in congestive heart failure patients.	management program registry that meet criteria for NYHA class II-IV symptoms.	readmissions, mortality, and divided into two groups: low education level (< or = 11 years) and high educational level (> 11 years). Statistical analysis was completed with 2-sample *t*-test and compared with a chi-square test.	groups. The study did find that overall, 74% of the caregivers had a HEL, but 22% had no formal education. Another result found was that the educational booklet that is included within the CHF program within this organization was provided to 64% of CGs in the HEL group, but only 37% of the CGs within the LEL group.		differences that can affect variable compared to the United States.	high rate of low education levels among caregivers for the HF patients and identifies a need to tailor education to low educational barriers in preventing readmissions. This study utilized the general HF population but can be hypothetically generalized to the terminal heart failure patient population.
Padula, M. S., D’Ambrosio, G. G., Tocci, M., D’Amico, R., Banchelli, F., Angeli, L., Scarpa, M., Capelli, O., Cricelli, C., & Boriani, G. (2019). Home care for heart failure: can caregiver education prevent hospital admissions? A randomized trial in	The purpose of this study is to assess if a low-cost educational program for caregivers would reduce readmission rates in the heart failure population.	Sample included 313 at-home heart failure patients cared for by caregivers (150 in the control and 163 in the intervention group) from 101 general practitioners within Modena	This study used a randomized controlled trial to determine if education for caregivers would reduce readmission rates. Any provider that had over 800 patients within the Modena	The study found that hospital admissions and deaths in the intervention group were less than the control group, but results were not significant between the two groups.	Level II: Randomized controlled trial (Melnyk & Fineout-Overholt, 2019).	Limitations for this study include that the study was completed over 5 years ago limiting accuracy and reliability. While the sample size was sufficient to run statistical analysis, a larger sample size may have been	The study does not support a change due to lack of a statistical difference; however, it does support that further research is needed with a larger sample size and this could be

Source	**Study Purpose**	**Sample Characteristics**	**Methods**	**Study Results**	**Level of Evidence (Melnyk Framework)**	**Study Limitations**	**Would Use as Evidence to Support a Change?**
primary care. *Journal of Cardiovascular Medicine*, *20*(1), 30-38. https://doi.org/10.2459/JCM.0000000000000722.		Local Health Authority.	Local Authority was invited to participate and patients with HF Class II-IV with a caregiver who agreed to participate in training, and the pt had the ability to give informed consent were given the opportunity to participate. Patients were followed from August 2013 to April 2015. The participants were split between a control and intervention group. Both groups had a practitioner visit at the beginning of the study to gather initial data on the caregiver and prognosis			beneficial to ensure there is not a significant difference between the two groups.	translated to end of life heart failure patients to determine if an educational program does reduce readmissions and prevent discharge from hospice.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
			of the patient. For the intervention group, education for the CG was provided at the initial visit on symptom recognition, vital sign monitoring, supports by a brochure and a handbook for caregiving. Patients were observed for 12 months unless deceased or loss to follow-up and hospital admissions and deaths were compared between the two groups and statistically compared with the hazard ratio.				
Radhakrishnan, K., Jones, T. L., Weems, D., Knight, T. W., & Rice, W. H. (2018). Seamless transitions: Achieving patient	This study implemented a transitional care program for improving interdisciplin	Sample included 104 patients admitted into the initial pilot of the program	The Transitions Across Care Settings was created based on the Coleman Care	The study found that patients participating in this program had a readmission rate at 4.8% overall for	Level III: Quasi-experiment (Melnyk & Fineout-Overholt,	Limitations for this study include small sample size, but the program is now being implemented into	This study supports that improved communication and follow-up among

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
safety through communication and collaboration. *Patient Safety*, *14*(1), e3-e5.	ary communication with the goal of decreasing 30-day readmissions for pneumonia, CHF, and myocardial infarctions in chronic conditions.	within a 7-hospital care system in Texas with coordination between inpatient, postacute services, skilled nursing facilities, hospice, and a home health agency.	Transitions Intervention model. Patients received a hospital visit, home visit, and three follow-up phone calls from providers within the Team and discussed how to recognize if they are in a green, yellow, or red zone based on symptoms and what each of these zones requires for follow-up. Readmission rates were followed.	the 104 patients. Implementation costs were evaluated, but numbers were not provided in the study results.	2019).	its second phase, which will include 1,000 patients. Another limitation is that this is not specific to heart failure patients and instead is just generalized chronic conditions.	interdisciplinary teams does decrease readmission rates within the chronic condition population. Therefore, improved follow-up with caregivers and providers would hypothetically yield similar results within heart failure hospice patients.
Rice, H., Say, R., & Betihavas, V. (2018). The effect of nurse-led education on hospitalization, readmission, quality of life and cost in adults with heart failure. A systematic review. *Patient Education and Counseling*, *101*(3),	The purpose of this study was to review the benefits of patient and caregiver education sessions on quality of life, readmission	The sample included seven RCTs within the USA, Argentina, and Canada. The total sample size of patients within the seven RCTs was 3,549 patients.	Searches for the studies were completed through CINAHL, PubMed, and Google Scholar with identified keywords. Research studies were	This review concluded that multiple studies had significant results identifying that nurse-led patient education does lead to decreased hospital admissions with heart failure	Level 1: Systematic reviews and meta-analysis of RCT (Melnyk & Fineout-Overholt, 2019).	Limitations of this study include that the studies are greater than 10 years old. Another systemic review is needed to update the information and ensure accuracy and reliability.	This review does support that education can make a significant impact on readmission rates and supports that more up to date studies should be reviewed to

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
363-374. https://doi.org/10.1016/j.pec.2017.10.002	rates and costs in the heart failure patient population within the home setting.	Date ranges of the study were from 1967 to 2010.	narrowed through the use of the Clinical Appraisal Skills Programme (CASP). Results on nurse-led education interventions and outcome on hospitalization, readmission, quality of life, and cost.	patients, improved quality of life, and decreased cost. The study did attempt to review if there was a more effective instructional method for the education, but there was not a better type of educational method.			determine if these results can be translated to the hospice heart failure population and how the education should best be delivered.
Cui, X., Zhou, X., Long-le, M., Tong-Wen, S., Bishop, L., Gardiner, F. W., & Wang, L. (2019). A nurse-led structured education program improves self-management skills and reduces hospital readmissions in patients with chronic heart failure: a randomized and controlled trial in China. *Rural and Remote Health*, *19*(2), 5270. https://doi.org/10.22605/RRH5270	The purpose of this study was to determine if nurse led-education on self-management for heart failure would lead to a decrease in hospital readmissions.	The study included 96 patients admitted to Liaocheng People's Hospital in Shandong Province of China from January to October 2016. Patients that were included in the study were Class II-IV CHF and excluded if they had any ACS, acute renal failure, COPD,	This study divided the sample size into a control and intervention group. The control group received standardized treatment in the hospital with standardized education at the bedside on symptom management at home. The intervention group received a one-hour education	This study found that there was no significant difference in readmission rates between the control and intervention group ($p > 0.05$), but did find that there was a significant difference in perceived ability to self-manage the disease following education ($p < 0.01$) and improved compliance with daily weights ($p < 0.01$).	Level II: Randomized controlled trial (Melnyk & Fineout-Overholt, 2019).	Limitations of this study include limited sample size, which limits accuracy and reliability of the study. Another limitation is that this study is in China, which does limit ability to translate results to the United States due to cultural and healthcare institution differences.	This study does provide support that education for patients and caregivers does significantly improve patient satisfaction and quality of life as they feel empowered to manage their own disease. Hypothetically, these results can be translated into the hospice heart failure setting and encourage that education would support

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
		or pulmonary embolisms.	session during the hospitalization from nursing staff, then another one-hour education session directly before discharge to review self-care management at home. They were then followed up with the HF educational team every four weeks with either a face-to-face follow-up or telephone call for 15-30 minutes. Patients received a self-management survey prior to the start of the study and 12-months after to compare the effect of education, results were analyzed for				patient's quality of life at end of life.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
			significance with a *t*-test.				
Creber, R. M., Russell, D., Dooley, F., Jordan, L., Baik, D., Goyal, P., Hummel, S., & Bowles, K. H. (2019). Use of the Palliative Performance Scale to estimate survival among home hospice patients with heart failure. *ESC Heart Failure***,** *6,* 371-378. https://doi.org/10.1002/ehf2.12398	The purpose of this study was to determine if the Palliative Performance Scale (PPS) can be utilized to predict survival time in heart failure patients at end of life.	A retrospective cohort sample of 1,114 adult heart failure patients in a non-profit hospice in New York from January 2013 to May 2017 was utilized.	Data was collected from the electronic medical record and included sociodemographic, severity of disease, admission PPS score, and date of death. A cox proportional hazards model was used to analyze the correlation between survival times and PPS scores.	The study found that lower PPS scores at admission were significantly correlate with a low survival time ($p < 0.001$; however, the study also found that the predictive accuracy of the PPS was only modest (Area under curve (AUC) = 0.69). The study did find that the PPS was the most accurate during the first few weeks of hospice and declined in accuracy over time (At 7 days, AUC= 0.80, 90 days, AUC=0.71, 180 days, AUC=0.69)	Level IV: correlational design; retrospective cohort study (Melnyk & Fineout-Overholt, 2019).	One limitation of the study is that the sample was taken from the years 2013 to 2017; therefore, the data is outdated and the study should be repeated with data from the last five years for improved accuracy. Another limitation is that this study only included one non-profit organization in New York, limiting the ability to generalize the findings to other populations.	Yes, this study does support a change to practice. This study supports that PPS scores can be utilized to predict survivability of heart failure patients, and therefore, should be able to correlate to providing early advanced cardiac care interventions with improved caregiver education to improve the care for heart failure patients at end of life.
Jaarsma, T., Hill, L., Bayes-Genis, A., La Rocca, H., Castiello, T., Čelutkiené, J., Marques-Sule, E., Plymen, C.M., Piper, S. E., Riegel, B., Rutten, F. H., Gal, T., Bauersachs, J., Coats,	This study summarizes current guidelines for heart failure and self-care at home and updates the recommendat	No sample was used as this is an expert opinion paper, but 127 relevant references were utilized to update the current	This study did not discuss how the researchers evaluated the information and summarized the guidelines.	This expert opinion provides guidelines on how to maintain stability through optimal nutritional status, exercise and sexual activity, adherence to medication,	Level VII: Opinion of authorities and/or reports of expert committees (Melnyk & Fineout-Overholt,	The limitation of this study is that it is an expert committee review and therefore, provides guidelines on current recommendations	This guideline reviews educational guidelines that are necessary for adequate self-management of HF patients in the home and

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
A., Chioncel, O., Lopatin, Y., Lund, L., Lainscak, M., Moura, B., Mullens, W., & Piepoli, M. (2021). Self-care of heart failure patients: practical management recommendations from the Heart Failure Association of the European Society of Cardiology. *European Journal of Heart Failure*, *23*(1), 157-174. https://doi.org/10.1002/ejhf.2008	ions published by the Heart Failure Association (HFA) in 2011. This also provides areas that would be beneficial for future research.	guidelines. However, it did find that a meta-analysis of 20 studies with 5,624 patients with heart failure did support that self-care interventions do reduce HF hospitalizations and improve quality-of-life.		psychological health, sleep, travel, immunizations, cessation of smoking and drugs. This study also summarized how to monitor for changes and how to respond to these symptoms changes.	2019).	and summarizes current studies, but does not provide new information.	can be used as starting points to discuss self-management of hospice heart failure patients in the home. This also highlights opportunities for future research, which is important to follow-up on.
Chuzi, S., Ogunseitan, A., Cameron, K., Grady, K., Schulze, L., & Wilcox, J. E. (2021). Perceptions of bereaved caregivers and clinicians about end-of-life care for patients with destination therapy left ventricular assist devices. *Journal of the American Heart Association*, *10,* e020949. https://doi.org/10.1161/JAHA.121.020949	The purpose of this study was to review caregiver and provider perception of end-of-life discussion and care for patients with left ventricular assist devices.	The sample of this study included caregivers who cared for a patient who had died within five years of the study but greater than one month prior to the beginning of the study. 7 caregivers participated in the study and 10 clinicians (2 advanced HF	Recruitment for participants occurred in February 2019 and qualitative interviews occurred from February 2019 to November 2019. Interviews were analyzed through two teams to determine themes and outcome of the interviews.	This study found that there were six common themes among the interviews including discussion of timing of end of life, prioritizing end-of-life decision-making, communicating uncertainty while still providing support and hope, the responsible heart failure provider to discuss	Level VI: Qualitative or descriptive studies (Melnyk & Fineout-Overholt, 2019)	Limitations of this study include a small sample size as well as only recruiting clinicians from one medical center, and the bias of interpreting qualitative data for common themes.	This study does support that further research and clinical development is needed to improve end-of-life care for heart failure patients with advanced cardiac care such as LVADs to improve caregiver and clinician well-being during care.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
		cardiologists, 1 cardiac psychologist, 2 cardiac surgeons, 2 LVAD nurses, 2 palliative care physicians, and 1 social worker).		end of life, perception of the LVAD team as invincible, and the withdrawal of the LVAD.			
Dionne-Odom, J. N., Hooker, S. A., Bekelman, D., Ejem, D., McGhan, G., Kitko, L., Strömberg, A., Wells, R., Astin, M., Metin, Z. G., Mancarella, G., Pamboukian, S. V., Evangelista, L., Buck, H. G., & Bakitas, M. A. (2017). Family caregiving for persons with heart failure at the intersection of heart failure and palliative care: a state-of-the-science review. *Heart Fail Rev*, *22,* 543-557. https://doi.org/10.1007/s10741-017-9597-4	The purpose of this study was to summarize how caregivers influence patients, the consequence of HF for caregivers, and interventions directed at HF caregivers.	N = 120 articles (total of 5,754 caregivers)	Conducted an integrative review on studies that met eligibility criteria.	Results identified CG needs including better understanding of how to manage symptoms, understanding HF prognosis, and handling emergencies.	Level I: Systematic review and meta-analysis of RCT (Melnyk & Fineout-Overholt, 2019).	One limitation is that only studies up till Dec 2015 were included, which decreases the reliability due to the original studies being out of date, ranged from 1994 to 2015.	This study outlines the need for improved interventions and additional research for caregivers and heart failure patients. There is a direct correlation between CG and pt's QoL and thus more research needs to be aimed at this dyad.
Enguidanos, S., Rahman, A., Fields, T., Mack, W., Brumley, R., Rabow,	The purpose of this study is to determine if	The plan for this study is to achieve a sample size of	This study plans to utilize primary care physicians to	This is an ongoing study, so no results have been published yet.	Level II: RCT (Melnyk & Fineout-Overholt,	Limitations for this study will include the barrier of participation of	The results of this study will hopefully support that

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
M., & Mert, M. (2019). Expanding access to home-based palliative care: A randomized controlled trial protocol. *Journal of Palliative Medicine*, *22*(S1), 1-9. https://doi.org/10.1089/jpm.2019.0147	the early implementation of a home-based palliative care program for chronic condition patients (HF, COPD, advanced cancer) would improve patient symptoms as well as improve patient and caregiver satisfaction and reduce financial burden by reducing use of hospital resources.	884 caregivers and patients to ensure that the sample size is adequate for accuracy and reliability.	provide patient referrals for the trial. One barrier they found was that many PCPs were confusing hospice and palliative care and were refusing referral, thus they had to expand to include referrals from hospital discharge planners, case manager, and inpatient palliative care providers. Data on frequency and duration of home visits, frequency of calls, and days on service will be collected for three years. Participants will be divided into this program and the control group, enhanced usual		2019).	providers for referral to the program and misconception of what palliative care is versus hospice care.	improved one on one support for patients with chronic conditions does improve patient and caregiver satisfaction and results can be translated to hospice heart failure patients.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
			care, to determine if the program does benefit patient and caregiver satisfaction.				
Schichetel, M., Wee, B., Perera, R., & Onakpoya, I. (2020). The effect of advance care planning on heart failure: a systematic review and meta-analysis. *Journal of General Internal Medicine*, *35*(3), 874-884. https://doi.org/10.1007/s11606-019-05482-w	The purpose of this review was to determine if advance care planning improves the clinical outcomes for heart failure patients.	14 studies were included in the meta-analysis for a total of 2,924 participants in the studies.	Studies were found through the use of the Cocharane Collaboration, the Grading of Recommendation Assessment, Development, and Evaluation and base on CONSORT guidelines. Randomized controlled trials and cluster RCTs that included adult heart failure patients and ACP were included in the study. Quality of the studies were evaluated through the GRADE system profile.	The results of the study identified that early ACP does improve quality of life significantly ($p = 0.406$), and patient satisfaction was significantly improved with ACP ($p = 0.003$).	Level I: Systematic review and meta-analysis of RCT (Melnyk & Fineout-Overholt, 2019).	Limitations of the study include biases within the studies of providers believing ACPs will improve patients' quality of life, which can bias patients to rate an improved quality of life and satisfaction.	This study supports that CG satisfaction and patient satisfaction would be improved with ACP, which should be included within education provided to CGs of hospice heart failure patients.
Bidwell, J. T., Higgins, M. K., Reilly,	The purpose of this study	The sample included 114	This study randomized the	This study found that patients had a	Level II: RCT (Melnyk &	Limitations of this study includes a	This study emphasizes the

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
C. M., Clark, P. C., & Dunbar, S. B. (2018). Shared heart failure knowledge and self-care outcomes in patient-caregiver dyads. *Heart Lung, 47*(1), 32-39. https://doi.org/10.1016/j.hrtlng.2017.11.001	was to analyze the shared HF knowledge within the patient and caregiver relationship and how this knowledge is affected by socioeconomic factors and compliance to treatment recommendations.	patient and caregiver dyads. Patients were included that had CHF class II and III and they were excluded if they had comorbid uncontrolled conditions.	sample into three different groups: usual care (control), patient-family education together, and the third group which received patient-family education, but also received small group sessions to review tools for management. All groups were evaluated at 4 months then followed for an additional educational intervention at 5-6 months, then final evaluation was at 8 months. Patient and CGs were tested HF knowledge, autonomy support, depressive symptoms, quality of life, and medication	better understanding of HF than CGs. This study did confirm that African Americans had an overall lower educational level than Caucasians, implicating racial disparities. This also found that patients with lower ejection fraction and higher depression correlate with a lower dyadic knowledge (pt and CG). This study also found a correlation between low quality of life in CGs and a lower educational level for HF.	Fineout-Overholt, 2019).	small sample size which limits reliability and accuracy.	importance of education for CGs and patients. This study also highlights the various variables that could affect education and should be considered when developing educational interventions for caregivers for hospice heart failure patients.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
			adherence through self-questionnaires.				
Luo, N., Rogers, J. G., Dodson, G. C., Patel, C. B., Galanos, A. N., Milano, C. A., O'Connor, C. M., & Mentz, R. J. (2016). Usefulness of palliative care to complement the management of patients on left ventricular assist devices. *American Journal of Cardiology*, *118,* 733-738. http://dx.doi.org/10.1016/j.amjcard.2016.06.010	The purpose of this study is to describe the benefits of referring patients with left ventricular assist devices (LVADs) or mechanical circulatory devices (MCS) to palliative care services.	The researchers synthesized information from 40 studies ranging from 2002 to 2014.	The methods of how the research was conducted and how sources were synthesized is not disclosed, therefore, limiting the article's reliability and accuracy.	This study found that while it is a requirement from the Center of Medicare and Medicaid Services (CMS) that all patients undergoing implantation of a MCS receive a palliative consult, the utilization of palliative services with heart failure remains underutilized. Palliative services in heart failure patients correlate with improved autonomy for goals of care, improved symptom management, and improved support for families and caregivers.	Level V: systematic review of descriptive and qualitative studies; the information utilized in this synthesis is obtained from multiple qualitative studies and while some randomized controlled trials are included, most cited sources are qualitative studies (Melnyk & Fineout-Overholt, 2019).	The information in this article is outdated (sources are older than 5 years), limiting the reliability and accuracy of the findings. The study is also a synthesist of previous studies, therefore, not a primary source.	This article alone does not support a change in practice, but it does support that more research is needed on the benefits of palliative and hospice care services in end-of-life for heart failure patients, especially those requiring advanced cardiac care services with MCS devices.
Seow, H., O'Leary, E., Perez, R., & Tanuseputro, P. (2017). Access to palliative care by disease trajectory: a	The purpose of this study was to compare the use of palliative care	This study included 235,129 palliative patients in Ontario,	The researchers used data from April 2010 to December 2012 from the Institute for	The study found that individuals with a terminal diagnosis (cancer) were slightly more likely to have	Level IV: correlational design; A retrospective cohort study (Melnyk &	One limitation of this study is that the data is outdated (greater than five years old), making the	Yes, this study does support a change in practice as this supports that interventions are

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population-based cohort of Ontario decedents. *BMJ Open, 8,* e021147. https://doi.org/10.1136/bmjopen-2017-021147	among different diseases.	Canada.	Clinical Evaluative Sciences (ICES) to identify all palliative patients through billing codes in the last year of their life. Statistical analysis was completed using multivariate logistic regression to determine the usage of palliative care services by disease categories.	palliative care in the last year of life than organ failure (cardiac and respiratory failure) (32% versus 31%). However, they did find that palliative care was initiated four times earlier with a terminal diagnosis than organ failure (107 days versus 22 days).	Fineout-Overholt, 2019).	findings less reliable for present time.	needed to encourage earlier adoption of palliative services in heart failure patients to support earlier interventions for improved quality care for these patients.
Jordan, L., Russell, D., Baik, D., Dooley, F., & Creber, R. M. M. (2020). The development and implementation of a cardiac home hospice program: results of a RE-AIM analysis. *American Journal of Hospice and Palliative Medicine*, *37*(11), 925-935.	The purpose of this study was to evaluate the implementation of an advanced cardiac program within a hospice organization.	The sample of this study included 1,273 patients from January 2013 to March 2017 as well as a sample of 32 interviews with healthcare providers for qualitative from March 2018 to	The researchers utilized both quantitative and qualitative data for this study. Quantitative data was gathered through the electronic medical record on any patient that had a	This study found that the implementation of the advanced cardiac care program correlated with an increase of heart failure patients from 7.9% to 9.5%. This study also found that providers felt more confident in caring	Level IV and level VI: correlational design; A retrospective cohort study for the quantitative data for the reach and effectiveness evaluation of the program;	One limitation of this study is that the study was only conducted in a large New York non-profit hospice. This limits the ability to generalize the results to other geographical areas. This study would need to be	Yes, this study supports the implementation of advanced cardiac care programs to improve the quality of care for hospice heart failure patients by supporting healthcare providers in the

Source	**Study Purpose**	**Sample Characteristics**	**Methods**	**Study Results**	**Level of Evidence (Melnyk Framework)**	**Study Limitations**	**Would Use as Evidence to Support a Change?**
https://doi.org/10.1177/1049909120925432		November 2018.	primary heart failure diagnosis from a New York non-profit hospice organization. The framework for information obtained was the Reach, Effectiveness-Adoption, Implementation, and Maintenance (RE-AIM) framework. Enrollment rates were obtained through the EMR system to support the Reach and Effectiveness categories. Semi-structured interviews were used to support qualitative data for the Adoption, Implementation, and Maintenance	for heart failure hospice patients and managing symptoms at end of life with the support of the cardiac care's protocols.	however, for the AIM portion, qualitative or descriptive data was utilized, making this a level VI study (Melnyk & Fineout-Overholt, 2019).	repeated in other settings to determine its reliability and accuracy.	care for these patients and by improving access to this care for heart failure patients at end of life.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
			categories. Data was statistically analyzed with a chi-square test to determine significance.				
Ament, S. M. C., Couwenberg, I. M. E., Boyne, J. J. J., Kleijnen, J., Stoggers, H. E. J. H., van den Beuken, M. H. J., Engel, Y., Bellersen, L., & Janssen, D. J. A. (2021). Tools to help healthcare professionals recognize palliative care needs in patients with advanced heart failure: A systematic review. *Palliative Medicine*, *35*(1), 45-58. https://doi.org/10.1177/0269216320963941	The purpose of this study was to identify different tools available for healthcare providers to utilize to determine when palliative care is appropriate for heart failure patients.	The sample of this systematic review included nineteen studies. Unable to discern the dates of these studies, thus limiting the review's reliability.	The researchers utilized MEDLINE, CINAHL, and Embase to identify studies involving "tools," "palliative care," and "heart failure." Two researchers narrowed the results to nineteen studies to be included in the systematic review. The researchers utilized the Consensus-based Standards for the selection of health status Measurement Instruments (COSMIN) method to	The study found and compared seven tools used to identify palliative needs for heart failure patients. The study discovered that the Integrated Palliative care Outcome Scale (IPOS) was the most developed tool to identify palliative needs for heart failure patients, but the Needs Assessment Tools Progressive Disease- Heart Failure (NAT-PD:HF) was the most validated for healthcare providers.	Level V: systematic review of descriptive and qualitative studies (Melnyk & Fineout-Overholt, 2019).	While this study found various palliative tools that are appropriate and validated for use, the study is limited in that there are no studies showing which tool provides the most accurate results for identifying early referral to palliative care sources. Future research is needed to identify the most accurate tool to place this tool into protocol for all areas in healthcare.	Yes, this study supports that there should be a protocol for use of proper tools to identify early referral to palliative care services for heart failure patients, which would support early education on management of these patients.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
			determine which articles should be included in the review.				
Awoke, M. S., Baptiste, D-L., Davidson, P., Roberts, A., & Dennison-Himmelfarb, C. (2019). A quasi-experimental study examining a nurse-led education program to improve knowledge, self-care, and reduce readmission for individuals with heart failure. *Contemporary Nurse*, *55*(1), 15-26. https://doi.org/10.1080/10376178.2019.1568198	"The purpose of this study was to implement a standardized nurse-led heart failure edu-cation program focused on improving knowledge and self-care behaviors for individuals living with heart failure" (p. 16).	N = 29 eligible participants	A quasi-experimental study with pre-test and post-test implementation on a convenient sample in 2 cardiac units in an urban facility in the U.S, following 1 on 1 nurse-led education and resulting readmission rates	Found that the creation of a "zones to manage heart failure" guide with one on one nursing education improved patient perception of management of disease burden. They highlighted that challenges include maintaining fluid restriction, daily physical activity, and lack of follow-up with treatment team in recommended time period.	Level III: quasi-experimental design (Melnyk & Fineout-Overholt, 2019).	Limitations include that this was a quasi-experimental study; therefore, there was not a control group to compare effectiveness of the intervention. The sample size was also small, limiting ability to generalize to a larger population.	This study supports that nursing education for patients and caregivers does reduce symptom burden.
Agarwal, K. S., Kazim, R., Xu, J., Borson, S., & Taffet, G. E. (2016). Unrecognized cognitive impairment and its effect on heart failure readmissions of elderly adults. *The American Geriatrics*	The purpose of this study was to determine if cognitive impairment in HF patients correlates with increased 30-	N = 241 (121 in the intervention group and 120 in the null group; aged 70 or older)	The researchers identified any eligible patient and 48 hours prior to discharge, administered the Mini-Cog assessment. If the score was	Individuals with HF and cognitive impairments had a higher 30-day readmission rate (p = 0.01). In individuals with HF and cognitive impairment, those with documented	Level III: quasi-experimental (Melnyk & Fineout-Overholt, 2019).	Limitations for the study include small, convenient sample size limiting ability to generalize the results.	This study supports that caregiver education does significantly improve readmission rates in the vulnerable population of HF with cognitive

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
Society, *64*(11), 2296-2301.	day readmission rates.		below 4, nurses were asked to include patient caregivers in education for discharge. Then readmission rates were reviewed for the two groups in a 30-day period.	caregiver education had lower readmission rates than those without (p = 0.03).			decline, which is common with terminal HF.
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. *Circ Heart Fail*, *10,* e003335. https://doi.org/10.1161/CIRCHEARTFAILURE.116.003335	The purpose of this study is to compare the utilization of hospice services for Medicare beneficiaries and the use of acute medical services before and after hospice enrollment.	N = 5073 Medicare beneficiaries (55% female, 45% greater than 85 years old, 13% were non-white).	Longitudinal, observational study	This study found that HF patients are referred to hospice too late in the disease progression to reap the benefits of hospice enrollment. This study found that 568 participants died without hospice care, 50% died inpatient, and 17.6% died in a skilled nursing facility, which was inconsistent with patient and CG preferences.	III: Non-randomized controlled trial (Melnyk & Fineout-Overholt, 2019).	Limitations of the study include limitation of only including HF patients with 2 HF hospitalizations in a 6 month period, as there was not a way to determine staging of HF severity through Medicare beneficiary records.	This study shows that there is a need to improve services to prevent HF disenrollment from hospice services.
Cross, S. H., Kamal, A. H., Taylor, D. H., & Warraich, H. J. (2019). Hospice use among patients with heart failure. *Cardiac*	The purpose of this study is to highlight the underutilization of hospice	N/A	N/A	This expert review identified seven themes that contribute to the low utilization of hospice services	VII: Expert opinion (Melnyk & Fineout-Overholt, 2019).	This is an expert opinion that highlights research and evidence supporting the	This is a good resource that summarizes current evidence that supports the under-utilization

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
Failure Review, *5*(2), 93-98. https://doi.org/10.15420/cfr.2019.2.2	care for heart failure patients and the benefits hospice can provide for HF patients.			for HF: disease trajectory, symptom burden that is difficult to manage at home, geographic and socioeconomic disparities, late referrals to palliative care and hospice, and professional factors.		underutilization of hospice services, but does not add any new research to the subject.	of hospice services for HF and provides some hypotheses that would be appropriate to research in the future to identify if they do significantly improve outcomes for terminal HF patients.
Warraich, H. J., Hernandez, A. F., & Allen, L. A. (2017). How medicine has changed the end of life for patients with cardiovascular disease. *Journal of the American College of Cardiology*, *70*(10), 1276-1289. http://dx.doi.org/10.1016/j.jacc.2017.07.735	The purpose of this study is to summarize the changes associated with medical advancement and CVD progression, and highlight recommendation to improve end-of-life care for patients with cardiovascular disease and reduce caregiver burden.	N/A	N/A	This review highlighted that the increase in medical advancements have increased morbidity of heart failure. HF patients do not utilize palliative care services in comparison to other disease processes and symptom burden with this disease is higher than other terminal illnesses.	Level VII: opinion of authorities and/or reports of expert committees (Melnyk & Fineout-Overholt, 2019).	This is a review and does not provide new information, however it does provide access to primary sources that were summarized and can be used for practice changes.	This does support the need for improved interventions to reduce symptom burden for terminal HF patients.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
El-Jawahri, A., Traeger, L., Greer, J. A., Vanbenschoten, O., Markovitz, N., Cashavelly, B., Tata, L. A., Nipp, R. D., Reynolds, K. L., Goyal, L., Bhatt, S., Fishman, S., Horick, N., Li, Z, Volandes, A., & Temel, J. S. (2020). Randomized trial of a hospice video educational tool for patients with advanced cancer and their caregivers. *Cancer*, *126,* 3569-3578. https://doi.org/10.1002/cncr.32967	The goal of the current study was to determine the effect of the hospice video on the preferences, knowledge, and perceptions of hospice among patients and caregivers. We also sought to assess the effect of the video on hospice use and level of satisfaction.	Intervention: 75 patients and 18 caregivers Control: 75 patients and 26 caregivers	Researchers provided intervention group with a hospice video educational tool to terminal cancer patients from 2017 to 2019, the control group received an identical verbal description. Hospice perception questionnaire was used to evaluate understanding.	The video did not change preferences on hospice use, but did improve knowledge and perception of hospice.	Level II: RCT (Melnyk & Fineout-Overholt, 2019).	It was only conducted at one tertiary hospital limiting the ability to generalize the results to a larger population.	This study shows that education provided with video does improve knowledge and can help improve CG knowledge of hospice care and symptom management.
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.	The purpose of the study was to identify the predictors of hospice enrollment for patients with HF and determine the impact of hospice care on healthcare	N = 3,067 HF patients enrolled in hospice and N =3,067 HF patients who did not, for comparison	Secondary analysis of a longitudinal, observational study	This study found no difference between patient characteristics, symptom burden, or functional status between the two groups, but did find a significant decrease in healthcare utilization in the group that did elect	Level IV: Cohort study, longitudinal (Melnyk & Fineout-Overholt, 2019)	Limitations for this study include that the population studied was from 2008 to 2009, limiting the accuracy of these results as it is greater than 10 years old.	This study first highlight the poor provider knowledge for referral to hospice care as there were no statistically significant differences between the two groups, highlighting that

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
	use.			for hospice care (fewer ED visits, ICU stays, and hospital days. This study also found that the group that elected for hospice care had a longer median survival rate.			the patients in the control group would have been appropriate for hospice care. This study also showed that hospice is correlated with a decrease in hospital utilization and resources.
Kavalieratos, D., Gelfman, L P., Tycon, L. E., Riegel, B., Bekelman, D. B., Ikejiani, D. Z., Goldstein, N., Kimmel, S. E., Bakitas, M. A., & Arnold, R. M. (2017). Palliative care in heart failure. *Journal of the American College of Cardiology*, *70*(15), 1919-1930.	The purpose of this study was to discuss the role of palliative care in improving patient outcomes for patients with HF.	6 RCT were utilized in the systematic meta-analysis	Reviewed 6,158 records to conclude with 6 RCT for the meta-analysis based on inclusion criteria.	They found that the involvement of palliative care team improved quality of life and symptom burden for patients with HF, but did not have a significant effect on readmission rates.	Level I: Systematic Review of RCTs (Melnyk & Fineout-Overholt, 2019).	Limitations for this review include that some of the studies were conducted outside of the United States, limiting inclusion in this integrative review.	Yes, this does support a change and highlight the need for improved education: “Research is needed to understand how to improve education regarding primary palliative care domains that are relevant to patients with advanced HF, such as elicitation of goals of care, advance care planning, and

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
							caregiver support" (p. 1928).
Kleinpell, R., Vasilevskis, E. E., Fogg, L., & Ely, E. W. (2016). Exploring the association of hospice care on patient experience and outcomes of care. *BMJ Supportive & Palliative Care*, *9*, e13. https://doi.org/10.1136/bmjspcare-2015-001001	This study aimed to determine if increased hospice usage would correlate with increased patient experience and improved clinical outcomes.	N = 163,122 patients across 236 facilities	A secondary analysis of a cohort study	This study found that hospice admissions were correlated with an increase in patient satisfaction (p = 0.01), improved pain control (p = 0.01), reduced hospital days (p = 0.01), and fewer hospital deaths (p = 0.01).	Level III: quasi-experimental (Melnyk & Fineout-Overholt, 2019)	Limitations for this study include inability to reduce confounding variables and inability to limit to Medicare patients.	This study supports that the utilization of hospice services does improve the quality of life of patients and interventions need to be implemented to retain hospice services and reduce revocation rates.
Liu, A. Y., O'Riordan, D. L., Marks, A. K., Bischoff, K. E., & Pantilat, S. Z. (2020). A comparison of hospitalized patients with heart failure and cancer referred to palliative care. *JAMA Network Open*, *3*(2), e200020. https://doi.org/10.1001/jamanetworkopen.2020.0020	The purpose of this study was to compare HF patients and cancer patients and the utilization of palliative care services.	N = 135,197 patients within the Palliative Care Quality Network from 2013 to 2017	Retrospective cohort study	This study found that HF patients were referred to palliative services later than patients with cancer, they were more likely to be in a CCU or telemetry unit and had lower PPS scores upon referral. Both experienced improvement in symptoms, but HF	Level IV: Cohort Study (Melnyk & Fineout-Overholt, 2019)	Limitations of this study include a limitation due to this being a cohort study and the sample only included patients that received a PC consultation.	This study does support that HF patients are under referred to palliative care and hospice services and benefit positively post referral.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
				pts were less likely to be discharged alive or referred to hospice.			
Luo, N., Hammill, B. G., DeVore, A. D., Xu, H., Fonarow, G. C., Albert, N. M., Matsouaka, R. A., Hernandez, A. F., Yancy, C., & Mentz, R .J. (2020). Outcomes and cost among Medicare beneficiaries hospitalized for heart failure assigned to accountable care organizations. *American Heart Journal*, *226,* 13-23.	The purpose of this study was to identify if the addition of the ACO reduced total costs for HF patients.	N = 45,259 HF patients from 300 hospitals	Data was collected through AHA and Medicare claims at random from Jan 2013 to Dec 2015 for HF patients that were discharged. Patients were excluded if they were not discharged to home. Statistical comparison was completed comparing ACO payments to non-ACO payments.	This study found that there is no different between non-ACO patients and ACO patients in terms of cost reduction of all-cause readmission, however they did note a significant difference in all-cause mortality risk, ACO members having a 15% lower risk ($p<0.001$).	Level III: quasi-experiment (Melnyk & Fineout-Overholt, 2019)	Limitations of this study include the multiple variables that could have a compounding effect on the results (The sample that were not participating in the ACO had lower socioeconomic factors including limited access to healthcare due to rural settings and increased comorbidities).	This study supports that those participating in ACOs may have a lower all-cause mortality which could be due to improved transition in care. This supports that education should be guided to improving this transition and encouraging the involvement of palliative care when appropriate.
Dionne-Odom, J. N., Ejem, D. B., Wells, R., Azuero, A., Stockdill, M .L., Keebler, K., Sockwell, E., Tims, S., Kvale, E., Durant, R. W., Tucker, R. O., & Bakitas, M. A. (2020). Effects of a	The purpose of this study was to determine the effect of a telehealth intervention/education for caregivers of	N = 158 family CGs (82 to intervention and 76 to control)	RCT from Aug 2016 to Oct 2018, provided 4 telehealth sessions with a nurse coach, and was followed monthly for 48	Study found that there was not a clinically significant difference between the intervention and control groups following 16 weeks.	Level II: RCT (Melnyk & Fineout-Overholt, 2019)	Limitations include that CGs were not distressed prior to the intervention, they were not experiencing CG burden, and the population of	This study supports future research focusing on CGs experiencing burden at baseline to determine if there is a

Source	**Study Purpose**	**Sample Characteristics**	**Methods**	**Study Results**	**Level of Evidence (Melnyk Framework)**	**Study Limitations**	**Would Use as Evidence to Support a Change?**
telehealth early palliative care intervention for family caregivers of persons with advanced heart failure. *JAMA*, *3*(4), e202583. https://doi.org/10.1001/jamanetworkopen.2020.2583	HF pts with Class III/IV.		weeks. Outcomes were measured with Bakas CG outcomes scale, hospital anxiety and depression scale, and burden with the Montgomery-Borgatta CG Burden scale.			interest was not specific to hospice patients.	significant improvement in burden felt and QoL for patients and CGs.
Russell, D., Baik, D., Jordan, L., Dooley, F., Hummel, S. L., Prigerson, H. G., Bowles, K. H., & Creber, R. M. (2019). Factors associated with live discharge of heart failure patients from hospice. *JACC: Heart Failure*, *7*(7), 550-557. https://doi.org/10.1016/j.chf.2019.01.010	The purpose of this study was to identify sociodemographic and clinical variables that would predict a likely "live discharge" or revocation from hospice services.	N = 1498 records N = 19 qualitative interviews from healthcare providers	Quantitative data was collected through a New York City hospice (1,000 daily census rate) from 2013 to 2017. Data was analyzed to determine patient characteristics and 5 categories of discharge (death, acute hospitalization, elective revocation, disqualification, and transfer). Qualitative data was collected through 19	This study found that "Thirty percent of home hospice patients with heart failure experienced a live discharge, most frequently due to 911 calls that led to acute hospitalization. The odds of acute hospitalization were higher for younger patients (age 18 to 74 years: adjusted odds ratio [AOR]: 2.10; 95% confidence interval [CI]: 1.34 to 3.28), African American (AOR: 2.06; 95% CI: 1.31 to 3.24) or Hispanic (AOR: 2.99; 95% CI: 1.99	Level III: quasi-experimental (Melnyk & Fineout-Overholt, 2019).	Limitations for this study include that only one hospice organization in NYC was studied, limiting the ability to generalize the results.	This study shows that HF patients are more likely to revocate due to readmission to the hospital for symptom management, showing the importance of implementing an intervention to reduce these revocation rates for HF patients.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
			hospice providers between March and May 2018, a semi structured interview was conducted to determine HF patient experiences and circumstances that precipitated live discharge.	to 4.50) patients, and higher functioning patients (Palliative Performance Scores of 50% to 70%; AOR: 5.68; 95% CI: 3.66 to 8.79). Qualitative interviews with healthcare providers highlighted the unique characteristics of heart failure (e.g., sudden changes in patients' condition), the importance of patients' understanding of hospice and their own prognosis, and the role of sociocultural and family context in precipitating and potentially preventing live discharge (e.g., absence of social supports in the home)" (p. 550).			
Spiess, J. L. (2017). Hospice in heart	The purpose of this study	N/A	N/A	N/A	Level VII: Opinion of	This is an expert opinion journal	While this does not support

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
failure: why, when, and what then? *Heart Fail Rev, 22,* 593-604. https://doi.org/10.1007/s10741-017-9595-6	is to highlight the Medicare requirements for admission to a hospice agency, the difficulty in symptom management for HF patients and prognostics/ advanced care of the terminal HF patient.				authority/ expert committee.	article.	change due to the level of evidence, this article does increase knowledge and connect the articles through this IR with pertinent information.
Starr, L. T., Ulrich, C. M., Perez, G. A., Aryal, S., Junker, P., O'Connor, N. R., & Maghani, S. H. (2022). Hospice enrollment, future hospitalization, and future costs among racially and ethnically diverse patients who received palliative care consultation. *American Journal of Hospice & Palliative Medicine*, *39*(6), 619-632. https://doi.org/10.1177/10499091211034383	The purpose of this study was to compare cost of hospitalizations as well as predict hospice discharges with an emphasis on diverse racial and ethnic variables.	N = 1306 patients	Secondary analysis of a retrospective cohort study	Study results are as follows: "In adjusted analyses, hospice enrollment was less likely with Medicaid (AOR ¼ 0.59, P ¼ 0.02). Thirty-day readmission was less likely among age 75þ (AOR ¼ 0.43, P ¼ 0.02); more likely with Medicaid (AOR ¼ 2.02, P ¼ 0.004), 30-day prior admission (AOR ¼ 2.42, P < 0.0001), and Black/African	Level IV: cohort study (Melnyk & Fineout-Overholt, 2019).	Limitations for this study include that this was a second-analysis, limiting the ability for follow-up information, thus some readmissions may have been lost to follow-up.	This supports that education needs to be provided with an emphasis on cultural understanding and acknowledgement of disparities in healthcare due to socioeconomic factors.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
				American race (AOR 1⁄4 1.57, P 1⁄4 0.02). Future days hospitalized was greater with Medicaid (Coefficient 1⁄4 4.49, P 1⁄4 0.001), 30-day prior admission (Coefficient 1⁄4 2.08, P 1⁄4 0.02), and Black/African American race (Coefficient 1⁄4 2.16, P 1⁄4 0.01). Any future hospitalization cost was less likely among patients ages 65-74 and 75þ (AOR 1⁄4 0.54, P 1⁄4 0.02; AOR 1⁄4 0.53, P 1⁄4 0.02); more likely with Medicaid (AOR 1⁄4 1.67, P 1⁄4 0.01), 30-day prior admission (AOR 1⁄4 1.81, P 1⁄4 0.0001), and Black/African American race (AOR 1⁄4 1.40, P 1⁄4 0.02). Total future			

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
				hospitalization costs were lower for females (Coefficient 1⁄4 �3616.64, P 1⁄4 0.03); greater with Medicaid (Coefficient 1⁄4 7388.43, P 1⁄4 0.01), 30-day prior admission (Coefficient 1⁄4 3868.07, P 1⁄4 0.04), and Black/African American race (Coefficient 1⁄4 3856.90, P 1⁄4 0.04). Do-not-resuscitate documentation (48%) differed by race" (p. 619).			
Urbich, M., Globe, G., Pantiri, K., Heisen, M., Bennison, C., Wirtz, H. S., & Di Tanna, G. L. (2020). A systematic review of medical costs associated with heart failure in the USA (2014-2020). *PhamacoEconomics, 38,* 1219-1236. https://doi.org/10.1007	The purpose of this study was to synthesize the information available on heart failure-related costs in the USA.	N = 87 studies	Studies were included if they reported cost of illness in an adult, if the study was in the USA, and if the costs related to a HF event were reported separately.	This study found that the median cost of one heart failure patient is $24,383 with a single increase of $15,879 per hospitalization.	Level I: systematic reviews and meta-analysis of RCTs (Melnyk & Fineout-Overholt, 2019).	Limitations to this study include a limitation due to unstandardized reporting of costs, which increases variability among the studies utilized.	This study supports the need for reducing heart failure related costs through improved interventions within the hospice setting.

Source	Study Purpose	Sample Characteristics	Methods	Study Results	Level of Evidence (Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change?
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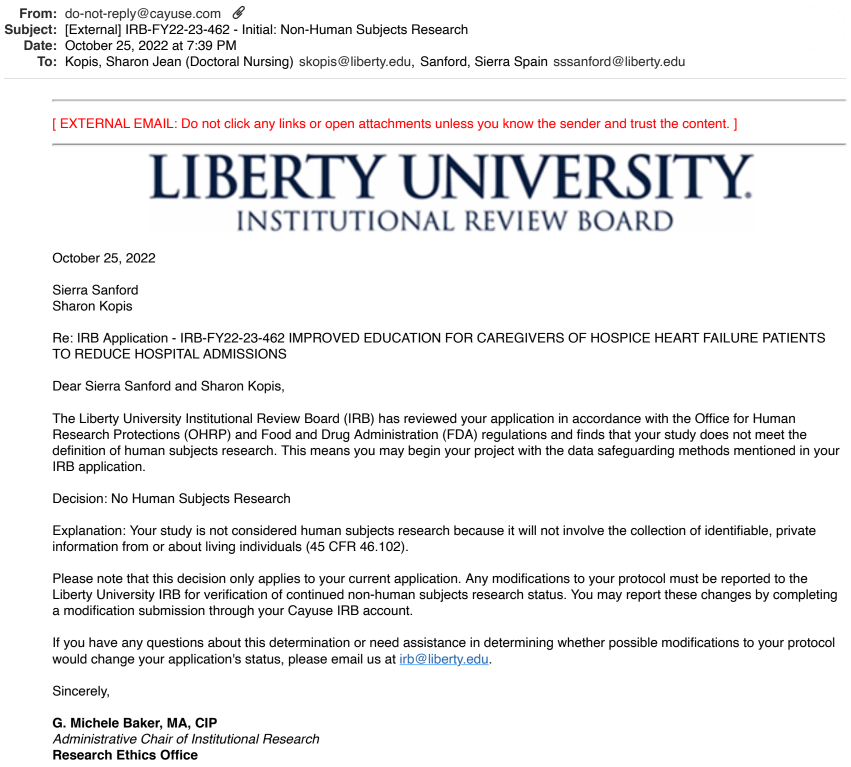
APPENDIX B: Liberty University IRB Approval



From: do-not-reply@cayuse.com
Subject: [External] IRB-FY22-23-462 - Initial: Non-Human Subjects Research
Date: October 25, 2022 at 7:39 PM
To: Kopis, Sharon Jean (Doctoral Nursing) skopis@liberty.edu, Sanford, Sierra Spain sssanford@liberty.edu

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

LIBERTY UNIVERSITY
INSTITUTIONAL REVIEW BOARD

October 25, 2022

Sierra Sanford
Sharon Kopis

Re: IRB Application - IRB-FY22-23-462 IMPROVED EDUCATION FOR CAREGIVERS OF HOSPICE HEART FAILURE PATIENTS TO REDUCE HOSPITAL ADMISSIONS

Dear Sierra Sanford and Sharon Kopis,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds that your study does not meet the definition of human subjects research. This means you may begin your project with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your study is not considered human subjects research because it will not involve the collection of identifiable, private information from or about living individuals (45 CFR 46.102).

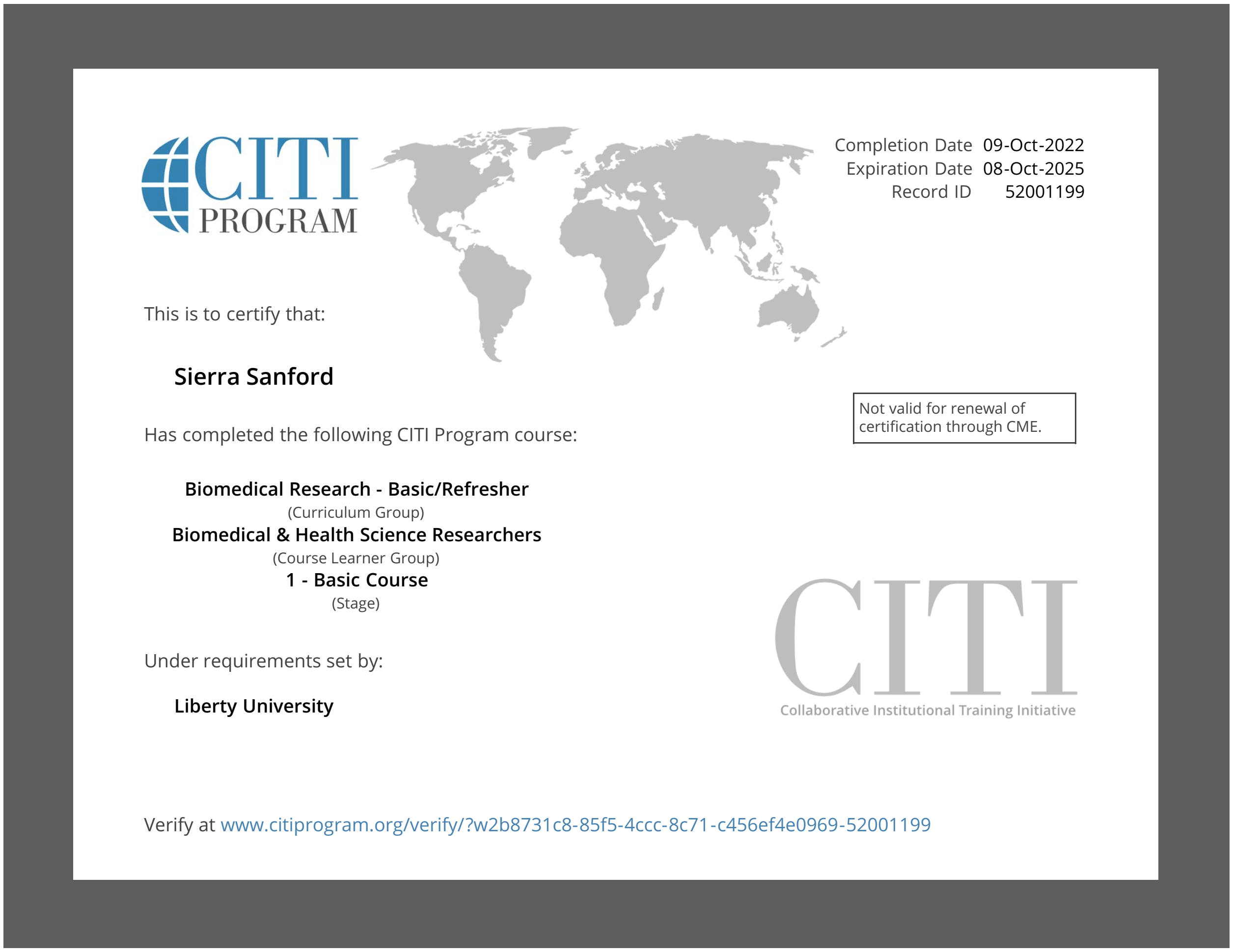
Please note that this decision only applies to your current application. Any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

APPENDIX C: CITI Training Certificate



CITI PROGRAM

Completion Date 09-Oct-2022
Expiration Date 08-Oct-2025
Record ID 52001199

This is to certify that:

Sierra Sanford

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Biomedical Research - Basic/Refresher
(Curriculum Group)
Biomedical & Health Science Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Liberty University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w2b8731c8-85f5-4ccc-8c71-c456ef4e0969-52001199

APPENDIX D: Prisma Flow Diagram (2020)