2021

# Advance Care Planning and Palliative Care in Heart Failure: A Literature Review

Laura Dack
*Minnesota State University, Mankato*

# Advance Care Planning and Palliative Care in Heart Failure:

# A Literature Review

Laura Dack

School of Nursing, Minnesota State University, Mankato

NURS: 695 Alternate Plan Paper

Dr. Gwen Verchota, PhD, APRN-BC

April 28, 2021

## Abstract

**Background:** Despite advancing therapies, heart failure remains a progressive disease with high symptom burden. Advance care planning and palliative care assist in maximizing the quality of life for affected individuals. These interventions are supported by current heart failure guidelines yet application into practice is poor. **Objective/aim:** The purpose of this literature review is to investigate the relationship between advance care planning and palliative care interventions on the quality of life of adults with heart failure. **Methods**: A search of the literature was completed between October 20th, 2020 to November 10th, 2020. Databases searched include Academic Search Premier, CINAHL Plus, Cochrane Database of Systematic Reviews, PubMed, and SAGE Journals. **Results/findings:** Available research demonstrates that advance care planning and palliative care interventions increase quality of life in heart failure patients, but the quality and level of evidence remains low. The interventions also caused significant improvement to heart failure symptoms, healthcare resource utilization, and quality of death.


*Keywords:* advanced care planning, advanced directives, palliative care, heart failure, cardiac failure, primary care, quality of life, wellbeing

**Impact of Advance Care Planning in Heart Failure: A Literature Review**

Advance care planning (ACP) involves a voluntary discussion between the healthcare provider, patient, family members and any surrogate decisionmakers regarding patient's health care goals while considering personal values, beliefs, and wishes (Ranganathan, et. al., 2014). During this discussion, the healthcare provider offers education on expectations of the disease course and treatment options based on the patient's chronic conditions (Ranganathan, et. al., 2014). The conversation may also involve the identification of a health care proxy, resuscitation preferences and creation of advance directives documents. While ACP discussions may be complex and challenging for both the provider and patient, they seek to support the patient's autonomy and values with guidance from the health care team. Several previous studies demonstrate that patients who have not had ACP discussions do not have a clear understanding of their prognosis and opt for more aggressive treatments (Ranganathan, et. al., 2014). Though receiving these aggressive treatments does not always correlate with a longer survival or improved quality of life, and often results in poorly controlled symptoms and patient support (Ranganathan et. al., 2014).

ACP discussions may introduce palliative care services and interventions, which seek to improve the quality of life for those with chronic illness. In addition, ACP is sometimes completed during palliative care specialist referrals. Palliative care is defined as an "interdisciplinary approach aimed at improving the quality of life of patients and caregivers by providing physical, emotional, psychosocial, and spiritual interventions" (von Schwarz et al., 2020, p. 1). Palliative care intends to relieve distressing symptoms of chronic disease without intending to accelerate or postpone death (Ranganathan et. al., 2014). It was initially integrated into the treatment of oncology patients. The majority of current research on palliative care

continues to evaluate the oncology population, and has only recently gained appreciation for its role in other chronic diseases, including heart failure.

The American College of Cardiology (ACC) and American Heart Association (AHA) define heart failure as "a complex clinical syndrome that results from any structural or functional impairment of ventricular filling or ejection of blood" (Yancy et al., 2013, p. e153). Heart failure severity is universally classified the New York Heart Association (NYHA) functional classification (Yancy et al., 2013, p. e153). This system of classification emphasizes the individual's tolerance for activities and symptom severity and is labeled progressively from class I to IV (Yancy et al., 2013, p. e153). Those in class I have cardiac disease but without limitation of or symptoms during physical activity (Yancy et al., 2013). Class II is described as a slight limitation to physical activity, no symptoms at rest, but some symptoms during physical activity (Yancy et al., 2013). Patients in class III have marked limitation on physical activity, are comfortable at rest, but are symptomatic with less than ordinary activity (Yancy et al., 2013, p. e156). Class IV refers to those unable to carry on any physical activity without symptoms of heart failure and symptoms present at rest (Yancy et al., 2013, p. e156).

Despite advancements in therapies, heart failure remains a progressive and terminal disease with high morbidity and mortality. Romanó (2020) states that "over half of all [heart failure] patients complain of dyspnea, pain, asthenia, and thirst" (p. 1). In addition, patients with symptomatic heart failure also have a high prevalence of depression and frequent hospitalizations, which significantly impacts quality of life (Wiskar et al., 2017). Despite the high degree of symptom burden of those with heart failure, ACP and palliative care consultations often do not occur until late in the disease process, close to the end of life (Romanó, 2020).

Approximately 2-20% of those living with advanced heart failure receive palliative care consultations, compared to up to 50% of oncology patients (Luo et al., 2016, p. 3).

Traditional barriers to widespread application of palliative care and ACP in heart failure include the uncertain disease progression and perceived patient aversion to end-of-life discussions (Luo et al., 2016). The ACC/AHA guidelines acknowledge the benefits of palliative care and ACP interventions, and recommend they be applied in all stages of heart failure (Yancy et al., 2013). This recommendation is supported by the interventions' association with significantly lower Medicare spending, lower likelihood of in-hospital death, and higher hospice care use (Yancy et al., 2013). However, these guidelines neglect to cite research that directly involves heart failure patients and instead reference research conducted on oncology patients (Yancy et al., 2013). While the use of ACP and palliative care for heart failure patients is supported by these guidelines, there is a disparity in the disease-specific research on this subject which may discourage use in practice.

This background data identifies a gap between the ACP and palliative recommendations supported by the heart failure guidelines and those observed in usual care. The purpose of this literature review is to explore the available research on ACP or palliative care interventions on adults with heart failure and their impact on quality of life. It is notable to analyze the available disease-specific research on this topic and determine if there is evidence for this change to the usual heart failure care.

## Method

A search of the literature was completed between October 20th, 2020 to November 10th, 2020. Databases searched include Academic Search Premier, CINAHL Plus, Cochrane Database of Systematic Reviews, PubMed, and SAGE Journals. The general subjects covered by each

database is covered in Table 1 in the attached Appendix. The databases were chosen based on their accessibility and inclusion of evidence-based articles in nursing and medical domains. The article search was limited to those published from January 2015 to November 2020. Restrictions added to the search were based on the capability of the database search engine, including full text availability, written in the English language, peer reviewed, and human species.

The database search was guided by the research question, in adults with heart failure, how does advance care planning or palliative care interventions impact quality of life? A detailed data abstraction process and dates searched are outlined in Table 2 of the attached appendix. Search terms used included advance care planning, heart failure, cardiac failure, palliative care, and primary care. With search results of fifty articles or less, the titles were scanned to review their applicability to the research question.

Titles were eliminated if their subjects pertained to a pediatric heart failure population, hospice care, or end-of-life transitions. Studies were also excluded if they only evaluated code status and cardio-pulmonary resuscitation decisions, as these decisions do not alone sufficiently represent the complexity of advance care planning. Greater preference was given to articles with a higher level of evidence. A total of sixteen articles were selected for abstract review and to determine their relevance to the research question. A review of references in these sixteen articles yielded three additional studies, which increased the total to nineteen articles.

Studies included involve participants with a primary diagnosis of heart failure who underwent an ACP or palliative care intervention, with study outcomes related to quality of life. Participants must also be adults over the age of eighteen years. Specific inclusion and exclusion rationales for each of the nineteen articles are detailed in Table 3 of the appendix. Articles were excluded if their observed outcome focused on the number of advanced directives completed by

participants or participant perception of a palliative care intervention rather than changes to quality of life.

After excluding inappropriate articles, a total of twelve studies remained for evaluation and literature review. Table 4 in the appendix offers an appraisal of these studies. Data extraction included the study purpose, population, sample size, level of evidence, variables and instruments utilized, intervention, findings and implications.

## Results

### Study Characteristics

Eleven out of the twelve articles have quantitative research methods, and one involves qualitative methods. Of the quantitative studies, there are five systematic reviews, three randomized controlled trials, and three quasi-experimental studies. The one qualitative review involves an expert opinion of the benefits, barriers and applications of palliative care in patients with heart failure (Luo et al., 2016).

Of the quantitative studies, sample size varied from 72 to 102,746 participants. Only five articles published an evaluation of demographic data, from which the mean age ranged from 63.5 to 81.9 years (Bakitas et al., 2020; Kernick et al., 2018). The proportion of men in the studies ranged from 48.8% to 53.2% (Johnson et al., 2018; Wong et al., 2016). In all studies the participants heart failure was classified according to NYHA functional status, rather than ACC/AHA stages. None of the studies included participants of NYHA Class I. Only 2 included studies had participants with NYHA Class II status (Johnson et al., 2018; Wong et al., 2016). Wong et al. (2016) had nine participants from a total of eighty-four participants with class II status and Johnson et al. (2018) included six of their seventy-seven participants in this class.

Other studies either limited participants to NYHA Class III to IV status or did not demographically classify the participant's heart failure class.

All studies applied interventions in addition to usual care for heart failure. Participants under both intervention and control arms of studies received usual care. Bakitas et al. (2020) describes usual care as consistent with current national heart failure guidelines, including heart failure education and receiving specialist cardiology care. However, specific usual care therapy, in terms of medications received or advanced supportive therapies, varied based on the individual needs.

Four of the chosen articles evaluated advance care planning on heart failure (Kernick et al., 2018; Nishikawa et al., 2020; Schichtel et al., 2020; Williams et al., 2020). The ACP intervention is described as "discussing an individual's future care plan between the person, their family members, surrogate decision-makers, and healthcare providers while considering the person's values, concerns, wishes, life goals, and preferences for future medical care" (Nishikawa et al., 2020, p. 6). The goal of ACP then is to ensure the individual receives care with respect to these established goals and preferences, with or without the establishment of an advance directive (Nishikawa et al., 2020). These ACP interventions were structured to assure consistency between participants. The type and methods of ACP varied by study and included during specialist palliative care consultation, during outpatient clinic visit, at hospital discharge planning, and one video-based training (Nishikawa et al., 2020; Schichtel et al., 2020).

A total of eight of the selected articles involved palliative care interventions on heart failure participants. These palliative care interventions involved palliative care specialists or interdisciplinary teams, which may include cardiologists, primary care providers, nurses, and/or social workers (Diop et al., 2017; Rogers et al., 2017). The teams assessed and intervened in the

various domains of quality of life, including physical, psychosocial, environmental, and spiritual (Wong et al., 2016). The setting of the interventions varied and included one with palliative telehealth session, three with outpatient clinic interdisciplinary care, one with inpatient palliative referral, and two with palliative home visits. The follow-up timelines also varied from 12 to 48 weeks, with some studies also following the patient until their death. Palliative care protocols were established to promote consistency in the delivered interventions, but the interventions were also personalized based on each participant's needs.

**Tools and Instruments**

Instruments used to measure quality of life differed between the studies. These instruments included the McGill Quality of Life Questionnaire-Hong Kong version, Kansas City Cardiomyopathy Questionnaire, Functional Assessment of Chronic Illness Therapy- Palliative 14, EuroQol-5D, Chronic Heart Failure Questionnaire, and Minnesota Living with Heart Failure Questionnaire. These assessments review participant overall quality of life and symptoms present in the physical, social and emotional domains. The comparison between the participant's baseline and follow-up scores is used to determine the impact of the intervention on quality of life. In addition, some studies evaluated secondary measures which also impact quality of life, including overall symptoms with the Edmonton symptom assessment scale, pain surveys, spiritual wellbeing surveys, the hospital anxiety and depression scale, functional assessments, satisfaction with care, hospital admission rates, and completion rates of advance directives.

**Research Findings**

The main results of this literature review demonstrated a positive impact of ACP and palliative care interventions on health-related quality of life in patients with heart failure when implemented along with usual care. Two systematic reviews demonstrate an improvement in

quality of life of after ACP intervention; one of which specifically puts emphasis on ACP interventions delivered as part of specialist palliative care (Kernick et al., 2018; Nishikawa et al., 2020). Williams et al. (2020) shows that ACP strengthened the connection between the participant's care preferences and the ultimate delivered care. Since this is the established goal of ACP, this finding was particularly significant. However, the large Cochrane systematic review and meta-analysis noted an uncertain change to quality of life due to the small number of studies and number of participants in each study included in the meta-analysis (Nishikawa et al., 2020). This systematic review also cited an overall low to very low quality of available evidence of available studies (Nishikawa et al., 2020).

The level of evidence provided in the selected articles is mixed. The systematic reviews all synthesize data from randomized controlled trials, however, they site an overall low level of evidence due to small sample size, high attrition and study design flaws (Nishikawa et al., 2020). The largest study included in this review, with 102,746 participants, was of low quality with a lack of participant randomization or blinding (Wiskar et al., 2017). The randomized controlled trials included were limited in their inability to blind participants to the intervention, as the nature of the intervention is a facilitated discussion or consultation with palliative care specialists (Nishikawa et al., 2020). Several studies cited high attrition rates, up to 24.4% in one study, due to participant withdrawal, unable to reach at follow-up, or died before study completion (Wong et al., 2016, p. 1106).

Seven of the eight articles relating to palliative care interventions reported an improvement in quality of life. Two of these randomized control trials also reported the improvement as statistically significant findings (Rogers et al., 2017; Wong et al., 2016). The only randomized control trial that did not demonstrate an increase in quality of life involved a

palliative care telehealth intervention named ENABLE CHF-PC (Bakitas et al., 2020). This study also aimed to increase the available palliative care research on racially diverse populations (Bakitas et al., 2020). Their sample consisted of 415 participants, with mean age of 63.8, 54.5% were African American, 96.9% were NYHA class III, and 91.1% were Protestant (Bakitas et al., 2020, p. 1206). The study discusses that their results were impacted by the participant's fairly good baseline quality of life scores and high functional status, creating a potential "ceiling effect" to the follow-up scores (Bakitas et al., 2020).

Selected secondary symptoms related to quality of life were reviewed in the analysis. Depression was reviewed in seven of the twelve articles, with six reporting that ACP or palliative interventions improved depression (Diop et al., 2017; Kernick et al., 2018; Luo et al., 2016; Nishikawa et al., 2020; Rogers et al., 2017; Wong et al., 2016). Anxiety scores were also reviewed in four studies, all reporting a reduction in anxiety (Diop et al., 2017; Johnson et al., 2018; Rogers et al., 2017; Wong et al., 2016). Two studies revealed improved pain scores after a palliative care intervention and reported opiates as the most commonly prescribed medication by palliative care specialists for those with heart failure (Bakitas et al., 2020; Gandesbery et al., 2018). Rogers et al. (2017) also determined that palliative care improved spiritual wellbeing in heart failure participants.

Several articles discussed the intervention's impact on overall healthcare utilization. The rates of repeat hospital admission were significantly lower for both ACP and palliative care interventions (Kernick et al., 2018; Wong et al., 2016). Diop et al. (2017) also associated palliative care interventions with a statistically significant decrease in emergency department visits, length of stay, overall admissions, intensive care unit admissions and urgent care visits (p.

89). Reduced utilization of medical services thus decreases cost of care to the individual and healthcare system (Diop et al., 2017).

The quality of death was reported by the location of death, use of hospice services, and survival rates. Participants receiving palliative care of ACP interventions were more likely to die at home rather than the hospital increasing the participant's preferred place of death (Diop et al., 2017; Kernick et al., 2018). The rate of hospice care enrollment was also increased in palliative care and ACP intervention groups (Diop et al., 2017; Kernick et al., 2018). There are mixed results in determining the intervention's effect on all-cause mortality. Nishikawa et al. (2020) reports a higher risk of all-cause mortality after ACP intervention. Then, Diop et al. (2017) notes an increased survival rate of 81 days for patients after palliative care interventions.

## Discussion

This literature review integrates evidence from the last five years to determine the effect of ACP and palliative care interventions on quality of life in individuals with heart failure. Upon review of the chosen articles, it was determined that these two interventions could not be analyzed separately. Several ACP interventions were applied by palliative care specialists and the palliative care interventions often incorporate ACP into their approach. Based on the evidence evaluated in this review, though of lower quality, it appears that ACP and palliative care interventions improve quality of life in patients with heart failure.

Through searching the databases, it was clear that the body of knowledge on ACP and palliative care in heart failure has grown substantially in the last five years. This is particularly notable as previous research in palliative care has been focused primarily on oncology outcomes. The level of evidence initially appeared to be high, with the inclusion of five systematic reviews synthesizing randomized controlled trial (RCT) data and additional quasi-experimental trials.

However, four of these systematic reviews judged the available evidence as low due to small sample sizes and study design quality (Kernick et al., 2018; Nishikawa et al., 2020; Schichtel et al., 2020; Williams et al., 2020). The studies were limited due to high attrition, control group participants receiving palliative interventions during usual care, and inability to blind participants (Nishikawa et al., 2020). While blinding participants may not be feasible with these interventions, the outcomes may reflect a degree of reporting bias.

Limitations were also present with the consistency of interventions for each participant. Both ACP and palliative care interventions require a patient-centered approach. Several of the studies utilized an intervention model or template to promote uniformity between the participants. However, each patient has individual palliative care and ACP needs which impacts the intervention applied. Some studies argued that this variability between the intervention "dose" impacted their results (Bakitas et al., 2020, p. 1207).

The current ACC/AHA guidelines support ACP and palliative care interventions at all stages of heart failure. In the research selected for this review, the participants were primarily in NYHA Class III or IV or with previous documented hospitalization for heart failure. This lack of inclusion among those with early heart failure, including Class I to II, does impact the generalizability of the data. Conversely, heart failure involves an unpredictable and episodic disease course, making some participants less willing to engage in these interventions if their baseline quality of life is 'fair'. Bakitas et al. (2020) discussed this possibility as the majority of participants were of NYHA class III status. A potential "ceiling effect" in quality of life scores was noted as there was little space for improvement from the baseline scores (Bakitas et al., 2020, 1207). This phenomenon may limit the possible research gains in studies that include

participants in Class I and II. A qualitative rather than quantitative study may be more effective in explaining the benefit of ACP and palliative care in the early heart failure population.

While the evidence is low regarding quality of life, the available research does show stronger support of symptomatic benefits from the ACP and palliative interventions (Nishikawa et al., 2020). Depression, anxiety, pain and spiritual wellbeing all showed improvement after interventions. As these symptoms are burdensome, their presence and improvement can also affect the participant's quality of life.

Healthcare resource utilization is presented as the rate of rehospitalization and cost of care. While the healthcare system values a lower heart failure readmissions rate due to greater financial reimbursements, the patient also benefits with lower healthcare costs and less time in the hospital. Research demonstrating a reduction in cost after ACP and palliative care may provide further incentive to implement these interventions in practice.

The quality of death was frequently analyzed as an outcome of ACP and used to determine if the participant's established wishes are upheld. Neither of these interventions intend to precipitate death, rather to alleviate burdensome symptoms for these patients and optimize the patient's goals of care. The available data on all-cause mortality following ACP and palliative care is uncertain, with some studies reporting an increase and others with life prolonging evidence. However, this data can be misleading, as it does not reflect the patient or caregiver satisfaction with end-of-life care or the use of life-sustaining treatments (Nikshikawa et al, 2020).

**Gaps in Literature**

A number of personal, social, and environmental factors can influence the outcomes of palliative care and ACP. Overall, there is a great need for further research on these subjects in

order to assist their integration into usual care for individuals with heart failure. This literature review exposed the lack of evidence regarding these interventions being applied in early heart failure, including Class I and II. Although heart failure in early stages can be stable with minimal symptoms, the disease is subjected to sudden changes and exacerbations. While ACP discussion often take place during these exacerbations, it is also important to discuss ACP early in the disease process. The possibility of a sudden fatal arrhythmia further depicts the disease's unpredictability and need for early intervention (Luo et al., 2016). The clinician can regularly review advance care plans, as the patient's values and wishes may change over time (Nishikawa et al., 2020). While the ACC/AHA 2013 heart failure guidelines support the early implementation of ACP and palliative care, these interventions are often not applied until later stages. The lack of research on this population of early heart failure may influence current practices. Further research on barriers to application should also be explored.

One challenge of this review was to compare the studies in which the interventions greatly differed in framework. Even the ACP studies involved delivering the intervention at a palliative care consultation, with hospital discharge planning, and with a video-based training. Further research is needed to compare these interventions, determine the most effective form, and analyze cost of delivery. Several studies highlight the need for an interdisciplinary approach to both ACP and palliative care. Shared decision-making among the patient, family members, palliative care specialist, primary care provider, and the cardiology team may bring about varying viewpoints that can support the patient's overall quality of life. Future studies evaluating palliative care provided by an interdisciplinary team versus palliative care specialists alone will be beneficial. Similarly, comparing the ACP intervention applied in a primary care or cardiology

visit as opposed to a component of specialist palliative care may help to determine the most cost-effective approach for these patients.

There is a need for more research on cultural and racial values and their impact on ACP and perceptions of palliative care. Discussions regarding death are not acceptable in some cultures, and interventions may be inappropriate to generalize to other cultures. Bakitas et al. (2020) evaluated a "culturally based, palliative care intervention" with 54.4% of participants identified as African American (p. 1203). However, their results demonstrated no significant change in quality of life or mood at the 16-week follow-up (Bakitas et al., 2020). These results may demonstrate a conflict in cultural values and the intervention provided. Previous research has shown African Americans have unique barriers to palliative medicine, including lack of knowledge about prognosis, a desire for aggressive treatment, medical mistrust, family member resistance, and lack of insurance (Rhodes et al., 2015). Cultural sensitivity is necessary to examine when evaluating these interventions, the instruments used during research, and in applying ACP or palliative care into practice. Future research is needed to analyze the use of the ACP and palliative care interventions onto participants in different sociocultural and spiritual backgrounds.

**Implications for Research**

In addition to addressing the identified gaps in the literature, there is a need to gather high quality evidence on this topic through large scale RCTs. Current research also is limited by the heterogeneity of study methods, populations, interventions, measuring instruments, and outcomes evaluated (Diop et al., 2017). In order to conduct a future high-quality meta-analysis, data from RCTs must be more homogenous. Future studies should further explore the effects of

ACP and palliative care interventions on quality of life and whether the end-of-life care received upholds to their preferences established by ACP.

The barriers to ACP and palliative care application should also be explored, including the perceived distress to the patient or family in discussing future goals of care and end-of-life preferences. There is also a need to expand palliative care services to the rural and underserved communities. Future research evaluating the effect of telehealth palliative services for these communities which lack an in-person option. To support the expansion of palliative care services in the country, the overall cost-benefit analysis of services provided verses those saved through lower healthcare resource utilization should be analyzed.

**Implications for Practice**

This literature review highlighted the growing body of research available on ACP and palliative care in the heart failure population. This research provides an evidence basis for these interventions to be applied into practice. The Centers for Medicare and Medicaid Services approved reimbursement for advance care planning and palliative care services (Williams et al., 2020). Though funding may be present and support from current research and heart failure guidelines may be present, the application of ACP and palliative care in practice remains low.

Possible barriers to application in practice include the unpredictable disease trajectory, difficulty for providers to determine appropriate timing, the patient's poor understanding of disease progression, and patient or provider displeasure in discussing end of life planning (Nishikawa et al., 2020; Luo et al., 2016). The recommended timing of these interventions is also inconsistent. Schichtel et al. (2020) suggests ACP be implemented at significant milestones to promote better patient engagement, such as "after an unscheduled hospital admission, before hospital discharge or after a deterioration in the patient's health status" (p. 882). It is uncertain if

the timing of the intervention impacts its success. If patients are not engaged in the discussion, the intervention may be explained but be poorly understood.

Of the ACP and palliative care interventions, it appears most effective if implemented by palliative care specialists in collaboration with an interdisciplinary team. However, the practicality of this approach may be poor given the deficit of palliative care specialists and large portion of heart failure patients. The ideal action, given current resources, is to incorporate ACP and palliative care interventions into the usual heart failure care in primary care and cardiology outpatient visits. Then a referral to palliative care specialists would occur for complex cases or difficult to control symptoms.

**Implications for Policy**

Current public and private medical insurance agencies offer reimbursement for ACP and palliative care referrals. However, there continues to be low application of these interventions into practice. Future policy changes can assist in overcoming practice barriers. Policies promoted to offer financial incentives for ACP and palliative care interventions. Current policies should be evaluated for possible hinderances to practice. The buy-in of key policy stakeholders is important for these changes to be successful; these individuals should receive education on the benefits of ACP and palliative care to reduce healthcare resource utilization and spending. Hospitals are currently penalized for heart failure readmissions, and palliative care can be promoted to prevent these readmissions. Policy may also inform the public about ACP and palliative care including the benefit to chronic disease symptoms, healthcare utilization, and when to request these services.

**Implications for Education**

The acceptance of ACP and palliative care by clinicians proves to be a barrier to application. There continues to be a misconception that palliative care equates to hospice care, which prevents some clinicians from offering palliative care referrals. Additional training is needed for both primary care providers and cardiology specialists regarding the benefits of ACP and palliative care for heart failure patients. Clinicians should be educated on these interventions as a way to improve provider-patient communication, patient satisfaction of care and quality of life. For heart failure patients, some clinicians may feel uncomfortable with introducing palliative care and ACP due to the uncertain disease trajectory and a perceived patient aversion in end-of-life discussions (Luo et al., 2016). To overcome these barriers, methods of incorporating ACP and palliative interventions into usual care should be incorporated into medical and nursing curriculum. Continuing education classes also provide an opportunity to explore these interventions and overcome barriers to application.

## Conclusion

Heart failure is a progressive disease with a significant level of symptom burden, decrease in functional status, and psychologic distress. Those who suffer from heart failure can experience a reduction in quality of life and greater need for palliative care and ACP. Compared to oncology patients, those with heart failure have considerably less utilization of these services. This literature review revealed a growing amount of available heart failure specific research evaluating ACP and palliative care interventions. A total of twelve articles were chosen for analysis to determine the interventions impact on quality of life.

The evidence analyzed in this review do support that ACP and palliative care increase the quality of life in heart failure. Review of secondary symptomatic outcomes also demonstrate benefit to depression, anxiety, pain, and spiritual wellbeing. Data reveal a decrease in

readmission rates and increase in quality of death. The interventions' impact on all-cause mortality is uncertain and ultimately does not reflect the patient's satisfaction with care or use of life-sustaining treatments.

The overall quality of this evidence is low due to inability to blind participants, small sample sizes, high attrition rates, and inconsistent control of variables. Future research is needed to evaluate the impact of ACP and palliative care on early heart failure and among those with different cultural backgrounds. A comparison between interventions is also needed to optimize the delivery in practice. Application of these interventions in practice is supported by Medicare and Medicaid reimbursement and the current heart failure guidelines. Practice change must overcome barriers including a deficiency of palliative specialists, provider uncertainty in delivering the interventions, and misperceptions or lack of engagement from the patient. Adding these interventions into the usual care for heart failure is a more realistic approach and allows all patients access to services.

# References

Akyar, I., Dionne-Odom, J. N., & Bakitas, M. A. (2019). Using patients and their caregivers feedback to develop ENABLE CHF-PC: An early palliative care intervention for advanced heart failure. *Journal of palliative care*, *34*(2), 103–110. https://doi-org.ezproxy.mnsu.edu/10.1177/0825859718785231

Bakitas, M. A., Dionne-Odom, J. N., Ejem, D. B., Wells, R., Azuero, A., Stockdill, M. L., Keebler, K., Sockwell, E., Tims, S., Engler, S., Steinhauser, K., Kvale, E., Durant, R. W., Tucker, R. O., Burgio, K. L., Tallaj, J., Swetz, K. M., & Pamboukian, S. V. (2020). Effect of an early palliative care telehealth intervention vs usual care on patients with heart failure: The ENABLE CHF-PC randomized clinical trial. *JAMA internal medicine*, *180*(9), 1203–1213. https://doi-org.ezproxy.mnsu.edu/10.1001/jamainternmed.2020.2861

Brännström, M., & Jaarsma, T. (2015). Struggling with issues about cardiopulmonary resuscitation (CPR) for end-stage heart failure patients. *Scandinavian Journal of Caring Sciences*, *29*(2), 379–385. https://doi-org.ezproxy.mnsu.edu/10.1111/scs.12174

Chandar, M., Brockstein, B., Zunamon, A., Silverman, I., Dlouhy, S., Ashlevitz, K., Tabachow, C., Lapin, B., Ewigman, B., Mazzone, T., & Obel, J. (2017). Perspectives of health-care providers toward advance care planning in patients with advanced cancer and congestive heart failure. *The American journal of hospice & palliative care*, *34*(5), 423–429. https://doi-org.ezproxy.mnsu.edu/10.1177/1049909116636614

Diop, M. S., Rudolph, J. L., Zimmerman, K. M., Richter, M. A., & Skarf, L. M. (2017). Palliative care interventions for patients with heart failure: A systematic review and meta-

analysis. *Journal of palliative medicine*, *20*(1), 84–92. https://doi-org.ezproxy.mnsu.edu/10.1089/jpm.2016.0330

El-Jawahri, A., Paasche-Orlow, M. K., Matlock, D., Stevenson, L. W., Lewis, E. F., Stewart, G., Semigran, M., Chang, Y., Parks, K., Walker-Corkery, E. S., Temel, J. S., Bohossian, H., Ooi, H., Mann, E., & Volandes, A. E. (2016). Randomized, controlled trial of an advance care planning video decision support tool for patients with advanced heart failure. *Circulation*, *134*(1), 52–60. https://doi-org.ezproxy.mnsu.edu/10.1161/CIRCULATIONAHA.116.021937

Gandesbery, B., Dobbie, K., & Gorodeski, E. Z. (2018). Outpatient palliative cardiology service embedded within a heart failure clinic: Experiences with an emerging model of care. *The American journal of hospice & palliative care*, *35*(4), 635–639. https://doi-org.ezproxy.mnsu.edu/10.1177/1049909117729478

Johnson, M. J., McSkimming, P., McConnachie, A., Geue, C., Millerick, Y., Briggs, A., & Hogg, K. (2018). The feasibility of a randomized controlled trial to compare the cost-effectiveness of palliative cardiology or usual care in people with advanced heart failure: Two exploratory prospective cohorts. *Palliative medicine*, *32*(6), 1133–1141. https://doi-org.ezproxy.mnsu.edu/10.1177/0269216318763225

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: Rationale, evidence, and future priorities. *Journal of the American College of Cardiology*, *70*(15), 1919–1930. https://doi-org.ezproxy.mnsu.edu/10.1016/j.jacc.2017.08.036

Kernick, L. A., Hogg, K. J., Millerick, Y., Murtagh, F., Djahit, A., & Johnson, M. (2018). Does advance care planning in addition to usual care reduce hospitalisation for patients with advanced heart failure: A systematic review and narrative synthesis. *Palliative medicine*, *32*(10), 1539–1551. https://doi-org.ezproxy.mnsu.edu/10.1177/0269216318801162

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. *The American journal of cardiology*, *118*(5), 733–738. https://doi-org.ezproxy.mnsu.edu/10.1016/j.amjcard.2016.06.010

Malhotra, C., Sim, D. K., Jaufeerally, F., Vikas, N. N., Sim, G. W., Tan, B. C., Ng, C. S., Tho, P. L., Lim, J., Chuang, C. Y., Fong, F. H., Liu, J., & Finkelstein, E. A. (2016). Impact of advance care planning on the care of patients with heart failure: Study protocol for a randomized controlled trial. *Trials*, *17*(1), 285. https://doi-org.ezproxy.mnsu.edu/10.1186/s13063-016-1414-1

Metzger, M., Song, M. K., Ward, S., Chang, P. P., Hanson, L. C., & Lin, F. C. (2016). A randomized controlled pilot trial to improve advance care planning for LVAD patients and their surrogates. *Heart & Lung: The Journal of Critical Care, 45(*3), 186–192. https://doi-org.ezproxy.mnsu.edu/10.1016/j.hrtlng.2016.01.005

Nishikawa, Y., Hiroyama, N., Fukahori, H., Ota, E., Mizuno, A., Miyashita, M., Yoneoka, D., Kwong, J. S., & Kwong, J. S. (2020). Advance care planning for adults with heart failure. *Cochrane Database of Systematic Reviews*, *2*.

Ranganath, A., Gunnarsson, O., & Casarett, D. (2014). Palliative care and advance care planning for patients with advanced malignancies. *Annals of Palliative Medicine, 3*(3), 144-149.

Rhodes, R. L., Batchelor, K., Lee, S. C., & Halm, E. A. (2015). Barriers to end-of-life care for African Americans from the providers' perspective: Opportunity for intervention development. *The American journal of hospice & palliative care*, *32*(2), 137–143. https://doi-org.ezproxy.mnsu.edu/10.1177/1049909113507127

Rogers, J. G., Patel, C. B., Mentz, R. J., Granger, B. B., Steinhauser, K. E., Fiuzat, M., Adams, P. A., Speck, A., Johnson, K. S., Krishnamoorthy, A., Yang, H., Anstrom, K. J., Dodson, G. C., Taylor, D. H., Jr, Kirchner, J. L., Mark, D. B., O'Connor, C. M., & Tulsky, J. A. (2017). Palliative care in heart failure: The PAL-HF randomized, controlled clinical trial. *Journal of the American College of Cardiology*, *70*(3), 331–341. https://doi-org.ezproxy.mnsu.edu/10.1016/j.jacc.2017.05.030

Romanò M. (2020). Barriers to early utilization of palliative care in heart failure: A narrative review. *Healthcare (Basel, Switzerland)*, *8*(1), 36. https://doi.org/10.3390/healthcare8010036

Sahlen, K. G., Boman, K., & Brännström, M. (2016). A cost-effectiveness study of person-centered integrated heart failure and palliative home care: Based on a randomized controlled trial. *Palliative medicine*, *30*(3), 296–302. https://doi-org.ezproxy.mnsu.edu/10.1177/0269216315618544

Schichtel, M., Wee, B., Perera, R., & Onakpoya, I. (2020). The effect of advance care planning on heart failure: A systematic review and meta-analysis. *JGIM: Journal of General Internal Medicine*, *35*(3), 874–884. https://doi.org/10.1007/s11606-019-05482-w

Thoonsen, B., Vissers, K., Verhagen, S., Prins, J., Bor, H., van Weel, C., Groot, M., & Engels, Y. (2015). Training general practitioners in early identification and anticipatory palliative

care planning: A randomized controlled trial. *BMC Family Practice*, *16*(1), 1–12. https://doi-org.ezproxy.mnsu.edu/10.1186/s12875-015-0342-6

van Scoy, L. J., Green, M. J., Dimmock, A. E., Bascom, R., Boehmer, J. P., Hensel, J. K., Hozella, J. B., Lehman, E. B., Schubart, J. R., Farace, E., Stewart, R. R., & Levi, B. H. (2016). High satisfaction and low decisional conflict with advance care planning among chronically ill patients with advanced chronic obstructive pulmonary disease or heart failure using an online decision aid: A pilot study. *Chronic illness*, *12*(3), 227–235. https://doi-org.ezproxy.mnsu.edu/10.1177/1742395316633511

von Schwarz, E. R., He, M., & Bharadwaj, P. (2020). Palliative care issues for patients with heart failure. *JAMA network open*, *3*(2), e200011. https://doi-org.ezproxy.mnsu.edu/10.1001/jamanetworkopen.2020.0011

Wells, R., Stockdill, M. L., Dionne-Odom, J. N., Ejem, D., Burgio, K. L., Durant, R. W., Engler, S., Azuero, A., Pamboukian, S. V., Tallaj, J., Swetz, K. M., Kvale, E., Tucker, R. O., & Bakitas, M. (2018). Educate, nurture, advise, before life ends comprehensive heartcare for patients and caregivers (ENABLE CHF-PC): Study protocol for a randomized controlled trial. *Trials*, *19*(1), 422. https://doi-org.ezproxy.mnsu.edu/10.1186/s13063-018-2770-9

Williams, M. T., Kozachik, S. L., Karlekar, M., & Wright, R. (2020). Advance care planning in chronically ill persons diagnosed with heart failure or chronic obstructive pulmonary disease: An integrative review. *The American journal of hospice & palliative care*, *37*(11), 950–956. https://doi-org.ezproxy.mnsu.edu/10.1177/1049909120909518

Wiskar, K., Celi, L. A., Walley, K. R., Fruhstorfer, C., & Rush, B. (2017). Inpatient palliative care referral and 9-month hospital readmission in patients with congestive heart failure: A

linked nationwide analysis. *Journal of Internal Medicine*, *282*(5), 445–451. https://doi-org.ezproxy.mnsu.edu/10.1111/joim.12657

Wong, F. K., Ng, A. Y., Lee, P. H., Lam, P. T., Ng, J. S., Ng, N. H., & Sham, M. M. (2016). Effects of a transitional palliative care model on patients with end-stage heart failure: A randomised controlled trial. *Heart (British Cardiac Society)*, *102*(14), 1100–1108. https://doi-org.ezproxy.mnsu.edu/10.1136/heartjnl-2015-308638

Yancy, C. W., Jessup, M., Bozkurt, B., Butler, J., Casey D. E., Drazner, M. H., Fonarow, G. C., Geraci, S. A., Horwich, T., Januzzi, J. L., Johnson, M. R., Kasper, E. K., Levy, W. C., Masoudi, F. A., McBride, P. E., McMurray, J. J. V., Mitchell, J. E., Peterson, P. N., Riegel, B., Sam, F., Stevenson, L. W., Tang, W. H. W., Tsai, E. J., & Wilkoff, B. L. (2013). 2013 ACCF/AHA guideline for the management of heart failure: A report of the American College of Cardiology Foundation/American Heart Association Task Force on practice guidelines. *Journal of the American College of Cardiology, 62*(16), e147-e239.

# Appendix

## Table 1

*Database Search Description*

| Database (or Search Engine) | Restrictions Added to Search | Dates Included in Database | General Subjects Covered by Database |
|---|---|---|---|
| 1. Academic Search Premier (ASP) | Full text; English Language; Scholarly Journals (Peer Reviewed) | 2015 through 2020 | Provides citations and abstracts to articles, as well as full text of articles from over 4,600 publications, covering almost every academic subject. |
| 2. CINAHL Plus with Full Text (CINAHL) | Full Text; English Language; Peer Reviewed | 2015 through 2020 | Provides full text access to e-books about nursing and 29 core nursing journals. Also provides citations and abstracts to articles, books, dissertations, proceedings, and other materials about all aspects of nursing and allied health, including cardiopulmonary technology, emergency service, health education, medical/laboratory, medical assistant, medical records, occupational therapy, physical therapy, physician assistant, radiologic technology, social service/health care, and more. |
| 3. Cochrane Database of Systematic Reviews (Cochrane) | Full Text | 2015 through 2020 | Cochrane Database of Systematic Reviews contains full text articles, as well as protocols focusing on the effects of healthcare. Data is evidence-based medicine and is often combined statistically (with meta-analysis) to increase the power of the findings of numerous studies, each too small to produce reliable results individually. |
| 4. PubMed | Full Text; English Language; Human species | 2015 through 2020 | Provides citations, abstracts, and selected full text to articles about "medicine, nursing, dentistry, veterinary medicine, the health care system, and the preclinical sciences." |

| Database (or Search Engine) | Restrictions Added to Search | Dates Included in Database | General Subjects Covered by Database |
|---|---|---|---|
| 5. SAGE Journals (SAGE) | Full Text | 2015 through 2020 | This database includes all of the databases that we formerly had under the "Sage Full-Text" moniker. It includes: Communication Studies, Criminology, Education, Health Sciences & Nursing, Management & Organization Studies, Materials Science, Non-Profit Leadership, Political Science, Psychology, Sociology, and Urban Studies & Planning, plus a few more journals. |

**Table 2**

*Data Abstraction Process*

| Date of Search | Key Words | Results in ASP | Results in CINAHL | Results in Cochrane | Results in PubMed | Results in SAGE |
|---|---|---|---|---|---|---|
| 10.20.20 | "Advance care planning" AND "Heart failure" | 114 | 24 | 2 | 251 | 2392 |
| | "Advance care planning" AND "Heart failure" (subject search) | 22 | 49 | 0 | x | x |
| | "Advance care planning" AND "Cardiac failure" | 74 | **49 (2)** | 0 | 264 | 99 |
| | "Advance care planning" AND "Heart failure" AND "Quality of life" | **19 (2)** | **23 (1)** | **2 (1)** | 91 | 1781 |
| 10.21.20 | "Advance care planning" AND "Heart failure" AND "Wellbeing" | 3 | 1 | 0 | **7 (3)** | 219 |
| 10.24.20 | "Advance care planning" AND "Heart failure" AND "Primary care" | 5 | 3 | 0 | 6 | **39 (3)** |
| 11.13.20 | "Advance care planning" AND "Heart failure" (title search) | **3 (1)** | **3 (2)** | **1 (1)** | **4 (0)** | **4 (3)** |
| 11.13.20 | "Palliative care" AND "heart failure" | X | 0 | X | 292 | 846 |
| 11.13.20 | "Palliative care" AND "heart failure" (title search) | X | X | X | | 22 |
| 11.13.20 | Review of references | 3 | | | | |

***BOLD** = articles reviewed for match with systematic review inclusion criteria (parentheses indicate those articles meeting inclusion criteria)

**Table 3**

*Characteristics of Literature Included and Excluded*

| Reference | Included or Excluded and Document | Rationale |
|---|---|---|
| Akyar, I., Dionne-Odom, J. N., & Bakitas, M. A. (2019). Using patients and their caregivers feedback to develop ENABLE CHF-PC: An early palliative care intervention for advanced heart failure. *Journal of palliative care*, *34*(2), 103–110. https://doi-org.ezproxy.mnsu.edu/10.1177/0825859718785231 | Excluded | This study is intended to develop and evaluate the palliative care intervention, ENABLE CHF-PC. Research pertains to the tool itself rather than patient outcomes. |
| Bakitas, M. A., Dionne-Odom, J. N., Ejem, D. B., Wells, R., Azuero, A., Stockdill, M. L., Keebler, K., Sockwell, E., Tims, S., Engler, S., Steinhauser, K., Kvale, E., Durant, R. W., Tucker, R. O., Burgio, K. L., Tallaj, J., Swetz, K. M., & Pamboukian, S. V. (2020). Effect of an early palliative care telehealth intervention vs usual care on patients with heart failure: The ENABLE CHF-PC randomized clinical trial. *JAMA internal medicine*, *180*(9), 1203–1213. https://doi-org.ezproxy.mnsu.edu/10.1001/jamainternmed.2020.2861 | Included | Determines the effect of palliative care telehealth intervention on quality of life, mood, global health, pain, and resource use in patients with HF. |
| Brännström, M., & Jaarsma, T. (2015). Struggling with issues about cardiopulmonary resuscitation (CPR) for end-stage heart failure patients. *Scandinavian Journal of Caring Sciences*, *29*(2), 379–385. https://doi-org.ezproxy.mnsu.edu/10.1111/scs.12174 | Excluded | The study evaluates barriers of healthcare provider to implement palliative care discussions but not review the impact palliative care has on the patient. |
| Chandar, M., Brockstein, B., Zunamon, A., Silverman, I., Dlouhy, S., Ashlevitz, K., Tabachow, C., Lapin, B., Ewigman, B., Mazzone, T., & Obel, J. (2017). Perspectives of health-care providers toward advance care planning in patients with advanced cancer and congestive heart failure. *The American journal of hospice & palliative care*, *34*(5), 423–429. https://doi-org.ezproxy.mnsu.edu/10.1177/1049909116636614 | Excluded | This study evaluates the attitudes of cardiologists towards ACP. Barriers to implementing ACP were addressed, but not how these discussions benefit the patient. |
| Diop, M. S., Rudolph, J. L., Zimmerman, K. M., Richter, M. A., & Skarf, L. M. (2017). Palliative care interventions for patients with heart failure: A systematic review and meta-analysis. *Journal of palliative medicine*, *20*(1), 84–92. https://doi-org.ezproxy.mnsu.edu/10.1089/jpm.2016.0330 | Included | This is a systematic review and meta-analysis on the impact of palliative intervention for patients with heart failure. Outcomes include quality of life, satisfaction, clarification of care preferences, and risk of rehospitalization. |
| El-Jawahri, A., Paasche-Orlow, M. K., Matlock, D., Stevenson, L. W., Lewis, E. F., Stewart, G., Semigran, M., Chang, Y., Parks, K., Walker-Corkery, E. S., Temel, J. S., Bohossian, H., Ooi, H., Mann, E., & Volandes, A. E. (2016). Randomized, controlled trial of an advance care planning video decision support tool for patients with advanced heart failure. *Circulation*, *134*(1), 52–60. https://doi-org.ezproxy.mnsu.edu/10.1161/CIRCULATIONAHA.116.021937 | Excluded | A randomized control study on the use of a video decision support tool for those with heart failure. Outcomes involve patient's desire for CPR/intubation rather than quality of life. |
| Gandesbery, B., Dobbie, K., & Gorodeski, E. Z. (2018). Outpatient palliative cardiology service embedded within a heart failure clinic: Experiences with an emerging model of care. *The American journal of hospice & palliative* | Included | The study characterized patients in an outpatient palliative cardiology service on their most common complaints, advance directive status, medications used, and mortality. These distressing symptoms encountered heavily impact the patient's quality of life. |

| Reference | Included or Excluded and Document | Rationale |
|---|---|---|
| *care*, *35*(4), 635–639. https://doi-org.ezproxy.mnsu.edu/10.1177/1049909117729478 | | |
| Johnson, M. J., McSkimming, P., McConnachie, A., Geue, C., Millerick, Y., Briggs, A., & Hogg, K. (2018). The feasibility of a randomized controlled trial to compare the cost-effectiveness of palliative cardiology or usual care in people with advanced heart failure: Two exploratory prospective cohorts. *Palliative medicine*, *32*(6), 1133–1141. https://doi-org.ezproxy.mnsu.edu/10.1177/0269216318763225 | Excluded | This is a feasibility study reviewing variables and population data prior to RCT, no data regarding the palliative care intervention is evaluated. |
| Kernick, L. A., Hogg, K. J., Millerick, Y., Murtagh, F., Djahit, A., & Johnson, M. (2018). Does advance care planning in addition to usual care reduce hospitalisation for patients with advanced heart failure: A systematic review and narrative synthesis. *Palliative medicine*, *32*(10), 1539–1551. https://doi-org.ezproxy.mnsu.edu/10.1177/0269216318801162 | Included | A systematic review evaluating the addition of ACP to usual care at reducing hospitalization in adults with heart failure. Outcomes also evaluate impact on quality of life, symptoms, use of specialist palliative care, and end-of-life preferences. |
| 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. *The American journal of cardiology*, *118*(5), 733–738. https://doi-org.ezproxy.mnsu.edu/10.1016/j.amjcard.2016.06.010 | Included | This article describes the role and barriers of implementing palliative interventions for adults with heart failure on mechanical circulatory support. The patient's benefit to palliative care include improvement of symptoms and increase in quality of life. |
| Malhotra, C., Sim, D. K., Jaufeerally, F., Vikas, N. N., Sim, G. W., Tan, B. C., Ng, C. S., Tho, P. L., Lim, J., Chuang, C. Y., Fong, F. H., Liu, J., & Finkelstein, E. A. (2016). Impact of advance care planning on the care of patients with heart failure: Study protocol for a randomized controlled trial. *Trials*, *17*(1), 285. https://doi-org.ezproxy.mnsu.edu/10.1186/s13063-016-1414-1 | Excluded | This article is the study protocol which was evaluated prior to conducting a randomized control trial. |
| Metzger, M., Song, M. K., Ward, S., Chang, P. P., Hanson, L. C., & Lin, F. C. (2016). A randomized controlled pilot trial to improve advance care planning for LVAD patients and their surrogates. *Heart & Lung:The Journal of Critical Care, 45(*3), 186–192. https://doi-org.ezproxy.mnsu.edu/10.1016/j.hrtlng.2016.01.005 | Excluded | Studies an educational intervention on patient-surrogate congruence in goals of care, patient's decisional conflict and surrogates decision-making confidence. Does include ACP, but does not analyze its impact on the patient's quality of life post-intervention. |
| Nishikawa, Y., Hiroyama, N., Fukahori, H., Ota, E., Mizuno, A., Miyashita, M., Yoneoka, D., Kwong, J. S., & Kwong, J. S. (2020). Advance care planning for adults with heart failure. *Cochrane Database of Systematic Reviews*, *2*. | Included | Systematic review of 9 studies showing the effects of ACP compared to usual care for heart failure patients. Includes review of the intervention impact quality of life. |
| Rogers, J. G., Patel, C. B., Mentz, R. J., Granger, B. B., Steinhauser, K. E., Fiuzat, M., Adams, P. A., Speck, A., Johnson, K. S., Krishnamoorthy, A., Yang, H., Anstrom, K. J., Dodson, G. C., Taylor, D. H., Jr, Kirchner, J. L., Mark, D. B., O'Connor, C. M., & Tulsky, J. A. (2017). Palliative care in heart failure: The PAL-HF randomized, controlled clinical trial. *Journal of the* | Included | A randomized control trial evaluating a palliative care intervention in advanced heart failure patients on quality of life, anxiety, depression, and spiritual well-being compared to usual care. |

| Reference | Included or Excluded and Document | Rationale |
|---|---|---|
| *American College of Cardiology*, *70*(3), 331–341. https://doi-org.ezproxy.mnsu.edu/10.1016/j.jacc.2017.05.030 | | |
| Sadeghi, B., Walling, A. M., Romano, P. S., Ahluwalia, S. C., & Ong, M. K. (2016). A hospital-based advance care planning intervention for patients with heart failure: A feasibility study. *Journal of palliative medicine*, *19*(4), 451–455. https://doi-org.ezproxy.mnsu.edu/10.1089/jpm.2015.0269 | Excluded | Reviews ACP impact on completion rates of POLST forms or advanced directives. Does not evaluate intervention impact on quality of life for patients. |
| Sahlen, K. G., Boman, K., & Brännström, M. (2016). A cost-effectiveness study of person-centered integrated heart failure and palliative home care: Based on a randomized controlled trial. *Palliative medicine*, *30*(3), 296–302. https://doi-org.ezproxy.mnsu.edu/10.1177/0269216315618544 | Included | A randomized controlled trial studying a palliative home care intervention on healthcare costs and quality of life for patient in severe and chronic heart failure. |
| Schichtel, M., Wee, B., Perera, R., & Onakpoya, I. (2020). The effect of advance care planning on heart failure: A systematic review and meta-analysis. *JGIM: Journal of General Internal Medicine*, *35*(3), 874–884. https://doi.org/10.1007/s11606-019-05482-w | Included | A systematic review of 14 RCT's analyzing the impact of advance care planning on quality of life and patient satisfaction with end-of-life care, and the quality of end-of-life communication. High level of evidence. |
| Thoonsen, B., Vissers, K., Verhagen, S., Prins, J., Bor, H., van Weel, C., Groot, M., & Engels, Y. (2015). Training general practitioners in early identification and anticipatory palliative care planning: A randomized controlled trial. *BMC Family Practice*, *16*(1), 1–12. https://doi-org.ezproxy.mnsu.edu/10.1186/s12875-015-0342-6 | Excluded | Reviews general practitioners' ability to identify patients in need of palliative care and implement palliative interventions. Does not review the quality of life from these palliative interventions. |
| Van Scoy, L. J., Green, M. J., Dimmock, A. E., Bascom, R., Boehmer, J. P., Hensel, J. K., Hozella, J. B., Lehman, E. B., Schubart, J. R., Farace, E., Stewart, R. R., & Levi, B. H. (2016). High satisfaction and low decisional conflict with advance care planning among chronically ill patients with advanced chronic obstructive pulmonary disease or heart failure using an online decision aid: A pilot study. *Chronic illness*, *12*(3), 227–235. https://doi-org.ezproxy.mnsu.edu/10.1177/1742395316633511 | Excluded | The study evaluates individuals of different chronic disease states and primary outcome is the patients' satisfaction of using an ACP tool. |
| Wells, R., Stockdill, M. L., Dionne-Odom, J. N., Ejem, D., Burgio, K. L., Durant, R. W., Engler, S., Azuero, A., Pamboukian, S. V., Tallaj, J., Swetz, K. M., Kvale, E., Tucker, R. O., & Bakitas, M. (2018). Educate, nurture, advise, before life ends comprehensive heartcare for patients and caregivers (ENABLE CHF-PC): Study protocol for a randomized controlled trial. *Trials*, *19*(1), 422. https://doi-org.ezproxy.mnsu.edu/10.1186/s13063-018-2770-9 | Excluded | This analyzes the study protocol rather than results of the palliative care intervention. |
| Williams, M. T., Kozachik, S. L., Karlekar, M., & Wright, R. (2020). Advance care planning in chronically ill persons diagnosed with heart failure or chronic obstructive pulmonary disease: An integrative review. *The American journal* | Included | An integrative review analyzing advance care planning discussions in the acute care setting for patients with heart failure and COPD. Study outcomes evaluated the benefit of ACP improving communication |

| Reference | Included or Excluded and Document | Rationale |
|---|---|---|
| *of hospice & palliative care*, *37*(11), 950–956. https://doi-org.ezproxy.mnsu.edu/10.1177/1049909120909518 | | surrounding care preferences, strengthened connection between preferred and delivered care, and increased patient involvement. |
| Wiskar, K., Celi, L. A., Walley, K. R., Fruhstorfer, C., & Rush, B. (2017). Inpatient palliative care referral and 9-month hospital readmission in patients with congestive heart failure: A linked nationwide analysis. *Journal of Internal Medicine*, *282*(5), 445–451. https://doi-org.ezproxy.mnsu.edu/10.1111/joim.12657 | Included | A retrospective linked analysis of hospital readmissions for heart failure exacerbations. Primary outcome is readmission rate of end-stage heart failure after palliative care consult. Reviews how the reduction of hospitalizations increase patient quality of life. |
| Wong, F. K., Ng, A. Y., Lee, P. H., Lam, P. T., Ng, J. S., Ng, N. H., & Sham, M. M. (2016). Effects of a transitional palliative care model on patients with end-stage heart failure: A randomised controlled trial. *Heart (British Cardiac Society)*, *102*(14), 1100–1108. https://doi-org.ezproxy.mnsu.edu/10.1136/heartjnl-2015-308638 | Included | A randomized control trial examining the effects of home-based palliative care for patients with heart failure. Outcomes include readmission rates, symptom control, and quality of life. |

*Note.* ACP = Advance care planning; POLST = physician orders for life-sustaining treatment; CPR = Cardiopulmonary resuscitation; COPD = Chronic obstructive pulmonary disease

**Table 4**

*Literature Review Table of All Studies Included*

| Citation | Study Purpose | Pop (N)/ Sample Size (n) /Setting(s) | Design/ Level of Evidence | Variables/ Instruments | Intervention | Findings | Implications |
|---|---|---|---|---|---|---|---|
| Bakitas, M. A., Dionne-Odom, J. N., Ejem, D. B., Wells, R., Azuero, A., Stockdill, M. L., Keebler, K., Sockwell, E., Tims, S., Engler, S., Steinhauser, K., Kvale, E., Durant, R. W., Tucker, R. O., Burgio, K. L., Tallaj, J., Swetz, K. M., & Pamboukian, S. V. (2020). Effect of an early palliative care telehealth intervention vs usual care on patients with heart failure: The ENABLE CHF-PC randomized clinical trial. *JAMA internal medicine*, *180*(9), 1203–1213. https://doi- | To determine the effect of an early palliative care telehealth intervention on the QOL, mood, global health, pain, and resource use of adult patients over 50 years old with advanced HF. | N= 415<br><br>A large Southeastern US academic tertiary medical center and a Veterans Affairs medical center | RCT, without participant or researcher blinding<br><br>Level III | QOL: Kansas City Cardiomyopathy Questionnaire [KCCQ] and Functional Assessment of Chronic Illness Therapy-Palliative-14 [FACIT-Pal-14]<br><br>Mood: Hospital Anxiety and Depression Scale [HADS]<br><br>Global health: Patient reported outcome measurement system global health<br><br>Pain: Patient reported outcome measurement | ENABLE CHF-PC: Educate, nurture, advise, before life ends comprehensive heartcare for patients and families. An in-person palliative care consultation and 6 weekly nurse-coach telephonic sessions and monthly | -No significant differences were noted for QOL or mood scores between the intervention and control groups<br>-Secondary outcomes of pain intensity and pain interference with daily life were better in the intervention group. | -Early palliative care intervention improved pain intensity and interference with daily life.<br>-The lack of significant differences in QOL scores may be related to the high proportion of patients with NYHA class III status with fairly good baseline QOL and functional status.<br>-Nearly half of the intervention group were unable to attend the in-person palliative consultation and 39% did not receive the full telephone coaching sessions, which presents a study limitation.<br>-Future research is needed to evaluate the interventions impact on patients with higher baseline symptom burden and poorer QOL. |

| Citation | Study Purpose | Pop (N)/ Sample Size (n) /Setting(s) | Design/ Level of Evidence | Variables/ Instruments | Intervention | Findings | Implications |
|---|---|---|---|---|---|---|---|
| org.ezproxy.mnsu.edu/10.1001/jamainternmed.2020.2861 | | | | system pain intensity and interference<br><br>Resource use: hospital days and emergency department visits | follow-up for 48 weeks. | | |
| Diop, M. S., Rudolph, J. L., Zimmerman, K. M., Richter, M. A., & Skarf, L. M. (2017). Palliative care interventions for patients with heart failure: A systematic review and meta-analysis. *Journal of palliative medicine*, *20*(1), 84–92. https://doi-org.ezproxy.mnsu.edu/10.1089/jpm.2016.0330 | Summarize the available evidence for palliative care interventions in the HF population and to identify specific practices that are the most effective in improving patient-centered outcomes and QOL | N/A | Systematic Review<br><br>Level I | Variable across studies evaluated | Palliative care consultation and education. | -Improvement of patient QOL in 83% of studies<br>-Improvement of patient satisfaction of care in 67% of symptoms<br>-Improvement of patient symptoms most frequently seen with dyspnea, sleep quality, depression and anxiety<br>-Increase in advance directive completion in 71% of studies<br>-Decrease in emergency department visits, length of stay, overall admissions, intensive care unit admissions, urgent care, and primary care visits | -Current evidence suggests that home and team-based palliative interventions for HF patients improve patient-centered outcomes, documentation of patient preferences, and reduce utilization of medical services.<br>-Research encourages early palliative care interventions for HF patients.<br>-Further research is needed to address the impact of social determinants of health and family involvement on patient-centered outcomes when palliative care is applied to the HF population. |
| Gandesbery, B., Dobbie, K., & Gorodeski, E. Z. (2018). Outpatient palliative cardiology service embedded within a heart failure clinic: Experiences with an emerging model of care. *The American journal of hospice & palliative care*, *35*(4), 635–639. https://doi-org.ezproxy.mnsu.edu/10.1177/1049909117729478 | Characterize adult patients cared for by outpatient palliative cardiology service, including their degree of HF, symptoms, comorbidities, topics addressed in clinic, palliative treatments prescribed, advanced directive status, and mortality | N=80 Outpatient palliative care service embedded within the HF clinic at Cleveland Clinic | Retrospective chart review, Quasi-experimental<br><br>Level IV | Symptom severity: modified version of Edmonton Symptom Assessment Scale Functional status: Palliative Prognostic Index | Outpatient palliative cardiology service | -The most frequently addressed issues were pain management (55%) and advanced care planning (54%)<br>-The most common palliative medications prescribed were opiates (48%), laxatives (22%), anti-neuropathies (22%), and antidepressants (16%). | -Embedding palliative medicine services in a HF outpatient clinic is feasible.<br>-Patients seen had a variety of QOL limiting symptoms and were medically managed by palliative care interventions.<br>-Evidence favors the formation of dedicated HF palliative care clinics. |
| Kernick, L. A., Hogg, K. J., Millerick, Y., Murtagh, F., Djahit, A., & Johnson, M. (2018). Does advance care planning in addition | The assess whether ACP, in addition to usual care, reduces the | n=14,357<br><br>Studies were conducted | Systematic review<br><br>Level I | Variable across studies evaluated | ACP in addition to usual care | ACP:<br>-reduced hospitalization<br>-increased referral and use of palliative services | -Trials of ACP by specialist palliative care intervention show benefit to patient-referred place of care and death and reduced hospital admission/time in hospital |

| Citation | Study Purpose | Pop (N)/ Sample Size (n) /Setting(s) | Design/ Level of Evidence | Variables/ Instruments | Intervention | Findings | Implications |
|---|---|---|---|---|---|---|---|
| to usual care reduce hospitalisation for patients with advanced heart failure: A systematic review and narrative synthesis. *Palliative medicine*, *32*(10), 1539–1551. https://doi-org.ezproxy.mnsu.edu/10.1177/0269216318801162 | number of hospital admissions and quality of death in adults with HF. | in the US (3), UK (2), Canada (1), Sweden (1), and Hong Kong (1). | | | | -supported deaths in the patient-preferred place<br><br>-ACP improved QOL and burdensome symptoms, though measurement instruments varied across studies | -Specialty palliative care is a scarce resource. It is feasible for ACP to be implemented into core cardiology care, with access to palliative specialist as needed<br>-Future research should evaluate possible harms of ACP. |
| 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. *The American journal of cardiology*, *118*(5), 733–738. https://doi-org.ezproxy.mnsu.edu/10.1016/j.amjcard.2016.06.010 | Describe the benefits of palliative care, barriers to use within HF, and specific applications to the integrated care of patients on mechanical circulatory support (MCS) | N/A | Commentary/ Expert opinion<br><br>Level V | N/A | N/A | Barriers include:<br>-an uncertainty of disease progression, unlike other chronic diseases<br>-real or perceived patient aversion to end-of-life planning<br><br>The role of proactive palliative care consultation prior to MCS therapy can assist patients and families understand options, define values for QOL, clarify goals of LVAD therapy, and document end-of-life preferences. | As technology evolves, the use of MCS will evolve and may be utilized in earlier stages of HF. In this scenario, the role of palliative care will also need to evolve and be implemented earlier. |
| Nishikawa, Y., Hiroyama, N., Fukahori, H., Ota, E., Mizuno, A., Miyashita, M., Yoneoka, D., Kwong, J. S., & Kwong, J. S. (n.d.). Advance care planning for adults with heart failure. *Cochrane Database of Systematic Reviews*, *2*. | To assess the effects of ACP in adults with HF compared to usual care strategies that do not have any components of promoting ACP | n=1242<br><br>Studies occur in the United States or United Kingdom | Systematic review<br><br>Level I | Variable across studies evaluated | ACP | ACP effects:<br>-increases completion of documentation by medical staff regarding discussions with participants about ACP processes<br>-may increase all-cause mortality<br>-may improve depression scores<br>-uncertain impact on QOL or quality of communication with providers | ACP may help promote documentation by healthcare providers about ACP process and lead to improve in participant depression. However, the quality of evidence was low. |
| Rogers, J. G., Patel, C. B., Mentz, R. J., Granger, B. B., Steinhauser, K. E., Fiuzat, M., Adams, P. A., Speck, A., Johnson, K. S., Krishnamoorthy, A., Yang, H., Anstrom, K. J., Dodson, G. C., Taylor, D. H., Jr, Kirchner, J. L., Mark, D. B., O'Connor, C. M., & | To assess the impact of an interdisciplinary palliative care intervention combined with usual HF management on HF-related and overall QOL in | n=150<br><br>Single center in the United States | RCT<br><br>Level II | Kansas City Cardiomyopathy Questionnaire, Functional Assessment of Chronic Therapy-Palliative Care scale, Hospital Anxiety and Depression Scale, FACIT- Spiritual well-being scale, | PAL-HF: An interdisciplinary palliative care intervention on multiple QOL components | -Palliative care had significant improvement in QOL scores at 6 months<br>-Depression, anxiety, and spiritual well-being improved in the intervention group<br>-The intervention had no impact on rate of rehospitalization or mortality | PAL-HF increases evidence to support the use of palliative care interventions to improve health-related quality of life in end-stage HF patients. |

| Citation | Study Purpose | Pop (N)/ Sample Size (n) /Setting(s) | Design/ Level of Evidence | Variables/ Instruments | Intervention | Findings | Implications |
|---|---|---|---|---|---|---|---|
| Tulsky, J. A. (2017). Palliative care in heart failure: The PAL-HF randomized, controlled clinical trial. *Journal of the American College of Cardiology*, *70*(3), 331–341. https://doi-org.ezproxy.mnsu.edu/10.1016/j.jacc.2017.05.030 | patients with HF. | | | hospitalizations, and mortality | | | |
| Sahlen, K. G., Boman, K., & Brännström, M. (2016). A cost-effectiveness study of person-centered integrated heart failure and palliative home care: Based on a randomized controlled trial. *Palliative medicine*, *30*(3), 296–302. https://doi-org.ezproxy.mnsu.edu/10.1177/0269216315618544 | To assess the cost-effectiveness of person-centered integrated HF and palliative home care | n=72<br><br>Sweden county hospital | Controlled trial without randomization<br><br>Level III | EuroQol- 5 Dimmension (EQ-5D) | Palliative advanced home care and heart failure care (PREFER) | -The intervention group had a gain of 0.25 quality-adjusted life years<br>-Significant cost reduction with the intervention group, related to a reduction in hospital care and emergency services | The PREFER intervention saves financial resources while improving quality of life for patient in HF. |
| Schichtel, M., Wee, B., Perera, R., & Onakpoya, I. (2020). The effect of advance care planning on heart failure: A systematic review and meta-analysis. *JGIM: Journal of General Internal Medicine*, *35*(3), 874–884. https://doi.org/10.1007/s11606-019-05482-w | To determine the effect of ACP in heart failure | n=2924 | Systematic Review and Meta-analysis<br><br>Level I | NA | ACP | ACP:<br>-had a moderate improvement of QOL, patient satisfaction with end-of-life care, and the quality of end-of-life communication for patients suffering from HF<br>-Is most effective when introduced at significant disease milestones | To facilitate better engagement with ACP:<br>-introduce ACP at a significant milestone in the disease trajectory<br>-offer follow-up appointments to clarify and adjust care choices<br>-offer involvement of family members or health care proxy<br>-work in a multidisciplinary team and not in isolation within a single medical specialty. |
| Williams, M. T., Kozachik, S. L., Karlekar, M., & Wright, R. (2020). Advance care planning in chronically ill persons diagnosed with heart failure or chronic obstructive pulmonary disease: An integrative review. *The American journal of hospice & palliative care*, *37*(11), 950–956. https://doi- | To understand whether targeting patients with episodic disease trajectories in the acute care setting will increase their willingness to participate in | N/A | Systematic review<br><br>Level I | Variable across studies evaluated | ACP | -Improved patient attitudes toward ACP<br>-Effective communication surrounding care preferences<br>-Strengthened connection between preferred and delivered care<br>-Increased patient involvement in ACP | Chronic diseases, including HF, have a high symptom burden punctuated by exacerbations, making it difficult identify the most beneficial time for ACP discussions. Future research is needed to evaluate the optimal timeline of ACP interventions in this population. |

| Citation | Study Purpose | Pop (N)/ Sample Size (n) /Setting(s) | Design/ Level of Evidence | Variables/ Instruments | Intervention | Findings | Implications |
|---|---|---|---|---|---|---|---|
| org.ezproxy.mnsu.edu/10.1177/1049909120909518 | ACP discussions | | | | | | |
| Wiskar, K., Celi, L. A., Walley, K. R., Fruhstorfer, C., & Rush, B. (2017). Inpatient palliative care referral and 9-month hospital readmission in patients with congestive heart failure: A linked nationwide analysis. *Journal of Internal Medicine*, *282*(5), 445–451. https://doi-org.ezproxy.mnsu.edu/10.1111/joim.12657 | To examine the association of an inpatient palliative care visit on hospital readmission for patients admitted with HF | n=102,746<br><br>Nationwide readmission database, collected from 22 states | Retrospective review<br><br>Level IV | Age, gender, insurance coverage, discharge location from index hospitalization, DNR status, PC visit index, and the 28 Elixhauser co-morbidity indices | Palliative care consultation | -Only 2.2% of patients admitted with HF had a palliative care visit as inpatients<br>-Patients who had received a palliative care visit were less likely to be readmitted for HF or for any cause during the 9-month follow-up period<br>-The average hospital cost during the follow-up period for the non-palliative care group were $77,643 per patient, compared to the $23,200 per patient who had received palliative care consultation | Inpatient palliative care visits significantly lowered rates of all-cause and HF-specific readmission in the subsequent 9 months and lowering healthcare costs. However, the study is limited in its ability to capture costs of home care, skilled nursing facilities, and hospice care that may be increased after palliative care consultation. |
| Wong, F. K., Ng, A. Y., Lee, P. H., Lam, P. T., Ng, J. S., Ng, N. H., & Sham, M. M. (2016). Effects of a transitional palliative care model on patients with end-stage heart failure: A randomised controlled trial. *Heart (British Cardiac Society)*, *102*(14), 1100–1108. https://doi-org.ezproxy.mnsu.edu/10.1136/heartjnl-2015-308638 | To examine the effects of home-based transitional palliative care for patients with end-stage HF after hospital discharge | n=84<br><br>Three hospitals in Hong Kong | RCT<br><br>Level II | -Count of readmissions within 4 and 12 weeks after index discharge<br>-Edmonton Symptom Assessment Scale (ESAS)<br>-McGill QOL and chronic HF questionnaires | Weekly home visits/telephone calls by a nurse case manager in the first 4 weeks then monthly follow-up | -The intervention group had a significantly lower readmission rate than control at 12 weeks<br>-There was no difference in readmission rates between groups at 4 weeks<br>-The intervention group experienced significantly higher clinical improvement of depression, dyspnea, and total ESAS score<br>-There was a significant improvement to QOL in the control group | -This study provides evidence of the effectiveness of post-discharge palliative care program in reducing readmissions and improving symptom control among patients with HF<br>-Organizational support with referral guidelines between medical and palliative care physicians may promote further utilization of this intervention |

*Note.* RCT = Randomized controlled trial; HF = Heart failure; ACP = Advance care planning; QOL = Quality of life