THE INTEGRATION OF EARLY PALLIATIVE CARE FOR PATIENTS WITH HEART FAILURE: EFFECT ON PATIENT'S QUALITY OF LIFE

by

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Abstract

Heart Failure (HF) is a life-limiting condition which causes symptoms beyond the physical manifestations of cardiac dysfunction. HF can significantly impact patients' quality of life (QOL), which is often not addressed in standard regimes of HF care. QOL encompasses the individual's physical, functional, psychological, and social aspects of life. The specialty of palliative care (PC) addresses all these aspects and can significantly improve a patient's QOL. PC is underutilized for patients with HF due to the non-linear progression of the disease and the general uncertainty of the prognosis. The aim of this integrative review was to explore the impacts of early integration of outpatient PC on the QOL of patients with HF. Findings demonstrate that outpatient PC can positively impact the QOL of HF patients and can be introduced early in the disease process, even when patients are receiving life-prolonging treatment. PC can improve measures of overall QOL, palliative symptom burden, HF symptom burden, and depression in this populations. Primary care providers can implement the early introduction of PC for their HF patients to preserve their QOL despite their current prognosis.

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The Integration of Early Palliative Care for Patients with Heart Failure: Effect on Patient's Quality of Life

Heart failure is a life-limiting clinical syndrome caused by cardiac dysfunction; it is diagnosed clinically based on the patient's symptoms, which often first present as dyspnea and fatigue (Colucci & Borlaug, 2024). There are many treatment options utilized to delay the progression of this life-limiting disease, which patients can misconstrue as curative rather than medical management (Namukwaya et al., 2017). When patients are symptom-free due to effective medical management, they often presume that they no longer have HF, not realizing that the medical management techniques are not curative (Namukwaya et al., 2017). Due to the variance between periods of exacerbations and medical management, communicating the prognosis of HF can be a challenge. Healthcare providers often struggle to predict the course of HF, as many variables can alter the disease course, and there is wide interpatient variability (Colucci, 2024; Jones et al., 2019). The uncertainty of future illness trajectory can be distressing for patients, particularly during periods of exacerbations when their symptoms are not effectively managed (Jones et al., 2019). During the chronic phases of HF, discussions between healthcare providers and patients regarding the disease process, prognosis and advanced care planning are imperative; this provides patients with a better understanding of their disease, and acute exacerbations are less alarming and easier to manage (Jones et al., 2019). Patients appreciate knowing what is going on, and providers taking the time to explain things can significantly impact their quality of life (QOL) (Ramanayake et al., 2016).

QOL can have many definitions depending on the person and encompasses physical, functional, psychological, and social aspects of the individual's life (Fallowfield, 2009). Higher levels of QOL are associated with improved prognosis, so assessing and maintaining QOL throughout treatment is important (Fallowfield, 2009). Heo et al. (2009) found that the definition of QOL in patients with HF was multi-dimensional, encompassing aspects such as the ability to perform physical and social activities, happiness, the ability to be at peace, and being around people who support you. Garcia-Soleto et al. (2013) found that QOL measures were significantly higher in HF patients after discharge from the hospital, demonstrating the value of outpatient care on QOL. Primary care providers (PCPs) play an important role in ensuring that patients get the best outpatient care as they have a rapport with patients and their families and are typically the easiest to access (Ramanayake et al., 2016). PCPs provide access to specialists, liaise with appropriate providers through referrals, integrate specialists' care plans with concurrent treatments, and ensure the patient receives the best possible care (Ramanayake et al., 2016). Early discussions of disease progression and advanced care planning can be difficult for PCPs to have due to the uncertainty of how things will progress, particularly early in the disease process and the resistance of patients and their families to recognize the severity of the disease (Nowels et al., 2016). Implementing specialties such as palliative care (PC) can help patients and PCPs ease into the transition of living with life-limiting chronic conditions and aid in these discussions (Beernaert et al., 2014).

Regarding chronic conditions with inconsistent life expectancy, such as HF, PC is an under-utilized specialty (Jones et al., 2019). There is often a general lack of knowledge about when PCPs should refer to PC, and it is often done late in the disease progress, closer to end-of-life (Ramirez & Verma, 2024). PC has a negative connotation due to its association with end-of-life care. However, early introduction to PC has demonstrated improved QOL, symptom control, and general patient satisfaction in their care with life-limiting diseases (Ramirez & Verma, 2024). It has also been demonstrated to prolong life by an average of 2.5 months in cancer patients when introduced at the time of diagnosis (Ramirez & Verma, 2024). Although PC is more commonly associated with conditions that have predictable disease progression, such as cancer, this integrative review aims to determine the effect PC has on QOL in patients with HF. How does the early introduction of outpatient PC affect QOL in patients with HF?

Background

HF is a clinical syndrome that can be caused by several different cardiac diseases occurring individually or concurrently that progressively decrease the effectiveness of the heart to pump blood (Colucci & Borlaug, 2022). Eventually, the heart cannot meet the body's metabolic demands, which presents with various symptoms (Colucci & Borlaug, 2022). Diagnosis is primarily made clinically based on presenting symptoms, history, physical examination, and laboratory and diagnostics imaging studies (Colucci & Borlaug, 2023). The New York Heart Association (NYHA) has developed a grading system based on the severity of symptoms a patient presents with, which is known as the functional classification of HF (Colucci, 2022). This classification (Table 1) is dynamic depending on the effectiveness of medical management and is frequently used to help guide treatment (American Heart Association, 2023).

Table 1: NYHA Classification (American Heart Association, 2023)

Classification	Patient Presentations
I	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation or shortness of breath
II	Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, shortness of breath or chest pain.
III	Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, shortness of breath or chest pain.
IV	Symptoms of heart failure at rest. Any physical activity causes further discomfort.

Heart Failure Incidence

As the population ages, the incidence of HF diagnoses increases, and as time progresses, medical therapies continue to advance; despite this, mortality rates of HF remain high (Colucci, 2023). The total number of deaths in Canada in 2023 due to major cardiovascular disease (CVD) was 76,962 (Statistics Canada, 2025). Approximately 750,000 Canadians are living with HF, with an estimated 100,000 new diagnoses annually (Saveski et al., 2025). According to a systematic review conducted by Jones et al. (2019) looking at the prognosis of HF, the ten-year survival rate of HF is 34.9%. Many factors affect the survival rates of HF, including age, sex, and the cause of cardiac dysfunction (Colucci, 2023), with individuals at advanced ages having a significantly higher mortality rate (Jones et al., 2019). Hospitalization for HF exacerbations is an indication of a poorer prognosis for patients and is related to an increase in mortality (Colucci, 2023). Within Canada, HF is among the top reasons for hospitalizations, with over 70,000 yearly admissions and a median length stay of 7 days (Saveski et al., 2025). The 30-day hospitalization readmission rate for HF has remained at 20% over the past decade despite an improved knowledge base and the presence of evidence-based guidelines for HF management (Saveski et al., 2025). This data indicates that there is room for improvement in the standard care of HF, with the potential for collaboration with specialties that manage other aspects of care in the outpatient setting.

Heart Failure Disease Course and Impacts on Quality of Life

When a patient’s condition begins to deteriorate, leading to increased emergency utilization and the need for hospitalization, it can be very distressing and significantly impact a patient’s QOL (Colucci, 2023). Due to the unpredictable nature of HF and frequent fluctuations between NYHA classifications, patients are left feeling anxious and depressed about their condition, contributing to a negative impact on their QOL (Corliss, 2023). Providers are often not confident in their prognosis due to the variations in the condition, and important conversations around the anticipated disease progression may be delayed, causing uncertainty for patients (Jones et al., 2024). The ambiguity in disease progression and frequent fluctuation between NYHA classifications causes patients to overestimate their life expectancy and experience undue duress when their conditions significantly decline (Jones et al., 2019). Integrating these difficult conversations into the provision of HF could potentially ease some stress and uncertainty for HF patients and outline a more apparent trajectory of their illness, improving their overall QOL.

Palliative Care

PC is a medical specialty that encompasses all the domains of suffering, including the physical, emotional, psychosocial and spiritual issues that accompany chronic illnesses such as HF (Corliss, 2023) and can be effectively used alongside life-prolonging care (Ramirez & Verma, 2024). In 2002, the World Health Organization updated the definition of PC as

> An approach that improves the quality of life of patients (adults and children) and their families who are facing problems associated with life-threatening illness. It prevents and relieves suffering through the early identification, correct assessment and treatment of pain and other problems, whether physical, psychosocial or spiritual. (World Health Organization, 2025, para. 1).

Despite this definition suggesting improved QOL with early identification, PC continues to focus on the treatment of those whose illness is no longer responsive to other medical modalities late in the disease process and for end-of-life treatments (Ramirez & Verma, 2024). In the case of

HF, this would be when cardiac dysfunction reduces cardiac output, hypotension and renal dysfunction begin to dominate the disease process, and medications are no longer effective in managing symptoms (Allen, 2025). Introducing PC before the HF symptom burden is too high can greatly improve a patient's QOL when they are living with the disease and decrease overall morbidity.

HF can negatively impact an individual's QOL to the point where they no longer want to continue living. In BC, from April 1 to June 30, 2023, 19.6% of the total cases of medical assistance in dying (MAID) were requested due to CVD (Government of British Columbia, 2023b). Of this 19.6%, HF comprised 54.6% of these MAID requests (Government of British Columbia, 2023b). Although this data does not indicate whether those who opted for MAID had previous encounters with PC, it does demonstrate that the effects on QOL are so severe that a patient would choose MAID rather than continue in the progression of their HF. Addressing issues in QOL early in the disease progression and providing PC could potentially mitigate suffering and decrease the demand for MAID in HF.

Benefits of Early Initiation of Palliative Care

Introduction of PC at the time of diagnosis is recommended in seriously ill cancer patients with a focus on the management of physical symptoms, emotions, social concerns and spirituality (Ramirez & Verma, 2024). The benefits of early PC in cancer patients have demonstrated prolonged lifespan, improvements in QOL, symptom control and patient/caregiver satisfaction levels when compared to standard care (Ramirez & Verma, 2024). In cancer patients, early PC was associated with less aggressive interventions, such as mechanical ventilation and chest compressions, which are associated with a worse QOL after intervention (Ramirez & Verma, 2024). This demonstrates that the early introduction of PC positively impacts the QOL of patients with life-limiting conditions. The research by Ramirez and Verma (2024) focuses on the effects PC has on cancer, so how does this relate to HF?

Cancer is the second most common cause of death after CVD, with HF being one of the most frequent causes of hospitalization in CVD (Askoxylakis et al., 2010). Despite this, cancer is the condition most associated with PC (Ramirez & Verma, 2024). In data from a systematic review by Askoxylakis et al. (2010), the five-year survival rate after diagnosis for all cancers was 43%, whereas the five-year survival rate for HF varied between 26 and 52%. Askoxylakis et al. argue that based on the relative risk of survival, cancer does not necessarily have a worse prognosis than HF despite cancer's association with PC (Askoxylakis et al., 2010). The trajectory of illness in HF tends to be more unpredictable than cancer (Askoxylakis et al., 2010), which is why there are barriers to the early introduction of PC in HF (Corliss, 2024). A few benefits seen in the early introduction of PC are improved management at home, leading to fewer hospital-acquired infections and more time spent with family (Corliss, 2024). PC helps patients better understand the risks and benefits of different treatment modalities and helps focus on the individual desires that a patient has in terms of long-term goals and QOL (Corliss, 2024). Despite HF having a worse prognosis than cancer (Askoxylakis et al., 2010), there remain significant barriers to the early introduction of PC in HF. Early evidence suggests that HF patients may benefit from integrating PC into their care model; however, it remains underutilized (Corliss, 2024). PC has demonstrated positive effects on the QOL of cancer patients and their caregivers (Ramirez & Verma, 2024). However, there is still limited knowledge of how PC use in HF impacts QOL; this integrative review intends to address this current gap in knowledge.

Barriers to Palliative Care in Heart Failure

Significant barriers impact the number of HF patients who receive a referral to PC. This includes the unpredictability of the HF disease process, a lack of knowledge of the benefit PC can have on non-cancer illnesses, and its negative association with end-of-life care (Crimmins et al., 2020). As healthcare workers, educating ourselves and identifying our biases in healthcare provision, including those that potentially create barriers to introducing a beneficial service for patients, is important.

Uncertainty of the Disease Progress. Throughout the disease course, HF patients will face drastic changes in their functional capacity, both physical and psychological, and their symptom burden in a non-linear manner, increasing demands on the patients, clinicians, and the healthcare system (Crimmins et al., 2020). As outlined by Poon et al. (2022); both the hospitalization and readmission rates of HF patients are high. Patients often have poor health literacy when it comes to the management of their HF; this includes recognizing symptoms of HF, medication management, dietary restrictions and how to prevent acute exacerbations (Artinian et al., 2002). The misunderstanding of their diagnosis can have significant impacts on their QOL as they pursue life-saving therapy into the terminal phases of their illness (Jones et al., 2019). PC has demonstrated significant benefits for patient QOL for those living with life-limiting illnesses (Corliss, 2024; Ramirez & Verma, 2024), and despite medical advances, mortality (Colucci, 2023; Jones et al., 2019) and hospitalization and readmission rate (Poon et al., 2022) of HF remain unacceptably high. Although many providers focus on the ambiguity of the prognosis, PC is based on the needs of the patients, not the disease process and can be appropriate at any time during the disease course, even if the patient is in a stable condition (Crimmins et al., 2020). Many PCPs avoid having end-of-life discussions with their patients early in the disease progression due to the uncertainty of the prognosis, so often, patients are unaware of the benefits of PC (Enguidanos et al., 2020). Despite HF having an inconsistent prognosis, collaboration with PC could potentially meet the varying needs of the patient. This integrative review intends to examine the knowledge base on early PC, and explore how, despite the ambiguity of the disease progress, it may impact the QOL of HF patients.

Lack of Knowledge of the Benefits of Palliative Care. Providers and patients have a knowledge deficit of what benefit PC can provide to illness management before the patient is at end-of-life (Crimmins et al., 2020; Ramirez & Verma, 2024). Enguidanos et al. (2020) conducted a study on the provider-perceived barriers to home-based PC and found a wide variance of knowledge and understanding of PC, ranging from a complete lack of knowledge to many misconceptions and confusion about PC. Many assumed that PC was only for those near end-of-life and no longer pursuing medical management of their conditions (Enguidanos et al., 2020). This confusion could be due to the unawareness of the wide variety of services that PC can provide (Enguidanos et al., 2020), including managing distressing symptoms such as shortness of breath, pain, anorexia, fatigue, and depression that are often overlooked in regular HF care (Crimmins et al., 2020). The primary focus of PC is to improve QOL for patients and their families facing life-limiting illnesses, but it does not necessarily indicate that a patient is close to end-of-life (Crimmins et al., 2020). It is important to address the knowledge gaps that PCPs have on PC as there may be a benefit to those who are diagnosed with life-limiting illness.

The Association of Palliative Care to End-of-life. There is a negative connotation with PC and the association with end-of-life, so there is often hesitancy on the part of the healthcare provider and the patient in integrating PC (Ramirez & Verma, 2024). PCPs often erroneously equate PC with Hospice and its association with end-of-life (Enguidanos et al., 2020). Hospice is a subcategory of PC that is delivered when the patient is deemed to have less than six months remaining to live; although all Hospice care is PC, not all PC is Hospice (Corliss, 2024; Ramirez & Verma, 2024), and patients and providers often misconstrue this. PC allows for the medical management of HF while offering symptom relief and interventions that address the patient's holistic needs (Crimmins et al., 2020). Crimmins et al. (2020) argue that this is why PC is important to implement; PC is a specialty that is trained to have difficult conversations about disease progression, and it may be beneficial in supporting patients to ensure QOL is preserved. The awareness of this negative association between PC and end-of-life can aid PCPs in having open discussions with their patients about PC and how it may benefit their QOL.

Current Heart Failure Guidelines. The BC Guidelines (2023a) on HF management, suggest that PC should not be delayed for a patient with serious illness who has physical, psychological, social, or spiritual distress simply because they are pursuing disease-directed treatment. PC in HF can address pain, dyspnea, and other associated symptoms while prioritizing QOL (Government of British Columbia, 2023a). Despite clearly outlined evidence-based instances of when to consider PC consultation in HF in the BC Guidelines (2023a), very few HF patients receive this vital service early, if at all, due to ongoing gaps in current knowledge about PC. The current barriers to introducing PC early in the disease process of HF demonstrate there is a current gap in the knowledge on how PC can positively impact the care and QOL of HF patients; the purpose of this integrative review is to address these knowledge gaps and determine if the early introduction of PC impacts the QOL of HF patients.

Method

When performing an integrative review, developing a strong research question is the first step in conducting research and shapes how you perform your search (Mohanan & Parameswaran, 2022). After brainstorming research questions and subjecting them to the FINER criteria (Mohanan & Parameswaran, 2022), the question 'How does early introduction of outpatient PC affect QOL in patients with HF?' was developed. During the development of the search strategy, A Step-by-Step Guide to Conducting a Search (Melilo, 2020) was reviewed, which helped choose which databases to utilize and strongly recommended using resources such as librarians in the search process. Following consultation with the knowledge synthesis librarian, a search strategy was compiled.

Three databases were searched: CINAHL, Medline, and APA PsycInfo. A search was conducted on Google Scholar to identify any articles that may not be in the databases and for information pertinent to the background or introduction. A quick scan of the articles in Google Scholar was done with a filter for any articles 'Since 2020', and any articles that met the inclusion/exclusion criteria discussed below within the first three pages were utilized. Search terms utilized aimed to find articles that discussed the effects of PC on HF patients' QOL in outpatient settings. The main search terms and Boolean phrases used for CINAHL and Medline were "Palliative Care" or "Palliative Medicine" or "palliative care" AND "early introduction" or "early referral" or "early initiation" or time* AND "Heart Failure" or "heart failure" or CHF AND "Quality of Life" or "Psychological Well-Being" or "quality of life" or "well-being" or "life satisfaction" AND "Home Health Care" or community or outpatient or home*. The main search terms differed slightly for PsycInfo as they had different subtopics and included "Palliative Care" or "Health Care Delivery" or "Spiritual Care" or "palliative care" AND "early introduction” or “early referral” or “early initiation” or time* AND “heart failure” AND “Quality of Life” or “Well Being” or “Life satisfaction” or “quality of life” or “well-being” or “life satisfaction AND “Community Treatment” or “Outpatient Treatment” or “Home Care” or community or outpatient or home*. This is summarized for each database, outlining the number of articles retrieved using this strategy in a table in Appendix A.

Inclusion and Exclusion Criteria

The inclusion criteria that were employed in this screening were:

: studies focused on the patient’s experience and QOL
: studies focused on HF specifically
: studies focused on the outpatient provision of PC
: studies that focused on PC as an intervention

The exclusion criteria employed in this screening were:

: studies that utilized in-patient intervention
: studies that focused on caregivers’ experience
: studies that included patients without HF
: studies that focused on end-of-life
: pilot studies that did not include final data
: systematic and integrative reviews

Data Extraction

The search results from the three databases and Google Scholar were imported into Covidence systematic review software (2024). “Covidence is a web-based collaboration software platform that streamlines the production of systematic and other literature reviews” (Covidence systematic review software, 2024, para. 5). A total of 61 articles were uploaded into Covidence;

seven were removed by the software as duplicates and double-checked to ensure they were not removed in error. Sixty-four were entered into a title and abstracts were screened by a single reviewer. Thirty-nine articles were deemed irrelevant based on inclusion/exclusion criteria in the title and abstract screening. Fifteen articles entered a full test screening, and eight articles were selected for data extraction by a single reviewer. See the PRISMA diagram in Appendix A for a summary.

Data extraction and quality assessment were completed utilizing Covidence systematic review software (2024). The quality assessment tool utilized was the Cochrane RoB1 tool (Covidence Systematic Review Software, 2024), which is summarized in Appendix B. Data extraction involved carefully reading through the results to determine the specific measures of QOL utilized in each study, which will be discussed in the next section.

Results

The method described above yielded a total of 8 articles. The following section will critically review these articles, beginning with an overview of the studies' characteristics, how the delivery of PC differed between studies and a comparison of how PC affected the QOL of their HF subjects. Findings are organized into the different aspects of QOL explored in the articles, including overall QOL, palliative and HF symptom burden, and depression, as well as characteristics of an effective HF program and themes that emerged from qualitative interview questions.

Overview of Studies

This section will review the characteristics of the studies included in this integrative review based on their location, the NYHA classifications of their subjects, the type of PC provided and the implications these may have on the integrative review findings.

Study Locations

The studies were from a variety of developed countries. To note, the three studies from the United States of America (USA) (Evangelista et al., 2012; Flint et al., 2017; O'Riordan et al., 2019) were the only studies included from countries that have solely privatized health care; the other countries include Canada (Lewin et al., 2017), China (Ng & Wong, 2018), Switzerland (Gonzalez-Jaramillo et al., 2022), Scotland (Boyd et al., 2009), and Colombia (Arenas Ochoa et al., 2022) which utilize public health care systems with privatized options. The studies do not mention whether the sampling of participants took place in privatized clinics or hospitals; one study (Evangelista et al., 2012) included financial resources as a portion of the PC assessment, two studies (Ng & Wong, 2018; Gonzalez-Jaramillo et al., 2022) included finances in their needs assessment. This may have implications on this integrative review because sampling subjects from privatized clinics may impact the subject's baseline characteristics. Those with higher socioeconomic status (SES) are more capable of paying for healthcare; lower SES is associated with higher HF-related mortality even in countries with public healthcare (Averbuch et al., 2022). This could impact the studies' results as those with lower SES may have baseline poorer QOL and, therefore, show a more significant increase in QOL with their intervention, demonstrating the potential for selection bias (Melnyk & Fineout-Overholt, 2023).

All the studies included data collected from outpatient HF clinics or home-based care as outpatient care is the focus of the current research question. One of the studies was from a rural setting (Boyd et al., 2009), which may impact specialties such as PC and resources available to these subjects as rural sites tend to be more underserviced.

NYHA Heart Failure Classifications

The NYHA classification of patients included in this review differed between studies and is summarized in Table 2. Three studies included patients with NYHA classification III or IV (Boyd et al., 2009; Lewin et al., 2017; Ng & Wong, 2018), which is associated with the presentation of HF symptoms at rest (see Table 1 for definitions). This could have implications for this review as the intention was to focus on early introduction. However, NYHA classification is a dynamic process and does not imply these patients are late in the disease course; it also does not specify if they are early after diagnosis of their HF; this is further explored as a limitation of this integrative review. The overview of each study is summarized in Table 2 and the exclusion and inclusion criteria of each study in this integrative review is summarized in Table 3.

Table 2: Study Identification breakdowns

Study ID	**Intervention and Controls**	**Country**	**Setting**	**Study Design**	**HF category**	**Sample size**	**Mean age**
Ng 2018	Intervention: HPHF Control: Usual Care	China	Outpatient	Randomized controlled trial	NYHA III or IV	84	78.3
O'Riordan 2019	Intervention: SMS-HF	United States of America	Academic medical centre	Randomized controlled trial	NYHA II-IV	39	65
Lewin 2017	Intervention: Palliative Care Control: Usual Care	Canada	Outpatient	Prospective cohort study	NYHA III or IV	40	83
Evangelista 2012	Intervention: Palliative Care Control: Usual Care	United States of America	Outpatient	Prospective cohort study	NYHA II/III	72	53.6 SD 8.3
Flint 2017	Moderate Health Status Trajectory Poor Health Status Trajectory Markedly Improved Health Status Trajectory	United States of America	Outpatient	Retrospective cohort study	NYHA I-IV	392	67.6 SD 10.1
Arenas Ochoa 2021	Usual HF care NECPAL + NECPAL -	Colombia	Outpatient HF Clinic	Cross-sectional	NYHA I-IV	178	70
Gonzalez-Jaramillo 2022	Intervention	Switzerland	Outpatient	Qualitative Interviewing	No stage or severity of HF was preselected	70	64
Boyd 2009	Intervention: Regional HF Service	Scotland	Rural outpatient	Longitudinal Qualitative Study	NYHA III/IV	96 30 patients 25 carers 41 healthcare professionals	76

Table 3: Inclusion and Exclusion Criteria

Study ID	Inclusion Criteria	Exclusion Criteria	Group Differences
Ng 2018	ability to communicate, residing in the service area, ability to be contacted by phone, meeting the criteria based on the Prognostic Indicator Guidance, Gold Standards Framework including two of the following: heart failure with New York Heart Association functional class III or IV, one-year life expectancy estimated by the referring physician, repeated hospitalization (greater than two in last six months) due to HF-related symptoms, existence of physical or psychological symptoms with optimal treatment,	discharged to a nursing home, having a psychiatric diagnosis requiring active treatment, inability to communicate,	The sociodemographic data of the two groups were equivalent
O'Riordan 2019	HF primary diagnosis or symptomatic/active HF in current hospitalization or within prior six months, NYHA Class II-IV, English speaking, >18 years of age, Able to give informed consent and pass SPMSQ Medicine, Cardiology, and HF service, No previous PC or hospice care	Pulmonary hypertension, Right HF, Left ventricular device, Percutaneous coronary intervention, coronary arterial bypass graft, or valve replacement during index admission, Pre/post-heart, liver, lung transplant, Homeless or live outside Bay Area, Active illicit drug use	Intervention group had significantly more women There were no difference between groups in terms of guideline-driven HF therapies
Lewin 2017	End-stage HF characterized by 1 + 2 + 3 + 4, and at least one of either a or b: Criteria for palliative care referral 1. 2+ hospital admissions for HF in prior 6 months 2. 1+ emergency department visit within prior 6 months 3. NYHA class III or IV symptoms 4. Not eligible or interested in mechanical circulatory support or heart transplant And 1+ of the following: a. Comorbidity—CRF, DM, Cancer, HIV, CVA, IPF, O2-dependent COPD b. Previous ICU admission or CPR within past year	Patients who met referral criteria to be seen by the PC team during admission for treatment of HF exacerbation but for whom the attending cardiologist did not approve PC consultation comprised our control group	The intervention and control groups were similar in terms of age, gender, and daily furosemide dosing. Eighty percent of patients (n = 16) in the intervention group compared with 27% (n = 4) in the control group died during the study period
Evangelista 2012	Adult patients (>18 years old), who were willing to be referred for a PC consultation were eligible to participate in the study.	Patients already receiving PC services or those who had any condition that resulted in: 1) decreased cognitive function (eg, dementia); 2) a life expectancy of <6 months (eg, malignant cancer); or 3) surgically implanted left ventricular assist device or implantable cardioverter-defibrillator were excluded from study participation	The sociodemographic and clinical characteristics of participants in the PC group versus the comparison group were similar
Flint 2017	Participants in The Patient-Centered Disease Management for Heart Failure trial, Outpatients from four Veterans Affairs Medical Centers with a new or existing diagnosis of heart failure with preserved or reduced ejection fraction, any New York Heart Association class, and a Kansas City Cardiomyopathy Questionnaire (KCCQ) overall summary score <60	N/A	N/A
Arenas Ochoa 2021	≥ 18 years old and were already enrolled in the HF clinic, attended at least two appointments at the HF clinic,	cognitive problems in understanding or answering the questions on the instruments	Patients from the two HF clinics had similar characteristics; they were mainly patients with reduced ejection fraction, male, and at NYHA II. The prevalence of hypertension, coronary disease, diabetes mellitus, COPD, and chronic kidney disease, and use of implantable cardioverter-defibrillator was also similar
Gonzalez-Jaramillo 2022	Adults (≥18 years old), able to communicate fluently in German and had a follow-up appointment at the HF clinic after having had at least one previous consultation at the clinic before. No stage or severity of HF was preselected as inclusion criteria, to ensure a complete and representative spectrum of patients at different stages of the disease	Participants with poor comprehension capacity	N/A
Boyd 2009	Heart failure patients using the spectrum of services available from general medical, cardiology, medicine of the elderly wards or clinics, and primary care, family carers and professionals identified by the patients	N/A	N/A

Delivery of Palliative Care

There are many ways outpatient PC can be provided to patients, and it is best individualized to meet a person's specific physical, emotional, psychosocial and spiritual needs (Corliss, 2023). For this reason, the method of PC delivery is important to discuss, as it can impact the outcome of how it affects a person’s QOL. The type and delivery method of PC varied between studies and could have potential effects on the outcomes of how it impacted QOL in HF patients within the studies utilized in this review. Two studies (Ng & Wong, 2018; O’Riordan et al., 2019) utilized a combination of in-home visits and telehealth for follow-up, one study utilized only telehealth (Evangelista et al., 2012), and three studies were based within a HF clinic (Arenas Ochoa et al., 2021; Gonzalez-Jaramillo et al., 2022; Lewin et al., 2017). One study (Lewin et al., 2017) had access to a PC Nurse Practitioner (NP) providing coverage 24 hours a day, seven days a week for symptom management support. The PC interventions provided were diverse between groups, but all focused on the key components of PC. The main PC provided was symptom management (Ng & Wong, 2018; O’Riordan et al., 2019), social, spiritual and existential support (Lewin et al., 2017; Ng & Wong, 2018; O’Riordan et al., 2019), advanced care planning (Ng & Wong, 2018; O’Riordan et al., 2019), and basic HF symptom management (Lewin et al., 2017). Two studies (Evangelista et al., 2012; Lewin et al., 2017) provided a treatment plan based on the PC assessment accessible to the patient and all healthcare providers. Four studies (Arenas Ochoa et al., 2021; Boyd et al., 2009; Flint et al., 2017; Gonzalez-Jaramillo et al., 2022) did not provide any direct PC intervention. Flint et al. reviewed subjects from previous data collected in a study that was based on symptom management in HF; however, directly in this study, they did not provide any symptom management; they utilized latent growth analysis to divide the subjects into groups based on their disease trajectories.

Arenas Ochoa et al. divided subjects into groups for comparison; the subjects' cardiologists deemed them to either require PC or not at the time of sampling; these groups were then compared on QOL measures. Gonzalez-Jaramillo et al. assessed the needs of HF patients with QOL measures and what they felt their current care was lacking in usual HF care. Boyd et al. reviewed patients', caregivers', and providers' perspectives on current HF care and what they felt was missing. Although Arenas Ochoa et al. (2021), Boyd et al. (2009), Flint et al. (2017), and Gonzalez-Jaramillo et al. (2022) do not directly explore a cause-and-effect relationship between PC and QOL, they were included in this review as they look at QOL factors and assess how PC can or cannot impact the care within these diverse groups.

The general overview of the studies utilized in this integrative review shows some similarities and differences in the characteristics of each. Having an overarching understanding of where the studies were conducted, the NYHA classification of the subjects included in the studies, and the different ways that PC was provided or examined in each study is important due to the implications these aspects may have on the outcomes of the studies.

Effect of Palliative Care on Quality of Life in Heart Failure

QOL is a multidimensional concept affected by physical and psychosocial symptoms that limit a patient's daily physical and social activities (Heo et al., 2009). Despite QOL being an abstract concept, concrete measures have been developed to look at specific aspects of QOL. The aspects of QOL identified and measured in the research articles included in this integrative review were overall QOL, which measures overall physical, emotional, socio-economic, and spiritual health (Arenas Ochoa et al., 2021; Evangelista et al., 2012; Flint et al., 2017; Lewin et al., 2017; Ng & Wong, 2018; O'Riordan et al., 2019); palliative symptom burden, which measures the impact of palliative-associated symptoms on a patient's life (Ng & Wong, 2018;

O’Riordan et al., 2019; Evangelista et al., 2012; Flint et al., 2017); HF symptom burden, which measures the impact of HF-related symptoms on a patient’s life (Arenas-Ochoa et al., 2021; Flint et al., 2017; Lewin et al., 2017; Ng & Wong, 2018); and depression (Arenas Ochoa et al., 2021; Evangelista et al., 2012; Flint et al., 2017). Other aspects the studies utilized in this review looked at were the attributes that encompass an effective HF-PC program (Boyd et al., 2009; Gonzalez-Jaramillo et al., 2022). Based on previous research on patients with other life-limiting conditions, it was anticipated that PC would positively impact the QOL of HF patients involved in these studies.

Effect on Overall Quality of Life

A patient’s overall QOL encompasses their physical, emotional, socio-economic and spiritual well-being, which can be significantly impacted during the course of a chronic illness such as HF. The impact of PC on HF patients’ overall QOL was measured in several of the studies included in this review utilizing different tools that quantify the different aspects of QOL. This section will review those studies and the impact the found PC had on QOL, comment on how they differed, and the implications for this review.

In three studies, the total QOL measures showed overall improvements in both the intervention group receiving PC and the control groups (Evangelista et al., 2012; Ng & Wong, 2018; O’Riordan et al., 2019). Within the intervention group, Ng & Wong (2018) found that total QOL showed significant improvement over time (P=0.016). However, there were no significant differences between groups in total QOL found by Ng & Wong and O’Riordan et al. Ng & Wong measured the overall QOL utilizing the McGill Quality of Life Questionnaire (Cohen, 1996), which is non-specific to HF and is utilized for anyone with a life-limiting illness, validated to measure how the disease alters QOL (Cohen, 2014). It measures physical well-being, physical symptoms, psychological symptoms, existential well-being and support, as well as overall quality of life (Cohen, 2014). O'Riordan et al. utilized the Minnesota Living with HF Questionnaire (Rector & Cohn, 1992), which focuses on how HF-specific symptoms can alter physical and emotional health and day-to-day QOL (Bilbao et al., 2016). Ng & Wong and O'Riordan et al. were randomized control trials (RCT) utilizing block randomization. Ng & Wong utilized computer-generated sequences, whereas O'Riordan et al. had a researcher uninvolved with the current study conduct random assignment to reduce allocation bias (Melnyk & Fineout-Overholt, 2023). Due to the nature of the interventions, it was impossible to blind the participants or the personnel involved in the RCTs, which could introduce performance bias (Melnyk & Fineout-Overholt, 2023). To reduce selection bias, Ng & Wong and O'Riordan et al. had similar patient characteristics between their study groups (Melnyk & Fineout-Overholt, 2023). Possible limitations to the O'Riordan et al. study are the small sample size of only 30 participants and the low adherence to the intervention, in which, on average, participants received only five of the six components of the intervention with a range from one to six components received. This could potentially contribute to why there was not as significant of a change in the QOL seen in the PC intervention group compared to other studies utilized in this review.

Evangelista et al. (2012) and Lewin et al. (2017) utilized a prospective case-control study that compared groups with similar patient characteristics. In the Evangelista et al. study, the intervention group received a PC consultation and treatment plan based on assessed needs, and the comparison group were subjects in a previous RCT conducted by the same research group. Evangelista et al. utilized the Minnesota Living with HF Questionnaire (Rector & Cohn, 1992). They found significant between-group differences in total QOL ($P<0.001$), and physical health significantly improved for patients in the PC group over time (Evangelista et al., 2012). Ng & Wong (2018) found significant improvements in the physical (P=0.011), psychological (P=0.04) and existential (P=0.027) domains of the McGill Quality of Life Questionnaire (Cohen, 1996) between groups despite the findings of no significant difference in the total QOL measure between groups. In their study, Lewin et al. compared their intervention group, which received a PC consultation, a guide on PC care in HF and non-emergency support, to their control group, which received usual HF care from a cardiologist. Lewin et al. utilized interview questions as their measure of QOL and found that the PC group were satisfied with their care; 100% of subjects appreciated having PC added to the care regime, had improved prognostic awareness and ACP and appreciated having a holistic care approach, some participants (63%) found it changed their view of their HF diagnosis, and found it assisted with illness understanding. Evangelista et al., Lewin et al., and Ng & Wong all sampled patients who were referred or deemed appropriate for PC by cardiology. Lewin et al. utilized patients in their control group who were deemed appropriate for PC, but their cardiologist declined to approve of PC. This could introduce some sampling bias as it is unclear if the same cardiologist oversaw all the patients in the control group (Melnyk & Fineout-Overholt, 2023); Lewin et al. mention the cardiologists of the patients in the control group had declined to allow their patients to be in the intervention group as the patients were not dying and, therefore, not yet needing PC and subjective feeling of still being able to offer more disease-modifying therapies. This is important to note as the intention of this research is to determine the benefit of PC on QOL when it is introduced early in the disease process in HF patients, and this demonstrates the gap in the knowledge of current PC practices in HF.

In their retrospective cohort study, Flint et al. (2017) reviewed previous data collected from subjects in a study based on symptom management in HF; they utilized latent growth analysis to divide the subjects into groups based on their disease trajectories. Flint et al. used the Sense of Peace measure (Steinhauser et al., 2006) to evaluate overall QOL and found significant improvement in QOL within the first three months of all trajectory groups; however, over time, the moderate disease trajectory group and the poor disease trajectory group showed little change in their QOL, with the poor disease trajectory group showing a decline in QOL and the moderate disease trajectory group plateauing. Flint et al. sampled patients from a previous study on Patient-Centred Disease Management in HF; all subjects from the previous study were included to reduce sampling bias (Melnyk & Fineout-Overholt, 2023), and no direct PC intervention was provided; rather, a comparison of the disease trajectories was made. Arenas Ochoa et al. (2021) utilized the Twelve Item Short Form Health Survey (Ware et al., 1996) to measure overall QOL. They found that QOL was significantly lower in subjects in the NECPAL+ (subjects deemed by their provider to be candidates for PC based on inclusion criteria) (Arenas Ochoa et al., 2021). Arenas Ochoa et al. conducted a cross-sectional study which compared groups from two different HF clinics; it does not mention if participants were aware of which comparison group they were included in, which could introduce some performance bias (Melnyk & Fineout-Overholt, 2023). The studies done by Flint et al. and Arenas Ochoa et al. demonstrate that some groups with specific characteristics may experience more significant benefits from PC than others.

These findings demonstrate that in all the studies that looked directly at overall QOL, PC increased their subject’s overall QOL scores (Arenas Ochoa et al., 2021; Evangelista et al., 2012; Flint et al., 2017; Lewin et al., 2017; Ng & Wong, 2018; O’Riordan et al., 2019). However, some studies showed increases in QOL in both intervention and control groups despite the control group not receiving PC (Ng & Wong, 2018; O'Riordan et al., 2019). These findings are summarized in Table 4.

Table 4: Total Quality of Life

Study ID	Scale Used	Range	Outcome details	Group	Time point	Mean	SD	Range	p-value	95% CI	Themes
Ng 2018	McGill Quality of Life Questionnaire	0 to 10	Higher is better	Intervention Group	Baseline	6.59		6.14-7.04	0.032		
					Midpoint	7.54		7.14-7.94			
					Endpoint	7.49		7.15-7.83			
				Control Group	Baseline	6.37		5.91-6.83	0.032		
					Midpoint	6.61		6.04-7.18			
					Endpoint	6.61		6.17-7.05			
O'Riordan 2019	Minnesota Living with HF Questionnaire	0-105	Lower is better	Intervention Group	Baseline	58.4			0.001		
					Midpoint	41.1					
					Endpoint	40					
				Control Group	Baseline	60					
					Midpoint	41.8					
					Endpoint	45.4					
Lewin 2017	Interview Questions										- 100% appreciated having PC - 63% felt PC changed how they think about HF - 100% were extremely satisfied with PC involvement - PC team acted as an added layer of support - PC team assisted with illness understanding, prognostic awareness and ACP - PC team's holistic approach to care - PC team assistance in navigating healthcare system
Evangelista 2012	Minnesota Living With Heart Failure Questionnaire	0-105	Lower is better	Intervention Group	Baseline	35.6	12.3		0.0015		
					Endpoint	25.7	12.2				
				Control Group	Baseline	38.0	11.9				
					Endpoint	33.7	10.0				
Flint 2017	Sense of Peace	0 to 5	Higher is better	Moderate Health Status Trajectory	Baseline	3.5	0.9			0.22 | 0.75	
				Poor Health Status Trajectory	Baseline	2.7	1.1				
				Markedly Improved Health Status Trajectory	Baseline	3.1	1.3				
Arenas Ochoa 2021	12 Item Short Form Health Survey	0-100	Higher is better	NECPAL -	Endpoint	62.5		37.5-78.13	0.001		
				NECPAL +	Endpoint	37.5		19.75-56.25			

Effect on Heart Failure Symptom Burden

With the progression of HF, the burden of symptoms increases, leading to more HF-related hospital visits and can directly impact QOL. Increased hospitalization due to HF is associated with greater morbidity and mortality in HF patients (Colucci, 2024) and poorer QOL measures (Garcia-Soleto et al., 2013). Symptoms that are typical of advancing HF and indicate a lack of hemodynamic improvement with usual HF therapy include orthopnea, jugular venous distension, edema, weight gain and respiratory distress (Colucci, 2024). This section will review the studies that look directly at these symptoms of worsening HF and their burden on QOL.

In two studies, the total HF symptom burden decreased in both the intervention and control groups (Lewin et al., 2017; Ng & Wong, 2018). Ng & Wong used the Chronic HF Questionnaire (Guyatt et al., 1989), which quantifies HF-related QOL, dyspnea, fatigue, and emotional function (American Physical Therapy Association, 2020). They found significant within-group differences over time in the dyspnea, emotional function, mastery and total function domains ($P<0.017$) in the intervention group; there were no between-group differences over the 12-week study period. To note, at the four-week mark, there were significant between-group differences in dyspnea ($P=0.02$), emotional function ($P=0.014$), mastery ($P=0.019$) and total score ($P=0.01$) (Ng & Wong, 2018). Lewin et al. (2017) looked at the total number of HF-related ED visits and hospitalizations, which displayed a significant decrease in ED visits ($P=0.067$) between the intervention and control groups but no significant difference between groups in HF-related hospitalizations ($P=0.14$). Flint et al. (2017) utilized the Kansas City Cardiomyopathy Scale (Spertus, 1996), which quantitatively measures the severity of the patient's symptoms and how their activities of daily living are affected by their disease (Spertus, 2016). Flint et al. found significant improvement in all disease trajectory groups in the first 3 months; the poor disease trajectory group had a decline in HF symptom burden over time. The markedly improved disease trajectory showed significant improvement in HF symptom burden over time despite having similar initial scores in QOL measures, palliative symptom burden, and HF symptom burden (Flint et al., 2017). Arenas Ochoa et al. (2021) utilized the Kansas City Cardiomyopathy Scale (Spertus, 1996) and found that the NECPAL+ had a more significant HF symptom burden than compared to the NECPAL- group.

These findings demonstrate that PC can impact the burden of HF-related symptoms on patients' QOL (Ng & Wong, 2018) and decrease ED visits for HF-related purposes, and fewer hospital visits are associated with improved QOL (Lewin et al., 2017). These findings are summarized in Table 5.

Table 5: Total CHF Symptom Burden

Study ID	**Scale Used**	**Range**	**Outcome details**	**Comparison Group**	**Timeline**	**Median**	**Mean**	**SD**	**Range**	**Total ED visit**	**Total Hospitalization**	**p-value**
Ng 2018	Chronic Heart Failure Questionnaire	0-7	Higher is better	Intervention Group	Baseline	4.64						
					Midpoint	5.39						Baseline to Midpoint 0.001
					Endpoint	5.41						Baseline to endpoint 0.001
				Control Group	Baseline	4.55						
					Midpoint	4.74						Baseline to Midpoint 0.791
					Endpoint	5.31						Baseline to endpoint 0.001
					Midpoint		56.2	9.3				
				Control Group	Endpoint		35.1	16.7				
					Baseline		51.8	11.2				
Lewin 2017	Number of ED visits and Hospitalizations for HF exacerbations		Lower is better	Intervention Group	Baseline					41	35	ED: 0.067
					Midpoint					9	5	
				Control Group	Endpoint					30	29	Hospitalizations: 0.67
					Baseline					16	9	
Flint 2017	Kansas City Cardiomyopathy Scale	0-100	Higher is better	Moderate Health Status Trajectory	Baseline		45.5					
					Midpoint		57.7					
					Endpoint		57					
				Poor Health Status Trajectory	Baseline		22.8					
					Midpoint		37.8					
					Endpoint		34.7					
				Markedly Improved Health Status Trajectory	Baseline		22.1					
					Midpoint		68.2					
					Endpoint		79.9					
Arenas Ochoa 2021	Kansas City Cardiomyopathy Scale	0-100	Higher is better	NECPAL -	Endpoint		75		50-91.66			0.002
				NECPAL +	Endpoint		58.33		33.33-75			

Effect on Palliative Symptom Burden

In usual HF care, the main focus is to manage the hemodynamic changes that occur with worsening cardiovascular functioning (Colucci & Borlaug, 2024). However, patients often experience symptoms that are not directly associated with cardiac dysfunction. These symptoms that are typically associated with PC, such as pain, fatigue, depression, and dyspnea, are often not addressed in the medication regime of usual HF care and can increase the burden on the patient's QOL. This section will review the studies that looked at the burden of symptoms that are addressed in the provision of PC.

In three studies, the total palliative symptom burden improved in both the intervention and control groups (Evangelista et al., 2012; Ng & Wong, 2018; O'Riordan et al., 2019). Ng & Wong (2018) found that the intervention group who received usual HF care with PC homecare and telehealth follow-up displayed better improvement in depression (P=0.01) and dyspnea (P=0.018) domains at four weeks of their outcome measure and improved tiredness (P<0.017) and overall palliative symptom burden scores (P=0.015) over time. Evangelista et al. (2012), in their study, which provided patients with a PC treatment plan based on their assessed needs, found the PC group had better improvement in fatigue (P<0.001), pain (P=0.044), well-being (P=0.035), depression (P=.0.29), dyspnea (P=0.008) and nausea (P=0.045). In contrast, the control group worsened in fatigue (P<0.001) and pain (P=0.044) domains of their outcome measures and a significant difference in overall palliative symptom burden (Evangelista et al., 2012). The total palliative symptom burden was measured using the Edmonton Symptom Assessment Scale (Evangelista et al., 2012; Ng & Wong, 2018) and the Functional Assessment of Chronic Illness Therapy with PC subscale (O'Riordan et al., 2019). The Edmonton Symptoms Assessment Scale (Bruera et al., 1991) is a validated tool for assessing pain, fatigue, anxiety, depression, appetite, well-being and shortness of breath, typically addressed with PC (Metis Nation of Alberta, 2022). The Functional Assessment of Chronic Illness Therapy with PC subscale (Lyons et al., 2009) measures physical well-being, social and family well-being, emotional well-being, functional well-being, and symptoms typical of PC (FACIT Group, 2025). Gonzalez-Jaramillo et al. (2022) utilized qualitative interview questions to determine what patients found was lacking in their current HF care and how PC could impact this care. They found that some patients when voicing symptoms such as nausea or pain that are not symptoms caused by HF itself, felt unheard and unsupported by their cardiology team at the HF clinic. O'Riordan et al. (2019) evaluated the difference between the control group, which received usual HF care, and the intervention group, which received PC follow-up via homecare and telehealth. They found no between-group differences in palliative symptom burden. Flint et al. (2017) utilized the Symptom Burden Scale to measure palliative symptom burden. They found that the poor disease trajectory group had a baseline higher palliative symptom burden than the other disease trajectory groups (Flint et al., 2017).

This demonstrates that the burden of symptoms not typically addressed in usual HF care and the resulting decreased QOL from this burden can be improved with the addition of PC (Evangelista et al., 2012; Flint et al., 2017; Gonzalez-Jaramillo et al., 2022; Ng & Wong, 2018). However, O'Riordan et al., 2019 found no difference between groups on their palliative symptom burden. These findings are summarized in Table 6.

Table 6: Total Palliative Care Symptom Burden

Study ID	Scale Used	Range	Outcome details	Group	Timepoint	Median	Mean	SD	p-value	95% CI
Ng 2018	Edmonton Symptom Assessment Scale	0-10	Lower is better	Intervention Group	Baseline	3.00				
					Midpoint	2.00			Baseline to Midpoint: 0.001	
					Endpoint	2.11			Baseline to endpoint: 0.001	
				Control Group	Baseline	3.11				
					Midpoint	2.33			Baseline to Midpoint 0.047	
					Endpoint	2.22			Baseline to endpoint: 0.002	
O'Riordan 2019	Functional Assessment of Chronic Illness Therapy with PC subscale	0-184	Higher is better	Intervention Group	Baseline		122		0. 03	
					Midpoint		130			
					Endpoint		128			
				Control Group	Baseline		115			
					Midpoint		128			
					Endpoint		126			
Evangelista 2012	Edmonton Symptom Assessment Scale	0-90	Lower is better	Intervention Group	Baseline		37.1	7.3	0.031	
					Endpoint		30.9	4.2		
				Control Group	Baseline		37.3	7.3		
					Endpoint		34.0	3.7		
Flint 2017	Symptom Burden Scale	0-5	Lower is better	Moderate Health Status Trajectory	Baseline		2.5	1.7		1.15 | 1.83
				Poor Health Status Trajectory	Baseline		3.6	1.6		
				Markedly Improved Health Status Trajectory	Baseline		2.1	1.2		

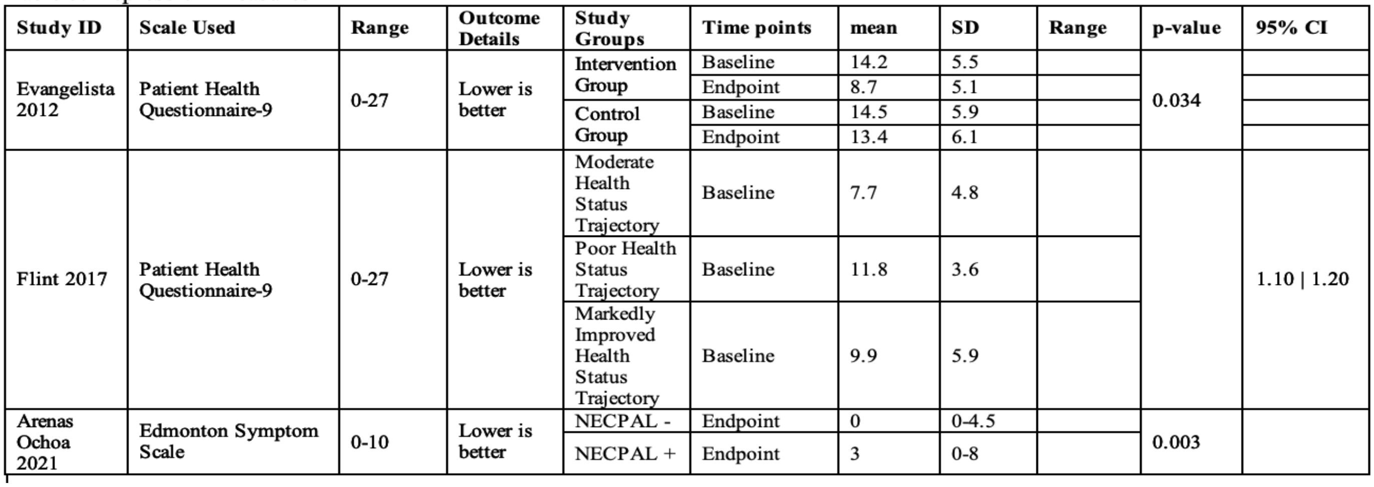
Depression

Depression is an aspect of psychosocial health that correlates to an individual's QOL. In addition to significantly affecting QOL, depression in HF reduces adherence to treatment regimes, decreases adaptation to the disease, and causes disruption in the treatment process (Moradi et al., 2022), which can impact the QOL by increasing their symptom burden. Although depression has been measured in some of the other validated tools utilized in other sections, this section reviews the findings of studies that took a direct measure of depression.

Evangelista et al. (2012) utilized the Patient Health Questionnaire-9 (PHQ-9) (Kroenke et al., 2001), which is a common questionnaire utilized to quantify the degree to which depression is affecting the subject's day-to-day functioning (Kroenke et al., 2001). Evangelista et al. found that both groups had an improvement in depression scores (P=0.002). However, the PC group had a significantly greater improvement in depression scores (P=0.029) compared to the control group (Evangelista et al., 2012). Flint et al. (2017) also utilized the PHQ-9 (Kroenke et al., 2001) to show that the baseline data in the poor disease trajectory group had higher depression scores than the other disease trajectory groups. Arenas Ochoa et al. (2021) utilized a specific aspect of the Edmonton Symptoms Scale (Bruera et al., 1991) to assess depression and directly measure it. The Edmonton Symptoms Scale measures the symptom burden associated with PC (Metis Nation of Alberta, 2022). Arenas Ochoa et al. show that the NECPAL+ group had higher depression scores than the NECPAL- group. Gonzalez-Jaramillo (2022) found that patients felt lonely and hopeless when discharged from the HF clinic without the additional support of PC.

These findings demonstrate that PC can improve feelings of depression in patients with HF, contributing to improved QOL (Evangelista et al., 2012), and specific groups may benefit more than others (Arenas Ochoa et al., 2022; Flint et al., 2017). These findings are summarized in Table 7.

Table 7: Depression Measures



Study ID	Scale Used	Range	Outcome Details	Study Groups	Time points	mean	SD	Range	p-value	95% CI
Evangelista 2012	Patient Health Questionnaire-9	0-27	Lower is better	Intervention Group	Baseline	14.2	5.5		0.034	
					Endpoint	8.7	5.1			
				Control Group	Baseline	14.5	5.9			
					Endpoint	13.4	6.1			
Flint 2017	Patient Health Questionnaire-9	0-27	Lower is better	Moderate Health Status Trajectory	Baseline	7.7	4.8			1.10 | 1.20
				Poor Health Status Trajectory	Baseline	11.8	3.6			
				Markedly Improved Health Status Trajectory	Baseline	9.9	5.9			
Arenas Ochoa 2021	Edmonton Symptom Scale	0-10	Lower is better	NECPAL -	Endpoint	0	0-4.5		0.003	
				NECPAL +	Endpoint	3	0-8			

Effective Heart Failure Program

The current outpatient HF programs offered to HF patients are disease-specific and often do not include access to PC (Boyd et al., 2009). Two studies (Boyd et al., 2009; Gonzalez-

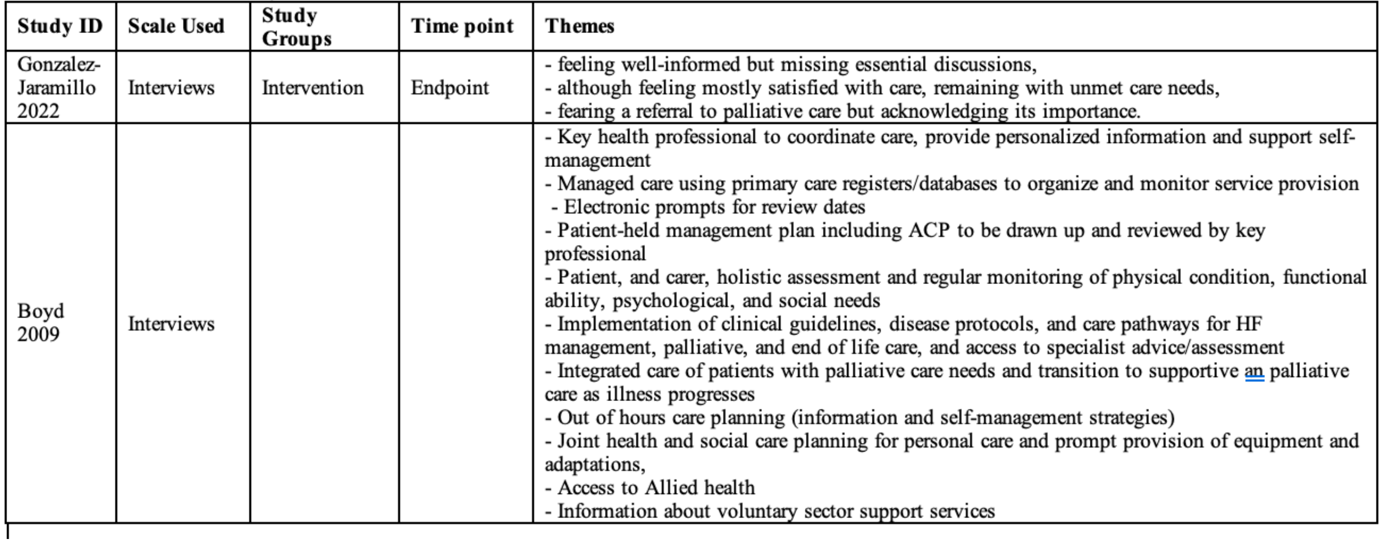
Jaramillo et al., 2022) evaluated the current HF programs offered to HF patients and conducted interviews to find what subjects felt were missing and what could be added to be more effective to meet HF patient’s needs. The needs focused on aspects of QOL and how PC could address these.

Boyd et al. (2009) and Gonzalez-Jaramillo et al. (2022) utilized qualitative study designs. Gonzalez-Jaramillo et al. utilized interviews until they reached data saturation; it is unclear if this could introduce bias as excluded interviews may have contained conflicting information inconsistent with their research question. Boyd et al. had eight patients who died during the study period and do not address how the data that was collected from these patients was utilized in the study, which could introduce attrition bias (Melnyk & Fineout-Overholt, 2023).

The findings that emerged were essential discussions were missing and there were unmet care needs (Gonzalez-Jaramillo et al., 2022), prognostic uncertainty (Boyd et al., 2009; Gonzalez-Jaramillo et al., 2022), there should be key healthcare professionals that coordinate care utilizing care registries, databases, and electronic prompts, patient-held management plans, holistic assessment and regular monitoring, implementation of guidelines for care in HF and PC, better integration of PC into HF care (Boyd et al., 2009) and the recognition of the importance of PC but also fearing referral due to a lack of understanding of what it entails (Gonzalez-Jaramillo et al., 2022).

These findings demonstrate that patients enrolled in current HF programs are missing essential services that align with what PC provides, and it is negatively impacting their QOL. These findings are summarized in Table 8.

Table 8: Effective HF Programs



Study ID	Scale Used	Study Groups	Time point	Themes
Gonzalez-Jaramillo 2022	Interviews	Intervention	Endpoint	- feeling well-informed but missing essential discussions, - although feeling mostly satisfied with care, remaining with unmet care needs, - fearing a referral to palliative care but acknowledging its importance.
Boyd 2009	Interviews			- Key health professional to coordinate care, provide personalized information and support self-management - Managed care using primary care registers/databases to organize and monitor service provision - Electronic prompts for review dates - Patient-held management plan including ACP to be drawn up and reviewed by key professional - Patient, and carer, holistic assessment and regular monitoring of physical condition, functional ability, psychological, and social needs - Implementation of clinical guidelines, disease protocols, and care pathways for HF management, palliative, and end of life care, and access to specialist advice/assessment - Integrated care of patients with palliative care needs and transition to supportive an palliative care as illness progresses - Out of hours care planning (information and self-management strategies) - Joint health and social care planning for personal care and prompt provision of equipment and adaptations, - Access to Allied health - Information about voluntary sector support services

Qualitative Findings of Palliative Care Effects on Quality of Life

Interview questioning was utilized to collect data regarding patients' interpretation of how PC impacted their QOL, how providers, patients, and families think PC could impact HF care and patients' interpretation of their current HF care. From the direct quotations in the research articles utilized in this review, themes were identified.

One theme that emerged from the quotations on standard HF care was that conversations on disease prognosis were typically avoided due to uncertainty and the desire to improve the HF until acute exacerbations occur (Boyd et al., 2009; Gonzalez-Jaramillo et al., 2022). Some patients found it was much more distressing to have conversations about advanced care planning during acute exacerbations because they felt it was inappropriate timing when they felt so unwell and wanted to improve (Gonzalez-Jaramillo et al., 2022). Lewin et al. (2017) found that those who received aspects of PC felt more supported and at ease with their disease progression; Gonzalez-Jaramillo et al. (2022) similarly found that patients wanted more psychological support and more transparency in their diagnosis. Boyd et al. (2009) found that without having PC specialists involved in care, it is difficult for GPs and nursing staff to provide PC-specific care as it is out of their comfort zone. These findings, based on the direct quotations outlined in three studies (Boyd et al., 2009; Gonzalez et al., 2022; Lewin et al., 2017), show that both patients and providers find the addition of PC can be beneficial for patients with HF.

Summary of the Impact of Palliative Care on Heart Failure Patient's Quality of Life

The interpretation of the studies includes looking directly at the overall QOL of HF patients, the palliative and HF symptom burden, and depression and how PC can impact this and improve their QOL. The studies found there was significant improvements within the PC group in QOL (Evangelista et al., 2012; Lewin et al., 2017; Ng & Wong, 2018), symptom burden (Evangelista et al., 2012; Lewin et al., 2017; Ng & Wong, 2018), and depression (Evangelista et al., 2012). This indicates that PC has a benefit on QOL in HF patients.

Discussion

The research studies included in this integrative review demonstrate that outpatient PC can positively impact the QOL of HF patients with varying NYHA classifications. Studies showed that there was an increase in QOL (Evangelista et al., 2012; Lewin et al., 2017; Ng & Wong, 2018; O'Riordan et al., 2019), a decrease in HF symptom burden (Lewin et al., 2017; Ng & Wong, 2018) and palliative symptom burden (Evangelista et al., 2012; Ng & Wong, 2018; O'Riordan et al., 2019), and depression (Evangelista et al., 2012) in both the PC group and the control group. However, there were significant improvements within the PC group in QOL (Evangelista et al., 2012; Lewin et al., 2017; Ng & Wong, 2018), symptom burden (Evangelista et al., 2012; Lewin et al., 2017; Ng & Wong, 2018), and depression (Evangelista et al., 2012) over time in these studies demonstrating that PC has a benefit on QOL in HF patients. O'Riordan et al. (2019) found no significant difference between PC and control groups in QOL measures in their population, which analyzed 30 subjects with NYHA classifications II-IV; they did not analyze the within-group data over time, as seen in the other studies included in this review.

Symptoms that are atypical in HF care and more prevalent in PC, such as fatigue, nausea, dyspnea, pain, and depression, demonstrated significant improvement in the PC group compared to the control group (Evangelista et al., 2012; Ng & Wong, 2018) and Gonzalez-Jaramillo et al. (2022) found that subjects in the HF programs felt that complaints of these symptoms seemingly fell on deaf ears and were not addressed in their regular HF regime. Lewin et al. (2017) found that those who received PC had significantly fewer ED visits for HF-related symptoms than those in the control group. The PC intervention improved support and symptom management by utilizing a PC NP available after hours, increasing access, and providing a key contact person to coordinate care (Lewin et al., 2017). This indicates that having access to outpatient PC in HF management could reduce healthcare costs and the burden on the ED by improving symptom control in an outpatient setting. A finding from the study conducted by Boyd et al. (2009) was that their subjects felt a key person to contact who coordinates their care was missing in the current HF program; in the Lewin et al. (2017) study, having the PC NP seems to have remediated that.

Overall, all the subjects in this integrative review that received outpatient PC intervention showed improvements in QOL, indicating that outpatient PC is a positive adjunct to typical HF care. This is congruent with current evidence on the benefits of early introduction of PC, as seen in cancer patients, on overall QOL and symptom burden (Kim et al., 2023; Rodin et al., 2022).

Findings indicate that specific patient populations have better improvements in their QOL with the initiation of PC than others (Arenas Ochoa et al., 2021; Flint et al.,. 2017). This is similar to previous research that looked at the impact of the early introduction of PC in cancer patients suggesting that greater impacts of PC on QOL was noted in patients with more severe baseline symptoms (Rodin et al, 2022). This suggests that the timing of the PC intervention, the type of PC intervention, and the PC delivery may impact the degree to which it improves the patients' QOL. This is consistent with findings in cancer patients that the timeliness of a PC referral impacts how PC improves overall QOL and how successful its integration is into a patient's care (Hausner et al., 2021). Similar to the studies included in this review, Hausner et al. (2021) found that the Edmonton Symptom Assessment Scale (Bruera et al., 1991) scores improved in cancer patients with early PC integration compared to those with later PC integration. PC should be individualized to the patient to address their needs, whether this is improving physical symptom burden or the psychosocial burden of HF, to see the most benefit on QOL.

This review expands on the current knowledge that PC positively impacts the QOL of cancer patients (Hausner et al., 2021; Kim et al., 2023; Ramirez & Velma, 2024; Rodin et al., 2022) and that it can be implemented as an adjunct to care despite the non-linear disease progression typical of HF. The implications on future practice and the NP's role in PC delivery will be discussed further.

Implications For Practice

The findings of this integrative review demonstrate that PC positively impacts the QOL of some HF patients, and there is a benefit to introducing PC into their usual HF care. Certain groups of HF patients could benefit from PC more than others, and it is important to be able to identify those who could benefit from PC in their HF management. In Arenas Ochoa et al.'s (2021) study, the NECPAL+ group demonstrated baseline lower QOL, higher HF symptoms burden and depression, indicating that this is a population that could be a target for effective PC programs. This group was selected based on the clinical judgement of their healthcare provider. Flint et al. (2017) found that the marked improvement group showed the most benefit from PC; this group and the poor trajectory group both had poor baseline health status. The poor trajectory group had worse QOL at the end of the study period, indicating the importance of targeting this group for PC to ensure their QOL is maintained through the HF disease process. The reviewed studies demonstrated within-group improvements in all the aspects of QOL evaluated (Evangelista et al., 2012; Lewin et al., 2017; Ng & Wong, 2018), showing that if the appropriate patients are selected, it could significantly benefit their overall QOL.

As Boyd et al. (2009) found, the importance of having a single contact that coordinates all their specialty care dramatically improves the patient's adherence and QOL. Primary healthcare providers play an important role as their patients' main contact for healthcare. They can be a key contributor to ensuring the appropriate patients receive a referral to PC to maximize the benefits for the patient. A common misconception is that PC operates independently of HF therapy and is reserved for end-of-life care (Ramirez & Verma, 2024). Lewin et al. (2017) found that the cardiologists who declined for their patients to be in the PC group for their study did so because their subjective feeling was that they could still offer more disease-modifying therapies, and their patients were not dying. This demonstrates a misunderstanding of the possibility of offering PC as an adjunct to therapy. Gonzalez-Jaramillo et al. (2022) found that their subjects feared a PC referral as they felt this indicated that they were dying. The notion that PC is associated with end-of-life needs to be reframed for the healthcare provider and their patients (Ramirez & Verma, 2024) as it has demonstrated improved QOL, symptom burden and psychosocial health for HF patients in various NYHA classifications. PCPs are in a unique position to provide holistic care and offer education and support on PC to their HF patients to ensure a better understanding of the benefits of integrated PC (Boyd et al., 2009). Early discussions around PC can be comforting for patients as it helps them better understand their diagnosis and prognosis and have appropriate conversations about ACP before they are in an acute exacerbation with increased uncertainty (Boyd et al., 2009; Lewin et al., 2017; Gonzalez-Jaramillo et al., 2022).

The PCP is in an ideal position to provide individualized patient-centred care that addresses the patient’s need for improved QOL. PCPs often have the closest relationship with these patients. Having frequent conversations with HF patients regarding how the disease process is impacting their QOL can help gauge whether they could benefit from the introduction of PC. Reducing the stigma around PC and its association with end-of-life can help ensure HF patients get PC introduced into their care regime and optimize their QOL.

Nurse Practitioners Roles in Palliative Care Provision

While this project focuses on how early PC introduction can benefit the QOL of patients with HF, I would be remiss not to mention the NP's role in improving this. These suggestions can be applied to any PCP, but since this project is part of the process of working towards a MSc-FNP, the focus will be on NPs.

Lewin et al. (2017) utilized an NP with specialized knowledge in PC who was available for contact at any time. This significantly improved the management and delivery of PC, improving the patient's QOL and reducing the need for ED visits and hospitalization (Lewin et al., 2017). Since Lewin et al.'s research in 2017, the role of the NP has evolved, which may have more significant impacts on the patient's QOL with a PC NP if this research was repeated. NPs have increased autonomy in their provision of care and can specialize in population-specific fields such as PC (Boehning & Punsalan, 2023). This further increases access to PC, particularly in underserved populations (Boehning & Punsalan, 2023).

Besides having NPs specialized in PC, NPs can also benefit their HF patients in the primary care setting by utilizing aspects of PC. This can be accomplished by taking time to have open and honest conversations with patients early in the disease's progress, given the uncertain prognosis and progression, so patients do not have unrealistic expectations (Jones et al., 2019). Utilizing the BC Guidelines (2023a), which outline cases when a PC referral is recommended. Early discussions on what a good QOL looks like to each individual patient and focusing on their treatment goals during the disease process (Boyd et al., 2009).

PC is commonly provided in the inpatient setting even though HF patients spend most of their time out in the community (DeGroot et al., 2020); this is typically due to a lack of access or resources in the community. This gap could be filled with PC-trained NPs who can work within a team of PC specialists to expand the provision of care into the outpatient setting, whether in a patient's home or an outpatient clinic. I have spoken with Dr. Brenda Millar, who is a PC physician operating in the sea-to-sky area in BC; she explained that a PC-specialized NP would greatly expand the provision of PC services in the area, allowing for more home visits and significantly decrease the need for hospitalization in her patient panel. This would also allow for the coverage of patients with life-limiting conditions beyond cancer, such as HF, which the PC team currently has limited capacity for.

This integrative review demonstrates that outpatient PC positively impacts the QOL of HF patients if it is provided in an individualized manner to meet the patient's needs and is integrated at the correct time for that individual. The PCP plays an integral role in discussing the disease progression of HF and how PC can positively impact their QOL. Having these conversations helps to assess the patient's readiness to integrate PC into their care regime and can improve the success rate that PC will positively impact the patient's QOL. These conversations can also help reduce the association of PC with death and dying for both patients and providers, so more patients are open to integrating PC into the care regime.

Limitations

The limitations associated with this integrative review stem from the ability of a single researcher to comb through the vast amount of research associated with PC. Initially, when brainstorming topics for this research project, I did not focus on a single condition and was looking at the effect of PC on any non-malignant condition. The vast amount of research on PC in non-malignant illnesses was too much for a single researcher to tackle. The choice was made to focus on outpatient PC in HF, which significantly reduced the amount of research; consequently, it reduced the level of research available to include in the study. This could impact the quality of evidence used in this review as only two of the studies were RCT, which is level-two evidence (Melnyk & Fineout-Overholt, 2023).

Another limitation was with the studies included in this integrative review and their implication on the research question. Although this review aimed to answer whether QOL was improved early after diagnosis of HF, studies that had subjects considered NYHA classification III/IV were included as NYHA classification is dynamic through the disease process. It is difficult to determine whether individuals included in these studies were recently diagnosed or had HF management long-term prior to entering the study. One study (Arenas Ochoa et al., 2021) had inclusion criteria that their subjects must have attended at least two appointments at the HF clinic before being included in the study, indicating that these individuals may have had a recent diagnosis. However, the data on the length of time after HF diagnosis is not summarized in the studies included in this review. This may affect whether the data found in this integrative review can be implied as an early introduction to PC.

Sources of Bias

I work in an ED in a rural setting with limited PC available, so the PC team focuses on malignant illnesses as that is all they have the capacity for. The ED is often inundated with HF patients who do not have a sufficient understanding of their illness and could greatly benefit from PC to help manage atypical symptoms. Evidence supporting the greater need for PC could introduce funding for more PC providers, which could benefit me in the future if I pursue a career as a PC NP. Ihis knowledge could have acted as a source of researcher of bias to motivate the findings of this review to reflect this (Melnyk & Fineout-Overholt, 2023).

Future Research

This integrative review could stimulate further research in the topic area of PC in HF patients. Future studies could look directly at rural sites, as this review did not factor in the locations of the study. As the focus for the implications for practice was on how NPs and PCPs could approach implementing PC for their HF patients, future studies could review PC interventions provided in rural settings as they tend to have less access to specialties and rely more on PCPs to provide these services. Future research could delve into data on the PCP and patients' experience of providing and receiving PC through primary care and its effect on QOL in HR patients.

There is room for research on defining the patients that could benefit from PC the most. As demonstrated in the studies by Flint et al. (2017) and Arenas Ochoa et al. (2022), certain groups would benefit more than others from PC. More research into the characteristics of an appropriate PC candidate can help guide policy and create guidelines for PC referral in HF. This could be executed by measuring the change in overall QOL over time in a population of HF patients who all receive PC and investigating how their characteristics differ. It could help implicate the creation of a PC readiness scale for HF patients that can help PCPs determine if their patients are appropriate for PC referral.

Conclusion

HF is a life-limiting condition with a non-linear prognosis, which is challenging to convey to patients (Colucci, 2024). The acute phases of HF can cause significant distress for patients, increasing the frequency of ED visits and hospital utilization (Jones et al., 2019). The rate of HF in Canada continues to increase, and mortality and hospitalizations due to HF remain high despite medical advances in treatment plans (Colucci, 2023). This can impact a patient's QOL and increase their morbidity and mortality (Jones et al., 2019). QOL encompasses an individual's physical, functional, psychosocial, and social aspects of their life (Fallowfield, 2009). PC is a specialty that focuses on treating and improving a patient's physical, emotional, psychosocial, and spiritual health (Corliss, 2023), which aligns directly with a person's QOL.

PC can have a positive impact on the lives of HF patients and improve their QOL (Arenas Ochoa et al., 2022; Boyd et al., 2009; Evangelista et al., 2012; Flint et al., 2017; Gonzalez-Jaramillo et al., 2022; Lewin et al., 2017; Ng & Wong, 2019), not all patients with HF will benefit from PC and it is up to the discretion of the PCP to determine if someone is appropriate for a HF referral (Arenas Ochoa et al., 2022; Flint et al., 2017; O'Riordan et al., 2019). This could be an area where more research is completed to help guide future policy on what characteristics a person has that make them an appropriate PC candidate. A patient does not need to be near end-of-life to benefit from PC; early introduction can help patients to feel more supported, have less fear, and have a better understanding of their prognosis (Boyd et al., 2009; Lewin et al., 2017) despite the lability of the disease process. PCPs are in a unique situation to provide holistic, supportive care that encompasses the domains of PC, including the physical, emotional, psychosocial and spiritual issues that accompany chronic illnesses such as HF (Corliss, 2023). Based on the clinical presentation, they can determine who could benefit from early PC (Arenas Ochoa et al., 2022) and effectively provide PC alongside life-prolonging care (Lewin et al., 2017; Ramirez & Verma, 2024). It is important to break the stigma and fear around PC being reserved for end-of-life and utilize it to its full potential in providing supportive symptom management to our complex, chronically ill patients. Patients value open and honest communication regarding their illness, providing them all the information to help them make an informed decision and discussing what is most important to the patients (Boyd et al., 2007; Gonzalez-Jaramillo et al., 2022; Lewin et al., 2017). Implementing improved guidelines for PC referral and PC education can help PCPs provide better holistic care to patients with life-limiting illnesses and ensure their QOL does not suffer.

References

Allen, L.A. (2025). Palliative care for advanced heart failure: Decision support and management of symptoms. In S.A. Hunt, & R.S. Morrison (Ed.), *UpToDate.* Retrieved March 23, 2025. https://www.uptodate.com/contents/palliative-care-for-advanced-heart-failure-decision-support-and-management-of-symptoms?search=what%20happens%20when%20heart%20failure%20medications%20are%20no%20longer%20effective&source=search_result&selectedTitle=6%7E150&usage_type=default&display_rank=6

American Heart Association. (2023). Classes and stages of heart failure. *American Heart Association.* Retrieved on January 6, 2024. https://www.heart.org/en/health-topics/heart-failure/what-is-heart-failure/classes-of-heart-failure

American Physical Therapy Association. (2020). Chronic heart failure questionnaire. *American Physical Therapy Association.* https://www.apta.org/patient-care/evidence-based-practice-resources/test-measures/chronic-heart-failure-questionnaire-chq-chfq

Arenas Ochoa, L.F., Gonzalez-Jaramillo, V., Saldarriaga, C., Lemos, M., Krikorian, A., Jairo Vargas, J., Gomez-Batiste, X., Gonzalez-Jaramillo, N., Eychmuller, S. (2012). Prevalence and characteristics of patients with heart failure needing palliative care. *BMC Palliative Care, 20*(184), (1-10). https://doi.org/10.1186/s12904-021-00850-y

Artinian, N.T., Magna, M., Christian, W., Lange, Patricia. (2002). What do patients know about their heart failure? *Applied Nursing Research, 15*(4), 200-208. https://doi.org/10.1053/apnr.2002.35959

Askoxylakis, V., Thieke, C., Pleger, S.T., Most, P., Tanner, J., Lindel, K., Katus, H.A., Debus, J., Bischof, M. (2010). Long-term survival of cancer patients compared to heart failure and stroke: A systematic review. *BMC Cancer, 10*(105), 2-8. http://www.biomedcentral.com/1471-2407/10/105

Averbuch, T., Mohamed, M.O., Islam, S., Defilippis, E.M., Breathett, K., Alkhouli, M.A., Michos, E.D., Martin, G.P., Kontopantelli, E., Mamas, M.A., Van Spall, H.G.C. (2022). The association between socioeconomic status, sex, race/ethnicity and in-hospital mortality among patients hospitalized for heart failure. *Journal of Cardiac Failure, 28*(5), 697-709. doi: 101016/j.cardfail.2021.09.012

Beernaert, K., Deliens, L., De Vlemink, A., Devroey, D., Pardon, K., Van den Block, L., Cohen, J. (2017). Early identification of palliative care needs by family physicians: A qualitative study of barriers and facilitators from perspective of family physicians, community nurses, and patients. *Palliative Medicine, 28*(6), 480-490. doi: 10.11770269216314522318

Bilbao, A., Escobar, A., Garcia-Perez, L., Navarro, G., Quiros, R. (2016). The Minnesota living with heart failure questionnaire: Comparison of different factor structures. *Health Quality Life Outcome 14*(23). doi: 10.1186/s12955-016-0425p-7

Boehning, A.P., Punsalan, L.D. (2023). Advanced practice registered nurse roles. *StatPearls.* https://www.ncbi.nlm.nih.gov/books/NBK589698/

Boyd, K.J., Worth, A., Kendall, M., Pratt, R., Hockley, J., Denvir, M., Murray, S.A. (2009). Making sure services deliver for people with advanced heart failure: A longitudinal qualitative study of patients, family carers, and health professionals. *Palliative Medicine, 23*(8), 767–776. doi: 10.1177/0269216309346541

Bruera, E., Kuehn, N., Miller, M.J., Selmser, P., Macmillan, K. (1991). The Edmonton symptom assessment system (ESAS): A simple method for assessment of palliative care patients. *Journal of PPalliative Care 7*(2), 6-9. PMID 1714502

Cohen, S.R. (1996). Existential well-being is an important determinant of quality of life: Evidence from the McGill quality of life questionnaire. *Journal of the American Cancer Society 77*(3), 576-586. https://doi.org/10.1002/(SICI)1097-0142(19960201)77:3<576::AID-CNCR22>3.0.CO;2-0

Cohen, S.R. (2014). McGill quality of life questionnaire. In: A.C. Michalos (Ed.), *Encyclopedia of Quality of Life and Well-Being Research*. Springer. https://doi.org/10.1007/978-94-007-0753-5_1749

Colucci, W.S. (2022). Predictors of survival in heart failure with reduced ejection fraction. In S.S. Gottlieb and A.S. Jaffe (Eds.), *UpToDate.* Retrieved on January 5, 2024. https://www.uptodate.com/contents/predictors-of-survival-in-heart-failure-with-reduced-ejection-fraction?search=new%20york%20heart%20association%20class&sectionRank=1&usage_type=default&anchor=H3&source=machineLearning&selectedTitle=1%7E150&display_rank=1#H3

Colucci, W.S. (2023). Prognosis of heart failure. In S.S. Gottlieb (Ed.), *UpToDate*. Retrieved: January 2, 2024. https://www.uptodate.com/contents/prognosis-of-heart-failure?search=Heart%20failure%20survival%20rates&source=search_result&selectedTitle=2%7E150&usage_type=default&display_rank=1#H1

Colucci, W.S., Borlaug, B.A. (2022). Heart failure: Clinical manifestations and diagnosis in adults. In S.S. Gottlieb (Ed.), *UpToDate.* Retrieved January 5, 2024.

https://www.uptodate.com/contents/heart-failure-clinical-manifestations-and-diagnosis-in-adults?search=heart%20failure%20definition&source=search_result&selectedTitle=1%7E150&usage_type=default&display_rank=1

Corliss, J. (2023, December 1). What is palliative care for heart failure? It involves specialized clinicians who provide additional care and support for patients and families in collaboration with a cardiologist. *Harvard Heart Letter.* https://www.health.harvard.edu/heart-health/what-is-palliative-care-for-heart-failure

Covidence systematic review software. (2024). Veritas Health Innovation, Melbourne, Australia. Retrieved from www.covidence.org.

Crimmins, R.M., Elliott, L., Absher, D.T. (2020). Palliative care in a death-denying culture: Exploring barriers to timely palliative efforts for heart failure patients in the primary care setting. *American Journal of Hospital and Palliative Medicine 38*(1). doi: 10.1177/1049909120920545

DeGroot, L., Koirala, B., Pavlovic, N., Nelson, K., Allen, J., Davidson, P., Abshire, M. (2020). Outpatient palliative care in heart failure: An integrative review. *Journal of Palliative Medicine, 23*(9), 1257–1269. doi: 10.1089/jpm.2020.0031

Enguidanos, S., Cardenas, V., Wenceslao, M., Hoe, D., Meja, K., Lomeli, S., Rahman, A. (2020). Health care provider barriers to patient referral to palliative care. *American Journal of Hospice and Palliative Medicine, 38*(9). doi: 10.1177/1049909120973200

Evangelista, L.S., Lombardo, D.L., Malik, S., Ballard-Hernandez, J., Motie, M., Liao, S. (2012). Examining the effects of an outpatient palliative care consultation on symptom burden, depression, and quality of life in patient with symptomatic heart failure. *Journal of Cardiac Failure, 18*(12), 894-899. http://dx.doi.org/10.1016/j.cardfail.2012.10.019

FACIT Group. (2025). Functional assessment of chronic illness therapy – Palliative care. *FACIT Group.* https://www.facit.org/measures/facit-pal

Fallowfield, L. (2009). What is quality of life? *Health Economics, 2*, 1–8. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=b5eb4bdf371b1752a3a9bc5a323a350c41809840

Flint, K.M., Schmiege, S.J., Allen, L.A., Fendler, T.J., Rumsfield, J., Bekelman, D. (2017). Health status trajectories among outpatients with heart failure. *Journal of Pain and Symptom Management, 53*(2), 224-231. http://dx.doi.org/10.1016/j.jpainsymman.2016.08.018

Garcia-Soleto, A., Parraza-Diez, N., Aizpuru-Barandiaran, F., Aros-Borau, F., Mendoza-Ruiz de Zuazu, H., Martin-Gudino, M.J., Regalado de los Cobos, J. (2013). Comparative study of quality of life after hospital-at-home or in-patient admission for acute decompensation of chronic heart failure. *World Journal of Cardiovascular Diseases, 3*(1). doi: 10.4236/wjcd.2013.31A025

Gonzalez-Jaramillo, V., Maessen, M., Luethi, N., Guyer, J., Hunziker, L., Eychmuller, S., Zambrano, S.C. (2022). Unmet needs in patients with heart failure: The importance of palliative care in a heart failure clinic. *Frontier in Cardiovascular Medicine, 9,* 1–10. doi: 10.3389/fcvm.2022.866794

Government of British Columbia. (2023a). Heart failure: Diagnosis and management. *BC Guidelines.* Retrieved on January 6, 2025.

https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/heart-failure-chronic#Definition

Government of British Columbia. (2023b). Medical assistance in dying (MAID) statistical report 2023 quarter two April 1-June 30, 2023. *Government of British Columbia.* Retrieved on January 6, 2025. https://www2.gov.bc.ca/assets/gov/health/accessing-health-care/home-community-care/bc-medical-assistance-in-dying-statistical-report-2023-q2.pdf

Guyatt, G.H., Nogradi, S., Halcrow, S., Singer, J., Sullivan, M.J., Fallen, E.L. (1989). Developmental and testing of a new measure of health status for clinical trials in heart failure. *Journal of General Internal Medicine, 4*(2), 101-107. doi: 10.1007/BF02602348

Hausner, D., Tricou, C., Mathews, J., Wadhwa, D., Pope, A., Swami, N., Hannon, B., Rodin, G., Krzyzanowska, M.K., Le, L.W., Zimmermann, C. (2021). Timing of palliative care referral before and after evidence from trials supporting early palliative care. *The Oncologist 26*(4), 332-340. doi: 10.1002/onco.13625

Heo, S., Lennie, T.A., Okoli, C., Moser, D.K. (2009). Quality of life in patients with heart failure: Ask the patients. *Heart and Lung, 38*(2), 100-108. doi: 10.1016/j.hrtlng.2008.04.002

Jones, N.R., Roalfe, A.K., Adoki, I., Hobbs, F.D.R., Taylor, C.J. (2019). Survival of patients with chronic heart failure in the community: A systematic review and meta-analysis. *European Journal of Heart Failure, 21*, 1306–1325. doi: 10.1002/ejhf.1594

Kim, C.A., Lelond, S., Daeninck, P.J., Rabbani, R., Lix, L., McClement, S., Chochinov, H.M., Goldenberg, B.A. (2023). The impact of early palliative care on the quality of life in patients with advanced pancreatic cancer: The IMPERATIVE case-crossover study. *Supportive Care in Cancer 31*(250). https://doi.org/10.1007/s00520-023-07709-3

Kroenke, K., Spitzer, R.L., Williams, J.B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine 12*(9). doi: 10.1046/j.1525-1497.2001.016009606.x.

Lewin, W.H., Cheung, W., Norvath, N., Haberman, S., Patel, A., Sullivan, D. (2017). Supportive cardiology: Moving palliative care upstream for patients living with advanced heart failure. *Journal of Palliative Medicine, 20*(10), 1112–1119. doi: 10.1089/jpm.2016.0317

Lyons, K.D., Bakitas, M., Hegel, M.T., Hanscom, B., Hull, J., Ahles, T.A. (2009). Reliability and validity of the functional assessment of chronicillness theraoy-palliative care (FACIT-Pal) scale. *Journal of Pain Symptom Management 37*(1). doi: 10.1016/j.jpainsymman.2007.12.015

Melilo, K.D. (2020). *A step-by-step guide to conducting an integrative review*. In C. Toronto, R. Remington, (Eds.) Springer.

Melnyk, B. M., & Fine-Out-Overholt, E. (2023). *Evidence-based practice nursing & healthcare: A guide to best practice* (5th ed.). Wolters Kluwer.

Metis Nation of Alberta. (2022). Edmonton symptom assessment scale (ESAS) tool. *First Nations, Inuit and Metis Program*. https://albertametis.com/app/uploads/2022/01/ESAS-Tool_V4.pdf

Mohanan, S., Parameswaran, N. (2022). FINER criteria – What does it mean? *CosmoDerma, 2*(115), 1-3. https://cosmoderma.org/finer-criteria-what-does-it-mean/

Moradi, M., Doostkami, M., Bahnamfar, N., Rafiemanesh, H., Behzadmehr, R. (2022). Global prevalence of depression among heart failure patients: A systematic review and meta-analysis. *Current Problems in Cardiology, 47*(6). doi: 10.1016/j.cpcardiol.2021.100848

Namukwaya, E., Murray, S.A., Downing, J., Leng, M., Grant, L. ‘I think my body has become addicted to those tablets.’ Chronic heart failure patients’ understanding of and beliefs about their illness and its treatment: A qualitative longitudinal study from Uganda. *PLoS One, 12*(9). https://doi.org/10.1371/journal.pone.0182876

Ng, A.Y.M., Wong, F.K.Y. (2018). Effects of home-based palliative heart failure program on quality of life, symptom burden, satisfaction and caregiver burden: A randomized controlled trial. *Journal of Pain and Symptom Management, 55*(1), 1-11. http://dx.doi.org/10.1016/j.jpainsymman.2017.07.047

Nowels, D., Jones, J., Nowels, C.T., Matlock, D. (2016). Perspectives of primary care providers towards palliative care for their patients. *Journal of American Board Family Medicine, 29*(6), 748–758. doi: 10.3122/jabfm.2016.06.160054

O’Riordan, D.L., Rathfon, M.A., Joseph, D.M., Hawgood, J., Rabow, M.W., Dracup, K.A., De Marco, T., Pantilat, S.Z. (2019). Feasibility of implementing a palliative care intervention for people with heart failure: Learning from a pilot randomized clinical trial. *Journal of Palliative Medicine, 22*(12), 1583–1588. doi: 10.1089/jpm.2018.0633

Poon, S., Leis, B., Lambert, L., Macfarlane, K., Anderson, K., Blais, C., Demers, C., Ezekowitz, J.A., Hawkins, N.M., Lee, D.S., Moe, G., Sandhu, R.K., Virani, S.A., Wilton, S., Zieroth, S., McKelvie, R. (2022). The state of heart failure care in Canada: Minimal improvement in readmissions over time despite an increased number of evidence-based therapies. *Canadian Journal of Cardiology Open, 4,* 667–675. https://doi.org/10.1016/j.cjco.2022.04.011

Ramanayake, R.P.J.C., Dilanka, G.V.A., Premasiri, L.W.S.S. (2016). Palliative care: Role of family physicians. *Journal of Family Medicine and Primary Care, 5*(2), 234-237. doi: 10.4103/2249-4863.192356

Ramirez, C.T., Verma, R.K. (2024). Early palliative care improves patients and caregiver quality of life. *Clinical Journal of Oncology Nursing, 28*(5), 496–501. doi: 10.1188/24.CJON.496-501

Rector, T.S., Cohn, J.N. (1992). Assessment of patient outcome with the Minnesota living with heart failure questionnaire: Reliability and validity during a randomized, double-blind, placebo-controlled trial of Pimobendan. *American Heart Journal 124,* 1017-1025. doi: 10.1016/0002-8703(92)90986-6

Rodin, R., Swami, N., Pope, A., Hui, D., Hannon, B., Le, L.W., Zimmermann, C. (2022). Impact of early palliative care according to baseline symptom severity: Secondary analysis of a cluster-randomized controlled trial in patients with advanced cancer. *Cancer Medicine, 11*(8), 1869-1878. https://doi-org.prxy.lib.unbc.ca/10.1002/cam4.4565

Saveski, D., Kok, M., Poon, S., Rojas-Fernandez, C., Virani, S.A., Honos, G., McKelvie, R. (2025). The Canadian heart failure (CAN-HF) registry: A Canadian multicentre retrospective study of outpatients with heart failure. *CJC Open, 7*(1), 1–9. doi: 10.1016/j.cjco.2024.09.014

Spertus, J. (2016). Medical device development tool qualifications decision summary for Kansas City cardiomyopathy questionnaire (KCCQ). *Saint Luke's Mid America Heart Institute.* https://www.fda.gov/media/108301/download

Statistics Canada. (2025). Deaths and age-specific mortality rates, by selected grouped causes. *Statistics Canada.* Retrieved March 21, 2025. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310039201

Steinhauser K.E., Voils, C.I., Clipp, E.C. (2006). "Are you at peace?" One item to probe spiritual concerns at end of life. *Archive of Internal Medicine 166*(1), 101-105. doi: 10.1001/archinte.166.1.101

Ware, J., Kosinki, M., Keller, S.D. (1996) A 12-item short-form health survey: Construction of scales and preliminary tests of reliability and validity. *Med Care 34*(3), 220-233. doi: 10.1097/00005650-199603000-00003

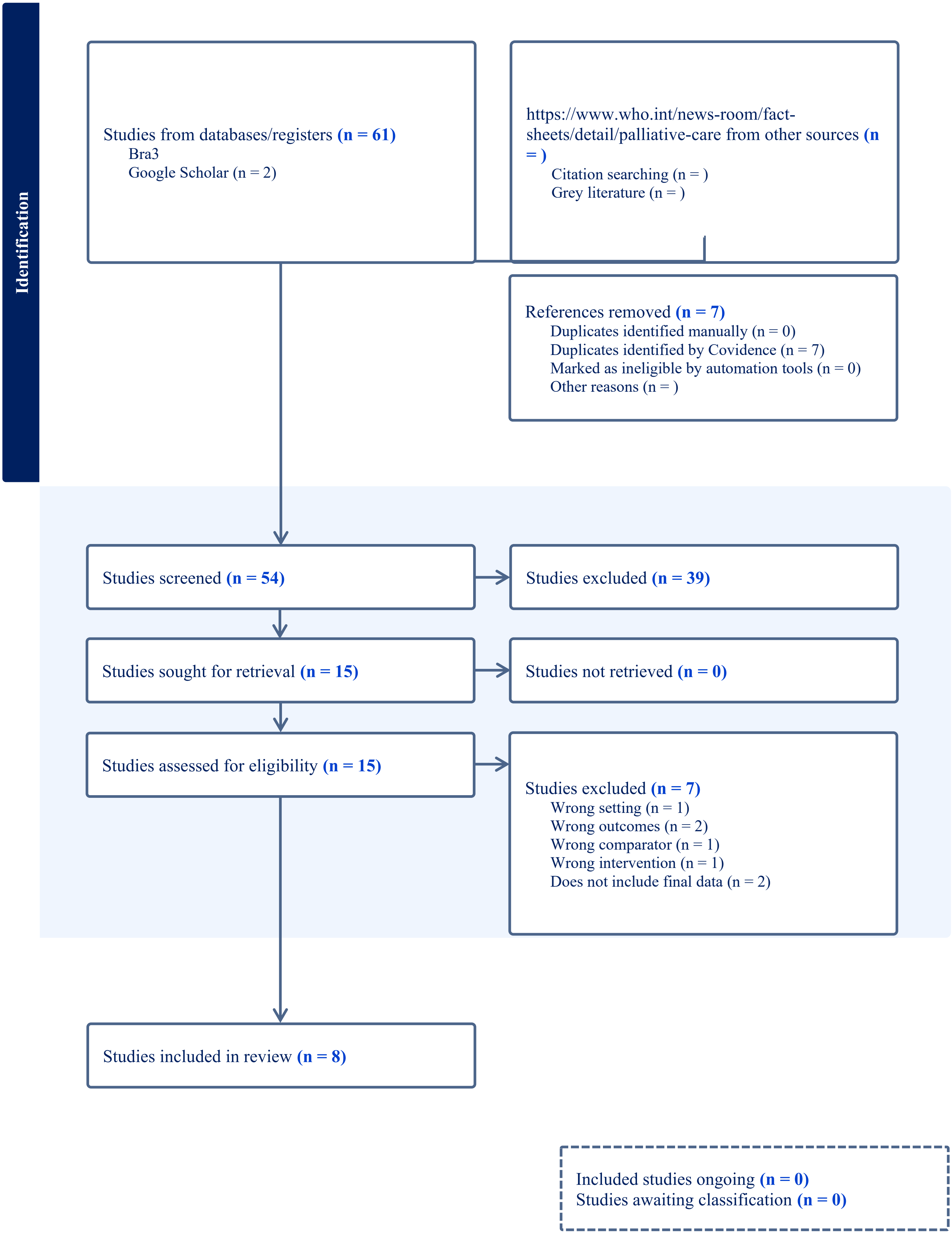
World Health Organization. (2025). Palliative care. *World Health Organization.* https://www.who.int/news-room/fact-sheets/detail/palliative-care

Appendix A: Search Terms and PRISMA Diagram

Search Terms and Boolean Phrases:

Date of Search	Database	Search Terms utilized	Articles Retrieved
10/2024	CINAHL	MH “Palliative Care” or MH “Palliative Medicine” or “palliative care” AND “early introduction” or “early referral” or “early initiation” or time* AND MH “Heart Failure” or “heart failure” or CHF AND MH “Quality of Life” or MH “Psychological Well-Being” or “quality of life” or “well-being” or “life satisfaction” AND MH “Home Health Care” or community or outpatient or home*	24
10/2024	Medline	MH “Time-to-treatment” or MH “Palliative care” or MH “Palliative Medicine” or MH “Hospice and Palliative Care Nursing” or “palliative care” AND MH “Heart Failure+” or CHF or “heart failure or HF AND MH “Quality of life” or MH “Value of Life” or “quality of life” or well-being” or “life satisfaction” AND “early introduction” or “early referral” or “early initiation” or timely or timeliness AND MH “Home Care Services” or community or outpatient or home*	25
10/2024	APA PsycInfo	DE “Palliative Care” or DE “Health Care Delivery” or DE “Spiritual Care” or “palliative care” AND “early introduction” or “early referral” or “early initiation” or time* AND “heart failure” AND DE “Quality of Life” or DE “Well Being” or DE “Life satisfaction” or “quality of life” or “well-being” or “life satisfaction AND DE “Community Treatment” or DE “Outpatient Treatment” or DE “Home Care” or community or outpatient or home*	10
11/2024	Google Scholar	heart failure and palliative care and outpatient and early intervention Filtered search articles since 2020	17,700

PRISMA Diagram



Appendix B: Quality Assessment

Study ID	Sequence Generation	Allocation concealment	Blinding of participants and personnel for All outcomes	Blinding of outcome assessors for All outcomes	Incomplete outcome data for All outcomes	Selective outcome reporting	Other sources of bias
	Judgement, Comments & Quotes	**Judgement, Comments & Quotes**	**Judgement, Comments & Quotes**	**Judgement, Comments & Quotes**	**Judgement, Comments & Quotes**	**Judgement, Comments, & Quotes**	**Judgement, Comments & Quotes**
Ng 2018	**Low** 'the site manager, who had no knowledge of the subjects, opened a sealed opaque envelope with a computer-generated sequence of random numbers inside for assignment. Block randomization with a block size of 6 was adopted'	**Low** 'After the baseline data were collected and the consent forms signed, the site manager, who had no knowledge of the subjects, opened a sealed opaque envelope with a computer-generated sequence of random numbers inside for assignment.'	**High** 'Blinding of the interventionist and participants was impossible due to the nature of the intervention. Only the data collector was blinded to the group assignment.'	**Low** 'Only the data collector was blinded to the group assignment'	**Low** 'The data were analyzed using the Predictive Analysis SoftWare (PASW) Statistics 18. Descriptive statistics were used to present the demographic and clinical characteristics. Repeated-measures analysis of variance was used to examine the effects of the HPHF intervention group and the control group on continuous outcome variables that are normally distributed. The Sidak correction for multiple corrections was applied in examining the within-group difference in preventing alpha inflation. All statistical differences were two-tailed, with an alpha set at 0.05. If the normal distribution principle was violated, the Friedman and Mann-	**Low** "There were significant improvements in the physical (P = 0.011), psychological (P = 0.04), and existential (P = 0.027) domains between the intervention and control groups over time. No significant differences were noted in the support domain and global QOL items. Overall, the total MQOL score reached a significant difference when the two groups were compared over time (P = 0.016), and a significant group time interaction was also detected (P = 0.032) CHQ-C results show that a significant difference was noted between the intervention and control groups at four weeks in the aspects of dyspnea (P = 0.02), emotional function (P = 0.014), mastery (P = 0.019), and the total score (P = 0.01). There was no between-group effect noted at 12 weeks for any group. However, there was a significant within-	**Low** 'The work described in this paper was fully supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China (RGC Ref No 549212). The authors declare no conflicts of interest'

					Whitney U tests were applied for between-group comparison over time. The Wilcoxon signed ranks test was used for within-group analysis over time.54 Bonferroni correction was employed to protect against the inflated risk of a Type I error due to multiple comparisons, and the defined value of the overall alpha level was divided by the number of pairs being compared. All analyses were conducted on an intention-to-treat basis. Missing data were imputed by the multiple imputation method. Effect size was estimated by calculating partial eta squared h2p , where the small, moderate, and large effect sizes were defined as 0.01, 0.06, and 0.14, respectively.’	group difference ($P < 0.017$), that is when the group was compared with itself over time, for the intervention group throughout the 12 weeks in the aspects of dyspnea, fatigue, mastery, and in the total score Edmonton Symptom Assessment Scale showed no significant between-group symptom improvement at 12 weeks. However, the intervention group had better improvement than the control group at four weeks in two symptoms depression, $P = 0.01$ and shortness of breath $P = 0.018$). When the groups were compared on their own over time, the intervention group showed improvement in tiredness and total score ($P < 0.017$) throughout the 12 weeks, but there was no such improvement in the control group (Table 4). There was no significant difference, either between groups or within groups in terms of the functional status (Table 5). The intervention group had significantly higher satisfaction than the control group at both four ($P = 0.001$) and 12 weeks ($P = 0.001$), and there was a significant increase over time in the intervention group ($P = 0.015$)’	

O'Riordan 2019	**Low** Patients were randomized within blocks of six to minimize potential bias and confounding. A member of the research team with no contact with the study patients conducted a random assignment procedure to prevent any bias in the allocation to groups.1	**Low** **'**A member of the research team with no contact with the study patients conducted a random assignment procedure to prevent any bias in the allocation to groups.'	**High**: This was not mentioned in the article, however, due to the nature of the interventions it is not possible to blind the personnel or the participants to the treatment	**Low** 'The statistician was blinded to group coding'	**Low** 'This approach adjusts for sources of variation and correlation among repeated measures within a subject. Further, the analysis of repeated measurements ensures subjects with missing data can still be included. '	**Low** 'Patients in both groups reported improvements in all outcomes except depression across the three assessment periods: heart-related QoL (p = 0.001), QoL (p = 0.03), anxiety (p = 0.003), severe pain (p = 0.05), dyspnea (p = 0.03), and depression (p = 0.15) (Table 4). There were no differences between the two groups over the course of the study. Patient satisfaction with the care they received was documented at the initial assessment as well as during three- and six-month follow-up assessments. We found no difference in satisfaction with care between the two study groups at any of these three assessment periods'	**Unclear**: could influence researchers to encourage palliative care for increased funding of palliative care in the future 'Funding by palliative care research centre'
Lewin 2017	**High**: Placed in control group if cardiologist did not approve PC consult, unclear as to why the cardiologist did not approve, or if all the members in the control group were under the care of the same cardiologist. 'Nonrandomized prospective study comparing outcomes over a six-month study period for patients receiving PC, in addition to	**Low**: Clinical nurse specialist is selecting based on outlined criteria 'Our clinical nurse specialist met weekly with the cardiac team to identify eligible patients from the inpatient setting'	**Low** Not applicable	**Unclear**: Unknown if this resident was involved in the provision of the intervention or not. 'A medical resident completed a chart review for the purpose of comparing pre-/post-data outcomes. Only	**Low** 'All patients in the intervention group who were discharged to long-term care or home were referred to follow-up with outpatient PC. Nine out of the 14 (64%) patients received outpatient PC, with an average of 4.5 visits (range 1-12 visits) per patient throughout the study period. The majority of patients (7 out of 9, 78%) received same-day joint visits with the PC and HF	**Low** 'There was no baseline difference between intervention and control group ACP documentation (v2(1, n = 35) = 0.68, p = 0.41). However, there was an increase in ACP documentation for the intervention group throughout the study period (v2(1, n = 35) = 21.39, p < 0.001). ACP increased from 40% to 100% for patients in the intervention group (Table 3). More patients in the intervention group elected DNR code status after receiving PC consultation	**Low** 'No competing financial interests exist.'

	standard cardiac care versus standard cardiac care alone.’			information obtained from our hospital’s electronic medical record was used.	teams. Only two patients requested an outpatient PC visit on a different day than their scheduled HF appointment.’	(30% pre vs. 80% post). ACP documentation did not change throughout the study period for the control group. Only 5 out of 15 charts (33%) had a documented code status, and only 1 of these patients elected DNR code status. When examining ED visits, we conducted a Group (Intervention, Control) X Time (Pre-Treatment, Post-Treatment) repeated-measures ANOVA. No Group X Time interaction emerged, F(1,33) = 1.29, p = 0.27. Interestingly, there was a main effect for Time, F(1,33) = 18.57, p < 0.001, suggesting that across groups there was a general decrease in ED utilization throughout the study period. The main effect for Group was nonsignificant, F(1,33) = 0.95, p = 0.34.	
Evangelista 2012	**Low**: Not an RCT so not applicable ‘This prospective case-control study was conducted at a single university-affiliated medical center. Participants were recruited from the inpatient setting during an episode of acute HF exacerbation through HF provider referrals; The goal of the	**High** **‘**In addition, participants were not individually randomized but rather matched on sociodemographic variables and functional class to optimize our ability to compare the effects of providing PC services to patients with symptomatic HF. Although nearly all	**Low**: Not applicable due to the nature of the study	**Unclear**: This is not mentioned in the article.	**Low** **‘**From March 1, 2008, to July 30, 2008 (5 months), 57patients with symptomatic HF were approached, of whom42 consented (73.6% recruitment); 9 (60%) were not interested in participating, and 6 (40%) cited time requirements. Thirty-six (85.7%) of the 42 patients who signed informed consent came for a PC consultation.	**Low** ‘Table 2 presents the baseline and 3-month follow-up data for the variables of interest. Patients in both groups demonstrated significantly lower levels of symptom (P < .001) and depression (P = .002) and better emotional health (P = .001) and overall QOL (P < .001). Physical health improved for patients in the PC group worsened for patients in comparative group. Over time, group differences were statistically	

	matching was to include subjects in the comparison group, balanced by sex, age, race, and New York Heart Association (NYHA) functional class, to increase our ability to compare them with intervention subjects regarding the study measures’	baseline characteristics in the 2 groups were similar, we can not be sure that the differences in symptom burden, depression, and QOL at follow-up were indeed related to the PC intervention			Three participants decided to withdraw from the study: 2 moved away, and 1patient was lost to follow-up before the PC consultation.’	significant in all outcomes. Participants who received a PC consultation were more likely to show improvements in fatigue (P < .001), pain (P = .044), well-being (P = .035), depression (P = .029), dyspnea (P = .008), and nausea (P = .045) than participants in the matched control group (Table 3). Furthermore, a greater proportion of patients in the matched control group showed worsening symptoms of fatigue (31% vs 11%; P < .001) and pain (28% vs 10%%; P = .044).’	
Flint 2017	**Low** ‘We used data from The Patient-Centered Disease Management for Heart Failure trial (PCDM), which enrolled 392 outpatients from four Veterans Affairs Medical Centers with a new or existing diagnosis of heart failure with preserved or reduced ejection fraction, any New York Heart Association class, and a Kansas City Cardiomyopathy Questionnaire (KCCQ) overall summary score <60 Briefly, the PCDM	**Low** **‘**Because the PCDM intervention did not influence health status, this analysis includes all trial participants, irrespective of randomization’	**Low**: This is not addressed in the article but is not applicable in this study	**Unclear**: This is not addressed in the article	**Low** ‘Missing data occurring as a result of attrition over time were addressed by estimating the growth models with all available data using full information maximum likelihood estimation; the small amount of missing data on the predictors and covariates was addressed using multiple imputation.’	**Low** ‘One of the trajectories had few patients (5%); therefore, we only examined predictors of trajectory membership between the two major trajectories. The two most common trajectories (moderate health status and poor health status) showed initial improvement from baseline to three months, followed by little change throughout the rest of the follow-up period. These trajectories differed primarily in their baseline values, not their change over time. The marked improvement trajectory consisted of a small group of patients whose health status was initially very poor but improved substantially and progressively throughout the year.’	**Low** ‘The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the U.S. government. The authors declare no conflicts of interest.’

	trial randomized participants to a collaborative care model of symptom management or usual care’						
Arenas Ochoa 2021	**Low** Not Applicable	**Unclear** It is not mentioned whether the patients were aware they were in the NECPAL+ or NECPAL - group	**Low** Not Applicable due to the nature of the study	**Low** A researcher scored the answers from the SF-12 and the KCCQ instruments. The attending cardiologist filled out the NECPAL tool	**Low** Of the 184 patients who met the inclusion criteria, 178 accepted participation, 89 from each HF clinic	**Low** Cardiologists also considered four other patients to need PC despite those patients having a – NECPAL due to a negative surprise question (yes, the physician would be surprised by patient death). The prevalence of PC needs in patients at NYHA III/IV was two times fold the prevalence in patients at NYHA I/II (77% vs 36%). The prevalence of PC among patients older than 70 years was almost two times fold the prevalence in patients under or equal to 70 years (57% vs 30%). There was no difference between PC needs of men and women, nor across LVEF categories	**Low** The authors have no conflicts of interest to declare that are relevant to the content of this article
Gonzalez-Jaramillo 2022	**Low** ‘we transcribed and thematically analyzed the longest interviews, as they were the most content- rich because participants engaged in deeper discussions with the interviewer. Before transcription, we heard all interviews and noticed that the shortest ones	**Low** **‘**We then included interviews until we reached data saturation, that is, the point at which the inclusion of additional interviews would have not added substantial new information to the analysis and the resulting themes and	**Low** ‘In the invitation package that was mailed to patients, we mentioned that the project aimed to evaluate the performance of a questionnaire to assess the	**Low** ‘VGJ, a female physician who was completing a PhD on PC in HF at the time of the study, performed all analyses with support from SCZ, a female	**Unclear** ‘Of the 70 interviews undertaken for the validation study, we reached data saturation at 31 interviews. The interviews included in this study lasted 31 min in average (range: 24-48 min).’	**Low** ‘Participants were in general satisfied with the treatment and information received at the ambulatory HF clinic, however, upon further questioning, they would often report several unmet needs. We therefore identified three ambivalences as main themes: (I)”feeling well-informed but missing essential discussions”, (II) “although feeling mostly satisfied with care, remaining with unmet care needs”, and (III) “fearing a	**Low** ‘This project was supported by Stiftung Lindenhof Bern, Teaching and Research Fund (grant numbers: 20-03-F and WRO-013). The funder had no role on the study

	did not allow for a comprehensive understanding of participants' experience of symptoms and of their unmet needs and therefore decided that not all could be analyzed in the depth that thematic analysis requires.'	subthemes (9). Of the 70 interviews undertaken for the validation study, we reached data saturation at 31 interviews. The interviews included in this study lasted 31 min in average (range: 24–48 min)'	needs of patients with HF and to improve the quality of care delivered to this population.'	psychologist with expertise in qualitative methods and PC research. VGJ and SCZ coded independently one of the interviews and compared all initial codes, to fine-tune the coding process.'		referral to palliative care but acknowledging its importance”	design, data collection, analysis, or interpretation of the results.'
Boyd 2009	**Low** 'Purposive sampling enabled recruitment of interview participants who reflected the local epidemiology of advanced heart failure (New York Heart Association [NYHA] Class III/IV) and were using the spectrum of services available'	**Low**: Not applicable	**Low**: Not applicable	**Low**: Not applicable 'The interview and focus group data were recorded, transcribed and analysed thematically with the aid of NVivo. Interview triads for individual cases were analysed longitudinally and constant comparison within and across cases ensured that the thematic	**Unclear**: unclear how the 8 participants who died during the study could alter the results 'The 18 male and 17 female patients had a mean age of 76 years (range 48-91). Nine lived alone, 17 with a spouse or partner, two in sheltered housing and two in care homes. Most had multiple co-morbidities and experienced the numerous physical and psychosocial difficulties well documented in these patients and families.11 Services with regular input or a key role were heart failure nurses (17), cardiologist (2), elderly	**Low** 'Working with the spectrum of participants who contributed to the interviews and focus groups enabled us to identify key areas for service improvement and relate these to published recommendations. Consensus-based criteria were thought to be helpful in enabling professionals to recognize when a palliative care approach to care that focuses on quality of life as much as a reduction in morbidity has become appropriate.	**Low** 'The study was funded by the Policy Research Programme as part of the Department of Health/British Heart Foundation Heart Failure Research Initiative. Ethics approval for the study was obtained from Lothian Research Ethics Committee and R& D approvals were obtained from the local Health Boards. The authors have no competing

				analysis represented all perspectives.19 Transcripts were coded to include anticipated and unforeseen themes.’	medicine (5) and primary care (11); three patients had specialist palliative care involvement (Appendix I). Eight patients died during the study’		interests to declare.’