

Increasing Palliative Medicine Presence in Heart Failure Admissions

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Author Note

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Abstract

The Palliative Medicine team at a 182-bed hospital in a suburban area desired to grow its presence in the heart failure population by increasing consultation rates. A DNP project created at the site included the Palliative Medicine team, telemetry unit staff, and a quality improvement team. Using a Palliative Medicine Screening Tool for Heart Failure (PM-HF) by the nursing staff and overnight admission review by the group's nurse coordinator, heart failure admissions were screened for potential needs. During the implementation process, sixty-four patients were reviewed by unit staff and sixty-three were reviewed by the Palliative Medicine nurse coordinator. Eighteen consultations were obtained from the 127 total reviews. Compared to the previous 6-month period prior to implementation, the Palliative Medicine team improved 19.8% regarding involvement in heart failure-related admissions. Due to the COVID-19 pandemic that occurred during project implementation, overall Palliative Medicine consultations for all diagnoses decreased by 1.3%. This project served the Palliative Medicine team and the hospital by highlighting gaps in delivery of heart failure-related care and opportunities for increased Palliative Medicine involvement. The PM-HF tool can be modified to include other diagnoses for future study and hospital quality improvement staff are reviewing ways to impact heart failure care based on this project's findings. The addition of a Heart Failure Navigator to hospital staff would assist in providing excellent education and support for patients as well as encourage early identification of patients admitted with heart failure that have Palliative Medicine needs.

Keywords: palliative medicine, heart failure, goals of care, screening tool, quality improvement, navigator, acute care

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Section I: Introduction

Background

Despite continued efforts by medical professionals to decrease the incidence of heart failure (HF) in the nation's population, the prevalence of the disease continues to rise. According to the most recent updates from the American Heart Association (2017), the incidence of HF is projected to increase by 46% by the year 2030— an estimation affecting over eight million Americans over the age of 18 years and is responsible for over a million hospitalizations annually (Virani et al., 2021). An estimate of over \$30 billion is spent annually due to heart failure hospitalizations (Bozkurt et al., 2021). The Hospital Readmission Reduction Program (HRRP) was created as part of the Affordable Care Act in 2012 to combat the high cost of heart failure hospitalizations and readmissions (McIlvennan et al., 2015). The program delivers financial penalties to hospitals who have high readmission rates for pneumonia, heart failure, or myocardial infarctions. While the HRRP is an effective organization in increasing the quality of care for many patient populations, HF continues to be a disease process that brings patients back to the hospital often.

Palliative medicine (PM) is a field of medical care that has expanded over the last decade. Not to be confused with hospice care, PM is supportive care that a person continues to receive while they pursue curative and life-prolonging treatments. In 2019, at least 72% of the nation's hospitals with more than fifty beds had an inpatient PM team (Center to Advance Palliative Care, 2019). Over the last decade, PM has grown from a primarily cancer-diagnosis driven specialty to a multi-disease-focused specialty in advanced medical treatment (Kida et al., 2020). The goal of PM is to reduce the stress of symptoms related to chronic disease, support the patient and their family through the progression of the disease, and alleviate suffering while trying to improve

quality of life (Matzo & Sherman, 2006, pp. 133–134). Primary PM discussions are intended to take place in a primary care setting; however, it most often occurs following a medical event or hospitalization related to the chronic disease (Kavalieratos et al., 2017). These discussions include identifying a surrogate decision maker, or the person who can make decisions on an individual's behalf in the event they cannot do so themselves, providing basic symptom management, and initiating code status conversations. Most common HF symptoms leading to hospitalization include shortness of breath, edema leading to discomfort, anxiety, and fatigue (Sobanski et al., 2019). Every HF-related hospitalization is an opportunity to include PM in a patient's care as HF and related complications are unpredictable and overwhelming.

Organizational Needs Statement

The palliative medicine group within a large, for-profit health system has a system-wide goal of increasing consultations for patients with HF by 2-3% annually (Palliative Care, 2021a). Over the last five years, the group at a suburban 182-bed hospital has performed inconsistently regarding HF consultations; see Appendix A for 2020-2021 data (Sanger Heart and Vascular Institute, 2021). Another group-wide goal is to increase total PM referrals per site by 10% (Palliative Care, 2021a). In 2020, total palliative consultations amounted to 732, while 2021 totaled 687 (Palliative Care, 2021b). Without change, overall consultation growth and presence in the HF admissions will not meet group and site goals for 2022. Further data related to annual consultations rates can also be found in Appendix A.

Healthy People 2030 set an objective to decrease the number of HF-associated hospitalizations by 10% (Office of Disease Prevention and Health Promotion, 2020). Routine involvement of PM can assist in decreasing the symptom burden associated with advanced heart failure. It can also increase quality of life in addition to supporting the patient and their family in

understanding their choices regarding future medical care (Kida et al., 2020). In accordance with the IHI Triple Aim framework, increasing PM involvement in HF patients can improve the quality of care, increase patient satisfaction/experience, improve their health, and reduce the medical costs associated with HF readmissions (Bachynsky, 2019).

Problem Statement

In the six months prior to project development (January 1 to July 31), there were 258 patients identified as having a primary diagnosis of HF at the chosen project site (Palliative Care, 2021b). Only 9% of those admissions had received PM consultations during their hospitalization, making the site the second lowest utilizer of PM for the HF population than any other hospital in the system (Sanger Heart and Vascular Institute, 2021). To impact PM group/site goals for 2021/2022, PM involvement should increase, specifically in the HF population.

Purpose Statement

The goal of this quality improvement project is to increase the number of PM consultations ordered for patients admitted with HF-related complaints. This will be done by implementing a Palliative Evaluation Scale for Heart Failure (PM-HF) into an already existing admission audit process used by the nursing staff. In tandem, overnight HF admissions will be screened by the palliative nurse coordinator on site to identify palliative-appropriate admissions. Requests for review by the attending physician will be placed with the goal of adding the PM consult to inpatient orders. Short-term outcomes were an increase in PM consultations for HF patients. Intermediate outcomes were increasing total PM consultations, regardless of diagnosis. Long-term implications of this project may be an increase in advance directive completion, decreased readmissions, increased patient satisfaction scores, increased nursing comfort in

identifying appropriate cases for palliative consultation upon admission and increased multidisciplinary communication.

Section II. Evidence

Literature Review

To examine what is known about palliative medicine screening tools, PubMed was chosen as the database for literature review. Several strategies were implemented to obtain appropriate and related literature, including using phrases such as “palliative care,” “palliative medicine,” “heart failure readmission,” “palliative intervention,” “referral tool,” “consultation referral,” “early palliative,” “heart failure,” and “hospitalization.” Combinations of these terms resulted in 110 articles. The abstracts were reviewed to exclude articles that did not relate to the use of screening tool or concise referral criteria pertaining to PM consultations for HF. Articles were also excluded if the studies occurred outside a hospital setting. The remaining ten articles were read in full to determine relevancy to the goals of this DNP project. Search strategies can be found in Appendix B.

Current State of Knowledge

Most of the studies reviewed highlighted similar points related to palliative medicine’s involvement in heart failure (HF) admissions. It is well known across the medical community that early palliative consultation and intervention promote the best patient outcomes and patient/caregiver satisfaction scores (Fitzpatrick et al., 2018). Five out of the ten articles specifically stated that screening that occurred within the first 24 hours of admission led to the most appropriate palliative consultations. Effective PM discussions occur over time, not simply during one patient encounter/visit. Fasolino & Phillips (2016) suggest as many as five encounters/visits, not to be confused with hospitalizations, are needed to complete goals of care

discussions that may alter the plan of care. Hurst et al. (2018) was a quality improvement initiative that evaluated palliative intervention within an ICU setting. The article explained that while there are numerous available screening tools to assess palliative appropriateness, most yield inappropriate consultations (Hurst et al., 2018).

A systematic review of available tools to assess for palliative needs concluded that the tools are effective but not usable in real time in a hospital setting (Ament et al., 2021). Many tools rely upon input from the patient regarding their understanding of the disease process as well as being reliant upon their idea of how it affects their quality of life. In a community setting where health literacy is low, patients may not be able to grasp how the severity of their illness correlates to deficiencies in their daily life. While the Kansas City Cardiomyopathy Questionnaire (KCCQ) was an extremely effective tool to determine palliative need, it relied upon the patient's participation to be accurate (Campbell et al., 2018). The most adaptable tool created by Carmel-Sanchez et al. (2017) was developed for a hospital that mostly served indigent, incarcerated, or individuals with poor social circumstances. It is important to consider the population being served by the institution and modify the screening tool to fit their needs.

One study conducted in an emergency department, rather than an inpatient unit, where this project took place, found that compliance of screening patients would increase if the time to complete it was short and did not disturb normal staff tasks (Ouchi et al., 2017). This information guided the creation of new processes with the goal of minimizing distraction from daily nursing activity. There continues to be a lack of agreed upon and common criteria that would necessitate a PM consultation. Many tools include the New York Heart Association (NYHA) classification as a primary marker for palliative criteria. The NYHA classification separates patients into four categories based upon the severity of their disease and its impact on daily living (American Heart

Association, 2017). As of 2021, there is now universal language to communicate the severity of heart failure based upon the subjective burden of symptoms and objective data gained from diagnostic testing and physical assessment. Heart failure is newly described as a clinical syndrome, rather than a diagnosis, which is caused by anatomical changes to the heart and the subsequent abnormal function (Bozkurt, Coats, et al., 2021). The additional component of classification is derived from the evaluation of the heart's ejection fraction (EF). EF is the amount of blood pumped out of the heart at each contraction (American Heart Association, 2017). Normal EF is 50-70%; this number can be significantly altered and lowered by the amount of hypertrophy present in the heart muscle that results from heart failure (American Heart Association, 2017). Further information on specifics of each stage/class can be found in Appendix C.

Utilization of the electronic medical record (EMR) was also explored during evaluation phases of the project as potential next steps for continued growth and sustainability. The meta-review completed by Finucane et al. (2021) evaluated numerous uses for digital health interventions related to PM but felt majority lacked an appropriate combination of objective and subjective criteria to potentiate appropriate PM screenings.

Current Approaches to Solving Population Problems

While screening patients in the emergency room can be effective at identifying those who are appropriate for PM consultation, it is often a poor choice of timing. Patients receiving care in the emergency room setting are in an acute phase of their disease. If someone is in distress, it is overwhelming to discuss potentially life-saving interventions or wishes. Palliative discussions are most effective over time and when a person is not in medical distress (Fasolino & Phillips, 2016).

A quality improvement project focused on increasing palliative medicine referrals at a community-based hospital spanned three nursing units and utilized numerous educational workshops for nurses (Churchill et al., 2020). Workshops included lunch-and-learn meetings with presentations by the project creator to provide information on the definition of palliative medicine and its implications on involvement in patient care. The goal of the project was to determine efficacy of palliative medicine screenings completed by the bedside nursing staff. The primary outcome noted by the study was that decreased disruptions within the nurse's shift were desired. This prompted modification of the tool to make completion easier, faster, and a normal part of the nurse's duties on shift. By having the primary nurse caring for the patient complete the screening, reviewers found that information collected was more accurate, making consultations more appropriate. Another aspect to admire from that study is that completion of the screening tool did not automatically prompt a referral. The results were reviewed by the inpatient palliative nurse prior to order placement, which decreased the number of inappropriate referrals (Churchill et al., 2020). The aforementioned project attributed its success to the use of frequent PDSA, or Plan-Do-Study-Act, cycle meetings (Churchill et al., 2020). This project also uses PDSA cycles to assess unit needs, understanding, and barriers to implementation.

Evidence to Support the Intervention

As evidenced above, the quality improvement process that incorporates frequent PDSA cycles has the greatest potential to succeed and remain a permanent part of the plan of care (Churchill et al., 2020). Empowering the staff participating in the process can only enhance the effectiveness of the project. Using objective measures to assess criteria can be an efficient means to encourage completion of the PM-HF referral tool, especially on a busy nursing unit. The increased awareness of PM criteria and comfortability assessing patients by the nursing staff can

increase overall PM consultations across all disease processes (Churchill et al., 2020). This project piloted the use of a PM-HF referral tool on a unit where most HF admissions take place. With ongoing and frequent educational huddles, the nursing staff increased their knowledge of PM services as well as learned predictive criteria for referral related to HF patients.

Evidence-Based Practice Framework

This project used the Awareness, Desire, Knowledge, Ability, and Reinforcement (ADKAR) methodology as well as implemented PDSA cycles throughout the duration of the project. The ADKAR model of change incorporates awareness, desire, knowledge, ability, and reinforcement to drive new processes into practice (Prosci Inc., 2021). Use of the ADKAR method promotes universal language across the team/stakeholders and can be applied to larger scale projects, settings, and processes (Wong et al., 2019). Effective interventions are multifaceted and require teamwork across disciplines (Taylor et al., 2014). As only 9% of the 180 HF admissions had an inpatient PM consultation, the awareness of deficit is known (Sanger Heart and Vascular Institute, 2021). There is a desire by the PM team at the site to affect change and increase consultations for HF admissions and total PM consultations (Personal communication, October 20, 2020). The knowledge of what change is possible falls to the participants of this project. This leads to delivery of that knowledge to appropriate stakeholders including system PM leaders, hospital leaders, nursing leadership, and staff nurses. The ability of stakeholders, specifically nursing staff and leadership, to learn and demonstrate new skills will come forth during the frequent PDSA cycles. The last step in the ADKAR model of change is to provide reinforcement. If it is determined that the process works well and becomes a seamless part of the admission process as intended, then the disease-focused portion can be altered to include more than HF.

PDSA cycles occurred every two weeks over the 12-week project. Attendees to the PDSA cycle meeting included the nurse managers of the unit involved, the project coordinator, and the palliative nurse coordinator for the hospital. The team reviewed the completion rate of the referral tool, barriers to completion, areas of knowledge deficit, and opportunities for improvement. The use of a PDSA cycle throughout the project incorporated stakeholders in the change as well as empowered them to help adjust the process to meet the needs of their unit and the patients they serve.

Ethical Consideration and Protection of Human Subjects

When reviewing the aims and potential processes included in this project, ethical implications were considered. Screenings and consultations will occur regardless of age, race, ethnicity, sexuality, or religious affiliation. All patients admitted to this unit will be screened upon admission and assessed as appropriate for consultation. No patient harm occurred because of the project's intended process creation. Truthfully, more patients benefitted from the PM services available to them that may have been missed otherwise.

The concept of this project was rigorously reviewed through by both the East Carolina University DNP faculty, the East Carolina University Institutional Review Board (IRB), as well as the hospital system's IRB Advisory Committee. All institutions determined that the project is not research based and is in fact a quality improvement initiative. It was not required to fully undergo IRB review and minimal to no risk of patient harm was identified. In preparation for project design, implementation, and dissemination, DNP students were required to complete Collaborative Institutional Training Initiative (CITI) modules to obtain knowledge of ethical implications or research and this project.

Section III. Project Design

Project Site and Population

The quality improvement project took place in a suburban hospital that consists of 182 beds. The primary unit for project implementation was a cardiac-telemetry unit of thirty beds. The average number of admissions within a 24-hour period range from three to seven. Staff on the unit included five staff nurses, a charge nurse, a unit secretary, three nursing assistants, and one monitor technician. To qualify for the level of care provided on this unit, patients had a need for continuous cardiac monitoring via a remote telemetry monitor. Also, present daily on the unit are the unit manager, a clinical nurse specialist, and a nursing educator. These members comprise the leadership team.

A potential barrier was identified prior to implementation of the project. Given the presence of the COVID-19 pandemic, hospital units were often short-staffed and charge nurses were pulled into patient assignments. COVID-19 continues to impact the PM team who assist in end of life and goals of care discussions. Increases in the number of patients admitted to the intensive care unit with COVID-related complications resulted in an unusually high census for the PM team. While completing goals of care discussions with every consulted patient is important, triaging consults became an important part of the palliative nurse coordinator's role. To prevent consultations being delayed or missed, the palliative nurse coordinator would complete the consultations with the HF patients who screened positively from the use of PM-HF tool or overnight admission reviews. Follow up visits were conducted by the nurse practitioner or physician on the team the next day. The staffing ration across the system is 14:1 for palliative teammates (Palliative Care, 2021a). The increased census assists in a long-term goal of growing the site's PM team.

Another barrier to accurate data collection/review would be implementation of a new electronic medical records system, Epic. The transition occurred December 2021, which created a longer lag time for data reporting via the Sanger Heart and Vascular Institute (SVHI) Continuum of Care Dashboard as well as the Palliative Center to Advance Palliative Care (CAP-C) Dashboard.

Description of the Setting

The hospital where the project took place is often the model for new practices, policy implementation, and pilot studies due to the size of the hospital and the number of services it can provide (Personal communication, October 20, 2020). Despite the palliative medicine team having a presence in ten of the organization's hospitals, this site has the most potential for change given its size and inclusion of PM within the hospital. It also has the lowest implementation of PM consultations for HF patients (Sanger Heart and Vascular Institute, 2021).

A new development arose during project creation and design. The hospital was chosen to be the first site to implement a new electronic medical record (EMR) system. The established system, Cerner, did not have a palliative screening tool within the EMR. The new system, Epic, has the capability of implementing an admission screening for palliative needs. The palliative nurse/project lead was asked to be on the committee to assist in tailoring the EMR to meet the needs of the hospital. As the project's intended end to implementation coincided with the go-live of the new EMR, work was done to ensure that the project's process and intended results flowed flawlessly into the new admission process for all patients.

Description of the Population

The target population for project implementation included patients admitted with a primary complaint of heart failure symptoms or exacerbations. Patients admitted with symptoms

or exacerbations often present with complaints of progressive shortness of breath, lower limb swelling, or feeling unwell (Sobanski et al., 2019). They require a form of diuretic in the hospital that cannot be provided at home as well as supplemental oxygen. This population frequently experiences multiple admissions throughout the course of their disease process due to uncontrolled symptoms (Al-Tamimi et al., 2021). The rate of readmission increases if they have comorbid conditions such as COPD, diabetes, hypertension, or are physically less mobile, have poor social situations, or limited social support (Al-Tamimi et al., 2021). Hospitalizations can range from a few days to a few weeks depending upon their level of discomfort, ease of discharge disposition identification, and new level of functioning (Fitzpatrick et al., 2018).

The location of the hospital in a suburban city within North Carolina plays a role in the socioeconomic factors related to readmissions. Demographics of the area include 66.7% White, 25.8% Black, 29.6% Hispanic. The average household income is \$51,754. 21.3% of the occupants in the city are uninsured (U.S. Census Bureau QuickFacts, n.d.). According to the 2019 County Community Assessment (2020), primary areas of concern are access to care, substance misuse, and environmental health hazard.

Project Team

The project team consistent of members of the PM team as well as staff assigned to the telemetry unit. Specifically, there is a physician, nurse practitioner, and bachelor's prepared nurse on the PM team. Unit staff participating in the project included the charge nurse and administrative staff. Also, important to note as part of the project team is the site champion, the PM physician, and the faculty advisor at East Carolina University.

Project Goals and Outcome Measures

The primary goal of this project was to increase PM consultations in HF admissions with a secondary goal/outcome of increasing total PM consultations, regardless of diagnosis. Post-intervention review determined if measures taken increased consultations for HF patients. Review includes evaluation of pre- and post-intervention rates of consultation via the PM metrics dashboard, CAPC Palliative Care Metrics, as well as the cardiovascular dashboard of quality metrics, the Sanger Heart and Vascular Institute Continuum of Care: HF Palliative Care Consult Ordered. Rate of growth will be tracked as a percentage based upon the previous quarter for both HF patients and total PM consultations.

Description of the Methods and Measurement

Following completion of the literature review, the project leader created a PM-HF tool/form to attempt to capture appropriate consultations. Items within the form included measures most of the literature agreed upon as well as hospital/unit specific criteria for consultation. The PM-HF tool/form was revised multiple times with the assistance of the PM team and unit leadership. The final draft was accepted due to the ease of finding information within the EMR.

Three times a week, a palliative team member collected completed PM-HF tools/forms from the pilot unit for review as well as reviewed overnight HF admissions. The PM inpatient census determined the number of new referrals obtained, if any. If the census was too high to see the number of new referrals, the palliative nurse coordinator triaged and arranged for visits the following day. The number of reviewed patients was tracked as well as any barriers or nuances identified such as patient refusal of consultation, physician refusal of consultation, or pending discharge on the same day. Patients who met criteria that did not receive consultation, due to the

above-mentioned barriers, had a note placed in their chart signifying that they would be appropriate for consultation if readmitted. It was also be documented if alternative palliative interventions were arranged at discharge, such as community paramedicine admission or community-based palliative medicine.

Discussion of the Data Collection Process

Participant inclusion was determined in one of two ways. The patient was either admitted with a Care Plan of “Adult Card Heart Failure” or “Adult Card Heart Failure Admission” for the palliative nurse to screen, regardless of what unit they are admitted to. Secondly, the PM-HF tool/form was used on all admissions on the pilot unit. This form, available in Appendix D, was completed by the charge nurse daily. Information requested on the PM-HF tool/form was easily accessible to the charge nurse via the electronic medical record and took two to three minutes to complete the form. Following completion, the PM-HF tool/form was placed in a designated folder near the charge desk to be picked up by the palliative team.

Implementation Plan

Blank PM-HF tools/forms were provided to the unit and placed at the charge nursing desk in a labeled folder. The completed forms were placed in another labeled folder nearby. A member of the PM team checked the folder three times weekly, typically on Monday, Wednesday, and Friday. If a patient met the criteria for palliative consultation, denoted by a score of four or more, either the palliative nurse or the charge nurse requested palliative consultation from the attending physician. Following palliative review, the PM-HF tools/forms were filed in the locked PM office. Updates on the project were provided to the weekly Care Coordination Committee meeting that hosts hospital administration, disease-specific coordinators, case management, hospitalist representation, and outpatient services representation.

The palliative nurse coordinator will also be reviewing overnight hospital admissions throughout the hospital and screen those admitted with a primary hospital problem of HF. This occurred at least three times a week, depending upon hospital census and staffing abilities. If patients were classified as having Stage III/IV or Class C/D HF, or had a new decline in their function, the palliative coordinator would communicate with the attending to obtain the consult.

Timeline

The first phase of the project took place from August 2021 to November 2021. Implementation of the process began in September with a trial run. This allowed the project lead and unit staff to become accustomed to the form and incorporate it into their daily activities. The actual project start date was September 27th, 2021. The pilot was initially planned to be conducted over a 12-week period with PDSA cycle meetings every two weeks and slated to end December 17th, 2021. Due to the implementation of a new EMR system, the first phase of the project was ended earlier, on November 19, 2021.

The second phase of the project began January 10, 2022. In this phase, the only intervention was continued screening of overnight admissions by the palliative nurse coordinator. Active screenings began January 31, 2022, and continued until March 11, 2022. Continued strains are placed upon inpatient nursing staff as the COVID-19 pandemic ravages the nation. The PM team and nursing leadership felt that it was not appropriate to add to the burden of work for inpatient nurses during the transition to the new EMR. A timeline is presented in Appendix E.

Section IV. Results and Findings

Results

Upon completion of the implementation phase, it was apparent that the data reported to the Center to Advance Palliative Care (CAP-C) by PM leadership differed from the consultation data collected by the site-specific PM-RN. After reviewing this data further, it was found that consultations completed solely by the PM-RN (where billing did not occur) or if the patient were admitted under “observation” status were not counted in the totals. Therefore, data may be inconsistent with information available to leadership members reviewing this project. CAP-C Dashboard data may differ slightly from the Sanger Heart and Vascular Institute (SVHI) Dashboard.

From September 27, 2021, to December 2, 2021, the charge nurse on the unit complete 64 PM-HF Screening Tools for all admissions. Sixty-three admissions were reviewed by the PM-RN during the September to December period in addition to January 31, 2022, to March 11, 2022. A total of eighteen patients obtained PM consultations during their admission based on both interventions from September 27, 2021, to March 11, 2022. Results of project implementation, as reported by the Sanger Heart and Vascular Dashboard, as well as total PM consultations hospital-wide as reported by CAPC-C Dashboard, are displayed in Tables 1 and 2. Table 3 depicts the total amount of patients documented by the palliative medicine team as having a primary diagnosis of heart failure, as obtained from CAP-C Dashboard. There are discrepancies amongst data between the SHVI and CAP-C Dashboard, as not all HF-related admissions included a cardiology consultation. Both areas of statistics showed improvement in consultation rates.

Table 1*Heart Failure Admissions with Palliative Consultation per SHVI Dashboard*

Time Period	Total HF Admissions	With PM consultation	Consultation Rate
Jan 1, 2020-Jul 31, 2020	229	49	21.40%
Aug 1, 2020-Dec 31, 2020	397	74	18.63%
Jan 1, 2021-Jul 31, 2021	258	23	8.90%
Aug 1, 2021-Dec 31, 2021	146	42	28.70%
Overall 2020	626	123	19.65%
Overall 2021	404	65	16.01%

Table 2*Total Palliative Medicine Consultations per CAP-C Dashboard*

Time Period	Total Admissions	With PM consultation	Consultation Rate
Jan 1, 2020-Jul 31, 2020	3896	430	11.04%
Aug 1, 2020-Dec 31, 2020	3111	302	9.71%
Jan 1, 2021-Jul 31, 2021	5022	467	9.30%
Aug 1, 2021-Dec 31, 2021	3593	286	7.96%
Overall 2020	7007	732	10.45%
Overall 2021	8615	753	8.74%

Note. CAP-C Dashboard data updated to December 3, 2021.**Table 3***Palliative Medicine Consultation Rates for Heart Failure per CAP-C Dashboard*

Time Period	Total PM Consultations	Primary Diagnosis of HF	Consultation Rate
Jan 1, 2020-Jul 31, 2020	430	55	12.79%
Aug 1, 2020-Dec 31, 2020	302	33	10.92%
Jan 1, 2021-Jul 31, 2021	467	80	17.13%
Aug 1, 2021-Dec 31, 2021	286	73	25.52%
Overall 2020	732	88	12.02%
Overall 2021	753	153	20.32%

Note. CAP-C Dashboard data updated to December 3, 2021.

Discussion of Major Findings

Increased focus on specific disease processes can increase overall consultations for that population and PM consultations in total. However, due to the COVID-19 pandemic, hospital focus shifted from the HF population to COVID-19 admission support. This shift in focus affected the distribution of PM consultations and total hospital admissions. Additionally, total hospital admissions were lower in 2021 due to the prolonged hospitalization standards that resulted from COVID-19 admissions. It was also noted that total HF-related admissions were reduced as well (Palliative Care, 2021b). As the PM leadership team's evaluation of the goals set in 2020 revealed the inability to reach HF-related expectations, the focus shifted to increasing total consultations and billing initiatives.

Readmission rates were worse overall in 2021 than in 2020, contrary to what the literature stated should occur with these interventions. The project evaluation period would need to expand longer than 6-12 months to determine if patients who had a PM consultation were later readmitted. Readmission rate discrepancies could be contributed to the additional strain placed on the healthcare system by the global pandemic.

Section V. Interpretation and Implications

Costs and Resource Management

Time

For nursing-based interventions, time available to support the goal was a key factor. 250 hours of direct implementation work was put into the project by the project lead over the course of eight months. This divides into thirty-one hours per month. For the PM-team based screening, an average of 45-60 minutes per day was spent reviewing overnight HF admissions. Completing

the consultations took a total of two hours with an average of one to three consultations obtained weekly. The PM-RN spent an average total of eleven hours per week screening and completing the consultations. Completing the PM-HF Screening Tool took three to five minutes per patient. Reviewing the forms took an average of thirty to sixty minutes daily, three days a week by the PM-RN. Total unit-based interventions resulted in an average of thirty to sixty minutes per shift, dependent upon the number of admissions to the unit. A project budget can be further reviewed in Appendix F.

Supplies and Personnel

The physical supplies utilized were negligible. The PM-HF tool was printed using standard letter 8.5"x11" computer paper and the placement folders on the unit were \$5 total. During implementation, project work was completed by nursing staff and the PM-RN. At a rate of ten to fifteen hours per week of active initiative-related work, the project site could hire a part-time employee, who is considered any employee working less than thirty-two hours per week, to support hospital-wide HF-related admissions. Additionally, they could assist in identifying PM-appropriate patients and request consultation, thereby increasing the overall PM consultation rates.

Next Steps

According to the most recently updated statistics, the average wage of a registered nurse in North Carolina is \$34.23 per hour (U.S. Bureau of Labor Statistics, 2022). If a heart failure navigator, certified as a registered nurse, was hired part-time at the project site, it could cost potentially \$35,000-\$57,000 based on the hours worked per week. The average cost of hospitalization for patients admitted with HF-related symptoms was \$13,000-\$14,000 (Patel, 2021). In 2020 there was an average of sixty-four hospital admissions related to HF per day

across the United States (Shoaib et al., 2021). This could potentiate \$864,000 per day related to HF hospitalizations. Utilizing resources to support the part-time salary of a registered nurse to function as a HF navigator certainly outweighs the potential costs of ongoing/recurring HF-related admissions. Additional benefits to the system would include cross-training a navigator to have the competence to complete basic goals of care discussions. Providing primary palliative medicine may highlight patients that would benefit from secondary palliative medicine, as provided by an inpatient PM team.

Implications of the Findings

PM involvement in advanced heart failure hospitalizations can improve the patient's experience by promoting understanding of their disease process, identifying a support group, and promoting advance care planning. Total consultation growth is most impacted by interventions implemented by the PM team itself, rather than relying upon consultations based on screening tools completed by bedside nursing. Interventions for change should be implemented with consideration for the team or unit's workflow. It is important to note that increasing the workload to an already overworked inpatient staff is not effective because team members may not be able to complete tasks timely or may begin to feel burnt out. Based upon the findings of this project, the addition of a heart failure navigator/coordinator will be imperative if the project site's goals continue to include some aspect of heart failure inpatient/outpatient care.

Implications for Patients

Increasing the number of patients with HF who obtain a palliative medicine consultation during their admission can increase overall patient satisfaction scores and provide support during a challenging time. PM involvement and support increases family engagement and initiates advance care directive completion and planning. Having a healthcare provider focused on the

whole patient, rather than a specific body system, will provide patients with comprehensive health care during their hospital admission. Patients and families are more prepared for the following stages of the disease process and often access end-of-life care sooner due to earlier PM involvement. It also can reduce the need for hospital readmission related to progression as they have support and plans in place due to anticipation of further decline. This improves outcomes by ensuring that patients receive the right care, in the right environment, at the right time.

Implications for nursing practice.

Having a general understanding of the differences between PM and Hospice care important for all nurses to understand regardless of employment location. Some nursing programs offer brief reviews on the topic, but ongoing educational opportunities in the workplace can increase understanding and encourage rapid identification of palliative criteria. The additional review of needs by nursing can promote earlier PM involvement for patients with guarded to poor prognoses and advanced disease processes. Critical thinking skills and compassionate nursing are cornerstones of identifying patients and families that would benefit from PM involvement.

Impact for Healthcare System(s)

Disease-specific navigators can improve patient outcomes by screening individuals with diseases that could benefit from palliative medicine involvement. There is more research to be done to determine how much PM involvement decreases readmission rates for advanced HF. Decreasing unnecessary admissions, especially with regards to the recent COVID-19 pandemic surge, will create capacity in emergency rooms and inpatient units. This change can improve nursing utilization. Working with inpatient and outpatient specialty providers can allow both

inpatient and outpatient palliative needs to be met and reduce overall healthcare costs related to readmissions.

Sustainability

Sustainability would be possible in various scenarios based on site needs. The process implemented could be duplicated for other disease processes such as chronic obstructive pulmonary disease (COPD), cancer, pulmonary fibrosis, myocardial infarction; however, it would be difficult to do so if the site did not already have disease-specific navigators to screen patients, or if all screenings were to be completed by the PM-RN only. This project could also be duplicated at other PM locations with an PM-RN on staff if the focus were to remain on HF-specific admissions. As this project was completed without the assistance of a HF navigator/coordinator, it could be recreated at any hospital site. Increasing PM consultations, regardless of disease process, could be sustained with utilization of an automated algorithm triggers within the EMR to flag nursing staff of potential palliative appropriateness based upon objective criteria. Continuing to rely upon a human-driven process takes more time; often time taken away from direct patient care. The Center to Advance Palliative Care (CAP-C) published an article with recommendations on how to leverage the use of the EMR to proactively identify patients with PM needs (Bishop, 2019). This article could provide a launching pad for future work within the medical record.

Dissemination Plan

This project will be submitted to several publication outlets upon completion. Initial submission will be to the East Carolina University ScholarShip following presentation to the doctoral professors and colleagues. The abstract will also be sent to The Journal of Hospice and Palliative Nursing, the Nursing and Palliative Care Journal, and the International Journal of

Palliative Nursing for review. Final project findings and publications will be reviewed with the site-specific administration upon completion.

Section VI. Conclusion

Limitations and Facilitators

During implementation of this project, multiple limitations were identified. As mentioned, the project site experienced commencement of a new EMR in December 2021. Hospital-wide focus was placed upon providing effective and safe care while ensuring proper documentation. Charge nurses were tasked with supporting staff nursing with trouble-shooting daily activities while reports for HF-related admissions were not accessible to the PM-RN.

In addition, the COVID-19 pandemic placed additional strain on nursing staff as they continued to deal with being short-staffed with higher acuity patients than pre-pandemic. Many of the nurses were float or resource staff as well as contract nurses. They were employed for short periods of time and may not have the baseline understanding of palliative involvement at this site. The human-driven process of screening HF admissions was easily deferred for more important staff/unit/patient care needs. Another limitation to the project was that the project lead was often off-site due to other academic obligations or supporting the PM team in direct patient care as the PM census increased. This led to inconsistent screenings on the side of the PM-RN. Requests for PM involvement were denied by attending providers due to reasons such as not agreeing with the need, plans to discharge same day, or the patient declined involvement. The number of declined/denied consultations were <10 overall.

Despite the limitations above, a few excellent facilitators were identified during implementation. Working closely with the Care Coordination/Quality Improvement team weekly provided additional support needed to complete the project. The hospitalist group providing the

majority of the consultation orders remained supportive of PM assistance and continuously agreed to consultations for HF-related admissions. The small size of the project site's PM team provided frequent opportunities for analysis and feedback via PDSA cycles to improve effectiveness in obtaining consultations.

Recommendations for Others

Utilization of the EMR for an algorithmic process to assist in notifying the provider and/or primary nursing staff of potential palliative needs will be helpful in the future. With the implementation of a new EMR during the project course, there was limited time to identify ways to use the software to its maximum potential. Implementation of algorithmic reviews utilizing mined objective criteria may prove to be more useful than human-driven processes. Prior to the COVID-19 pandemic, PM leadership discussed utilization of the Charlson Comorbidity Index as a tool to screen for palliative needs (Personal communication, 2021). The Charlson Comorbidity Index (CCI) uses diagnoses and comorbid conditions to quantify a score that relates to the risk of mortality within one year of the index hospitalization (Tuty Kuswardhani et al., 2020). Higher scores could elicit an alert to notify the attending provider of potential PM needs with risk of poor outcome and prompt more rapid PM involvement. The CCI can also be a marker for readmission risk stratification as higher scored patients were more likely to be readmitted within 30 days (Lin et al., 2019). Further information on the criteria utilized in the CCI can be found in Appendix G.

A palliative medicine team that collaborates directly with the companion cardiology group for the site would provide comprehensive patient care related to the needs of the advanced heart failure population. Further collaboration with higher-level administration and finance would initiate the process of obtaining a heart failure navigator/coordinator.

Future studies would require a longer implementation and review period to determine if interventions were successful in decreasing readmissions. Tracing patients who obtained palliative consultations inpatient could be followed for a minimum of 12 months to determine how often they were admitted with HF-related symptoms.

Recommendations Further Study

Future projects would benefit most from collaboration with the primary consulting providers such as the hospitalist group, as well as quality improvement personnel for the site. Prioritizing diagnoses that impact hospital-wide goals would be an excellent starting point for mimicking the processes implemented in this project. Engaging disease-specific navigators and the PM-RN will produce fail-safe screenings and a heightened awareness of potential consultations. More aggressive educational interventions for nursing staff could yield more appropriate screenings upon admission as well as encourage higher levels of critical thinking among the staff regarding palliative-based patient care needs.

Partnering with a cardiology group would allow better understanding of cardiac-specific criteria as it relates to inpatient palliative consultation. Collaboration would produce definitive criteria for PM consultation requests such as NYHA classification, number of hospital admissions within a 6-month period, or maximization of standard therapy options. For diagnoses other than heart failure, partnering with the specialty related to the diagnoses will enhance the palliative experience provided to the patient both in and out of the hospital. Such as, working with pulmonologists for COPD-related needs. Agreeing upon objective criteria related to the diagnosis and palliative need would be an initial step in this collaboration. Definitive criteria for consultation could include ejection fraction, readmission status, NYHA classification, nursing home residential status, or number of comorbid conditions.

A gap in care at the project site included the lack of a heart failure navigator on staff. As mentioned in previous sections, an easily accessible navigator to assist in HF-related education to patients and staff could increase identification of palliative appropriate patients as well as provide better care overall for the patients admitted. The results of this study were shared with stakeholders in that effort to provide a starting point for ongoing collaboration with an outpatient cardiology group. There is already work being done to include the system's cardiology group in inpatient processes and goals aimed at HF-related care.

Final Thoughts

A team-driven approach to increasing PM consultations for HF-related admissions proved to be as effective and more easily completed than nursing staff/unit-based interventions. Utilizing a specialist in palliative medicine and heart failure can expedite screening processes and decrease the time from admission to palliative consultation. It is more effective to identify palliative needs based on objective criteria rather than subjective opinions of the care team. With respect to the goal of increasing palliative consultations, focusing on specific disease processes can inadvertently increase unnecessary consultations. Partnering with disease-specific navigators will provide the most comprehensive and patient-centered care within a healthcare organization. The return on investment of hiring a heart failure navigator with experience in basic palliative medicine in relation to HF-related readmissions is immeasurable.

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Appendix A: Project Site Palliative Medicine Consultation Data

Project site-over time trend for proportion of patient encounters with Palliative Medicine consultations ordered as related to Heart Failure

Calendar Year	Number of HF Admissions with PM Consults Out of Total HF Admissions	Percentage of HF Patients Receiving PM Referrals
2017	36/483	7%
2018	53/520	10%
2019	68/565	12%
2020	74/397	19%
2021	65/404	16%

(Sanger Heart and Vascular Institute, 2021)

Annual Palliative Medicine consultation and growth rates

Calendar Year	Total PM Consultations	Growth from Previous Year
2017	531	-1.5% (539 in 2016)
2018	664	25%
2019	671	1.1%
2020	732	9.1%
2021	681	-6.9%

Note. Data updated to December 3, 2021. (Palliative Care, 2021a)

Appendix B: Literature Search Strategies

Date of Search	Database	Key Word Searches	Limits	# of Citations Found / Kept	Rationale for Inclusion / Exclusion (include rationale for excluding articles as well as for inclusion)
28-Jun	PubMed	(palliative care) AND (heart failure readmission)) AND (nurse intervention)	5 years old, Full Text	5 found, 0 kept	4 were not inclusive of the subject of Palliative care and rather focused on home based HF programs. The 5th article was a tool designed by a palliative group to educate HF patients on symptoms by identifying self-described low health literacy; not a tool designed for nursing staff to identify palliative appropriate patients.
28-Jun	PubMed	(heart failure readmission) AND (palliative intervention)	5 years old, Full Text	34 found, 2 kept	Articles discussing early screening for palliative and inpatient driven processes were kept. Studies involvement home based programs or research showing the significance of palliative involvement were excluded.
25-Aug	PubMed	(referral tool) AND (palliative medicine) AND (palliative care) AND (consultation referral)	5 years old, Full Text	46 found, 6 kept	Articles relevant to palliative consultation inpatient with the use of a screening tool were kept for further review.
25-Aug	PubMed	(early palliative) AND (heart failure) AND (hospitalization)	5 years old, Full Text, Randomized Controlled Trial	7 found, 0 kept	3 articles actually mentioned palliative, but none were related to inpatient palliative medicine and heart failure involvement and excluded
25-Aug	PubMed	(screening tool) AND (palliative medicine) AND (heart failure)	5 years old, Full Text	18 found, 2 kept	The 2 articles kept included tools implemented or researched as part of an early palliative screening process.

Appendix C: NYHA Heart Failure Classifications

Universal definition and classification of Heart Failure

DEFINITION

HF is a *clinical syndrome* with current or prior

- *Symptoms and or signs caused by a structural and/or functional cardiac changes*

And corroborated by at least one of the following:

- *Elevated natriuretic peptide levels*
- *Objective evidence of cardiogenic pulmonary or system congestion*

STAGES

AT RISK (Stage A)	Patients at risk for HF, but without current or prior symptoms or signs of HF and without structural cardiac changes or elevated biomarkers of heart disease
PRE-HF (Stage B)	Patient without current or prior symptoms or signs of HF with evidence of <u>one</u> of the following: <ul style="list-style-type: none"> • Structural heart disease • Abnormal cardiac function • Elevated natriuretic peptide or cardiac troponin levels
HF (Stage C)	Patients with current or prior symptoms and/or signs of HF caused by a structural and/or functional cardiac abnormality
ADVANCED HF (Stage D)	Severe symptoms and/or signs of HF at rest, recurrent hospitalization despite GDMT, refractory or intolerant to GDMT, requiring advanced therapies, transplantation, mechanical circulatory support, or palliative care.

CLASSIFICATION

- HF with reduced EF (HFrEF)**
- HF with LVEF < 40%
- HF with mildly reduced EF (HFmrEF)**
- HF with LVEF 41-49%
- HF with preserved EF (HFpEF)**
HF with LVEF > 50%
- HF with Improved EF (HFimpEF)**
- HF with a baseline LVEF of < 40%, a 10-point increase from baseline LVEF, and a second measurement of LVEF of > 40%.

LVEF: left ventricular ejection fraction—expressed as a percentage, of how much blood the left ventricle pumps out with each contraction (normal 50-70%)
GDMT: guideline-directed medical therapy

Note. Adapted from Gibson et al. (2021). Full reference in Reference section.

Appendix D: Palliative Medicine Heart Failure Referral Tool



Heart Failure Palliative Screening Tool

Not a part of patient record. Place completed tool in Palliative Screening Tool bin for collection.

HF Powerplan in place Cardiology consulted? Palliative already consulted

CRITERIA
A. NYHA Classification Scoring as indicated
Stage III or IV Heart Failure: Moderate to severe symptoms of heart failure. Marked to severe limitation on physical activity. 2 points
*B. Comorbid Conditions (check all that apply) 1 point PER mark
C. Additional Criteria to Consider (check all that apply) 1 point PER mark
TOTALS ≤ 3 Observe only ≥ 4 Consider Palliative Consultation

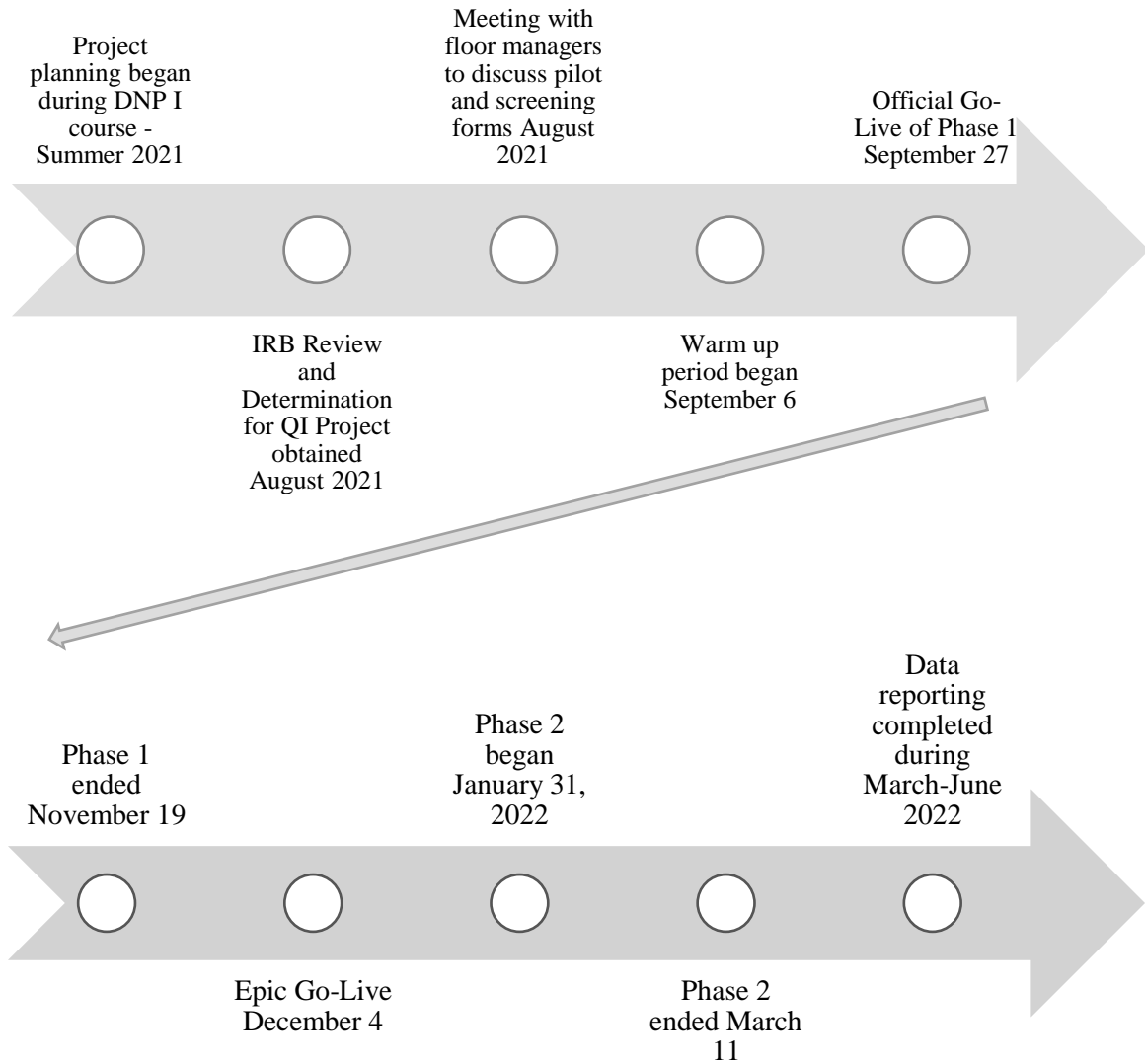
Form Completed on Admission or Transfer (circle one)

by _____ on _____
CHARGE NURSE COMPLETING THE FORM DATE

*Classification can be found in admitting orders if ADULT CARD Heart Failure or ADULT CARD Heart Failure Admission Powerplans are utilized. Other sources for classification could be cardiologist notes from inpatient/outpatient.

FOR PALLIATIVE COORDINATOR ONLY
DO NOT WRITE IN THIS SPACE
DATE OF ADMIT (LOS #)
ATTENDING MD
CONSULT OBTAINED PRIOR PATIENT
YES on YES
NO (circle why) LAST SEEN ON:
MD refused
Patient refused

Appendix E: Project Timeline



Appendix F: Project Budget

Item	Quantity	Unit Cost	Total
Project Lead Time			
Time spent researching, implementation of project, management, evaluation, and analysis of project.	500 hours	\$34.23/hour	\$17,115
Direct involvement in implementation period of 12 weeks.	250 hours	\$34.23/hour	\$8,557.50
Charge Nurse Time Per Week			
Reviewing admissions with PM-HF Screening Tool.	7 hours	\$34.23/hour	\$239.61/week \$2,875.32/12 weeks
Palliative Medicine Nurse Time Per Week			
Reviewing completed PM-HF tools as well as screening overnight HF admissions hospital-wide.	11 hours	\$34.47/hour	\$379.17 \$4,550.04/12 weeks
Supplies			
PM-HF Screening Tool printout	150	150 total copies	\$0 from existing ream of paper below
Placement/Completion Folders	2	\$2/folder	\$4
Ream of Paper	1	\$5.20/ream	\$5.20
TOTAL FOR 12 WEEK IMPLEMENTATION			\$15,992.06

Appendix G: Charlson Comorbidity Index

Table 1

Original Designation of Weights for Chronic Conditions

Assigned weights for diseases	Condition
1	Myocardial infarct Congestive heart failure Peripheral vascular disease Cerebrovascular disease Dementia Chronic pulmonary disease Connective tissue disease Ulcer disease Mild liver disease Diabetes
2	Hemiplegia Moderate or severe renal disease Diabetes with end organ damage Any tumor Leukemia Lymphoma
3	Moderate or severe liver disease
6	Metastatic solid tumor AIDS

Age-related weight: ≤ 40 years – 0 points. 50-59 years – 1 point. 60-69 years – 2 points. 70-79 years – 3 points. ≥ 80 years – 4 points.

Note. Moderate renal disease considered creatinine >3 . Severe renal disease denotes hemodialysis.

Table 2

One-Year Mortality Risk Based on Charlson Comorbidity Index Score

Score	Mortality Risk
0	12%
1-2	26%
3-4	52%
≥ 5	85%

Note. Adapted from the original publication by Charlson et al (1987). Full reference in

References.