

**Best Practice Tool Kit for Implementation of a Patient Education Program for Congestive
Heart Failure Education**

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Abstract

Problem: Congestive heart failure (CHF) is a challenging health concern and generates a multitude of issues including increased mortality rates and hospital readmission rates, and drastically decreases the quality of lives for patients affected with this health issue. This project was designed to investigate whether or not patients receiving care within a large cardiology clinic in the Midwest gained increased knowledge and disease management skills regarding their diagnosis, prognosis, dietary and activity guidelines, as well as symptom recognition and management when participating in CHF education classes provided by a designated CHF nurse educator over a four-week period.

Intervention: The CHF educational classes implemented during this project would include providing education to patients regarding their diagnosis, dietary guidelines, activity guidelines, the importance of medication adherence, and the necessity of consistent follow up with respective healthcare providers. The classes would be conducted by a registered nurse (RN) and given on a weekly basis and allow for open dialogue from class participants during and after the sixty-minute timeframe allotted for each weekly class.

Measures: Anonymous patient feedback would be obtained from multiple choice questionnaires given before and after each class to assess gained knowledge and understanding for class participants. The results of the questionnaires would determine the effectiveness of the content of the classes and assess for gaps in basic CHF patient knowledge and management strategies.

Results: The classes were not implemented as a result of the COVID-19 pandemic. **Conclusion:** Although the CHF classes were unable to be implemented, the classes have had the ability to increase patients understanding of CHF, their knowledge and symptomatic awareness, the importance of medication adherence , dietary guidelines, as well as the importance of follow up

appointment attendance. This greater base of patient knowledge may also impact and reduce the number of hospital readmissions and mortality within CHF patient populations.

Keywords: Congestive Heart Failure (CHF), medication adherence, follow-up appointments, hospital readmission rates, dietary guidelines, activity guidelines, patient knowledge.

Best Practice Tool Kit for Implementation of a Patient Education Program for Congestive Heart Failure Education

Congestive heart failure (CHF) is defined as a clinical condition in which a patient's heart is failing to pump blood at a rate that meets the tissue requirements in the body (Singh et al., 2018). This condition can be caused by contraction reduction in the heart muscle or filling and emptying defects. The body has the ability to initially compensate by increasing blood volume, heart rate, and thickening of the heart muscle; however, this compensatory mechanism eventually decompensates due to the inability of the heart muscle to fully relax and is unable to sustain life (Singh et al., 2018). Congestive Heart Failure may manifest with patients reporting symptoms including and not limited to shortness of breath with little or no activity, inability to lay flat while sleeping at night, abnormal heart sounds, heart rhythm abnormalities, swelling in the abdomen or lower extremities, fatigue and weakness, chest pain or pressure, and distension of the neck veins (Dumitru & Baker, 2021). Patients that are over the age of 60 years are particularly vulnerable to this condition and account for a large portion of hospital admissions and readmission rates in the United States (Wood et al., 2019). This patient population is particularly difficult to treat in part to the numerous comorbidities that are often present and the education and time necessary to educate them about their diagnosis, monitoring symptoms, dietary and activity guidelines, and adherence to healthcare provider follow up appointments (Jones et al., 2019). This demonstrates a need for focused CHF education efforts in this patient population (Hansen et al., 2020).

Problem Description

Congestive heart failure (CHF) is a problematic health concern worldwide and creates a myriad of issues including increased mortality rates, hospital readmission rates, and drastically

decreases the quality of lives for affected patients. Hospital readmission rates in patients with CHF are as high as 25% in the first 30 days after initial diagnosis and discharge in this population and creates an annual cost exceeding \$30 billion (Wood et al., 2019). The Centers for Medicare and Medicaid Services (CMS) reviews hospitals readmission rates over three-year periods and may reduce payments to those facilities with increased CHF readmission rates (Centers for Medicare and Medicaid Services [CMS], 2020). There has been an increase of approximately 25% in the prevalence of CHF since 2002 (Jones et al., 2019). There are numerous reasons for this increase including, but not limited to, increasing aging populations, lack of proper medical care and follow up, poor dietary choices and intake, increasing occurrence of atrial fibrillation (AF), hypertension (HTN), and a lack of patient education and understanding when receiving a diagnosis of CHF (Jones et al., 2019).

One of the many issues healthcare professionals must consider when treating this patient population is the lack of patient understanding and education regarding their diagnosis and prognosis of CHF (Van Spall et al., 2017). Congestive Heart Failure patients are often overwhelmed in both inpatient and outpatient settings and feel rushed when interacting with healthcare providers, resulting in a lack of understanding with reference to symptom recognition, risk modification measures, dietary guidelines, medication adherence, as well as the necessity of follow up care (Jones et al., 2019). Healthcare systems and providers alike are equally rushed and feel that there is often inadequate time available to provide the necessary patient education and discussions surrounding a CHF diagnosis and prognosis. Patients with CHF need a multidisciplinary approach to care that invariably takes time and engagement in a relationship with healthcare providers that often cannot be achieved in the ten-to-fifteen-minute appointments allotted in care settings (Hansen et al., 2020). The problem statement guiding this project was,

will patients with CHF receiving care from a large cardiology clinic in the Midwest gain increased knowledge regarding their diagnosis, prognosis, dietary and activity guidelines, and symptom recognition and management when participating in classes provided by a CHF educator over a four-week period? Intended outcomes to be measured in this project would have included the patients increased understanding of their diagnosis of CHF including symptom management and understanding, dietary and activity guidelines, and the importance of follow-up appointment and medication adherence.

Available Knowledge

Factors in CHF Care

Studies have demonstrated various factors that affect the survivability of CHF patients including decreased functional ability, reduced ejection fraction, heart rhythm abnormalities, and renal injury or impairment (Jones et al., 2019). The importance of adherence to pharmaceutical regimens including beta-blockers, angiotensin II receptor blockers (ARBs), aldosterone antagonists, renin-antagonists, ivabradine, neprilysin inhibitors, and angiotensin-converting enzyme (ACE) inhibitors has been analyzed by numerous studies and proven to reduce all-cause mortality in CHF patient populations (Hansen et al., 2020). Transitional care services employ multidisciplinary services and approaches that are designed to facilitate patient care during and after hospitalizations and have also proven to decrease hospital readmission rates within CHF populations (Van Spall et al., 2017). Finally, time and education are noted as areas that are lacking in the care of CHF populations. Dietary instruction, life expectancy and prognosis, medication adherence, and timely follow-up appointment with medical providers are all crucial components to desired improved clinical outcomes in patients with CHF (Van Spall et al., 2017).

CHF Populations and Implications

Congestive Heart Failure is responsible for the highest number of hospitalizations, highest cost, and highest rate of 30-day hospital readmission rates in the Medicare population and currently accounts for \$30.7 billion in annual costs with a projection exceeding \$50 billion by 2030 (Wood et al., 2019). The Centers for Medicare and Medicaid Services developed the Hospital Readmissions Reduction Program (HRRP) in an effort to reduce hospital readmission rates through the increased communication and care coordination efforts between healthcare providers and patients (Centers for Medicare and Medicaid Services [CMS], 2020). Readmission rates are reviewed in hospitals over three-year time intervals by CMS and for those facilities that experienced increased readmission rates during these time periods, hospital payments will be reduced (CMS, 2020). Congestive Heart Failure has become an enormous economic burden with costs of over thirty billion dollars annually and also more importantly increases patient mortality with every readmission (Charteris & Pounds, 2020).

Transitional Care

Due to the fact that CHF is one of the principal reasons for hospital admissions or readmissions in the aging patient population, it is becoming significantly important to understand the value of transitional care services. Transitional care services encompass multidisciplinary care services that assist and work together in order to facilitate patient care after a hospitalization (Van Spall et al., 2017). Issues such as quality of life, patient and caregiver education, follow-up appointment arrangement, physical, occupational, respiratory, and short- or long-term healthcare referrals, and home healthcare visits are all portions of transitional care and have been noted to reduce all-cause readmissions and mortality (Van Spall et al., 2017). According to the American Heart Association Get with the Guidelines – Heart Failure (2018), quality measures such as

medication education and adherence, dietary instructions, heart failure education, activity level instruction, and advanced directive planning are measures that have been proven to improve clinical outcomes and quality of life in patients being discharged from the hospital with a diagnosis of CHF. Patients are often overwhelmed during hospital admissions (American Heart Association [AHA], 2018). This coupled with healthcare systems and providers that are overwhelmed provide an environment that is almost never conducive to patients gaining a greater understanding of CHF (Charteris & Pounds, 2020). Education from healthcare providers regarding the CHF disease process, importance of dietary and medication adherence, activity level instructions, and the importance of follow-up appointment adherence is vital for optimal patient outcomes (Charteris & Pounds, 2020).

Education and Time

Two main reasons for hospital readmissions in patient populations with CHF are nonadherence with diet and medications non-compliance (Charteris & Pounds, 2020). Dieticians are beneficial in outpatient settings and are poised to provide dietary education to patient populations with comorbidities often associated with CHF requiring specialized nutritional guidance (Charteris & Pounds, 2020). Clinical outcomes can be greatly improved through the utilization of pharmacists for medication reconciliation in outpatient settings (Hansen et al., 2020). Optimized pharmacological CHF treatment through early institution and consistent adherence to medications including angiotensin converting enzyme (ACE) inhibitors, angiotensin II receptor blockers, (ARBs), and beta blockers have proven effective in death postponement in this patient population (Hansen et al., 2020). Treatment plans for patients with CHF must be individualized and incorporate patient-specific goals that aim to increase patient self-care and knowledge. Advanced practice registered nurses (APRNs) practicing in HF clinics

have the ability to increase patient engagement, set goals, and discuss advanced care planning with patients with CHF, ultimately increasing patient independence and relational trust with respective healthcare providers (Sánchez et al., 2020). These multidisciplinary approaches have unique abilities to assist in improving patient quality of life and clinical outcomes, however, they all require a tremendous amount of time.

Rationale

The Neuman Systems Model of Nursing Practice incorporates patient variables including physiological, psychological, sociocultural, developmental, and spiritual – all of which constantly interact with one another in response to patient environments (Alligood et al., 2013). The primary goal of nursing care within the Neuman Systems Model is to ensure systemic stability in patients to achieve the uppermost degree of health (Alligood et al., 2013). Nurses, APRNs, and other healthcare professionals have the ability to create an environment of wellness, holism, and health within CHF patient populations through interactions, education, assessment of patient knowledge bases, and consistent follow up. Primary prevention through disease education programs, secondary interventions through symptomatic treatment awareness, and tertiary interventions through nutrition, exercise, and adherence to medication regimens are all encompassed within the Neuman Systems Model of Nursing Practice and are appropriate in the scope of education within CHF populations.

Purpose

The purpose of this quality improvement project was to determine if patients receiving care from a large cardiology clinic in the Midwest gained increased knowledge regarding their diagnosis, prognosis, dietary and activity guidelines, and symptom recognition and management when participating in education classes provided by a CHF educator over a four-week period.

Methods

Context

The proposed project would have been implemented within a large cardiology clinic located within the Midwest. This clinic had thirteen cardiologists, one electrophysiologist, and fourteen advanced practice registered nurses (APRNs) and physician assistants. The providers in this facility have been affiliated with nine hospitals in the surrounding community and provide care to patients in four separate office locations within the city. There are ten outreach clinics across regional communities that are also served by this cardiology group. Communication with one of the cardiologists in this group revealed that providers within this group collectively participate in the care of thousands yearly within the surrounding regions. The intended population for this proposal would have included adult patients over the age of eighteen and currently under the care of providers in this clinic that have a diagnosis of CHF within the past sixty days, wishing to participate in the CHF education classes. Additional participants involved within this proposed project would have included medical assistants, clinic nurses, clinic receptionists, and providers. The clinic and respective providers requested that an educational tool kit be designed for implementation at a later date.

Intervention

The Congestive Heart Failure educational tool kit provided to the clinic would have provided education to patients regarding their diagnosis, dietary guidelines, activity guidelines, the importance of medication adherence, and the necessity of consistent follow up with respective healthcare providers. The classes would have been given twice weekly for four weeks at this clinic and conducted by a registered nurse as providing patient education is within the scope of practice in this profession. Classes would have been scheduled in the evening and

designed to last approximately one hour. The CHF classes would have been held in the large lobby of the clinic to allow for social distancing. Patients would have received a handout at the beginning of each class with the CHF educational topic with understandable explanations and discussion points. The classes would have been offered at no cost to the patients. The cost to the clinic would have been minimal and involved paper for handouts and the cost of paying the CHF nurse-educator for the time that the class would have been provided. This approach to CHF patient education is not complex in nature and would have involved the utilization and patient education tools specifically developed for this patient population (*Target: HF Clinical Tools*, 2017). Approval for the educational materials would have been obtained from the existing board of directors and the chief operating officer.

Study of the Intervention

Baseline data regarding each patient's knowledge base, perception of prognosis, and lifestyle behaviors, would have been obtained by feedback from a seven-question multiple-choice questionnaire distributed and collected at the beginning of every class. Outcomes would have been measured at the end of this four-week period through feedback obtained from a multiple-choice questionnaire distributed to participating patients at the beginning and end of each attended class. Goals of the classes would have included increased patient knowledge regarding the diagnosis of CHF, increased knowledge regarding dietary and activity guidelines, increased knowledge regarding medication and follow up appointment adherence, and increased knowledge regarding the recognition of signs and symptoms of CHF exacerbations.

Measures

The measures chosen to study the processes and outcomes of the proposed CHF patient education classes would have included patient feedback obtained from anonymous, multiple

choice patient questionnaires adapted from clinical tools within the American Heart Association Get With the Guidelines – Heart Failure, 2018. The rationale behind each question on the questionnaires is supported by the need for medication optimization measures and guideline recommendations, timely care coordination and follow-up guidelines, outpatient activity and rehabilitation guidelines, and enhanced heart failure patient education guidelines (AHA, 2018). Data from the questionnaires would be utilized to provide weekly ongoing assessment of patients knowledge, dietary and activity behaviors, importance of medication, and importance of follow-up adherence. The contextual elements of the study, including the clinic where the classes were to be held, the time of the classes, and length of classes would have been assessed through a follow up questionnaire distributed to patients at the end of the four-week class series. This data would have provided necessary information that contributed to the success or failure, efficiency, and cost of the classes and the environment in which they would have been provided. Questions on all questionnaires are concise in nature, with easy to read and understand dialogue at an eighth-grade level.

Analysis

Analysis of the quantitative data obtained from completed multiple choice questionnaires would have been performed utilizing Excel software. Given the one group pretest-posttest design of this study, inferential statistical data would have been obtained through the use of T-tests. The data would also have included participant age, gender, number of study participants, number of questionnaires completed, and number of questionnaires not completed. A wave analysis would have been performed weekly to assist in the determination of response bias and if there was a change in the number of responses (Creswell & Creswell, 2018). Missing data would have been excluded from the study. The statistical data obtained from the analysis would have assisted in

revealing whether or not CHF education classes increased participating patients knowledge base regarding their CHF diagnosis, prognosis, dietary and activity guidelines, symptom recognition and disease management strategies.

Ethical Considerations

Ethical considerations would have been examined for through several methods. Informed consent would have been obtained from each project participant prior to participation.

Questionnaires distributed to participants before and after each class would not have contained identifiable data such as name, date of birth, medical record numbers, addresses, or phone numbers. Data collection would have been performed by the investigator and converted to nominal data and input into Excel after every class. A training program through the Collaborative Institutional Training Initiative (CITI) had previously been completed by the investigator and faculty mentor to ensure the protection and ethical considerations of human study participants (Citi – Collaborative Institutional Training Initiative, 2021). Unfortunately, due to the resurgence and constraints that COVID 19 has placed on communities across the Midwest, this project necessitated the classes and information to be presented to the physicians as a tool kit for implementation at their jurisdiction in the future. A potential conflict of interest was identified as the researcher was employed at the participating cardiology clinic. The conflict of interest has been mitigated as the researcher received no monetary or categorical form of compensation. This study proposal has been reviewed by the Institutional Review Board (IRB) at Nebraska Methodist College prior to providing the clinic with the contents of the toolkit.

Results

Ultimately, this study was not implemented due to the COVID-19 pandemic and recent rise in cases within the location of the clinic. The board of directors of the clinic place patient

safety at the forefront of collective decisions made at this time and felt that the study would be beneficial implemented as a tool kit presentation in the future when there is less risk for their patient population.

Discussion

Summary

There was no implementation of this study, and thus no results were able to be obtained due to the COVID-19 pandemic. There is sound evidence suggesting the importance of prioritizing CHF patient education and the positive effects that this will have on the reduction of hospital readmission rates as a result of CHF exacerbations. CHF education may also have the ability to assist in the reduction of CHF mortality rates due to increased patient understanding of their illness, the necessity of medication and follow-up appointment adherence, activity and dietary guidelines, and symptom recognition. There are previous studies that have been implemented regarding the importance of the education within CHF patient populations and demonstrated the number of increased positive patient outcomes and improved quality of lives.

Interpretation

The outcomes of this project may have demonstrated an increase of knowledge within the CHF patient population of this clinic regarding their diagnosis and symptom recognition. Additional outcomes may have included CHF patient populations having a greater understanding of the impact of activities, choosing appropriate activities for their respective lifestyles, and the implications of choosing to not participate in activities and how this would affect their health and lifestyles.

Limitations

The main limitation at the forefront of this study was the inability for implementation due to COVID-19 and the critical healthcare and socio-economic implications that have ensued as a result within the clinics and healthcare systems in surrounding areas in the Midwest. Due to the inability of implementation for this study, there was difficulty in determining the response that patients, healthcare workers, and board members would have had to CHF educational classes provided for this patient population. Given that the study was not able to be executed, it is challenging to determine whether or not the objectives encompassed within the study would have been achieved during the COVID-19 pandemic. The CHF patient population, healthcare providers practicing within and outside this clinic setting, as well as the board members would need to become aware of the elements for education contained within the CHF educational tool kit and be willing to apply the components within this clinic and other healthcare settings in order to determine the feasibility and generalizability of the tool kit.

Conclusions

The revised standards for quality improvement reporting excellence (SQUIRE 2.0) was used as a framework for reporting this project. In conclusion, the proposed study and tool kit would be expected to assist in addressing the increased need for patients with CHF to be provided dedicated education regarding their diagnosis, importance of adherence to follow up appointments and medication regimens, and the importance of dietary and activity guidelines (Jones et al., 2019). The findings obtained, once the toolkit would have been implemented, would be expected to have ultimately demonstrated improved patient outcomes through focused CHF education. These findings also would also have been expected to have the ability to impact and contribute to the future methodologies and time allotted to educational efforts in CHF patient

populations in various settings. Time and education are definitive factors that have been indicated to affect patient outcomes and hospitalization rates (Charteris & Pounds, 2020). This tool kit would be expected to have addressed the need for time, education, increased knowledge of CHF and the disease process, as well as appropriate activities and management strategies.

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