

SUMMATIVE PROGRAM EVALUATION OF AN OUTPATIENT COMMUNITY HEART
FAILURE CLINIC

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Dedications and Acknowledgments

I dedicate this project to my husband, children, and parents. A special feeling of gratitude and in memory of my father, Bobby Gray, for whom this work was started and completed. His tenacity, strength, and determination throughout his battle with heart failure inspired me to never quit and to constantly seek better solutions for care for heart failure patients. I hope I have made you proud, Dad. To my mom, Emily Gray, for being my unwavering supporter and encourager throughout my life. No one will ever love you the way a mother does, it is unconditional love that I definitely do not deserve.

I also dedicate this project to my husband and children for without their support and encouragement, I would not have finished. They sacrificed time with me and listened attentively to countless hours of research and information pretending to be at least a little interested to appease me. Thank you, Jeff, Noah, and Davis. I love you all so very much.

Finally, I would like to thank my Lord and Savior who created me to be a nurse, gave me a desire to make a difference in the lives of heart failure patients, and continues to give me grace as I journey through this life.

Abstract

Background: A southeastern US rural hospital supported by an outpatient heart failure (HF) clinic struggled with high readmission rates. Due to the high prevalence of HF, associated extreme costs, and readmission burden it was important to identify interventions to decrease hospital readmissions. **Purpose:** The purpose of this project was to evaluate effectiveness of a HF clinic program as a quality improvement initiative. The project also identified research recommendations for decreasing hospital HF readmissions related to outpatient HF clinics.

Methods: A summative program evaluation was conducted through a quantitative retrospective design. Data from the HF clinic including age, sex, and race for the years 2017-2020 was collected and evaluated. **Results:** A total of 896 of the 3822 clinic visits examined represented patients readmitted to the hospital within 30 days from a previous HF admission. Readmission rates from the HF clinic increased each year with the exception of 2019. Females attend the clinic more often, however males were the majority of 30-day readmissions. Whites comprised 62% of the HF clinic visits as compared to African Americans at 37%. Additionally, African Americans were much younger than their white counterparts. **Recommendations:** A transition of care (TOC) clinic program with resources of a HF cardiologist, nursing staff, social worker, and pharmacist should be implemented to provide an outpatient setting safety net for patients.

Conclusions: Clearly defined objectives are needed for the HF clinic program. Support in a HF TOC clinic can improve readmission rates, mortality, and financial stability for healthcare organizations.

Keywords: heart failure, congestive heart failure, readmissions, heart failure clinics, outpatient clinics, transitions of care, quality improvement, and program evaluation

Background and Significance

Heart Failure (HF) represents a major public health concern. From the increasing number of people plagued with the disease, associated mortality and morbidity, and decreased quality of life, HF presents a challenge for healthcare systems across the world. An estimated 6.2 million Americans greater than 20 years of age currently have a diagnosis of HF (Centers for Disease Control and Prevention [CDC], September 8, 2020). This is an increase from 5.7 million US adults in 2012 (Virani et al., 2020). The incidence of HF is predicted to increase 46% from 2012 to 2030, resulting in greater than 8 million people with HF (Virani et al., 2020). This number is further complicated by an increasing aging population.

There is poor prognosis and mortality associated with HF as more than half of all patients die within five years of diagnosis (Benjamin et al., 2019). Additionally, one in eight deaths has HF cited on the death certificate (Centers for Disease Control and Prevention [CDC], December 28, 2017). Furthermore, deaths associated with HF are exponentially on the rise. The quantity of deaths attributable to HF was 42.3% higher in 2017 than it was in 2007 (CDC, December 28, 2017). Due to these staggering statistics and chronic nature of the disease, a subsequent decrease in the quality of life is often reported by patients and their families (Salyer et al., 2019)

Heart Failure also represents a serious financial burden on healthcare systems around the world. In 2012, HF costs across the nation were estimated at 30.7 billion with projections to increase by 127% between 2012 and 2030 (Benjamin et al., 2019). This is due to a multitude of factors including the rising cost of pharmaceuticals, comorbidities, and multiple hospital admissions with inpatient hospital stays as the main contributor to the significant costs associated with HF (Kilgore et al., 2017). The expenses connected to hospitalizations of HF patients are substantial with each hospitalization costing approximately \$15,000 and compounded by the

excessive rate of readmission (Kilgore et al., 2017). Readmission rates of HF patients present an added dilemma plaguing this fragile and complex group as patients with an index HF admission have an increased risk of readmission for at least one year as well as increased morbidity and mortality (Dharmarajan et al., 2015). From 2009 to 2012, the median risk-standardized 30-day readmission rate for HF was a staggering 23.0% (Benjamin et al., 2019). The readmission rate is further confounded by the fact that it is inclusive of all-cause readmissions after an index HF admission.

To address the increasing problem of all-cause readmissions, the Hospital Readmissions Reduction Program (HRRP) was instituted through the Affordable Care Act (Centers for Medicare and Medicaid Services [CMS], August 24, 2020). The HRRP is a value-based purchasing program that rewards institutions who enhance communication and care coordination among the interdisciplinary care team to reduce avoidable readmissions for six specific measures including HF. For those hospitals who are unable to reduce readmissions, they incur a financial penalty that is capped at 3% of a hospital's total Medicare payments starting from 2015 and moving forward (CMS, August 24, 2020). Excessive HF readmissions have been the leading determinant of financial penalties in the HRRP (Vidic et al., 2015). Due to increasing penalties, healthcare organizations are seeking new ways to reduce readmissions to increase financial viability and stability.

Despite pressure from the HRRP, organizations across the globe struggle to overcome the barrier of siloed care between inpatient and outpatient services. Due to the high prevalence of HF, poor outcomes, associated extreme costs, and readmission burden it is important to seek out interventions to provide ways to decrease hospital readmissions and to establish processes of care that provide financial stability to organizations. Transition of care HF clinics have been

found to aid in bridging the gap between the inpatient and outpatient settings and provide support for heart failure patients across the continuum of care (Gutierrez Garcia, 2017, Vedel & Khanassov, 2015). Summative program evaluations of HF clinics can support quality improvement in this important realm of HF care and aid organizations in meeting goals and outcomes.

Purpose

The purpose of this project was to evaluate the effectiveness of an existing community HF clinic program and to describe and summarize the current outcomes of the HF clinic to determine the success in achieving the program's goals and objectives as a quality improvement initiative. This was accomplished through a thorough review of the program's goals with comparison to current outcomes of the clinic including HF readmission rates. A review of current research and a comparison of research to the practices of the current heart failure clinic aided in the evaluation.

A specific aim of the project was to identify current research recommendations for decreasing readmissions in HF distinctly related to an outpatient HF clinic. This evidence-based-practice (EBP) information was used to compare to processes at the clinic and make recommendations for program improvement. Another aim was to identify and evaluate current practices in the clinic including staffing, hours of operation, procedures, and resources. This information was reviewed for effectiveness and success.

Review of Current Evidence

To begin, keyword search terms of heart failure, congestive heart failure, readmissions, heart failure clinics, outpatient clinics, transitions of care, quality improvement, and program evaluation were used to search for peer-reviewed articles, original research, meta-analyses, and

systematic reviews. Studies were identified by searching electronic databases including CINAHL Complete, PubMed, Google Scholar, and Ovid. Using a combination of Boolean words, phrases, and exact terms resulted in a total of 1,427 articles. To narrow the search, articles written in English, within the past 5 years, with samples that included only adults, and all-inclusive of search terms were examined first. Once an article was found that was contributory, the references for that article were then evaluated for inclusion.

In the review and synthesis, fifteen studies were quantitative, ten used a retrospective design, and two were randomized controlled trials. The various settings of the studies revealed the global, multifaceted problem of HF. During the review, ten studies were completed in the United States, one in Canada, one in Hong Kong, and another in Israel. One study was a secondary analysis on data obtained from the acute study of clinical effectiveness of nesiritide and decompensated heart failure (ASCEND-HF) conducted in 398 sites globally (Fudim et al., 2017). Moreover, cost associated with HF care was a noted concern within the articles (Bilchick et al., 2018; Kilgore et al., 2017; Vidic et al., 2015), and interventions to battle poor outcomes associated with HF was another dimension studied (Bilchick et al., 2018; Chava et al., 2019; Cheng et al., 2016; Di Palo et al., 2017; Kalter-Leibovici et al., 2017; Koser et al., 2018; Murtaugh et al., 2016; Selim et al., 2015; Spiegel et al., 2018; Taklalsingh et al., 2020; Van Spall et al., 2019). Through careful analysis of the literature, several themes developed regarding HF care and interventions. Those themes are explained in detail below. Subsequently, the included studies revealed various outcomes related to the interventions of HF readmissions, quality of life/mortality, and costs associated with care.

Results of Synthesis

The interventions within the articles varied in setting and composition. Authors from five studies focused on specific HF clinic interventions (Bilchick et al., 2018; Cheng et al., 2016; Kalter-Leibovici et al., 2017; Koser et al., 2018; Taklalsingh et al., 2020), four other groups of authors used inpatient interventions (Chava et al., 2019; Di Palo et al., 2017; Selim et al., 2015; Van Spall et al., 2019), one study was home health and outpatient cardiology clinic centered (Murtaugh et al., 2016), and one study had interventions in both the HF clinic and in the emergency department (Spiegel et al., 2018). A common thread noted with the studies was the use of a multidisciplinary approach to improve outcomes. Accordingly, nurses in various roles were an integral part of the multidisciplinary team noted in the studies (Cheng et al., 2016; Di Palo et al., 2017; Kalter-Leibovici et al., 2017; Koser et al., 2018; Murtaugh et al., 2016; Van Spall et al., 2019). Interestingly, nine of the studies using specific interventions had a cardiologist that was board-certified or specifically HF trained as an essential part of the intervention. All but one study had positive outcomes when a HF cardiologist or board-certified cardiologist was part of the study, indicating the positive effect a specially trained cardiologist can have on patient readmissions and mortality/quality of life. The single study that did not improve outcomes with the use of a HF trained cardiologist also did not worsen outcomes (Van Spall et al., 2019). In that same study high-risk patients referred to the HF clinic constituted a mere 40% of the total sample and since it was based in Canada there was grossly similar care between the sample and control group due to a universal healthcare system. Finally, in both the control and intervention groups, there was no significant difference in the medications used as they were both on HF guideline-directed medical therapy (Van Spall et al., 2019).

In addition to nurses and physicians, nurse practitioners (NPs), physician assistants (PAs), and fellows assisted in the HF clinics or inpatient processes as part of the multidisciplinary team (Di Palo et al., 2017; Koser et al., 2018; Taklalsingh et al., 2020). In studies where PAs and NPs participated in HF clinic care, board-certified cardiologists made the final decisions regarding care processes while providing support to advanced practice providers. Furthermore, the use of care management/social workers as part of the care team offered additional assistance for the HF patient (Chava et al., 2019; Kalter-Leibovici et al., 2017; Spiegel et al., 2018). The need for social workers is likely due to the complexity of the disease process combined with the various comorbidities associated with HF. The presence of dieticians (Chava et al., 2019; Kalter-Leibovici et al., 2017) and pharmacists (Chava et al., 2019; Di Palo et al., 2017; Spiegel et al., 2018) in the studies suggested the need to effect change on modifiable heart failure behaviors such as diet and medication compliance.

Another concept of interventions discovered during the review and synthesis of studies was a transitional care model. Due to the unstable and vulnerable time between discharge from the hospital and transition back into the home, there has been a particular focus on transitional care interventions to serve as a safety net for patients at discharge. In the studies reviewed, transitional care using a multidisciplinary approach appeared as an innovative way to positively affect HF outcomes (Cheng et al., 2016; Koser et al., 2018; Taklalsingh et al., 2020; Van Spall et al., 2019). Using a transitional care model resulted in a decrease in readmissions (Bilchick et al., 2018; Cheng et al., 2016; Koser et al., 2018; Taklalsingh et al., 2020) and a decrease in mortality rate (Bilchick et al., 2018; Koser et al., 2018). To support the patient in the outpatient setting, immediate access to HF clinic providers and an appointment within one week of discharge were key components for success (Bilchick et al., 2018; Cheng et al., 2016; Koser et al., 2018;

Murtaugh et al., 2016; Spiegel et al., 2018; Taklalsingh et al., 2020; Van Spall et al., 2019). Open appointments in the HF clinic were further strengthened by direct phone access to a HF physician 24/7 for patients (Spiegel et al., 2018).

A final concept that emerged from the synthesis of the interventions was the use of education as a foundational element. Self-monitoring and symptom recognition was the number one topic of education (Bilchick et al., 2018; Chava et al., 2019; Cheng et al., 2016; Di Palo et al., 2017; Kalter-Leibovici et al., 2017; Koser et al., 2018; Taklalsingh et al., 2020; Van Spall et al., 2019) with medication compliance and side effects noted next (Bilchick et al., 2018; Chava et al., 2019; Cheng et al., 2016; Di Palo et al., 2017; Spiegel et al., 2018; Taklalsingh et al., 2020). Education of HF patients was challenging due to the complexity of the disease and the comorbidities that were present. The presence of a family member or caregiver during education sessions provided enhanced support to the patient (Chava et al., 2019; Cheng et al., 2016; Di Palo et al., 2017; Kalter-Leibovici et al., 2017; Koser et al., 2018; Van Spall et al., 2019).

Heart Failure Readmissions

Authors of 13 studies examined heart failure readmissions. This was a large portion of the articles, giving credence to the importance of the topic. To begin, Kilgore and colleagues (2017) explored all-cause readmission rates, length of stay, and costs associated with HF care among Medicare patients. The results revealed the massive challenge facing healthcare organizations with 22.3% of patients readmitted within 30 days, 33.3% of patients readmitted within 60 days, and 40.2% of patients readmitted within 90 days (Kilgore et al., 2017).

Interestingly, within that study, HF accounted for only one-third of all-cause readmissions, and almost 50% of readmissions within the first 30 days occurred within two weeks of discharge from the hospital. Further supporting this thought, Fudim et al. (2017) did a secondary analysis

on data observed in the ASCEND-HF trial examining the timings and causes of 30-day readmission rates in HF patients. They found 54% of readmissions were for non-HF causes, 33% of all readmissions occurred by day seven and 67% by day 15. Overall median time to readmission was 11 days (Fudim et al., 2017). This information would indicate that early and intensive processes of care supporting patients at discharge could improve outcomes.

Nine studies revealed positive outcomes of varied yet decreased readmission rates. The most effective interventions were those located within a HF clinic using a multidisciplinary, transitional care model as the independent variable. For instance, a multidisciplinary, transitional care model resulted in a 69% decrease in HF readmissions over two years (Koser et al., 2018). Immediate access to HF clinic providers (Bilchick et al., 2018), registered nurse clinical care coordinators, palliative care referrals, and close monitoring of patients resulted in decreased mortality rates in addition to decreased readmissions (Koser et al., 2018). Interestingly, only one study included palliative referrals as part of the intervention plan (Koser et al., 2018). Another multidisciplinary transitional care model decreased all-cause readmission rates by 67% through the use of open appointments in the HF clinic with board-certified cardiologists, education for patients, and contingency planning for crisis situations (Takilal Singh et al., 2020). Additionally, Bilchick and colleagues (2018) used a transitional care model with two full time NPs to staff an outpatient HF clinic and provide education, access to follow-up visits, assessments, and clinical support for patients for 30 days post discharge. This intervention yielded a 24% reduction in readmission days within the first 30 days post discharge.

Impact on Quality of Life/Mortality

The impact on quality of life (QOL) and mortality presented through the literature synthesis because of high readmission rates and challenges faced by HF patients. Authors of six studies examined the impact on these outcomes (Kalter-Leibovici et al., 2017; Koser et al., 2018; Salyer et al., 2019; Selim et al., 2015; Spiegel et al., 2018; Van Spall et al., 2019). To begin, Salyer and colleagues (2019), investigated clusters of symptoms experienced by HF patients with a mean left ventricular ejection fraction of less than 25% and the negative impact on QOL. Unfortunately, the symptoms of cognitive impairment, anxiety, depression, daytime drowsiness, and general fatigue resulted in the greatest negative impact on QOL. To reduce the poor QOL experienced by HF patients, Kalter-Leibovici et al. (2017) found that patients who participated in an outpatient multidisciplinary disease management program reported a better QOL and a lower depression score as compared to traditional care in Israel.

Another theme of high mortality materialized through the synthesis of articles. Researchers of five studies evaluated morbidity and mortality associated with HF (Bilchick et al., 2018; Koser et al., 2018; Selim et al., 2015; Spiegel et al., 2018; Van Spall et al., 2019). Authors of two studies showed no significant difference in mortality rates between the control group and the intervention group (Cheng et al., 2016; Van Spall et al., 2019). As mentioned previously, Van Spall and colleagues conducted their study in a country with universal healthcare and similar treatment regimens in both groups. Alternately, two studies in a HF clinic and one study in the inpatient setting resulted in better mortality rates when compared to the control group (Bilchick et al., 2018; Koser et al., 2018; Selim et al., 2015). Interestingly, in two studies, cardiologists were the chief providers of care and the patients were on guideline-directed medical

therapy with titration as needed (Koser et al., 2018; Selim et al., 2015). Additionally, patients treated by a cardiologist were more likely to have implantable HF therapy such as an automatic internal cardiac defibrillator or cardiac resynchronization therapy, further decreasing mortality in this fragile group (Bilchick et al., 2018; Selim et al., 2015).

Cost/Financial Burden

With the cost of HF care expanding exponentially, a final theme of financial burden and costs incurred by healthcare organizations surfaced throughout the literature synthesis. Authors of three studies examined the costs associated with HF care (Fudim et al., 2017; Kilgore et al., 2017; Vidic et al., 2015). Kilgore et al. (2017) evaluated the costs of HF care for Medicare patients and found approximate costs associated with a single HF hospitalization equaled \$14,631, with approximate costs associated with an all-cause readmission totaled \$15,924. Combine this data with the readmission rates discussed earlier, and it is easy to see why healthcare organizations are scrambling to create processes of care to change these challenges. Interestingly, authors of one study examined the effect of a transitional care program known as hospital to home program on costs and found that the readmission cost savings using the intervention was greater than the costs associated with running the program (Bilchick et al., 2018).

Another confounding variable for costs incurred by healthcare organizations are the penalties imposed by the Center for Medicare and Medicaid Hospital Readmissions Reduction Program (Centers for Medicare and Medicaid Services [CMS], August 24, 2020). An evaluation of hospitals that received penalties from the program revealed most of the hospitals were larger teaching facilities in lower socioeconomic areas (Vidic et al., 2015). Additionally, in the first year of the program, 61% of hospitals in the sample received penalties for higher than predicted

readmission rates. Heart Failure is a global issue facing hospitals across the nation compounded by readmission rates and the Hospital readmissions Reduction Program.

Summary of Evidence

During this review, several themes and concepts developed from the literature. The overarching theme was the importance of transitional care processes delivered through a multidisciplinary approach. As previously discussed, these processes and care teams produced the best outcomes for patients and encouraged financial stability of the organizations. Addressing the various dimensions of the disease process while recognizing potential barriers to compliance allows the multidisciplinary team to better care for HF patients. The critical time between discharge from the hospital and outpatient or home care appears to have the greatest need for interventions that create a safety net for HF patients. Additionally, with physicians being key to many of the interventions with positive outcomes, it is clear to see the essential need for a cardiologist who is heart failure trained to care for these patients.

Other common themes discovered were the outcomes impacted by the interventions, including readmission rates, costs incurred by hospitals, and QOL/mortality. High readmission rates directly affect costs therefore any interventions that positively result in decreased readmissions can ensure financial stability for healthcare organizations. Additionally, understanding the impact of common HF symptoms on QOL/mortality can assist healthcare organizations in creating interventions to assess and address these symptoms more readily during HF clinic appointments.

Theoretical Framework

Theoretical or conceptual frameworks provide a structure for the planning and delivery of nursing care and for research. For program evaluations and organizational quality improvement, the use of program theory as the framework allows for the discovery of barriers and to ascertain

not only the interventions needed but to understand why certain interventions succeed and others do not (Adams & Neville, 2020). It is the process by which problems are identified, interventions created, and comprehension of why the outcomes will be positive. Chen (2012) described program theory as “a set of explicit or implicit assumptions by stakeholders about what action is required to solve a social, educational or health problem and why the problem will respond to this action” (p. 17). Understanding successful outcome components can assist in the creation of an evaluation process that meets all stakeholders’ needs.

The use of program theory leads to the natural use of the logic model for the translational section of program evaluation discussed later. Program theory served as the overarching framework to create a successful program evaluation for the heart failure clinic. Consideration of stakeholder’s concerns defined the beginning of the work. Understanding what was important for them, started the evaluation process. Stakeholders involved in the heart failure clinic were the patients and their families, heart failure clinic staff, physicians within the community including cardiologists, emergency department staff, hospital staff, hospital leaders, executive administrators, and organizational executives and board members. Other stakeholders affected are extended care facilities in the community, paramedicine, home health agencies and sister hospitals within the enterprise.

Methods

To understand the impact and outcomes associated with an outpatient heart failure clinic, a summative program evaluation was conducted. Using an improvement-focused model to yield the most beneficial information for stakeholders, an analysis of current goals and objectives was investigated and compared to current workings of the heart failure clinic. An examination of the program for merit, worth, and value to the heart failure patients within the community was conducted with a focus on opportunities for improvement to create an integrated understanding

of the clinic and the effects it has on this vulnerable community of patients. The summative evaluation used the fundamental concepts and guiding principles of systematic inquiry, competence, integrity and honesty, respect for people, and responsibility for general and public welfare. Ultimately, the goal was to evaluate the effectiveness of the heart failure clinic to decrease readmission rates by comparing the readmission rates of the HF clinic patients versus evidence-based practice readmission rates of patients in multidisciplinary, transitions of care, outpatient HF clinics.

Design

Using a quantitative retrospective design, first a review of the total sum of patients seen each year was evaluated. This was done to assess growth from fiscal year 2017 to fiscal year 2020. Characteristics of age, race, and sex were evaluated and compared. Additionally, readmission rates per person and per year were examined. Next, a review of the hospital's readmission rate for each of the years 2017 through 2020 was completed and an assessment of the penalties attached to the readmissions considered. Penalties from the Center for Medicare and Medicaid Services (CMS) come in a bundled form which made differentiating the actual HF readmission penalties challenging.

Translational Framework

Evidence based practice models or translation models should facilitate implementation of research into nursing practice. The logic model has proven to be a successful tool for program planning as well as implementation and performance management for various organizations. It creates the foundation for evidence-based change by amalgamating the central program components into a representation of how the program is supposed to work (Murphy et al., 2018). The logic model was chosen for this program evaluation due to its cost efficiency and

requirement of few resources. A core strength of the logic model is the ability to summarize the program's overall system of transformation by bridging processes to results driven by theoretical assumptions, goals, and expectations of the program. Additionally, a logic model assists stakeholders in clarifying program strategies, description, mission, and values, by the revelation of conditions necessary to effect positive outcomes. The logic model is a continual process and can be used as the program develops, changes, grows and modifies to meet the needs of the healthcare environment, the organization, patients, and staff members.

The logic model has five major elements: Resources, activities, outputs, outcomes, and impacts (W.K. Kellogg Foundation, 2004). The resources are what was needed to run the program effectively. For the heart failure clinic, the main resource needed is human resources with specific abilities and skills. More human resources will equate to more financial resources needed from the organization. A greater access to qualified and capable human resources will result in planned activities for the heart failure program such as appropriate, specialized education, dietician consults, lab draws when needed, and IV diuretic access. When accomplishment of program activities occurs, the executive leaders of the organization can assure delivery of evidence-based care to the HF community, increasing quality of life for those patients. Evidence-based HF care to the community and increased quality of life, will support and promote decreased readmissions in this fragile group. Finally, a decrease in HF readmissions within the organization will benefit the hospital through increased reimbursements from CMS resulting in a substantial savings and increased financial viability.

Setting

This summative program evaluation took place in a rural community in the southeastern US within a private, not-for-profit hospital's outpatient heart failure clinic. The heart failure

clinic primarily treats patients first admitted to the local hospital with a heart failure primary or secondary diagnosis. The heart failure clinic is staffed by a nurse practitioner and a nursing assistant.

Sample

The population examined were patients seen at the outpatient HF clinic starting in the year 2017 through 2020. This convenience sample of 3,822 patients was inclusive of all races, all ages, all payor sources, and both sexes. This sample was consistent and aligned with that presented in the literature. Moreover, data obtained from research including CMS describes this population in detail and characteristics. This information was used as a comparison for the HF clinic program evaluation. The clinic was chosen as it is currently the only outpatient HF clinic in the county. As mentioned above, characteristics of age, race, sex, and readmission rates were compared within the sample.

Data Collection

With full support from executive administration for the organization, the data analytics team and financial support team provided access to the patient data from the HF clinic in June 2021. This secondary data including age, race, sex, payor source and readmission rates was collected from the electronic health record and other databases that serve the clinic. Data received from the analytics and financial support teams was exported as a dataset into Excel. The data did not include protected health information or personal identifiers. The excel file was stored on a password protected computer owned by the project site. The reports were not printed or reproduced and was only accessed via the hospital server. After the project was completed, the file was permanently deleted. Informed consent from patients for this program evaluation was not needed.

Data Analysis

Descriptive statistics including means, standard deviations, percentages, sums, and frequencies were used to compare the continuous variables of age, sex, race, and readmission rates among the sample in the HF clinic and among the years examined. Additionally, this data was compared to national data and overall hospital data.

Results

To understand the outcomes related to the HF clinic and to investigate the rate and frequency of 30-day readmissions, all visits to the clinic from 2017-2020 were evaluated. Retrospective demographic data from patients seen during those years were included. The sample included both sexes, all races, all payor sources, and all readmissions after being seen in the clinic. A total of 3822 clinic visits were examined. These included female visits (55.0%, n = 2105) and male visits (45.0%, n = 1717). White or Caucasian patients made up most visits (62%, n = 2359) and Black or African American patients represented a smaller sample (37%, n = 1423). All other races represented a scant number of the visits (1%, n = 40). A total of 896 visits represented those patients that were readmitted within 30 days from a previous HF admission and had a visit in the HF clinic. Table 1 shows the variable sex data of the patients included. Of note, in 2017, women made up most of the total number of visits, but not the majority of total 30-day readmissions. Table 2 shows the variable of race data of the HF patients included in the program evaluation.

Table 1*Demographic Variable of Sex per Year*

Year	Sex	% of Total Visits	% of 30-day Readmissions
2017	M	48%	54%
	F	52%	46%
2018	M	44%	45%
	F	56%	55%
2019	M	44%	42%
	F	56%	58%
2020	M	46%	46%
	F	54%	54%

Note. M=Male, F=Female**Table 2***Demographic Variable of Race per Year*

Year	Variable	% of Total Visits	% of 30-day Readmissions
2017	W	62%	58%
	B	38%	42%
2018	W	63%	60%
	B	36%	36%
2019	W	61%	67%
	B	39%	33%
2020	W	62%	69%
	B	36%	29%

Note. W=White/Caucasian, B=Black/African American

Data collected for 30-day readmissions revealed a wide range in age among the two sexes and among races. Males are younger than the females readmitted, and blacks/African Americans are profusely younger than their white/Caucasian counterparts. Chart 1 shows the various age differences between males and females. Chart 2 exhibits the ages differences in race.

Chart 1

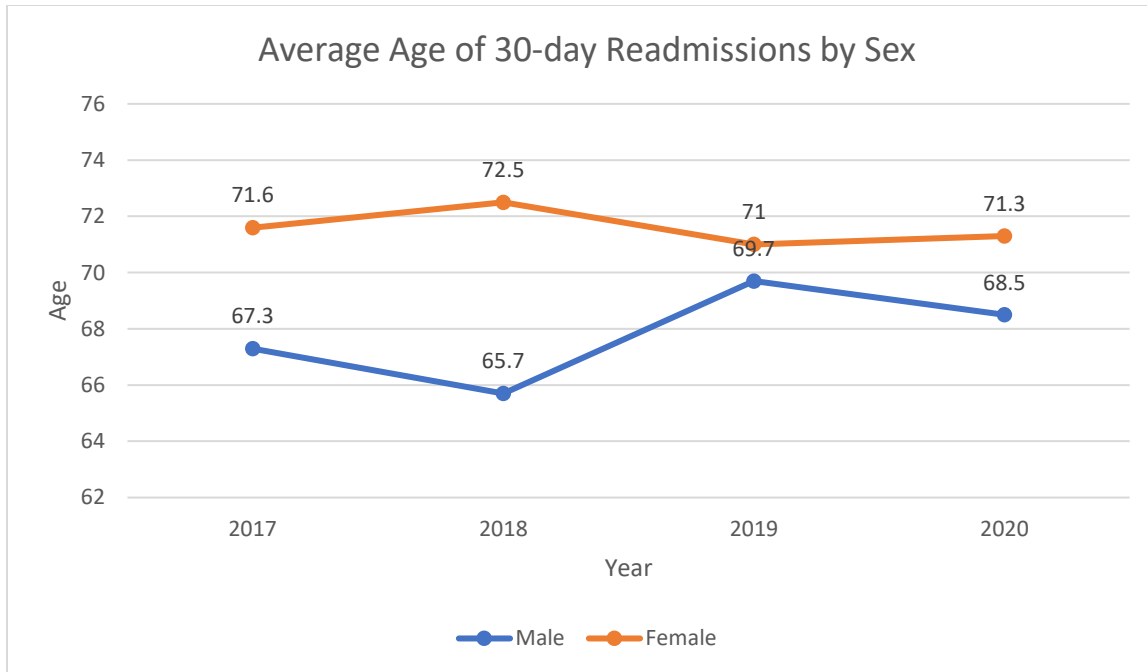
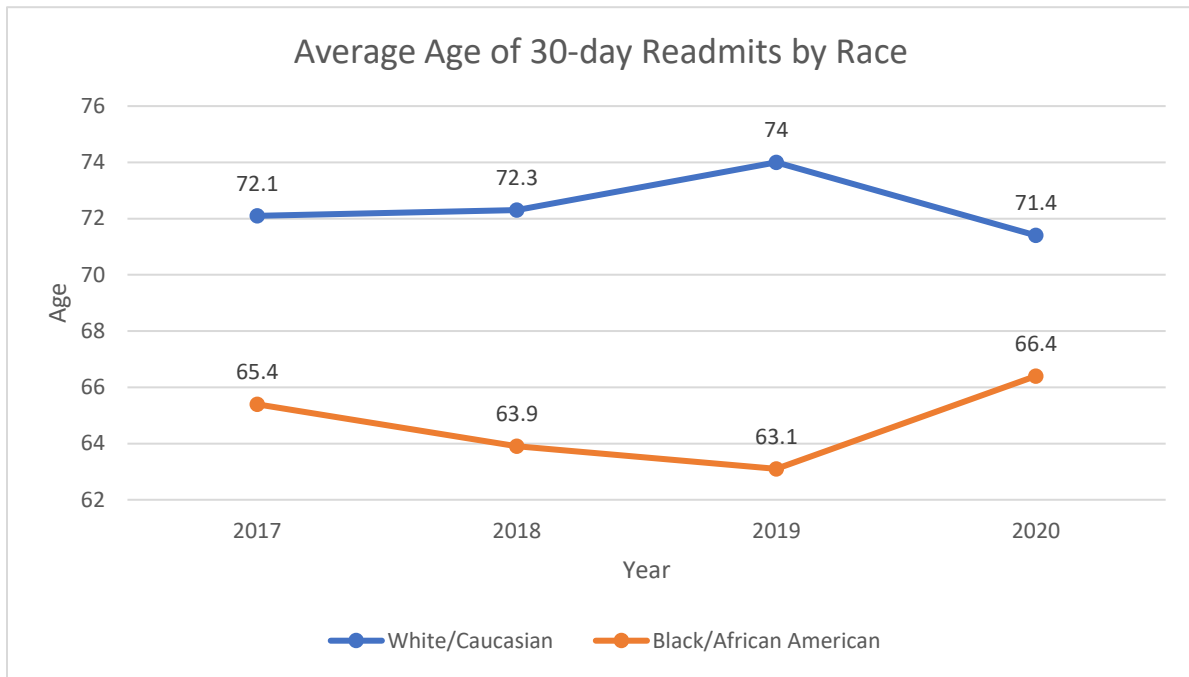
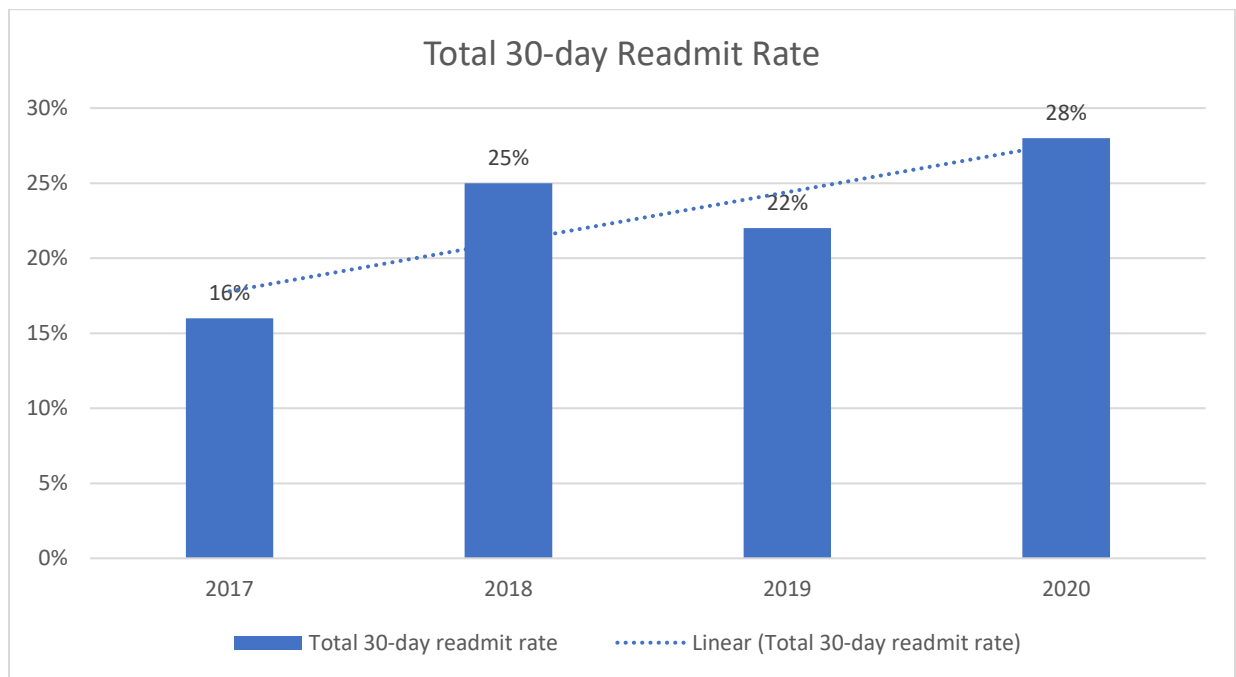


Chart 2



One of the most revealing parts of data collection was the readmission rates between the years examined. Chart 3 shows the differences in readmission rates in the HF clinic. The trendline in chart 3 indicates that readmission rates increased each year with the exception of 2019 when rates dropped.

Chart 3



To understand the differences in sex and race compared to 30-day readmissions, a two-sample t test assuming equal variances was calculated. First an F-test two sample for variances was calculated to see if variances in males and females were equal. This yielded a two-tailed p value of 0.88 indicating equality. The two-sample t test was then computed and a two-tailed p value of 0.44 implied that there was no significant difference between sexes for 30-day readmissions.

The same tests were calculated to compare white or Caucasian with black or African American. The F-test two sample for variances yielded a p value of 0.76 indicating the variances between the two races were assumed to be equal. The two-sample t test assuming equal variances returned a p value of 0.01 indicating a significant difference between the two races when comparing 30-day readmission rates.

Discussion

Heart failure is a major public health concern that is increasing exponentially across the country with alarming rates of mortality and carrying a significant financial burden for healthcare systems due to readmission rates and extended length of hospital stays. Siloed care between inpatient and outpatient services further exaggerates the detrimental impact of heart failure on healthcare organizations. For this program evaluation, the purpose was to evaluate the effectiveness of an existing community HF clinic program and to describe and summarize the current outcomes of the HF clinic to determine the success in achieving the program's goals and objectives as a quality improvement initiative. A specific aim of the program evaluation was to identify current research recommendations for decreasing HF readmissions distinctively related to the outpatient HF clinic.

Using evaluative reasoning and deduction in a summative program evaluation is key to understanding the results found and how they relate to the overall success of the program. The use of program theory allowed for the discovery of barriers within the community HF clinic to success. Part of the summative program evaluation included consideration of the stakeholder's concerns of financial stability for the organization while suggesting research-based recommendations for the clinic. An understanding of readmission rates and the economic burden placed onto the hospital and healthcare enterprise guided this project from the onset. Additionally, a consideration of other stakeholders such as patients and their families and the goals of care associated with quality outpatient care provided a grounding point as it focused the importance of this onto the patients involved.

To summarize the findings, it is important to understand first the very basic goals and objectives of the program. Originally, it was created to offset some of the increased patient load

on the local cardiologist practices in the community. There were no defined goals or metrics for the HF clinic at the onset of the program, only to simply offer another route to be seen post-hospitalization for heart failure patients in the community. There have been no evaluations of the care delivered there nor organized tracking of patients, readmissions, mortality rates, or outcomes neither patient nor financial for the organization. This is unfortunate for the small program as it appears to have failed to provide a safety net for heart failure patients upon discharge to keep them from returning to the emergency room to seek care. This is evidenced by the high readmission rates in the years 2018, 2019, and 2020.

The outcomes evidenced in the HF clinic population and readmission rates surrounding them align with much of recent literature and the disparity of care between sex and race within the cardiac population. Whites or Caucasians made up approximately 62% of the heart failure visits in the clinic compared to only 37% of black or African American patients. These statistics also aligned with readmission rates among the two races. There is of course the possibility that the distribution of white or Caucasian patients versus the black or African American patients may align with that which is found in the general population in the community and those more specifically in the HF community presented in this region. However, this could be a concerning finding as it may be that all races are not referred to the HF clinic in a fair and distributable way or that whites and Caucasians are more likely to be readmitted leading to more accessibility of care. Literature suggests that among Medicare beneficiaries most of the patients are white or Caucasian and female (Kilgore et al., 2017). Additionally, other researchers have used primarily white patients for research (Koser et al., 2018). However, there are a number of articles with black or African American samples to support a better understanding of how to provide better care in this population of patients (Salyer et al., 2019; Selim et al., 2015; Taklalsingh et al.,

2020). Fortunately, the suggestions to improve care among HF patients in the outpatient HF clinic are similar within the research for all races or sex. This alignment of research allows a generalized approach for outpatient HF clinics that would improve care for all patients regardless of age, race, or sex.

Important for evaluation is the topic of age related to race. In this summative program evaluation, a notable age difference was found among the two different races with the average age of white or Caucasian patients at 72.5 years of age compared to 64.6 years of age among the black or African American population. Black and African American patients are presenting in the healthcare system with HF at an earlier age than that of their white and Caucasian counterparts. This is something that should not be ignored within the HF leadership as it appears that blacks and African Americans are much younger when presenting with HF related concerns, possibly leading to mortality at a younger age. This area would need more investigation and research to understand the implications for healthcare systems and outpatient HF clinics.

Limitations

This program evaluation was conducted in a small community HF clinic in a rural setting. When the program began there were no defined metrics, goals, or standards devised to objectively assess success of the program. The lack of program objectives or goals limited the summative evaluation to understand if the metrics were met per the organizational standards. The presence of COVID-19 also limited the data gathered from the year 2020 as there was a noticeable decrease in visits to the clinic and overall admissions for heart failure to the hospital. This global decrease was also noted with the acute myocardial infarction population and stroke population across the United States (Lange et al., 2020). To compensate for the lack of in-person clinic visits, the HF clinic opted to participate in both video and phone visits. Unfortunately,

video and phone visits create difficulty in physical assessment of the HF patient and therefore may have contributed to the large readmission rate within the population that year. Additionally, there was concern that patients may have avoided visits to the clinic and the hospital due to the concern of COVID-19. A follow-up of the patients seen, and readmission rates should be considered for 2021 and evaluated for a more thorough understanding of how COVID-19 has impacted HF clinic visits and readmissions within the community.

Recommendations for Future Study

In the future, new objectives could be established for the HF clinic and then evaluated for success at a later date. Additionally, a larger-scale program evaluation could be conducted on the global HF program within the organization. This may yield a better understanding of the effectiveness of the program on the community and on the overarching financial status of the entire system. This would need to include mortality rates, length of stay, and readmission rates and how they are balanced in the system to yield better outcomes for this disadvantaged group of patients.

Specifically, related to disparities of care, a more thorough investigation of the care distributed among races and sex should be evaluated with a consideration given to the percentage of sex and race among the general population of the community. Additionally, evaluation of the social determinants of health and how they impact care sought, care availability, and care received should be a topic of interest for the future. This information may provide insight into opportunities for improvement for the HF clinic and program and ways to enrich outcomes for this population of patients.

Relevance and Recommendations for Clinical Practice

When considering recommendations and how they apply to the community HF clinic summative program evaluation, it is most obvious the lack of resources available in the clinic. Staffed with only a nurse practitioner and a nursing assistant, the clinic lacks the important resource of a specialized HF cardiologist to promote and support guideline-directed medical therapy and to provide the stabilization of care there. Research supports the use of a specialized HF cardiologist and suggests a decrease in readmissions and mortality when one is engaged in the care (Chava et al., 2019; Di Palo et al., 2017; Koser et al., 2018; Murtaugh et al., 2016; Selim et al., 2015; Spiegel et al., 2018; Taklalsingh et al., 2020). Additionally, a pharmacist on-site to assist with pharmacological education and assure medication compliance would provide support for the clinic staff and the patients within the HF clinic (Chava et al., 2019; Di Palo et al., 2017; Spiegel et al., 2018). Moreover, a dietician would be helpful to the community HF clinic to assist with education for the patient on the modifiable HF behavior of diet (Chava et al., 2019; Kalter-Leibovici et al., 2017). Finally, with social determinants of health creating a heavy burden concerning HF readmissions, an addition of a social worker to the community HF clinic team would likely be highly beneficial.

In reviewing the lack of human resources available in the clinic, the revelation of the great need for a multidisciplinary, transitional care clinic is more likely to provide the safety net lacking in this community. This is evidenced using the translational framework of the logic model by linking processes to results. For example, the current clinic staffed with only a nurse practitioner and a nurse assistant has resulted in high readmission rates among the patients in the clinic. If using the logic model with research-based recommendations, adding the human

resources with specific and distinctive abilities and skills would result in decreased readmission rates for the HF clinic. Greater access to HF trained cardiologists, nurse practitioners/physician assistants, HF trained nurses, pharmacists, dieticians, and social workers would result in more education related to HF modifiable behaviors, better provision of care, and meeting the social needs of the HF community. Of course, more human resources in the HF clinic would result in increased costs for the organization. However, considering the savings from the decreased readmissions it is likely to result in better financial stability for the organization as well as better outcomes for the patients. This appears to be a daunting task for many organizations as they attempt the delicate balance of spending with savings especially in the ever-changing healthcare climate that currently exists.

Conclusion

This was a very general and global program evaluation of a community heart failure clinic with very basic and limited processes and goals. These results and findings are specific to this program, however, the suggestions for advancement of the program and specific explanations of increased multidisciplinary staffing could be applied to other rudimentary community HF programs in rural settings. It is clear from this project there is much work to accomplish for HF patients. It appears that multidisciplinary, transitional care clinics provide the best outcomes for this delicate population of patients and this type of program should serve as the foundation for heart failure care.

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