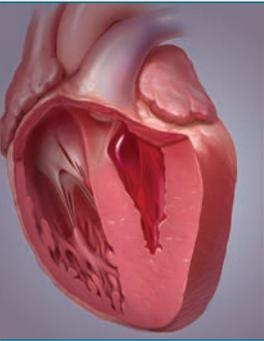


Decreasing 30-Day Readmission Rates in Patients With Heart Failure

Nancy Rizzuto, DNP, MSN, ANP, CCRN

Greg Charles, MHA

M. Tish Knobf, PhD, RN



BACKGROUND Heart failure affects approximately 6.2 million adults in the United States and has an estimated national cost of \$30.7 billion annually. Despite advances in treatment, heart failure is a leading cause of hospital readmissions. Nonadherence to treatment plans, lack of education, and lack of access to care contribute to poorer outcomes.

LOCAL PROBLEM For patients with heart failure, the mean readmission rate is 21% nationally and 23% in New York State. Before the pilot heart failure program began, the 30-day readmission rate in the study institution was 28.6%.

METHODS A multidisciplinary team created a heart failure self-care pilot program that was implemented on a hospital telemetry unit with 47 patients. Patients received education on their disease process, medications, diet, exercise, and early symptom recognition. Patients received a follow-up telephone call 48 to 72 hours after discharge and were seen by a cardiologist within a week of discharge.

RESULTS The 30-day readmission rate for heart failure decreased by 16.6% after implementation of the pilot program, which improved patient adherence to their medication and treatment plan and resulted in a reduction of readmissions.

DISCUSSION Patients in the pilot program represented diverse backgrounds. Socioeconomic factors such as the lack of affordable, healthy food choices and easy access to resources were associated with worse outcomes.

CONCLUSIONS The evidence-based heart failure program improved knowledge, early symptom recognition, lifestyle modification, and adherence to medication, treatment plan, and follow-up appointments. The multidisciplinary team approach to the heart failure program reduced gaps in care and improved coordination and transition of care. (*Critical Care Nurse*. 2022;42[4]:13-19)

CE 1.0 hour, CERP A

This article has been designated for CE contact hour(s). The evaluation tests your knowledge of the following objectives:

1. Define the 4 core measures for patients with heart failure before discharge from a hospital.
2. Describe how to create the infrastructure to support an evidence-based heart failure program.
3. Identify the necessary counseling and appropriate discharge instructions for patients.

To complete evaluation for CE contact hour(s) for activity C22441, visit aacnjournals.org/ccnonline/ce-articles. No CE fee for AACN members. See CE activity page for expiration date.

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Hear failure (HF) is a global health priority affecting approximately 36 million people. About 6.2 million adults in the United States have HF, which costs the nation an estimated \$30.7 billion each year.¹ In the United States, HF incidence increases with age, and HF is slightly more common in men (10%) than in women (8%).² Black individuals are 1.5 times as likely as White individuals to develop HF. Black patients have a higher prevalence of HF risk factors, including hypertension, diabetes mellitus, obesity, and chronic kidney disease. The Coronary Artery Risk Development in Young Adults study found that 1.5 times more Black

patients who had a diagnosis of hypertension by the age of 40 years developed HF than White

Adhering to lifestyle changes, dietary restrictions, and medications and learning to recognize symptoms are some of the barriers to achieving optimal outcomes for HF patients.

patients. Racial differences in vascular function are due to impaired endothelium-dependent and endothelium-independent vasodilation in Black persons as compared with White persons. Black individuals also have an increased risk for dilated cardiomyopathy and for death after diagnosis that is not attributed to socioeconomic status. Genetic factors were found in 33% of Black patients with dilated cardiomyopathy.³

Managing HF is challenging for the patient and the health care provider. Adhering to lifestyle changes, dietary restrictions, and medications and learning to recognize symptoms are some of the barriers to achieving optimal patient outcomes.

Approximately 1 in 4 patients with HF are readmitted within 30 days of discharge and approximately half are readmitted within 6 months.⁴ Low health literacy and nonadherence to treatment plans contribute to high readmission and mortality rates. A meta-analysis of 28 studies from across the world concluded that patients

of low socioeconomic status have not only a significantly increased incidence of HF but also higher readmission and mortality rates.⁵ Patients' lack of resources includes lack of education about the disease, unaffordability of healthy food choices, and lack of access to care. The current American Heart Association (AHA) recommendations state that patients should receive education on early symptom recognition, diet, and medications within an individualized treatment plan, should receive a follow-up phone call from a nurse 48 to 72 hours after discharge, and should have an appointment with a cardiologist within 7 days after discharge.

Local Problem

The mean readmission rate for patients with HF is 21% nationally and 23% in New York State. Before our pilot program began, the 30-day readmission rate in our institution was 28.6%, exceeding the national and state rates.

Our institution is a safety-net hospital and cares for all patients regardless of their financial and insurance status. The neighborhood we serve has consistently had one of the highest poverty and crime rates of any neighborhood in New York City. Approximately 50% of families in the community receive government income support.

Patients in the pilot program represented diverse backgrounds. Socioeconomic factors such as a lack of affordable healthy food choices and easy access to resources were associated with worse outcomes. With this population the team faced some challenges, the most common being low health literacy and nonadherence to diet and treatment plans.

A preimplementation survey was conducted to assess institutional needs and current processes. The survey included quality metrics, HF initiatives, and resources (Table 1). The survey results revealed that the AHA recommendations were not universally or consistently followed at our institution. The survey findings indicated a need to develop an evidence-based

Authors

Nancy Rizzuto is an adult nurse practitioner and the Director of Nursing, Critical Care, and Cardiology Services, Brookdale University Hospital, Brooklyn, New York.

Greg Charles is a program director for Cardiology Services and an angioplasty specialist, Brookdale University Hospital.

M. Tish Knobf is a professor of nursing, Yale University School of Nursing, Orange, Connecticut.

Corresponding author: Nancy Rizzuto, DNP, MSN, ANP, CCRN, Critical Care, Cardiology Services, Brookdale University Hospital, 1 Brookdale Plaza, Brooklyn, NY 11212 (email: nrrn81@aol.com).

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Table 1 Preimplementation survey results

	YES	NO
Does your hospital organize a multidisciplinary QI committee to review and monitor HF quality of care, including transitions of care components?		✓
Does your hospital have a designated staff member or team responsible for coordinating care transitions for HF patients?		✓
Does your hospital have a process to update HF care based on clinical practice guidelines?		✓
Does your hospital have a process for tracking and reviewing all HF readmissions?	✓	
Does your hospital use standardized HF checklist/protocol/pathway/order sets to coordinate care of HF patients on admission, throughout the patient stay, at discharge, and during transitions of care?		✓
Does your hospital have designated staff members responsible for communicating transfer of care?		✓
Does your hospital use a “teach-back” method when educating HF patients and/or caregivers?		✓
Does your hospital provide a standard method/tool of HF education to patients and/or caregivers?		✓

Abbreviations: HF, heart failure; QI, quality improvement.

HF program, assess the staff’s adherence to the program, and evaluate trends in 30-day HF readmission rates.

Methods

The goal was to develop an evidence-based HF patient and family program (Transitional Care Model) and infrastructure to support its implementation. A team consisting of nurse educators, assistant head nurses, staff nurses, a cardiovascular technician, a cardiologist, nursing director, and case managers was created. The purpose of the team meetings was to discuss delineation of roles, best practices, the training program, and the implementation plan. The multidisciplinary team began with the plan-do-study-act framework and focused on standardization of HF initiatives (Figure 1). The cardiology and nursing teams worked collaboratively to develop a standardized HF checklist/protocol/pathway with order sets to coordinate the care of HF patients on admission, throughout the patient stay, at discharge, and during transitions of care.

Nursing team members developed an HF education plan by using current best practices and guidelines based on recommendations from the American College of Cardiology, AHA, and the Heart Failure Society of America. Nursing staff used the “teach-back” method to educate patients.⁶

Nursing and case management team members coordinated the transition of care plan. Multidisciplinary rounds were implemented each morning to promote coordination of care. All patients received a needs assessment so that anticipated postdischarge services (eg, visiting nurse, physical therapy, devices, etc) would be provided. Patients to be discharged were given a follow-up appointment with

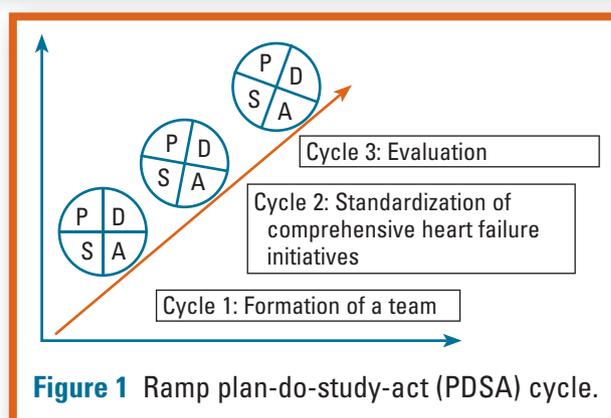


Figure 1 Ramp plan-do-study-act (PDSA) cycle.

a cardiologist and a prescription for HF medications. If needed, medications were provided by the in-house pharmacy and given to the patient before discharge.

The team used the AHA Get With the Guidelines program for HF. Implementation was informed by the transitional care model.⁷ The model identified patients’ health care goals, enabled caregivers to develop a plan of care, and fostered continuity of care after discharge.

Implementation of the HF Program

The Department of Nursing Education trained the nursing staff on a telemetry unit. Seven nurses, including the assistant head nurses, participated in the program from September through December 2020. The nurse educators provided the initial training in 2 group sessions in which each nurse received a slide presentation (Microsoft PowerPoint) and handouts. During the group training sessions, the nurses were paired to demonstrate patient teaching. The initial session was 4 hours long and was followed by three 8-hour training days on

Table 2 Demographic characteristics of patients enrolled in the pilot program (N = 47)

Characteristic	No. (%) of patients ^a
Age, y	
Range	48-90
Mean (SD)	60 (10.9)
Sex	
Male	26 (55)
Female	21 (45)
Race/ethnicity	
Black	37 (79)
Hispanic	9 (19)
White	1 (2)
Type of heart failure	
Biventricular	4 (9)
Diastolic	7 (15)
Systolic	36 (77)

^a Unless otherwise indicated.

Table 3 Nursing staff adherence to pilot program components after implementation

Component	No. (%) of patients (N = 47)
Educated at bedside with teach-back method	46 (98)
Follow-up phone call 48-72 hours after discharge	46 (98)
Discharged with ACEI, ARB, or ARNi	39 (83)
Scheduled for follow-up appointment with cardiologist	39 (83)
Attended follow-up appointment with cardiologist ^a	32 (82)

Abbreviations: ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; ARNi, angiotensin receptor–neprilysin inhibitor.

^a Percentage of 39 patients.

the unit with direct observation by the nurse educators and director of nursing.

The teach-back method was used at the bedside to teach patients about their disease process, early symptom recognition, self-care strategies, medication management, nutrition, and lifestyle modification. Patients were also given a follow-up plan. Patient teaching was provided daily from admission until discharge. The teach-back sessions were tailored to the patient's level of understanding, allowing the nurse to build on the patient's baseline knowledge.⁸ After patients were taught, they were given a tote bag that contained a multidose pill box and an easy-to-follow HF guide booklet written by the AHA on a third-grade reading level. The program also offered patients a 1-month supply

of their medications filled by the hospital's on-site pharmacy and available for them upon discharge (the "meds to bed" program). Scales were ordered through the case management service for those who needed them for daily weight monitoring. For patients who were able to navigate a smartphone with ease, their nurse uploaded the HF Path app. The AHA designed this app to help patients with HF better control their condition by managing symptoms, tracking medications, and maintaining a healthier lifestyle. Empowering patients with self-care strategies resulted in a sense of achievement rather than a feeling of helplessness.

Upon discharge, patients received a follow-up appointment within 7 days with a cardiologist. If a patient needed transportation, the case management service made the arrangements. With initiation of the nurse callback program, patients received a telephone call 48 to 72 hours after discharge.

Patients who were readmitted after discharge received reeducation on the importance of taking their medications and the specific reason for each medication. They were also taught about modifying the time that a diuretic could be taken to accommodate their schedule.

Results

The pilot program enrolled 47 patients who were admitted to the telemetry ward in 1 month. Of these 47 patients, 36 had stage 3 systolic HF, 7 had stage 2 diastolic HF, and 4 had stage 4 biventricular HF. These patients were from diverse cultural backgrounds and had comorbidities including hypertension, diabetes, obesity, smoking, and chronic pulmonary disease.

The mean patient age was 60 years, the numbers of male and female patients were similar, and most patients were Black (Table 2). The team obtained weekly reports from the electronic medical records and performed medical record reviews to determine if quality metrics were met. The reviews included documentation of HF education, follow-up appointments, and whether the patient was discharged with HF-related medications. The nurse callback log was reviewed to determine how many patients were contacted and whether patients expressed any issues or concerns. The cardiology team members monitored follow-up appointments. Patients who did not keep their appointments were called to determine the cause. After implementation of the pilot program, its recommendations were carried out in 82% to 98% of patients (Table 3). Evaluation of data before and after

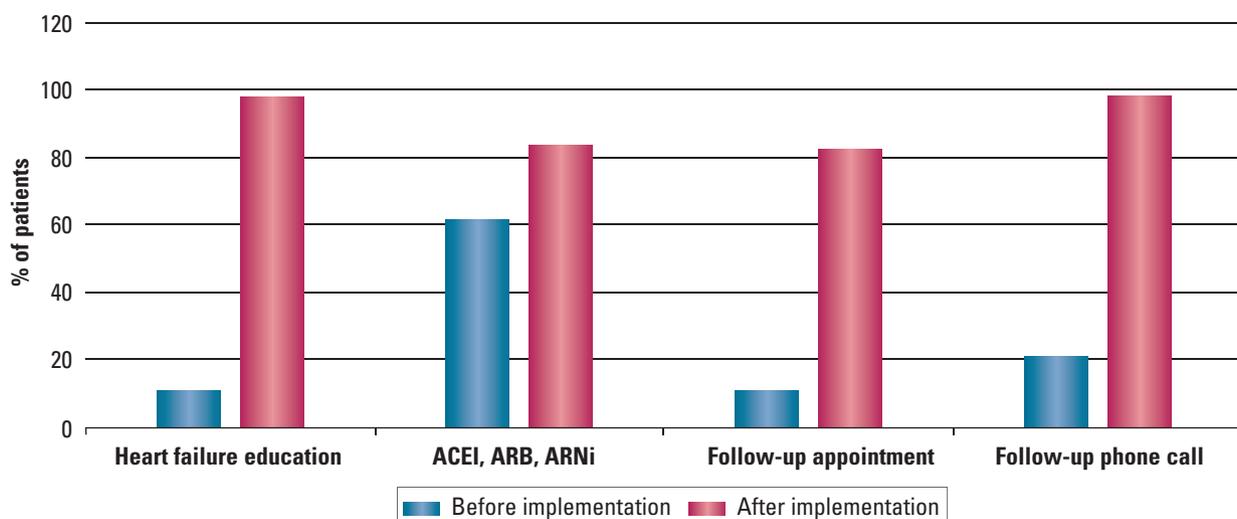


Figure 2 Nursing staff adherence to pilot heart failure program components before and after implementation.

Abbreviations: ACEI, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker; ARNi, angiotensin receptor–neprilysin inhibitor.

implementation of the pilot program showed substantial improvement in nursing staff adherence to the recommendations (Figure 2).

The readmission rate for patients with HF within the institution was 28.6% before implementation of the pilot program. After implementation, the 30-day readmission rate decreased by 16.6% to 12%. Demographic characteristics associated with readmission included age (62-77 years), sex, and ethnicity. Four of the readmitted patients were men; of those, 2 were Hispanic (both with acute decompensated systolic HF) and 2 were Black Caribbean (1 with new-onset systolic HF and 1 with biventricular HF). The 2 women readmitted were Black Caribbean and were aged 58 and 62 years; both had diagnoses of new-onset acute systolic HF.

Of the 39 patients who had a follow-up appointment with a cardiologist after discharge, 32 (82%) kept their appointment. Patients were assessed for changes in health status and understanding of the treatment plan. Patients received additional education on medication, diet, exercise, weight monitoring, and recognition of worsening symptoms. Of the 32 patients seen, 99% adhered to treatment plans and medications. None had exacerbation of symptoms and none needed readmission to the hospital.

Discussion

Studies suggest that 25% to 50% of postdischarge adverse events resulting in readmissions are potentially

preventable, highlighting a need for a multidisciplinary approach, patient and family engagement, and improvements in transitions of care and the postdischarge period to keep patients well.⁹ Early follow-up visits with a cardiologist or primary care provider within 7 days of discharge after a HF hospitalization have been shown to help reduce the 30-day readmission rate.¹⁰

In a quality improvement project, Nair and colleagues¹⁰ aimed to reduce all-cause 30-day hospital readmissions for patients with HF. Their quality improvement project involved retrospective data collection for all patients with a primary diagnosis of congestive HF (CHF) who were admitted to the hospital. They calculated the readmission rate as the percentage of patients with CHF who were readmitted to the hospital within 30 days of discharge. The data were collected from the electronic medical records. Admitted patients received education from the nurses and were given educational materials regarding CHF exacerbation, lifestyle modifications, the importance of medication compliance, and the importance of follow-ups before discharge. The nursing staff and health unit coordinators were responsible for ensuring that follow-up appointments were scheduled with patients' primary care physicians and a cardiologist or the HF clinic before they were discharged. These measures resulted in a 28% improvement in the percentage of patients who had a follow-up appointment scheduled within 2 weeks of discharge, as compared with the

percentage in 2017, and a 19% improvement in the percentage of patients who kept their follow-up appointments. The 30-day readmission rate for patients with CHF was reduced by half after the implementation of their project (28% in 2017 and 14% after implementation),¹⁰ which was consistent with the findings of our pilot program.

Poor medication adherence is common among patients with HF and leads to increased HF exacerbations, reduced physical function, higher readmission rates, and mortality.¹¹ The 6 patients in our pilot study who were readmitted because of exacerbation of symptoms stated that they were not adhering to their medications and diet plan. They did not adhere to diet plans

because of cultural cooking styles, taste preferences, and expense.

Dietary consultants

were called for all patients admitted. The nursing team reinforced counseling on modification and substitution. During the callbacks, nurses addressed patients' questions and concerns and reinforced treatment plans and the importance of medication adherence and dietary restrictions. During the calls the nursing team provided patients with emotional support and encouragement, which reflected positively on these patients' outcomes.

Research has shown that in addition to financial and clinical restraints, hospitals in communities with substandard resources have higher 30-day readmission rates.¹² In our patient population, health disparities were substantial because of socioeconomic factors. The lack of resources included unaffordable healthy food choices, lack of education about their disease process, and lack of access to care. However, our tailored pilot program of education and support successfully reduced health care utilization.

Conclusions

The implementation of an evidence-based HF program improved patient self-care when patients received adequate education and resources. Patients understood the importance of early symptom recognition, lifestyle modification, medication and treatment plan adherence, and attendance at follow-up appointments. Before

implementation of the pilot program, the 30-day readmission rate was directly correlated to the lack of initiatives and resources for patients with HF. Changes to inpatient care processes, discharge processes, and postdischarge follow-up led to a reduction in readmissions. The multidisciplinary team approach reduced gaps in care and improved coordination and transition of care.

The results of this pilot program (increase in adherence to AHA recommendations and a 16.6% decrease in the 30-day readmission rate) provide sufficient evidence to consider implementing this program for patients with HF throughout the hospital. The Hospital Readmissions Reduction Program targets hospital readmissions within 30 days of discharge. The Centers for Medicare and Medicaid Services began assessing financial penalties based on risk-standardized 30-day readmission rates for HF. Each HF admission costs the hospital approximately \$15 000. The penalty for high readmission rates is 3% of the total Medicare reimbursement.¹³

Patients with high-risk conditions (hypertension, coronary artery disease, diabetes mellitus, or decreased ejection fraction) who are identified in the cardiology clinic or admitted to the hospital will be enrolled in our HF program. The 30-day readmission rates will be monitored monthly. The electronic health record team sends weekly HF admission reports and monthly readmission reports to the HF team. The HF team will track nurses' and patients' adherence to the program by performing monthly electronic medical record reviews. **CCN**

Financial Disclosures
None reported.

See also

To learn more about heart failure, read "Right Ventricular Failure" by Leeper in *AACN Advanced Critical Care*, 2020;31(1):49-56. Available at www.aacnconline.org.

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