The St. Vincent's Congestive Heart Failure Comprehensive Care Clinic: A Community-Based Intervention and Analysis

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Introduction: Post-hospitalization heart failure (HF) disease management represents an important area of focus in preventing morbidity, mortality, and excess healthcare costs. Disease management clinics have been historically successful in reducing complications, but complication reduction in the uninsured setting has not been thoroughly examined. The purpose of this project is to conduct a post-hospitalization disease management clinic pilot study of uninsured HF patients.

Methods: This is a pilot study of HF patients following a recent hospitalization (within 30 days). Uninsured patients were offered enrollment in the disease management clinic during or immediately following hospitalization for a primary HF diagnosis at University of Texas Medical Branch at Galveston. The enrollment period was from January 2021 - December 2021. The disease management program included twice-weekly visits with a variety of healthcare professionals, including nurses, physicians, occupational therapists, social workers, pharmacists, and counselors. Patients were scheduled for a maximum of 16 visits (2 months of follow-up) post-hospitalization before returning to usual care. Patients who attended at least the introductory appointment and one follow-up appointment within 30 days of discharge were considered enrolled. The primary outcome is 30-day readmission, while secondary outcomes included feasibility measures (proportion enrolled, number of visits attended).

Results: Of 59 patients referred, 47 (80%) were enrolled. Just 4 patients (8.5%, 95% CI: 2.5%, 20.5%) were readmitted at 30 days, while 4 of 12 (33%, 95% CI: 13.6%, 61.2%) were readmitted at 30 days in those who did not enroll. Program participants were readmitted significantly less frequently than national readmission rate estimates (23%, p=0.02).

Conclusion: The CHFC3 program is feasible and holds promise for materially reducing 30-day readmissions for HF complications in the uninsured. A randomized controlled trial is warranted to further explore this intervention.

INTRODUCTION

Heart Failure (HF) hospitalization and readmissions remain a leading cause of morbidity, mortality, and cost-burden for the US healthcare system. HF hospitalization has remained an intense focus of healthcare administration because of strong ties to payment from Center for Medicare and Medicaid Services (CMS). It is estimated that 35% of all 30-day readmissions reported to CMS are HF patients,[1] and that just 23% of those HF readmissions are for unavoidable reasons.[2] Overall, 772,000 more cases of HF are expected by 2040 in the United States,[3] bringing more urgency to this issue. While the average age at onset of HF, overall, occurs in the 8th decade of life approximately – 72-75 years of age for males and females respectively[4] – Redfield et al.[5] reported that prevalence of HF was less than 1% in persons younger than 50 years. There are known, significant differences in incidence by race and gender – non-white males are most likely to develop HF.[6]

National estimates for 30-day readmission rates in HF range from 18-23%, on average,[1, 7] and are known to vary by age, sex, and overall illness burden. A nationally representative estimate using Healthcare Cost Utilization Project (HCUP) data that 23% of all HF admissions were readmitted within 30 days, making HF the most common cause for 30-day readmissions of all diagnoses.[7] Of approximately 6 million HF admissions from 2010-2017, 19.9% in 2017 were readmitted within 30 days.[1] This estimate was adjusted by age, sex, income quartile, and comorbidity count (using the Charlson comorbidity index).

Interventions such as disease management clinics, nurse home visits, and nurse-care clinics are known to decrease HF readmissions.[8] A network meta-analysis of 53 RCTs (n=12,356; mean age from 57-85) examined telephone visits, education sessions, pharmacist consultation, telemonitoring/support, nurse home visits, nurse case management, and disease management clinics compared to routine follow up for 30-

day readmission.[8] The treatment groups' average age ranged from 61 to 78 (10 RCTs, n=1958). Nurse home visits significantly decreased HF readmissions by 35%, Nurse Case management decreased incidence by 23%, and Disease Management Clinics decreased rates by 20%. Other interventions were not significantly efficacious in reducing HF readmissions.[8] Disease management clinics care typically included: follow-up with a cardiologist within two weeks of discharge, intermittent telephone consultation, and emphasis on clinical surveillance of vitals, medication adherence, and laboratory tests. However, patients in these studies were typically insured, older, and ethnically homogenous. Thus, it is unclear to what extent these programs might be efficacious in distinct populations, such as the uninsured.

HF readmissions are particularly concerning for patients with no insurance due vulnerability of this population to poor outcomes, and an interprofessional approach is recommended by the American Heart Association for addressing social determinants of health.[9] The purpose of this project is to generate pilot data for a possible program at the St. Vincent's Free Clinic (STVC) to prevent HF readmissions. Previous interventions demonstrate efficacy of disease management clinics and interprofessional services for older, insured HF patients; this study will attempt to replicate and optimize these effects in a younger, more diverse, uninsured population.

METHODS

The study design is a single-intervention cohort study without a control group (implementation study), though patients who did not enroll had limited information available for comparison. The study was determined to be exempt by UTMB's IRB. This is a vulnerable population without reasonable alternative for care outside of the program, which precluded randomization without alternative treatment options.

Subjects

Inclusion criteria were identified by UTMB Cardiology staff from all UTMB hospitals prior to discharge as those persons who were: 1) uninsured, 2) admitted for a HF diagnosis-related group (either reduced or preserved ejection fraction) to a UTMB facility (as indicated by discharge note), and 3) willing to participate in the program. Patients were informed that this follow-up program was designed to decrease complications in the immediate period following discharge and provides free medications and transportation to those who needed it.

Patients were discharged from January 4, 2021 to December 23, 2021, and subsequently offered enrollment in this program. Enrollment in the program was performed at the patient's first appointment. Patients were identified by the St. Vincent's staff as patients who were referred and in need of the program. All patients who attended at least the enrollment visit and a subsequent visit (at least two visits) within 30 days post-discharge were considered enrolled.

Procedure

The primary intervention was twice-weekly surveillance at the St. Vincent's Clinic for vitals and medication adherence. Within 3 days of hospital discharge, patients were scheduled to receive care every Wednesday and Saturday at STVC over a period of 60 days, excluding holidays. Patients deemed "low risk" by their provider were eligible to decrease their visit frequency to once weekly after 30 days. Risk was determined according to each patients' primary care provider's judgment, but providers were encouraged to consider mortality risk models, such as the Seattle HF model,[10] in making their decision. Patients were provided free medications, food, and transportation as needed.

At Visit 1 (their baseline medical appointment following discharge), patients were queried on their interest in participation in CHFC3. Patients who declined were still offered care at STVC or connected to care elsewhere, according to preferences. All patients were given a full medical evaluation during Visit 1 where clinicians were

instructed to provide guideline-directed medical therapy. All patients were given a standardized regimen of maximally-tolerated beta-blocker, SGLT2 inhibitor, mineralocorticoid receptor antagonist (spironolactone), and ACE/ARB/ARNI therapy as indicated. The program provided free medications to all patients, consistent with the services provided to all other patients at St. Vincent's. Patients' vitals (blood pressure, heart rate, SpO2, weight, and respiration rate) were measured at each visit (twice weekly) by a medical professional or student. Each week, patients also received a basic metabolic panel (BMP) measured to confirm renal function and electrolyte balances were unchanged, in addition to any other labs requested by faculty clinical staff. Abnormal lab values or vitals were reported directly to the supervising clinician. Patients were also connected to interprofessional services (Occupational Therapy, Respiratory Therapy, Nutrition, Pharmacist Consultation) as indicated. The recommended schedule for interprofessional activities is demonstrated in **Table 1.**

During Week 2, patients received pharmacist consultation, counseling services, and occupational therapy evaluation. Case management (social services) was consulted to address outstanding social needs. Intermediate visits (Weeks 3-4) were performed by a nurse. Week 5 included an exit medical evaluation. In all visits, vitals and medication adherence were confirmed.

Measures

The primary measures collected at Visit 1 in the program were age, sex, race/ethnicity, and discharging hospital. Secondary measures included basic metabolic panel (which included renal function and blood sodium), Brain Natriuretic Peptide (BNP), Vitals (Weight/BMI, blood pressure, heart rate, respiration rate), New York Heart Association (NYHA) functional class (I-IV), and history of diabetes mellitus (as measured by HbA1C), medications, and discharge ejection fraction. Patients who had a discharge ejection fraction >= 45% (within normal limits) were defined as HF preserved Ejection Fraction (HFpEF), whereas those with < 45% were defined as HF reduced

Ejection Fraction (HFrEF). At their exit visit (after four weeks of program enrollment), patients who were still enrolled repeated BMP, BNP, Vitals, and NYHA Functional Class Assessment.

Patients were also queried about transportation and food insecurity, specifically as to whether transportation unavailability had historically precluded them from attending medical visits and whether they had ever had to go without food because of financial reasons. Lab draws were performed at regular intervals according to standard of care, and were unavailable where the clinician felt benefits were outweighed by risks of venipuncture. A table of all measures can be found in **Table 2.**

Outcomes

PARTICIPATION

First, a census of all uninsured patients admitted for HF, discharged, and subsequently referred to St. Vincent's Clinic for care was identified using the medical record's reporting tool. Patients who made at least one contact were subsequently identified. Participation was categorized as: 1) patients who never attended STVC (0 Visits), 2) patients who presented at STVC (1 Visit) but declined further participation, and 3) patients who completed at least two visits (which was considered enrollment). The total number of visits over the program course (within 2 months of discharge, up to 16 visits) for each patient was recorded. Participation was defined as at least two visits in the program.

READMISSION

Patient history at 30 days after discharge were coded as readmitted (or died, with or without hospitalization) or not readmitted for any reason. Readmission location (UTMB or elsewhere) was recorded. Patients' medical records were queried for any hospitalization or use of the emergency department, and findings were verbally confirmed with the patient at each visit. If patients missed their appointment, they were

contacted to ascertain their admission status. Readmission was defined as any inpatient stay within 30 calendar days following the original discharge date (Day 0) to any location. All patients included in these analyses (enrolled or not enrolled) were followed from Index Date to Day 60.

Statistical Analysis

The goal was to obtain pilot data on the feasibility and possible effect size of the CHFC3 Program in reducing all-cause readmission rates at 30 days in uninsured patients. In order to assess feasibility of participation, counts for program uptake (yes/no) and participation frequency (count of visits within 60 days of discharge) were obtained. 95% confidence intervals were estimated. Bivariate analysis of sociodemographic and medical history variables with participation measures was performed to assess selection bias. Possible selection bias magnitude was estimated by assessing sample differences by enrollment, using measures of association (phi for categorical variables such as diabetes history, and eta for continuous variables such as baseline age). Phi and eta are unbiased measures of association that are not sensitive to sample size, allowing for detection of possible selection bias even in small samples. T-tests and Mann-Whitney U testing was then performed to assess number of visits (0, 1, or 2+) by readmission. Visit counts were truncated at 2+ because patients who were readmitted were not able to attend the maximum number of visits (16), which would create survivorship bias in the analysis. Equal variance assumption was tested (alpha=0.10) for the t-test.

For estimating 30-day readmission rates in this program, the crude proportion of patients readmitted within 30 days who did not enroll (0 or 1 visit) versus those who enrolled (2+ visits) was compared using Fisher Exact Test. Subsequently, the readmission rate among those enrolled was compared to national estimates (23% by Fingar[7], 19.9% by Khan[1]) using a two-sided, one-sample proportion test (alpha=0.05).

The pilot data generated from this study was used to estimate possible readmission reduction estimates when compared to national estimates. Previous evidence from interventions suggest that HF disease management clinics may be 20% effective[8] in reducing HF readmissions. Power calculations were constructed for assessing the proportion of patients readmitted of those enrolled versus national readmission rate estimates. Assuming a reduction of 20%[8] with CHFC3, compared to 19.9%[1] (Khan) versus 23%[7] (Fingar; intervention readmit rate of 15.9% or 18.4%, respectively at 30 days), at least 599 patients would be needed to achieve 80% power to detect this effect. Given this is a pilot study assessing feasibility, however, the aim was simply to estimate the proportion of readmits that occurred and to estimate possible reduction in 30-day readmissions for future trials. All analysis was performed in SAS (Version 9.4, Cary NC).[11]

RESULTS

Cohort Description

From January 2021 to December 2021, there were 88 uninsured patients admitted to UTMB facilities (n=29 League City, n=59 Galveston) for a primary diagnosis of HF. Patients admitted to League City were not eligible for referral at program initiation; thus, just 2 of 29 (7%) League City patients were referred to the program. Ultimately 61 (69%) total patients were referred to STVC for care, of whom 59 (97%) received at least one documented contact from the program. There are no data or information available for the 2 (3%) patients who were referred but not contacted.

Of those 59 patients referred and contacted, 47 (79.7%) completed at least two visits in the program, 3 (5.1%) attended just one visit, and 9 (15.3%) never attended any appointment. Overall, patients referred were a median of 53 years of age with a median 30% ejection fraction. 56% identified as non-White (either Hispanic or Black) and 34% were female. 51% were current smokers and while 34% reported frequent to daily

alcohol intake. **Table 3** demonstrates the descriptive characteristics of patients by their enrollment status.

Program Enrollment Measures and Baseline Characteristics

The mean number of visits attended by patients who enrolled was 8.3 (95% CI: 7.2, 9.4), and ranged from 2 to 16 visits. Program participants (n=47), despite being of younger age (median age 53 years) than the general HF population, had severe disease on average: the median discharge ejection fraction was 25%, 7 (14%) had HFpEF, and 74% of participants had Functional Class III-IV (at least symptoms at rest) on the New York Heart Association Disease scale. Participants also reported a high prevalence of important social determinants of health: 56% reported identifying as non-White (Hispanic or Black), 42% reported having food insecurity (missing meals regularly during the week due to finances), transportation insecurity (not having access to a vehicle or having missed an appointment because they did not have transportation at least once), 51% reported currently smoking, and 32% reported drinking alcohol multiple times per week to daily. Thus, comorbidity and social determinants of health burden was high in the cohort, overall.

In the cohort who enrolled, the median Body Mass Index (BMI) was 30, 74% had NYHA Class III-IV, 7 (14%) had HFpEF, 51% had a history of diabetes mellitus, the median ejection fraction was 25%, and had a median creatinine of 1.18 mg/dL (mild to moderate renal disease). At baseline, HFrEF patients were prescribed guideline-directed medical therapy (GDMT): 63% were prescribed Sodium-Glucose Transporter 2 (SGLT2) inhibitors, 78% were prescribed an ACE, ARB, or ARNI drugs, 68% were prescribed mineralocorticoid receptor antagonists (spironolactone), 93% were prescribed a beta-blocker, and 70% were prescribed a statin. Only contraindications prevented clinicians from providing GDMT in this cohort.

Readmissions Outcomes

The readmission rate, irrespective of program participation, was 13.6% (8 of 59, 95% CI: 6.8%, 24.8%). No patients died within 90 days post-discharge. Of the patients who enrolled, 8.5% (4/47, 95% CI: 2.5%, 20.5%) were readmitted within 30 days of discharge and 33.3% (4/12, 95% CI: . 13.6%, 61.2%) were readmitted among those who did not enroll. 3 of the 4 readmissions in the non-enrolled group occurred in patients who attended 0 visits, whereas 2 of the 4 readmits in the enrolled group were in patients with preserved ejection fraction (2/7, 28.6%). Fisher's Exact Test indicated that readmission rate significantly differed by enrollment (Phi=0.29, p=0.046). Readmissions also were significantly greater in unenrolled patients. Unadjusted odds of readmission were reduced by 81% (OR=0.19, 95% CI: 0.04, 0.90) in the enrolled versus unenrolled group.

Because program effectiveness might reflect severity of disease, if patients who did not enroll had more severe disease or complications and those patients were more likely to be readmitted, the third analysis compared enrollment with readmission while controlling for disease severity. A simple severity index was created (NYHA Class IV or EF ≤15%). In the adjusted analysis, enrollment had a 79% reduction in odds of readmission at 30 days (OR=0.21, 95% CI: 0.04, 1.06). Although the effect was non-significant and the severity index had a large effect (OR=3.01, 95% CI: 0.33, 27.86). There was little change in the association between enrollment and readmission with (OR=0.21) and without (OR=0.19) adjustment for severity, suggesting that effect estimates were not due to disease severity differences.

The readmission rate of participants was significantly different from Fingar et al.'s national average estimate (p=0.02), and trended towards significantly different from Khan's estimate (8.5% vs. 19.9%, p=0.050). However, since we did not have access to the raw data, it was not possible to assess whether sample differences contributed meaningfully to the estimate differences.

DISCUSSION

This program was an implementation pilot project designed to replicate previous, successful disease management programs in an uninsured population. Patients who enrolled were significantly less likely to readmit at 30 days than national averages, despite higher social determinants of health burden and significant disease burden. They were 80% less likely to be readmitted at 30 days than similarly discharged patients who did not enroll.

Patients enrolled in this study were much younger than previously described cohorts (median age=53 years in CHFC3 versus 70+ in nationally representative cohorts[12, 13]), but generally had advanced disease (75% of patients with NYHA Class $\geq$3, 50% with diabetes mellitus, 25% median ejection fraction). Therefore, findings from this pilot data should be interpreted with caution. This is further complicated by lack of a control group, precluding comparative effectiveness study. However, evaluation of patients who did not enroll allowed for crude estimations of possible selection bias. While this limited comparison did not reveal meaningful differences in baseline demographics and characteristics, more robust study methods are needed to assess possible program effectiveness.

The program appears to be feasible. Patients completed at least 8 visits within 60 days of discharge greater than 50% of the time, the majority of which occurred in the first month prior to discharge. Further, the program appears promising for further evaluation in readmission prevention: readmission rates were significantly lower in the enrolled group versus the unenrolled ($p=0.046$) and the overall 30-day readmission rate was 8.5% (95% CI: 2.5%, 20.5%). Enrolled patients' readmission rate was significantly different from Fingar's national readmission estimate (23% vs 8.5%, $p=0.02$). While it trended towards significantly different Khan's 2017 estimate of 19.9% ($p=0.050$), it is possible that indexing cases of readmissions over total HF readmissions undercounted true readmission incidence. Further, Khan et al. note that readmissions significantly increased during their study period (2010-2017, $p<0.0001$). A continued trend upwards

since 2017 would suggest that this program's readmission rate is significantly different from contemporary, national rates.

While patients with HFpEF were not excluded or studied separately in national readmission estimates, more work is needed to better appreciate whether this program holds promise in patients with preserved ejection fraction. Overall, 2 of 7 enrolled patients with HFpEF were readmitted within 30 days of discharge in this study. Because this sample is small, interpretation is limited. Just 5.0% (95% CI: 1.1%, 14.6%) of those with HFrEF were readmitted at 30 days. Further study is needed to appreciate whether the program is promising for those with HFpEF in addition to those with HFrEF.

Limitations

Because this study does not have a control group, effectiveness cannot be estimated. However, the observed rates of participation and 30-day readmissions informs feasibility and rationale for future studies. There also may be selection bias in who chooses to attend CHFC3 versus those who do not enroll. While the estimated readmission rate was 8.5%, the global readmission rate for patients in this program was 13.6%. If all eligible patients had enrolled, this would suggest only a 32% reduction in readmission rate versus gold standard estimates, instead of the 57% reduction observed in the program. It is unclear what proportion, if any, of these readmissions would have been avoided if the patients had enrolled in the program.

Hospitals may be unwilling to provide resources necessary for the conduction of this intensive surveillance study, which would limit generalizability. While the program included consultation with nurses, physicians, and other health professionals (i.e., nutritionists, pharmacists, etc.), these services are frequently unavailable for those who do not have means to pay. Further, consultation with these providers would require multiple visits in most other settings; STVC is unique nationally in providing all of these

services all in one visit.[14] However, it is important to be innovative in caring for the underserved, not only for patient quality and safety but also to reduce hospital costs. Given that each readmission prevented saves tens of thousands in direct costs to the institution,[15] this program (if demonstrated effective in future studies) would be a cost-effective method of care.

COVID-19, which began in March 2020 in Texas and became exponentially more prevalent in the time since, likely affected the overall number of admissions and readmissions observed during this study. However, literature on the incidence of these outcomes during COVID-19 is limited. One retrospective cohort study in Philadelphia, USA, comparing HF admissions in a single urban hospital from March 2019-October 2019 versus March 2020-October 2020 indicated that HF hospitalizations overall decreased by 12% ($p<0.001$), but readmissions increased over time (19.1% vs 20.6%, $p<0.001$).[16] However, internal UTMB data indicate 2020-2021 readmission rates in HF remained approximately constant at 19.8% (262/1326, 95% CI: 17.6%, 21.9%) versus the 19.9% observed from 2017-2019. Therefore, there is not sufficient evidence to suggest whether readmission rates differed because of COVID-19 in this study. Further, none of these patients were admitted for or received care for COVID-19 during the course of their program enrollment or previous hospitalization. Thus, it is unclear what if any effect COVID-19 had on this program.

While the program appears promising, some patients who did not enroll may have been more likely to readmit than those who chose to participate. Patients who enroll may be more motivated to remain adherent to medications, be less sick, or have less meaningful socioeconomic limitations than those who do not. However, association estimates between key, baseline measures (i.e., age, ejection fraction, NYHA Functional Class) and enrollment status was largely unremarkable **(Table 3).** Thus, the potential for selection bias from anticipated confounders appears low, but a greater

sample size in a more robust study design is warranted to appreciate the program's true effectiveness.

CONCLUSION

The CHFC3 program appears feasible and possibly effective in reducing HF readmissions at 30 days. This implementation study suggests the program's readmission rate significantly differs from national readmission rates, though the reason for this may be a combination of selection bias and true readmission risk differences. There were no meaningful differences in patient characteristics by enrollment, however, so selection bias may be minimally impactful. The findings here warrant further exploration in clinical trials.

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Table 1: Weekly Activity Cadence

WEEK/VISIT	ACTIVITY
1-1	Medical evaluation with care provider, Vitals/Labs
1-2	Vitals review, medication adherence review
2-1	Occupational Therapy Initial Evaluation, Case Management (Social Work), Counseling (Psychologist), Vitals/Labs
2-2	Vitals review, medication adherence review
3-1	Pharmacist Consultation, Nutrition Consultation, Vitals/Labs
3-2	Vitals review, medication adherence review
4-1	Nurse visit, Vitals/Labs, Ad-Hoc Visits with other disciplines
4-2	Vitals review, medication adherence review
5-1	Medical evaluation (option for 'graduation if deemed medically appropriate'), Vitals/Labs
5-2	Vitals review, medication adherence review
6-1 – 8-2	Repeat from 2-1 to 4-2

Table 2: Key Measures

Measure	*Description*	*Visit 1-1*	*Visit 5-1*	*Visit 8-1*	*Weekly*	*Every Visit*
Basic Metabolic Panel	Kidney function, sodium of key interest	X	X	X	X	
Brain Natriuretic Peptide (BNP)	Measure of atrial stretch, correlates with increased volume	X	X	X		
Weight	Weight, in pounds	X	X	X	X	X
Blood pressure	Systolic and Diastolic, mmHg	X	X	X	X	X
Heart Rate	Beats per minute	X	X	X	X	X
O2 Saturation	% Saturation	X	X	X	X	X
Respiration Rate	Breaths per minute	X	X	X	X	X
Age	Age in years	X	X	X		
Sex	Male, Female, Other	X	X	X		
NYHA Functional Class	I (no limitations), II (mild), III (moderate), IV (severe)	X	X	X		
History of Diabetes Mellitus	Yes/No (A1C >6.5%)	X		X		
History of Food Insecurity	Any versus none	X				
History of Transportation Insecurity	Any versus none	X				

Table 3: Key Measures by Enrollment

	Not Enrolled (N=12)	Enrolled (N=47)	Overall (N=59)	Phi/Eta Coefficient (N=59)
Age				
Median [Min, Max]	54.5 [36.0, 65.0]	52.0 [23.0, 78.0]	53.0 [23.0, 78.0]	0.03
Race/Ethnicity				
Non-Hispanic Black	1 (8.3%)	14 (29.8%)	15 (25.4%)	
Non-Hispanic White	7 (58.3%)	18 (38.3%)	25 (42.4%)	
White Hispanic	3 (25.0%)	15 (31.9%)	18 (30.5%)	
Unknown	1 (8.3%)	0 (0%)	1 (1.7%)	0.16
Sex				
Female	6 (50.0%)	14 (29.8%)	20 (33.9%)	0.17
BMI (kg)				
Median [Min, Max]	31.0 [20.0, 67.8]	29.9 [21.6, 66.7]	29.9 [20.0, 67.8]	-0.09
NYHA Class				
Class I	1 (8.3%)	4 (8.5%)	5 (8.5%)	
Class II	0 (0%)	8 (17.0%)	8 (13.6%)	
Class III	3 (25.0%)	26 (55.3%)	29 (49.2%)	
Class IV	6 (50.0%)	9 (19.1%)	15 (25.4%)	
Unknown	2 (16.7%)	0 (0%)	2 (3.4%)	-0.24
History of Diabetes Mellitus (A1C >= 6.5%)				
Yes	6 (50.0%)	24 (51.1%)	30 (50.8%)	
Not screened	2 (16.7%)	0 (0%)	2 (3.4%)	-0.07
Discharge Ejection Fraction				
Median [Min, Max]	30.0 [15.0, 65.0]	25.0 [10.0, 65.0]	25.0 [10.0, 65.0]	
Not acquired	3 (25.0%)	0 (0%)	3 (5.1%)	0.11
HFpEF				

Preserved EF	3 (25.0%)	7 (14.9%)	10 (16.9%)	-0.11
Serum NT pro-BNP (mg/dL)				
Median [Min, Max]	1440 [294, 6050]	2410 [70.0, 18600]	2220 [70.0, 18600]	
Not acquired	4 (33.3%)	2 (4.3%)	6 (10.2%)	0.13
Creatinine (mg/dL)				
Median [Min, Max]	1.08 [0.700, 1.98]	1.18 [0.420, 3.86]	1.17 [0.420, 3.86]	
Not acquired	3 (25.0%)	1 (2.1%)	4 (6.8%)	0.09
History of Food Insecurity				
Yes	4 (33.3%)	21 (44.7%)	25 (42.4%)	0.09
History of Transportation Insecurity				
Yes	4 (33.3%)	15 (31.9%)	19 (32.2%)	-0.01
Current Smoking				
Smoker	7 (58.3%)	23 (48.9%)	30 (50.8%)	-0.08
Alcohol Consumption Frequency				
Multiple times per week or daily	3 (25.0%)	16 (34.0%)	19 (32.2%)	0.08

Table 4: Baseline Cohort Characteristics by Readmission Status

	Readmitted (N=4)	Not Readmitted (N=43)	Overall (N=47)	Phi or Eta
HFpEF				
HFpEF	2 (50.0%)	5 (11.6%)	7 (14.9%)	-0.30
BMI (kg)				
Median [Min, Max]	42.6 [22.0, 51.7]	29.6 [21.6, 66.7]	29.9 [21.6, 66.7]	-0.24
NYHA Class				
Class I	0 (0%)	4 (9.3%)	4 (8.5%)	
Class II	1 (25.0%)	7 (16.3%)	8 (17.0%)	
Class III-IV	3 (75.0%)	32 (74.4%)	35 (74.4%)	0.27
History of Diabetes Mellitus (A1C >= 6.5%)				
Yes	2 (50.0%)	22 (51.2%)	24 (51.1%)	0.01
Discharge Ejection Fraction				
Median [Min, Max]	47.5 [15.0, 60.0]	25.0 [10.0, 65.0]	25.0 [10.0, 65.0]	-0.22
Baseline sodium				
Median [Min, Max]	138 [133, 140]	137 [130, 142]	137 [130, 142]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	-0.05
Baseline Heart Rate				
Median [Min, Max]	82.5 [67.0, 98.0]	85.0 [59.0, 137]	85.0 [59.0, 137]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	0.06
Baseline SpO2				
Median [Min, Max]	96.5 [95.0, 100]	98.0 [88.0, 100]	97.5 [88.0, 100]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	-0.02
Baseline Systolic BP				
Median [Min, Max]	115 [95.0,	117 [90.0,	117 [90.0,	

	118]	174]	174]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	0.16
Baseline Diastolic BP				
Median [Min, Max]	79.5 [70.0, 88.0]	77.0 [51.0, 113]	77.0 [51.0, 113]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	0.02
SGLT2 Prescription*				
Taking	1 (50.0%)	24 (63.2%)	25 (62.5%)	0.03
ARNI Prescription*				
Taking	0 (0%)	3 (7.9%)	3 (7.5%)	0.08
ACE/ARB Prescription*				
Taking	2 (100%)	26 (68.4%)	28 (70.0%)	0.12
MRA Prescription*				
Checked	1 (50.0%)	26 (68.4%)	27 (67.5%)	0.09
Beta Blocker Prescription*				
Taking	2 (100%)	35 (92.1%)	37 (92.5%)	0.09
Statin Prescription*				
Taking	2 (100%)	26 (68.4%)	28 (70.0%)	0.08
Creatinine (mg/dL)				
Median [Min, Max]	1.94 [1.06, 3.18]	1.16 [0.420, 3.86]	1.18 [0.420, 3.86]	
Not acquired	0 (0%)	1 (2.3%)	1 (2.1%)	-0.3
Serum NT pro-BNP (mg/dL)				
Median [Min, Max]	1900 [175, 3500]	2790 [70.0, 18600]	2410 [70.0, 18600]	
Not acquired	0 (0%)	2 (4.7%)	2 (4.3%)	0.15
History of Food Insecurity				
Yes	2 (50.0%)	19 (44.2%)	21 (44.7%)	-0.03
History of Transportation Insecurity				
Yes	2 (50.0%)	13 (30.2%)	15 (31.9%)	-0.12
Current Smoking				

Smoker	2 (50.0%)	21 (48.8%)	23 (48.9%)	-0.01
Current Alcohol Consumption Frequency				
Multiple times per week or daily	2 (50.0%)	14 (32.6%)	16 (34.0%)	-0.1
Number Visits Completed				
Median [Min, Max]	11.0 [4.00, 16.0]	8.00 [2.00, 16.0]	8.00 [2.00, 16.0]	-0.18
30-Day Emergency Department Admission				
Yes	4 (100%)	4 (9.3%)	8 (17.0%)	-0.67

**Indicates statistics taken from HFrEF sub-cohort (no HFpEF patients)*