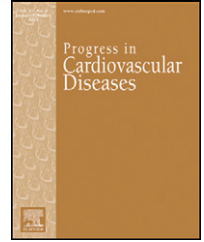




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# Implementation of a Patient Navigator Program to Reduce 30-day Heart Failure Readmission Rate

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## ABSTRACT

With increasing awareness to provide personalized care our institution applied the American College of Cardiology (ACC) Patient Navigator Program to identify hospitalized heart failure (HF) patients and improve transitions and outcomes. Utilizing a Navigator Team (NT) composed of a nurse and clinical pharmacist, we delivered evidenced-based interventions and hypothesized this approach would improve identification of HF inpatients and reduce the 30-day all-cause readmission rate. Patients were followed from admission to discharge and received at least one intervention, tailored to the patient's health literacy and social needs. The 30-day all-cause readmission rate was 17.6% for the Patient Navigator Program and 25.6% for the medical center. Compared to the medical center there was a statistically significant increase in education and follow-up. For patients who received specific NT interventions of education and follow-up the readmission rate was 10.3% and 6.1% respectively. Hospital programs can easily embed a NT into existing initiatives to further reduce the readmission rate.

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Statement of conflict of interest: see page 265.

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### Abbreviations and Acronyms

<b>ARB</b> = Angiotensin-II receptor blocker
<b>ACC</b> = American College of Cardiology
<b>ACE inhibitor</b> = Angiotensin-converting enzyme inhibitor
<b>ADHF</b> = Acute decompensated heart failure
<b>BB</b> = Beta-blocker
<b>CMS</b> = Centers for Medicare and Medicaid Services
<b>EF</b> = Ejection fraction
<b>GDMT</b> = Guideline-directed medical therapy
<b>HF</b> = Heart failure
<b>HFpEF</b> = Heart failure with preserved ejection fraction
<b>HFrEF</b> = Heart failure with reduced ejection fraction
<b>HRRP</b> = Hospital Readmissions Reduction Program
<b>MRA</b> = Mineralocorticoid receptor antagonist
<b>NT</b> = Navigator Team
<b>NT-proBNP</b> = N-terminal pro-brain natriuretic peptide
<b>NYHA</b> = New York Heart Association

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## Background

Heart failure (HF) is one of the leading causes of hospital admissions. Data repeatedly show that each hospitalization increases mortality at 6 months and at 1 year.<sup>1–2</sup> In the United States, the cost burden of HF is estimated to be 30.7 billion dollars annually.<sup>3</sup> This cost can be potentially curtailed as hospital readmissions occur in approximately 1 in 4 patients within 30 days.<sup>4</sup> While some readmissions are unavoidable due to barriers in care or concomitant disease states, there are a proportion of patients with preventable causes.<sup>5</sup> Health care

health care institutions to curb unplanned readmissions include early identification of patients with HF, improving coordination of care between the care team and education for patients and caregivers.<sup>9–10</sup> Stratification of patients with high risk of readmissions can be performed through the use of a 30-day readmission calculator released by the Center for Outcome Research and Evaluation (CORE). Items included on the risk calculator include demographics, presentation at initial hospitalization, medical history, physical exam and diagnostic labs at admission.<sup>11</sup>

In addition to the risk calculator, an objective marker that is correlated with HF risk is the N-terminal pro-brain natriuretic peptide (NT-proBNP) laboratory test in which a high risk of adverse outcomes is seen with levels above 900 pg/mL.<sup>12</sup> A single NT-proBNP reading is a prognostic marker for adverse outcomes; however, additional NT-proBNP testing is also warranted as a trend allows for the identification of clinically significant change in health status.<sup>13</sup> Knowledge of the increase in NT-proBNP levels can facilitate beneficial treatment modifications. Despite services provided during the hospitalizations, changes in health status post discharge or barriers to following a plan are among causes that can lead to a readmission. Current evidence identifies drug regimens that prevent HF complications and reduce disease progression yet suboptimal dosing, especially with angiotensin-converting enzyme inhibitors (ACE inhibitor), angiotensin II receptor blockers (ARB), beta-blockers (BB) and mineralocorticoid receptor antagonists (MRA), are still identified as issues that impact patient outcomes.<sup>14–15</sup> Furthermore, medication nonadherence is a well-studied factor that leads to readmissions and an increase in morbidity and mortality.<sup>16–19</sup> In conjunction with pharmacotherapy, modifications in diet and exercise have also been areas of targeted interventions.<sup>20–22</sup> Discharges planning with a timely follow-up with telephone calls, home visits or outpatient providers are needed to provide continuity of care.<sup>23</sup> Moreover, follow-up within 7–14 days of a hospitalization has shown to lower readmission rates.<sup>24–25</sup>

Albert Einstein, the namesake of Montefiore Medical Center's College of Medicine, highlighted the importance to "learn from yesterday, live for today and hope for tomorrow". HF as a syndrome, embodies the learning that has occurred from yesterday, the challenge today of Centers for Medicare and Medicaid Services (CMS) penalties for high readmission rates and hope for tomorrow to lower this marker of poor quality. As our institution strives to reduce its readmission rates for HF a simple and fundamental question needed to be answered before looking to future directions. A readmissions reduction program could not be definitively and accurately implemented if patients with the diagnosis of HF could not be

factors attributed to readmissions include shorter length of stay and multiple emergency department visits within 6 months of hospitalization.<sup>6–7</sup> The Hospital Readmissions Reduction Program (HRRP), which financially penalizes hospital systems for Medicare fee-for-service patients readmitted in 30 days for HF or other select diseases, is one of the federal initiatives to address this issue and has raised hospitals' awareness of the readmissions quandary. Programs may vary in the type of interventions included to reduce HF readmissions, but the most common outcome measured for HF teams is hospital readmission rates. Since multiple interventions are often implemented at the same time with confounding variables, the composite endpoint of readmissions may impede the identification of specific interventions that are significant.

Results from currently implemented hospital programs show varying effects on readmission rates. One study found <1.4% of hospitals reaching a 20% reduction rate in 30-day readmissions.<sup>8</sup> Nevertheless, identifying interventions that can slow the current hospital HF readmission rate is in the best interest of healthcare institutions. Strategies used by

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