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Editorial

Slowing the Revolving Door of Hospitalization for Acute Heart Failure

The most recent American College of Cardiology Foundation/American Heart Association guideline for the management of heart failure (HF) defines this disorder as a complex clinical syndrome that results from either structural or functional impairment of ventricular filling or ejection.^{1(p246)} Although this condition may be associated with disorders of the heart valves, endocardium, myocardium, pericardium, aorta, or metabolic problems, most patients with HF experience fatigue and dyspnea, clinical symptoms that reflect impaired left ventricular function. Some but not all patients with HF present with clinical manifestations of volume overload.¹

Scope of Issues Related to HF Hospitalization

The dimensions of this disorder are massive and expanding, precipitating its characterization as both an epidemic and as a staggering clinical and public health problem associated with significant morbidity, mortality, and cost, primarily borne by those older than 65 years.² Approximately 5.1 million adults older than age 20 in the United States have HF and current estimates project that HF prevalence will increase by 25% by 2030.³ The overall incidence of HF in the United States has remained disappointingly stable for the past few decades, with more than 650 000 new HF cases diagnosed each year.³ Blacks have the highest likelihood of developing HF, followed

by Hispanics, whites, and Chinese Americans, reflecting differences among these racial groups in the prevalence of risk factors such as hypertension and diabetes mellitus.⁴ In Americans older than 65 years, the incidence of HF approaches 10 per 1000 population.³

Heart failure is a contributing cause of death for nearly 275 000 Americans each year, appearing on one of every 9 death certificates, and is the underlying cause in more than 56 000 of those deaths.³ Researchers at Yale examined data for all Medicare beneficiaries 65 years or older with a primary diagnosis of HF and found the median 30-day mortality rate was 11.1% for HF.⁵ Although longer term survival following diagnosis of HF has improved somewhat, 5-year mortality remains high at roughly 50%.⁶

Physician office visits for a primary diagnosis of HF total 1.801 million annually, while emergency department visits tally 668 000 and outpatient visits add another 293 000.³ In the decade between 2000 and 2010, the annual number of hospital discharges for patients with HF maintained a steady pace, rising slightly from 1.008 million to 1.023 million.³ The cost of all of this health care for HF patients, estimated for 2013 at \$32 billion, is projected to rise nearly 120% to \$70 billion by 2030.⁷ At an individual level, one estimate of the total lifetime costs of HF calculated with 2007 data was \$109 541 per person, with substantially higher costs for patients with diabetes mellitus (24.8% higher) and those with preserved ejection fraction $\geq 50\%$ (23.6%

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higher).⁸ Much of the staggering cost associated with HF is attributable to both its high rates of hospitalization and rehospitalization. In the United States, HF remains the leading cause of hospitalization among patients 65 years and older.^{3,9,10} Annually, more than 1 million patients are hospitalized with a primary diagnosis of HF.³ Despite improvement in outcomes related to newer medical therapies over the past few decades, hospital readmission rates for HF remain unacceptably high, with readmission within 30 days in about 24% of cases,⁵ though varying widely from 10% to 50% across US hospitals,¹¹ and readmission within 6 months of discharge in 50% or more of cases.^{5,11,12} The greatest risk for readmission occurs immediately following hospital discharge and 1 to 2 months preceding death, with a relative risk plateau in the interim.¹²

Now as the first wave of baby boomers has floated onto the Social Security and Medicare rolls, it is hardly surprising that the US Center for Medicare and Medicaid Services responded to the human, health care, and financial toll associated with HF and heavily subsidized by federal tax dollars by instituting mandatory reporting and comparison of 30-day hospital readmission rates for HF in 2009 as a pay-for-performance initiative.¹³ Although that legislation spurred research and quality improvement (QI) initiatives aimed at improving both public perceptions and hospital reimbursements, the following year's federal legislation proposing to use those publicly reported indicators to deny Medicare reimbursement to hospitals with high 30-day hospital readmission rates has escalated those efforts multifold.¹⁴ Despite a flurry of programs developed to mitigate the revolving and repeating cycles of hospitalization, discharge, and readmission for this disorder, hospitalization rates for HF remain lofty, while readmission rates continue to rise,² and evidence of successful approaches to lower hospital readmissions for patients with HF are limited.

Strategies to Reduce HF Readmissions

Against this backdrop, researchers at Yale recently surveyed US hospitals to determine the interventions used to reduce readmissions.¹⁵ They then surveyed a national sample of 658 hospitals enrolled in the American College of Cardiology's Hospital-to-Home campaign¹⁶ to determine the specific strategies related to lowering 30-day readmission rates for patients with HF. Survey

items encompassed approximately 30 different interventions organized around 3 conceptual dimensions: quality improvement and performance monitoring activities, medication management (reconciliation, teach-back), and procedures for discharge and follow-up. Findings from the 599 hospitals that responded to the survey (91% response rate) revealed that the strategies independently associated with significant reductions in hospital 30-day readmission rates for HF were as follows:

1. Partnering with nearby hospitals
2. Partnering with physicians or groups of physicians in the community
3. Having nurses be responsible for medication reconciliation
4. Assigning specific staff to follow up with test results delivered after the patient's discharge
5. Employing a procedure that forwards all paper or electronic discharge summaries directly to the patient's primary physician
6. Scheduling follow-up appointments before discharge¹⁷

Some interesting additional findings from this study reflect considerable margin for continued performance improvement in this area:

- Among the 6 interventions associated with lower rehospitalizations, most were implemented by fewer than 30% of the nearly 600 hospitals surveyed
- Only 7% of hospitals implemented all 6 strategies
- A few recommended strategies that appeared to more closely align inpatient and outpatient care for HF patients were linked to higher rather than lower readmission rates: frequency with which outpatient and inpatient prescription records are linked electronically; patients or caregivers receiving written emergency plan at discharge; hospital regularly telephoning patients after discharge to follow up on needs or provide additional education.¹⁷

Interventions such as the latter appear so counterintuitive that they beg explanation. One plausible explanation may be that the strategy's design or components or implementation is markedly different among different hospitals to the extent that "postdischarge follow-up" or "patient/caregiver education" comprises

very different things or is delivered well or poorly or provided consistently or inconsistently from one hospital to another. In any case, study findings in this category clearly flag a need to determine the attributes of each readmission reduction strategy so that future studies and later meta-analyses to judge their efficacy can compare standardized versions of each strategy rather than labels left to self-determination of intent, content, scope, inclusions, who does what to whom, how and when.

Rethinking Approaches to Lowering HF Readmissions

A research team from Brigham and Women's Hospital in Boston⁹ offers 2 interesting elements of a paradigm shift for approaching alternatives to reduce HF readmissions: half of this shift involves tailoring interventions according to the clinical course of HF and the other half proposes an alternative model of care for patients with HF.

Tri-Phase Tailoring of HF Interventions

Rather than focusing solely on the effectiveness of individual strategies applied during the admission or discharge, Desai and Stevenson⁹ suggest that these endeavors might be more effective if they were tailored to the 3 phases that comprise the clinical course of HF. This strategy would approach prevention of HF readmissions via strategies tailored to each of these phases:

1. **The Transition Phase: From Hospital to Home.** After the hospitalization period when care included restoration and stabilization of fluid balance, management of exacerbating influences, and adjustment of neurohormonal antagonists, transition phase strategies would encompass comprehensive discharge planning, provision of all necessary patient and/or caregiver instruction, guidance on managing sodium and fluid restrictions, collaboration and communication with visiting nurses, and scheduled patient follow-up within 7 to 10 days of discharge.

2. **Plateau Phase.** Once HF patients are stabilized, those with reduced ejection fraction may be optimized on so-called disease-modifying therapies such as angiotensin receptor blockers, β -blockers, or aldosterone antagonists, while those with preserved ejection fraction have few therapies targeted for support. Ongoing

monitoring to detect rising cardiac filling pressures would be ideal, but remains more than challenging.

3. **Palliation and Priorities Phase.** As HF advances toward its end stage, the patient's care and quality of life may benefit from a calm and thorough discussion of the patient's preferences among alternatives for end-of-life care well before they begin to despair in an accelerating cycle of readmissions. If care conferences can take place in an outpatient setting, options such as palliative care may be considered and tentatively arranged so hospital readmission may become unnecessary.

Alternative Model of Care for HF

The other half of this paradigm shift proposes an alternative model of care for HF patients that centers around reframing the role and influence of the traditional model of the ambulatory HF clinic. Rather than this clinic serving as a focal point for intermittent assessment and management of chronic HF, the proposed model redesigns this point of care as an ambulatory treatment center with much tighter linkage to both home surveillance as well as to active treatment options that would serve as alternatives to hospitalization.

How Critical Care Nurses Can Contribute to Reducing HF Readmissions

In the variable time interval between development of HF and management of its refractory, terminal slope, most patients afflicted with this disorder experience numerous hospital admissions, discharges, and readmissions. During these hospitalizations, critical care nurses have numerous opportunities to collaborate with other members of the health care team and successfully manage acute episodes and to intervene in meaningful and effective ways to better prepare patients and families for discharge in a manner that diminishes the need or at least extends the timeframe for the next readmission. At a minimum, we need to ensure that strategies already identified as effective in reducing HF readmissions are consistently delivered in an organized protocol of care that is monitored for both delivery and effectiveness.

In addition, we can contribute to the value and quality of evidence-based care in this area by reviewing the literature to determine how different hospitals

operationalize each strategy and by clearly identifying all relevant attributes of each strategy employed in local QI initiatives. The more these interventions can be standardized, the more valid and reliable comparisons of their effectiveness will become. When you have completed research or QI initiatives that can enhance nursing practice in this area, *Critical Care Nurse* will welcome the opportunity to consider your report for publication so that both your patients with HF and your colleagues worldwide can benefit from your findings. [CCN](#)



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