Thirty-Day Readmissions
The Clock Is Ticking

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What makes 30 days so special? Across disciplines of medicine, this time frame is used to help define response to initial therapies. Oncologists often require 4 weeks of complete response to initial chemotherapy before declaring patients with acute myeloid leukemia to be in remission. The Society of Thoracic Surgeons uses 30-day mortality as a major indicator of cardiac surgical success. In heart failure, 30-day readmission has emerged as a benchmark for reimbursement and an indicator of hospital quality.

Today, approximately one-quarter of all patients discharged from a hospitalization for heart failure are readmitted within 30 days, and half of these readmissions are directly related to heart failure. On October 1, 2012, the Centers for Medicare & Medicaid Services (CMS) began to penalize hospitals for higher standardized early readmission rates for heart failure, acute myocardial infarction, and pneumonia. It is anticipated that these penalties will increase and also expand to include other diseases, making this provision one of the most severe penalties mandated by the Patient Protection and Affordable Care Act.

Herein, we critically explore the widely accepted 30-day timeline and the use of rehospitalization as a target end point. Although heart failure is used to examine the various facets of postdischarge hospital outcomes, this discussion can be applied across many other medical conditions.

The Time Frame

The 30-day point does not have a clear biological, clinical, or therapeutic evidence base. For many patients hospitalized with heart failure, the window spanning the stabilization of heart failure and the early postdischarge period represents a dynamic transition from acute to chronic heart failure. Longitudinal evaluation of clinical profiles of patients discharged for heart failure suggests that dynamic changes in clinical, laboratory, and neurohormonal parameters begin early after hospitalization and continue for several months. Heart failure is one of many conditions without a clear clustering of early events after discharge; rather, risk of death or readmission is gradually accrued over months after initial hospitalization. Recent data from large, multicenter clinical trials indicate that only 23% of readmissions after an index hospitalization for heart failure occur within 30 days, 19% between 31 and 60 days, and 58% after 60 days.

Thus, focus on a restricted 30-day window underestimates the true readmission burden, and short-term strategies to reduce early readmission rates may have little effect on the majority of readmissions. Data comparing the relative utility of a 30-day window vs other postdischarge timeframes showed limited difference in identifying overall hospital performance based on cumulative mortality data. However, the majority of preventable readmissions appear to occur in the days immediately following hospital discharge and may reflect factors related to the discharge process and coordination of care. Drug or device interventions shortly after discharge may theoretically reduce the risk of early readmission. However, on-therapy 30-day event rates are rarely reported in trials of patients with chronic heart failure; thus, the effects of the intervention on early readmissions are poorly defined for the vast majority of agents (eTable). Furthermore, the clinical benefit of well-established heart failure therapies, such as β-blockers and angiotensin-converting enzyme inhibitors, may only affect event rates months after initiation and appropriate titration.

The End Point

Limited data support the use of all-cause readmissions as an appropriate performance metric following hospitalization for heart failure. Quality measures including total hospital admissions, length of stay, and in-hospital mortality have significantly improved over the last decade, based on national Medicare data for heart failure. These trends may reflect greater use of evidence-based therapies and higher hospital adherence to national performance measures. Thirty-day readmission remains one of the stand-alone measures that has not demonstrated progress. It is uncertain whether this is attributable to inadequate effort toward postdischarge care or to an intrinsic problem with the quality metric.

Not all readmissions reflect poor hospital quality. Clear competing risks exist between mortality and rehospitalization. Patients who die soon after hospital discharge do not have the chance to be rehospitalized. Hospital centers with higher adjusted mortality rates have apparently lower adjusted readmission rates because of this competing-risk phenomenon. Thus, hospitals that successfully reduce postdischarge mortality rates may be unjustly penalized under the current reimbursement system. This point is especially pertinent given the distinct differences in predictors of postdischarge rehospitalization and mortality in heart failure.

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Furthermore, the current definition of this event fails to discriminate between “good” and “bad” readmissions. Certain readmissions may provide additional opportunities for health maintenance, advancement of the therapeutic agenda, and patient education. Joynt and Jha suggest that a substantial percentage of rehospitalizations may be unavoidable because of the influence of fixed socioeconomic, geographic, and structural factors. Additionally, many readmitted patients are rehospitalized for reasons not directly related to heart failure alone. Thus, the CMS mandates hold hospitals responsible not only for the specific treated disease condition but also for other potentially unrelated conditions.

**One Size Does Not Fit All**
Heart failure is widely heterogeneous, with distinct clinical subsets, and represents the end pathway of a number of cardiac and noncardiac comorbid conditions. Based on this inherent biological variability across patients, the expected postdischarge clinical course may differ considerably. Timelines for outpatient follow-up visits should be individualized based on known clinical data and pathophysiology as well as the patient’s social situation. Under the current system, hospital centers that care for poor populations with sicker case mixes may be preferentially penalized.

**Unintended Consequences**
Will penalties for readmissions improve the quality of care or are they intended to simply modulate costs? Although these new mandates may encourage creative hospital-based approaches beyond the traditional set of medication-based approaches to reduce early readmissions, it seems unlikely that this approach will significantly improve the overall prognosis of patients with heart failure. Focusing on postdischarge clinical course is critically important, but arbitrary identification of a single metric is not an optimal solution. Prior length-of-stay measures may have inadvertently driven up early readmission rates. Penalizing hospitals for readmissions may unintentionally incentivize diversion of patients who will benefit from hospitalization. Given the limitations in resources and health care spending, hospitals may divert resources from other quality and safety initiatives.

Perhaps more importantly, the focus on the financial penalties may distort incentives, care, and ultimately outcomes by diminishing efforts to improve intermediate- and long-term outcomes. These trends would ultimately increase the costs of care for heart failure. It is also unclear whether hospitals will be able to reduce high readmission rates because of the influence of fixed social factors beyond their control. Treatments that definitively influence 30-day event rates have not been clearly delineated, especially in patients with heart failure and preserved ejection fraction. Even established therapies such as β-blockers and mineralocorticoid antagonists may influence 30-day mortality, but none have shown early benefit for rehospitalization in the first 30 days. Without clear actionable items available, it is premature to require hospitals to reduce readmissions.

**Looking Forward**
Heart failure is a chronic, undulating condition. Focusing on an arbitrary time frame and end point inadequately characterizes the situation. A more nuanced and comprehensive approach is required to effectively alter the postdischarge course of patients admitted for heart failure and other conditions. Specific quality metrics should be rigorously tested and validated in target populations to ensure those measures are feasible and effective for improving the clinical end points. Longer-term end points may help capture a larger at-risk population and reduce the early competing risks of mortality and rehospitalization. Clear criteria for admission, readmission, and discharge must be established to encourage necessary admissions for appropriate length of stay. Robust risk adjustment in CMS hierarchical logistic models must account for the burden of mental and physical comorbidities in individuals. Expected readmission risk and temporal event profiles must be constructed for each established subset of heart failure and other conditions.

Heart failure accounts for approximately 2 million US hospital admissions each year and has a tremendous financial burden. New reimbursement schedules from CMS have begun the discussion of optimizing postdischarge events in these patients. Further refinement and evidence-based input are required prior to expanding these programs. Each quality metric should be data driven and patient focused. The 30-day readmission measure does not appear to meet either of these criteria. The important remaining question is whether patients will benefit from this measure. Thus far, it appears that this metric has the potential to result in more harm than benefit for patients with heart failure.

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**Online—Only Material:** The eTable is available at http://www.jama.com.

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