The Devil Is in the Details
The Need for Integrated Cardiovascular Data for Performance Measures and Feedback

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Public reporting of processes of care and outcomes in common diseases has occurred for many decades. More recently, the National Quality Forum and various professional societies have developed, endorsed, and maintained performance measures in many of these common diseases. These performance measures have allowed comparison of processes of care and risk-adjusted outcomes among physicians, hospitals, and regions. As the performance of primary percutaneous coronary intervention (PCI) has become the dominant reperfusion strategy in patients with ST-segment elevation myocardial infarction (STEMI) in the United States, performance measures around primary PCI have shaped how physicians measure their own performance, how patients are informed about quality of STEMI care in their regions, and how payers make decisions about reimbursement for care. 2,3

One of these metrics, the door-to-balloon (D2B) time, has emerged as the primary measure to judge quality and determine reimbursement in hospitals performing primary PCI for STEMI patients. This has occurred because of the healthcare system’s ability to measure this process and the association between improvements in D2B times and improvements in mortality (both in-hospital and long-term). This measure has been used with the understanding of the limitations of focusing solely on clinical outcomes.4–6 In this “pay for performance” era, most cardiologists would agree that D2B times and STEMI performance measures in general are important components of measuring quality of care; however, the report by McCabe et al in this issue of Circulation shows that “the devil is in the details.”

The authors should be congratulated on their effort to examine this topic, and we believe that this report highlights a number of important issues when considering performance measures in STEMI patients. A total of 1548 patients who underwent primary PCI in 3 hospitals (2 academic, 1 community) in the Partners Healthcare System in Boston, MA, from 2005 to 2011 were included in the analysis. Overall, 26% of patients were excluded from Medicare reporting, and there were significant differences between the 3 hospitals in the percentage of Centers for Medicare and Medicaid Services (CMS)–excluded patients. During the course of the study, the proportion of CMS-excluded patients increased almost 3-fold, and this increase appears to be attributable to the introduction of additional CMS-approved reasons to exclude patients in 2006, but an alternative explanation is that physicians and hospitals used the exclusion reasons to “game” the system, leading to reporting of improved D2B times and risk-adjusted mortality rates.

Not surprisingly, CMS-excluded patients in the present report had significantly more comorbid illnesses, more frequently required intra-aortic balloon pump use for cardiogenic shock, and more commonly presented with cardiac arrest. The 1-year mortality rate for CMS-excluded patients (13.5%) was double that of CMS-included patients (6.6%). Additionally, significant improvements were observed in the D2B times of CMS-included patients over the course of the study, and less significant improvement was seen in CMS-excluded patients.

The most common reasons that patients in the Partners cohort were excluded from CMS reporting were diagnostic dilemma (31.2%), critical illness (19.0%), technical difficulties with PCI procedure (9.6%), and difficulty with consent or concomitant illness (8.7%). A cause for concern was that 15.6% of CMS-excluded patients could not be classified based on medical record review, and an additional 11.1% of CMS-excluded patients had missing data. In the patients classified as having diagnostic dilemmas (sometimes termed “semi-STEMI”) and critical illness (cardiogenic shock and cardiac arrest), careful attention to medical history, performance of adjunctive testing, and resuscitative measures such as intra-aortic balloon pump or endotracheal intubation are often necessary steps to ensure safe and appropriate catheterization laboratory activation and reperfusion. That being said, the high mortality rates in patients presenting with critical illnesses warrant further attention, and the authors rightfully point out that this high-risk group may benefit the most from early reperfusion and aggressive care. The addition of technical difficulties with PCI (including vascular access, wiring of the infarct-related artery, and passage of devices through the lesion) has been considered the “most subjective and easily manipulated exclusion criteria” and one cited as “the weasel clause” by a recent editorial.7 These exclusion reasons and their associated D2B times and mortality highlight the landscape of STEMI measures in an integrated healthcare system.

Despite the findings in the present study, much debate will remain about how to compare quality of care and outcomes in STEMI patients across hospitals. Concern over the unintended consequences of publicly reporting STEMI measures and...
outcomes has prompted physicians and professional societies to hypothesize that requirements to report STEMI performance measures are associated with the performance of fewer primary PCI procedures, especially in the sickest patients who may benefit from reperfusion to the greatest degree.9,10 Indeed, multiple studies have reported that the odds of receiving primary PCI for STEMI are lower in areas that require public reporting of mortality after PCI.11,12 This hesitancy to perform high-risk, high-reward procedures will likely persist in the absence of a balanced scorecard for STEMI care, especially as advertisement campaigns from hospitals and reimbursement from payers are linked to D2B times and mortality of patients treated with primary PCI.

To consider the present findings in the context of ongoing efforts in healthcare reform, the major goal should ensure equal, if not higher, quality of care in all STEMI patients, that is, those patients included and excluded from CMS reporting. These findings raise concerns that by instituting public reporting, exchange purchasing, or other reform mechanisms, individual physicians and hospitals will look to carefully identify CMS-excluded patients. Therefore, it will be central to the healthcare reform process to identify and capture a broad range of key metrics and prevent a generally held belief that there is actually incentive to undertreat or even withhold treatment from patients at highest risk for poor outcomes.

The components of the path forward to the ideal future state of public reporting performance measures and outcomes are multifaceted and are currently being addressed by the Center for Medicare & Medicaid Innovation.13 The Center for Medicare & Medicaid Innovation was established to test new payment and service delivery systems, evaluate results and advance best practices, and engage a broad range of stakeholders to develop additional models of service delivery. First, the incorporation of big data sets, from accountable care organizations or national registries, that include all patients with the condition of concern is imperative to both identifying the correct performance measures and implementing payment based on them. For STEMI performance measures, for instance, this would mean linkage of CMS claims and public reporting data to the National Cardiovascular Data Registry or electronic health records.14 Second, real-time, meaningful feedback that provides physicians and hospitals with monthly reports will successfully allow for these important stakeholders to judge themselves on a scorecard against regional or national averages. Currently, there remains a 3- to 12-month lag in feedback from the National Cardiovascular Data Registry and CMS, respectively. The recently implemented Bundled Payment for Care Initiative has been designed to partially serve this purpose by providing feedback for both PCI and acute myocardial infarction care; however, its main purpose is to reduce the cost of care for PCI and acute myocardial infarction while maintaining quality. Third, a peer review system to reduce undertreatment and overtreatment and to identify best practices from an institution or physician will ensure that everyone endorses a performance measure. The ultimate goal is to ensure all providers provide timely, safe, and effective therapies as primary PCI to acute myocardial infarction patients. This peer review process also has the potential to lead to identification of additional performance measures that can be developed into a comprehensive system or dashboard to grade physicians and hospitals. Although this component is included in the “best practices” section of the Center for Medicare & Medicaid Innovation, the implementation of peer review of individual operators or primary PCI cases on a large scale has not yet occurred.

If these steps are indeed the way forward, the last question is whether this can plausibly occur in the current environment. Aside from a mandate and public reporting requirements to date, there has previously been a limited business case for either physicians or hospitals to drive these changes. However, with the potential increased interest from both patients and payers in value and the measurement of quality of services, the cardiovascular community will need to continue to innovate and evaluate existing and proposed measures for performance. In fact, it will be the healthcare systems that identify and develop rapid learning environments that will lead the way forward.

Disclosures

None.

References


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