Public Reporting of Clinical Quality Data
An Update for Cardiovascular Specialists

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as the Northern New England Cardiovascular Study Group, the Society of Thoracic Surgeons (STS) National Adult Cardiac Surgery Database, and the reporting of cardiac surgery and percutaneous coronary intervention (PCI) outcomes in several states (7–13). With implementation of the “Hospital Compare” website in 2005, CMS re-established public reporting for Medicare beneficiaries aggregated at the hospital level, initially with process measures for common conditions (14). Public reporting initiatives include: 1) state initiatives, with some including price transparency; 2) reports from payers; 3) reports from business consumer groups; and 4) reports from independent organizations that display data in a simple format and provide proprietary analysis and ratings using methodology that is nontransparent (15–18). Some payer organizations have a greater focus on cost-profiling physicians; the accuracy of these methods has been questioned (15). There are also multiple internet-based forums where patients report their anecdotal experiences with physicians (19).

Beginning in September 2010, STS, in partnership with Consumer Union, started voluntary publishing information on the performance of coronary artery bypass graft procedures in Consumer Reports (20). Previously, STS data were used as benchmarks to stimulate local quality improvement, but were not available publically. This collaboration represented the first national public reporting effort led by a professional organization and was well received (21). Within 3 years of its inception, 50% of cardiovascular groups voluntarily reported their STS ratings.

Passage of the Patient Protection and Affordable Care Act of 2010 (ACA) created a new framework by mandating a national strategy for quality improvement, including public reporting of healthcare quality information. Two federal agencies, the Agency for Healthcare Research and Quality and CMS, share responsibility for these activities. By law, these agencies are required to engage all relevant stakeholders and develop detailed performance, quality, and cost measures to meet the needs of patients.

The ACA also called for a multi-stakeholder group to: 1) identify the best available performance measures for use in specific applications; 2) provide input to the Department of Health and Human Services on measures for use in public reporting, performance-based payment, and other programs; and 3) encourage alignment of public and private sector efforts. The Secretary of the Department of Health and Human Services selected the National Quality Forum (NQF) to perform these functions, and subsequently, the NQF convened a public–private partnership to assist in the selection of performance measures (22,23). Public reporting will be used for insurance plans offered through new state-level health insurance exchanges and for participants in Medicare’s “value-based purchasing” program. Some of these initiatives have already started, with implementation of the “Physician Compare” website by CMS (24). Beginning in 2014, Physician Compare will include quality of care ratings for group practices, with individual ratings added in the future.

### Potential Benefits and Unintended Consequences of Public Reporting

Public reporting is intended to improve healthcare delivery and patient outcomes by making quality measures transparent and easily available. Literature on the impact of public reporting is limited, but positive examples are emerging. For example, a national survey from 2008 showed that patients with vascular disease were prescribed prophylactic aspirin by only 35% to 47% of physicians among different specialties (25). However, in Minnesota, which publically reports the use of aspirin prophylaxis, the rate is 95% (26). Likewise, recent data from the Wisconsin Collaborative for Healthcare Quality showed that large group practices will engage in quality improvement efforts and show improvement in patient outcomes by making quality measures transparent (27). These reviews cite evidence that publicly releasing performance data stimulates quality improvement activity at the hospital level, but conclude that the overall effect of public reporting on effectiveness, safety, and patient-centeredness remains uncertain.

Studies have also reported unintended consequences of public reporting. The majority of reports highlight the development of risk adverse behavior among physicians and facilities subject to public reporting. This was shown for coronary artery bypass graft surgery in both New York and Pennsylvania, and similar risk adverse behavior was reported for PCI (32–35). In several studies, patients with acute myocardial infarction and cardiogenic shock were less likely to receive PCI in states with public reporting (35–37).
In Massachusetts, the risk profile of PCI patients at hospitals identified as having higher than expected mortality was significantly lower after public identification when compared with nonoutlier institutions (38,39). This was partially negated by the inclusion of a “compassionate use” variable into the mortality risk calculation (40). Nevertheless, there is concern that mortality alone is not a good metric to judge the quality of a PCI program (41–43).

In addition to concerns about unintended consequences, there are questions about the accuracy of some reported data. When HCFA data were used to generate hospital mortality reports, there was considerable concern about the potential inaccuracies of administrative (claims) data for this purpose, and these concerns still exist (5,6,44). For example, in comparative studies of cardiac surgery performance using administrative versus clinical data sources, considerable disparities were found, leading to the conclusion that report cards using administrative data were problematic (45–47). Clinical registry data have several advantages over administrative data that are currently the substance of many public reports (48,49) (Table 2).

### How Should Public Reports Be Used by Patients and Purchasers?

Although the public has adopted the use of easily available product evaluations to guide decisions about major purchases, consumers have been slow to use comparative information to make healthcare choices. However, this is changing; data from the Pew Internet Research Project indicate that among those with Internet access, 55% have sought medical information from the Internet (50,51). In theory, the use of public reports should facilitate 3 key functions. First, these data should help consumers make informed and better choices about where to obtain health care for themselves and their family. Second, these data should stimulate quality improvement among provider groups as a way to protect or enhance their market share, especially in more competitive markets if they perceive that performance data may affect consumer choice. Finally, access to these data should encourage providers to improve their quality of care and encourage purchasers and health plans to use higher-quality providers in their networks (52,53).

To make public reporting helpful to consumers, it is important to understand that consumers and clinical experts may define quality differently. The top factors consumers identified as being most important in determining the quality of health care were affordability, the physician’s qualifications, and access to care for everyone (54). This is clearly different from the concept of healthcare quality represented in most public performance reports, which often include technical measures of quality and patient experiences. Consumers can also misunderstand reported quality measures. For example, longer length of stay is intended to indicate poor performance, but some consumers may incorrectly believe this a favorable finding. Other measures may be incomprehensible to consumers, such as why certain medications are necessary for some conditions (55).

### Research Is Needed to Improve Public Reporting

The effectiveness of public reporting, including both potential benefits and unintended consequences, has not been

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**Table 1** Stakeholders and Their Interest in Public Reporting

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Reasons for Interest</th>
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<tbody>
<tr>
<td>Consumers</td>
<td>Consumers of healthcare services are the most obvious audience for information on the costs and quality of care. Consumers could use the information in public reports at various points of interaction to make more informed decisions about choosing facilities and providers for a specific service.</td>
</tr>
<tr>
<td>Employers/purchasers</td>
<td>Employers act as intermediaries in selecting health insurance for most privately-insured Americans. Employers may want information to use in selecting from among various health plans or self-insured options, including the cost and outcomes of providers included in a given plan’s network and the plan’s record of performance in meeting service and quality standards.</td>
</tr>
<tr>
<td>Health plans</td>
<td>Health plans likely have their own claims data, but in certain markets may not have sufficient information to evaluate the price and quality of all physicians, hospitals, and other providers. Plans may also want to benchmark their performance on service and quality measures against their competitors.</td>
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<tr>
<td>Providers</td>
<td>Hospitals, physicians, nursing homes, and other healthcare providers could benefit from more transparent quality information for benchmarking their own performance and as a feedback loop for improved performance.</td>
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<tr>
<td>Policymakers</td>
<td>Federal and state officials’ responsibility for oversight and monitoring of performance could benefit from accurate and timely information on providers, health plans, and facilities to monitor changes in the overall system, identify areas that warrant closer investigation, and encourage the reporting groups to monitor their own performance. Policymakers are seeking to promote healthcare “value,” which necessitates the measurement of both cost and quality.</td>
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**Table 2** Advantages of Clinical (Registry) Data Over Claims Data in Public Reporting

<table>
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<th>Reason for Interest</th>
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<tr>
<td>More directly reflects clinical care, and is, therefore, closer to the science upon which measures are based and more reflective of actual performance than are data derived solely from claims.</td>
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<tr>
<td>Can provide periodic, timely, nationally benchmarked data to providers, which can be used to construct practice- and provider-level quality improvement activities, the results of which can be measured in subsequent data submissions. In contrast, administrative data frequently has a lag time of 2 years.</td>
</tr>
<tr>
<td>Data for submission to registries can be unobtrusively incorporated into provider workflow with software that queries virtually any commonly-used electronic health records system.</td>
</tr>
<tr>
<td>Data submission, quality, and analysis can be overseen by medical specialty societies that focus on education and clinical quality improvement.</td>
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convincingly proven, and thus, more research is needed (30,31). Presently, it appears that public reporting is more likely to have an impact on healthcare providers than on consumers. Some process measures of quality improve over time, but changes in outcomes like mortality have been more difficult to assess due to many confounders. The most consistent evidence supporting the impact of public reporting comes from the long-term care environment, where there have been more studies of improvements in quality measures due to Nursing Home Compare and Home Health Compare (56,57). Future research should focus on: 1) identifying which types of measures (process, outcome, safety, cost, access, or patient experience) are most meaningful to consumers, and thus, likely to have the greatest impact; 2) better defining the potential for harm to facilities and providers from public reporting; 3) determining the balance of benefits and harms of public reporting of individual physician performance, particularly when process measures are used to assess care and determining attribution of a failure to an individual may be difficult; 4) determining the best formats for presentation of healthcare information to consumers; and 5) assessing whether public reporting results in a change in consumer behavior, healthcare quality, and cost savings.

**Why Should Professional Societies Engage in Public Reporting?**

Public reporting of healthcare provider performance is here to stay and will continue to grow, including not only process measures, but also outcome measures. Physician engagement is essential and can be facilitated by professional organizations. Together, cardiovascular clinicians and professional societies should take a leadership role to: 1) continue the development of meaningful performance measures; 2) optimize the validity of publically reported information; 3) minimize unintended consequences; 4) promote the use of clinical data to improve public reporting; 5) ensure a link to quality improvement is maintained; and 6) develop ways to use public reporting in ongoing professional development (58).

### Public Reporting and Professional Societies

In anticipation of the increase in public reporting, the American College of Cardiology (ACC) developed a health policy statement in 2008 defining 6 core principles of public reporting (59) (Table 3). With great attention to these core principles, the ACC, in partnership with the Society for Cardiovascular Angiography and Interventions and the Heart Rhythm Society, studied the feasibility of public reporting of certain cardiovascular performance measures using data from the National Cardiovascular Database Registry (NCDR). The main advantage is that these data derive from clinical sources rather than administrative data. Independent audits of NCDR data show an accuracy of approximately 90% in several registries compared with source documents (60). All publically-reported NCDR measures must be approved by the NQF, which is a lengthy and rigorous process (61). In addition, the ACC/American Heart Association (AHA) Task Forces on Practice Guidelines and Performance Measures provide guidance on the measures submitted to the NQF for consideration. All measures are evidence-based, predicated on the strongest guideline recommendations generated by the ACC/AHA Task Force on Practice Guidelines, and are developed according to standardized methodology promulgated by the ACC/AHA Task Force on Performance Measures.

The initial measures reported consist of 3 process measures and 4 outcome measures derived from the NCDR’s CathPCI and Implantable Cardioverter Defibrillator Registries (62,63) (Table 4). These measures will be displayed on the Hospital Compare website and will also be posted on other sources, including CardioSource or CardioSmart, when the measures appear in the public domain. A pilot project using 30-day readmission following PCI has already started, with approximately 300 facilities voluntarily reporting their results.

### The Future of Public Reporting

The future of public reporting is evident in CMS’s plans for the Physician Compare website (24). The ACA stipulates public reporting of performance measures for physicians, nurse practitioners, physician assistants, and 19 other types of healthcare providers who provide service to Medicare beneficiaries. As this law is phased in, CMS is also charged with developing a plan to provide larger payments to physicians who provide “high-quality care” compared with cost. In addition to measures already collected as part of the Physician Quality Reporting System, metrics reflecting the continuity and coordination of
In the future, U.S. consumers will likely be paying more of their personal healthcare costs, and that will drive patients to seek greater value. Just as consumers search the Internet for the lowest price of an appliance, patients in the future will search for quality and value in health care based upon transparent and reliable data. The challenge moving forward is to ensure public reporting occurs in a fair, accurate, and meaningful way that benefits patients and minimizes the possibilities of unintended negative consequences. Greater involvement of professional societies and employing clinical data in reporting are 2 desirable ways to improve public reporting and to be leaders in the transparent and accountable healthcare system ahead.

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## REFERENCES


### Table 4 American College of Cardiology Measures to Be Publicly Reported

<table>
<thead>
<tr>
<th>Measure Descriptions to Be Included in Composites</th>
<th>Registry Source</th>
<th>External Data Required</th>
<th>NQF Endorsed</th>
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<tbody>
<tr>
<td>Hospital risk-standardized complication rate following implantation of an ICD</td>
<td>ICD</td>
<td>Yes—CMS</td>
<td>Yes</td>
</tr>
<tr>
<td>Beta-blocker at discharge for ICD implant patients with a previous MI</td>
<td>ICD</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Beta-blocker at discharge for ICD implant patients with LVSD</td>
<td>ICD</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>ACE/ARB therapy at discharge for ICD implant patients with LVSD</td>
<td>ICD</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Patients with an ICD implant who receive prescriptions for all medications (ACE/ARB and beta-blockers) for which they are eligible for at discharge</td>
<td>ICD</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>PCI mortality (risk-adjusted)</td>
<td>CathPCI</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>30-day all-cause risk-standardized mortality rate following PCI for patients with STEMI or cardiogenic shock</td>
<td>CathPCI</td>
<td>Yes—for vital status (e.g., CDC)</td>
<td>Yes</td>
</tr>
<tr>
<td>30-day all-cause risk-standardized mortality rate following PCI for patients without STEMI and without cardiogenic shock</td>
<td>CathPCI</td>
<td>Yes—for vital status (e.g., CDC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Hospital 30-day risk-standardized readmission rates following PCI</td>
<td>CathPCI</td>
<td>Yes—CMS</td>
<td>Yes</td>
</tr>
<tr>
<td>Therapy with aspirin, P2Y12 inhibitor, and statin at discharge</td>
<td>CathPCI</td>
<td>No</td>
<td>Yes</td>
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</tbody>
</table>

ACE/ARB = angiotensin-converting enzyme inhibitor/angiotensin receptor blocker; CathPCI = Cardiac Catheterization/Percutaneous Coronary Intervention; CMS = Centers for Disease Control and Prevention; CDC = Centers for Medicare & Medicaid Services; ICD = Implantable cardioverter-defibrillator; LVSD = left ventricular systolic dysfunction; MI = myocardial infarction; NQF = National Quality Forum; PCI = percutaneous coronary intervention; STEMI = ST-segment elevation myocardial infarction.


Key Words: healthcare reform • outcomes • public reporting • quality.