Public Reporting of Cardiac Surgery Performance: Part 1—History, Rationale, Consequences

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Cardiac surgical report cards have historically been mandatory. This paradigm changed when The Society of Thoracic Surgeons recently implemented a voluntary public reporting program based on benchmark analyses from its National Cardiac Database. The primary rationale is to provide transparency and accountability, thus affirming the fundamental ethical right of patient autonomy. Previous studies suggest that public reporting facilitates quality improvement, although other approaches such as confidential feedback of results and regional quality improvement initiatives are also effective. Public reporting has not substantially impacted patient referral patterns or market share. However, this may change with implementation of healthcare reform and with refinement of public reporting formats to enhance consumer interpretability. Finally, the potential unintended adverse consequences of public reporting must be monitored, particularly to assure that hospitals and surgeons remain willing to care for high-risk patients.

(Ann Thorac Surg 2011;92:S2–S11)

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In September 2010, The Society of Thoracic Surgeons (STS) voluntarily published detailed information regarding the performance of its members who participate in the STS National Database. For this seminal initiative, a collaborative effort with Consumers Union [1], STS reported a variety of performance metrics for the index procedure in cardiac surgery, coronary artery bypass grafting (CABG). In January 2011, STS published an expanded version of similar data on its own Web site [2].

As the Society embarks upon these landmark voluntary reporting initiatives, it is appropriate to review the history, rationale, and consequences of previous mandatory public reporting initiatives and their relevant alternatives. Although this review focuses on public reporting of cardiac surgical outcomes in the United States (U.S.), we wish to specifically acknowledge the leadership of cardiac surgeons in the United Kingdom. The public dissemination of outcomes by the Society for Cardiothoracic Surgery in Great Britain and Ireland has provided an outstanding demonstration of medical professionalism, and these efforts have resulted in dramatically improved patient outcomes.

In Part 2 of this series, we examine issues related to implementation of a public reporting system.

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Historical Context

Sporadic, aggregate statistical reports of surgical success rates appeared at least as early as the beginning of the 19th century [3, 4]. Perhaps the most notable early public reporting effort was Florence Nightingale's 1863 publication of English hospital mortality rates [5]. Although the analyses and report design were criticized at the time, this may be the first instance in which the comparative outcomes of specific healthcare providers were ever published. Half a century later, Ernest Amory Codman, a surgeon at the Massachusetts General Hospital, incurred the wrath of his own institution and the Boston medical community by repeatedly challenging the competency of his profession [6–10]. His prescient call in 1917 for hospitals to release and compare outcomes data is, for much of medicine and surgery, still unanswered even today [6]:

> So I am called eccentric for saying in public that hospitals, if they wish to be sure of improvement:
> must find out what their results are
> must analyze their results . . .
> must compare their results with those of other hospitals
> must welcome publicity not only for their successes, but for their errors
> Such opinions will not be eccentric a few years hence

Drs Shahian, Edwards, Jacobs, Prager, Normand, Shewan, O'Brien, Peterson, and Grover have no conflicts of interest to declare regarding this work.

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Published by Elsevier Inc

0003-4975/$36.00
doi:10.1016/j.athoracsur.2011.06.100

Modern Initiatives to Enhance Accountability and Transparency

Although Codman's leadership in voluntarily releasing his own results was not embraced by his peers, his vision was instrumental in the subsequent development of the American College of Surgeons and the Joint Commission. There was, however, little evidence of enhanced public transparency and accountability in healthcare over the ensuing 70 years. Before the 1986 publication of hospital mortality rates by the Health Care Financing Administration (HCFA), which was the U.S. federal Medicare agency and is now known as the Centers for Medicare and Medicaid Services, Fink and colleagues [11] were unable to document a single published study in which a hospital-specific mortality rate had been identified.

The 1986 HCFA initiative was a bold attempt to implement Codman's vision for public reporting, yet its execution was problematic. It relied on administrative claims (billing) data rather than clinical data and was widely criticized for its numerous methodological flaws, including inadequate risk adjustment [12–14]. This ultimately led to the program's termination in 1993. However, despite these implementation issues, the HCFA initiative signaled the beginning of the modern era of transparency and public reporting.

Many of the subsequent early public reporting initiatives focused on cardiac surgical procedures, principally CABG, and included the development of clinical data registries by STS [15–19], the Veterans Administration (VA) [20–22], states including New York [23], New Jersey, and Pennsylvania, and the Northern New England Cardiovascular Disease Study Group [24, 25]. These registries provided high-quality clinical data that were audited for completeness and accuracy and that served as the basis for risk-adjustment models that appropriately accounted for patient severity [26, 27].

As risk-adjusted outcomes were analyzed from the first years of data collection, initial results showed substantial variation among hospitals and surgeons [23–25, 28, 29]. This led to a variety of approaches—public reporting, confidential feedback to providers, and regional best-practice collaboratives—to improve outcomes and reduce interprovider variation. New York initiated a robust cardiac surgery public reporting program in 1989 [29], and various states including Pennsylvania, New Jersey, California, and Massachusetts have subsequently implemented similar initiatives.

A different approach has been used by the Veterans Administration and STS (until its recent public release), which provide confidential feedback to participants showing their performance relative to national benchmarks [18, 20, 22, 30–32]. The Veterans Administration also uses such data to identify underperforming programs that require additional review and remediation.

The Northern New England Cardiovascular Disease Study Group is the paradigm for the third approach to improving the quality of cardiac surgery. This program has used a highly structured, regional collaborative approach that identifies and disseminates best practices to participants [33], but until recently did not publicize its results externally. Subsequent voluntary collaborative efforts have been conducted by surgeons in Virginia and Michigan, in some instances with support from payers, and these have resulted in substantial improvements in outcomes and a reduction in complication-associated costs [34–36].

The Ethics of Public Reporting

Deontological Ethics and the Right of Patient Autonomy

Deontological ethical theory, often associated with the work of Immanuel Kant, assesses the inherent morality of actions based on rules or duty rather than simply their consequences [37]. It is this ethical framework that provides the most compelling mandate and justification for public reporting. From this perspective, the moral imperative for transparency is based on the fundamental rights of patients and corresponding responsibilities of physicians, expressed in a variety of iterations since the original writings of Hammurabi and Hippocrates [37]. These rights and responsibilities include beneficence—the obligation to improve, to the extent possible, the health of patients—and nonmaleficence—not causing harm, as expressed in the familiar Latin admonition *primum non nocere.* There is also a duty of justice, often interpreted as providing care equitably and without discrimination or bias.

In the latter half of the 20th century, patient autonomy or self-determination emerged as an increasingly important principle governing the patient–doctor relationship. The need to explicitly affirm this fundamental ethical principle became apparent after reports of Nazi experimentation on prisoners during World War II, and unethical practices in the Tuskegee syphilis study conducted by the U.S. Public Health Service [37]. From these revelations a number of landmark ethical documents arose, including the Nuremberg Code, the Helsinki Declaration, and the Belmont Report, all of which affirm the rights of individual patients to self-determination based on full knowledge of risks and benefits [37].

Patient autonomy is usually considered in relation to informed consent for procedures or participation in research studies. However, there is no logical reason why this patient right to autonomy in decision-making should be confined to these two specific circumstances and not applied more broadly [38, 39]. For example, providers typically inform patients of the average risks associated with a proposed procedure, but this may not capture the actual risk for specific patients. To redress this deficiency, Arnold and colleagues [40] embedded patient-specific risk estimates into a tailored consent form for percutaneous coronary interventions, thereby enhancing the decision-making autonomy of patients.

Using similar reasoning, the right of autonomy would also support publication of provider performance data, because these may demonstrate differences that will

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