

**The Impact of Public Reporting of Quality of Care:
Two Decades of U.S. Experience**

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Background:

The quality of healthcare Americans receive has been a source of concern for over four decades¹⁻³. Starting in the mid-1970s, studies began to document large variations in the care patients received that were not explained by differences in clinical need. In the 1980s, as new clinical trials began to demonstrate effectiveness of therapies for conditions such as acute myocardial infarction (AMI – also known as a heart attack), data emerged that the trials were having only a minimal impact on care⁴. Even though certain inexpensive therapies were clearly demonstrated to save lives, physicians failed to provide those treatments at alarming rates⁵. Over the next 15 to 20 years, the inadequacy of our healthcare system began to seep into the consciousness of policy makers and consumers.

A major turning point came in 1999, when the Institute of Medicine (IOM), a branch of the National Academies of Science, published its landmark report *To Err is Human*⁶. The report highlighted, among other findings, that between 44,000 and 98,000 Americans die every year from preventable medical errors, more than the number that die from Acquired Immunodeficiency Syndrome (AIDS), breast cancer, or motor vehicle accidents. While the estimates have been controversial, there is widespread agreement that harm from poor medical care is substantial.

The IOM followed up in 2001 with the *Crossing the Quality Chasm* report¹, which suggested that there was a “chasm”, not just a gap, between the care Americans received and the care that was possible if the healthcare system functioned effectively. In 2003, the RAND institute published one of the most comprehensive (and influential) studies to date, suggesting that Americans with insurance who saw a physician or went to a hospital failed to receive the right care nearly half the

time⁷. A later analysis of that study demonstrated that being wealthier or better educated provided little protection from poor quality care⁸.

The primary response of policymakers has been performance measurement and public reporting of quality of care data. These programs have become more ubiquitous and are followed very closely by providers as well as policy makers. Before examining the marquee programs in detail, it is worth noting that in 2008, there are substantial areas of consensus and disagreement about these efforts. There is consensus about the need for transparency and the rights of patients to have greater knowledge about the care they receive. There is disagreement about the kinds of data that should be measured and the optimal approach to risk-adjustment to ensure a level playing field across providers.

The performance measurement programs described below have focused either on quality process measures or on clinical outcomes. Quality process measures usually examine the consistent provision of evidence-based diagnostic or therapeutic interventions (such as whether a patient with an AMI received an aspirin in a timely fashion). Clinical outcomes measures focus on how patients fared, such as whether a patient died after his or her AMI.

Process measures have the advantage that they are usually evidence-based, focus on activities that providers can control (such as the provision of a medication) and generally do not penalize providers who take care of a sicker population (because it is generally no more difficult to prescribe a medicine to a sick patient compared to a relatively healthy patient⁹). The major disadvantage of process measures is that they focus on a narrow set of activities without looking at the care more broadly. For example, there may be hundreds of things a physician does for a patient with an AMI,

but only about a dozen or so are examined as quality process measures. There is understandable concern that by focusing on just this narrow set of activities, providers can improve their scores but leave the patient not much better off¹⁰.

The alternative is to focus on outcomes. In many ways, outcomes, such as 30-day survival after an AMI, are the bottom line. This is what patients care about and by examining outcomes, providers have an impetus to improve all aspects of care¹¹. There are two main drawbacks of outcomes measurement. Because most deleterious outcomes are rare, it is entirely possible that a physician could provide lousy care and still have relatively good outcomes (i.e. no one died). Given that most bad outcomes, such as mortality, are uncommon, one would need to examine a large number of patients over a very long period of time to have adequate statistical precision to differentiate good providers from mediocre ones. The second major drawback is inadequate risk-adjustment. Some patients are sicker than others and even with optimal care, are at higher risk for a bad outcome. Ensuring that we do not penalize providers who care for the sickest patients is critical. If the risk-adjustment is inadequate, providers will have strong incentives to focus on caring for the healthiest patients (who benefit less from medical intervention) and avoid the sickest patients (who benefit greatly from medical intervention). Some of the different approaches to risk-adjustment are outlined below.

Efforts to improve quality performance of physicians and hospitals:

While much of the response to poor quality has come in the past ten years, the effort to improve physician and institutional performance began decades ago. The most prominent and effective efforts have focused on collecting and publicly reporting data on quality performance. The best known, and likely the most influential, of these efforts is the Cardiac Surgery Reporting System

(CSRS) in New York State. It began in 1990 when the highly activist New York State Department of Health (DOH)¹², which had been closely monitoring outcomes of coronary artery bypass graft (CABG) surgery for years, began providing feedback to hospitals and surgeons on their cardiac surgery mortality rates. They believed that this would have a beneficial effect on outcomes for the patients of New York.

Several key features of the CSRS are worth noting. First, from the early days, they had an advisory board composed of some of the leading cardiac surgeons in the state, as well as prominent statisticians, health policy researchers, and others that added tremendous credibility to the effort¹². Second, the DOH was keenly aware that because some surgeons (and hospitals) cared for a much sicker patient population than other surgeons (and hospitals), it was critically important to perform adequate risk-adjustment in order to have fair comparisons. This issue lies at the heart of the contentiousness of the CSRS effort and others that have been modeled after the NYS CSRS. In order to ensure good risk-adjustment, the DOH worked with leading experts to develop risk-adjustment models that were based on detailed clinical data available only in the patient's chart (such as the adequacy of the heart function prior to surgery, the state of the patient's kidneys, and other clinical factors that are likely to have a meaningful impact on how the patient fares after CABG surgery). The alternative would have been to use administrative (or billing) data, which would have been far cheaper, easier, and more expeditious. However, the DOH decided that the limitations of using administrative data (they generally do not have detailed clinical information such as the elements described above) would make comparisons across providers less reliable and hurt the credibility of the program. Each hospital was responsible for using clinical staff (usually a nurse) to collect and report detailed clinical information about each patient undergoing cardiac surgery in that hospital. The cost to run the program is approximately \$300,000 per year¹², although

this does not take into account the cost of nursing time that each hospital invests to collect the clinical data. If each hospital's personnel time associated with the program costs as much as \$50,000 per year, the total cost for the state of New York might be closer to \$2 million annually.

In 1990, the State of New York began to publish risk-adjusted mortality rates for every hospital in the state that performed these surgeries and in 1991, based on pressure from journalists and public advocacy organizations, the DOH began publishing data on individual surgeons. All in all, approximately 31 hospitals and over one hundred surgeons now had their performance, as measured by mortality rates, freely available to citizens of the state of New York.

Since then, other states have followed. Pennsylvania began reporting performance data on its cardiac surgeons in 1992¹³. New Jersey began in 1997, followed by California (2001) and Massachusetts (2004). Florida, Maryland, and other states are in the process of adopting a similar approach. California and nearly a dozen other states began to report mortality rates for common medical conditions, using administrative data for risk-adjustment. Pennsylvania has started collecting and publicly reporting data on hospital-acquired infection rates in its hospitals. These state-sponsored reports are now easily accessible and free to download or read online.

The Hospital Quality Alliance (HQA) is the largest, most ambitious quality measurement activity in the nation's history and came about as a joint effort of public and private entities that provided monitoring and oversight of U.S. hospitals¹⁴. Led by the Centers for Medicare and Medicaid Services and The Joint Commission (the main accrediting body of hospitals), HQA oversees the collection and public reporting of clinical quality data from nearly every hospital in the nation. The HQA chooses quality measures based on consensus and with input and approval from the National

Quality Forum (NQF). CMS has authority from Congress to provide financial incentives to hospitals to make these data publicly available.

As of September 1, 2008, nearly every hospital in the nation (close to 4,500) was reporting performance on 24 process measures (such as the provision of timely antibiotics) across four clinical conditions, 3 outcomes measures (i.e. risk-adjusted mortality rate), and nine different measures of patient experience (such as whether the physician communicated effectively with the patient). The scope of the effort will surely grow to encompass many more process and outcomes measures. Each hospital collects the data individually (again, usually using a nurse or clinical professional) and submits the data to an outside third party that compiles the information and ensures its accuracy by, among other things, performing audits on a small number of patient charts. The preliminary results from the auditing process suggest that most of the data are accurately reported. Finally, the data are presented on a website run by CMS in a format that is meant to be easily accessible to consumers (www.hospitalcompare.hhs.gov). Although there are no formal estimates on the cost of such a program, if one were to estimate that a typical hospital uses 0.5 full-time equivalent of a nurse's time to collect and report the data, the cost to the typical hospital might be \$50,000 and the cost to the nation might be close to \$250 million. However, it is worth noting that the Joint Commission already required most of these measures to be collected as part of their accreditation program so hospitals had already factored in many of these costs.

The Impact of Public Reporting of Clinical Performance

Given the growing number and scope of efforts to collect and publicly report performance data on hospitals and physicians, it may be surprising how little we still know about its impact. There have been fewer than two dozen studies examining the impact of these programs on outcomes, access to

and disparities in care. The key, summary findings from these studies are as follows: public reporting likely has a beneficial effect in driving improvements in performance but may have important unintended consequences such as reduction in access to care for the very ill and racial and ethnic disparities. There is ample evidence that hospitals and surgeons pay attention to these data, but patients and consumers do not.

Impact on quality performance

The early data from the New York CSRS showed impressive reductions in risk-adjusted mortality rates after the introduction of the public reporting program. In 1989, prior to the initiation of CSRS, risk-adjusted in-hospital mortality rate in New York State was 4.2%. Based on the same risk-adjustment scheme, mortality rates fell by 41% to 2.5% and by 1998, the risk-adjusted mortality rate was merely 2.1%, the lowest in the nation^{15, 16}. Early reports from New York offered anecdotal evidence for why mortality rates had fallen so precipitously: several low-volume surgeons with high mortality rates had stopped practicing in New York¹⁷. Several of the hospitals with the worst outcomes had revamped their cardiac surgery programs, based on practices from the best hospitals in the state¹². These were, of course, the intended consequences.

However, there were also reports of some potential unintended consequences. It seemed that the reductions in crude mortality rates were less impressive than the reductions in risk-adjusted mortality rates, suggesting that the underlying patient population had become markedly sicker over a very short time period¹⁸. This was clinically plausible: during the early years of CSRS, angioplasty was becoming more commonplace and it is possible that some of the patients who might have undergone cardiac surgery were now getting angioplasty. Further, it would likely be the healthier patients who underwent angioplasty, leaving a sicker patient population for the cardiac

surgeons. However, the degree of change in the acuity of the cardiac surgery patients was unlikely due to the introduction of angioplasty alone. Some experts suggest that at least some of the gains in risk-adjusted mortality rates were due to improved documentation of patients' co-morbidity conditions, which would make them appear sicker and thus, reduce a provider's risk-adjusted mortality rate¹⁸.

There were other threats to the findings of improved outcomes in New York. Over the same time period that mortality rates fell in New York, surgical outcomes also improved substantially in Massachusetts and other states that did not have a public reporting effort¹⁹. Some have argued that the gains in New York were simply a part of a national trend²⁰. Indeed, cardiac surgery was becoming safer across the nation as surgeons learned new techniques. However, the gains in New York were bigger, and the sum of the evidence suggests that outcomes improved in New York faster than they did in neighboring states, even when accounting for other factors. A series of case studies published in 2002 offered concrete examples of how many of the hospitals in New York improved their surgical programs, retrained poor-performing surgeons, and changed the way they cared for these patients¹². While this is ultimately anecdotal evidence, it has enough face validity to be convincing.

There have been very few careful examinations of the impact of other public reporting programs on changes in quality and outcomes. One early study demonstrated that quality improved in U.S. hospitals during a time period when quality data were being collected and fed back to hospitals without public reporting²¹. A more recent study seemed to suggest (although this was not the purpose of the study) that those improvements have continued during the last three years when the

performance data has been publicly reported²². It is not clear from these studies whether making the performance data public has accelerated the rates of improvement.

Unintended Consequences of public reporting of performance data

From the early days of CSRS, critics have worried about the unintended consequences of collecting and publicly reporting performance data of hospitals and surgeons. Specifically, critics worried that such an effort would lead providers to shun the highest-risk patients (who are generally the most likely to benefit from cardiac surgery), leading to reduced access and very poor outcomes for such patients. The fear was that a very sick patient in desperate need of a surgery would be less likely to receive one if the surgeons believed that the patient had a high risk of dying from the procedure and that the risk-adjustment scheme was unlikely to adequately account for the severity of illness.

To date, there have been several studies that have tried to determine whether public reporting of cardiac surgery outcomes has led to reduced access for high-risk populations. Unfortunately, no study has been able to convincingly answer the question and the mixed results have left the issue unresolved. Dranove and colleagues found that after the introduction of the CSRS, sicker patients were less likely to receive surgery²³. Schneider and Epstein interviewed surgeons in Pennsylvania after the launch of their public reporting program and found that surgeons reported they were less likely to perform surgery on the sickest patients¹³. However, Peterson and colleagues found no negative impact of the CSRS on access to surgery in New York State¹⁶.

One startling finding by Werner and Asch suggested that the introduction of the CSRS had a significant, deleterious effect on access to surgery for black patients²⁴. They examined a cohort of patients who had suffered an acute myocardial infarction and found that the racial composition of

these patients undergoing cardiac surgery changed dramatically in New York compared to control states after the introduction of CSRS. Specifically, the proportion of such patients who were black dropped dramatically, presumably because surgeons perceived them as high-risk and were therefore less willing to perform surgery on minority patients. It took nearly a decade after the introduction of CSRS for the racial composition of AMI patients undergoing surgery to return to the pre-CSRS days.

Whether there have been unintended consequences from the HQA program (or other similar efforts) is not known. Clinicians and experts worry that by focusing on a small set of process measures, physicians and hospitals will “teach to the test” and focus only on those activities, ignoring the hundreds of other clinical interventions that are likely to be important but are not being measured. While this is a widely cited concern, and while there are many anecdotes that this is happening, there are no studies that I am aware of that have systematically demonstrated that providers focus just on the measure to the detriment of other important clinical activities or that patients are worse off after the introduction of such a performance evaluation program.

Underlying Mechanisms for Improvement and Unintended Consequences:

The mechanisms that lead to changes brought by collecting and publicly reporting on cardiac surgery or hospital quality performance are not well delineated, but there are a few insights. First, one stated audience for the data was the public, with the hope to engage consumers and even payers of healthcare to choose high quality providers, shun low performers, and drive change. The evidence to date has quite convincingly demonstrated that this has not happened^{12, 25}. There has been no impact on market share of the best (or worst) performing providers after a report comes out labeling them as such. More informally, interviews with patients undergoing cardiac surgery has

demonstrated that they had not used such data when it was readily available to choose a surgeon or hospital¹³. Surveys of referring cardiologists found that although they were aware of the existence of such data, they did not factor it into their referral decisions¹³. Finally, patients undergoing cardiac surgery in Pennsylvania after the launch of the program were generally unaware of the availability of these data²⁶.

There is, however, ample data that hospitals and surgeons have been paying attention. First of all, anecdotal evidence by Chassin suggested that individual hospitals revamped their cardiac surgery programs to improve outcomes¹². The survey by Schneider mentioned above suggested that surgeons were paying attention and that they were less likely to perform surgery on the highest-risk patients because of fears of hurting their performance data¹³. Finally, an empirical evaluation of the CSRS a decade after the program was launched showed that poor-performing surgeons, even high-volume surgeons, were nearly four times as likely to stop practicing surgery in New York in the two years after the release of a report that labeled them as poor performers²⁵. Follow-up surveys of these surgeons revealed that many were pressured out of practice by their department chiefs or hospital executives²⁵. A large portion moved out of New York and started performing surgeries in New Jersey, Connecticut or Massachusetts.

Public Reporting of Clinical Performance: Where are we in 2008?

There is near-universal consensus that our healthcare system fails to provide the quality of care that Americans deserve. Two aspects of these failures suggest that the problems are systemic: First, treatment is suboptimal across all aspects of care⁷, and second, patients of all income levels are at risk for poor-quality care⁸. There is broad consensus that the lack of transparency about quality and costs are part of the reason care is suboptimal.

There is relatively broad consensus that public reporting of quality data is helpful. A majority of experts agree the public reporting efforts in cardiac surgery have been an important driver of improvements and that efforts like HQA are likely to have the same impact on clinical processes and outcomes for the conditions being examined. The disagreements focus primarily on whether we should examine processes, outcomes, or both. Further, there is ongoing disagreement about whether using risk-adjustment from administrative data (which is cheaper and easier to do) is adequate, or whether we need to use the clinical data that is available in the patient's medical record and is expensive to abstract.

Most of these areas of disagreement arise because there are legitimate benefits to and drawbacks from each approach. There is little doubt that our healthcare system is wholly inadequate and that greater transparency represents an important step towards improving healthcare delivery. The debate about processes versus outcomes highlights the importance of doing both. While surely we can all agree that outcomes are critically important, including process measures highlights for clinicians the few high-value activities that will maximize patient well-being. Simultaneous outcomes measurement will ensure focus on the entire care process.

While public reporting surely causes some providers to shun high-risk patients, whether this represents a small problem or a systemic one is not known. Most of these programs (from the CSRS in New York to HQA across the nation) have not had a robust evaluation effort that can track and quantify the benefits and the costs of the program. Without such data, understanding whether these programs are worth the cost is difficult.

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