

A Report Card on Continuous Quality Improvement

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THE RECENT HISTORY OF QUALITY OF CARE IN THE United States is a study in contrasts. On the one hand, many individuals and organizations have labored hard, creatively, and, often, successfully to improve the quality of the care and services they provide. New technologies, management strategies, and theories for measuring and managing quality of care have raised hopes that health care organizations can be transformed into engines of never-ending, science-based improvement (Berwick 1989; Berwick, Godfrey, and Roessner 1990). Advances in genetics and other biomedical sciences have continued at an astounding pace, keeping alive ancient dreams that humanity's major killers and cripples can be conquered.

On the other hand, despite these apparent advances, there is continued, growing skepticism about whether the quality of U.S. health care is improving. Some are even convinced that it is deteriorating. Wide variation in practice patterns and outcomes has been relentlessly documented and publicized, and there is a sharp, persistent divide between health professionals' knowledge of what constitutes best practice and the care that is actually delivered (Welch et al. 1993; Berwick 1994;

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Fisher et al. 1994; Pilote et al. 1995; Wennberg 1996). Costs continue to rise, far too many people are either uninsured or are without adequate coverage, and the health care industry still knows little about the efficacy of much that it does. Long waits in physicians' offices or emergency departments, poor access to care, and frustration with the increasing bureaucratic control of health care delivery remain daily experiences for millions of Americans. The growth of aggressive, for-profit health care chains has raised concerns that financial considerations will erode basic values in our health care system, and health care professionals are bewildered by the current frenzy of mergers, acquisitions, and the formation of new health care systems. The public witnesses massive monetary transactions while experiencing little positive impact on its own health care.

These contrasting and confusing perceptions of the quality of U.S. health care suggest both an opportunity and a need to reflect on recent successful—and failed—efforts to improve quality of care and on the lessons they may offer for future endeavors. In this paper, we will review the history of one important set of activities: the movement for continuous quality improvement (CQI).

The CQI "movement" refers to the effort to import into health care lessons that other industries learned years ago about improving product quality in order to meet their customers' needs and expectations. The ultimate goal of CQI is the attainment of an unprecedented level of performance (Berwick 1989). In health care, performance may be measured in terms of clinical outcomes, patient satisfaction, error rates, waste, unit production costs, productivity, market share, and other metrics.

Substantively, the CQI movement consists of methodologies to improve quality and a vision of leadership. The methodologies highlight the central role of processes in transforming inputs into outputs in all organizations, including health care. For CQI, organizational processes are the objects of improvement, and their improvement is the key to better quality. This, in turn, is best accomplished by applying scientific methods. One of CQI's important contributions is its development of effective, simplified techniques—that are accessible to employees without an advanced education—for applying scientific approaches to the improvement of daily work processes.

In practical application, CQI is fully compatible with, and encourages the use of, other approaches developed by health services research-

ers in recent years to measure and improve quality (Blumenthal 1995b). These include outcomes measurement, guidelines, clinical pathways, and disease management protocols. However, CQI has its own distinctive characteristics. For one thing, CQI attempts to teach and promote the use of generic analytic methods that facilitate improvement in processes of all types, both clinical and nonclinical. In contrast, the others consist of discrete technologies or methodologies that are most frequently applied in the clinical arena.

CQI is also distinguished by its promotion of managerial reforms that are designed to facilitate organizational change (see the article by Shortell, Bennett, and Byck in this issue). Westphal, Gulati, and Shortell (1997, 370) describe CQI as “an integrated management philosophy.” Central to this philosophy is a vision of leadership that encourages the creation of what Peter Senge has called “the learning organization” (Senge 1990; Chawala and Renesch 1995). Learning organizations promote the acquisition and use of new knowledge as central strategies for coping with the escalating complexity and continuous change in modern environments. Learning organizations also recognize the critical need to empower their workforces to learn and participate in continuous improvement.

The promulgators of the message of CQI consist of a loosely organized, but very effective, network of proponents and activists, who have worked diligently to get the word out. Many of the original, and most effective, proponents of CQI in health care are physicians who learned about it initially by attending seminars offered by W. Edwards Deming in the mid- to late 1980s. Deming was a pioneer of modern quality theory, as were other seminal figures like Joseph Juran (Deming 1986; Juran 1989). Paul Batalden, now a professor at Dartmouth Medical School, and Donald Berwick, now head of the Institute for HealthCare Improvement (IHI) in Boston, were two of the physicians who attended Deming’s seminars. They joined the group of health professionals who helped quality consultants from other fields, like Paul Plsek, an engineer formerly at ATT Bell Labs, to adapt their skills to the health care environment. Through formal and informal instructional programs offered by these and other early advocates of CQI in health care, thousands of health professionals learned the techniques of CQI and introduced them into their health care organizations. Some became leaders within accrediting agencies, like the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO), and were instrumental in incor-

porating the substantive message of CQI into the accrediting approach of such organizations.

The CQI movement in health care is now a decade old. To our knowledge, however, there have been few attempts to step back and understand the lessons of this decade of experience. We will do so in this paper by discussing a series of interviews that we conducted with health care leaders.

We will address the following topics:

1. the methods by which we collected the data used in this study
2. the accomplishments of the CQI movement
3. the shortcomings of the early CQI movement
4. the barriers to implementation of CQI in our health care system
5. our assessment of the likely future of CQI in U.S. health care

Methods

Our data are derived from 19 one-hour interviews with prominent thinkers and activists. The interviews were performed during August and September of 1997 and were taped and transcribed when possible. We interviewed two different types of individuals in order to solicit a wide variety of insights (table 1). The first group comprised individuals who have been involved in quality improvement activities at the national level over the past 10 years. These few individuals are among the most frequently consulted experts on continuous quality improvement activities in the United States, and their views reflect their accumulated experience at hundreds of health care organizations of every type, both in the United States and abroad.

The second group consisted of senior leaders from six health care organizations (table 2) with certain common characteristics:

1. They represent a broad geographic mix.
2. They constitute a range of institutional types (private community hospitals, public city hospitals, and academic health centers).
3. They have been involved in quality improvement over the past five to ten years.
4. They have participated in the Institute for Healthcare Improvement's programs.

TABLE 1
National Experts Interviewed

Name	Title
Paul Batalden, MD	Director of Health Care Improvement Leadership Development at the Center for the Evaluative Clinical Sciences at Dartmouth Medical School; Ernest Breech Chairman of the Department of Healthcare Quality Improvement Education and Research at the Henry Ford Health Sciences Center
Donald Berwick, MD, MPP	President and CEO, Institute for Healthcare Improvement
Maureen Bisognano	Executive Vice President and COO, Institute for Healthcare Improvement
David Nash, MD, MBA	Director of Health Policy and Clinical Outcomes, Thomas Jefferson University Hospital
Paul Plsek	President, Paul E. Plsek and Associates, Inc.
James Roberts, MD	Senior Vice President of Clinical Leadership, VHA, Inc.
Carrie Sennett, MD, PhD	Vice President for Performance Development, National Committee for Quality Assurance

Participating institutions' records of quality achievement ranged from the notably successful to the less than spectacular.

One shortcoming of our organizational sample was that it was composed primarily of hospitals. Thus, our conclusions may be less applicable to other types of health care organizations. However, many hospitals have formed or joined integrated health systems in recent years and thus have acquired experience with other organizational settings, including primary care networks. Thus, their views and experiences may apply more broadly to health care systems. Furthermore, to the extent that health plans rely on provider organizations to deliver health care services, the observations of our interviewees may be pertinent to the quality improvement experience of health plans as well.

The interviews were loosely structured and designed to elicit the experiences of participants over the past five to ten years. We explored significant trends in the implementation of CQI within and across or-

TABLE 2
Senior Organizational Leaders Interviewed

Abbott Northwestern Hospital, Minneapolis, MN
Mark Dixon, Lead Administrator
Todd Miller, MD, Vice President for Quality
Richard Sturgeon, MD, Vice President for Medical Affairs
Baptist Medical Center, Columbia, SC
Ronald Carroll, PhD, FACHE, Vice President
Richard Slocum, MD, Vice President for Medical Affairs
Cambridge Hospital; Cambridge Public Health Commission, Cambridge, MA
John O'Brien, CEO
James Schlosser, MD, MBA, President, Somerville Hospital
Cedars-Sinai Medical Center, Los Angeles, CA
Thomas Zenty, III, FACHE, Senior VP, Clinical Care Services and COO
Neil Romanoff, MD, MPH, Vice President for Medical Affairs
Dartmouth-Hitchcock Medical Center, Lebanon, NH
Jim Varnum, President and CEO
Steve Plume, MD, President, The Hitchcock Clinic
Phoebe Putney Memorial Hospital, Albany, GA
Joel Wernick, President and CEO
George Chastian, MD, Senior Vice President for Medical Affairs

ganizations, sought interviewees' appraisal of the factors that facilitated or inhibited CQI, and asked their opinions of the influence of external regulatory agencies and databases. We have also supplemented information from these sources with data from our own experiences.

This study was not intended to be a comprehensive evaluation of continuous improvement in health care. Although the sample of individuals and organizations is broad based, we made no attempt to represent all perspectives on these issues. Nor was it our intent to collect rigorous or unbiased data. Rather, we sought qualitative data that would illuminate the history of the field. Our findings should be therefore considered as at best exploratory. Nevertheless, because of the broad experience of our expert interviewees, we believe that our conclusions constitute an accurate characterization of the status of continuous quality improvement in the United States at the current time. Indeed, because our experts are strong proponents of CQI, their comments on its shortcomings in the field of health care should be given particular weight.

Accomplishments of the Quality Movement

During the past decade, the continuous quality improvement movement has become an important influence upon the health care system (Shortell et al. 1995; Shortell, Bennett, and Byck, this issue). Evidence of the wide dissemination of CQI theory, language, and methods is inescapable, if largely anecdotal, and is exemplified in the recent history of the JCAHO. The commission adopted the theory of continuous quality improvement in the late 1980s and early 1990s and has worked since that time to align its accrediting process with CQI theory and practice. This shift in JCAHO's philosophy is considered by most of the senior health care managers we interviewed to be a positive break with the outlook of the past, which held that JCAHO was at best irrelevant and at worst an impediment and a diversion from the real work of improvement.

Another accomplishment of the quality movement has been its transformation of the language of discussions about quality throughout the health care system. In countless boardrooms, mission statements, and medical conferences, the term "continuous quality improvement" has replaced the term "quality assurance." This may seem like a small change, but the importance of language should not be underestimated. Quality assurance had been largely discredited among physicians and health care managers by the late 1980s. It was associated with external regulatory requirements imposed by state or federal licensing organizations; it was also associated with the kind of management that identified errors after the fact and exposed the involved professionals to public ridicule. Berwick (1989) has referred to this as the "Theory of Bad Apples." Although its intent may have been simply to instruct, the targets of instruction—usually health professionals—often felt pilloried and humiliated. The result was what William Scherkenbach has described as a cycle of fear, in which health professionals suppress evidence of error, thereby undermining efforts to prevent such errors in the future (Scherkenbach 1986).

By converting from assurance to continuous improvement, many organizations have attempted to signal and promote two important changes. First, they are trying to abandon finger-pointing and blame in order to concentrate on detecting problems with the processes of health care—the systemic errors that are the root causes of the great majority of quality problems in modern organizations, whether in health care or in other fields. Second, many organizations that talk of continuous im-

provement reveal an understanding that quality management should be dynamic and never ending—that assuring compliance with standards is too modest a goal for the health care system and should be replaced by continuous efforts to attain better results. Before the arrival of CQI, quality management in health care organizations was focused on meeting the accrediting standards of the JCAHO, which pertained primarily to structural requirements and maintenance of appropriate records of quality assurance activities. Organizational managers delegated responsibility for clinical quality to quality assurance departments, which concentrated on investigating errors and problems that failed to meet community standards of care (Laffel and Blumenthal 1989; Shortell, Bennett, and Byck, this issue).

Still another major accomplishment in which the quality movement has played a central role is the creation of a new focus on the customer in health care. The theory of continuous quality improvement, as applied to other economic sectors, holds that the customer is the ultimate judge and definer of quality. Because of health care's highly technical nature, customers may be less competent to judge its quality than to arrive at conclusions about other goods and services, but there is now growing acceptance that consumers of health care have a legitimate and valuable perspective on the care they receive. One of us (DB) recalls vividly how difficult it was in the 1980s to persuade senior health care managers to invest in patient surveys at major Boston hospitals. Now patient satisfaction surveys are ubiquitous—sometimes even overdone. In Massachusetts, for the first time in history, a group of hospitals has pooled their resources under the auspices of the Massachusetts Health Quality Partnership to conduct surveys of patients that will produce comparable data for benchmarking purposes. Similar efforts are under way in many other locations and are required of health plans by the National Commission for Quality Assurance. CalPERS (California Public Employees Retirement System) recently released similar data on physician groups in California (Medical Quality Commission and the Pacific Business Group on Health 1997). Conducting satisfaction surveys does not assure responsiveness to customer needs and expectations, which is a complicated and difficult achievement that still eludes most health care organizations. Nevertheless, the survey activities of health care organizations certainly demonstrate a heightened interest in customers' views among health care organizations, a development for which the CQI movement deserves at least partial credit.

Finally, the quality movement has motivated health care organizations throughout the United States to initiate many individual quality improvement projects. Early in its history, the projects were largely concerned with administration: reducing delays in admission or discharge; reducing billing errors or improving collections; making catheterization labs and operating rooms more efficient and productive (Weiner, Shortell, and Alexander 1997). As the movement matured, some organizations turned their attention to improving clinical processes that lie at the heart of technical quality of care, which is the ultimate concern of providers and patients (Weiner, Shortell, and Alexander 1997; Shortell, Bennett, and Byck, this issue). The leaders we interviewed said they had applied the methods of CQI to dozens, sometimes hundreds, of quality improvement projects at each of their institutions. Not all these projects were successful by their own account, but some were said to have achieved their goals. A modest number has resulted in peer-reviewed publications that have advanced care in areas like coronary artery bypass graft surgery and critical care (O'Connor et al. 1996; Griffin et al. 1996; Kollef et al. 1997; Shortell, Bennett, and Byck, this issue).

One important byproduct of these initiatives has been the education of thousands of health care workers in the techniques of quality improvement. The value of this educational process lies in the nature of the methods upon which continuous quality improvement relies. These largely consist of approaches—refined over decades of experience in the workplace—for applying the scientific method to daily work. It is too rarely appreciated that the power of continuous improvement resides in this reliance on the scientific method to inform the routine decisions that are so important to improving organizational performance. CQI advocates certain procedures: data collection and analysis to diagnose problems; the formulation of hypotheses for improvement; the conduct of experiments; the collection and analysis of data on the results of those experiments; and the revision of interventions based on these data.

Instruction in the scientific method could significantly benefit the organizations that adopt it. Despite health care's foundation in science, medicine has historically monitored few clinical activities. Clinicians have had few measures applied to their performance and often resist those that are externally driven. Continuous improvement efforts can assist the development and use of needed metrics. Moreover, CQI fosters local initiatives to improve quality, which extend to the development of

measurement instruments; these tools may be more acceptable than any from the outside. The education of the health care workforce in the techniques of CQI constitutes an investment in human capital that could pay substantial dividends in the future.

The Relation between Quality Measurement and Improvement

Any discussion of the accomplishments of the quality improvement movement must clarify the relation between CQI and the more visible national efforts to monitor quality of care: the National Commission for Quality Assurance (NCQA) and its HEDIS dataset; the Foundation for Accountability (FACCT) and its developing measurement instruments; and JCAHO's ORYX dataset. The activities of these organizations represent a major potential advance toward empowering consumers and employers to use quality of care as a criterion in health care purchasing decisions and may have been stimulated by the CQI movement. Because employers played a vital role in creating both NCQA and FACCT, it is possible that the CQI influence on both institutions resulted as much from the experience of these companies with CQI in their own workplaces as from any understanding of how it could be applied in health care.

Nevertheless, the actual work of NCQA, FACCT, and other national measurement initiatives is both complementary to and distinct from the CQI movement. Although they may attempt to evaluate and encourage organizational efforts to implement CQI, NCQA, FACCT, and ORYX are more directly involved in measuring quality than in improving it. If and when these instruments are fully developed, they can be used to compare the performance of particular organizations with local or national competitors, which may motivate lagging providers to pursue improvement. However, neither NCQA nor FACCT nor ORYX provides the tools and skills to underperforming organizations that they need to diagnose and remedy the underlying systemic problems that are usually to blame for a poor record. Nor will the information provided through these datasets spur organizations that are performing well to continue to improve and thus to achieve the highest quality of which they are capable.

HEDIS, ORYX, and FACCT were devised to motivate organizations to improve through creating more effective, competitive markets that value quality. The tools of continuous quality improvement were designed to help organizations to make the internal changes that actually improve quality. Measurement, it is hoped, will create markets for quality; CQI can enable organizations to improve quality of care and service.

Shortcomings of Early Quality Improvement Efforts

Having said all this, we nevertheless came away with the same general impression based on our interviews that we have derived from our personal experiences: namely, that the quality improvement movement in health care has not had the impact that many advocates and observers hoped for (Shortell, Bennett, and Byck, this issue). In other industries, like automobiles and electronics, the theory and methods of CQI have contributed to dramatic improvements in product quality that enabled U.S. manufacturers to triumph in the face of fierce international competition (Walton 1986). These improvements in product quality resulted, in turn, from sustained, measurable, organization-wide changes in how these companies performed their work. Among the commercial companies that have been transformed by CQI are Ford, Harley-Davidson, Xerox, and Motorola (Womack, Jones, and Roos 1991).

In the health care field, however, none of the national quality experts could identify a health care organization that has fundamentally improved its performance through CQI (or any other means). There simply are no organization-wide success stories out there—no shining castles on the hill to serve as inspirations for a struggling industry. Indeed, many of our interviewees observed that the thousands of health care workers who have been exposed to CQI represent a tiny fraction of the huge workforce in this enormous industry, which accounts for almost 14 percent of our gross national product. The basic principles of CQI have yet to diffuse deeply through most health care organizations, and they have not usually made any inroads into the clinical side, where most physicians remain ignorant and/or skeptical of them (Berwick and Nolan 1998; Weiner, Shortell, and Alexander 1997).

Second, many executives were unable to cite quantitative evidence of process and service improvement that had resulted from particular

quality improvement projects in their own organizations. They told anecdotes to support their conviction that many projects had led to improvements in processes or outcomes of care, but we were struck by their limited ability to document this belief. In fairness, we did not warn respondents in advance that we would be requesting specific data; perhaps the evidence was available from other sources in their organizations. Therefore, their lack of information may say more about their day-to-day involvement with quality improvement activities than with the accomplishments of particular projects. However, because committed, involved senior leadership is required for successful adoption and implementation of CQI strategies (Deming 1986; Weiner, Shortell, and Alexander 1997), the reactions of our interviewees suggest, at a minimum, that an essential condition for CQI has not been achieved at most health care organizations.

Third, despite the existence of some important studies, cited earlier, the peer-reviewed literature demonstrating improvements in quality from CQI activities is not voluminous. Also, as Shortell, Bennett, and Byck demonstrate elsewhere in this issue, the existing literature on continuous quality improvement is particularly sparse in the areas of most interest to health professionals: clinical papers in prominent scientific journals demonstrating improvements in clinical outcomes. CQI advocates argue that this reflects the fact that the managers and professionals who oversee improvement activity have little time or inclination to publish accounts of their results. Health professionals writing for medical journals may also strip their publications of references to CQI for fear of alienating skeptical physician reviewers (Berwick 1996), thus making it difficult to identify clinical advances that were fueled by continuous improvement activities. Whatever the reason, the lack of a robust, scientific literature has clearly inhibited the acceptance of CQI methods among health professionals (Shortell, Bennett, and Byck, this issue).

Fourth, despite the heightened attention to customers that CQI has inspired, many health care organizations have not translated management's new interest in patients into effective programs. Maureen Bisognano summarized this observation by noting:

Senior leaders need to overcome their discomfort and get closer to customers. Because they believe that they do not have the time, structure, or skills to approach patients, families, or employees, they rely instead on distant translators like satisfaction surveys and keep customers at arm's length.

She argued that intimate, continuing dialogue between health care providers and their customers is necessary to bring about health care that is more patient centered, while acknowledging that this kind of dialogue remains rare.

Fifth, administrators, not clinicians, were the first to incorporate continuous improvement methodologies into health care. Not surprisingly, therefore, early CQI initiatives took the form of administrative rather than clinical, projects (Weiner, Shortell, and Alexander 1997). Many were inpatient based, neglecting outpatient and office settings where most physicians spend the greatest amount of time. Thus, CQI failed to address areas of work that are most relevant to physicians, who form a vital constituency for improvement efforts.

Sixth, and perhaps most telling, the national leaders with whom we spoke agreed that, once the initial period of enthusiasm and widespread experimentation subsided, we reached a plateau in the CQI movement. Organizational leaders were sobered by the fact that CQI did not meet their expectations for an easy, off-the-shelf solution to quality problems. Despite these caveats, every individual interviewed was optimistic that the movement will regain momentum. As an industry, we seem to be taking heed of lessons learned; we are becoming more knowledgeable about the science of change and more sophisticated in how we employ it. Not a single person was interested in shelving CQI. In fact, each organizational leader contended that CQI is not just a passing fad but is, rather, the core method for improving the work of health care in the future.

Barriers to Continuous Quality Improvement

Certain factors have slowed the adoption of CQI methods by health care organizations. Most of these obstacles have also been encountered in other industries when CQI was newly introduced, but the health care system presents its own unique challenges.

The Political Economy of Health Care

Don Berwick has said that before organizations can commit themselves fully to continuous improvement in the quality of their goods and services, they must first experience a forceful reminder of their own

mortality: a brush with death. The changes in organizational culture, strategy, and tactics required to improve organizational processes continuously are so profound and daunting (Shortell, Bennett, and Byck, this issue) that no sane executive would pursue CQI if there was any conceivable alternative. Despite all the discussion about the advent of markets in health care and the resulting stresses on health care organizations, the fact is that very few health care providers have experienced a true brush with death; even fewer have exhausted the enticing menu of quick fixes.

According to the University HealthSystem Consortium's (UHC) algorithm for measuring the competitiveness of local markets, only 10 of the 63 major areas they examined have reached what they call the "hypercompetitive" stage: an environment in which price pressures are truly stressing providers and resulting in a reconfiguration of health care markets. Although the UHC algorithm may be an imperfect gauge of market competitiveness (Burns et al. 1997), the point holds: true competition of the type that prevails in so many other sectors of the U.S. economy occurs infrequently in health care. Many organizations continue to rely on traditional management methods that nevertheless enable them to perform well financially. As long as they remain financially sound, health care leaders have little incentive to pursue a radically new course, even one that promises better patient outcomes.

A number of factors may explain the noncompetitive situation of health care markets compared with other economic sectors. Perhaps the most important is the lack of international competition. Some of our national quality experts commented that there is no equivalent in health care to Toyota, which has used CQI methods (among others) to eclipse its domestic U.S. competitors (Womack, Jones, and Roos 1991). The situation may have to get much worse for health care organizations before they turn to continuous quality improvement to recover. Even in markets where competition is most developed, many health care organizations have not committed themselves to CQI. Quality advocates in these institutions cite several reasons for the inability of CQI to advance further. Senior leadership is distracted by mergers and acquisitions; senior managers disagree about whether CQI is the correct strategic approach for their organization; turnover among board members and senior management has interrupted the continuity in commitment to quality improvement objectives; and other management fads, like re-engineering and downsizing, are simpler to grasp and control.

In our view, these particular obstacles to organizational adoption of CQI are symptoms of how recently true competition arrived in health care. Before turning to continuous improvement as a solution to competitive pressures, most organizations inevitably try simpler, cheaper strategies. Empirical work in the nursing-home industry confirms that competitive pressures encourage the adoption and implementation of CQI (Zinn, Weech, and Brannon 1998). The same phenomenon has occurred in other industries. Protecting market share, price, and revenue by merging with a competitor seems, at least on paper, to be easier than first dismantling and then reconstructing the areas within an enormously complex institution that are performing poorly. If a new CEO, board, or management team can accomplish the salvation of the organization, why not give them a try?

Unlike some other management maneuvers, continuous improvement cannot be implemented episodically—it is not an “off-the-shelf” solution. It entails a fundamental shift in organizational strategy and culture, and it requires the full attention of the institution’s leaders. At the same time, its tendency to decentralize control can be threatening to senior managers.

In their personal accounts, many leaders from other industries that invested in CQI as a management strategy say they only finally turned to it after failed experiments with less demanding approaches convinced them that they had no other recourse. Few health care organizations in the United States, even those struggling in highly competitive markets, seem to have arrived at this stage.

One problem encountered by CQI in health care is unique to this field and thus deserves special mention. That is the role of physicians and their resistance to continuous quality improvement (Berwick, Godfrey, and Roessner 1990). Health care organizations grant almost complete autonomy to their personnel (physicians) in carrying out the core processes of production. This makes it extremely difficult for hospitals and other health care facilities to affect the behavior of the most influential component of their workforce and thus to motivate participation in the detailed and time-consuming activities required for process improvement.

A further challenge is that medical education is devoid of didactic instruction in the philosophy or methods of quality improvement and does not prepare physicians for any aspect of life in increasingly complex health care organizations (Shortell, Bennett, and Byck, this issue). Be-

cause their training also inculcates fierce professional pride and individualism, physicians stoutly resist real or perceived efforts to curtail their independence, including the behavioral changes required to improve quality. They especially bridle at working in teams, which are central to diagnosing and ameliorating flaws in organizational processes. It is unlikely that the engineers, statisticians, and physicists who pioneered the concepts and techniques of CQI in the first half of the twentieth century ever considered, or prepared for, the unique problems that health care organizations confront in working with physicians.

Mistakes in Early Application of CQI Principles

These barriers to implementing CQI were compounded, in the view of the experts and leaders we interviewed, by mistakes that were committed when it was first introduced. Early advocates were often overzealous, rigid, and controlling. They too frequently became wedded to formulaic and inflexible methods in teaching and applying CQI techniques. In many cases, the enthusiasm and dogmatism of early converts to continuous improvement reflected their inexperience with these techniques and their ignorance of how to apply them to health care.

Early CQI programs made other errors in introducing CQI to physicians. Trained to respect the traditions of biological science, many physicians were repelled by the evangelism that characterized early CQI programs. At the outset, CQI initiatives often simply retrained the same personnel who had staffed the earlier quality assurance programs. Often the administrators did not grasp the conceptual and practical differences between quality assurance (QA) and quality improvement (QI) and thus were unable to clarify the differences when they introduced the new programs. Always suspicious of administrators (including physicians who have “gone over to the other side”), many physicians quickly concluded that CQI was another form of QA cloaked in a new version of management psychobabble. They tuned it out and went about their business, expecting the fad to pass. Many managers compounded physician disaffection or disinterest by concentrating exclusively on non-clinical problems or, even worse, using CQI techniques to reduce costs, while calling this “quality improvement.” One of the most common examples of this confusion is the use of CQI techniques to reduce length of stay. Many physicians have first experienced CQI when they were on teams that were formed to reduce length of stay for conditions like total

hip or knee replacement, coronary artery bypass grafting, or stroke. These are often important cost-cutting goals, but they are not calculated to convince physicians that the application of CQI can improve quality of care. Indeed, a central shortcoming of the CQI movement has been its failure, until recently, to demonstrate its relevance to the work that physicians consider their own domain: the care of individual patients, in health and disease (Blumenthal 1995a). It is also notable that few interviewees were aware of efforts to implement CQI in physicians' offices. Had the scientific basis of CQI and its application to outpatient processes been stressed early on, physicians might have been more receptive to it.

Other errors were made as well. Many organizations tried to train their entire workforce in CQI methods (Boerstler et al. 1996) but were unprepared to organize and support projects that could take advantage of broad exposure to these techniques. The result was that enthusiasm flagged, and staffs came to see CQI as another passing fad. Similarly, many organizations failed to appreciate the need for a staff that was dedicated to providing technical support in statistics and scientific methods to the groups that were formed to solve problems once the CQI initiative was under way. Process improvement is often a technically demanding task, and teams need the reassurance and direction that experts can provide, even though the work must be driven and controlled by the physicians, nurses, pharmacists, and other professionals who are on the front lines.

Politics and Power Structures

Power and decision making are extraordinarily decentralized in the health care industry, and this has complicated efforts to implement CQI. For reasons already discussed, the cooperation of physicians cannot be dictated; it must be won through evidence and persuasion. Thus, the attempt to improve quality in health care sometimes resembles a political campaign as much as organizational reform. At the core of quality improvement is a struggle for the hearts and minds of health professionals.

Likewise, health care organizations, particularly academic institutions, consist of multiple departments and divisions, each powerful and each with its own strategy and vision for the future that often diverge from those of the parent organization, resulting in disunity that can

paralyze initiatives in the quality arena. Until these diverse groups agree to collaborate on achieving quantifiable improvement in patient care, this situation is unlikely to change.

Finding a Balance between Measurement, External Monitoring, and Improvement

A proper balance between the real work of improvement and the needs of supportive measurement remains elusive for most health care organizations. Leaders desire to improve quality of care and service but are often stymied by the lack of supportive organizational measures that make sense and can be obtained with reasonable resources. Leaders at one organization summarized this situation as follows:

Issues around measurement have been significant individual and organizational barriers. We do not know a lot about it, and physicians see measurement as justifying their current actions, instead of guiding what they need to do tomorrow. Data accessibility is another problem. We often do not know what is available. There is some possessiveness around the data, and there are delays in acquisition and analysis.

The intraorganizational struggle to clarify performance measurement is also influenced by external forces—primarily the JCAHO's ORYX measurement system and HEDIS (Shortell, Bennett, and Byck, this issue). Despite optimism about JCAHO, its philosophic shift, and the many positive revisions it has made in its accreditation procedures, most interviewees felt that the accreditation process must undergo further change. Several senior leaders stated that their institutions' CQI methods surpassed JCAHO standards, a situation that the current accreditation process cannot detect or assess. Others were concerned about how performance metrics were applied across organizations. To support claims of a disparity between accreditation and true quality care, national experts and senior leaders alike mentioned organizations that had received JCAHO commendation three years earlier, only to be placed on probation after a few years. In a reversal of that situation, organizations that were on probation three years earlier recently received high marks, even though they have made no substantive changes during the interim. The same problems are likely to occur under NCQA accreditation processes.

One interviewee summarized the problem as follows:

Their [JCAHO's] emphasis on the continual improvement of quality and performance measures has been very helpful. Their challenge is to integrate it with their accreditation process in a meaningful way because it is easy to get side-tracked in the festival of measurement in which we live. The measurement has to serve the accreditation process, and the challenge that faces these accrediting organizations is to stay focused on the socially useful portions of accreditation and then to integrate performance measurement into this process.

In the end, despite positive remarks about the ongoing changes in the JCAHO, the message was strong and clear that the commission must make radical changes, particularly in its accreditation process, before it can have a truly positive effect on the industry. It remains too easy for health care organizations to talk a good game, to meet accreditation requirements, and yet to leave their daily operations virtually unchanged.

The Beginning of the End or the End of the Beginning?

This litany of lapses may sound like a death knell for the CQI movement. However, none of the experts we spoke with shared this view. All were optimistic about the future of continuous quality improvement. For several reasons, we share their optimism.

First, much has been learned from the mistakes of the past. Many experts and managers felt that the naive exuberance of the early years of the CQI movement has evolved in many organizations into a more tempered, realistic, and practical commitment to long-term quality improvement. Certain lessons were learned during the first decade of the CQI movement:

1. Involve physicians early, not late, in the effort to improve quality. Use their time effectively and judiciously and focus on improving practices that are relevant to them. At least one study found that, rather than alienating them, involving physicians early on facilitated later diffusion of CQI (Boerstler et al. 1996).

2. Emphasize clinical, patient-oriented improvement, not just cost reduction. Clinical projects often have the advantage of producing quicker, more easily quantifiable results than nonclinical projects (Boerstler et al. 1996).
3. Invest in quality improvement. Professional expertise and data are required to apply the scientific method to clinical process improvement, and these cost money to acquire. Improvement is work, and it should be valued as such (Shortell, Bennett, and Byck, this issue).
4. Avoid jargon and management language; emphasize the scientific approach to problem solving that lies at the heart of CQI.
5. Don't attempt mass training at the outset of a CQI initiative, but instead train intensively when projects are about to start (Boerstler et al. 1996).
6. Recruit the board of directors to participate in the quality improvement initiative. Weiner, Shortell, and Alexander (1997) found that board involvement correlated empirically with the level of organizational involvement in clinical projects. Board support can often provide needed continuity in the face of management turnover.
7. Invest in clinical information systems. Without good data, quality improvement will continue to be an elusive goal (Boerstler et al. 1996).

If we pay attention to these lessons, we should be technically better at managing continuous quality improvement in the future than we were in the past. That, however, is not the most important reason for optimism about the future of the CQI movement. Technical facility in applying CQI will be wasted unless the political economy of the health care sector creates conditions that motivate meaningful change. On this score, for better or worse, we can rely on the Darwinian forces at work in health care to create a market for continuous quality improvement and its techniques.

The logic behind this assertion is straightforward. The U.S. health care system is now committed to the competitive paradigm as a method for organizing the health care sector. Within the limits of their ability—and that ability will grow over time as technical measures of quality improve—consumers will seek value, not just low cost, in their health care purchasing decisions. If nothing else, NCQA, FACCT, ORYX, and

increasingly sophisticated purchasing cooperatives, like CalPERS, will assure that value is a consideration in consumer health care decisions.

Providing real value requires improvements in the processes of health care production—the millions of detailed, knowledge-based activities that health care organizations must constantly execute in a perfectly timed minuet if they are to meet their customers' changing needs and expectations. There are no quick fixes for organizations that must continually improve as a condition for survival. Although they may confer short-term advantage in negotiations over price in particular markets and may temporarily improve stock values for publicly traded corporations, mergers and acquisitions do not change the crucial processes of care that control quality. Nor does reshuffling senior management achieve this transformation. Health care organizations will soon discover the lessons learned by other successful, knowledge-based industries in intensely competitive environments. Survival requires long-term investment and rapid execution of activities that add fundamental value to products and services.

From this perspective, the theory and practice of continuous quality improvement seem well suited to meeting the future needs of health care organizations. Its scientific methodology provides a sound technical basis for process improvement—and one that is particularly appropriate for the culture of health care and its workforce. Even more important, the underlying vision of a learning organization that is open to new information, that accepts and learns from error, and that empowers its workforce to improve is ideal for the new environment in which health care organizations must exist.

The CQI movement of the future may not be easily recognizable. Its jargon will have disappeared, and even the term “continuous quality improvement” will likely be abandoned in favor of some less controversial label, but its fundamental tools and vision will persist. As Paul Batalden suggests, the overt language of quality improvement will increasingly resemble the language of clinical care that is familiar to health professionals. However, the methods that were once called CQI will continuously inform the daily work of process improvement: developing measures, collecting data, testing hypotheses, and reforming processes. We believe the tools and vision of continuous improvement will persist because they are adaptive: they provide an effective bridge to the health care of the future, which will be characterized by dizzying rates of change and unparalleled opportunities for helping the people it serves.

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