

The Emerging Imperative for Health Care Quality Improvement

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Abstract

There are widespread and growing concerns about the variable and too often inadequate quality of health care in the United States. As a result, health care quality is being questioned and subjected to scrutiny as never before. Awareness of the quality deficits, combined with rising health care expenditures and changing attitudes of payers and consumers, has given rise to a nascent but growing quality improvement movement. Multiple barriers must be surmounted by this movement, but substantive work is under way on all fronts. Emergency medicine will definitely be affected by the quality improvement movement and should quickly move forward

to define and establish performance measures for high-quality emergency care in an era when chronic disease dominates the agenda. Emergency medicine should also aggressively work to operationalize a culture of quality to minimize medical errors, to practice evidence-based medicine, to translate research results into clinical practice in a timely manner, and to establish accountability mechanisms for quality improvement and clinical excellence. **Key words:** quality; health care; emergency medicine. *ACADEMIC EMERGENCY MEDICINE* 2002; 9: 1078–1084.

EMERGENCY MEDICINE AND QUALITY IMPROVEMENT

Emergency medicine is challenged with many issues today. Overcrowding, sicker and more complex patients, unpredictable on-call backup, increased ambulance diversions, a looming professional liability insurance crisis, uncompensated care, bioterrorism preparedness, and too few nurses are some of the urgent issues competing for attention. With so many acute problems, one might ask why should quality improvement be on emergency medicine's critical care list?

There are at least three reasons why emergency medicine should be paying attention to and, indeed, giving priority attention to matters of quality and quality improvement.

First, there are widespread and growing concerns about the variable and too often inadequate quality of U.S. health care.^{1–9} The quality of health care, including emergency care, is increasingly being questioned and subjected to public scrutiny. Everyone in health care needs to be mindful of and

responsive to these concerns. Concern about quality extends across health care's many constituencies, although the inherently multidimensional nature of quality means that the specific concerns voiced by individual stakeholders will vary. Consumers are especially concerned about the quality of interactions with caregivers and the quality of care outcomes. Payers are focused on the effectiveness and efficiency of care processes. Physicians prioritize the technical details of care, while public health officials are particularly concerned with population health and equity of access to care. While the particular focus may vary, the overall concerns about health care quality are widespread and serious.

Second, the growing awareness of quality-of-care deficiencies, combined with rising health care expenditures and other sociocultural changes, has given rise to a new era of performance oversight and an emerging health care quality improvement movement. The practice of medicine, including emergency medicine, will be significantly altered as a result of this movement. Whether it be from efforts to reduce medical errors, the need for more coordinated and integrated transfer of information among caregivers, or process-of-care changes stemming from new diagnostic and treatment technology, the emergency department (ED) will be center stage for many of the changes in practice that lie ahead. For example, it is clear that the ED will be the direct focus of a number of quality improvement initiatives in cardiovascular, respiratory, and infectious disease care.

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Received July 30, 2002; accepted July 31, 2002.

Presented at the *AEM* Consensus Conference on "Assuring Quality," May 2002, St. Louis, MO.

AEM acknowledges the assistance of Dr. Dave Cone in the editing and processing of this article by Dr. Kizer.

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Third, quality of care and the need for quality improvement are likely to become the unifying theme for systemic reform of the U.S. health care system. The goal of health system reform has always been to ensure the availability of and access to high-quality care. Attempts at systemic change based on method of financing, expanding access, cost control, or political ideology have produced incremental change over the years, but such strategies have failed to ignite the passion needed for fundamental reform,⁹ and there is no reason to think that they will do so in the future. Because of its greater face validity and visceral appeal, quality improvement may well provide the necessary platform for aligning reform interests in the future.

WHAT IS THE CURRENT STATE OF U.S. HEALTH CARE QUALITY?

Health care in the United States in 2002 is a paradox. On the one hand, U.S. health care practitioners are well educated and highly trained; state-of-the-art diagnostic and treatment technologies are widely available across the country; the U.S. biomedical research program is the envy of the world; and per capita expenditures for health care far exceed those of any other country.¹⁰ For some persons, the quality of U.S. health care is truly excellent, and for many, it is certainly as good as that routinely found elsewhere in the developed world. On the other hand, health care delivery in the United States is fragmented and frequently difficult to access; too many people are not assured access to care, or find their access limited by financial reasons; there is an uncertain return on investment, or unclear value, for a significant portion of health care's considerable expenditures; and there is growing disenchantment with the processes of care by patients, practitioners, and payers alike. Further, we now know that there are serious and systemic problems with the quality of care that is provided for those who actually receive care.²⁻⁹

As reported in the 1998 Institute of Medicine's National Roundtable on Health Care Quality, "Serious and widespread quality problems exist throughout American medicine. These problems ... occur in small and large communities alike, in all parts of the country, and with approximately equal frequency in managed care and fee-for-service systems of care. Very large numbers of Americans are harmed as a direct result."⁸

QUALITY-OF-CARE PROBLEMS

Health care quality problems can be divided into four broad categories: overuse, underuse, misuse, and waste.

A variety of surgical procedures, diagnostic tests, and treatments are overused (i.e., performed on the basis of unclear clinical reasons), unnecessarily increasing costs and exposing patients to the risk of complications, including death. Examples include cardiac catheterization, coronary artery bypass graft surgery, pacemaker insertion, tympanostomy, carotid endarterectomy, upper gastrointestinal endoscopy, and hysterectomy.⁶ Additionally, a number of medications, or categories of medications, are overprescribed, including nonsteroidal anti-inflammatory agents, sedatives, tranquilizers, and antibiotics. Overall, between 20% and 30% of acute and chronic care is not clinically necessary.¹¹

Conversely, there is clear evidence that many people do not receive the diagnostic and therapeutic services, medications, and procedures that they need. Examples of underuse include failure to prescribe beta-blockers after acute myocardial infarction, inadequate use of angiotensin-converting enzyme (ACE) inhibitors for patients with congestive heart failure, insufficient use of mammography, failure to immunize against influenza and pneumococcal pneumonia, not providing smoking cessation, failure to regularly monitor the use of hemoglobin A_{1c} in diabetics, and failing to screen for depression or not providing mental health follow-up. While undoubtedly significant, the toll of underuse in terms of premature death and diminished quality of life, and its impact on health care expenditures, has not been well quantified.

Medical errors are the most common example of misuse. The problem of medical errors was indelibly imprinted onto the public's consciousness by the Institute of Medicine's report showing that between 44,000 and 98,000 in-hospital deaths in the United States each year are due to errors.³ With between 3% and 38% of hospitalized patients suffering some type of iatrogenic illness or injury,¹² it is clear that medical errors are fertile ground for health care quality improvement. The 2 million nosocomial infections that occur in U.S. hospitals each year (causing about 90,000 deaths)¹³ and a potpourri of diagnostic and surgical errors are further examples of misuse.

Finally, large amounts of waste are inherent to U.S. health care. This is primarily due to outdated, inefficient, disjointed, and, often, unnecessary administrative activities. An especially large problem relates to the failure to transfer information across care settings in a timely manner, resulting in unnecessary delays and the provision of redundant services. Complex billing requirements, burdensome utilization review programs, illegible paper medical records, and excessive waiting times (including waiting for elevators) are some of the other

specific contributors to the inefficiency, inaccuracy, and considerable hassle associated with the current system.

A recent report estimates that the overall cost of poor-quality health care costs U.S. employers about \$2,000 per covered employee each year.⁶

WHY THE “QUALITY CHASM”?

Many factors have contributed to the current U.S. health care conundrum, but two dynamics, in particular, are at the core of the chasm between the health care that is scientifically sound and possible today and the care that is actually provided to most patients.⁹

The first dynamic is the *knowledge–application of knowledge gap*—i.e., the gap that exists between current medical knowledge, which has exploded in recent decades, and the clinical application of that knowledge. Far too often, the care actually provided at the bedside is out of date with what should be done based on current medical knowledge. Many emergency care patients are testimony to this dynamic.

The second dynamic is the increasing scope of chronic care needs. Today, the primary business of U.S. health care is treating chronic disease—not acute illness, as was the case for much of the twentieth century. The nature of U.S. health care radically changed during the latter part of the twentieth century, although we continue to use the methods and manners of service delivery that were developed when acute illness was the predominant focus of health care.

The net effect of these two dynamics is a major mismatch between the capabilities of the health care delivery system and the medical care needs of the population.

WHAT ARE THE FORCES DRIVING QUALITY IMPROVEMENT?

While its specific elements continue to evolve, a health care quality improvement movement is gaining momentum across the United States. Four currents of change, in particular, appear to be converging toward the same end—i.e., quality improvement.

The first current of change is simply knowledge of the deficits in quality. Now that it is widely known that U.S. health care does not perform at the level that it was formerly believed to be performing, nor at the level where it is believed that it can perform, many quality improvement initiatives are being launched. More detailed knowledge is needed about the problem areas, but what is al-

ready known requires that corrective action be commenced. It is disappointing, however, that much of the impetus, at least at this time, for improvement is coming from the payer and consumer constituencies instead of from health care professionals.

Second, rising health care expenditures demand systemic change. After a period of relative stability in the mid-1990s, health care costs began to rise again in the late 1990s. For the past two years, health care costs have risen disproportionate to the rest of the economy.

Many of the factors driving up health care costs cannot be turned around any time soon—e.g., the growing elder population and its increased need for health care services of all types, increasing chronic care needs (among both elders and younger persons), new biomedical technology (including pharmaceuticals), direct-to-consumer marketing, and changes in managed care that lessen its ability to control costs. Therefore, reform efforts must focus on true systemic change that makes delivery of care both more effective and more efficient.

The nexus of rising health care costs and quality improvement is found in the connection between higher quality and reduced expenditures. Considerable experiential data now show that improving the processes of care produces better care outcomes, more satisfied patients and caregivers, and reduced health care costs.^{14–22} Savings of 25% to 35% are commonly associated with true quality improvement activities.

Third, changing purchaser and payer attitudes about health care are forcing greater attention to quality. The growing understanding among the payer community that health care quality can be accurately assessed, routinely measured, and systematically improved has prompted a growing number of payers to introduce programs aimed at rewarding quality.^{23,24} The Leapfrog Group, the Tri-Rivers Healthcare Coalition, the Pittsburgh Regional Health Initiative, the Central Florida Employers Coalition, and California’s Pay for Performance Initiative are illustrative of these programs. The initiatives vary in size, scope, and specific area of focus, but all have a common theme of using payment mechanisms to reward higher quality. Over the next few years, payment mechanisms will be increasingly used in ways that will make the business case for quality clear—something that has not been the case in the past. While a number of issues have to be resolved before the federal government, the largest purchaser of health care in the United States, can use payment to reward higher quality, it is likely that specific steps in this direction will be taken within the coming year.

In understanding the changing attitude of purchasers about higher payment for higher quality, it is important to understand that, to date, the purchasers who have expressed a willingness to pay more for quality have not indicated a willingness to pay more for health care overall. That is, payers view this as a zero-sum game in which higher payment for better outcomes will have to be offset in other areas.

It is not yet clear whether the financial incentives being offered in the various initiatives (typically a differential of 3% to 5%) will be sufficient to motivate providers to change their practices, although early experience suggests that the altruism inherent to health care may make modest financial incentives powerful change agents.

The fourth current of change behind the quality improvement movement is the changing attitude of consumers toward health care. Consumers are becoming more demanding of information about the services available to or provided for them, more demanding of convenience and individually tailored care, and more demanding of overall higher quality. As with the other currents of change, this one represents the convergence of multiple dynamics, including the aging of the baby boomers, increased longevity, and increased chronic care needs. All of these factors are shifting the consumer's focus away from acute, episodic care toward coordinated and continuous care.

In the same vein, during the recent lengthy, unparalleled period of economic prosperity, many consumers became accustomed to paying out-of-pocket for health care services. One only has to look at the dramatic growth of the complementary and alternative medicine and cosmetic surgery industries for tangible evidence of consumers' willingness to pay out-of-pocket for interventions that they want or think may be important, even when of unproven benefit. Consumers are also expressing through their out-of-pocket expenditures a desire for the "care" that modern Western medicine seems less and less able to provide—i.e., care that includes personal attention, a listening ear, and an optimistic outlook.

Finally, perhaps the most potent dynamic that has changed consumer attitudes has been the Internet, both by providing cross-industry experience about how transactions can be completed (e.g., banking, retail sales) and by democratizing medical knowledge.

In the early days of life-sciences-based medicine, the physician served as the repository of medical knowledge, and it was not that difficult for the typical physician to know the majority of what there was to know of medicine. Rapidly, the body of

medical knowledge has increased to the point where the physician now serves primarily as an interpreter of medical knowledge. However, not infrequently today, the consumer arrives at the caregiver's office with both the knowledge and the interpretation, compliments of the Internet. And while the quality of health-related information available on the Internet remains an area of concern, in an effort not to be left out of the Internet bonanza of the late 1990s, scientific journals, professional societies, and medical publishers all launched websites that provide the public with unprecedented access to up-to-date, accurate medical information by the gigabyte. The ready availability of this information has markedly increased consumer knowledge about specific health-related topics, and has heightened the consumer's awareness of quality issues.

WHAT ARE THE BARRIERS TO QUALITY IMPROVEMENT?

While there are several strong currents of change pushing the quality improvement agenda forward, there are also multiple barriers that impede progress. Resolution of these barriers will likely constitute a substantial part of the health policy agenda for the next several years.

The first major barrier to quality improvement is the lack of reliable and comparable data about health care quality. Existing data provide broad estimates of the magnitude of the quality problems. Unfortunately, to date, quality indicators and performance measures have not been standardized, so it is generally impossible to make valid quality comparisons using existing data. Standardized and clinically relevant performance measures are needed to motivate providers to improve quality based on recognized benchmarks, to assist purchasing decisions and encourage competition on quality, to facilitate informed consumer choice, to inform the public policy and regulatory process, and to facilitate assessment of progress. The creation of the National Quality Forum (NQF) and its focus on national, standardized performance measures should help address and resolve this barrier.^{25,26}

A second major barrier is the lack of widespread use of automated information management systems in health care. Forty years ago, a vision was born of a computerized health care record that would integrate data from all caregivers and all care sites to provide a continuous chronology of the patient's treatment and health status and that would allow instantaneous access to clinical, administrative, and financial information. This vision

was not technically feasible at the time, but information technology progressed rapidly over the next 20 years. By the 1980s, the vision was no longer a starry-eyed dream. Unfortunately, for the past two decades, the potential dramatic improvement in health care quality, efficiency, and service that is possible through widespread use of advanced information technology (IT) has remained an unfulfilled promise.

Despite mind-boggling developments in patient care and dramatic business process advances due to use of advanced IT in other industries, health care has failed to widely adopt advanced IT. Failure to progress toward an enterprise-wide electronic information infrastructure for health care is especially ironic since health care is the most information-intensive and information-dependent industry in the world, as well the nation's largest domestic enterprise with current annual spending of \$1.3 trillion per year.

Except for a few isolated examples, health care providers are still unable to integrate information between and among caregivers in a manner that follows a patient's progress through the health care system in near real time. In the judgment of many experts, the health care industry is two or three decades behind other major industries in its use of advanced IT. Health care still relies on paper records and regularly accepts a degree of inefficiency and inaccuracy that is unacceptable in other industries.

While technological issues remain to be resolved, the primary barriers to widespread use of advanced IT in health care are political—i.e., the lack of data and operating standards, the lack of broad-based agreement among health care's many stakeholders of an enterprise-wide system concept, and legal concerns about confidentiality and privacy. There is a growing consensus both within and outside of health care that these issues must be resolved, and this promises to be an area of intense activity in the next several years.

A third major barrier to quality improvement is payment. Quite simply, prevailing payment policies neither reward nor incentivize better quality—and, in fact, in some cases payment policy may actually penalize those who provide higher-quality quality.⁹ As already noted, there are a number of nascent programs under way in which payment mechanisms are being used to leverage higher quality, but such approaches remain the exception, not the norm.

Liability concerns present a fourth barrier, especially in the area of medical errors. And while liability concerns are sometimes inappropriately held out as reasons for not doing things that should be done, there are legitimate issues in this area that

need to be resolved (e.g., consistent peer review protection and liability protection for error reporting when done for purposes of quality improvement).

A fifth barrier to quality improvement is the lack of organizational and systems support for quality improvement efforts. In this regard, it is important to remember that quality is a *system* property.

Quality is determined by measuring the interaction of structural, process, and outcome measures. Quality is a product of the interaction of individual, technical, organizational, regulatory, and economic factors. While each part of a system may individually be good, the overall quality of the system may be poor if the elements do not interact in an integrated and coherent manner. Said differently, one's doctor may be highly skilled, the nurses very compassionate, the drugs effective, and the surgery successful in correcting the defect, but the care may be lousy because the nurses and the doctor do not effectively communicate, so the treatment is disjointed and delayed, which leads to complications and a preventable prolonged hospitalization.

In this regard, in U.S. health care there is not yet a "culture of quality" such as is prevalent in *high performing organizations* (e.g., as seen in nuclear power, aviation, maritime transportation, and some chemical manufacturing).²⁷⁻²⁹ In a culture of quality, policies and processes are aligned to consistently and predictably achieve desired outcomes. To be sure, health care has islands of quality, but we are nowhere near having a universe of quality. Some of the general attributes of a culture of quality are listed in Table 1.

Unfortunately, the educational framework needed to support a culture of quality is not provided by the U.S. medical education system. Concepts and principles of teamwork, human factors and performance, incident analysis, information management, complexity theory, and quality management, to name some of the requisite underpinnings, are not taught to any significant degree in medical school or postgraduate training programs, nor are they taught in nursing, pharmacy, or other health pro-

TABLE 1. General Characteristics of a Culture of Quality

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1. There is continuous learning and process redesign
 2. Errors are readily identified and evaluated
 3. Knowledge and skills are actively managed
 4. Performance and outcomes are continuously measured and evaluated
 5. Collaboration and teamwork are the norm
 6. Processes are highly coordinated and needs are anticipated
 7. Performance is consistent and predictable
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fessional schools. We continuously upgrade the clinical and scientific content of our curriculum, but perpetuate an anachronistic culture of health care delivery.

Finally, a seventh barrier to quality improvement is the lack of quality improvement goals. As in other activities, goals are needed to provide focus, direction, and a vision to guide change. Despite the good work of many dedicated individuals, much of the quality improvement activity of the past decade might be characterized as Brownian motion. There has been a lot of activity, but it has been diffuse, unfocused, and uncoordinated. Goals are needed to help prioritize resource use and harness energy in a unified direction. Again, this is an area where the NQF is helping to clarify the agenda.

ARE THERE SOME EMERGENCY MEDICINE-SPECIFIC QUALITY ISSUES?

In concluding this overview of the emerging imperative for health care quality improvement, it occurs to me that emergency medicine might wish to fashion a quality improvement agenda based on the following three things.

First, what is high-quality emergency medical care when the primary business of health care is taking care of chronic disease? Concomitantly, what are the performance metrics that will tell you whether you are providing high-quality emergency care?

In addressing this issue, the following quality-related questions, among others, should be answered: How well does the care provided appropriately address the patient's immediate health needs in a timely manner? How well does the emergency care provide a foundation for ongoing care, when needed? Is the amount of care provided appropriate but not excessive? Are provisions made for ongoing care, and how will the emergency care findings be integrated into the ongoing care? How well does the patient understand his or her condition and the need for ongoing care?

Second, specific quality improvement goals and opportunity areas should be targeted. Among the areas that should be given particular consideration are the following five: 1) promoting a culture of quality; 2) minimizing medical errors and the risk of adverse events; 3) practicing evidence-based medicine; 4) translating research results into clinical practice in a timely manner; and 5) establishing accountability mechanisms for quality improvement and clinical excellence.

If a culture of quality is too big a step, then perhaps promoting a "culture of safety" could be an intermediate step. While being predicated on many

of the same principles as a culture of quality, a culture of safety is primarily aimed at ensuring that the processes of care do not cause harm.

In a culture of safety, one must ensure that there are well-understood and efficient methods and mechanisms for reporting and analyzing errors or adverse events, as well as ways to implement actions recommended from the analysis of incidents. Such reporting and analysis must be performed within the context of a non-punitive environment in which leadership is actively engaged in the process and in which there is an entity that provides oversight and coordination of the activities. Finally, there must be a means to provide feedback to the frontline caregivers in a timely manner and public disclosure.

Third, a strategic plan should be developed for translational research. Emergency medicine needs to be at the forefront of examining the effectiveness and cost-effectiveness of diagnostic strategies, coordination of care, and disease or care management strategies. There is a need to define the costs and outcomes of emergency care policy decisions, establish performance and outcomes measures that are realistic and meaningful for emergency medicine's unique care environment, assess outcomes at a system level, and evaluate methods of implementing research results.

SO WHAT'S THE BOTTOM LINE?

In closing, I think the Institute of Medicine's Quality of Care Committee summarized the current state of affairs and what is needed very nicely when it said, "The American health care delivery system is in need of fundamental change. The current care systems cannot do the job. Trying harder will not work. Changing systems of care will."⁹ I would simply add that quality improvement must be the cornerstone of the redesigned system.

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