



Perspective

Cottage Industry to Postindustrial Care — The Revolution in Health Care Delivery

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U.S. health care is broken. Although other industries have transformed themselves using tools such as standardization of value-generating processes, performance measurement, and trans-

parent reporting of quality, the application of these tools to health care is controversial, evoking fears of “cookbook medicine,” loss of professional autonomy, a misinformed focus on the wrong care, or a loss of individual attention and the personal touch in care delivery. We believe that public reporting of performance with regard to appropriately designed clinical standards can overcome these concerns. The application of improvement tools is not only essential to modernizing care delivery but also the key to preserving the values to which our current system aspires.

Our current health care system is essentially a cottage industry of nonintegrated, dedicated artisans who eschew standardization. Services are often highly variable, performance is largely unmeasured, care is customized to individual patients, and standardized processes are regarded skeptically. Autonomy is hardwired into the system, because most physicians practice in small groups with limited oversight or coordination. Even those who work in larger groups, including academic medical centers, create individualized care plans that cannot be integrated with care

in neighboring “out-of-network” facilities; they cannot treat and track patients over space and time. Today’s system usually pays for volume rather than value, and we get what we pay for: more tests, exams, surgeries, and appointments. “Good doctors” are celebrated for their unwavering dedication to doing whatever it takes to care for their individual patients, which often means swimming upstream against the system, rather than relying confidently on it.

Growing evidence highlights the dangers of continuing to operate in cottage-industry mode. Fragmentation of care has led to suboptimal performance. The gap between established science and current practice is wide. It is well documented that U.S. patients receive only about half of scientifi-

cally advisable care; many unnecessary procedures are performed, leading to avoidable complications and costs; safety problems abound; and there are tremendous regional variations in the quality and quantity of care delivered. Moreover, fragmentation makes it more difficult to transform the industry — for example, through the adoption of health information technology.

The value of health care is a function of three elements: its design (the right treatment for the right patient at the right time), its execution (reliably doing it right every time to achieve the best outcomes), and its cost over time. In cottage-industry medicine, the first two elements are custom-crafted for each clinical situation as part of a problem-solving process. Although this approach may offer ideal care for some, it has limited ability to promote continual learning and improvement, because each patient's circumstances are unique. Yet with increasing clinical knowledge and expertise, patients' responses to treatments can often be predicted. In such cases, the elements of care should be standardized, disseminated, monitored, and continuously improved.¹ Three key steps — wise standardization, meaningful measurement, and respectful reporting — have transformed other industries, and we believe they can help health care as well.

Too often, U.S. health care overvalues local autonomy and undervalues disciplined science — not because of inattention or incompetence among doctors and nurses but because it is difficult for the human mind to keep up with the explosion of medical knowledge. Providers need help,

and guidelines help them. In fact, the use of guidelines often liberates them to devote more time to patients and to challenges that demand their skills.

The massive investment in clinical-guideline development and dissemination is predominantly being made by experienced professionals and researchers who believe that unscientific and clinically unwarranted variation in practice is widespread, injurious, and costly. When properly constructed, guidelines are grounded in science and thoroughly vetted by experts before being adopted. Of course, undiscerning enforcement of even excellent guidelines can be dangerous. Many patients have complex multisystem diseases, allergies, or genetic conditions that are valid contraindications to a given protocol, and guideline-supported care must be tailored to the patient's needs. Most patients, however, will benefit from properly vetted and implemented guidelines.

Guidelines must also be tended over time. Advancing knowledge may render even the best guidelines outdated; for example, recent discoveries have necessitated reconsideration of guidelines for very stringent glycemic control. The evolution of scientific knowledge is not grounds for eschewing guidelines; it is a reason to modify and improve them continually. Allowing physicians to make thoughtful exceptions to guidelines but asking them to report why their practice varies can support loops of continuous learning.

Chaos confounds constructive action, whereas wise standardization is a foundation for effective variation, efficiency, reliability, and rapid innovation. After a

process is stable, we can more effectively eliminate waste that does not add value. Humans working in a standardized environment are supported in achieving higher reliability. And standardization facilitates the assessment of the comparative effectiveness of interventions by providing a baseline against which potential improvements can be measured.

Reliably delivering the basics of care improves outcomes and saves money. The Premier Hospital Quality Incentive Demonstration project of the Centers for Medicare and Medicaid Services, which involved more than 1 million patients treated in 250 hospitals, raised overall quality by nearly 16% over 3 years through the delivery of 30 standard and widely accepted care measures. These improvements also saved the lives of an estimated 4700 patients with myocardial infarction.² A high-value care system embraces the appropriate use of scientifically informed guidelines, standard practice, teamwork, checklists, and accountability and welcomes payment for value, not just for volume.

Health care professionals aspire to improve patient outcomes — to reduce mortality, morbidity, hospital-acquired infections, and costs and to improve functional status, patients' experience, and access. The bureaucracies required to track enough process measures for broad-based transformation of outcomes would be oppressive and expensive. A system that rewards better patient outcomes while encouraging innovation would be more efficient and effective. Furthermore, given that nearly 20% of all medical diagnoses are incorrect,³ rewarding a correct process

(possibly for an incorrect diagnosis) makes less sense than recognizing our ultimate goal: superior outcomes for patients.

Until enough outcome measures that are acceptable for use in performance-based payment have been established, we must balance the use of outcome and process measures. Selected process measures (e.g., whether the correct antibiotic was given before surgery) can serve as a bridge. Selecting metrics is a difficult task, full of potential pitfalls, but it should be accomplished through a scientific, not political, process, and a feedback loop that fosters learning should be created. Feedback that is based on the use of measures in pilot tests will identify their limitations, allowing for correction and improvement.

Transparency is fundamental to the integrity and spread of high-value care. A car buyer can easily learn about a car's value from numerous credible sources, transparently comparing it with other cars in terms of results of crash tests, resale value, reliability, dealer costs, and owner satisfaction. But patients must choose a hospital, clinic, care team, or treatment option on the basis of relatively little information. Publicly available data are also important in supporting clinicians as they counsel patients regarding treatment choices. Health care professionals should embrace transparency; patients should expect and demand it.

Public reporting may create value by stimulating improvement on the part of medical professionals, but proper reporting demands statistical sophistication. Most publicly reported quality data are not statistically valid for the accurate ranking of physicians

or hospitals, yet they are often reported with unwarranted claims of precision. The benefits of transparency outweigh the deficits when measurements are clearly understood.

Although most current measures cannot yet be used to rank hospitals or physicians accurately, they can help us assess, manage, and systematically improve processes. For example, it took only 5 years of national data collection and 3 years of public reporting by the Joint Commission for hospitals to achieve very high levels of performance on key treatment indicators for acute myocardial infarction. In 2007, 96% of hospitals scored above 90% for giving patients aspirin on arrival (up from 88% in 2005), and 94% of hospitals scored above 90% for the provision of beta-blockers on discharge (up from 81% in 2005).^{4,5}

Expert guidelines and meaningful outcome measures will transform us from high-variation clinicians to a more streamlined, consistent community of care, since improvement in care delivery will necessitate integration and cooperation. We see the public reporting of outcomes and adherence to standardized care processes as key tactics for driving health care improvement.

The transformation from cottage industry to postindustrial care will be facilitated by combining the three elements of standardizing care, measuring performance, and transparent reporting. Interoperable electronic data systems will help to facilitate transformation but are insufficient. Our profession should move away from a simplistic "craft of medicine" mentality, embrace accountability and transparency, and sup-

port the pressing national need for improvement. A transparent, high-value system is a patient-centered way to deliver care and promote health. To achieve this goal, we need to eliminate unwarranted clinical variation, waste, and defects. We need to aspire to deliver the same foundation of evidence-based care, no matter where a patient lives or whom a patient sees.

This shift requires reconsidering the very definition of a "good doctor." In the past, a stereotypical good doctor was independent and always available, had encyclopedic knowledge, and was a master of rescue care. Today, a good doctor must have a solid fund of knowledge and sound decision-making skills but also must be emotionally intelligent, a team player, able to obtain information from colleagues and technological sources, embrace quality improvement as well as public reporting, and reliably deliver evidence-based care, using scientifically informed guidelines in a personal, compassionate, patient-centered manner.

Modern physicians should welcome guidelines covering the basics of evidence-based care, which can free them to focus on the complex issues that require their training and expertise. Effective standard practice will also require interdisciplinary care. An invaluable consequence of fostering interdependence is better teamwork that should lead to safer care (e.g., comfort in speaking up when something seems wrong, as well as better handoffs and communication). Such cooperation will engender employee engagement and improve both the experiences of patients and the financial

performance of practices. Today's good doctors should see process improvement as part of their core work. Rather than undermining health care, public reporting on the performance of standardized care processes and outcomes will be the key to converting our isolated cottages into integrated, continually improving communities.

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