

## Summary

# The State of Quality Improvement Science in Health: What Do We Know About How to Provide Better Care?

Timely Analysis of Immediate Health Policy Issues

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*The well-documented problem of quality, the Affordable Care Act's numerous quality provisions, and economic realities for public and private payers have increased pressure on providers to improve health care quality. Many view quality improvement (QI) strategies as a promising, if not essential, tool for provider organizations that want to survive and thrive—and for policy-makers interested in transforming our nation's health care delivery system. The best available evidence indicates that QI alone is no magic bullet. In general, QI strategies have modest positive effects. However, their impact is often highly variable and depends on the context in which they are implemented. Some might conclude that these modestly positive and inconsistent results are disappointing and perhaps mean that we should not make major investments in QI. Others might conclude that the results to date are not surprising, and that we need to make major investments in QI research and practice to achieve better results. The QI movement in health care is only several decades old and health care is more challenging than other industries. Aspects of health care that are different from other industries and that make QI even more difficult include the lack of strong incentives and supports for providers to improve; the complexity and uncertainty of medicine and health care delivery; the unique role of*

*physicians and other professionals; and variation in patients' needs and preferences. If now is the time to invest more heavily in QI, rather than abandon the field or to make relatively small investments, this issue paper identifies a number of steps that can be taken to strengthen QI research and practice.*

### What Are Quality Improvement Strategies?

QI approaches are either formal or informal efforts to assess current health care quality levels and improve them. Approaches discussed in this brief focus on formal assessments of quality, using systematic efforts informed by data collection and measurement. QI efforts generally attempt to avoid attributing blame, and instead focus on creating systems that prevent problems from occurring in the first place. QI efforts can refer to changes not only in how health care is delivered by clinicians, but also in changes to managerial or administrative systems. QI is related to implementation science, which is the scientific study of methods to promote the uptake of research findings in everyday but diverse health care settings and contexts.

Specific examples of QI strategies include: evidence-based medicine; systematic reviews and guidelines; Total Quality Management and Continuous Quality Improvement, and related Plan-Do-Study-Act cycles; and

Lean, Six Sigma, and other system re-engineering approaches. These specific QI strategies can be coupled with electronic health records (EHRs) and other health information technology (HIT) initiatives as well.

### Are Quality Improvement Strategies Effective?

In general, QI strategies have been found to improve quality by up to 10 percent. Depending on the baseline and the specific clinical area being studied, this level of improvement can have a small or large impact overall. A 2011 thematic issue of the journal *Health Affairs* provides rich profiles of some of the organizations and initiatives that have been successful, including lessons learned from their experiences.

But there are notable gaps in research on the impact of QI efforts, with more research being done on some approaches and care settings than others. For example, there has been less research on certain QI approaches (e.g., systems re-engineering) in certain settings (e.g., outpatient rather than inpatient), and on transitions from one health care setting to another (e.g., when a patient moves from a hospital or rehab facility to her home). Studies are also typically conducted for relatively short time frames, making it impossible to assess how QI effects change over longer periods of time or whether improvements are sustainable. A troubling finding from



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longer studies is that the impact of QI interventions often fades over time, as the organizations and professionals using them fail to routinize new practices and their attention shifts to other areas or problems.

The results of specific QI interventions also vary tremendously. As one pair of researchers put it, a striking aspect of QI interventions and related studies is their “consistent inconsistency.” It appears that the effectiveness of particular QI interventions depends not only on the content of the approach, but also the context in which it is implemented (i.e., who does it, how it is done, and the conditions under which it is done).

## How Can We Improve the Quality of QI Research and Practice?

An important first step to improving QI research and practice would be to evaluate newer QI approaches, such as Lean and Six Sigma. In addition, we need to evaluate specific interventions that combine multiple approaches (e.g., guideline implementation through system re-engineering and EHR support).

A second step toward gaining a better understanding of how to improve QI research and practice would be to attempt to uncover the causes of the great variation in QI intervention results. The field needs to understand what is inside the QI “black box” — particularly how QI initiatives work, and in which settings and contexts particular kinds of QI interventions work best.

QI research would also be more generalizable if it included a much broader array of health care organizations, professionals, and patient populations. The field needs to move beyond studies of provider

organizations with relatively unique circumstances (e.g., relatively generous payers, fewer competitors) and characteristics (e.g., more resources including QI capacity, more employed physicians, and relatively homogeneous and healthy patient populations).

The field could also benefit from developing evidence about how to sustain and spread relatively successful QI approaches within a large organization or across many diverse organizations. For example, how might providers use more real-time feedback, technical assistance, ongoing mentoring or coaching, and collaboratives to sustain and spread relatively successful QI approaches? If every organization and professional has to reinvent the wheel, health care delivery system transformation will indeed be very slow to come.

Researchers have also called for:

1. *Increased attention to developing QI concepts, theories, hypotheses, and logic models—drawing on the social sciences and related fields—which could then be tested in the field.*
2. *Greater discussion and consensus about ways to categorize and define QI strategies and approaches, so the field has a common framework and an apples-to-apples basis for comparing and contrasting different QI initiatives and related results. (For example, this would allow a researcher to describe a “learning collaborative” and have others know what that means, and on what key dimensions learning collaboratives may vary. And if “learning collaboratives” are used in combination with disease registries and guidelines to*

*improve care for patients with chronic conditions, we would know how to categorize this multi-pronged intervention.)*

3. *Better research methods for conducting and reporting research, so diverse and appropriate designs are used, research results are more readily available, and research syntheses are performed more frequently.*
4. *Addressing ethical and human subject issues about QI research that have been raised.*

Several recent developments, such as an AHRQ and IOM forum and publications on these subjects, suggest that progress is underway in these areas, but further advances are needed.

## What Can Key Stakeholders Do to Help?

If now is the time to invest more heavily in QI, rather than abandon the field or continue to make relatively small investments, a variety of key stakeholders can play a role, and a number of steps can be taken.

First, policy-makers and purchasers can provide strong financial and nonfinancial incentives for health care organizations, physicians, and other clinicians to improve quality.

Second, a variety of approaches can be used to build QI capacity at multiple levels (e.g., among individual professionals, multi-disciplinary care teams, provider organizations, and across organizations). Examples of how this might be accomplished include QI education and training, technical assistance, ongoing mentoring or coaching, and perhaps direct financial support through grants or loans to support QI infrastructure development and related staff.

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In addition, to the extent possible, we can foster more collaboration between researchers with expertise in QI and health care and non-health care organizations through existing or new practice-based research networks and other mechanisms. Similarly, more effort could be made to build bridges between medicine, nursing, health care management, and other fields, including engineering and information systems. This includes drawing on alternative research approaches traditionally used in other fields, such as quasi-experimental design, multilevel research, and related methods.

Third, institutions that train health care professionals and managers could work to develop greater QI knowledge and skills. Some education and training in QI is now required in medical schools, but it may not be sufficient, and nursing schools and health management departments of universities do not always require QI coursework.

Fourth, the unparalleled investment in EHRs, other HIT, and health information exchange efforts hold the promise of more comprehensive and timely, as well as less costly, QI data collection, analysis and feedback. However, continued investment and resolution of a host of policy, technical, and work-flow issues are required to fully leverage these technologies for QI purposes.

Fifth, public and private policy-makers could work to increase patients' and consumers' involvement in QI initiatives. If one of the six aims of a high-quality health care system is to be patient-centered, the need to solicit their perspective on how quality can be improved is obvious. Although challenging, there are many

ways to engage patients and consumers in QI efforts.

Finally, federal agencies, foundations, private purchasers, professional and educational associations, and industry groups can work together to improve QI research and practice to accelerate the pace of innovation and learning. Previous research has shown that it takes 17 years for the best evidence to become routine in the practice in health care, so there is substantial opportunity to speed up that process so more people get the right care at the right time and the tremendous waste of resources from poor-quality care is reduced.

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