



Can Purchasers Leverage Engineering Principles to Improve Health Care?

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Most purchasers wish we didn't have to think about the question in the title of my presentation. Most purchasers would like the health care industry to adopt quality engineering methods as a natural expression of professional responsibility; and we would like our health insurance beneficiaries to select only quality-engineered providers as an expression of informed consumerism. However, the three Institute of Medicine (IOM) reports on quality and rapidly increasing health care costs have persuaded large purchasers to consider how they might use their unique role to accelerate American providers' journey to engineered care delivery.

Waiting for other stakeholders to solve the problem is not a promising option. When I ask consumers, like my mother, why she isn't a prudent buyer, she replies, "When I am well, I don't want to think about health care. When I am sick, I want to be able to trust that my treatment will be error-free. When I go to doctors' offices and hospitals, big white certifications with gold seals are hanging on the wall. I'd prefer to rely on them rather than be skeptical."

When I remind regulators that "Our moms are relying on you," they reply, "It's the tax cuts. We don't have the budget to ensure quality, so we rely on accreditors."

When I ask accreditors about the IOM reports and the hospitals they certify, they reply, "You force us to rely on providers to pay us for our accreditation activities. If we become too demanding, they will find a more tolerant accreditor."

When I ask hospitals and doctors about high average national rates of quality failure and the IOM reports, they reply, "We don't believe that our personal error rates are as bad as the national average. To achieve perfect care, we'd probably have to hire quality engineers and buy complex clinical information systems. Where is the money for that? Insurers don't pay us any more for these things."

When we then turn to each other in the purchaser community, we agree that we have to do something about this. But many of us are understandably cautious, reasoning, "If we

begin to get aggressive and limit our insurance plan networks to providers that are engineering high quality into their care, we will surely receive many complaints from our insurance beneficiaries that we are restricting their access to the doctors and hospitals they know and love. Then our careers will be at risk. We can only go as far as our beneficiaries/consumers will let us go."

So we are back to our starting point in the "circle of nonaccountability" with consumers. Apparently, everyone is responsible for improving quality via better engineered care delivery methods, but no one feels accountable for its occurrence. Until every stakeholder has more responsibility for solutions, we aren't likely to make much progress. How can purchasers leverage engineering principles to advance the interests of all stakeholders?

Several options are available. First, purchasers can use various purchaser-mediated rewards to encourage health plans and providers to adopt engineering methods. Differential rewards could be offered to plans and providers who widely apply general engineering methods, such as the 80/20 principle, design for safety, mass customization, continuous flow production, and other methods that have worked well in other complex, high-risk industries. The most practical method of implementation may be to develop a meaningful ISO-type certification in health care and to make comprehensive, publicly released performance measurements available. We are very far from having anything like that today, at least not at a level that inspires confidence.

Another approach would be to use systems analysis to identify narrow, high-yield single "ingredients" (e.g., uptake of electronic clinical information systems or implementation of robust disease registries to provide continuous, stratified population risk scores). We could select a menu of tangible, multifaceted "best-operating practices," based on nationally distinguished care redesign efforts, such as the idealized design of clinical office practice (IDCOP) or RWJ's Pursuing Perfection winners, and reward other providers that adopt

them or health plans that encourage their adoption. The Leapfrog Group implemented a variant of the “single ingredient” approach by initially adopting three tangible operating practices, including computer physician order entry (CPOE), which improvement experts predicted would lead to big leaps in the safety of American hospital care.

However, rewarding single or multiple structural ingredients carries the risk of not fitting all providers equally well, and they are subject to implementation flaws. Accordingly, they may not lead to better performance. We may best use them as a stopgap until robust provider performance measurements are routinely available, if our prioritization of the structural ingredients that we encourage is evidence-based and strategic. One of the attractive features of tangible improvements like CPOE is that a purchaser or insurer can easily determine if a provider has implemented it. It is much harder to assess implementation of broad engineering principles, such as continuous flow production. For this reason, purchasers understandably favor narrow, less flexible, tangible engineering advances over the implementation of broad engineering principles.

Besides purchaser-mediated rewards, purchasers can apply engineering principles to their own purchasing processes. In the world of health care purchasing, there is no clear consensus on intermediate outcomes or the best way to pursue them. We operate in what systems engineers call a “zone of complexity,” so we must focus on simple rules, good-enough vision, and room for innovation. The Leapfrog Group’s approach of focusing on tangible operating practices aligns well with this heuristic from complex, adaptive systems thinking. The Leapfrog Group advocates a few simple, good-enough purchasing rules:

1. Hold purchasers responsible for rating their highest volume providers directly or via their plans.
2. Offer purchasers multiple methods for rewarding higher provider performance and creating a “business case” for quality and quality improvement.

3. Test each purchaser member’s aggregate improvement incentives by applying Leapfrog’s criterion that every year the percentage of the patient population receiving care from a provider that adopts the three Leapfrog safe practices must increase at a statistically significant rate. If not, the Leapfrog purchaser must notch up its provider rewards until this rule is met or drop out of the group.
4. Encourage consumers to take an interest in differences in quality of care ratings for providers.
5. Make the “back bencher purchasers” visible. We want Leapfrog purchasers to be clearly distinguished from other purchasers. It has been easy for purchasers to talk about quality, but to do very little about it.

Obviously, the application of complex, adaptive systems thinking to the purchase of health care is still in an embryonic stage. Leapfrog purchasing principles illustrate an intuitive, initial application. The concept of engineered purchasing warrants further development.

Let me close by briefly addressing a pivotal engineering challenge for all institutional stakeholders—the need for consumers and physicians to recognize the magnitude of current quality failure in health care in their own work. Research in social science by Kahneman, Tversky, and others is available on which to base new approaches, but applications have been few. As long as we continue to permit poor quality to remain invisible, purchasers and consumers will have trouble becoming robust advocates for quality care, and providers will only slowly incorporate engineering knowledge into their work. Today, quality defects are largely invisible to most stakeholders. Until we find a better way of addressing the invisibility problem, it is going to be hard to motivate any of the key stakeholders to apply the rich resources of engineering knowledge to improving health care.