

97.1 Percent Perfect: Healthcare Leadership's Pinto

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The March 16, 2003, edition of *The New York Times Magazine's* cover reads, "Half of What Doctors Know Is Wrong." Inside, the lead story, entitled "The Biggest Mistake of Their Lives," chronicles the struggles of four survivors of medical errors. The article also makes a projection that in 2003, as many as 98,000 people in the United States would die as a result of medical errors (Burton 2003). The August 2, 2004, issue of *Newsweek* features an article, entitled "Hospital Horrors," that reports that estimates of deaths from medical errors are understated by half (Underwood 2004).

Is this really the current state of healthcare in twenty-first century America? Sadly, it is. The lack of vision, determination, and adequate management methods of those who lead America's healthcare organizations are the reasons.

TO CHANGE YOUR WAYS, YOU MUST CHANGE YOUR MIND

In the early 1960s a young high jumper named Dick Fosbury, frustrated that he could not increase the height of his jump, adopted a new jumping approach. The new style had him going over the high bar, his body rotating in mid-air and landing backward facing up. This style, which became known as the "Fosbury Flop" after he won the Olympic gold medal in 1968, was initially resisted and ridiculed by his college coaches and jumping colleagues. Today, this approach is the gold standard style for the high jump (*Encyclopædia Britannica* 2003). Rather than continue to repeat the same, worn-out method, Fosbury changed his paradigm and, in the process, changed that of the high-jumping world.

Every process is perfectly designed to produce what it produces—be it good, bad, or mediocre. This was certainly true for Fosbury. The same principle applies to organizations; according to Fitzgerald (1994), ". . . a key maxim of organizational structure [is that] every organization is perfectly designed to produce the result that it does. It's as simple as that. No enterprise can be expected to deliver greater or more prodigious outcomes than its architecture is capable of bearing." Unless the process is changed, there can be no change in the product.

The current healthcare management paradigm is such a process. As healthcare executives, we need a major shift in our vision and methods to make the kind of change that Fosbury made. Otherwise we will continue to dominate the news with the preventable patient injuries and deaths our hospitals cause. Currently, many of our products are no better than the Ford Pinto.

WHEN LEADERSHIP TREATS ITSELF AS THE CUSTOMER: THE CASE OF THE PINTO

Ford Pinto crashes caused an estimated 500 deaths; some estimates even went as high as 900 (Dowie 1977). Compounding this catastrophe is the fact that management at Ford Motor Company could have prevented these deaths because they were aware of the car's defect but decided not to fix it. In "Pinto Madness," author Mark Dowie (1977) offers the following explanations to this management decision:

- Because the investment in the assembly line had already been made, leadership decided to make the model anyway, "even though Ford owned the patent on a much safer gas tank."
- "Ford waited eight years [to address the problem and make a change] because its internal 'cost-benefit analysis,' which places a dollar value on human life, said it wasn't profitable to make the changes sooner."

Many other factors contributed to this lethal blunder, but this quote by Lee Iacocca is a good summary: "Safety doesn't sell" (Dowie 1977). The leadership at Ford focused on its internal requirements and lost sight of those of its customers.

A CALL FOR ACCOUNTABILITY AND RESPONSIBILITY

Healthcare is producing Pintos, and the leadership knows it. In spite of endless articles conveying dire warnings, healthcare leaders have seemingly accepted that little can be done and the customer will have to bear the results of poor quality. They have decided, largely through inaction and sometimes secrecy, that the customer can absorb the defect. They have come to understand that no personal accountability is attached to allowing these defects to go to market, and they do not believe that zero-defect medicine is possible. Fortunately, more and more customers are rising to reject the current state of quality and are demanding accountability.

The Institute of Medicine's (IOM) report entitled *To Err Is Human* (Kohn, Corrigan, and Donaldson 1999) is today's version of *Unsafe at Any Speed*, written by Ralph Nader in 1965. In his book, Nader criticizes the automobile industry, in particular General Motors, for its unsafe products. The only real difference between these two publications is that Nader's pleas were for legislated automobile safety whereas the IOM's pleas are for legislated healthcare safety.

To Err Is Human reviews numerous sources of medical error, including those that come from diagnosis, treatment, and preventive processes and communication/equipment failures. Typical errors include the wrong medication prescribed or dispensed, the wrong procedure done, the wrong patient treated, and the wrong diagnosis given. The report's conclusion is shocking: "Preventable adverse events are a leading cause of death in the United States. When extrapolated to the over

33.6 million admissions to U.S. hospitals in 1997, the results of these two studies imply that at least 44,000 and perhaps as many as 98,000 Americans die in hospitals each year as a result of medical errors" (Kohn, Corrigan, and Donaldson 1999).

Before the IOM report was published, error rates were considered an expected part of delivering healthcare. If such defect rates existed in other industries, however, they would be the basis for aggressive consumer-protection legislation, product recall, lawsuits, and criminal penalties—reactions that are slowly but steadily spreading among informed healthcare consumers.

QUALITY GAP BETWEEN HEALTHCARE AND OTHER INDUSTRIES

In other industries, certain measures of quality or defect rates are used. One that is commonly used is Six Sigma (in numeric terms, it means 3.4 defects per million items produced), a process of identifying and eliminating errors. The main idea behind Six Sigma is that it is possible to produce a high-quality, low-cost product that meets the needs of the customer through eliminating defects and waste in the processes that lead up to a product (Brue 2002).

In healthcare, safety of anesthesia is one extraordinary example of six sigma levels of quality. Anesthesiologists across the country joined to eliminate defects. Over time, virtually all the defects in the anesthesia process have been eradicated. However, errors in other aspects of healthcare delivery remain very high, even higher than error rates in industries, such as airline manufacturing, in which safety is essential. It is almost impossible that you will die in an airplane because of a defect or error, whereas you have at least a 2.9 percent chance of experiencing a totally preventable adverse event if you are hospitalized—for 100,000 people each year, this experience leads to death. Preventable adverse events resulting in death ought to be zero.

According to the IOM report, hospital care is only 97.1 percent perfect. Although this percentage may seem good, it is not, considering that less-than-perfect healthcare can mean injury or death. Even if hospital care were rated at 99 percent, the 1 percent error would still equate to 2,000 unsafe airplane landings per week, 22,000 checks withdrawn from wrong accounts per day, and 2 million Internal Revenue Service documents lost per year. A 99 percent defect-free rate means that each week 5,000 surgical procedures would go wrong in some way (Brue 2002). At 97.1 percent perfect, nearly 300 preventable deaths occur in hospitals each day—equivalent to an airplane full of people falling out of the sky daily.

LEADERSHIP'S ROLE

A defect-free product is possible in healthcare, just as it is in other industries, but its introduction and implementation depend on leadership. The work of W. Edwards Deming, later termed total quality management (TQM), changed the quality paradigm of managers in other industries. Deming helped management understand

“that quality did not require higher costs but more efficient and reliable processes that delivered defect-free outputs and that they had to focus on process improvement and customer satisfaction” (Brue 2002).

What motivated healthcare leaders, at least in part, to adopt TQM was the belief that as much as 40 percent of their organization’s annual cost was being wasted on processes. However, TQM largely failed in healthcare because of a lack of commitment from senior leadership. In most cases, TQM concepts and processes in healthcare were developed at middle-management levels. Such projects could not be sustained because senior leadership neither believed in them nor committed time and resources to see them through.

The Case of Virginia Mason Medical Center

Virginia Mason Medical Center (VMMC) is one example of an institution that experimented with but failed at TQM. Although VMMC did not have much success, its work with TQM planted the seeds for the organization’s changing direction on quality.

In 1988, Austin Ross, FACHE, then president of VMMC, and Roger Lindeman, M.D., then the chair and CEO of VMMC, concluded that much was known about quality, especially about unnecessary practice variation, but little was done about this knowledge. As a result, Ross suggested the creation of a practice patterns task force. Ross’s action was spurred by the Wennberg studies, which demonstrated no clinical rationale for the enormous variation in practice of hysterectomy and other procedures in the United States. Wennberg revealed the impact of one’s professional training, compared to evidence-based knowledge, on practice patterns. The role of VMMC’s practice patterns task force was to look at the evidence for medical practices that were well documented and to suggest standard approaches to them within the organization. Although received poorly and termed as “cookbook medicine,” this initiative was the first formal effort toward adopting what lean-production advocates call “standard work.”

These standard practices, called Practice Patterns Pointers, were distributed as treatment suggestions for consideration. VMMC began the process of challenging the cottage-industry model of medicine and started to apply the principles of scientific evidence to the delivery of medicine. The organization realized that only about 30 percent of the practice of medicine was supported by scientifically proven evidence; the rest was based on experience. Together with others, Ross developed the “value equation” (Mayne 1999):

$$\text{value} = \text{appropriateness} \times \frac{(\text{outcomes} + \text{service})}{\text{cost}}$$

This equation defined the relationship between value and appropriateness, outcomes (clinical results and the customer’s perception of the results), service (from the customer’s perspective), and cost. Value is directly proportional to outcome

and service and is inversely proportional to costs. Value is zero if the activity is not appropriate.

VMMC used the value equation as a way to communicate these relationships and to educate staff. The mathematical nature of the equation was an advantage as it created a clearer statement of what was of value to the customer. The value equation caused concerns in the beginning among those who could not accept the use of a simple formula to describe the complexity of healthcare delivery. Today this equation has been modified, with the term “value” replaced by “quality” and the term “cost” by “waste”:

$$\text{quality} = \text{appropriateness} \times \frac{(\text{outcomes} + \text{service})}{\text{waste}}$$

The sorry state of quality in healthcare is in part the result of many external factors: increasing demand for care, declining levels of payment, high operating costs, shortages of staff, costly new technology, and complex regulation and oversight standards. However, the realization that the state of poor quality was the result of lack of internal commitment and method, along with a recommitment to its vision to be the quality leader, led VMMC to change the way it managed. That change sent the organization to seek out companies outside of healthcare that aim to produce only the highest-quality products and that rely on a management method focused on eliminating product waste and defects. The search led VMMC to Toyota and its management system the Toyota Production System. Toyota’s management method produces a virtually defect-free and safe product, delights the customer, creates a positive work environment, reduces costs, and generates profit. VMMC found that Toyota’s methods were a perfect match for the organization and likely for healthcare.

THE TOYOTA PRODUCTION SYSTEM

James Womack and Daniel T. Jones (1996) characterize the Toyota Production System as “lean thinking” because world-class companies with the best production systems really require less of everything to produce higher-quality products. As noted in their book, *lean* means the following:

- Half the human effort in the factory
- Half the manufacturing space
- Half the investment in tools
- Half the time to produce the product
- At least half the inventory on hand
- Fewer defects
- Greater flexibility to produce a greater variety of products
- Lower costs

In addition, a core principle of the Toyota Production System paradigm is the concept of zero. *Zero* means zero defects, zero changeovers, zero inventory, and even zero quality control. The following “zeros of world-class production” are noted below (Black 1998):

- Zero customer dissatisfaction
- Zero lost information
- Zero waste
- Zero non-value-adding work
- Zero breakdowns
- Zero lost opportunity

According to Black (1998), a long-time student of the Toyota Production System and one of the firsts to implement it at Boeing, “World-class production starts by removing all waste from production, and then goes much further. . . . It is aggressively customer-focused and customer focus is nothing less than eliminating customer dissatisfaction by knowing and serving the customer well.” With such a production system and management philosophy, Toyota has become a world-class corporation.

REFLECTION

Many healthcare leaders’ apparent indifference and lack of action in light of the magnitude of the cost of defects and error in healthcare is difficult to comprehend. Not only are there ample documentation of patient injuries, there are numerous studies on the cost of errors as well. A study of 994 hospitals conducted by the Agency for Healthcare Research and Quality estimates that the unnecessary costs of bedsores, accidental punctures, infections, wound reopening, and foreign bodies remaining after surgery exceed \$9 billion per year (Zhan and Miller 2003).

Healthcare leaders know that well-documented approaches to radically improving the healthcare product are available from outside the industry. Although healthcare delivery is complex, it is no more complicated than orchestrating, in exquisite detail, the assembly of a Toyota automobile. Manufacturing a car involves over 30,000 parts coming together at exactly the right time in the right sequence, resulting in a perfectly assembled product every 100 seconds.

Critics of the Toyota Production System say that it cannot be applied to healthcare because people are not like cars. Although it is absolutely true that people are not cars, it is also true that healthcare does not produce people. Healthcare produces products delivered to people. Therefore, how the healthcare products are created and delivered need not and ought not to have defects.

The Toyota Production System implements the best processes and constantly improves products, customer and staff satisfaction, cost performance, and profitability. Healthcare, on the other hand, is increasingly unaffordable for the customer. It is constantly disappointing its customers and staff by allowing defects that harm its customers.

Healthcare leadership has to realize that its lack of vision and accountability and fear of change are allowing the continued production of a product that is terribly unsafe to its users. Leaders should question their own accountability and integrity and reconnect with the core value of medicine—"Do no harm"—to be able to lead in the name of their customers.

In the 1960s, those watching certainly laughed at the first sight of Dick Fosbury jumping the high bar so strangely—face forward, back arched. The world is no longer laughing, however, as this jump allowed for higher plateaus to be reached and became the gold standard approach.

In 2002, the mumbling and complaining was audible as VMMC's leaders declared the organization's new management method: the Virginia Mason Production System, which was patterned after Toyota's method. This system is not laughable, however, because it focuses on a noble customer-oriented goal: to produce a healthcare product with zero defects.

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