



Six Sigma: A Powerful Strategy for Healthcare Providers

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Watching the popular television show *ER*, it is easy to see how one could think of hospital life as the saga of valiant doctors struggling against overwhelming odds, tidal waves of patients, flinty-eyed administrators and a cruel society to save the lives of patients in dire need. All the while, steady nurses soldier on to provide what solace they can to the young physicians and needy patients. If only life were so simple. Out of sight and out of mind, in this television version of an emergency room, are all those others who, in real life, make patient care possible: the labs, radiology departments, operating rooms, laundry, medical supplies, pharmacies and so on.

Healthcare, while totally dependent on physicians, is also a complex web of interconnected and interdependent processes. If one process fails, the entire edifice can collapse. To illustrate, let's go back to our TV drama: imagine one of those GSWs ("gun shot wounds") brought to the ER by ambulance. The patient is strapped to a gurney, rushed into the ER with IVs hanging, and people shouting orders, and is then lifted onto a bed. Young Dr. Carter takes one look and orders two units of blood, a CBC (stat) and a chest X-ray. Now what? What if the blood does not get to the ER? What if it is incorrectly typed and cross-matched? What if the turnaround time for a stat CBC is an hour instead of 10 minutes? And by the way, how does one get a chest X-ray on a patient bleeding in the ER? For that matter, where does young Dr. Carter get his sutures, scalpels, linens, antibiotics and IVs? On television none of these things matter. We break for a commercial and things just happen, but not in the real world.

So what does this have to do with Six Sigma? Four forces are converging to make the delivery of healthcare in the years to come more difficult than it has ever been:

- **Aging baby boomers** Over the next 10-15 years, these people will become healthcare consumers in vast numbers. They have always been a demanding and vocal group, and there is no reason to think that this will change.
- **Scarce financing** The United States has been experimenting with various forms of healthcare financing over the last 15 years with HMOs, PPOs, Medicare DRGs, etc.—an alphabet soup of concepts, none of which seems to work for more than a few years. But one thing is clear, there are limits to what we can spend on healthcare.
- **Staffing shortages** While there seems to be no shortage of physicians, the healthcare field is once again suffering shortages of other staff, primarily nurses. The healthy economy and an increasing variety of job opportunities for women have made the healthcare field an unattractive place to find work.
- **Litigation mania** As shown in a recent report by the Institute of Medicine, medical errors in hospitals, to our great surprise, are not uncommon. The medical profession, once protected against malpractice suits, has become one of the prime targets of personal injury lawyers. And although doctors and hospitals can buy insurance to avoid financial ruin, a lawsuit can rapidly destroy the reputation of the institution that was responsible for the mistake.

The confluence of increased demand, decreased funding, shortages of staff and increased litigation creates a compelling case for change. Six Sigma might be one of the most compelling strategies to address these issues.

Six Sigma is shorthand for a discipline that allows any business to design, improve and manage its processes so that they perform at their highest possible levels. High levels of performance mean high volume, fast turnaround times, very few errors or defects and low cost. Effective and efficient processes also help to reduce staff turnover and increase retention by eliminating one of the main causes of high turnover—cumbersome and complex procedures and routines. And finally, Six Sigma promises to overcome the challenge of all professional disciplines—leveraging effective techniques and methods across the board—and dramatically decreasing medical errors.

Six Sigma is a synonym for a process improvement strategy that focuses on *eliminating defects*. What is a defect? It's everything that does not meet customer requirements—staying in the hospital one day longer than required, a mistake during a surgical procedure, or excess wait time when being admitted to the hospital. A process capable of Six Sigma performance is equivalent to the occurrence of 3.4 defects per million opportunities—a stretch goal for virtually



every business process. Airlines are one of the few businesses that have mastered this level of quality when it comes to having an equal number of takeoffs and landings. However, when it comes to on-time departure, their performance is less impressive. By measuring the capability of a process to meet customer needs, Six Sigma provides a framework to identify processes that could benefit from improvements.

But Six Sigma is not only about applying a rigorous measure based on customer needs—it is the application of powerful statistical techniques coupled with a rigorous approach to identify the root cause of the problem enabling teams of subject-matter experts to eliminate defects and achieve breakthrough results. However, the benefits of Six Sigma extend far beyond reducing cost or increasing efficiency:

- By using a common scale that is based on customer needs to measure and evaluate every process in a business, Six Sigma provides senior management with an effective way to manage performance for such distinctly different processes as transplanting organs, registering patients, filing claims, or purchasing sutures.
- The focus on reducing variation is particularly important for the healthcare industry, where every physician deploys a different process. The inherent variation in these processes make it difficult to achieve consistent standards of care and often prevents employing scientific thinking to identify the one best way. The sophisticated statistical techniques in the Six Sigma toolbox can help identify best practices and, coupled with the ability to manage change, help achieve substantial improvements when it comes to clinical processes.
- Consolidation in the healthcare industry has led to the formation of large hospital chains. However, few organizations have been able to transcend organizational legacies. As a result, few have gone further than establishing a common accounting system. But what about being able to look at similar processes across different organizational units — such as hip surgery — and being able to replicate the most effective approach across the entire chain? The Six Sigma methodology provides a common language to understand differences in processes and make informed choices about which approach is the best.

Six Sigma is not for the faint-hearted. It is a challenging strategy to master and execute in for-profit businesses, but even more difficult in the healthcare industry with constraints such as high barriers between different professional groups, lack of funds, understaffed and overworked employees, and individualized work procedures that are rarely managed or controlled. But the rewards are worth it, and its benefits can serve healthcare providers in many ways. Primarily, Six Sigma processes can deliver better care to more people at a lower cost. But Six Sigma processes can also help to attract and retain staff. Healthcare is a super-ego profession. Every provider feels compelled to do their best for the patients. Sub-par

performance is a nightmare for doctors, nurses, managers, technicians and others in the profession. No one wants to work in sub-standard processes. To the contrary, people are drawn to systems where care is excellent. While sub-standard processes create a downward spiral of poor care, lessen the ability to attract and retain staff and increase cost, superior processes create an upward spiral of excellent care, strengthen the ability to attract and hold staff, and lower expenses. ■

The following case provides an example of how the rigor of Six Sigma can help improve a typical hospital process:

A team of healthcare professionals at one of the leading hospitals in the industry was chartered by the management team to tackle the problem of excessive cycle times for processing orthopedic disability claims. For 75% of all cases, it took longer than 10 days from the receipt of the request to mail the claim to the insurance company. When the team started the process and defined the problem, orthopedics (ortho) was named as the prime suspect. However, the analysis of actual data revealed that every step in the process—both in ortho and accounts receivable—took an excessive amount of time.

In addition, the variation in each step was enormous. For example, it could take anywhere from 1 to 10 days to open and read the mail within accounts receivable. When the team measured the amount of time that added value, they found that less than 0.5% of the time was spent on activities that moved the claim closer to reimbursement. When they started to challenge the current process, the team made startling discoveries: Less than 78% of the cases needed a referral to the MD; however, the existing process required a referral in every single case. They also found that ortho maintained electronic files of patient records, and allowing the accounts receivable department to access this system would eliminate the need to request the patients' files from the department.

Using process mapping and advanced statistical tools, the team was able to project the impact of potential improvements, which facilitated getting the buy-in from both departments to implement dramatic process improvements. The results were impressive: total cycle time was reduced from an average of 17 to less than 6 days, variation was reduced by 60%, and less than 16% of all cases took longer than 10 days—resulting in a dramatic increase in cash flow.



ABOUT THE AUTHORS

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