



by Joyce Sherman

Achieving **REAL** Results with **Six Sigma**

“Six Sigma to the Rescue,” declared the title of a June 2002 article in the Technology Section of *Health Care Finance*. Almost four years later, has Six Sigma helped healthcare organizations achieve the promised breakthrough improvement in their operations?

By most accounts, Six Sigma—now frequently adopted in conjunction with lean methods—is considered to be an effective tool to achieve significant improvements in healthcare delivery. Organizations that implement Six Sigma are making gains in quality, safety and financial measures. But many hospitals are not seeing the breakthrough increases in quality, reductions in errors and gains in fiscal savings that Six Sigma promises. What differentiates healthcare organizations that are able to achieve significant results using Six Sigma?

Chip Caldwell Jr., FACHE, a Six Sigma expert and author and frequent speaker on the subject, says the answer is in the implementation. Improvements are limited in part because senior leaders bring too narrow a mind-set to the Six Sigma implementation process. “Sometimes senior leaders are overly tactical in their implementation efforts, not strategic. They get more wrapped up in the project-by-project elements of the process, focusing on questions such as, ‘How many Black Belts should I have?’” Executives should instead consider how Six Sigma fits into the overall strategic plan. The key question they should ask themselves, according to Caldwell, is, “What do we want to focus on to become best-in-class providers of medical care?”

Six Sigma by itself does not conquer all inefficiencies caused by continuous flow processes that characterize the healthcare environment. Two distinct types of inefficiencies generally occur: (1) waits, delays and defects and (2) flow-related bottleneck issues. According to Caldwell, Six Sigma was created to deal with the first group and lean methodology was created to solve the second. Therefore, combining lean thinking and Six Sigma methods has the potential to improve many of the care delivery problems encountered in hospitals.

Bay Medical Center, Panama City, Florida, focused its Six Sigma efforts on leadership and staff development to transform the way it does business. Mary Jim Montgomery, chief operating officer at Bay Medical Center, says, “We realized that we needed to improve the ability of our current and future leaders to manage this change. We identified our competency needs and searched for systems that would not only help us achieve a blended learning environment but also assist us in achieving our service and financial goals.”

Bay Medical’s breakthrough improvements came in the form of its employee advancement program. Montgomery reports, “Lean Six Sigma has allowed us to provide an

Achieving **REAL** Results with Six Sigma

additional avenue for people to enhance their role in the organization. Secretaries, clerks and supervisors are encouraged to become Green Belts so that they can improve their core competencies, making them candidates as future leaders.”

In the course of improving the pre-registration process, Bay Medical identified the patient entry supervisor as having the competencies—process and people management, building strategic relationships, team building and problem solving—needed to run a much larger section of the center. In the process, the employee was promoted and the pre-registration improvement project recovered approximately \$200,000 per year in revenue by completely redesigning the systems and location and combining the pre-registration and scheduling functions into one unit. The streamlined process allowed for timely and complete information to be collected, facilitating a 90 percent pre-registration rate for such key procedures as CT scans and MRIs. Improvements also were recognized in procedure cancellations and no shows. In 2005, MRI cancellations were reduced by 6 percent and CT cancellations were reduced by 10 percent. The skills developed by the new director helped facilitate the successful transformation that today has been expanded to all planned procedures in the hospital.

Executive involvement is key to Six Sigma’s effectiveness, no matter what area an organization targets for improvement. CHRISTUS Spohn Hospital Corpus Christi began its Six Sigma implementation with the revenue cycle and then migrated to clinical operations. Daniel Doucet, MD, associate administrator of Medical Affairs, says, “The success of Six Sigma, regardless of what area of healthcare delivery is targeted, begins with senior leadership buy-in and commitment throughout all aspects of the implementation.”

Senior leaders need to decide that they want Six Sigma as their improvement model. Then they must commit to the cultural shift that is necessary for making and maintaining significant gains.

“The reason Six Sigma is successful at Toyota is that it has been hardwired into the company’s *culture*. Other companies have made the mistake of looking at the final product and then adopting the ‘Toyota Way’ with expectations of similar success,” says Doucet. “However, if you only apply the principles without changing the culture, Six Sigma does not have the same impact.”

CHRISTUS Spohn Hospital Corpus Christi–Shoreline targeted the emergency department as one of the clinical areas to undergo lean Six Sigma process improvement. Six Sigma Black Belts brought in to aid the implementation introduced the principles of Six Sigma and lean thinking to a team of executives, nurses, physicians, technicians and admitting personnel using a boot-camp style approach. Armed with the knowledge of what to look for, the team then spent several hours observing emergency department processes and collecting data that later were subjected to high-level mathematical modeling. “My experience with previous attempts at process improvement included multiple, shorter time frame meetings with hospital leadership and associates sitting in a room mapping out the current process and looking for improvements. “While I initially questioned the amount of time allotted for observation, it was eye opening to witness the degree of variance between the way procedures were designed to work and the reality that our associates had adopted survival techniques to circumvent a broken process,” said Doucet.

“The observation also helped everyone recognize and acknowledge that the process was broken, similar to the first step in overcoming an addiction. But like an addiction, even after recognizing the problem, there was still significant resistance to changing some of those processes. This is where the sophisticated modeling moved the group’s buy-in further along as the observational data became a scientific decision rather than an anecdotal best guess.”

The power of Six Sigma hit home for CHRISTUS Spohn–Shoreline leaders, clinicians and staff after seeing results in just one week. For example, CHRISTUS

Achieving **REAL** Results with Six Sigma

Spohn–Shoreline recreated the emergency department’s “white board” by mapping out a place for each step in the patient encounter process, beginning with the greeter and finishing with the financial discharge. Although the health system was planning to move to an electronic board, the team chose not to use any technology in the solution planning unless it was already operational. This was a very effective way to focus on real solutions immediately, as opposed to turning toward a yet-to-be-developed or -implemented technology solution of the future. “We reduced a significant amount of wasteful motion and created a tool that promoted readily identifiable trends through the use of something as simple and basic as color-coded magnets to identify the status of the patient during the encounter. It was less about the tool and more about the process the tool supported. Paradoxically, the more detailed and potentially cumbersome the board became the greater the benefit of reduced wasteful motion and subsequent patient flow improvement. It was on this model that our current electronic board is built,” says Doucet.

Once the need for Six Sigma is determined, senior leaders must commit to it as a business initiative, not a quality

initiative. This means executives must learn how to develop a strategic plan that is driven by Six Sigma. This is where the DMAIC (define-measure-analyze-improve-control) format of lean Six Sigma came in for Bay Medical Center.

Brit Watts, director of operations excellence at Bay Medical Center, says that DMAIC “provided the structure we needed to wrap our arms around the changes being made.” One example of applying the DMAIC process involved centralized transport. “We have been on a yearlong effort to improve overall patient throughput at the center,” Watts explains. “We had introduced a centralized transport system that was close to meeting our needs, but with a significant increase in patient volume, we knew it had to be improved.” As with many throughput issues, the first solution considered was to add staff. According to Watts, “Tossing labor at problems is common in healthcare and other industries. With the high turnover for transporters, we knew that the *system* had to be examined and not just staffing levels.”

Bay Medical stepped back and walked through the centralized transport process using a cross-functional team

The DMAIC Process in Six Sigma

DMAIC is a cyclical, measurement-driven process that works to solve a problem that has no known solution. Each of the following steps in the cycle must be performed to determine and eliminate the causes of defects.

Define a process that needs to be improved based on your business goals and customers’ needs, including the project’s boundaries such as beginning and end points.

Measure the performance of the process targeted for improvement using valid and reliable metrics.

Analyze the data collected in the measurement phase to identify the root causes of poor performance and steps needed to improve or redesign the process.

Improve the targeted process by developing creative solutions to address defects and poor performance.

Control the process once it is improved to maintain the gains made, including a monitoring plan to prevent reverting back to the “old way of doing things.”

SOURCES: iSixSigma.com; American Society for Quality; SixSigma.us.

and the DMAIC structure. They defined their goal as having a transporter reach the patient in less than 25 minutes after being signaled. This would meet the needs of the system's customers (patients, physicians, nurses and ancillary staff). In the measure stage, the team looked at the response time from a daily and hourly perspective, as well as monitoring staffing levels. They found that on average transporters were meeting the 25-minute goal. However, in the analyze stage, the team found three key elements that would not have been evident without the DMAIC process. First, there was significant variation with the 25-minute goal being exceeded in roughly half the cases. The standard deviation was greater than nine minutes, which meant the expected response time was as much as 52 minutes. Second, cancellations and delays were significant. Almost 25 percent of the calls made for transport were either cancelled or delayed due to wrong equipment being brought to the patient pick-up. Finally, the correlation between expected calls and hourly staffing levels was almost one to one. The staffing levels peaked at the exact time the calls increased, which was not early enough to prepare for the peak demand. This caused a delay in initial response time.

Training and procedural changes were made for CSAs, nurses and transporters so the centralized system would be used as designed. Staffing was also addressed, but

not increased. Shift start times were moved back by 15 minutes, allowing for the proper staffing levels to be ready for the expected volumes 15 minutes in advance. Other than labor time for the team members and development of written procedures, no cost was attributed to the improvements. The result was a sustained average response time of 19 minutes and a standard deviation of less than three minutes. Although the team did not hit a Six Sigma improvement level in the current iteration, they came close. Patient and staff satisfaction also increased.

Finally, in the control stage, regular response time updates are posted and new transporters and clinical staff are trained using video and on-the-job training. In organizations like Bay Medical, gaining that fundamental understanding of what such a transformation entails feeds into the development of a strategic plan that uses Six Sigma as a business strategy cornerstone.

Caldwell finds that when he introduces Six Sigma to an organization, senior leadership gets excited at the prospect of solving their quality issues. But excitement fades if processes do not improve as dramatically as they hoped. When Caldwell asks what is standing in the way of making more significant gains, executives respond that they already have too many processes and the strategic decision-making process involved in Six

Learn more about Six Sigma from these ACHE publications and seminars:

The Six Sigma Book for Healthcare: Improving Outcomes by Reducing Errors

Robert Barry, Ph.D.; Amy Murcko; Clifford E. Brubaker, Ph.D. Health Administration Press, 2002, ISBN 1-56793-191-X.

Aggressively Improve Costs and Throughput Using Lean Six Sigma (seminar). Chip Caldwell, FACHE, seminar leader.

Chip Caldwell Jr., FACHE; Daniel Doucet, MD; and Ian R. Lazarus, FACHE, will present seminars at ACHE's 2006 Congress on Healthcare Leadership, held March 27 to 30 in Chicago.

For more information on these publications and seminars, visit ache.org.

Achieving **REAL** Results with **Six Sigma**

Sigma implementation is cumbersome. This perception occurs because Six Sigma is often deployed tactically into the organization—department by department based on “problems” versus long-term strategies that truly define greatness in a healthcare environment.

Six Sigma and complimentary methods such as lean thinking and DMAIC continue to gain recognition and respect in the healthcare delivery environment. According to Ian R. Lazarus, FACHE, managing partner at Creative Healthcare USA, “Six Sigma has proven its staying power in a crowded field of performance improvement alternatives because the

concept of achieving defect-free processes is even more compelling in the healthcare world than in the automated world of manufacturing.” Although many physicians and executives remain resistant to quality improvement methods that were created for manufacturing—physicians may initially see it as another iteration of cookbook medicine and executives may deny its applicability to an arena where variables are the standard—more and more healthcare organizations are adopting the Six Sigma principles to achieve higher quality and a better bottom line.

Joyce Sherman is an editor for Healthcare Executive.



**HIT YOUR
COMPENSATION
TARGET
THE FIRST TIME!**

We provide independent executive, physician, and staff compensation consulting services to the healthcare industry.

Atlanta 678-281-7000 **New York** 212-332-3288
Chicago 312-739-2000 **Parsippany** 973-257-5031
Detroit 313-872-1760 **Westport** 203-221-2823

Toll-free 888-739-7039
www.sullivancotter.com

sullivancotter
AND ASSOCIATES, INC.