

# Sharp HealthCare Gets to the Point in Managing Diabetes

Organization designs Six Sigma project to reduce negative consequences in acute settings

**LITERATURE FROM** the last five years demonstrates that poor control of blood sugar in acute healthcare settings equates to negative outcomes in diabetics—both during the hospital stay and one year after the event. Sharp HealthCare in San Diego therefore decided to control glucose levels everywhere.

Everywhere for the 2007 recipient of a Malcolm Baldrige National Quality Award includes four acute care hospitals, three specialty hospitals, three affiliated medical groups and 19 outpatient clinics.

“Sharp even goes so far as to cancel surgeries to get blood sugar of patients under control,” says Nancy Pratt, senior vice president of clinical effectiveness, who led Sharp’s Baldrige improvement effort.

Pratt is a critical care registered nurse with a background that includes managing an intensive care unit and working for an IT organization that conducted data analysis. She explains that if blood sugar isn’t controlled, the acute incidences of stroke or myocardial infarction are much higher, as are rates of infection, lengths of hospital stays, rates of other illnesses and mortality.

Pratt and five other staff members were trained as ASQ certified Six Sigma Black Belts (BBs). Then they decided broader implementation was needed, so 50 more staff members were trained.

Sharp’s Six Sigma staff is an eclectic group that includes people with backgrounds in industrial engineering, IT, finance, strategic planning and marketing,



SHARP CORONADO HOSPITAL’S medical surgery manager, Karen Moran, with patient Jess Gonzalez.

and a department director who’s a critical care nurse.

Sharp had a diabetes service line for 15 years, but it was mostly limited to outpatient education. The diabetes service line director reported to Pratt, who came to Sharp in 2002 and lobbied the organization to use acute case management of blood sugar as a system goal under its Six Pillars of Excellence: quality, service, people, finance, growth and community.

“Once the metric was put into place, improvement wasn’t optional. We had to deliver,” Pratt explains. “The service line had to get busy. Sharp has 14,000 employees, and at

## In 50 Words or Less

- To improve results, Sharp HealthCare in San Diego decided it needed to control blood sugar in acute care settings.
- Education, measurement and standardized work have led to improvements every year.
- A Black Belt did analysis and DMAIC to focus on the critical few issues related to this improvement project.

times it seemed like turning the rudder on the Titanic.”

At the end of the first year, using education and steering committees to set up a standardized approach, Sharp wasn't showing results. But during the second year, improvement accelerated, as it has every year since (see Figures 1 and 2).

### Education the key

Implementing the blood sugar control program everywhere meant education across the board—doctors, advanced practice people, nurses on the front line and support services. They needed information to drive performance forward, so the medical and nursing staff had to learn a standardized protocol that included using long-acting insulin and meals to appropriately manage diabetes.

That meant measuring blood sugar levels electronically and sending the results to the right people in each individual unit. This was a capability Sharp already had—it was one of only nine healthcare organizations to receive the Hospitals & Health Networks' "100 Most Wired" award for nine consecutive years.

There were still inconsistent results after instituting the standardized protocol. A define, measure, analyze, improve and control (DMAIC) project was started (see Figure 3). A Six Sigma BB conducted the analysis, focusing on the critical few issues instead of trying to solve every issue.

This analysis discovered that the timing of insulin administration wasn't coinciding properly with meals. A process to ensure the time of meal-tray delivery for diabetics was established.

There was a lean component to the improvement ef-



A REMODELED Sharp emergency department room.

fort. Lean was used to create standard work for intravenous and subcutaneous insulin administration. “We implemented the fundamentals of lean to get rid of waste and variability,” Pratt says. “And, we used change acceleration to help people with acceptance of the program.”

Pratt thinks Sharp has many more opportunities to drive lean strategies through 5S and *kaizen* events, particularly in laboratories and for throughput in the emergency department.

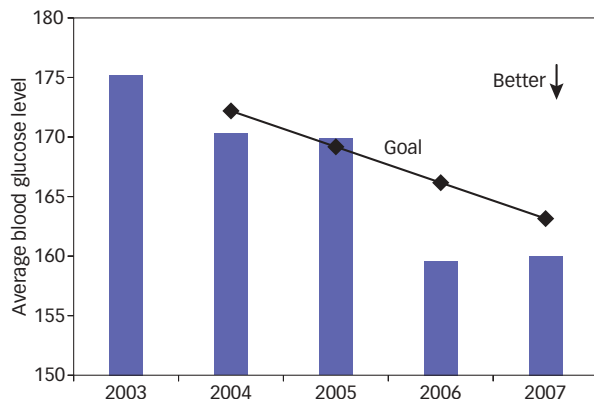
“The lean events we've had so far have also been popular with the emergency department staff because they've smoothed the process and flow for patients,” Pratt says. “We learned that minor remodeling can make a huge difference in patient care.”

Other performance improvement tools at Sharp include a rapid action project method and the Breakthrough Management Group's Work-Out method, a results-focused, cross-functional program to reduce waste and improve efficiency.

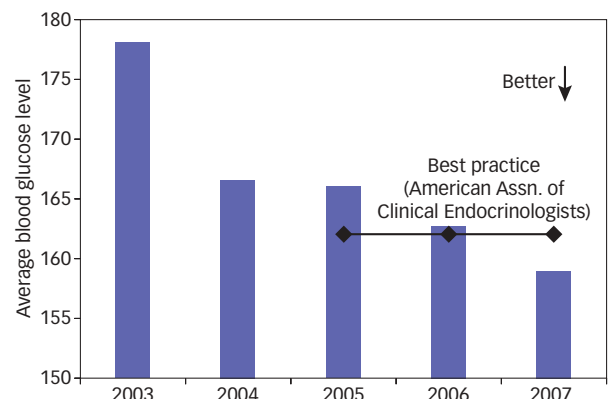


Nancy Pratt

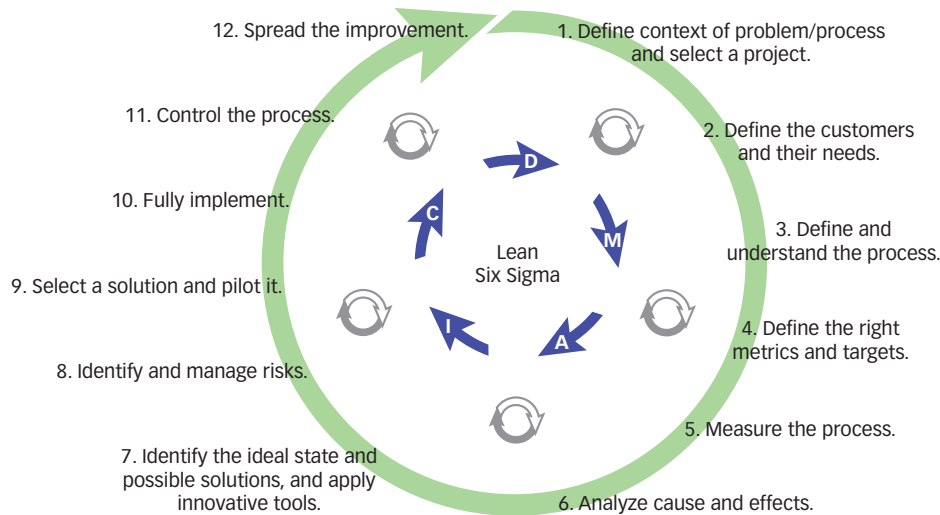
## Sharp inpatient glucose levels / FIGURE 1



## Sharp intensive care unit glucose levels / FIGURE 2



## DMAIC 12-step problem solving process / FIGURE 3



### Resistance and challenges

“Acceptance was a tough hill to climb because it required a culture change,” Pratt says. “We had to look at resisters and how to get them on board by creating a shared need and shared vision.”

Tools used included everything from stakeholder resistance analysis to elevator speeches. It also has helped to have a physician champion for medical and nursing staffs at each of Sharp’s hospitals. “Now it’s the norm at Sharp that we aggressively manage blood sugar for all patients,” Pratt said.

One of the biggest challenges in Sharp’s diabetes management program was a struggle over the use of insulin pumps by savvy patients who managed their own insulin.

“These patients let us know that they could do a better job than the hospital could,” says Pratt. “So, we really had to get our ducks in a row.”

There are so many different brands and types of pumps that nurses couldn’t be trained to use them all. But an initial decision not to allow the pumps in the hospitals brought patient pushback. Meetings were scheduled, with patients telling Sharp representatives they either would bring their own pump or wouldn’t come to the hospital.

“We decided to accommodate pumps in coherent, undrugged patients and set up a criterion for patients to manage their own insulin and for communication between pa-

tients and nurses,” Pratt says. The new policy is currently being rolled out.

While not specifically noted in Sharp’s quality goals, which include reducing hospital infections and providing perfect care across all core measures, diabetes management is a submeasure.

Data are measured and analyzed, and feedback to units is provided on a daily basis. “In fact,” Pratt says, “we have implemented a tool called ‘on watch,’ which fires on a second-by-second basis, alerting staff and patients within 30 seconds if their blood sugar is not in range.”

Improvements in six categories of the Baldrige criteria—leadership; strategic planning; focus on patients, other customers and markets; measurement, analysis and knowledge management; workforce focus; and process management—were necessary components of the Sharp blood sugar control improvement project.

The project was just one of multiple improvement results that led to Sharp’s being awarded the nation’s most prestigious quality award.

In addition, Sharp’s revenues of nearly \$2 billion have increased by nearly \$1 billion since 2001.

To read Sharp’s Baldrige application and see the overall results it achieved, go to the Baldrige National Quality Program website at [www.quality.nist.gov](http://www.quality.nist.gov).

### BALDRIGE AND HEALTHCARE

For articles about the eight healthcare organizations that have received Baldrige Awards since 2002, go to QP’s website at [www.qualityprogress.com](http://www.qualityprogress.com).