BETTER FLOW VIA SIX SIGMA

ST. VINCENT'S MEDICAL CENTER

♦ **Jacksonville, FL**
♦ **528 beds**
♦ **www.jaxhealth.com**

St. Vincent's Medical Center is a general acute-care hospital serving northeast Florida and southeast Georgia. It has 684 affiliated physicians. It is part of Ascension Health.

S T E E P

Safe
Emergency patients receive care more quickly.

Timely
ED wait times have fallen, and inpatient beds are available sooner.

Efficient
Processes, such as handling labs and inpatient room cleaning, have been streamlined.

THE PROBLEM

The average ED length of stay was 413 minutes (6 hours, 53 minutes). Fourteen percent of ED patients left before being seen, 40 percent of these had waited more than four hours. The hospital was losing about $7 million in revenue annually as a result.

THE SOLUTION

In June 2006, St. Vincent's launched a Six Sigma initiative to improve ED throughput. Teams were created to address an array of factors contributing to ED delays. Among the approximately 12 projects were those looking at the time the ED ordered a test to the time the lab received the specimen, the time it took to clean a discharged patient's room, time from triage to ED bed, time from inpatient bed ready until arrival of the ED patient to that bed, and the percentage of discharges by 2 pm.

RESULTS

» The ED's left-without-being-seen rate dropped dramatically, to 1.8 percent as of October 2008.

» The average ED length of stay decreased from 413 minutes to 286 minutes as of October 2008.

BACKGROUND

In 2006, St. Vincent's Medical Center officials were dismayed that 14 percent of ED patients were leaving without being seen due to long wait times. That equated to $7 million of revenue walking out the door annually, according to hospital estimates. Scott Whalen, the facility's chief operating officer at the time and now its president and CEO, had positive experiences with the Six Sigma methodology at another hospital and instituted the program at St. Vincent's.

The hospital brought on Lynne Sisak, a master black belt in Six Sigma, who analyzed the various processes that affect ED length of stay to determine which ones would have the biggest impact if changed. Based on the results of that review, a number of teams were assigned. "Everybody took a small piece of the whole

puzzle," says Beckie Watson, manager, performance improvement, master black belt.

Six Sigma was more effective than previous efforts. "In the past we would have said, 'length of stay is too high in the ED, fix it.' Nobody knew where to focus," Watson says. "Now we have a better way of targeting our projects and really making those incremental improvements. If 10 teams have statistically significant improvement, then it's going to impact that whole process."

Once the project got started, it became a hospital-wide effort because so many departments affect ED wait times. Teams included staff from various areas of the hospital. This was essential because the ED personnel believed the patient floors were causing the problem and vice versa, says Kathy Courtney, ED nurse manager. "We had to come to an agreement and be able to walk in each other's shoes." The process helped the staff as a whole "to see there are a lot of different variables. The ED staff saw the problems they have upstairs, and the people upstairs saw the problems we have downstairs," she adds.

The focus on measuring data dispelled some preconceived notions about the cause of ED delays. For example, Watson says, "the floors were saying that the ED was holding patients and not taking them up until change of shift. They said if the ED would just stop waiting until change of shift when we are busy receiving report, then we wouldn't bottleneck. When we ran the data, we found that patients were being transported all during the day and shift change was not the time that patients were going up. That was a real surprise to some of the teams."

Six Sigma, with its focus on rapid-cycle interventions, led to immediate results on many metrics. One example is the time between when an inpatient bed was vacated to when it was clean and ready for an ED patient. In June 2006, the average was 132 minutes. At that time whoever was available on the environmental services staff was paged and went to the room. The vacate-to-clean team tracked one environmental services worker and measured how much backtracking that

TEAM MEMBERS

- » **Kathy Courtney, RN**
  Emergency Department
  Nurse Manager

- » **Diane Fox, RN**
  Emergency Department
  Clinical Resource Coordinator

- » **Lorraine Keith**
  Director, Critical Care/Telemetry
  and Emergency Department,
  Six Sigma Black Belt

- » **Christopher Noll**
  Ortho/Neuro Nurse Manager,
  Six Sigma Green Belt

- » **Barbara Potter**
  Director, Performance Improvement,
  Six Sigma Master Black Belt

- » **Melissa Scot**
  Manager, Bed Board,
  Six Sigma Black Belt

- » **Beckie Watson**
  Manager, Performance Improvement,
  Six Sigma Master Black Belt

- » **Scott Whalen**
  President and CEO,
  St. Vincent's Health Care,
  Six Sigma Green Belt

person did between floors and units and how much time was wasted on the elevator. The team decided to switch to a zone system, with staff assigned to particular floors or units to cut down travel time. With that one change, the team met its goal of turning around rooms in 45 minutes in the project's first 100 days. "They really didn't need to do anything else after that," Watson says.

Another quick success was decreasing the time from when tests were ordered in the ED to when samples got to the lab. That team came up with the idea of putting red clothespins on charts with lab orders as a visual cue for technicians and nurses that a specimen was needed. The time dropped from 90 minutes to 36 minutes in 100 days and remains there.

The various process changes had the desired effect. The percentage of ED patients who left without being seen dropped from 14 percent to 1.8 percent as of October 2008—slightly below the hospital's goal of 2 percent.

PRINCIPLES OF PERFORMANCE EXCELLENCE

Creation of High-Reliability Culture

Past quality improvement efforts didn't involve frontline staff. "We had people like me or managers sitting around and trying to figure it out," says Barbara Potter, director of performance improvement and Six Sigma master black belt. "This was different. We were asking the people who were doing the work what they thought. It was different for us to have a housekeeper on a team working on an improvement."

Staff involvement proved invaluable when teams examined processes and developed flow charts of them. "The only way to really know what steps are being done is to talk to the actual employee doing the work," says Christopher Noll, ortho/neuro nurse manager, Six Sigma green belt. "You define every little step, and you start to identify rework loops or double-work. You start to see the inefficiencies and start to address them through rapid-cycle testing, eliminate them and hopefully have a better end result."

Six Sigma has changed the entire hospital's approach to quality improvement, says Noll. The benefits have spilled over to projects that aren't Six Sigma. "We needed to implement some things for the Joint Commission, and we needed to make rapid changes for that. Around the hospital, people were accustomed to it. That was not true 24 months ago," he says. The idea for the project started in the hospital's leadership ranks, with then-COO Whalen. Managers and directors gave frontline staff time to participate on teams. They also put resources into staff. Extra triage and admitting nurses and a doctor were added at peak periods to decrease patient wait times.

CONTINUAL IMPROVEMENT

Although most ED throughput projects are completed, the teams plan to keep measuring and reporting performance. "We're going to have to keep this in front of people until it becomes hardwired and people are doing it without thinking about it, which takes a long time," Potter says.

One metric in particular still requires more work. In November 2008, only 38 percent of discharges were completed by 2 pm, well short of the 80 percent goal. Several remaining holdups involve the medical staff. With so many physicians involved in each patient's care, it's difficult to get them all to sign off on discharge. Also, physicians aren't making their rounds early enough to patients who are likely to be discharged that day. "Most doctors are trained in medical school to see their sickest patients first," Watson says. "The people who are actually going out the door don't get seen until noon or after. We would like to try to get the physicians to change their behavior and see first those patients who can be discharged."

Some physicians have expressed interest in Six Sigma, so one possibility is creating a team of doctors to address the 2 pm discharge issue, Watson says. Also under consideration is changing hospitalists' contracts to require that they make rounds or write discharge orders by a certain time.

In November 2008, St. Vincent's HealthCare used national benchmarks to reorganize for operational efficiencies. Under this new structure, Watson says there will be opportunities to use the tools of Six Sigma to analyze current processes, monitor revised processes and create new processes that are efficient, safe and deliver quality patient care. "It is exciting to think about what we are going to be able to do in the next year utilizing our organization's knowledge and experience with Six Sigma."