

“Because of our improved processes,” Eller said, “we were able to manage going from our routine day-to-day activity to a very hectic, stressful environment [yet, be able to maintain our flexibility and therefore handle the situation]. Though it was beyond our control, it was still very manageable. We’re able to allocate staff differently, deploy staff differently. I think the key thing about Lean is that it provides the adaptability to deal with the situation at hand.”

### RWD vital to success

“We’re a much better-run emergency department now,” said Dr. Stroh. “My colleagues are much happier. [The Lean initiative has] improved pretty much every aspect of the ED in terms of our metrics.”

And there’s general recognition in the ED that RWD was vital to the success of its Lean campaign.

“We thought we were going to have to change everything, reinvent the wheel,” recalled Christine Cogliati, RN, an Assistant Nurse Manager and Lean team member. “We kind of dragged our feet. But our [RWD Lean expert] kept telling us: ‘If you’re positive and focus on it, then, yes, you can do it.’ And he was absolutely right. We could do it.”

“I have nothing but great things to say [about RWD],” said Eller. “Their goal was to be one of us, in a sense—to try to learn what we do, to help, to provide us with the tools and information that we would need to better our work environment. But they’re helping us create a better patient environment at the same time. They would continuously remind us that this is a patient-focused initiative, that it should be enhancing the patient experience. And if we improve that, we’re also going to improve the nurse experience and physician experience.”

## St. Luke’s Episcopal Hospital Tackles Emergency Department Challenges

[www.rwd.com](http://www.rwd.com)

*“Our main issue was that we had patients who could be seen, but no place to see them. They were in the waiting room for an extensive period of time and nothing was being done. The physicians usually walked in to a patient who was really angry.”*

**Dr. John Stroh**  
Assistant Medical Director of  
Emergency Department



It’s been well over two years since St. Luke’s Episcopal Hospital (SLEH) of Houston began the process of adopting Lean improvement methodologies for its operations. The hospital’s CEO, Dr. David Pate, decided that Lean was the best means to achieve greater efficiency, efficacy, safety and employee engagement. SLEH selected RWD—longtime experts in Lean process improvement—to help assure this huge project’s success.

One of the most important Lean initiatives of the campaign’s second year addressed SLEH’s Emergency Department (ED). Despite the ED’s overall excellence, it faced a variety of challenges:

- The patient length of stay was excessive, at 459 minutes on average.
- The time spent on “diversion”—that is, the time the ED was fully occupied and unable to accept new patients—was too high and costly to SLEH.
- The percentage of patients who left without being seen was too high.
- The turnaround time for test results for ED patients was too long.

### Background

- 912 bed hospital
- Primary teaching hospital for Baylor College of Medicine
- 600 active medical staff
- 4,500 employees

### A rapid triage and treatment solution

SLEH is the flagship hospital of the St. Luke's Episcopal Health System. It's an acute-care teaching hospital in the Texas Medical Center and the primary adult teaching hospital for Baylor College of Medicine. It has 600-700 beds in service on any given day, a, active medical staff of 600, and nearly forty five hundred employees.

After receiving instruction in Lean methodologies from RWD, a team of ED staff members and an RWD expert began determining the "current state" of ED operations.

Andrew Eller RN, BSN, the ED's Clinical Educator, was the project lead. "What we found is that we had numerous delays," he said, "both in the process of the patient arriving and checking in, and in being triaged and placed in a room. There were also delays in patients being seen by physicians, testing and being admitted. In the planning process we identified that making easier for the patient would make it easier for the staff and physicians as well. So we planned and developed a process to enhance each area, create some synergy and make it easier for the patient."

To help address the central problem of long patient waits, the ED Lean team—working with the RWD expert—devised the RAD (Rapid Assessment and Disposition) process. Patients arriving in the ED are screened by a triage nurse. Those who are in critical condition and need immediate care go straight to a treatment room. Those who arrive with minor health concerns are examined and sent to a dedicated RAD waiting room. They're promptly placed in one of four exam rooms, where a doctor sees them. They return to the waiting room to wait for any testing or procedures to be done. After that, they're discharged or admitted.

"When we implemented that process," recalled Dr. Stroh, "we finally refined it. That's pretty much the process that we kept. So our waiting room went from having people sitting there for anywhere from four to six hours to almost empty. Our physicians feel that this is easily one of things that make the patient happier, so [physicians] are happier, too."

"This has allowed us to see more patients and move them more quickly through the system," said Sue Freeborg, Nurse Manager of the ED and a Lean team leader. "When the Joint Commission surveyors were here, they absolutely loved our RAD area. They came down specifically to see our RAD area, so that was pretty impressive."

Overall, the RAD system created by the Lean team has helped reduce length of stay from 459 minutes to only 310 minutes, and 156 minutes for RAD patients. Physicians are now able to see 2.1 patients per hour, instead

of 1.7 per hour. Patients who left-without-being-seen decreased from nearly 8 percent to 2 percent in a matter of months.

### Standardization makes everything easier

Erratic supply accessibility was another important issue. "Supplies were a huge opportunity [for improvement]," said Freeborg. "We never had enough. Or we had too much. No one knew where they were. You looked in cabinets, and they were a mess. So we cleaned all that out and standardized it. Now I don't hear about those issues."

"It makes perfect sense to put the things you use frequently in the places where you are most likely to look for them," said Dr. Stroh. "Now that everything is standardized, it's easier."

For example, the Lean team created dedicated supply carts for various purposes—suture carts, ortho carts, supply carts for each area. Each cart is laid out and labeled according to 5S Visual Management, a key Lean tool. Every cart has a "home base," clearly labeled on the floor. So do EKG machines and other pieces of portable equipment.

"One of best examples [of Lean improvement] would be the labeling of our lab specimens," Eller said. "The lab was relabeling all of our specimens because we were using incorrect labels." Working with Lab personnel, the Lean Team established the correct method of labeling and trained superusers who then provided hospital-wide training. Consequently, the lab's rework was decreased and quicker turnaround times were achieved for ED testing. Moreover, upwards of half a million dollars in labor and time was saved.

### Coping with "Ike"

The value of Lean improvement became particularly evident in the SLEH ED when Houston was hit by Hurricane Ike—the third most powerful hurricane to ever make U.S. landfall—in September of 2008. The storm's impact took the form of significantly higher patient volume. The ED saw 151 patients one day and 152 patients the next day, when the typical patient volume on any ordinary day is about 90. According to Eller, if the ED had been operating as it was formerly, that higher patient volume would have been "a disaster."

"Through the [Lean] processes we had implemented," he said, "it made it easier to manage that increase in our patient population. These processes helped us to cope. But of course our length of stay went up." In other words, while patients who came during Ike were waiting longer than the 5 hour average stay, they were still being seen notably sooner than the old 8 plus hours.

*"It makes perfect sense to put the things you use frequently in the places where you are most likely to look for them," said Dr. Stroh. "Now that everything is standardized, it's easier."*

