

Performance improvement

Lean project helps to revitalize an SPD

Missing instruments and supplies can be one of the OR's biggest frustrations. Chasing down instruments or retrieving items during a case wastes time, irritates surgeons, and prolongs the patient's time under anesthesia.

At Exempla Good Samaritan Medical Center in Lafayette, Colorado, chronic problems had eaten away at morale.

"We wanted to blow up SPD," was a comment Kimberly Ann Stefan, RN, MA, CNOR, director of perioperative services, heard all too often in reference to the sterile processing department. A staff survey confirmed that the problems were taking a toll on employee satisfaction.

When the hospital's leaders decided to adopt principles of Lean management, Stefan persuaded them to make SPD one of the first projects. Key principles of Lean, pioneered by Toyota, are to weed out waste, create smooth-flowing work processes, and foster a culture where employees at all levels continuously seek to improve their work.

Seven months later, the atmosphere in the OR and SPD had changed. OR staff satisfaction climbed from 45% to 81%. Instrument-related errors were almost nil. Cases delayed because of missing instruments had fallen by 44% in preliminary data. For Stefan, one of best metrics was that complaints about SPD almost disappeared. Results have held up for more than a year.

The SPD manager, George Tafoya, CSIT, regularly attends meetings in the OR and sometimes leads them. When an instrument issue arises during a case, he personally comes to the OR and talks to the surgeon.

A big commitment

Lean can't be isolated to a single project or department, stresses Gerard Leone, of Leonardo Group Americas, LLC, who consulted at Good Samaritan. Lean must be embraced by senior leaders who understand Lean and support it (sidebar).

"It's a very big commitment," he says, noting that the hospital's executive team—the CEO, CNO, CFO, and CMO—all received 5 days of Lean education. They endorsed the SPD project and made sure Stefan and Tafoya had the resources, including contract staff when necessary, to make changes that would last.

The project took place in 3 phases:

1. Data gathering

This first phase entailed a formal analysis of processes as well as value-stream mapping; identification of opportunities for improvement; and development of a master plan that included a timeline, resources required, estimated benefits, and return on investment. Value-stream mapping is a Lean technique used to map the flow of a "product," such as an instrument



Clockwise from top left:

Flipping a shelf for drying handwashed instruments to the clean side freed more space in the decontamination area.

SPD staff use workstations to access "recipes" that guide set assembly.



White tags show which patient a tray is assigned to. During the Lean project, trays were tagged with orange tags to indicate missing instruments.

Shelves in the storage area slide out easily saving strain on the staff.

set, through a process. It is an initial step in identifying waste and defining opportunities for improvement.

2. Process design

In this phase, resources needed were calculated for all processes in the value stream. A conceptual layout for the process was developed and implemented.

3. Going live

In the third phase, the staff tested the new process to be sure it would work and made further refinements. During this phase, Stefan brought in contract staff so the regular staff could become familiar with the new process.

Data gathering

For 3 months, the SPD project team reviewed every case and identified the instrument sets used. The review enabled them to measure the sets being used against the sets in inventory, Leone notes. The team also conducted time studies for 3 to 4 weeks to aid in calculating the resources needed in personnel, reprocessing equipment, and sets.

"The management team was good about assigning resources. At times, we took 6 to 7 staff out for a week to gather data and plan the new process," he says.

One result of the data gathering was to enable the department to justify converting a 40-hour contract position to a full-time position.

At the same time, Leone conducted Lean training with the SPD and OR staff. Staff members attended training together, which helped to build trust.

At first, they were worried, thinking Lean meant “lean and mean” and perhaps a loss of jobs. To allay the fears, Leone asked senior administrators to meet with the staff directly.

“We are not after headcount—we are after quality,” he stresses. “The old thinking was that quality is expensive. But it is the opposite—high quality is less expensive. We are about eliminating waste so nurses and techs can do what they are trained to do—not chase supplies.”

One clever way of capturing data about the current process was to use poker chips to learn how many instrument-set errors OR staff were experiencing. Two jars were placed on the control desk, one empty and one with poker chips. Stefan told the staff, “Every time you have an instrument set with a shortage, take a poker chip from one jar and put it in the other jar. We had instant participation.”

Over 4 weeks, the poker chip tally showed an average of 17 errors per day, giving the project team a baseline for tracking progress. Stefan reported the tally to the staff every day.

Process redesign

The aim of the process redesign phase was to create a smooth flow of activities in both the SPD’s decontamination and prep and pack areas. The SPD is 2 floors down from the 12-OR department, and case carts travel via dedicated clean and contaminated elevators.

“We rearranged the flow so when case carts come down from the OR, they are routed first in, first out, unless the need is urgent,” Tafoya explains. “We try to make sure items are processed in a timely, accurate manner rather than sitting for 8 to 24 hours.”

Case carts for the first case of the day are tagged with yellow laminated cards. Any carts that are incomplete have an orange card so the OR staff knows supplies need to be added.

A rush list, posted daily, determines what sets need to be processed urgently. The list is produced by an experienced SPD technician, who follows the surgical schedule throughout the day.

“We can turn around instruments in 3 hours safely,” Tafoya says.

Stripes on the floor guide the flow of activities, with paths for instruments that will be handwashed, cleaned in the ultrasonic unit, or processed through the washer-sterilizer. In one simple change, the shelf for drying handwashed instruments was flipped to the clean side, opening up more space in the decontamination area.

Following the recipe

In the prep and pack area, “recipes” guide set assembly. The recipes, available on computer workstations at the assembly table, follow a standard format. Most have pictures of the instruments. The recipes were developed in Excel by an instrument coordinator over a year’s time. Eventually, the recipes will be imported into an instrument tracking system, which the hospital does not currently have.

Check-do-check, a Lean concept that involves overlapping checks, has improved set accuracy.

“This is the most powerful quality check you can do for free,” Leone says. Studies show that even a diligent person makes mistakes at a rate of 1% to 3%. It’s human nature.

In the checking process, techs work in pairs at large tables. One tech pulls

a set from the rack, prints the recipe, checks to see if the set is complete, and assembles the set.

The tech then passes the set to a partner, who double checks the set for accuracy and passes it on for wrapping.

Check-do-check is a departure from the usual approach of holding techs personally accountable for the sets they assemble. “That is ‘60s and ‘70s thinking—wanting to know whom to blame if a set is incomplete,” Leone says. “Instead, we want another set of eyes. I check the work coming to me; I do my work, and then the next person checks my work.” Along with other quality techniques, he says, check-do-check has the potential to reduce the rate of error from 1 in 100 to 1 in 1 million.

A train schedule

A “train schedule” for the sterilizers is another way to create flow. Leone explains, “Let’s say the sterilizer cycle takes 2 hours. Then in 24 hours, you can have 12 ‘departures,’ or cycles.” Every 2 hours, the rack is placed in the sterilizer, and a cycle is run, whether the rack is full or not.” This process produces a constant, consistent flow.

“This has an important psychological effect on the SPD techs,” he says. “The ‘train is always about to leave,’ so instead of slowing down, they keep up the pace. Before, they would slow the pace as soon as a sterilizer cycle started. Now they keep up the pace without rushing.” There are occasional exceptions, such as when nothing is on the rack, but those are rare. Similarly, when a cart is full, a tech automatically puts the cart in the sterilizer without waiting to be told. That also creates flow.

Stocking OR supplies

The Lean project helped resolve another issue—who would stock the supply cabinets in the ORs?

“We tried for 3 or 4 years to get the nurses to restock the cabinets, but it never worked,” says Stefan. Then Tafoya offered to have SPD staff do it.

In a Lean kaizen project—a focused rapid-improvement process—the OR staff developed a “perfect Blickman” (the cabinet brand name). This is a standardized list with par levels of supplies to be stocked in all the ORs.

Now all OR supply cabinets are stocked the same way except for the eye, heart, and cysto rooms. One SPD tech does the inventory at night and restocks the cabinets.

“That project generated the most staff satisfaction,” notes Stefan. “It has aided OR traffic control and reduced disruptions.”

Morale in SPD has also seen a big improvement. “We learned what Lean meant and what kaizen meant. The main thing is that it wasn’t a process where ‘your department is bad,’” Tafoya says.

“After 7 months, we were a happy group. We felt we had really accomplished something good.” ❖

—Pat Patterson

Getting Lean to last

How do you keep Lean from being another fad? A Lean culture is built in 3 layers, advises Gerard Leone of Leonardo Group Americas, LLC.

Leadership commitment

Senior leaders need to be committed to Lean, take time to be educated, and provide resources to support a Lean culture. Have a clear objective. Be bold with your goals.

Staff education

Front-line personnel need to be educated so they understand Lean and know they have the power to continuously improve their own work processes.

Make good on promises of continuous improvement

When employees offer ideas for improvement, do something about them. Have a system for documenting ideas, prioritizing them, and acting on them.