

Bringing Lean to Central Sterile Processing

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Background

- 627 bed hospital
- 1.5 billion in annual revenues
- Has internal improvement personnel in the organization that has gone through some Six Sigma Black Belt training and/or seminar type Lean training in the past
- Have utilized consultants in the past, results were focused on issues, not solutions
- Desire to drive systemic change into the organization to reduce waste
- Client desired any change methodology to incorporate knowledge transfer to staff



With its 48 operating rooms (ORs), Houston's St. Luke's Episcopal Hospital (SLEH) serves nearly 14,000 surgical patients each year. The task of providing those ORs with supplies and instruments that are properly sterilized and prepared—not to mention delivered on schedule—falls to the Central Sterile Processing Department (CSPD). From gauze and drapes to endoscopes and stereo tactic frames, CSPD's inventory and services represent a significant cost center for SLEH, just as it does for most high-volume hospitals.

That's why CSPD was the first target in a five-year, enterprise-wide Lean process improvement campaign initiated by SLEH's CEO, Dr. David Pate. If significant efficiencies could be obtained in CSPD, a portion of the cost savings there could help to finance further stages of St. Luke's overall Lean campaign. In addition, it would help to substantiate the effectiveness of Lean methodologies in a healthcare setting.

To learn how to implement, maintain and advance Lean enhancements, SLEH turned to RWD—long-time experts in Lean methodologies. For the six-month CSPD project, a team came together comprising St. Luke's management, CSPD supervisors, CSPD staff members and two fulltime RWD Senior Lean Consultants.

Scope of Project:

- Conduct a Lean Assessment to find the opportunities to improve service excellence, efficiency, and employee satisfaction within Central Sterile Processing Dept (CSPD)
- Development of Master Schedule to Support Project Implementation
- Reduce CSPD Inventory Improve Process Efficiency within the following areas:
 - Instrument Room supporting Operating Room (24 Main OR & 12 CVOR)
 - Instrument Room supporting the Medical Tower (12 OR's)
 - Surgical Supplies Case Pull Process
- Improve quality of instrument room and surgical supplies
- Transfer of Knowledge of Lean Tools and Training to Client subject matter experts

One-Time Savings of \$1.18 Million

St. Luke's Episcopal Hospital is part 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 627 beds in service, a medical staff of 624, and nearly four thousand employees. Its annual revenues total \$1.5 billion. The hospital is also home to The Texas Heart[®] Institute, founded by the celebrated heart surgeon Dr. Denton A. Cooley.

Working shoulder to shoulder with CSPD staff and managers, RWD's Lean consultants first evaluated the current state of its two primary areas of operation—OR supplies and instrumentation.

“Supplies' is where we received all of our material into CSPD from our outside vendor,” says Todd Hensley, an RWD Senior Lean Consultant. “In that location, you could not move through the area, you weren't able to accurately account for the materials when they were delivered. It was not optimally organized. Another issue that we had was an excess of inventory.”

The problem of excess inventory was primarily due to unusual ordering times. CSPD staff found itself having to guess what would be needed over the next 36 hours. Moreover, one-a-day deliveries from their single vendor worked against flexibility and accuracy.

Working together with the RWD consultants, CSPD staff adjusted the “par levels” of every stock item. That is, they established a specific maximum number of each item that ordering would be based on. That figure represents the likely number needed each day, plus extras in case of emergency. Ordering was shifted to the evening, close to the point of maximum stock depletion. And the vendor agreed to make two deliveries. All told, CSPD inventory was reduced by a one-time savings of \$1.18 million, nearly \$200,000 in excess of plan. Recurring savings for the first year and every year thereafter is anticipated to be \$180,000 for labor and \$60,000 per year for carry cost reduction (6 percent). One FTE was made available for reallocation. In addition, three storage areas totaling about 700 square feet were eliminated.

To facilitate and speed up the filling of orders—to get the area well organized—CSPD's stock shelves were evaluated in terms of standardized work potential, Lean Layout change, and 5S (the classic Toyota method for simplifying, organizing and maintaining the workplace—the Ss being Sift, Sort, Sweep, Standardize and Sustain). As a result, they were rearranged in a manner that resembles the aisles of a grocery market. In fact, CSPD staff now picks orders using carts instead of bags. All the items on the shelves are arranged in a sequential order, which parallels the sequence of items listed on each

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order form. That means each item is picked in its proper order, with no back tracking.

Says MaryBeth Russell, Director of Surgical Support and Operations: “After doing the ‘spaghetti diagram’ [a visual survey of foot traffic in the areas] and identifying ‘ocean-front property’ [where the most frequently used items reside] we were able to streamline the time it takes to pull a case. You shave however many minutes off, then multiply that times how many cases a day you have. It just really adds up.”

Now a typical order takes six minutes to fill instead of ten—saving enough time to allow the reallocated FTE to be reassigned to the Continuous Education and Lean Team.

Freeing up Employees

In CSPD areas that sterilize and prepare sets of surgical implements, CSPD and RWD personnel discovered a serious bottleneck at the washing stations. They determined that even at maximum capacity, the number of people working at the stations could be reduced by two and those people moved temporarily to the Continuous Education and Lean Team. Ultimately they were sent to the assembly side—where the sterilized implements are put into sets. In turn, the application of Lean tools to the assembly areas reduced set-assembly time significantly.

In addition, a supervisor was reallocated to the Continuous Education and Lean Team. Altogether, CSPD saw a savings of four FTEs in the overall Lean campaign—two from decontamination, one supervisor and one from supplies.

The application of Lean tools makes the difference, notes Russell. “You really do free up employees. Because where it took maybe 12 minutes to assemble [a certain] set, it’s going to take eight minutes now. Well, if I do 400 sets a day, that’s eight minutes times 400. That’s a lot of minutes. That’s going to be FTEs.”

For the changes made relating to the washing stations, 1.5 hours per day labor were saved. The average per year savings is anticipated to be \$20,000.00. It should be noted as well that the Instrument Room Quality Rate increased from 78 percent to 92 percent (as of this writing).

Lean visual management tools also played an important role in the successes of the effort in CSPD. For example, a TOP 5 Process Improvement Board was utilized. In five columns on a large wall-mounted board, the metrics of five key areas of performance are laid out and tracked—Safety, Quality, Productivity, Inventory Value and Projects. The CSPD Lean teams met in front of the Board regularly to

Project Timing & Resources:

- 6 Month Project
- 2 FTE’s – Full Time RWD Senior Lean Consultants
- Client Management Team as Required (10 – 20 % of time)
- Client CSPD Supervisors as Required (20 – 40 % of time)
- Client Staff Members as Required (Some staff members brought off line for 2 week training and process improvement project)



