Case Study

A Northeast United States Community Hospital

Situation

The surgeons, perioperative staff and leadership of a Northeast community hospital were frustrated by problems across their surgical service line. The team was perpetually behind schedule, consistently ran 15% overtime and complained of quality issues from sterile processing. Instrument trays commonly had holes found in their wraps, had missing instruments, or contained instruments that were dirty and / or broken.

15% Overtime

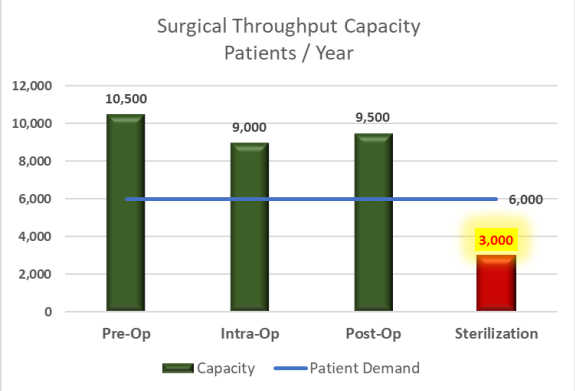
88% Late Starts

There was a demand for 6,000 surgeries per year. Perioperative patient sub-departments, such as the operating room, had the capacity to perform 8,500 surgeries annually. Despite the overwhelming capacity, the hospital struggled to start surgeries on time with 88% of them missing scheduled start times.

Assessment

During an initial assessment, which included staff interviews, document and metric reviews, data analysis, and process observations, the team discovered additional gaps. During one surgery, the door to the operating room opened 50 times while the surgical site was open and exposed, disrupting the room's positive air pressure.

It was also discovered that the sterilization process department only had the capacity to support 3,000 patients per year. To meet the 6,000 per year demand, the department was shortcutting processes. These shortcuts led to incomplete instrument sets that frequently contained broken and unclean instruments. The department's limited capacity was due to the time-consuming work related to hand cleaning dirty instruments from trays that were left in the hallways outside the operating rooms for extended periods of time. The operating room staff informed the sterilization process department that dirty trays were ready to be picked up only 10% of the time.



The surgical department overflowed with supplies and equipment, making it difficult to navigate patients through the hallways enroute to the operating room. Expired items were commonly found during random inspections.

Initiatives

Three teams were set up to implement solutions to drive improvements. They were guided by a leadership team that removed barriers, facilitated collaborations, and addressed escalated ideas such as the purchase of capital equipment.

The teams embraced a concept known as '5S' (sort, straighten, shine, standardize and sustain), a housekeeping method designed to

Surgical Throughput Optimization & Sterilization Constraint

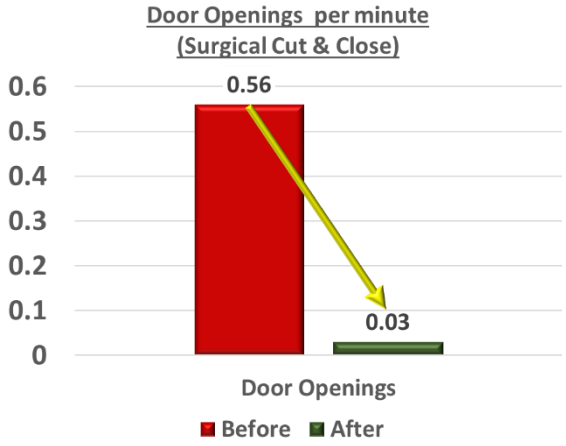
make the work environment easier to operate in. Their first activity cleared out 200 square feet of inventory and reduced carrying costs by $17,000. The same methodology was used to standardize and simplify instrument trays to reduce the number of instruments in each tray. As a result, the trays were lighter, and assembling the instruments was quicker. Instances of torn wraps and broken or missing instruments were eliminated.

The operating room identified the triggers used to call the sterilization process to let them know that dirty trays were ready for pickup. The number of calls increased from 10% to 60% of the cases. The remaining 40% of the cases were picked up while the sterilization process department personnel were in the operating room department. Dirty case carts no longer sat in the operating room department for any prolonged period, making the cleaning process easier. These combined successfully doubled the department's capacity, allowing it to meet the demand for 6,000 patients annually.

Root causes for door openings were identified, including supply-related issues, communications, breaks, coordination, implants, and behaviors. By addressing the causes to each, the OR reduced door openings from 50 per 90-minute case (.56/minute) to only 3 (.03/minute).

Root causes for late surgical start times were isolated to lab and instrument processing wait times, room setup, and patient preparation. The implementation teams focused on optimizing the patient prep methods and reorganized the day surgery pre-operative department using 5S techniques for more efficient room setup.

The first surgery of the day tripled the frequency they started on time.



Results

The number of door openings reduced by 90%, surgical times reduced by more than 10%, high profit surgeries increased by 20% and the average length of stay reduced by 18 hours. First case starts (Patient entering the OR per scheduled time) improved from 12% to 40% with engaged surgeons improving to 70-80%. Most importantly, the sterilization was now able to meet the demand for 6,000 patients per year by doubling the sterilization patient capacity.

Reduction in Door Openings
90%
Reduction In Surgical Case Time
10%
Length of Stay Reduction
18 Hours
On Time First Case Starts Improvement
330%
On Time First Case Starts for Ortho Surgeon
80%
Sterilization Capacity Increase
100%
High Profit Surgical Volume Increase
20%

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