Surgical Scheduling: A Lean Approach to Process Improvement

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ABSTRACT

A large teaching hospital in the northeast United States had an inefficient, paper-based process for scheduling orthopedic surgery that caused delays and contributed to site/side discrepancies. The hospital's leaders formed a team with the goals of developing a safe, effective, patient-centered, timely, efficient, and accurate orthopedic scheduling process; smoothing the schedule so that block time was allocated more evenly; and ensuring correct site/side. Under the resulting process, real-time patient information is entered into a database during the patient's preoperative visit in the surgeon's office. The team found the new process reduced the occurrence of site/side discrepancies to zero, reduced instances of changing the sequence of orthopedic procedures by 70%, and increased patient satisfaction. *AORN J* 99 (January 2014) 147-159. © AORN, Inc, 2014. http://dx.doi.org/10.1016/j.aorn.2013.10.008

Key words: *scheduling, orthopedic surgery, Lean.*

Before February 2010, Beth Israel Deaconess Medical Center in Boston, Massachusetts, had an inefficient, paper-based process for scheduling orthopedic surgery. This process caused several issues:

- There was a three- to five-day lag time between patients knowing they need to be booked for surgery and being called by the office, and urgent bookings were put on a wait list, creating periods of uncertainty for patients;
- cases were backlogged;
- interdepartmental communication was poor;
- booking information was inaccurate and booking times were scheduled in more than one room with the same surgeon; and
- last-minute changes in procedure sequence led to waste and workarounds.

In addition to this, the facility was experiencing a 4% occurrence of site/side discrepancies in the preoperative clinic and 2% occurrence in the OR as well as frequent patient cancellations. These problems were significant enough that hospital and perioperative leaders decided that creating a formal team to address them was justified. Members of the team who developed the new orthopedic scheduling process, what parts of the process they represented, and any other roles they played on the team are shown in Table 1. As a result, while we were developing an automated booking system for ORs, the team also worked to improve the orthopedic surgical scheduling process, reduce patient cancellations, and reduce or eliminate site/side discrepancies. The project took place from February 2010 to March 2011.

http://dx.doi.org/10.1016/j.aorn.2013.10.008

TABLE 1. Members of the Team and Their Roles

Job title	Represented	Other roles on the team
Chief administrative officer, orthopedics	Administration	Team co-leader
Administration manager, orthopedics	Procedure scheduling	
Administrative assistant, surgical scheduling	Procedure scheduling	
Anesthesiologist	Preoperative and intraoperative process	
Associate chief nurse, perioperative services	Central processing department, preoperative clinic, and OR process	Team co-leader, acted as a knowledge resource, assisted with strategy, sponsored the project, broke down barriers to progress
Central processing department supervisor	Surgical kit preparation and case pick	
Clinical advisor, orthopedics	OR setup and intraoperative processes	
Clinical manager, scheduling operations	OR procedure scheduling	
Senior management engineer		Team facilitator, helped with problem solving and statistical analysis
Orthopedic surgeons (2)	Clinic, office, and intraoperative process	
OR scheduler	OR procedure scheduling	
OR systems administrator	Process data extraction	Helped with statistical analysis

Using structured Lean problem-solving techniques, the team developed and launched a safe, effective, patient-centered, timely, efficient, and accurate orthopedic surgical scheduling process. In the analysis phase, the team mapped out the process, starting with the patient's call to schedule an appointment with the surgeon through preoperative activities onsite, and identified existing problems and opportunities for improvement. Then the team organized the myriad problems into logical groupings and prioritized these according to impact, which provided a strategy for moving forward with solutions. The team reviewed and created solutions for all of the identified problems, using an activity scorecard and a timeline for corrective action implementation to drive progress. The new process has solved several of the identified problems, such as eliminating site/side discrepancies and lag time between knowing the patient needs to be booked and then contacting the patient, reducing day before and day of cancellations, and reducing the frequency of procedure sequences being changed. The following article describes the process used to develop the plan to address this improvement opportunity, conduct the work, and the accomplishments.

BACKGROUND

Our facility is a large academic medical center located in the northeast United States. It is a level 1 trauma center with three operating suites and a total of 38 ORs, in which we care for all types of adult patients, except for those needing lung and heart transplants, for a total of 27,000 procedures per year.

In addition to internal scheduling difficulties and inefficiencies, our facility was experiencing a 5.1% cancellation rate before the process improvements. In fact, patient-related causes are the most frequent reasons for cancellation of orthopedic procedures. In our review of patient reasons for cancellations within 48 hours of surgery, we learned that most often patients cancel because they change their mind about having surgery. Sometimes they cannot get a ride. Team members perceived that patients equated surgical appointments with other types of appointments (eg, the dentist) and were unaware of the effects of cancelling. Cancellations can have an