Competitive forces and the general trend towards greater efficiency, productivity and cost-neutrality have now permeated the hospital sector, leaving healthcare centers under pressure to create a more quality-focused and patient-friendly environment.

One of the key areas which contributes significantly to achieving this goal is the Perioperative Services department. As a main source of high-revenue patients, it is the life blood of many institutions. Optimizing the processes involved with these services is therefore a critical step towards increasing quality of care, access and profitability.

Enhancing the Operational Excellence of Surgical Services

Can you remember the last time that you or a loved one had an operation? How satisfied were you with the overall experience, the surgical services personnel, clinical staff and the hospital environment? More than likely your procedure was delayed due to incomplete paperwork, labs and/or because the OR was not ready on time, increasing your feeling of anxiety and frustration.

In this day and age, standardized procedures are an accepted part of efficiency-focused daily work which we have come to expect in all spheres of our lives. So why do we still encounter such frequent examples of ineffectiveness during our journeys through the clinical system as patients?
On your day of surgery, you probably walked through the hospital door and anticipated your surgery to start at a predefined time and to last for an estimated set period of time, based on the hospital’s historical planned procedural times. However, before this can happen, there are many background activities which need to be completed.

Many clinics phone their patients prior to admission to schedule the surgery. Other preadmission tasks are handled once you arrive at the hospital. These may include answering questions, completing forms, performing lab tests, etc. After this, you are taken to the preoperative area (PreOp), where you are greeted by the PreOp RN staff and hopefully by your surgeon and anesthesiologist, who review your charts and the upcoming surgery. While you are being prepped and charted, a number of ancillary activities are performed to support the OR. Your case cart is staged/checked for all the necessary surgical instruments, the operating room is sanitized and disposable materials are stocked. Outside the operating room, labs are requested and the pharmacy is preparing the required medication.

Following PreOp, you are finally rolled into the operating room and your surgery commences. But is it “on time” and how is this defined? Is it based on the time your bed is in the room, or when the surgeon enters, or when the surgeon has made his first-incision? Defining this “Start time” is key to understanding how all the activities dovetail with one another.

Once your surgery has been completed, you are taken to recovery (PACU) where you are monitored prior to being discharged or admitted to another floor within the hospital.

As you can see, this is a highly complex system with a multitude of different activities that need to be synchronized so that your surgery takes place on time and to a clinically sound standard. It is therefore no wonder that you didn’t notice the plethora of inefficiencies and variables within each of these process steps. Indeed, minor inefficiencies often go unnoticed because the staff is so focused on their main job – providing an outstanding quality of care to you, the patient. However, when we carefully review and analyze the processes, digging deeper into the individual steps, there is plenty of opportunity for hospitals to increase their efficiency, improve patient and staff satisfaction and even enhance their quality of care, while also freeing up more capacity for greater patient volumes and revenue.

So where do these inefficiencies exist and how can we address them? Let’s explore further by examining some of the challenges faced by a typical surgical services department.

**Challenges Faced by Surgical Services**

Many hospitals realize that there is room for improvement within their surgical services department, but lack the analytical or process enhancement support to address these problems. Although the staff can point to a variety of issues or patient complaints, they typically do not have the time or skills to see and understand the bigger picture and the cause and effect relationship rooted within the process. However, it is imperative that the entire department, including the physicians, contributes its clinical expertise to the improvement process if it is to be a success.

**Applying Lean Techniques in the Healthcare Environment**

Operational excellence can be achieved by applying simple lean healthcare techniques and quantitative analytics side-by-side with qualitative observations and interviews. By blending the lean applications with the analytics and observations, the department can paint a full picture of the patient’s journey, uncover the root causes of inefficiency and identify windows for improvement. Effective recommendations for implementation and sustainment can then be made to close any performance gaps.

**Improving Admissions and Scheduling by applying SMED**

SMED (Single Minute Exchange of Dies) is a rapid and efficient lean concept and process developed in the manufacturing sector but equally suited to your surgical services department. It focuses on swift changeovers or turnovers i.e. on the smooth conversion of one product to another and aims to directly reduce waste and increase flow. It is crucial to the SMED technique that you fully understand and identify the internal and external set-up factors which make up your overall process. In our example of lean healthcare, these external factors are steps which can be performed prior to the patient arriving for his surgery e.g. labs or a general check on insurance details and patient history. Internal factors, in contrast, are tasks which need to be performed after patient arrival, including the patient interview and anesthesiology consent. Over the following pages, we will examine in detail how the efficiency of these factors can be enhanced to increase the smooth flow of each patient’s procedure. Applying relatively simple solutions, such as patient checklists or preparation of materials the night before surgery, can significantly boost your pre-admissions flow, room turnover, materials management and central sterile processing tasks.
Scheduling and preadmission are both integral parts of the surgical process which are often overlooked. The policies and practices used are frequently based on hypothetical or generalized averages and established physician schedules and do not take into account the multitude of activities which must be performed prior to a patient entering PreOp. The results of this can be duplicate calls to the patient to arrange the surgery and delays on the actual day of the procedure. All of this has a negative impact on the patient’s overall experience and satisfaction.

In a recent study, it was found that 80% of patients were usually pre-admitted. Of these, 30% of those scheduled as first case surgery arrived either with incomplete documentation or no pre-admission paperwork at all. This situation delayed the scheduled starting times, increased staff overtime and naturally had a negative influence on the satisfaction of patients, staff and physicians. For example, Mr. Smith arrives at the hospital at 5:30 a.m. for a 6:30 a.m. surgery, which was scheduled two weeks earlier. Upon arrival, it was uncovered that some information for his case was missing and incomplete. The information that had been faxed by his physician’s office was sent to the wrong area of the hospital and was still being located. When he had completed the paperwork, he still had to do some outstanding labs and interviews. By the time everything was completed, it was 7:00 a.m. and he was just meeting with his anesthesiologist and surgeon. Ultimately, this resulted in his surgery being delayed.

Although this example may sound extreme, it is very common for scheduled patients to go through procedures on their day of surgery which could easily have been handled in advance. These tasks are the external factors which keep a process flowing. For instance, patient paperwork can be mailed directly to a patient beforehand or given to them by the physician concerned and then completed before they come in. Furthermore, most process labs can be handled in advance for both the preadmission testing office and satellite labs. Interviews can be conducted over the phone to assess patient status and identify possible complications. By offloading activities to the days leading up to surgery, we can minimize the impact on the actual day of the operation, allowing staff to focus more thoroughly on patient care and on the smooth flow of procedures.
By studying the components in the scheduling process and monitoring the real case time needed, it should be possible to rearrange tasks to optimize accuracy, time allocation and block schedule utilization. Admission activities should also be reviewed to see where they can be streamlined or completed in advance, as in the above illustration.

**Day of Surgery, First-time is On-time**

Before improving the “on time start” we need to reach a consensus as to the precise moment that surgery is “started”. The preferred definition of “on time” is the “cut-time”, meaning the time at which the surgeon makes the first incision on the patient. This is of crucial importance, especially to the first cases of the day. If these are delayed, the trickledown effect is horrendous, forcing staff to shift into fire-fighting mode and shuffle cases around. This results in severe disruptions to the planned schedule and often leads to nurses working overtime, dissatisfied physicians on the later cases and, more importantly, frustrated patients.

The goal is to get it right for the first cases, setting the pace for the whole day of surgery. One of the key drivers in this process is the ability to use analytical tools and unbiased data to support improvement initiatives and eliminate subjective experience. Unbiased data eliminates anecdotal experiences and personal impressions that tend to cloud issues and sometimes create resistance.

After identifying the actual starting point, the department should define who is responsible for tracking and sharing the information. This helps to establish the root cause of any issues and enable the process to move forward to greater operational excellence.

By doing a simple Pareto analysis from preadmission to PeriOp, the department can map the frequency of delays and pinpoint the exact point at which they occur. One proven solution is to use patient charts, to create a patient chart dashboard. This dashboard can be designed to include multiple features that centralize information and provide real-time visibility on task completion. Staff can use the features to identify missing components, the people responsible for obtaining them and then pursue these documents before the day of surgery.
Each hospital will have various reasons for why cases fail to start on-time. A data-driven approach helps to uncover these issues and create a culture of continuous improvement.

Simple Management of Disposable Medical Supplies
Cases are often delayed because staff is waiting for one of the ancillary departments to provide information (patient lab results, medical history); products (surgical instruments, disposable supplies); services (room turnover/sanitation) or equipment (c-arm, robot). Good communication is of the essence here. By providing these departments with the very latest and accurate information about case status, preference cards, patient schedules, room types, etc., service barriers can be identified, understood and ultimately broken down.

Being able to match the disposable medical supply to the patient demand is essential to removing a ‘delay’ code. A surgical services department usually stocks the same inventory in multiple locations – up to 75 stockpiles in a 18-22 OR, leading to high holding costs, excessive labor to count-pick-deliver, potential for product expiry due to complex FIFO (First-In, First-Out) management and a risk of stockouts/shortages during peak times of critical care. Simple, controlled and cost-effective inventory systems, such as the Kanban method, have been proven to have a positive impact on stock management.

Kanban is a two-bin system that visually signals the need for replenishment at a specified stocking level. It is simple to learn, inexpensive to deploy and ensures inventory reliability and availability. The system often uses cards and bins. As a bin becomes empty, it signals that replenishment is needed and the card, or sometimes the bin, is taken by the material handler and used to handle the “order” for that specific location and item. The card will tell what is to be restocked, the quantity and the location.

Kanban reduces labor time, increases inventory visibility and reliability, decreases holding costs and simplifies the learning process for materials management and clinical staff. In addition to this, Kanban can interface with many ERP systems to provide inventory data and visibility throughout the hospital.

Staffing RNs to the Patient Census
Staffing levels are generally based on staff convenience, past experience or gut feelings over time. For example, it is known that in the morning, PreOp is very busy, whereas in the afternoon PACU is at its peak. While this may seem to be enough information to define adequate staffing levels, it sometimes misses the mark and does not match patient demand. Basing RN staff schedules on average case volumes and start times, rather than the actual patient census, often leads to high levels of overtime, short-staffing mid-afternoon (when the effect from delayed first cases hits) and frustrated RNs.

To ensure that staff and patient satisfaction are met, it is important that the staffing of the RNs is a data-driven decision. Each of the areas within the surgical services, PreOp, PeriOp and PACU, should be analyzed based upon the patient census (aka the patient demand). The first step is to understand the definition of patient census, which is the duration of time that a patient is occupying a bed and is seeking care by a clinician. If a patient is in the PreOp from 0900 to 1100, then the patient census would show the patient at each half-hour interval. Next, the analysis looks for variations and compares time of day and day of week. Finally, if it’s preferred, a differentiation can be made based on procedure and/or surgeon.

Now that the patient census is known, the staffing elements can be overlaid to understand the patient to nurse ratio. It allows the hospital administration to understand how to properly staff each area within surgical services by examining, 1) how the staff is currently scheduled, 2) the recommended schedule based on the 80th percentile, and finally 3) the highest level of staff scheduled based upon a predetermined patient to RN ratio.
By drilling into the details, the schedule can be matched to the patient demand, which in turns improves patient and clinical satisfaction, reduces overtime and allows for the schedule to be flexible based upon the surgical services culture and strategy.

Leading Change to Realize Results

Applying the techniques described in this article will help to nurture a culture of operational excellence in your surgical services department, allowing your hospital to provide the ultimate level of quality care to each patient. In turn, the clinical staff will become more efficient, act as a uniformed team and make data-driven decisions based on key performance indicators, such as staffing to demand and increasing on-time starts. This will open up more opportunities for additional capacity, new technology and potentially new procedures. By placing the core focus on the patient, it becomes possible for your team to achieve superior levels of care and access, while maintaining a solid revenue cycle for future growth.

Alicia Scavona, Director, Tefen USA