Right-Sizing the Surgical Suite: BUILD FOR THE FUTURE
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Walk into any busy surgical department constructed or renovated in the 20th century, and you will likely find equipment and/or carts of supplies lining the hallways, stuffed into rooms that were built to be offices, or banished to storerooms far from the OR rooms.

In addition, you may find that the preoperative area nurses are struggling with too few spaces for patient prep during certain times of the day while the PACU is bottlenecked during the afternoon, causing delays and inefficiencies in the OR.

Take a walk through the Sterile Processing Department (SPD) late in the afternoon, and you would not be surprised to find that there are carts of used instruments backing up in the decontamination room and the prep and pack technicians are inundated with loaner trays, while trying to prioritize which instrument sets will get sterilized for the first cases in the morning.

Why OR Instrument & Storage Needs Are Changing

As noninvasive and minimally invasive surgeries have spread rapidly throughout all specialties during the past 10-15 years, the need for additional instruments and new equipment has proliferated. Longer instruments and larger equipment further increases the need for planning. In addition to specialty OR tables and positioning devices, imaging equipment, video towers, navigation systems, microscopes, lasers and cautery machines, a plethora of disposable accessories for the new equipment has descended on the OR. Sterile storage shelving units are stacked and stuffed with trays and supplies. Case carts are no longer large enough to hold all of the items needed for total joint, robotic, cardiac or spinal surgical cases.
4 Ways to Avoid the Clutter & Bottlenecks

How can hospitals that are renovating or building new surgical suites alleviate the clutter and bottlenecks that create inefficiencies and safety issues, delay procedures, and create dissatisfaction among staff and patients?

- Study the problems and trends that you and others in your area currently experience
- Map work-flows
- Research all possible solutions
- Involve experts and the end users in a strategic plan that includes flexibility and options for future growth

A comprehensive study of current trends should include the following:

- Demographic information about increases or decreases in numbers and ages of local populations
- The effect of possible and actual competitive surgical facilities in the area
- An analysis of procedure statistics per specialty for recent years
- And, all of the above should include average times per procedure, average turnover times per specialty, and any new programs that might be added in the future, such as trauma or transplant services.

What Works… & What Doesn’t

Keep in mind that imaging is becoming ubiquitous in the operating room, and consider the need for hybrid rooms in the future. The best way to see what works and what doesn’t is to make a number of site visits to other surgical departments, especially those that have had construction projects in the past five years, in order to see what works and what doesn’t.

Equally important to the efficiency of the OR are the support departments: anesthesia, pre-admission and pre-operative areas, PACU stages I and II, SPD and materials management. All of those stakeholders—in addition to the engineering and information systems departments—should be included in the planning process.
Size & Orientation Matter

Operating rooms that once seemed roomy at 400 square feet now are crowded and impossible to navigate. Here are some dimensions to consider:

- New ORs need to be at least 600 square feet, with hybrid rooms possibly extending to 1,200 square feet to accommodate all of the imaging and mapping equipment in addition to the surgical and anesthesia equipment and supplies.
- The recommendations for equipment storage spaces have increased from 50 square feet per OR room to 150 square feet per OR.
- Case carts, specialty and emergency carts, stretchers and beds need parking spaces close to the rooms.

Many strategic questions will require answers during the planning process:

- Will there be dedicated specialty rooms or will all the ORs be multi-purpose?
- How many ORs are needed?
- Which department will pick cases, and where is the best place to store equipment, instrument trays and supplies for each specialty?
- What is the best way to orient doors, lights and booms in each OR?
- How will patient, surgeon, anesthesia provider and OR staff traffic flow intersect?

Once these questions have been answered and the architectural drawings have been started, the best way to test out the plans is to have the end users review a 3D image or a mock-up of the surgical suite from the viewpoint of the patient, surgeon, anesthesia provider, perioperative nurse and tech.

Pre-operative and post-operative areas’ size and orientation are not only important to the function and efficiency of the OR and other areas that they may serve (Imaging and GI labs), but they are crucial areas for patient and family satisfaction. Privacy, comfort and safety issues can cause dissatisfaction if the areas are not well planned out. At present, over 60% of surgical procedures are done on an outpatient basis, with projections of an increase to 75% in the next decade.

Consider parking availability, proximity of entrances to the unit, spaces for family waiting, and private spaces for consultations, patient assessments and discharge instructions.
The number of pre-operative spaces needed depends on the length of procedures, the number of ORs and the amount of preparation needed.

- Are central lines and anesthetic blocks put in prior to patients entering the OR?
- How much time do inpatients need to spend in pre-op?
- Can the pre-op area also be used for PACU stage II and discharge of outpatients?
- How much equipment will need to be stored?
- Do pediatric patients need a special area?

Recommendations for the number of PACU beds range from 1.5 to 2.0 per OR, but other considerations include the average patient time in PACU, the availability of inpatient and ICU beds, and whether patients from other areas are recovered there.

**Keeping All Departments Represented (& Happy)**

The SPD is often forgotten during OR renovation planning, but it is a key player in keeping the schedule running smoothly. Unless there are enough working sinks, ultrasonic washers, washer-disinfectors, cart washers and sterilizers to keep up with the deluge of dirty instruments, video cameras and power equipment from the OR, there will be wasted hours spent searching for items and dissatisfaction and acrimony among the team players. Along with the equipment comes the need for sufficient space for everyone to work safely and accurately.

**The Importance of Communication**

Throughout all of the surgical areas, there is a common thread that is crucial during the planning process: how information will flow from one area to another. Integration systems, electronic medical records, monitors, cabling, wireless communication systems and walls of information all need space and structured wiring. This structured wiring needs to be planned prior to the start of construction.

The chance to renovate or construct new operating rooms is a wonderful opportunity to plan for the future and to be creative in re-thinking and improving processes. With careful analysis of current trends, extensive research of possible future trends and the involvement of key players and end users in the planning process, it is possible to create a friendlier and more efficient work environment for all.
Bibliography


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Shiela has over 24 years of management experience in Quality Assurance, Process Improvement, and Operations Management of the Nursing, Surgical Services, and Sterile Processing Departments. Her expertise is in standards, policies and procedures education, implementation, information systems, flow design and analysis, scheduling, process improvement, and fiscal management. Shiela has directed OR renovation/construction projects, developed modified block schedules, and spearheaded several department quality assurance programs. She successfully passed 10 Joint Commission surveys and was part of the preparation process for many others, and successfully coordinated the design process for three OR construction projects. She has made substantial process and cost saving improvements in clinical departments, as well as provided direction and guidance for department staff growth, development, and management of inventory.

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