CHAPTER 5 – ADMINISTRATIVE AND PERSONNEL SUPPORT

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Checklist:

* Is there sufficient storage space for present and future equipment?
* Are there adequate dressing rooms, with appropriate security?
* What lounges will be required for what sorts of functions?
* Are there appropriate sleeping areas for everyone who will take in-house call?
* Is there adequate office space available for all administrative functions?

Introduction

This chapter discusses operating room personnel facilities, including operating room storage, lounges, dressing rooms, restrooms and showers, sleeping facilities, and administrative offices. The number of possible combinations of the physical layout of these areas is limitless, yet a few general guidelines can be made. Important design considerations include ease of use, flexibility, flow of traffic between sterile and sub-sterile areas, infection control, air supply and ventilation, cost, and security. A major consideration in 2009 is that due to the financial crisis many renovation or new construction plans have been placed on hold or have been cancelled. Thus, one must be prepared to justify requests for space and generate a prioritized list of needs because most budgets will be severely limited. Designing a plan in advance that will allow for flexibility in the future will be the most cost-effective approach.

Operating Room Storage

The storage issue is critical. One commonly sees equipment in hallways, in front of operating room doors, in front of electrical and gas supply control panels, in front of fire exits, and in every nook and cranny.

Operating room storage must meet both current and future needs. Architects generally recommend at least 150 to 200 square feet of storage space per operating room. To estimate total operating room storage needs, one must:

• determine the number and type of operating rooms in the suite (driven by operating room objectives);
• determine the equipment specific to each operating room;
• include storage needs of all services such as anesthesia, nursing, hospital monitoring, biomedical engineering, housekeeping, etc.
• project future storage needs of various services.

Each surgical service's storage needs are unique. Dedicated storage areas near or adjacent to their operating rooms allow for convenient access of surgical instruments, supplies, and equipment during an operation. On the other hand, since services often operate in multiple rooms, some facilities may consider a single storage area for all supplies for all services. A large storage room could be modestly finished (for example it may not need a drop-ceiling), but any storage room requires the ability to clean it, good lighting so that correct equipment and supplies can be identified, and multiple electrical outlets (perhaps to include ceiling drop cords) so that rechargeable equipment (transport monitors, infusion pumps, C-arms, etc.) can be kept plugged in.

Storage of stretchers is particularly problematic. In some hospitals, stretchers are left to block the entrance to the operating room, in obvious violation of fire safety codes! One needs quite a lot of stretchers: one for each patient in the holding area, the operating room, and the post-operative care area. Additional stretchers are needed to permit cleaning without limiting patient care. A location with the appropriate cleaning supplies needs also to be planned. If patients to be admitted are to be placed directly on hospital beds, then the stretcher normally associated with that patient needs to be stored so the bed can be placed

where the patient's stretcher would normally reside. Stretcher and bed storage sites should have electrical outlets to keep motorized beds (such as inflatable beds), transport monitors, and infusion pumps charged.

In regard to storage, the old adage of "A place for everything and everything in its place," seems essential. How much time is wasted in looking for pieces of equipment? The planning stages should assure a SPECIFIC storage place (and adequate square footage) for every planned piece of equipment, and then that space should be greatly expanded to allow for future equipment. (An old piece of equipment is almost never discarded; instead it is retained as a "spare.") A directory - printed or online - of all the equipment and its assigned storage place should be made available.

Advances in minimally invasive surgical technology have provided smaller surgical incisions but the need for large equipment. One recent surgical development is the robotic-assisted system which requires three components: a computer console operated by the surgeon, a vision component with a light source and camera, and a surgical component with multiple instrument arms. The storage space required for this single, specialized operation is tremendous. Other commonly utilized equipment includes microscopes, specialized frames for craniotomies or back surgery, cardiac bypass pump systems, laparoscopic, endoscopic, arthroscopic video carts, cast carts, C-arms, fluoroscopes, and portable X-ray machines. Even anesthesiology is culpable when it comes to use of storage space; inventory includes back-up anesthesia machines, bronchoscopy carts, difficult airway carts, latex allergy carts, malignant hyperthermia carts, and day to day supplies needed to perform anesthesia safely.

Operating room objectives are likely to change with time. For example, an institution not currently performing kidney, pancreas, heart or liver transplants may eventually elect to perform these specialized operations, which require specialized equipment. If the operating room suite or storage area cannot be enlarged due to physical restraints, storage areas and hallways will become so cluttered that it will be nearly impossible to transport patients from the holding area to the operating room. If complex surgical procedures are performed infrequently, the operation-specific equipment must be stored until needed. Future storage needs are difficult to project accurately, but it is likely that technology will continue to advance and additional equipment will be needed and will need to be stored.

Additionally, space for facilities to repair broken or damaged equipment should be considered within the operating room suite.

Lounges

The lounge is an area of retreat from the demands of the operating room. When determining the design of the lounge area, multiple factors must be considered. First, one must determine the number of lounges to meet the needs of the operating room suite. One approach is the single, consolidated personnel family lounge. Some health care facilities may prefer several smaller lounges that segregate groups such as nurses, surgeons, and anesthesia providers. After the number of lounges is determined, one must plan for the size and function of each lounge. The size depends on the number of personnel who will use the lounge during both regular and peak hours.

The intended function of the lounge is important. One obvious and essential function is for snacking and dining. Vending machines and coffee makers can be partial solutions, but shift lengths require that employees must eat full meals. If the food service solution is that personnel leave the operating room area and go to a public cafeteria, then the pathway and infection control issues must be considered. Will personnel change clothes or wear cover-ups? Will personnel eat in the cafeteria, or will they bring food from the cafeteria back to the lounge? Where will dirty dishes go? Some hospitals send a hot lunch cart to the operating room area; others supply a make-your-own sandwich bar; still others utilize outside vendors who come to the lounge area. Ideally there would be hot food available during all hours of operation.

The lounge may also be used for dictation, charting, entering patient orders, checking E-mail, and so on. During non-peak hours, the lounge could be used as a classroom or conference room. The equipment needs of each lounge, such as appliances, computers, plumbing, electrical outlets and furniture, must be determined. Possible appliances include refrigerators, vending machines, microwave ovens, televisions with cable or satellite service, DVD players, CD/MP-3 players, dictation machines, and coffee machines. Furniture might include tables, chairs, and couches. Reclining chairs which could be used for sleeping or napping might be considered.

Computers with access to the Hospital Information System and the Internet seem essential in every lounge. A screen display of the current operating room schedule is desirable. Overhead paging should reach all lounge areas. Other amenities include recreational equipment (weights, treadmill, pool table, ping pong), and perhaps a piano or electronic keyboard.

Consideration should be given to building a quiet "library" area where essential reference books and Internet access are available, along with carrels for personnel to work quietly and a separate non-quiet area for making personal or professional telephone calls.

Finally, the location of the lounge within the facility should be considered. Pre-operative patients who cannot eat or drink anything may be offended by the smell of pizza and popcorn from the lounge!

Dressing Rooms

The location of the dressing rooms within the operating room suite is important, because they commonly serve as the transition area between the substerile and sterile environments. The number of dressing rooms need depends on the desire to have separate dressing rooms for physicians or other groups. To determine the size of each dressing room, one must estimate the number of people who will use it during both peak and regular hours. The ratio of men to women (within each group, if applicable) is important for determining the size of the men's and women's dressing rooms.

Security is another major concern because the operating room staff will be keeping their valuables in their designated dressing room. The dressing room entrances should be located away from high-traffic public areas. Advanced security systems such as keycards and/or biometric identification should be considered on the outside doors to the dressing rooms. Conventional locker design has not changed much in two generations. Conventional key-based lockers may be problematic, because keys may be lost, left at home, or retained by former employees. One solution is to have personnel bring their own padlocks, either key-based or combination. Lockers with electronic locks or key cards are another option, as is the possibility of installing an electronic "hotel safe" in each locker.

Because inadequate locker space is a common problem, both present and future needs should be considered. To determine the number of lockers, begin with one locker per full-time staff permanently assigned, and add extra shared lockers for part-time staff, students and visitors. Add at least 15 percent for future growth.

Linen control is an important consideration when designing a dressing room. There are two growing trends in linen control. One is a centralized scrub suit distribution and collection room, which should be located near the non-sterile entrance of the dressing rooms. The other trend is the "vending machines" approach; these machines could be near the non-sterile entrance, or located within each dressing room. Some health care facilities may prefer the older approach of simply stocking scrubs in each dressing room, but loss of scrubs is a substantial financial problem. In the latter approach, allow for adequate adjustable shelf space to supply scrubs of all sizes to operating room personnel. Men's scrubs should be supplied in the ladies' dressing room, because many women prefer these. Additional shelf space will be

needed for shoe covers, hats, and masks. Adequate seating is essential, particularly during peak hours, to minimize the need for acrobatics.

Infection control and traffic control are particularly important. The dressing room must have an adequate number of sinks for handwashing and plenty of storage space for towels and soap. Entrance systems via keycard or biometric identifiers are becoming more common, to limit access to authorized persons. Finally, the dressing rooms should include a communication system such as telephones, an intercom system, overhead paging, and possibly access to the hospital information system.

Restrooms and Showers

The main restrooms are commonly combined with the dressing rooms, but some may be located in sterile areas for convenience. Restrooms and shower areas are now required to be handicapped-accessible. The minimum number of restrooms should be two men's and two women's.

The number of showers should be approximately 1 per 200 lockers. Consideration should be given to possible emergency need for showers in case of major contamination with blood, biological agents, etc. What route will they take from any particular operating room to the showers? Where will they place contaminated clothes? Where will they obtain clean clothes after they shower?

Storage for towels, soap, toilet paper, and extra supplies is also necessary.

Sleeping Facilities

Sleeping facilities located near the operating room are desirable, and several factors should be considered when designing them. First, determine exactly who should sleep near the operating room. Then, calculate the number of individuals who will require sleeping facilities at one time and decide which groups of individuals (such as surgeons, anesthesia providers, or nurses) should be segregated. Beds should be of standard size so that normal hospital sheets will fit, and bunk beds should be avoided because of the risk of falls. Landline telephones, access to the hospital dictation system, televisions with cable or satellite service, and internet access are desirable. There should be at least two means of communication, to provide redundancy.

Soundproofing is desirable, so that everyone is not awakened when one person watches television, receives a page, or makes a telephone call. These sleeping facilities should be located in close proximity to the operating room suite for both infection control and traffic control but should be in an area that is quiet and conducive for resting. If the sleeping facilities are to be segregated on the basis of sex, project the ratio of males to females. Showers and toilets should be in or adjacent to the sleeping facility. Clean linens and housekeeping services should be available 24 hours a day.

In light of growing concern about fatigue during longer shifts, consideration should also be given to provision of sleeping facilities for napping, even during the daytime.

Security of the sleeping area is also a concern. Entrances to the sleeping area should not be located in high-traffic public areas of the building. Easy access from the sleeping area to the lounge amenities should be planned in advance.

Administrative Offices

There are many administrative functions required by an operating room system. Productivity in this system requires a large team of personnel to perform these functions. The hospital administration, in concert with the nursing, surgery, and anesthesiology departments, should coordinate its efforts in determining which department(s) will perform the various administrative functions to prevent overlap of efforts and facilities. Equipment that is used by multiple departments (e.g., computers) should be selected

to suit the needs of all parties involved. Administrative offices need to be located close enough to the operating room suites to permit ease of communication, but not so close that they interfere with patient care and workflow. The following list identifies many of the administrative functions required by an operating room suite:

- Communication Department
- Credentialing Department
- Data collections and management
- Disaster preparedness
- Documentation
- Financial
- Forms Development
- Infection control
- Legal Responsibilities
- Materials Management
- Pathology
- Personnel Services
- Pharmaceutical Control Responsibilities
- Policy and Procedures Development
- Quality Assurance
- Safety
- Scheduling

A specific area of importance is the scheduling office. Operative procedures require the synchronization of many entities in addition to the patient, including surgeons, assistants, anesthesia personnel, nurses, laboratory, radiology, medical records, supplies, and equipment. The cost to the patient for a one-hour procedure including hospital, surgeon, and anesthesia fees can easily range from $1,000 to $6,000. This translates to $20 to $100 per minute spent in the operating room. Obviously, money and effort invested on scheduling to prevent wasted operating room time has a high yield. Computerization of scheduling potentially allows more accurate time allocations based upon historical data by surgeon and case, as well as prevention of conflicts in surgeons' schedules and equipment. Scheduling clerks should have dedicated telephone lines with headsets at their terminals to improve efficiency in entering data via the telephone. All data entry personnel should have high-quality adjustable furniture, particularly those entering the operating room record information. Adjustments should include keyboard height and angle, display height and angle, and chair height and back position. Foot rests and wrist rests are also useful. Additionally, data entry personnel should be given other duties that periodically take them away from their computer terminals. Tension headaches, carpal tunnel syndrome, back problems and other work-related health problems associated with data terminal work result in lost work days, worker's compensation claims, and a decrease in efficiency.

Conclusion

An operating room is only as productive as its personnel. Intelligent planning and foresight from all parties involved in the daily activities of the operating room will allow for easier adaptation to future growth and technological advances. Providing personnel with a few comforts of home while at their place of employment will only serve to increase morale and job satisfaction.

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