Designing for Efficiency in the Operating Room for ASC

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Continuing Education Provider

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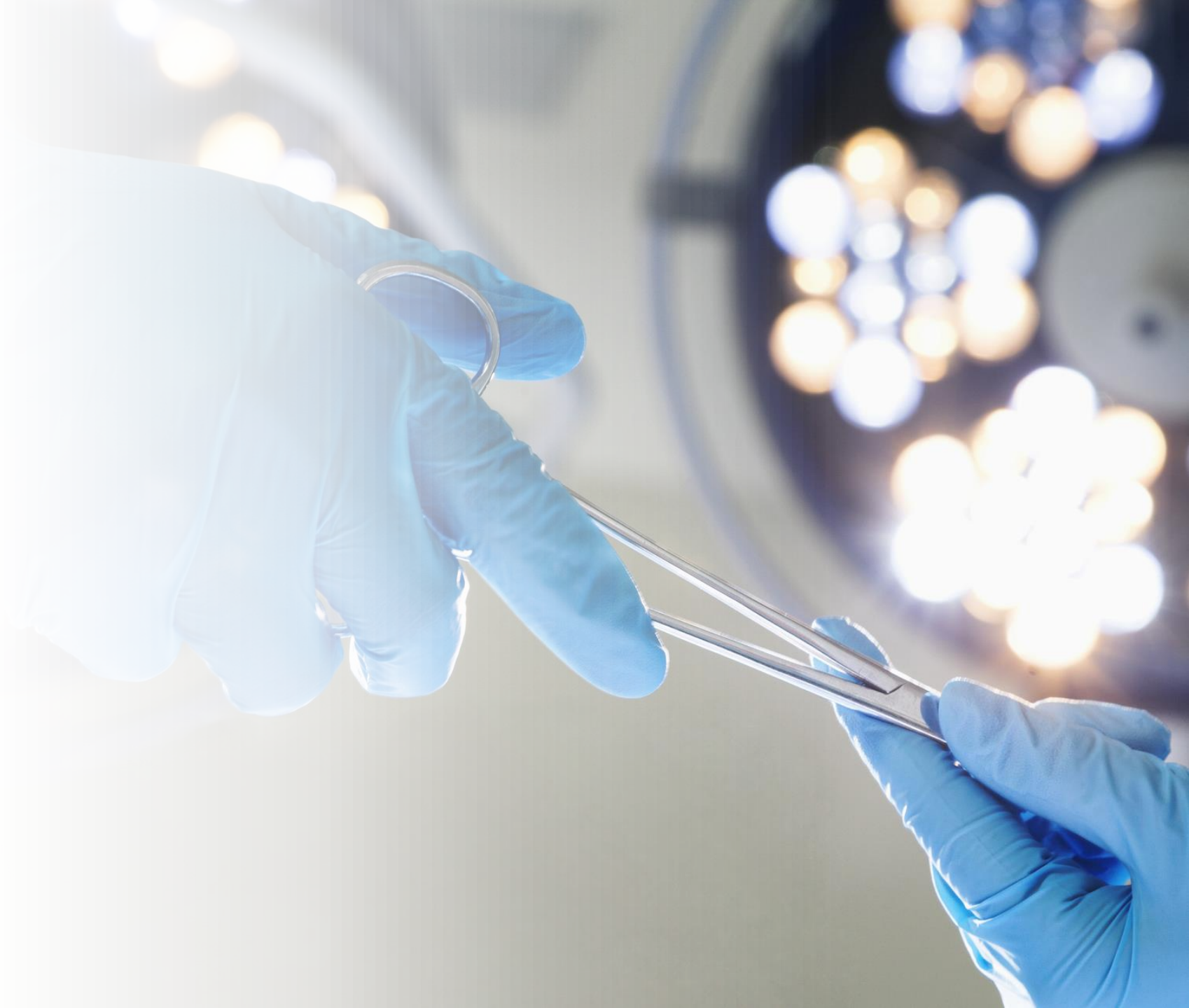
OBJECTIVES

- Discuss design concepts that facilitate the flow of patients, staff, and supplies within the operating room (OR).
- Identify important considerations in the planning phases of OR design.
- Describe strategies to employ in the room design process to include how to integrate expertise of stakeholders and reduce change orders.
- Discuss elements of room design to utilize space effectively, enhance flexibility, and decrease turnover time in the OR.

INTRODUCTION

- Ambulatory Surgery Centers (ASCs) designed to accommodate increased volumes and case mixes
- Efficiency and patient throughput are essential for an efficient facility
- Well-designed ASCs enhance perioperative workflow



ASSEMBLE AN INTERDISCIPLINARY TEAM

Internal Stakeholders

- **Perioperative registered nurses (RNs)**
- **Surgeons**
- **Anesthesia professionals**
- Preoperative and postoperative nursing personnel
- Sterile processing personnel
- Environmental services personnel
- Surgical technologists
- Administrative personnel
- Infection preventionists
- Representatives from other affected disciplines

External Stakeholders

- Members of the design team
  - **Architects**
  - Interior designers
  - **Engineers**
- Representatives
  - Medical device industry
  - Equipment manufacturers

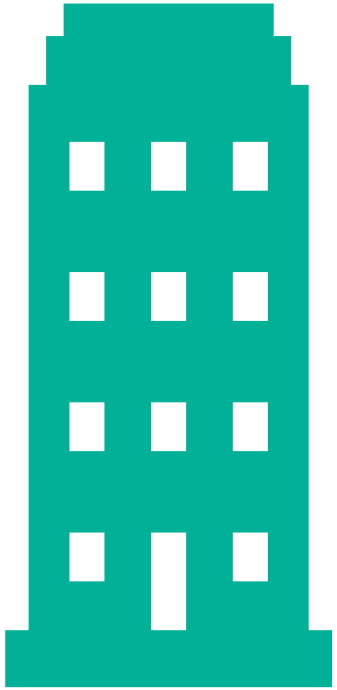
DEVELOP THE FUNCTIONAL PROGRAM

- Scope and type of service(s) to be provided
- Scope and type of anesthesia services to be provided
- Patient population
- Specialties to be served
- Procedures to be performed
- Projected volume of procedures
- Type of patient care areas required
- Utility requirements
- Security requirements
- Storage requirements
- Sterile processing requirements
- Location of support areas
- Traffic patterns

RENOVATION VS. NEW CONSTRUCTION

- Costs are usually similar for existing centers
- Renovations must comply with current building codes and regulations
- Consider structural opportunities and limitations

BASIC CONSIDERATIONS



- Location on ground floor preferred
- Square-shaped building with a large and consistent column grid
- Interior designed to accommodate circular process flow
- Building must have fire sprinklers installed

ZONES WITHIN THE ASC

Unrestricted

- Waiting room
- Administrative areas
- Preoperative patient care area
- Postoperative patient care area
- Locker rooms
- Supply storage rooms
- Pharmacy
- Laboratory
- Linen storage

Semi-restricted

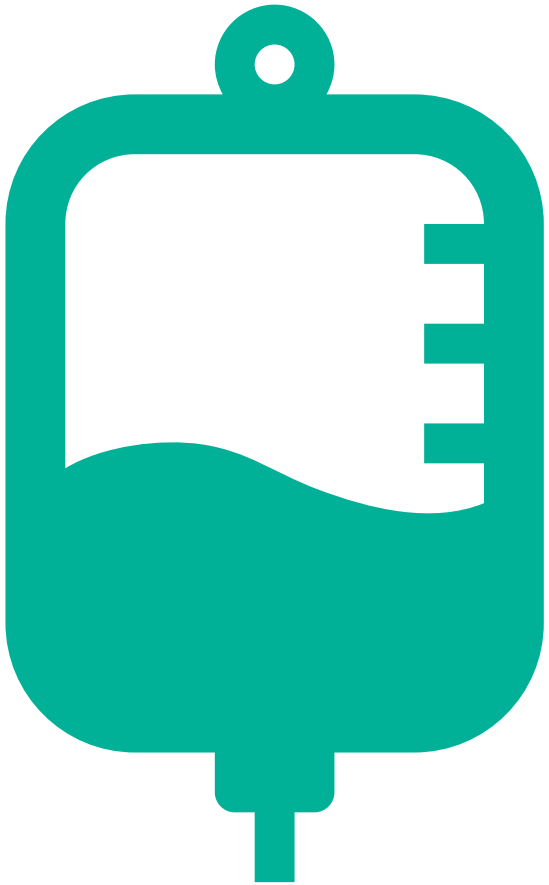
- Corridor leading from unrestricted to restricted area
- Sterile processing clean and decontamination area
- Scrub sinks
  - No personnel preparing hands using surgical hand hygiene
- Operating rooms
  - No sterile supplies open
  - No personnel are in sterile attire

Restricted

- Operating rooms
  - Open sterile supplies
  - Personnel in sterile attire
- Scrub sinks
  - Personnel preparing hands using surgical hand hygiene

ANSI/ASHRAE/ASHE Standard 170-2017 Ventilation of Health Care Facilities

PREOPERATIVE AREA



- Patient care stations
- Medication safety zone
- Hand washing stations
- Storage for patient belongings
- Bathrooms for patients and staff
- Blanket warmer cabinet

POSTOPERATIVE AREAS

- Patient care stations
- Medication safety zone
- Handwashing stations
- Storage for patient belongings
- Bathrooms for patients and staff
- Nourishment area for patients in Phase II recovery
- Ice-making equipment
- Blanket warmer cabinet

SUPPORT AREAS

- Locker rooms
- Nurses' station
- Staff breakroom
- Clean equipment storage area
- Soiled workroom
- Environmental services room
- Supply breakout area/room
- Administrative areas

STERILE PROCESSING

- Maintain dirty-to-clean workflow
- Two-room configuration with decontamination room and clean workroom separated by
  - Wall with a door
  - Pass-through window
  - Built-in washer-disinfector or washer-sterilizer with dirty side opening in the decontamination room and the clean side opening in the clean workroom
- One-room sterile processing area should include
  - Partial wall or partition at least 4 feet high and the width of the counter
  - Distance of 4 feet between the instrument washing sink and where instruments are prepared for sterilization

DESIGN CONCEPTS TO PROMOTE EFFICIENCY

- Balanced design
- Number of patient care stations in the preoperative and postoperative areas should be based on
  - Number of ORs
  - Anticipated volume
  - Scope of services
- Combined preoperative and postoperative care areas
  - Must be designed to meet the requirements of the area with the more stringent criteria

DESIGN CONCEPTS TO PROMOTE WORKFLOW

Horseshoe Layout

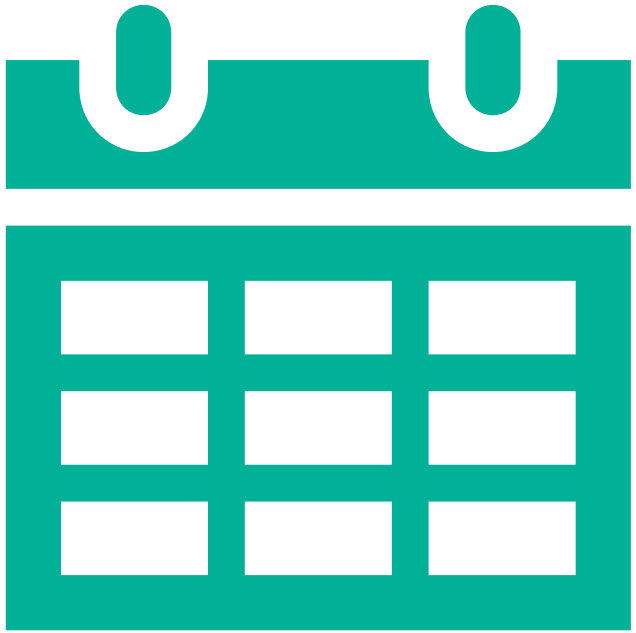
- Allows natural flow from preop => OR => PACU
- Facilitates movement of staff between areas

Nurses' Station in Central Location

- Facilitates patient flow through several areas
- Enhances visibility between areas to prevent bottlenecks

EFFICIENT SCHEDULING PRACTICES

- Schedule most labor-intensive cases first
  - Allows more time for set-up
- Organize cases by type of anesthesia used
  - General anesthesia early in the day
  - Peripheral blocks later
- Group procedures
  - Primarily by surgical site and laterality
  - Level of difficulty



DECREASE TURNOVER TIME

- Stretcher tables
  - Eliminate time needed for patient transfers
- Turnover kits
  - Consolidate all needs in one package
  - No searching for supplies and linen
- Optimize human resources
  - Emphasize teamwork and accountability
  - Assign zones of emphasis and standard work

STAFF TRAINING

- Training is critical
  - Proficiency on multiple procedures
  - Surgeon and procedure-specific instrument sequencing
- Interactive training modules
  - Rapidly onboard staff
  - Reinforce protocols and procedures
  - Support evidence-based practices
  - Allow for customized training
  - Decrease OR time
  - Increase surgeon confidence in staff
- Cross-training for tasks outside of assigned role

STREAMLINE SUPPLIES & INSTRUMENTATION

- Standardize instrument trays
  - Decrease setup and procedure time
  - Reduce costs associated with reprocessing unused instruments
  - Conserve storage space
- Custom packs
  - Work with vendor to create packs that include all supplies needed
  - Order based on case load
- Product consolidation and standardization
  - Consolidate number of vendors used for commodity products
  - Standardize products with less clinical sensitivity such as drapes and gowns

MAXIMIZE STORAGE

- Ensure equipment is easily accessible
- Limit the number of storage areas
- Long, narrow spaces
- Consider alcoves for stretcher storage
- Use full-extension drawers and adjustable shelving
- Consider ergonomics of supply storage

FUTURE EXPANSION

- Avoid placing ORs near the property line
- Place ORs or other clinical areas where expansion may occur along walls adjacent to parking lot or available space within the building

TIPS FOR SUCCESSFUL ASC CONSTRUCTION

- Develop the functional program with the interdisciplinary team first
- Assess cost effectiveness of new construction vs. renovation
- Work with a medical architect to ensure Medicare-specific design requirements are met
- Consider patient flow when planning design
- Understand structural opportunities and limitations
- Review multiple designs
- Plan for future expansion

TIPS FOR SUCCESSFUL ASC WORKFLOW

- Schedule cases according to complexity and resource use
- Evaluate solutions to decrease turnover time
- Invest in staff training to maximize flexibility
- Consolidate and standardize supplies, equipment, and instrumentation
- Provide adequate storage to reduce wasted supplies and clutter

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SUMMARY

- Construction and renovation in the ASC offers the opportunity to design a facility to meet the needs of more complex procedures
- Smart design in the physical layout of the ASC can influence efficient flow of patients, supplies and staff
- Optimized efficiencies in workflow for scheduling, OR turnover time, supplies, and staff training maximize the benefits of a well-designed ASC