Efficient ASCs are designed that way

Where are the bottlenecks in your operations? Are patients waiting in preop? Are they overflowing in recovery? Why are patient satisfaction scores low? Are patients uncomfortable about privacy? Answers to these problems may lie in the physical layout of your ambulatory surgery center (ASC).

“The design and flow of patients through an ASC can make or break your efficiency, and efficiency is one of the main ways we distinguish ourselves from hospitals,” says Rebecca Craig, RN, BA, CNOR, CASC, administrator of the Harmony Surgery Center, Fort Collins, Colo.

Focusing on the design and layout of a center to solve problems is simple, but not easy.

“Ambulatory surgery centers are as complex as anything you can design and build,” says Robert Owens, principal of Boulder Associates, Inc, an architecture and interior design firm in Boulder, Colo (www.boulderassociates.com).

Issues factoring into the complexity include:

- **State building regulations.** Rules vary, but many states base their regulations on the American Institute of Architects (AIA) Guidelines for Design and Construction of Health Care Facilities. Updated guidelines were expected to be published in July, see p 13 (www.aia.org).
- **Technological advances.** “Every few years the guidelines are rewritten because of changes in perioperative technology and techniques,” says Wayne Carr, director of design and construction for HealthSouth Corp, which owns and operates more than 200 ASCs. “It’s a fine balance between satisfying building requirements and designing a center that flows correctly and accommodates technology.”
- **Privacy law.** The Health Insurance Portability and Accountability Act (HIPAA) requires measures to protect patient privacy, which affect the design of areas where confidential patient information is discussed.
- **Speed.** ASCs tout their efficiency and short turnover times, which means patient flow must be almost flawless. Facilities also need convenient support systems, such as supply rooms and nourishment centers.
Effective ASC designs

Architects and veteran ASC administrators offered these recommendations for effective facilities:

**First impressions**

- **Parking lot.** The ASC experience begins before the patient and family step into the facility. Parking should be ample, close to the building, and free or heavily discounted.
- **Entrance.** Visible signage is paramount. Some centers that share building space with other offices have color-coded pathways that lead patients to the center’s entrance.
- **Registration.** Side panels that enclose the registration area assist with privacy. Many centers preregister patients so they only need to let the receptionist know they have arrived. Information systems allow for faster registration, fewer registration personnel, and less waiting time.

“When you have less waiting time, you can have a smaller front desk and waiting area. This space can be moved into the perioperative process,” says Scot Latimer, president of the American Institute of Architects’ (AIA) Academy of Architecture for Health and vice president and national director of Kurt Salmon Associates health facility consulting group (www.kurtsalmon.com).

**Waiting room**

Design is becoming more like a boutique to differentiate ASCs from hospitals, says T. Scott Rawlings, an architect for RTKL in Washington, DC, (www.rtkl.com) and member of AIA’s Academy of Architecture for Health. “As hospitals enhance their décor, ASCs have had to go to the next level and offer a more salon-like setting.”

Refreshment centers for family and friends must be separate from the patient waiting room. “The last thing you want is someone who can’t eat or drink to smell coffee,” says Donna Quinn, RN, MBA, CPAN, CAPA, director of the Orthopaedic Surgery Center, Concord, NH.

To avoid alarming families of other patients, never discharge surgical patients through the waiting area.

**Operating rooms**

ORs are getting bigger to accommodate more equipment. The AIA guidelines call for a minimum of 400 sq ft per OR, but Robert Owens, of Boulder Associates, Inc, an architecture and interior design firm in Boulder, Colo, says he would not design an OR with less than 440 sq ft. “Really, 500 sq ft is optimal,” he says. Architects say physicians are split on their preference for having equipment placed on towers or boats suspended from the ceiling. The boats allow for faster room turnover by keeping equipment off the floor. The towers are less expensive and portable. One solution—provide both. Some centers provide towers and build the infrastructure into the ceiling to add boats later, Carr says.

**Preoperative and postoperative areas**

These core areas are grouped because the flow among them is critical to an ASC’s efficiency.

Medicare guidelines state that an ASC must have a separate recovery room and waiting area. See Medicare Guidance to Surveyors, 416.44(a)(2). To share staff and support services such as beverage centers and storage rooms, recent ASC designs connect the preop and postop areas with a nurse’s station or divide them with a glass wall. Phase I PACU continues to stand alone to satisfy the 1-to-1 nurse ratio and to separate conscious patients from those just rousing from anesthesia.

A trend is to build sections within a combined preop and postop area. For example, one 20-bay room has 5 sections of 4 bays equipped for either preop or postop functions.

“The key is flexibility,” says Rebecca Craig, RN, BA, CNOR, CASC, administrator of Harmony Ambulatory Surgery Center, Fort Collins, Colo. “I like any space that can be used for more than one function.”

Creating privacy in the preop and postop areas is a challenge, especially when nurses must care for more than one patient. Strategies include 3 walls and a sliding glass door or a curtain for each bay. Some centers put half walls between patients.

A minority of centers have enclosed rooms where patients and family start preoperatively, returning to the same room postoperatively. Sinks and lockers for belongings are provided. Though architects say this design can be space inefficient and unwieldy for gurney transport, one ASC administrator says private rooms please patients, families, and physicians.

The Indianapolis Surgery Center has had private patient rooms for preop and postop care since it opened in 1992, says the executive director, Shannon Arrendale, RN, MBA. The surgery center performs 11,000 procedures annually and is expanding from 32,000 sq ft to 41,000 sq ft this year. When the expansion is complete, the center will have 41 preop and postop patient rooms as well as 16 rooms with their own bathrooms for 23-hour stays.

“It is easier for staff to access patients with only a curtain, but our nurses have gotten used to the enclosed rooms,” Arrendale says. “I believe this level of privacy is more of what patients will demand in the future.”

Architects say preop bays are getting larger to accommodate the growing number of procedures that can be performed in them, such as pain management and orthopedic blocks.

In PACUs, Quinn recommends placing a sink between each bed and equipping all bays with computer workstations.

**Storage space**

“There’s never enough storage space for nurses,” Carr quips. He suggests making the equipment holding and supply rooms large enough to ensure corridors and unused ORs do not become storage rooms.
“Unlike a hospital, which has separate departments for central sterile supply and storage, an ASC needs its functions located close together and to flow from one to the other easily,” Owens says.

**Expand or build?**

When centers have maximized their space and volume or must renovate substantially to meet updated codes and regulations, it’s usually time to build a new facility, Carr says. This is especially true for centers more than 15 years old. An exception is a center in a great location with ample parking and name awareness.

Carr argues that it usually costs the same or less to build a new facility as to renovate an old one. “In a 15-year-old facility, the ORs are too small, the mechanical equipment is wearing out, and interior finishes need to be replaced,” he says.

**The basic envelope**

Carr has developed a prototype for building new HealthSouth ASCs. He interviewed nurse administrators and staff and applied their ideas in drafting the plans, which are amended to meet each state’s regulations. Physicians at 3 HealthSouth facilities reviewed the plans and supported the nurses’ recommendations.

The nurses’ recommendations include where power doors are needed for transporting gurneys, where to place light switches and power outlets, how doors should swing into a room, locating nourishment centers in the recovery room to reduce travel time, and placing ice machines at a level that nurses do not need to bend to reach.

“Getting nurse input made the difference between building centers that are OK and ones they really love,” Carr says.

**A well-designed ASC**

The HealthSouth prototype is proprietary, but Carr shares his recommendations for the basic envelope of a well-designed ASC:

- Ideally, an ASC should be in a square-shaped building, with the interior constructed to create a circular process flow. Long, narrow buildings require more walking.
- Location on the ground floor is preferred but not absolutely necessary. A ground-floor location makes it easier to admit and discharge patients and receive bulk supplies.
- The building must be located in an area zoned for medical use.
- The building should have a large and consistent column grid, with columns equally separated by a minimum 30 ft. Carr explains the relevance of 30-ft column space by adding together the minimum 18-ft clear width in the typical OR, the minimum 8-ft clear width in the sterile corridor (required by various codes for corridors where gurneys and patient beds will be moved), and wall thickness. These dimensions equal approximately 29 ft. “ORs will just get larger in the future,” Carr says.
- The minimum ceiling height in an OR should be 10 ft. Above the ceiling and below the building structure should be at least 2 ft, 6 in (preferably 3 ft) for ductwork, sprinkler and medical gas piping, light fixtures, and support framing.
- If the site is in a leased building, the entire building must have sprinklers installed.
according to the National Fire Protection Association, or the surgery center will have to add them, “an expensive undertaking,” Carr says.

- The locations of fixed building elements, such as stairs, elevators, mechanical rooms, public toilets, and mechanical chases, should be considered when deciding on a site. Before leasing or buying a space, ensure their locations do not limit the facility design or hinder growth.
- Design with the knowledge that technology will change, and the center must adapt to it. Provide stub outs for later electrical and medical gas additions. “If you set yourself up for maximum flexibility, you can come back later and make changes to accommodate the new technology,” Carr says.
- Don’t plan too far ahead. Most centers must drastically remodel or build new facilities every 15 years, Carr says. “I’ve been in a number of surgery centers that are 15 years old and still function reasonably well, but I haven’t been in one that old that is state of the art,” he says. “Once a building is constructed, many things are literally ‘set in concrete.’ Significant changes will take place in medical technology and equipment, types of procedures, building codes, and AIA guidelines in that time period that will impact design.
  “The best approach is to find a site that is flexible and adaptable to change.”
- Do not oversize power sources, such as emergency generators and electrical service. Centers also usually need to replace the HVAC equipment and vacuum pump after 15 to 20 years.
- Plan to update interior finishes every 10 to 15 years. “Most of the time an older facility that hasn’t been refreshed simply looks tired and can’t compete with the new center across town,” Carr says.

**Right sizing**

The most important aspect of designing an ASC is right-sizing it, Owens says. “Predicting volume and case mix is the key to building an ASC that is the right size,” he says. “If you build a bigger surgery center than you need, you pay for that every month, regardless of whether you have the cases to support it. You can’t reduce the size of a building like you can reduce the number of FTEs when your volume or case mix changes.”

In the design phase, centers can plan to expand later. But Owens cautions that adding ORs requires adding a proportional amount of preop and recovery bays, as well as storage, waiting room chairs, staff lockers, and business office space. “If you have the capital, add this support space when you build, then add the ORs when your volume supports them.”

**Sustainable design**

Green or sustainable building is a growing trend in health care. Applying evidence-based design concepts, more architects are incorporating natural light, nontoxic building materials, and color theory to create a healthier working environment.

“It’s been proven that a healthy, sustainable office environment increases productivity and decreases sick time,” says T. Scott Rawlings, an architect for RTKL in Washington, DC. For more information on sustainable building, visit the web site of the US Green Building Council (www.usgbc.org).
Working with an architect and general contractor

It’s essential to hire an architect with extensive experience in ASCs to build a new or remodel an existing center, administrators advise.

“Your architect needs to be reputable, well-organized, and able to communicate well with you and the contractors,” Quinn says. “You’re going to be in this relationship for a while. Choose someone you trust.”

Craig says she has seen fellow ASC administrators make the mistake of choosing an architect who specializes in hospitals. “You need someone who has the efficient ASC process flow in mind,” Craig says.

If remodeling or expanding, determine in advance if contractors will work during office hours or on nights and weekends when the center is closed.

“You have to weigh the extra price of the off hours with the noise and possible service interruption during the day,” Quinn says. ❖

—Leslie Flowers

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Building in savings

Robert Owens, principal of Boulder Associates, Inc, recommends these cost-saving measures when designing new ASCs:

• **Build the right-sized project.** Carefully evaluate the anticipated case volume and case mix, then size the facility accordingly. Some physicians think they will bring in more cases than they actually do.

• **Balance the design** so all parts of the ASC have approximately the same capacity. It does no good to have additional ORs if the preop and recovery areas cannot support the same volume as the ORs.

• **To the degree building codes and good practice allow,** take advantage of the differences between the requirements for inpatient and outpatient facilities. If you build the facility like a hospital, it will cost as much as a hospital.

• **Be alert to costs** of seemingly small items. For example, a decision to cool ORs to 65 degrees versus 68 degrees can dramatically increase the cost of buying and operating the HVAC system.

• **Efficient patient, staff, and materials flow** can reduce the number of FTEs required to provide the same amount of care.

• **ASCs can use large amounts of energy** with correspondingly high utility bills. Pay attention to opportunities to make the project more energy efficient.