

**Section 2**

**Narrative**

	Page
General Considerations.....	2-1
The Surgical Team.....	2-3
Operating Room Planning Criteria.....	2-5
Post Operative Procedures.....	2-7

## Narrative

### GENERAL CONSIDERATIONS

#### *Current Direction*

With the recent change in direction of the VA from an inpatient oriented service to a primarily outpatient service many new and innovative approaches to service have been inaugurated.

One approach is Short Stay Surgery. The procedure unit is a one-day surgical and diagnostic department of Ambulatory Care. In this special unit patients have surgical or diagnostic testing and return home - all in the same day. One result is reduced cost of hospitalization. A highly trained professional staff of doctors and nurses and efficient use of materials also help to reduce costs.

Sizes of Ambulatory Suites are determined by VA planning models and approved by authorized planning officials. Much of the current and future work in planning and under construction will be in clinics, because of the costs involved the trend is away from huge urban medical centers and more toward smaller suburban clinics with the majority of patients being ambulatory (short term surgery and diagnostic testing) These clinics will do more General Surgery and Orthopedic work while Cystoscopic, Vascular and Cardiac work will continue to be done in the larger medical centers.

The surgical suite, is a group of rooms consisting of the individual rooms in which surgery is performed, plus all the required support rooms.

Various support areas are required. These include staff lockers and lounge areas; anesthesia workroom; scrub areas for the staff; storage space; connection to the Supply Processing and Distribution (SPD)

housekeeping closets; gas storage area; appropriate staff office; control and communication area; patient holding area; and other support rooms or areas as is deemed appropriate.

#### *The "Sterile Field"*

The term "sterile" indicates that no micro-organisms are present, as determined by known microbiologic techniques. We use the term, "sterile field" to describe the sterile zone in the operating room, which includes the space immediately surrounding the patient's incision. Everything that enters this field must be sterile or as free of micro-organisms as is possible.

The air supply system must be designed to minimize airborne bacteria from entering the sterile field, This helps to minimize the number of micro-organisms in those areas which could contaminate the sterile field.

Usually, we consider three levels of concern within surgery in order to minimize the number or organisms present: (1) the sterile field as noted above, (2) the restricted area which includes the operating room proper, the clean core just outside the operating room and the support spaces adjacent to the operating room such as the storage areas for sterile supplies and instruments; (3) a semi-restricted area to include spaces such as the instrument work room, non-sterile supply storage, personnel lounges and lockers, offices, and control desk.

## **Narrative**

### **GENERAL CONSIDERATIONS (CONT.)**

#### *Internal Operating Room Circulation*

It is very important to plan an operating room so that a high level of sterile technique can be achieved. A surgical case requires a vast amount of sterile items, primarily instruments. The instruments are placed on the surgical instrument table prior to the procedure. The scrub nurse constantly is drawing from this source to supply the surgeon during the operation. The surgical instrument table is positioned usually toward the foot of the operating table, but is included within the sterile field. No one walks between the operating room table and the surgical instrument table, except those in sterile garb. In larger clinics and hospitals radiographical equipment or television monitors may be planned for the room, and these items have to be considered.

## Narrative

### THE SURGICAL TEAM

#### *Surgeons*

The surgical team leader is the surgeon who is performing the operation. Assisting the surgeon in major operations are one or more assistants, or other staff surgeons. Usually, the maximum number of surgeons and / or assistants is four, two on each side of the operating room table.

#### *Anesthesia Staff*

Anesthesia is administered by the anesthesia staff which includes anesthesiologists and certified registered nurses anesthetists (CRNAs).

One or more staff may be assigned to the operating room. It is the responsibility of the anesthesia staff to administer the anesthetic agent, monitor the patient's vital signs, and remain with the patient during the entire surgical procedure. After surgery, the patient is moved to the post anesthesia recovery room (PAR). The patient remains under the care of the anesthesia staff until completely recovered from the anesthetic.

#### *Nursing Staff*

Surgical procedure performed in the operating room is staffed by at least two nurses, a scrub nurse and a circulating nurse. The scrub nurse, together with the first assistant to the surgeon, is the main support person for the operating surgeon. This nurse is responsible for the sterile supplies and instruments and for handing them to the surgeon.

The circulating nurse does not function within the sterile field. This nurse performs all other required tasks outside the sterile field. This

nurse also acts as the "non sterile" hands of the surgeons and scrub nurse, placing films in the x-ray view box, bringing into the operating room other required supplies, instruments and equipment, maintaining surgical records in the operating room, etc. Although, the surgeon performing the operating has the ultimate responsibility for the care of the patient in the operating room, it is the circulating nurse who monitors traffic within the OR and observes all staff in the OR to be certain that the sterile field is appropriately maintained.

Whenever it is necessary to either take an x-ray or use fluoroscopic technique for performing a certain procedure, an x-ray is taken, the x-rays are developed by the radiology technician in a darkroom installed within the surgical suite. The resulting film may be interpreted by the surgeon performing the procedure.

#### *Orderly*

The orderly usually is responsible for transporting patients to the operating room and transferring the patient from the stretcher to the operating room table.

#### *Head Nurse*

The head nurse is charged with supervising all activities that occur within the operating room. The head nurse is available also to replace a circulating nurse or during long operations to replace the scrub nurse while that nurse takes a break. The office of the head nurse is located within the clean core area.

## **Narrative**

### **THE SURGICAL TEAM (CONT.)**

#### *Operating Room Coordinator*

This nurse is the administrative supervisor of the entire operating room suite. She/he is responsible for maintaining the scheduling of patients for operations, as well as purchasing and maintaining supplies and equipment for use in the operating room suite. The office of the OR coordinator is located outside the clean core area.

## Narrative

### OPERATING ROOM PLANNING CRITERIA

#### *Operating Room*

The operating room for general surgery, ENT surgery, eye surgery, and plastic surgery ideally is 42 net square meters (450 net square feet) with a minimum dimension of 6100 mm (20'-0").

#### *Ceiling Height in an Operating Room*

The ceiling height of an operating room should be approximately 3000 mm (10 feet). A clear ceiling height of 2890 mm (9'-6") is usually considered acceptable. Any height below this dimension is considered a compromise and not acceptable. The following elements determine the ceiling height:

- (1) major operating room lights are designed for the above noted ceiling height;
- (2) in some operating rooms, overhead x-ray equipment is required; (usually in larger clinics or hospitals)
- (3) proper air handling is essential. About 1/3rd of air is supplied over the OR table and 2/3rd is supplied around the OR table. In order to achieve desirable air circulation free from drafts, a height more than normal may be necessary.

#### *Storage and Case Carts*

As a supplement to built-in storage of sterilized items including instruments within the operating room which may become contaminated, a case cart system is used. This system contains most of the needed supplies required for a specific case, which include:

- (1) the instruments;

- (2) the sterile packs, which include the gowns, patients' drapes, back table covers, towels, etc.;

- (3) disposable supplies such as gloves, sponges, dressings, etc.;

- (4) sterile utensil items (in most cases a sterile wash basin containing sterilized water for the surgical team to remove the powder from the surgical gloves and supply wet sponges or laparotomy pads as required by the surgeon.

After the operation is completed, all the above items are removed from the room, the room cleaned and a new case cart brought in to service the next operation. The case carts usually remain in the operating room during the procedure. Additional supply storage is required in the clean core and in the sterile storage areas as storage for the clean (sterile) case carts and for storage of special non-sterile equipment which has to be transferred into the operating room.

#### *Sterilizer*

A sterilizer for flash sterilization of instruments should be located as close as possible to the operating room, preferably with access from the peripheral corridor for maintenance or service. A sterilizer meets the following needs:

- (1) If an instrument is dropped or if a non-sterile instrument is needed, it can be flash sterilized and put into use in approximately three minutes.

- (2) Some clinics or hospitals do not wrap their tray of instruments. The instruments are placed in an open tray, flash sterilized and carried directly to the surgical instrument table.

## Narrative

### OPERATING ROOM PLANNING CRITERIA (CONT.)

A 900 mm (36") door width and circulation space must be provided between the sterilizer and the operating room in order to minimize the danger of contamination as the sterile item is moved from the sterilizer chamber to the sterile area of the operating room. Additionally, a washer sterilizer may be required in the clean core of larger clinics and hospitals as a backup for the washer sterilizers in the SPD.Scrub Area.

#### *Scrub Area*

Surgical team members must thoroughly wash their hands prior to each surgical intervention. Usually the operating room personnel scrub first and then prepare the instruments and sterile supplies required for the operation. It is desirable to have at least one scrub sink adjacent to the operating room, with a leaded glass observation window above, so that the surgical team can monitor the patient while at the same time scrubbing for the operation. A clock is provided over the scrub sinks for timing of scrubbing. A mixing valve to permit comfortable water temperature is supplied for the scrub sinks.

#### *Air Supply*

Air is supplied to the operating room by diffusers in the ceiling located over and around the operating room table (see the guide plate for a more specific layout). Air is exhausted from the room by at least two exhaust ducts located in the walls near the floor on opposite sides of the room. In this way the room constantly is being "washed" with clean air. Airborne bacteria and other contaminants tend to fall toward the floor. The clean air is supplied from the ceiling of

the room and exhausted at the floor level, continuously "sweeping" the soiled air from the room.

#### *Electrical/Communication*

Explosive anesthetic agents no longer are used in the operating room. This allows flexibility in meeting the electrical needs. The view boxes, intercom units, telephone, computer monitor, etc., conveniently are located in the circulation zone of the room. Two isolated power panels are provided in the operating room to ensure constant current and eliminate power surges.

#### *Stretcher Alcove*

Surgical patients are brought into the operating room by stretcher (gurney) or by a stretcher/recovery room bed. This transport vehicle is made up with clean linen for the patients delivered to the operating room on this vehicle. Space should be provided directly outside the operating room where the vehicle is parked during the procedure. The alcove should be large enough to accommodate a standard hospital bed. After surgery, the patient is placed on a stretcher or bed and moved to the recovery room. The transport vehicle then is cleaned, disinfected and prepared for the next patient. .

#### *Housekeeping Aids Closet*

The operating room is thoroughly cleaned at the end of each surgical day. The room also must be cleaned between each case. Housekeeping closets are to be provided for the surgical suite. One for the clean core; one for the operating room and one to serve the post anesthesia recovery room (P.A.R.) in the larger clinics and hospitals.

## Narrative

### OPERATING ROOM PLANNING CRITERIA (CONT.)

#### *Doors*

The entrance from the corridor, from which patients are moved in and out of the operating room, should be at least 1500 mm (5 feet) wide with a pair of doors. It is important that the opening be located for beds or stretchers to move as directly as possible from the corridor to the side of the operating room table. The doors should be located at one or the other end of the operating room. For doors between the clean core and the operating rooms, a double acting door, 1100 mm (3 feet 8 inches) wide, is required.

#### *Post Operative Procedures*

Ambulatory Surgery encompasses all invasive ambulatory procedures but without hospitalization. This sometimes works hardship on patients many of whom are elderly and may have come a long distance for surgery or other procedures. If more recovery time is needed than can be provided in an eight hour day, overnight rest may be needed. Some of the larger clinics can be planned to accommodate a few patients with on-site beds, but smaller facilities may require using temporary facilities for overnight stays. This is also a problem in clinics in remote areas and should be considered from the onset of the project.

#### *Special HVAC Requirements*

A dedicated air-cooled chilled water system with backup from the main chilled water system is required.

Emergency power for the air-cooled chilled water system, air handling units, exhaust fans, pumps and controls is required.

See HVAC Design Manual for Hospital Projects for type of system, filtration and ductwork requirements.