



CHAPTER

41

Assisting with Minor Surgery

Learning Objectives

After completing this chapter, you should be able to:

- 41.1 Define and spell the terms for this chapter.
- 41.2 Differentiate between types of ambulatory surgery.
- 41.3 List guidelines for surgical aseptic technique.
- 41.4 Outline the differences between medical and surgical asepsis.
- 41.5 Describe the types of instruments commonly used during ambulatory surgery.
- 41.6 List details pertaining to the use of specific types of suture materials.
- 41.7 Identify guidelines for handling instruments.
- 41.8 Describe the steps to prepare a patient for minor surgery.
- 41.9 Outline specific considerations related to postoperative patient care.
- 41.10 Explain the medical assistant's role as it pertains to assisting with various types of surgical procedures performed in a physician's office.

Case Study

Today, Shandra Wilkinson, RMA, is working with Dr. Penningworth at Pearson Physicians Group. Dr. Penningworth has instructed Shandra to prepare examination room 4 for an I & D of a sebaceous cyst. He will be performing the I & D on Carmen DiStefano, a 32-year-old male who presented to the office with pain and discomfort surrounding the cyst.

Terms to Learn

ambulatory surgery	eschar	outpatient surgery
anesthesia	evisceration	scrub assistant
biopsy	hyfrecator	sterile field
cryosurgery	incisions	surgical scrub
debridement	invasive procedure	
dehiscence	Mayo stand	

This chapter discusses surgical aseptic technique, also known as sterile technique. Procedures requiring sterile technique, such as minor surgical procedures, suture insertion and removal, breast **biopsy** (microscopic examination of tissue to detect cancerous cells), incision and drainage, removal of growths, and wound treatment are included. Strict adherence to aseptic technique is necessary when assisting with these procedures. It is important to always remember that an item is either sterile or nonsterile. If there is any doubt about sterility, assume it is nonsterile.

THE MEDICAL ASSISTANT'S ROLE IN MINOR SURGERY

Medical assistants perform many duties related to minor surgery (Figure 41-1). Before surgery you will perform administrative duties, such as completing insurance forms, obtaining consent forms, and meeting with the patient to answer questions related to the procedure. Before beginning the surgery, the provider will expect the medical assistant to have set up the sterile field with the instruments and equipment necessary for the specific procedure that is about to be performed. During the procedure, the health care provider may ask the medical assistant to add items to the sterile field and, if properly scrubbed and wearing sterile gloves, even hand sterile instruments to the provider. On completion of the procedure, your duties will include providing postoperative instructions to the patient, such as proper wound care. Other duties will include cleaning the procedure room after

the surgery, sanitizing and disinfecting or autoclaving the instruments used, and restocking supplies as needed.

Setting Up the Sterile Field Before Surgery

A surgical setup for a typical minor surgical procedure includes the following:

- Local anesthetic materials
- 3 mL syringe with needle(s)
- Alcohol sponges to cleanse vial top
- Sterile gloves for surgeon
- 4 × 4 and 2 × 2 gauze sponges
- No. 3 scalpel blades and handle, extra scalpel blades (Nos. 10, 11, and 15)
- Curved iris scissors

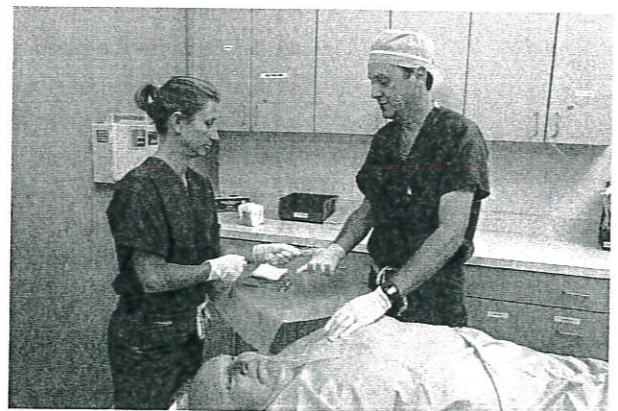


FIGURE 41-1 A medical assistant assists with minor surgery performed in the medical office.

- Tissue forceps
- Straight and curved mosquito forceps
- Straight and curved Kelly forceps
- Towel forceps
- Sterile drape towels
- Needle holder with mounted needle and suture materials
- Sterile specimen container with preservative solution

Additional Supplies That May Be Needed During Surgery

Other surgical supplies may be needed during a procedure. Wound drains such as a rubber Penrose drain may be inserted at the end of a procedure to remove excess fluid. Other packing materials, such as sterile petroleum jelly, saturated gauze squares, or sterilized Iodoform gauze strips of varying lengths, may also be used to pack wounds. Additional sterile syringes may be necessary to irrigate the wound, or extra sterile gauze squares may be needed to absorb blood from a surgical area. In preparation for minor surgery and before the procedure begins, check the supply inventory thoroughly.

AMBULATORY SURGERY

Ambulatory surgery is surgery performed on a person who is admitted and discharged from a surgical facility on the same day. This includes outpatient surgery in a hospital setting, a surgicenter, or a medical office. Because ambulatory surgery is on the increase, the medical assistant is increasingly called on to assist the physician with surgical procedures in the office.

Ambulatory surgery, with its option for surgical procedures performed outside the hospital setting, has resulted in a cost savings to the consumer and to the insurer. Hospitalization is not required unless an unexpected complication occurs. The patient is able to return home after a brief recovery time. The disadvantage to this type of surgery is the short time the health care team has for assessing the patient's postoperative condition. It is important for each ambulatory facility to develop a consistent follow-up procedure to track the patient's condition after leaving.

Outpatient surgery is generally limited to procedures requiring less than 60 minutes to perform. Today, many surgeries are performed in free-standing surgicenters or surgical centers that are part of a hospital complex.

Surgeries can be categorized as follows:

- **Elective**—Considered medically necessary but can be performed when the patient wishes (e.g., removal of benign growths)
- **Emergency**—Required immediately to save a life (e.g., hemorrhage) or prevent further injury or infection

- **Optional**—May not be medically necessary, but the patient wishes to have it performed (e.g., cosmetic surgery, vasectomy)
- **Outpatient**—Does not require an overnight stay in a hospital
- **Urgent**—To be performed as soon as possible but is not an immediate or acute emergency (e.g., cancer surgery)

PRINCIPLES OF SURGICAL ASEPSIS

Surgical asepsis, or sterile technique, is used when sterility of supplies and the immediate environment are required, as in surgical procedures. Sterile technique results in the killing of all microorganisms and spores. It is necessary during any **invasive procedure** (a procedure in which the body is entered), such as when administering an injection, making a surgical incision, or working with an open wound.

Open tissues provide an excellent reservoir (host) for infection. Infections can delay the healing process, cause permanent harm or death to a patient, and result in additional medical costs. Sterile technique prevents microorganisms from being introduced into the body, thereby decreasing the risk of infection.

Both medical asepsis and surgical asepsis have the overall purpose of decreasing the risk of infection. Medical asepsis is a reduction in the number of microorganisms, such as when you wipe a countertop with disinfectant. Medical asepsis results in a "clean" approach in which materials can be handled with clean hands or nonsterile gloves. Surgical asepsis means a complete absence of microorganisms and spores. Surgical asepsis requires a sterile handwashing or scrub, sterile gloves, and sterile technique when handling materials. A way to remember the difference is to recall "Clean for clean" and "Sterile for sterile." For example, use clean hands when applying a clean bandage to unbroken skin. Use sterile procedure when handling sterile materials, such as using sterile gloves when touching sterile instruments. See Table 41-1 for a comparison of medical and surgical asepsis.

TABLE 41-1 | Surgical Asepsis and Medical Asepsis

Surgical Asepsis	Medical Asepsis
Sterile technique used	Clean technique used
Absence of microorganisms	Controls microorganisms
Surgical scrub performed	Basic hand hygiene procedure used
Sterile equipment and supplies required	Clean equipment and supplies
Sterile field	Clean field

Guidelines 41-1

Surgical Asepsis

A STERILE ITEM CAN ONLY TOUCH ANOTHER STERILE ITEM

- If a sterile item touches a nonsterile item, it is contaminated.
- If a clean item touches a sterile item, it is contaminated.
- A sterile packet that is torn, wet, or punctured is contaminated.
- A sterile packet is contaminated after the date on the packet.
- If unsure of sterility, consider the item contaminated.
- Skin is always considered contaminated. It cannot be sterilized, only disinfected.

A STERILE ITEM ON A STERILE FIELD MUST BE WITHIN YOUR FIELD OF VISION AND ABOVE YOUR WAIST

- If you cannot see an item, it is contaminated.
- If items or your hands are below your waist, they are contaminated.
- If you turn your back on a sterile field, it is contaminated.
- If you leave a sterile field unattended, it is contaminated.

AIRBORNE MICROORGANISMS CONTAMINATE STERILE FIELDS

- Do not place sterile fields in a draft.
- Avoid extra movements near the sterile field.
- Do not talk, cough, sneeze, or laugh over a sterile field.
- Wear a mask if you need to talk during a procedure.
- Do not reach over a sterile field.
- Avoid spills on a sterile field. A wet field is contaminated.

THE EDGES OF A STERILE FIELD ARE CONTAMINATED

- If an item touches any part of the 1-inch border around the sterile field, it is contaminated.

STERILE GLOVES MUST ONLY TOUCH STERILE ITEMS

- Do not touch the outside of sterile gloves with bare hands.
- Sterile gloves are contaminated if punctured. Remove and dispose of the item and gloves, rescrub, and reglove.

STERILE PACKETS MAY BE TOUCHED ON THE OUTSIDE WITH BARE HANDS

- Outer wrappings are considered contaminated.
- Open sterile packets away from you to avoid contaminating the packet by touching your clothing.
- Never rewrap an unused sterile packet. The unused items must be resanitized, rewrapped, and reautoclaved.

BE HONEST IF YOU MAKE AN ERROR OR SUSPECT YOU HAVE MADE AN ERROR

- Remove the contaminated item and correct the error.
- Report contamination to your superior.

Guidelines for Surgical Asepsis

When practicing surgical asepsis, follow the guidelines presented here or those used in your office. Guidelines 41 provides some rules for surgical asepsis. Refer to this list of key points often as you read through this chapter. They are the ground rules for establishing a sterile field.

The purpose of personal protective equipment (PPE) is to protect the patient and health care worker from exposure to pathogenic organisms. See the chapter on infection control for more information about PPE. Remember that nonsterile scrub suits should not be worn home. All personnel should change to street clothes before leaving a medical facility.

Surgical Scrubs and Sterile Gloving

In the “Infection Control” chapter, medical asepsis and hand hygiene were introduced. Performing hand hygiene is the number-one way to prevent spreading infection. In this chapter, you will learn the procedure for surgical asepsis or a **surgical scrub**. A surgical scrub removes microorganisms more effectively than regular handwashing. It is necessary that the hands be as free from microorganisms as possible in the event that sterile gloves are punctured during a procedure. Procedure 41-1 and Figures A–G demonstrate the steps and rationale for performing surgical hand hygiene. Figure 41-2 shows a medical assistant in PPE, including

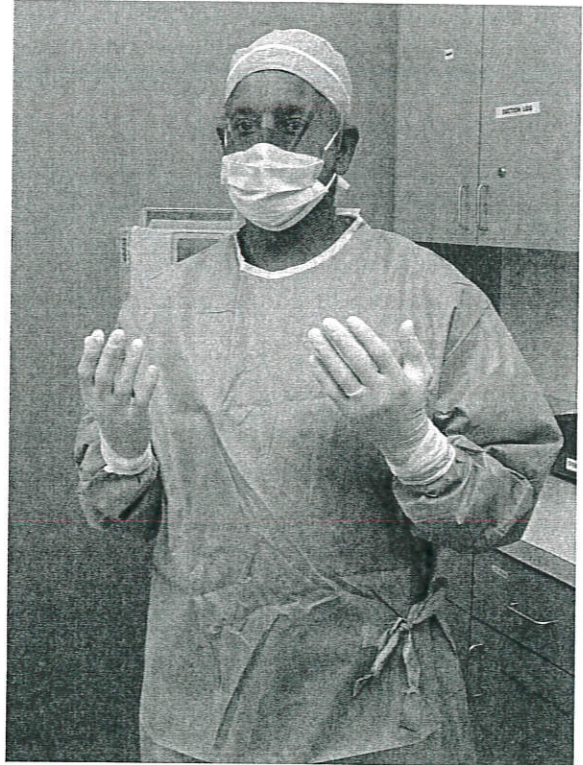


FIGURE 41-2 A medical assistant wearing PPE—gown, face shield, and gloves.

PROCEDURE
41-1

Performing Sterile Scrub/Surgical Hand Hygiene

Objective ♦ Perform a surgical scrub on hands and arms using the correct procedure for the appropriate length of time.

EQUIPMENT AND SUPPLIES

Cuticle stick; germicidal dispenser soap (not bar soap); sterile scrub brush; sterile towel pack (with two to three sterile paper or cloth towels); sterile gloves (prepackaged); running water (foot pedal preferable)

METHOD

1. Remove all jewelry. With a nail file, remove any gross dirt from beneath fingernails before scrubbing.
Rationale: Microorganisms can accumulate in crevices of rings or watches and under fingernails.
2. Assemble equipment.
3. Stand at the sink without allowing your body to touch it.
4. Remove your lab coat. Roll up your sleeves above the elbows. Keep your hands and arms above waist level at all times.

Regulate running water temperature to warm, not hot.

6. Place hands under running water with hands pointed upward. Allow water to run from fingertips to elbows.
7. Apply a circle of soap from the dispenser and lather well.
8. Vigorously scrub your hands and wrists with a scrub brush (Figure A). Wash thoroughly between fingers. Scrub under fingernails. Scrub toward the elbows using five minutes on each hand (Figures B and C).
9. Raise hands, bending at the elbow, and place them under running water to rinse off soap (Figure D). Allow water to flow from fingertips to elbows (Figure E).
10. If performing a second lather and scrub is the policy in your facility, use three minutes for each hand.
11. Using a sterile towel (if possible), pat hands dry moving from fingertips to wrists, and then to elbows. Hands should still be held above the elbows (Figure F).
12. Turn off the faucet with a fresh towel if foot lever is not available (Figure G).
13. Glove immediately. Keep hands above waist and folded together until the procedure begins.

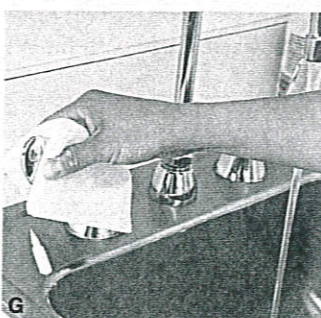
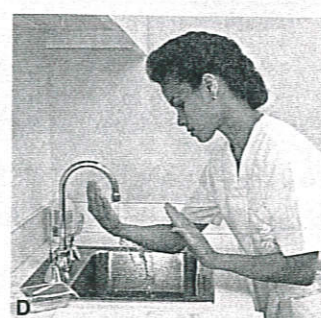
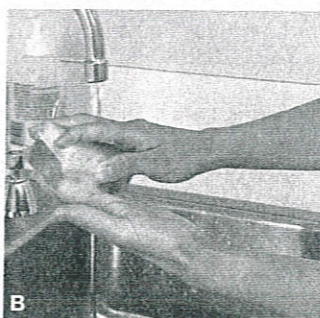
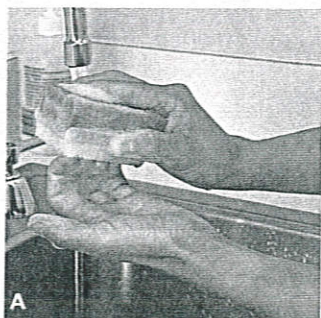


FIGURE A-G Performing sterile scrub/surgical hand hygiene.

face shield, gown, and gloves, preparing to assist with a surgical procedure. PPE provides a barrier between infectious or hazardous material and the wearer. Remember that if a sterile glove is punctured or if you touch the outside of the glove with your hand, the glove is considered nonsterile and must be replaced after you perform another surgical scrub. Procedure 41-2 lists the steps for surgical gloving and glove removal.

Sterile Packaging

Sterile packages (packets) are prepared for use in surgery. Each one may contain either a single instrument or piece of equipment or several items packed together. These packets are then autoclaved with sterilization indicators and dated. Sterile packs may be purchased from a medical supply company or packaged by the medical assistant in the office. To prepare sterile packets, you must know the names and uses of instruments routinely used in minor surgery (discussed later in this chapter). Review the

“Infection Control” chapter for packaging and autoclaving procedures.

Sterile packets are used for various procedures. For example, all the instruments needed for a procedure, such as a biopsy, are packaged together in a tray and autoclaved.

When you assist the physician or surgeon with a procedure, set up the specific tray or instruments before the procedure begins. The packets are set up on a **Mayo stand**, a small portable table with enough room to hold an instrument tray. For some procedures, you may need to use more than one Mayo stand. After you open the sterile packet, the inside of its wrapper becomes the **sterile field** (a specific area free of all microorganisms that will be the work area for a surgical procedure). However, the outer, 1-inch border all around the open wrapper is considered contaminated. If the field becomes wet, it is contaminated, and you must open a new packet. If the physician wants an additional instrument while performing a procedure, you will open a sterile packet and drop the instrument carefully onto the sterile field.

PROCEDURE 41-2

Donning and Removing Surgical Gloves

Objective ♦ *Apply sterile gloves without a break in sterile technique.*

Note: This procedure follows a surgical hand scrub.

EQUIPMENT AND SUPPLIES

Double-wrapped sterile glove pack

METHOD

1. Assemble equipment and check the tape or seal for expiration date and condition of pack.
2. Place the pack on a flat surface at waist height with the cuffed end of the gloves toward you.
3. Open the outside wrapper by touching only the outside of the pack. Leave the opened wrapper in place to provide a sterile work field.
4. Open the inner wrapper without reaching over the pack or touching the inside of the wrapper. Pull inner wrapper edges to each side without touching the inside of the pack (Figure A).
5. Using the thumb and fingers of your left hand (if you are right-handed), pick up the glove on the right side of the pack by grasping the folded inside edge of the cuff (Figure B). The glove can be dangled slightly off the sterile packing material for easier insertion.
6. Pull the glove onto the right hand using only the thumb and fingers of the left hand (Figure C). Do not allow fingers to touch the rest of the glove.
7. Place the fingers of the right-gloved hand under the cuff of the left glove and pull onto the left hand and up over the left wrist (Figure D).
8. With the gloved right hand, place your fingers under the cuff of the left glove and pull up over the left wrist (Figure E). The thumb should not touch the cuff.
9. After the gloves are in place, the fingers can be adjusted, if necessary, by using the gloved hands.
10. Removing gloves (Figures F–H): Remove the first glove by grasping the edge of that glove (with fingers of the other gloved hand) and pull the first glove over the hand inside out. Discard the first glove into the proper biohazard waste container. Remove the other glove by grasping the edge of the cuff with your fingers (from the ungloved hand) and pull the second glove down over the hand, inside out. Discard the gloves appropriately.

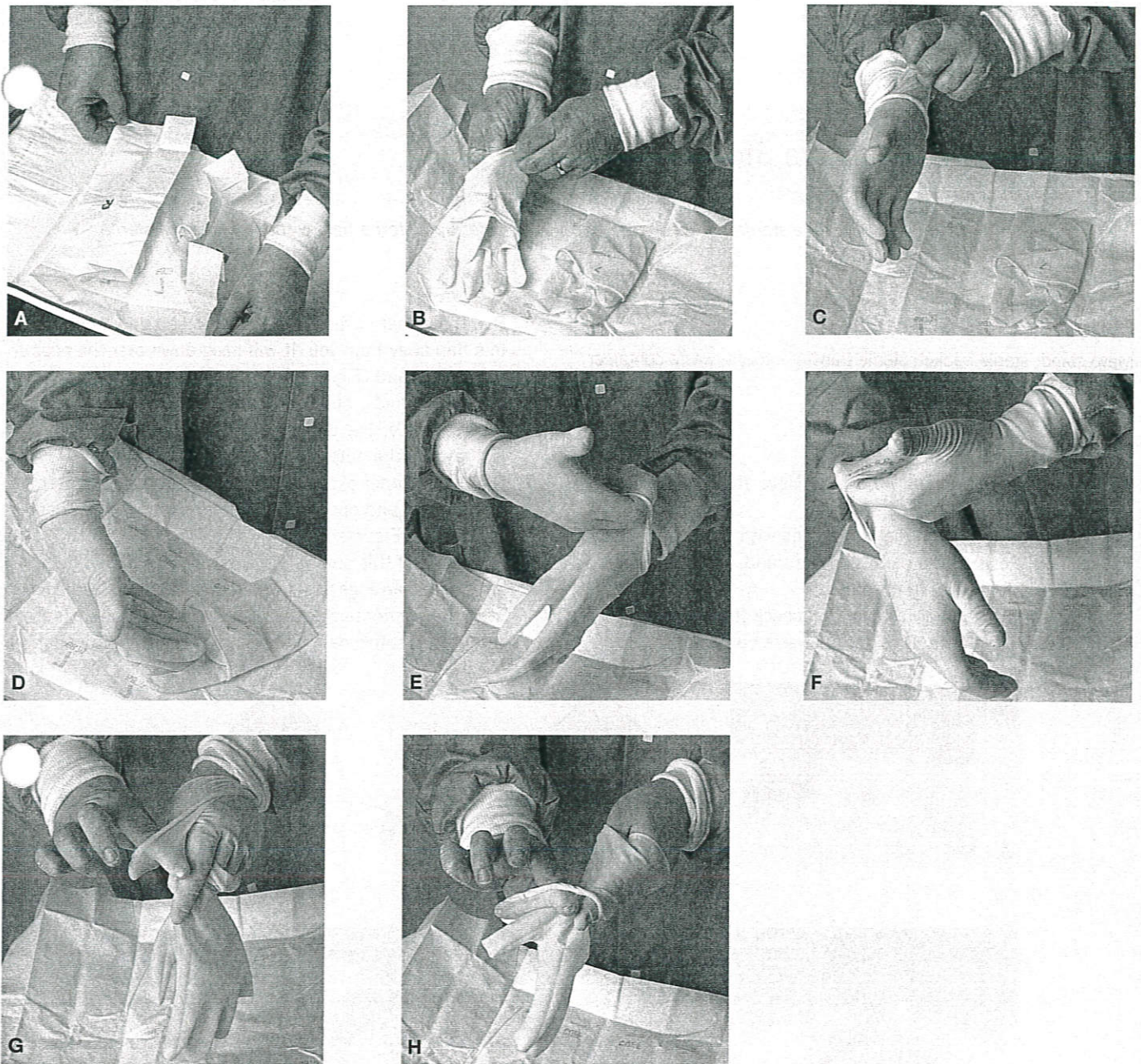


FIGURE A–H Sterile gloving and glove removal technique.

Procedure 41-3 and Figures A–F show the steps and rationale for preparing a sterile field. Procedure 41-4 shows how to perform within a sterile field. Figure A illustrates dropping a sterile item onto a sterile field.

Sterile Transfer

To place instruments and supplies onto a sterile field or to move them around on the sterile field, you must put on sterile gloves or use transfer forceps. In Procedure 41-4, Figure B illustrates the steps and rationale for transferring

sterile objects using transfer forceps. Remember not to reach across the sterile field or turn your back on the field unless it is covered with a sterile towel.

SURGICAL INSTRUMENTS

Surgical instruments have been developed over centuries to meet specific needs during an operation such as cutting, suturing, or grasping. In some cases, an instrument developed by a surgeon bears the name of the surgeon—for

PROCEDURE 41-3

Preparing a Sterile Field

Objective ♦ Open a sterile packet (pack), and use it to set up a sterile field without a break in sterile technique.

EQUIPMENT AND SUPPLIES

Mayo stand; sterile packet; sterile transfer forceps; waste container

METHOD

1. Perform hand hygiene.
2. Assemble equipment. Adjust the Mayo stand to the correct height.
3. Place the packet on the Mayo stand with the folded edge on top. Position the packet on the stand so that the top flap will fold away from you.
4. Remove the tape or fastener and check the sterilization indicator and date. Discard in a waste container.
5. Pull the corner of the pack that is tucked under and lay this flap away from you. It will hang down over the edge of the Mayo stand (Figures A and B).
6. With both hands, pull the next two flaps to each side (Figures C and D). The packet will still be covered with the last layer of the outer wrapper.
7. Grasp the corner of the last flap, without reaching over the sterile field, and open the flap toward your body without touching it (Figures E and F).
8. The inside of this outer wrapper is now your sterile field. If you need to arrange items within this field, use sterile forceps. If an inner packet must be opened with an instrument setup, then someone wearing sterile gloves must open it.

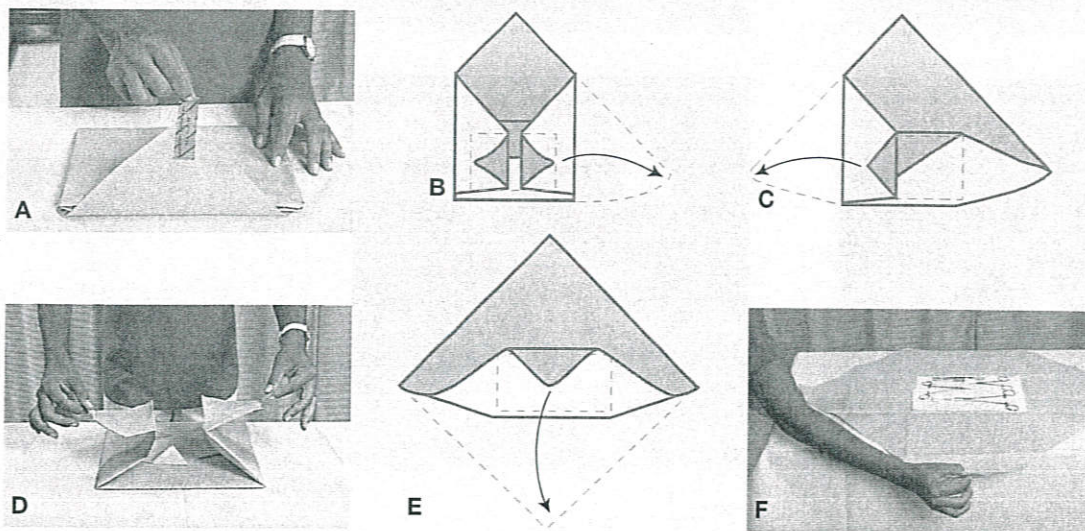


FIGURE A-F Preparing a sterile field.

example, Kelly forceps, Halstead mosquito clamp, and Bozeman uterine forceps.

Instruments Used in Minor Surgery in an Office

The general classification of instruments is based on their use: cutting, dissecting, grasping, clamping, dilating, probing, visualizing, or suturing. Specific instruments are related to individual specialties, such as gynecology; urology; orthopedics; ear, nose, and throat; proctology; obstetrics;

and neurology. A minor surgical setup includes a standard group of instruments, such as scalpel, blades, scissors, hemostat, and suture materials. Instruments are usually made of steel and treated to be rust and heat resistant, stain-proof, and durable. However, sometimes disposable instruments (such as disposable vaginal specula) are used for convenience.

You must be able to identify common instruments in your facility. Some physicians use the full name of the

PROCEDURE
41-4

Performing Within a Sterile Field

Objectives ♦ Place (drop) a sterile item onto a sterile field or into a gloved hand without contaminating the packet or the field, transfer items using transfer forceps, and pour sterile fluid into a sterile basin on a sterile field without spilling the solution or contaminating the field.

EQUIPMENT AND SUPPLIES

Sterile pack (containing, for example, prepackaged items such as a specimen container or needle and syringe in a pull-apart packet); sterile transfer forceps in a forceps container with a sterilant solution, such as Cidex; Mayo stand; sterile 4 × 4 gauze package; transfer forceps; sterile solution; sterile basin; waste container

METHOD

1. Assemble equipment; check the expiration date of packet, sterile solution, and solution basin; and check the sealed condition of packet.
2. Locate the edge on the prepackaged item and pull apart by using the thumb and forefinger of each hand. Do not let your fingers touch the inside of the packet. *Rationale:* The inside of the packet is sterile and the outside is considered contaminated.
3. Pull the packet apart by securely placing the remaining three fingers of each hand against the outside of the packet on each side. The wrapper edges will be pulled back and away from the sterile item.
4. Holding the item securely about 8 to 10 inches from the sterile field, gently drop the packet contents inside the sterile field (Figure A). Instead of having you drop the

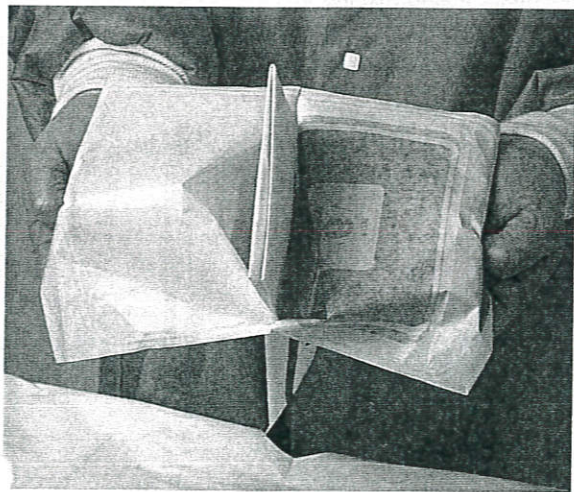


FIGURE A Dropping a sterile supply onto a sterile field.

item, the physician may wish to remove the item directly from the packet by grasping it firmly with a gloved hand. *Rationale:* Nonsterile hands and arms should not be placed over the sterile field.

5. Discard the paper wrapper in a waste container.
6. Grasp forceps handles firmly without separating the tips and remove vertically from the container. Remove vertically to avoid dripping solution onto the exposed contaminated portion of forceps.
7. Holding forceps vertically with tips down, gently tap tips together to drop excess solution onto dry sterile 4 × 4 gauze or touch the sterile 4 × 4 gauze to dry the tips.
8. Pick up the sterile item to be transferred by holding transfer forceps vertically with tips down. Do not touch the sterile field. Grasp the article to be transferred firmly at its midsection.
9. Place the sterile item within the sterile field (Figure B).
10. Place forceps back into the container without touching the sides of the container.
11. Set up the sterile basin on the Mayo tray using the inside of the wrapper to create a sterile field.
12. Remove the cap of the solution and place it on a clean surface with the outer edge down (inside facing up). Avoid touching the inner surface of the cap, which is considered sterile.
13. Check the label on the bottle before pouring the solution.

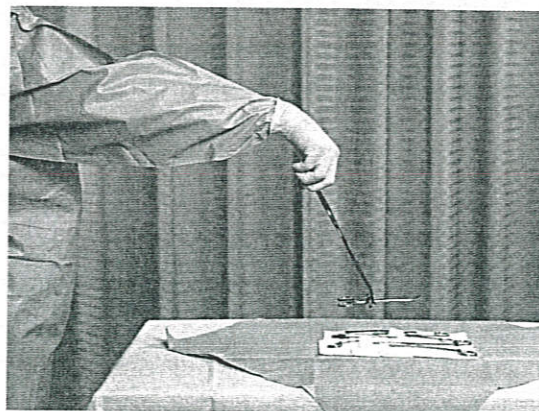


FIGURE B Proper technique to handle sterile equipment with transfer forceps in a sterile field.

14. Pour a small amount of the liquid into a waste container for discarding. This will dislodge any bacteria that may have collected on the edge of the bottle after opening it.
15. Pour the bottle with the label held against the palm (Figure C). This protects the label from drips that can destroy the name of the solution.
16. Hold the bottle about 6 inches above the basin and pour slowly to avoid splashing.
17. Replace the lid immediately after using.
18. Clean and sterilize the forceps and container in the autoclave. Change the solution.



FIGURE C Pouring sterile solution into a sterile container.

instrument—for example, Pederson vaginal speculum—and others refer to it simply as a vaginal speculum. The following tips will help you identify instruments.

- Categorize the instrument by its use: to cut, probe, grasp, clamp, retract, dilate, or other.
- Examine the parts of the instrument, and ask yourself the following questions:
 - What type of handles does it have (e.g., ring, serrated)?
 - What type of tip does it have (e.g., pointed, blunt, teeth, no teeth, serrated)?
 - What type of closure does it have (e.g., spring, box-lock with a screw, ratchet)?
 - What type of edges does it have?
 - How long is it (may indicate for which body part it is used)?
 - Whose name does it bear, or what is it usually called?

Each time you encounter an instrument you are unfamiliar with, answer the preceding questions to determine its characteristics and remember the name.

Cutting Instruments

Scalpels or knives are used to make **incisions**, which are surgical cuts into tissue. They are small, curved instruments that are made to fit easily into the surgeon's hand. Figure 41-3 illustrates a scalpel and a variety of blades. A scalpel blade must be inserted into the scalpel handle. Blades come in various sizes depending on the type of incision and tissue.

Dissecting Instruments

Scissors are the most common tool for dissecting or cutting tissue. For example, scissors are used for **debridement** (removal of dead tissue around wound edges using sterile technique) or to cut sutures (thread;

Professionalism The Life Span



Your role as a medical assistant participating in minor surgery procedures includes not only assisting with the procedure itself but also providing follow-up care, such as changing dressings and educating the patient on wound care at home. The goals in treating any wound are to encourage healing without infection and to avoid scarring and loss of function.

Patients present a variety of health conditions, range of ages, detrimental life habits, and preexisting conditions, of which impact wound healing. Wound healing may be hindered by poor circulation in patients such as older adults. A patient with diabetes may have impeded wound healing resulting from poor circulation and decreased resistance to infection. Patients with HIV or those who have been on immunosuppressant medication are slower to heal. Other factors that negatively impact the rate of healing are poor nutrition, obesity, smoking, alcoholism, recreational drug use, excessive stress, and excessive fatigue. Taking a holistic view of your patients will help you to discover factors that may impact wound healing.

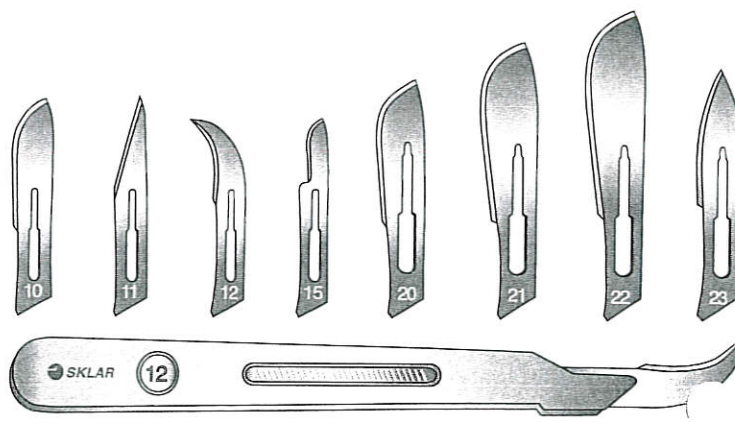


FIGURE 41-3 A scalpel and a variety of blades.

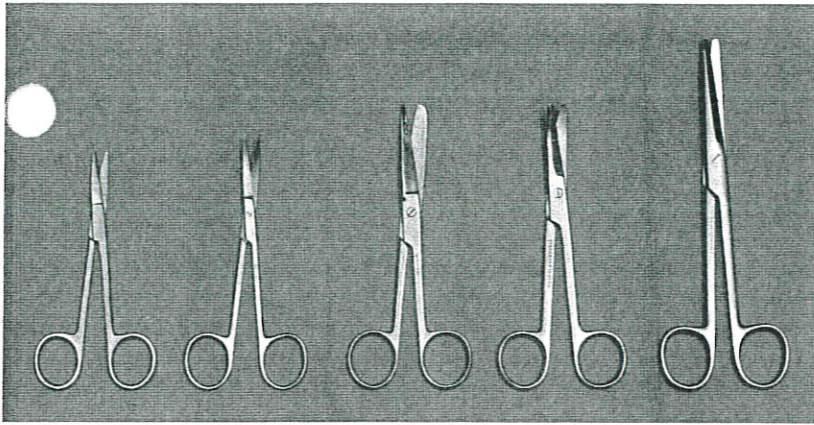


FIGURE 41-4 A variety of types of scissors.

stitches). Scissors have two blades with sharp edges that come together when the handles are drawn together.

The tips of scissors vary greatly to perform a variety of functions. Some scissors have blunt tips that can slide under bandages and dressings to cut without damaging the skin. Metzenbaum scissors are short, curved, and blunt and intended for use on and to prevent piercing of delicate tissue. Operating scissors or suture scissors are used to cut suture material during surgery; they have a hook on one edge that fits under the suture for ease in suture removal. Dissecting scissors are also called straight or Mayo scissors. Operating scissors are straight or curved with a combination of blades, such as sharp/sharp (s/s), blunt/blunt (b/b), and sharp/blunt (s/b). Bandage scissors have a blunt tip and a blunt flat edge to allow it to fit easily under a bandage for cutting. Figure 41-4 illustrates a variety of scissors.

Grasping and Clamping Instruments

Forceps are used to grasp tissue or objects (Figure 41-5). One type of forceps is a two-pronged instrument that has a spring-type handle used to clamp together tightly to prevent

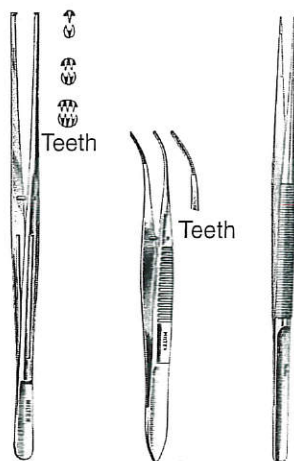


FIGURE 41-5 Types of forceps.

slipping. Another type of closure mechanism is a ratchet closure or clasp. The ratchet clasp allows the forceps to close with differing degrees of tightness. Forceps often have serrations or teethlike edges that prevent tissue slipping out of the forceps.

Types of Forceps. The following are several widely used types of forceps:

- *Tissue forceps* have teeth and are used to grasp tissue.
- *Thumb forceps* are two-pronged with serrated tips to hold tissue.
- *Splinter forceps* are used to grasp foreign bodies.
- *Needle holder forceps* are used to grasp needles during suturing.
- *Hemostats* are applied to blood vessels to hold vessels until they can be sutured (Figure 41-6).

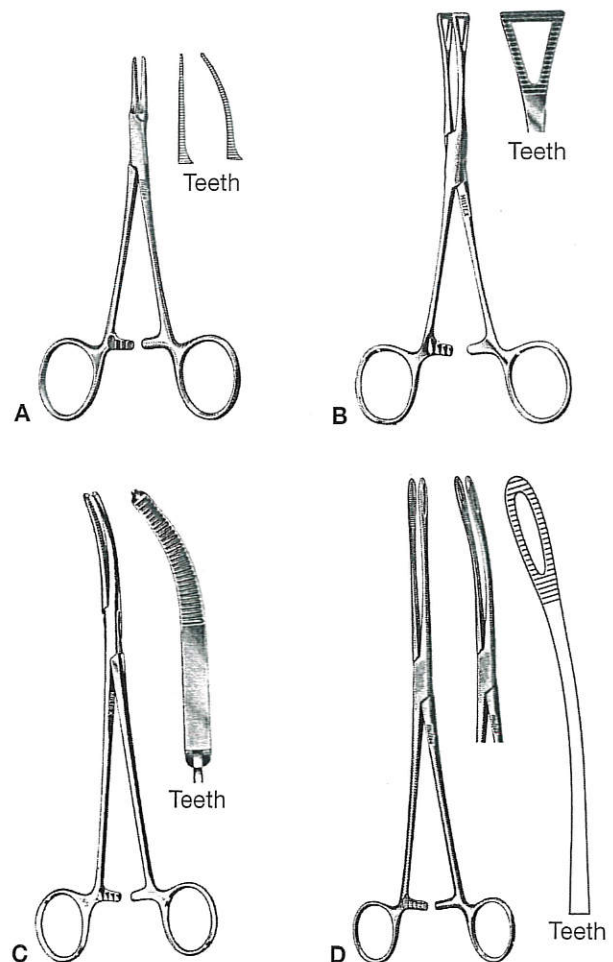


FIGURE 41-6 Hemostats: (A) mosquito forceps; (B) Pennington hemostatic forceps; (C) curved forceps; (D) sponge forceps.

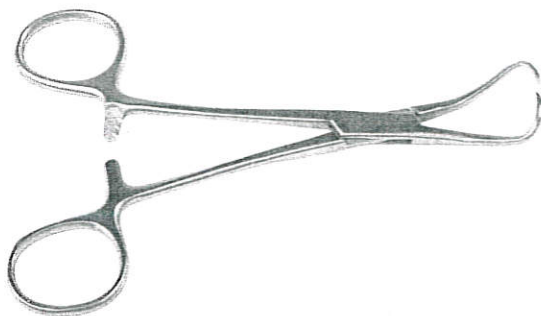


FIGURE 41-7 Towel clamp.

- *Sponge forceps* are used for holding sponges during surgery.
- *Towel clamps* are used to hold together the edges of sterile drapes (Figure 41-7).

Probing and Dilating Instruments

Instruments used to enter body cavities for probing or dilating purposes include the following:

- **Scope**—Usually lighted, it is inserted into a body cavity or vessel to visualize the internal structures. Figure 41-8 shows different sizes of laryngoscopes that are used to look at a patient's voice box or larynx. An obturator is placed inside a scope to guide it into a cavity or canal and then removed during visualization of the surgical site. Some obturators have a point used to puncture tissue.
- **Speculum**—Unlighted instrument with movable parts that when inserted into a cavity, such as the nasal

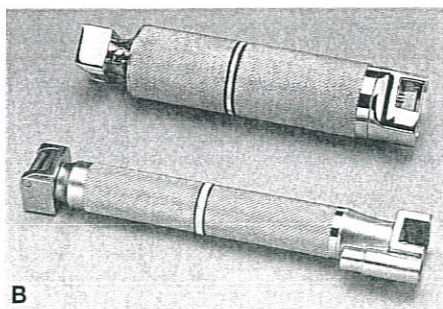
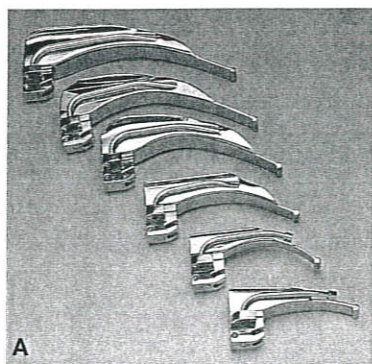


FIGURE 41-8 Laryngoscopes: (A) scopes; (B) handles.



FIGURE 41-9 Specula: (A) Vienna nasal speculum; (B) Ives-Finster rectal speculum.

cavity or rectum, can be spread apart for ease of visualization and tissue sample removal (Figure 41-9).

- **Probe**—Used to explore wounds and cavities usually with a curved, blunt point to facilitate insertion (Figure 41-10).
- **Retractor**—Used to hold back the edge of a surgical incision (Figure 41-11).



FIGURE 41-10 Lachrymal probes: (A) Bowman; (B) Williams.



FIGURE 41-11 Retractors.

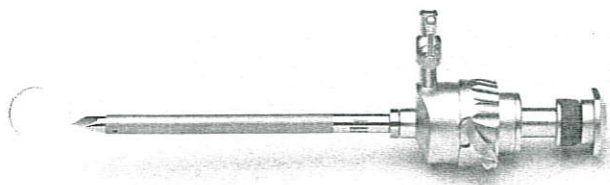


FIGURE 41-12 Trocar.

- **Trocar**—Used to withdraw fluids from cavities. It consists of a cannula (outer tube) and a sharp stylet that is withdrawn after the trocar is inserted (Figure 41-12).
- **Punch**—Used to remove tissue for examination and biopsy.

Specialized instruments are used for disciplines, such as gynecology and obstetrics (Figure 41-13), urology (Figure 41-14), and orthopedics (Figure 41-15).

Suture Materials and Needles

Suture (thread) materials are used to bring together or approximate a surgical incision or wound until healing takes place. Suture materials are added to the surgical tray setup when they are needed for a procedure. Sutures come either with or without an attached needle. The package label will indicate type, size, and length of the suture material. Suture types include absorbable and nonabsorbable.

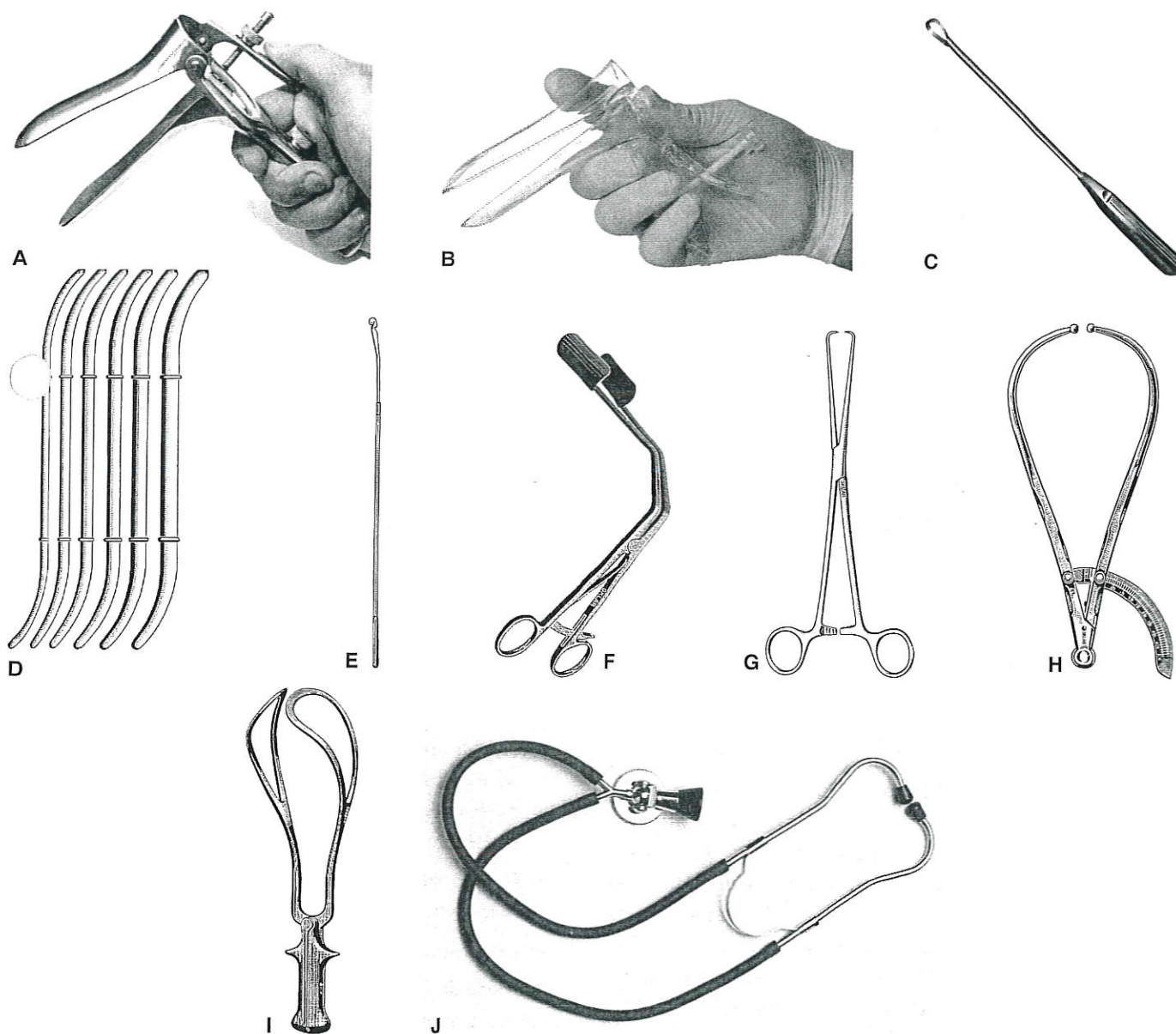


FIGURE 41-13 Gynecological instruments: (A) metal vaginal speculum; (B) disposable vaginal speculum; (C) uterine curette; (D) uterine dilators; (E) JD extractor forceps; (F) lateral vaginal retractor; (G) Schroeder uterine tenaculum forceps; (H) Martin pelvimeter; (I) De Lee OB forceps; (J) Bowles obstetrical stethoscope.

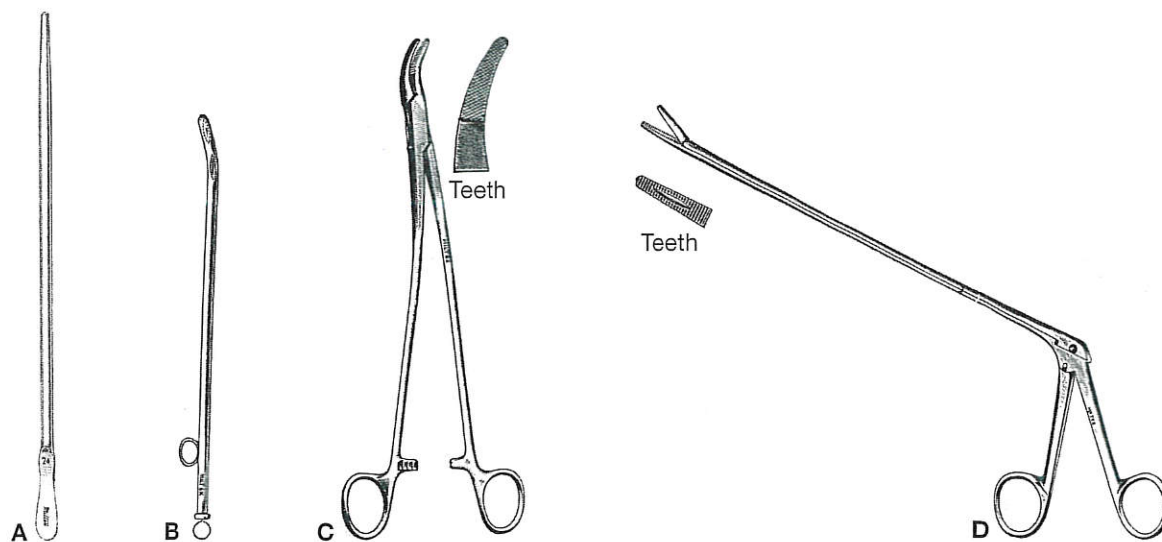


FIGURE 41-14 Urological instruments: (A) sound; (B) female catheter; (C) needle holder; (D) urethral forceps.

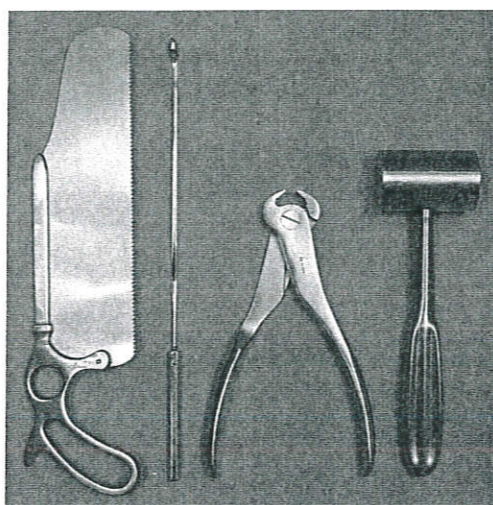


FIGURE 41-15 Orthopedic instruments.

Absorbable Sutures. Absorbable sutures are digested by tissue enzymes and absorbed by the body tissues. They do not have to be removed. Absorption usually occurs 5 to 20 days after insertion. This type of suture, such as surgical catgut (made from sheep's intestinal lining), or Vicryl, a synthetic material, is used for internal organs such as the bladder and intestines, subcutaneous tissue, and ligating or tying off blood vessels. They include plain catgut, surgical catgut, and chromic catgut. Plain catgut is used in areas where rapid healing takes place, such as highly vascular areas of the lips and tongue. Surgical catgut is used on tissues that are fast healing, such as the vaginal area. Chromic catgut has a slower absorption rate and can be used to hold tissue together longer, such as for muscle repair.

Nonabsorbable Sutures. Nonabsorbable sutures are used on skin surfaces where they can easily be removed after an

incision heals. This type of suture material, such as nylon, cotton, silk, Dacron, and stainless steel, is not absorbed by the body. Black silk is the most commonly used nonabsorbable suture.

Suture Material. Suture materials vary and are selected based on how they are used.

- Silk suture, although the most expensive, is also considered the most dependable. An all-purpose suture is widely used and easy to tie.
- Nylon suture has elasticity and strength that make it ideal for use in joints and for skin closure. The disadvantage is the difficulty in forming a tight knot.
- Polyester suture is the second strongest of all the standard suture material, and steel is the strongest.
- Polyester is used in ophthalmic, cardiovascular, and facial surgery, all of which require a strong, unbreakable suture because a broken suture could result in permanent damage to the patient.
- Steel is used in staples, as well as nonabsorbable suture wire that is composed of 316L stainless steel, and is the most widely used suture material in major surgery. It is the strongest of all suture material.
- Cotton suture, with less strength than other suture materials, is no longer widely used.
- Linen suture is created from natural flax fiber.

The size of the suture material, which is measured by the gauge or diameter, is stated in terms of 0s, decreasing in size with the number of zeros. For example, 0 is the thickest and 6-0 (000000) is the smallest. Sizes 2-0 through 6-0 are commonly used. Delicate tissue, on areas such as the face and

TABLE 41-2 | Suture Use, Size, and Type of Material

Use	Gauge	Type of Material
Blood vessels	3-0 to 0	chromic gut
	3-0	cotton
	3-0 to 0	silk
Eyelid	6-0 to 4-0	silk
	6-0 to 5-0	polyester
Fascial	2-0 to 0	chromic gut
	2-0 to 0	silk
	2-0 to 0	cotton
Muscle	3-0 to 0	plain gut
	3-0 to 0	chromic gut
	3-0 to 0	silk
Skin	6-0 to 2-0	Nylon
	5-0 to 3-0	polyethylene
	5-0 to 2-0	stainless steel

neck, would be sutured with 5-0 to 6-0 suture material. These fine sutures would leave less scarring. Heavier sutures, such as 2-0, would be used for the chest or abdomen. The physician determines the type and gauge of sutures to be used. Table 41-2 summarizes suture uses, sizes, and types. Figure 41-16 illustrates different suture material.

Suture Needles. Suture needles are available in differing shapes depending on where they are used (Figure 41-17). Needles have either a sharp cutting point used for tissues that provide some resistance, such as skin, or a round noncutting point used for more flexible tissue such as peritoneum. They are available in three shapes: straight, curved, or swaged.

The straight needle is used when the needle is pushed and pulled through the tissue without the use of a needle holder.



FIGURE 41-16 Types of suture material.

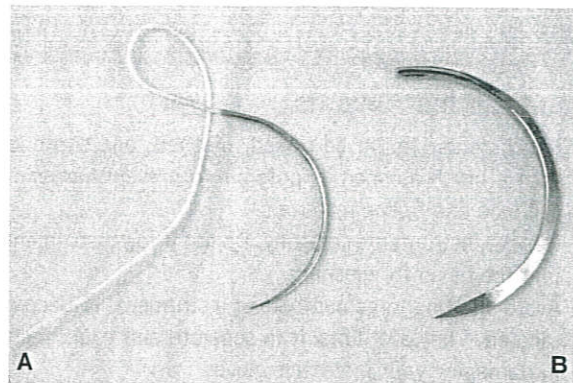


FIGURE 41-17 Surgical needle shapes: (A) taper point; (B) cutting point.

This type of needle has an eye that is threaded with the suture material. The suture material thickness doubles when threaded through the needle because it enters the eye from one side and comes out the other.

Curved needles allow the surgeon to go in and out of a tissue when there is not enough room to maneuver a straight needle. This type of needle requires a needle holder.

A swaged needle and suture materials are combined in one length. This offers the advantage of the suture material not slipping off the needle because it is attached. A swaged needle pack contains a label indicating the gauge, type of needle point (cutting or noncutting), and type and length of the suture material.

Other Wound Closure Materials. Other materials used for wound closure include sterile tapes such as Steri-Strips (Figure 41-18), staples, and skin adhesives such as Dermabond. Sterile tapes are nonallergenic and available in a variety of widths. They are used instead of sutures when not much tension will

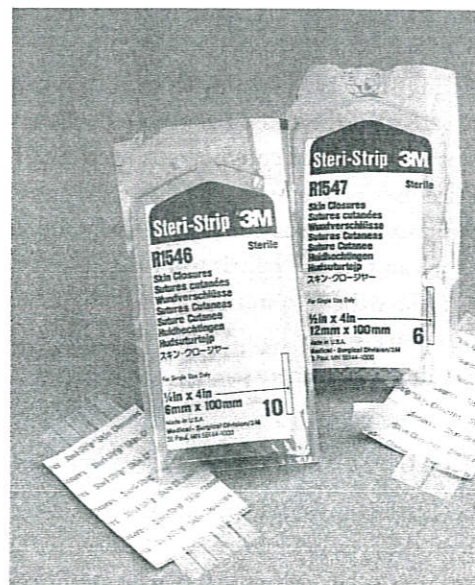


FIGURE 41-18 Steri-Strips from 3M.

Guidelines 41-2

Handling Instruments

- Instruments should be rinsed, cleaned, and scrubbed with a brush as soon as possible to prevent hardening of blood and tissue materials.
- Handle instruments carefully. Do not throw instruments into the basin for cleaning.
- Avoid allowing large numbers of instruments to become tangled. They are difficult to separate and could result in damaging your protective gloves.
- Sharp instruments should remain separated from other instruments.
- Delicate instruments, such as those with lenses, should be handled separately.
- Instruments with ratchets should be stored open to maintain their good working condition.
- Check all instruments for defects before sterilizing them. All tips should close tightly, scissors should cut evenly, and the cutting edges should be smooth.

be applied to a wound, such as on a small facial cut. Skin adhesives are composed of cyanoacrylate adhesives that react with water to create an instant, strong, flexible bond. The composition of skin adhesives is similar to Superglue and can be used to close lacerations or small surgical incisions. Staples are made of stainless steel and applied with a surgical stapler.

Guidelines for Handling and Care of Instruments

Surgical instruments are expensive and may be delicate. They require special care and attention. In some instances, there might not be a duplicate of an instrument. Even slight damage to an instrument can result in malfunction at a critical time during surgery. Instruments may be disposable, in which case care must be taken to dispose of them in sharps containers or biohazardous containers as necessary. However, if the practice uses instruments that are reusable, care must be taken to presoak used instruments in an appropriate solution, gently clean them of debris, lubricate them if needed, and then autoclave them to sterilize them. Store instruments according to office policy. Guidelines 41-2 provides guidelines for handling instruments.

SURGICAL ASSISTING

The medical assistant's role in surgical assisting varies depending on the type of practice and the needs of the physician. For example, an eye surgeon who performs a large number of outpatient cataract operations may employ a

full-time **scrub assistant**, scrub technician (scrub tech), or operating technician (OR tech) who will apply sterile gloves and hand instruments to the surgeon. In this case, the medical assistant might act as the nonsterile assistant, who positions the patient, uses transfer forceps to bring additional supplies as needed, holds the vial of local anesthetic while the surgeon draws up the correct dosage into a syringe, and applies dressings. Anyone not in sterile attire and assisting with a procedure can be described as a nonsterile assistant. This person may also be referred to as a floating assistant, circulating assistant, circulator, or floater.

In many practices, the medical assistant will scrub, apply sterile gloves, and act as the only assistant for the surgeon. A good assistant can help the procedure flow smoothly. The exact surgical tray setup and sequence of passing instruments vary depending on the procedure and the surgeon's preferences.

A good assistant anticipates the needs of the physician, uses care in handing instruments efficiently, uses care that injury does not occur, and accounts for all materials and instruments used during the procedure. The assistant must maintain an accurate count of absorbent sponges used for cleaning out the wound site during surgery to ensure that all sponges are removed before the patient's wound is closed.

Scrub Assistant

The scrub assistant performs all procedures in sterile protective clothing using sterile technique. The scrub assistant's responsibilities include arranging the surgical tray to meet the operating physician's preferences, handing instruments, swabbing (sponging) bodily fluids away from the operative site, retracting the incision area, and cutting suture materials. See Guidelines 41-3 for guidelines on sterile technique for scrub assistants. To become competent as a scrub assistant, practice reaching for an instrument with your eyes closed. This is similar to the conditions under which the physician works because he or she does not look up from the operative site when reaching for instruments.

Instruments should be passed to the physician firmly and by the handle first. An instrument should remain in your grasp until you feel confident that the physician has a firm grip on it. Figure 41-19 illustrates a medical assistant using proper technique when passing instruments to the physician. In Procedure 41-4, Figure C shows the steps for transferring sterile solutions onto a sterile field. All the preceding procedures are vital for you to master to properly assist the physician with minor surgery, as described in Procedure 41-5.

Floating Assistant

The floating assistant performs nonsterile duties during a surgical procedure and thus "floats" between the operating

Guidelines 41-3

Sterile Techniques for Scrub Assistants

- Always be aware of where your hands are, because they should never touch a nonsterile area. Immediately reglove if sterility is broken.
- Arrange the surgical tray for efficiency, closing all instruments that were left open during the autoclave process.
- Close all instruments before passing them. Protect the surgeon from injury by handing needles with the point away from the surgeon, paying close attention to where scalpel blades and scissors' points are in relation to the surgeon's hands.
- Anticipate the surgeon's needs by memorizing the types of instruments used in a procedure and the order they are most often used. An index card with a list of the preferences for each procedure is useful for this purpose.
- Do not release your grip on the instrument until you feel the surgeon take it away. This prevents an instrument from falling to the floor and being damaged. In addition, you may not have a duplicate of that particular instrument on your tray, and that will cause a delay in the procedure.
- Place the instrument with a firm "slap" into the surgeon's extended hand. Because the surgeon may not look up from the surgical site when his hand is extended, do not look away from the instrument until you feel it being taken from you. The handles should be placed into the surgeon's hands first.
- If asked to provide retraction to open the incision area for better visualization, follow directions from the surgeon regarding the amount of pull needed. Move slowly and deliberately when retracting. Do not make abrupt, forceful moves.
- If sutures are used to close the wound, be prepared to cut the suture material. The surgeon will pull both ends of the suture material together away from the wound. Cut both ends at the same time 1/8 to 1/5 inch above the knot.
- Many requests for assistance will not be verbalized by the surgeon. It is important to pay attention and anticipate what instruments or assistance will be required next.

table, supplies, and equipment. One of the major roles of the floating assistant is to monitor the patient by taking vital signs every 5 to 10 minutes. Other duties include providing additional sterile equipment, opening sterile packets, adding sterile equipment to the field, and performing the necessary counts of supplies used, such as gauze squares. Other guidelines for proper floating technique during surgery are listed in Guidelines 41-4.

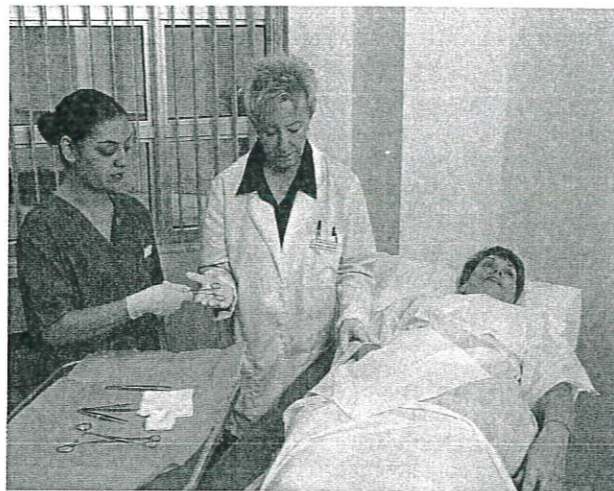


FIGURE 41-19 A medical assistant using the proper technique when passing instruments to the physician.

Guidelines 41-4

Floating Assistant Techniques During Surgery

- Immediately report any unusual observations about the patient to the operating physician.
- Use care not to touch the physician during any assisting because this will contaminate the physician and cause a delay in the procedure while the physician regloves (and regowns if necessary).
- Provide additional medications such as local anesthetics that are needed during the procedure. When providing medication during the procedure, follow the correct procedure to identify the medication, clean the top of the vial/bottle with alcohol, hold the vial/bottle upside down so that the physician can insert a sterile needle into the vial without touching the contaminated outer surface, and keep the label in plain view for the physician to read. Hold the vial firmly with both hands at your shoulder height to allow the physician easy access and withdrawal. Do not place the vial in front of your face. Note that the physician will have to use some force when inserting the needle into the vial.
- Because the floating assistant is not sterile, this person must perform all lighting adjustments, patient repositioning, chart notations made during the procedure, requisition forms, and specimen container labeling.
- The floating assistant can place additional sterile materials and instruments onto the sterile field by opening the packet without touching the sterile inside and gently dropping them into the sterile field on the Mayo stand. The sterile scrub assistant or physician may remove them from the inside of the packet as the floating assistant firmly holds on to the outside.
- When holding a container to receive a specimen, tilt the container slightly so the physician can place the specimen inside without touching the rim of the container.

PROCEDURE
41-5

Assisting with Minor Surgery

Objective ♦ Prepare all materials and equipment for immediate use in a surgical procedure using sterile technique.

EQUIPMENT AND SUPPLIES

Mayo stand; side stand; transfer forceps and container; sharps container; waste container/plastic bag; biohazard waste container; anesthetic; alcohol swab; sterile specimen container, depending on type of surgery; sterile pack (two pairs sterile gloves, towel pack, 4 × 4 sponge pack, patient drape, needle pack, and suture materials); instrument pack(s), including towel clamp pack; syringe pack; two sterile basin packs

METHOD

1. Perform hand hygiene.
2. Open sterile tray packs on the Mayo stand and side stand. Use the sterile wrapper to create a sterile field. The wrapper will hang over the edges of the tray.
3. Use sterile transfer forceps to move instruments on the tray or to place equipment from packets. Materials in peel-away packets should be flipped onto the tray.
4. Open the sterile needle and syringe unit and drop gently onto the sterile field. Use care not to reach over the sterile field.
5. Open the sterile drape packs and towel clamp packs.
6. Open a set of sterile gloves for the physician.
7. After the tray is ready with all equipment open and arranged, pull the edge of the sterile towel across the tray, using sterile transfer forceps. The sterile towel will provide a protective covering for the sterile tray until the procedure begins. The medical assistant should not leave the room once the tray is set up (Figure A).
8. When the physician has donned the sterile gloves, remove the sterile towel covering the tray of instruments.
9. Remove the towel by standing to one side and grasping the two distal corners, then lifting the towel toward you so that you do not reach over the unprotected sterile field.

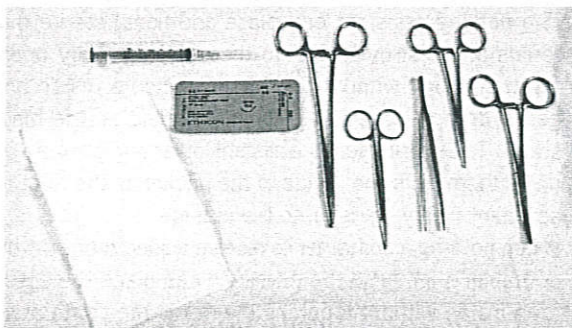


FIGURE A Sterile instrument setup.

10. Cleanse the vial of anesthetic with a sterile alcohol swab and hold it upside down in the palm of your hand with the label facing toward the physician. Hold it steady while the physician draws up the anesthetic.
11. Stand to one side of the patient and assist the physician as requested. Provide additional supplies as needed. If you assist by handing instruments directly to the physician, you must perform a surgical scrub and wear a sterile gown and gloves.
12. Hold all containers for specimens, drainage, or contaminated 4 × 4s. Wear nonsterile gloves to protect yourself from contact with drainage.
13. Collect and place all soiled instruments in a basin out of the patient's view.
14. Place all soiled gauze sponges (4 × 4s) and dressings in a plastic bag. Do not allow wet items to remain on a sterile field.
15. Immediately label all specimens as they are obtained. Close all specimen containers tightly.
16. Periodically reassure the patient by quietly asking how he is doing. Do not touch the patient with soiled gloves.
17. When the procedure is complete, wash your hands before assisting the patient. The patient will often be moved to a recovery area so the surgical area can be cleaned. To dispose of soiled dressings, use the following steps:
 - a. Remove gloves.
 - b. Place one hand into the empty plastic bag.
 - c. Using the hand covered with the plastic bag, pick up all the soiled materials. With the other hand, pull the outside of the bag over the soiled dressings.
 - d. Dispose of the bag in a biohazard waste container.
 - e. Perform hand hygiene and document the procedure.
18. Allow the patient to rest and recover from the anesthetic. Periodically check the patient's vital signs according to your office policy.
19. Provide clear oral and written postoperative instructions for the patient. Make sure the patient is stable before he leaves the office.
20. Send the specimen(s) to the laboratory with a requisition slip.
21. Clean, sanitize, and sterilize the instruments. Clean and sanitize the room in preparation for the next patient.
22. Perform hand hygiene.

CHARTING EXAMPLE

11/8/20YY 9:00 A.M. The physician will chart the details of this surgical procedure..... J. Wall, RMA

PREPARING THE PATIENT FOR MINOR SURGERY

A medical assistant is often responsible for providing instructions to the patient before and after minor surgery. Preoperative and postoperative instructions can be presented in a variety of formats, including one-on-one discussion, videotapes, brochures, pamphlets, and models. These instructions must be reinforced through one or more telephone reminders. It is especially important to provide postoperative instructions in a variety of formats because the patient may not be fully alert right after surgery. Family members should be included in these explanations whenever practical.

Patient Instructions

Box 41-1 provides guidelines for preoperative and postoperative instructions. For purposes of efficiency, some preoperative patient preparation can take place before the patient arrives for the procedure. For example, patient education with an explanation of the procedure, preoperative and postoperative instructions, and laboratory testing can take place up to a week before the actual procedure.

Preoperative instructions might include an explanation of what laboratory testing is needed and when it is to be done, food and fluid restrictions, directions for special bathing/cleansing preparations or cleansing enemas, and restrictions on bedtime sedative use. If a patient cannot safely drive home after a procedure, be sure to say that she may need to bring a friend or family member to provide safe transportation home.

Postoperatively, patients should have a clear understanding of what to expect during recovery and how to care for the surgical incision at home. If the patient has had anesthesia, you must ensure that the patient is able to safely drive home, has someone to drive her, or is using public transportation.

(Check this at the time of the surgery even though you may have given this instruction earlier.) Clear instructions about postoperative medications should be given in writing as well as verbally to the patient and possibly to family members, if appropriate. Further, the patient should be instructed about whether a return visit to the office will be necessary and when that should be scheduled.

Informed Consent

Although informed consent was discussed in depth in the chapter titled “Medical Law and Ethics,” it is important to re-emphasize it here as it pertains to minor surgery. The physician must provide the patient with an honest, thorough explanation of the surgical procedure, including the benefits and risks. (Informed consent is explained in more detail in the chapter titled “Medical Law and Ethics.”) Any invasive procedure with a scalpel, scissors, or other device requires written permission (consent) from the patient. Procedures in which a body cavity is entered for the purposes of visualization, though no incision is made, such as a bronchoscopy, cystoscopy, and colonoscopy, also require written consent. The procedure, with all the risks involved, must be explained by the physician. Every attempt must be made to determine if the patient actually understands the explanation given by the physician. The medical assistant can witness the patient’s signing the consent form.

Positioning and Draping

Before the surgical procedure, ask the patient to remove all clothing and put on a patient gown with the ties at the back, unless otherwise instructed. Have the patient void before assisting him onto the operating table, and place the patient in the proper position for the procedure. Every attempt should be made to ensure the patient’s comfort because the patient may have to remain in one position for

BOX 41-1 | Preoperative and Postoperative Patient Instructions

PREOPERATIVE INSTRUCTIONS

- Explain the procedure verbally and provide printed materials.
- Be honest about the level of discomfort expected.
- Advise the patient on the length of the procedure.
- Explain what type of clothing to wear for the procedure.
- Schedule preoperative diagnostic tests—blood, X-ray, etc.
- Describe what at-home preparations the patient will need, such as fasting, and for how long.
- Explain that someone must accompany the patient. Inform the patient how long he will be out of work.

- Confirm the informed consent form has been signed.
- Answer any questions.
- Measure vital signs.

POSTOPERATIVE INSTRUCTIONS

- Provide verbal and written instructions for follow-up care.
- Explain when the patient should notify the physician of possible postoperative problems, such as fever, bleeding, swelling, or other symptoms.
- Schedule a follow-up visit, if required.

Professionalism The Law



All patients must sign an informed consent form before any surgical procedure. It is not enough to just tell the patient what procedure she will undergo. The surgeon must also explain the risks, what might occur if nothing is done, and what other options are available. The medical assistant reinforces what the physician has explained and makes sure that there is a patient signature on the consent form before the procedure begins. If there is any doubt about the patient's ability to understand the instructions, the medical assistant must bring this to the physician's attention. Preoperative and postoperative instructions should be read to the patient and clarified, if necessary.

Sterility cannot be compromised during a surgical procedure. The medical assistant has an ethical duty to provide the safest surgical environment possible for the patient.

Confidentiality must be maintained regarding any surgical procedure a patient undergoes. It is the physician's role to give the patient results of surgical procedures, biopsies, and tests.

Insurance information must be accurately documented. It is considered fraudulent to knowingly provide inaccurate information to an insurance company.

an extended period of time. General guidelines for positioning and draping are discussed in the chapter titled "Assisting with Physical Examination."

Anesthesia

Anesthesia, medication that causes the partial or complete loss of sensation, is used to block the pain of surgery. Anesthesia can also relax muscles, produce amnesia, calm anxiety, and cause sleep. Medical assistants do not administer anesthetics, but they should be familiar with them and their effects.

The two types of anesthetics are general and local (conduction).

General Anesthesia

A general anesthetic depresses the central nervous system (CNS) to cause unconsciousness. It is usually administered through inhalation or intravenous (IV) injection. Inhaled anesthetics are generally in the form of gases or volatile liquids. In many cases, these are administered after a patient has received a sedative or narcotic to relieve pain or a tranquilizer to relieve anxiety. Sedatives and narcotics are usually administered intramuscularly before surgery. In some cases, they are administered by IV immediately before the general anesthetic is given.

Anesthetics are hypnotic sedatives that produce anesthesia, or sleep, when given in large doses, such as sodium pentothal. Precautions to be taken when administering a general anesthetic include the following:

- Administering the anesthetic only to a patient on an empty stomach to prevent vomiting and possible aspiration of vomitus into lungs resulting in pneumonia.
- Cautioning patients not to drive or engage in other activity that could result in harm from impaired consciousness. General anesthetics can interfere with the patient's alertness for 12 to 24 hours after the surgery.
- Advising patients to avoid alcohol and depressant drugs for two to three days before the surgery and one day after the surgery.

Local Anesthesia

Local anesthetics provide a loss of sensation in a particular area of the body without overall loss of consciousness. A local anesthetic is also referred to as a conduction anesthetic. The conduction of pain transmission by way of the nervous system is blocked. The following are examples of this type of anesthetic:

- **Topical and local infiltration**—Acts on nerve endings
- **Nerve block**—Affects pain transmission along a single nerve
- **Regional, spinal, epidural, or saddle block**—Affects a group of nerves

A local infiltration anesthetic is injected directly into the tissue that will be operated on. Examples of a local are lidocaine hydrochloride (Xylocaine) and procaine hydrochloride (Novocaine). This type of anesthetic is used for such procedures as removal of skin growths, skin suturing, and dental surgery. Local anesthesia takes from 5 to 15 minutes to become effective and lasts from one to three hours. During longer procedures, additional injections of anesthetic may have to be administered when the first dosage wears off.

Epinephrine, a vasoconstrictor that causes superficial blood vessels to narrow, is often added to the local anesthetic when the physician is operating on the face and head. The addition of epinephrine allows for better visualization of the surgical site because it diminishes bleeding. Epinephrine causes local anesthetics to be absorbed by the body more slowly and gives them a longer-lasting effect. Clearly mark anesthetics that have been prepared with the addition of epinephrine. Patients with heart problems could have a reaction to epinephrine, causing tachycardia or other irregularities.

Nerve blocks are administered by injection into a nerve adjacent to the operative site. This type of anesthetic is used for surgery on hands, fingers, and toes.

Topical anesthetics are local pain control medications that are applied to the skin and produce a numbing effect. These can be applied by drop, spray, or swab. They are commonly used in eye procedures. An example of a spray anesthetic is ethyl chloride, which produces a freezing effect on the skin. Benzocaine (Solarcaine) is another example of a topical anesthetic.

Administering Anesthesia

Only physicians or anesthesiologists can administer an anesthetic, and only they must chart the administration. Either the medical assistant or the physician will draw up the local anesthetic. (The correct procedure for drawing up medication is discussed in the chapter titled “Administering Medications.”) The medication vial must be correctly identified and then wiped with an alcohol sponge. If the medical assistant draws up the medication, then the medical assistant must present both the syringe and the vial to the physician so that the physician can read the label. The anesthetic will be injected into the patient’s prepared skin by the physician before the physician has donned gloves. This syringe is not placed onto the sterile field because it has been contaminated by the medical assistant’s ungloved hands.

If the physician prefers to draw up the anesthetic, it can be done using a sterile syringe after the physician has applied

gloves. The medical assistant will hold the vial securely while the physician withdraws the anesthetic without contaminating the needle. The outside of the vial cannot be touched by the physician’s sterile gloved hand. This syringe can then be placed onto the sterile field.

Some physicians prefer to change the needle after drawing up the local anesthetic. For example, they may draw up the drug using a 21-gauge needle and then administer the solution using a 23-gauge or 25-gauge needle.

Preparation of the Patient’s Skin

Although skin cannot be sterilized, it can be cleaned using medical aseptic technique. Careful cleansing of the skin before performing a surgical procedure reduces the number of microorganisms on the skin. This decreases the chance of carrying infection-producing microorganisms through the skin during the invasive procedure (incision into skin or entrance of a probe).

In some situations, the physician may order the surgical site to be shaved because bacteria can reside in hair. See Procedure 41-6 and Figure A for skin preparation and shaving instructions. Care must be taken to avoid scraping or cutting the skin during the shaving process. The physician will order either a wet shave (moistening the skin with soap and water) or dry shave (Figure B). Some physicians feel that shaving the skin presents more risk of skin injury and prefer only to have the patient’s skin cleansed carefully.

PROCEDURE 41-6

Preparing the Patient’s Skin for Surgical Procedures

Objective ♦ *Prepare the patient’s skin for a surgical procedure using a sterile scrub and shave.*

EQUIPMENT AND SUPPLIES

Antiseptic germicidal soap; sterile saline; antiseptic such as Beta-dine; eight sterile applicators; Mayo tray; waste receptacle (may be included in sterile pack); biohazard waste container; plastic bag for soiled dressings; sterile pack (sterile gloves, three to four towel packs, sterile basin pack with three basins, patient drape, 4 × 4 gauze sponge pack with 12 to 24 sponges, shave preparation kit)

METHOD

1. Perform hand hygiene.
2. Assemble equipment by placing packs on a Mayo stand or side tray and opening outer wraps from all packs.
3. Identify the patient and explain the procedure.
4. Have the patient remove appropriate clothing and put on gowning. Ask the patient to void, if necessary.
5. Position and drape the patient to provide exposure of the operative site.
6. Unwrap the basin pack. Pour germicidal soap solution into one basin, sterile saline into the second basin, and antiseptic into the third.
7. Wash hands using sterile scrub, and apply sterile gloves.
8. Drape the skin with two towels placed 3 to 5 inches above and below the surgical site.
9. With a sterile gauze or sponge, apply soapy solution to the patient’s skin. Use a circular motion starting at the site of the proposed incision and move outward (Figure A). Pass

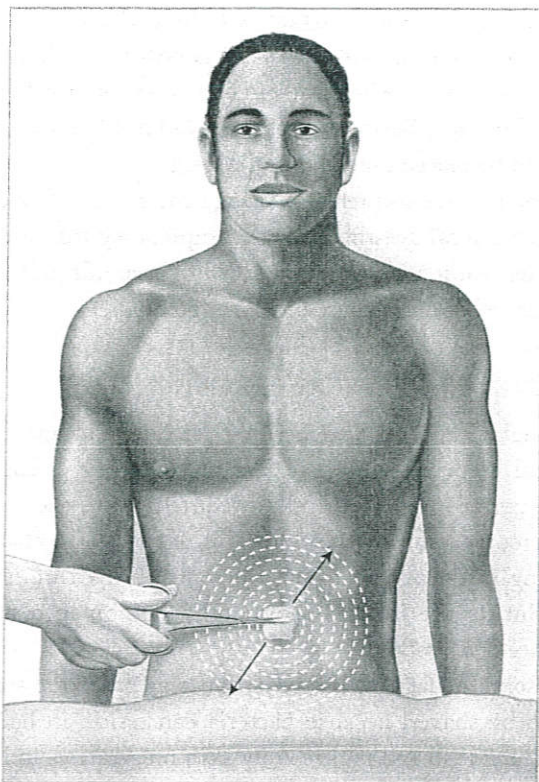


FIGURE A Preparing the patient's skin at the surgical site.

over each skin area only once. Place each used sponge into a waste receptacle immediately.

10. Take a fresh sterile gauze or sponge for each cleansing wipe. Repeat this process until the area is completely washed. The last area cleansed will be the outer edges.
11. Rinse using sterile saline on a clean gauze or sponge. Pat dry with a dry gauze only on the area that has been washed. Avoid touching any other skin area.

If shaving is ordered, then proceed with the following steps:

1. Apply soap solution to the site area. Remove the razor from the shave preparation pack. Pull the skin taut and shave the surgical site in the same direction as the hair is growing. Rinse with a saline solution using the single-pass, circular motion as before and pat it dry.



FIGURE B Dry skin prep tray.

2. Reapply soap solution to the area and repeat the preceding process according to your office policy (around five minutes).
3. Pat the entire area dry with the third sterile towel.
4. Apply the antiseptic solution using two cotton applicators together in the same single-pass, circular motion.
5. Cover the prepared surgical site with the remaining sterile towel.
6. Properly dispose of gloves and soiled materials in a bio-hazard waste container.

Instructions for a dry shave Some physicians prefer that the patient receive a dry shave. To remove hair, electric clippers are preferred to razor blades because they lessen the likelihood of accidental nicks in the skin.

1. Clip the hair as short as possible with scissors.
2. Apply firm traction to the skin with the nondominant hand.
3. Remove hair in the direction of hair growth. Never shave against the grain, as this will cause unnecessary irritation to the skin and increase the likelihood of nicks.

CHARTING EXAMPLE

3/12/YY 11:00 A.M. Pt arrived for removal and biopsy of growth on outer aspect of left forearm. Surgical site prepared using Betadine. No cuts or lesions noted.....J. Wall, RMA

POSTOPERATIVE PATIENT CARE

Postoperative care includes monitoring the patient during recovery from anesthesia, wound care, applying dressings, and communicating patient instructions. Patient education addresses more about instructing patients on home care of wounds.

Recovery from Anesthesia

Topical and other local anesthetics take effect either immediately or within a few minutes. Their effects wear off quickly.

The use of large amounts of local anesthetic, beyond normal dosages, is not recommended and may result in an adverse reaction in patients. Some patients are allergic to anesthetics and may slip into anaphylactic shock, which requires emergency treatment (see the chapter titled "Assisting with Medical Emergencies"). An emergency tray or cart stocked with drugs used to counteract shock should always be available in the office. Many facilities require employees to have current CPR certification.

To prevent choking on food or burning the mouth, patient treated in the mouth or throat with a local anesthetic

TABLE 41-3 | Local Anesthetics

Anesthetic Agent	Use
Benzocaine	Topical use only
Chloroprocaine	Nerve block, epidural
Lidocaine (Xylocaine)	Infiltration or topical
Mepivacaine	Infiltration nerve block
Procaine (Novacaine)	Infiltration; seldom used now
Tetracaine	Infiltration, topical nerve block, spinal

should be advised not to eat until the effects of the anesthetic wear off. Table 41-3 contains examples of local anesthetics. Patients must be observed carefully after surgery for signs of adverse reaction to the anesthetic, bleeding, and circulatory problems. The patient's vital signs (blood pressure, temperature, pulse, and respiration) should be monitored immediately after surgery and then every 15 minutes for the first hour. Never give fluids to a patient who is not fully alert. This can result in choking. Oral medications for pain, nausea, and vomiting have to be withheld until the patient is fully recovered from anesthesia. Medications may be given by injection until recovery occurs.

Excessive disorientation and inability to revive within a small recovery time should be reported immediately to the physician. Observe the patient for nausea and vomiting. The physician may order medications to counteract nausea and vomiting.

Types of Wounds

The skin acts as a protective barrier and is the body's first line of defense. Any break in the skin, whether from injury or a surgical incision, is referred to as a wound. A surgical procedure requiring an incision through the skin is considered an invasive procedure because a wound is created when the skin is entered. Wounds cause blood vessels to rupture and blood to seep into tissues, which results in skin color changes. Typically, skin coloration changes from erythema in a fresh wound to a greenish yellow color during the healing process, which involves oxidation of blood pigments. There are four types of wound classification:

- **Abrasion**—Outer layers of skin are rubbed away because of scraping; will generally heal without scarring.
- **Incision**—Smooth cut resulting from a surgical scalpel or sharp material, such as razor or glass; may result in excessive bleeding and scarring if deep.
- **Laceration**—Edges are torn in an irregular shape; can cause profuse bleeding and scarring.

- **Puncture**—Made by a sharp, pointed instrument such as a bullet, needle, nail, or splinter; external bleeding is usually minimal, but infection may occur because of penetration with a contaminated object, and there may be scarring.

Wounds are also briefly discussed in the next chapter, "Assisting with Medical Emergencies and Emergency Preparedness."

The Healing Process

Wounds pass through various stages of healing, including inflammation, as the body starts to fight off potential infection. Inflammation is the body's protective response to trauma and invasion by microorganisms; it is generally localized around the site of trauma or infection. Signs of inflammation are redness (erythema), swelling, warmth, and pain. Wounds go through three phases before healing or restoration of structure and function take place:

- **Inflammatory phase (3 days)**—Blood clot forms to stop bleeding and plug the opening of a wound; **eschar** or scab forms to keep out microorganisms.
- **Proliferating phase (3 to 21 days)**—Fibrin threads extend across the opening of a wound and pull edges together; cells multiply to repair the wound.
- **Maturation phase (21 days to 2 years)**—Tissue cells strengthen and tighten the wound closure, form a scar; scar eventually fades and thins.

Wound Complications

Wound complications include infection (signs of inflammation, purulent or puslike drainage, fever); hemorrhage or bleeding; **dehiscence** (separation of wound edges); and **evisceration** (separation of wound edges and protrusion of abdominal organs). Uneven or ragged-edged wounds and large wounds take more time to heal. Without proper wound care, infection will set in. Infection is the result of wound contamination during or after the injury or surgical procedure. Drainage occurs as fluid and cells escape from the tissues during the inflammatory phase of wound healing. The amount and type of drainage observed on a dressing should be charted. The following are types of wound drainage:

- **Serous drainage**—Clear, watery drainage, such as the fluid in a blister.
- **Sanguineous drainage**—Bloody (bright red is fresh blood, dark red is older blood); the amount and color of sanguineous drainage is important.
- **Serosanguineous drainage**—Thin watery drainage tinged with blood.
- **Purulent drainage**—Thick puslike drainage that is green, yellow, or brown.

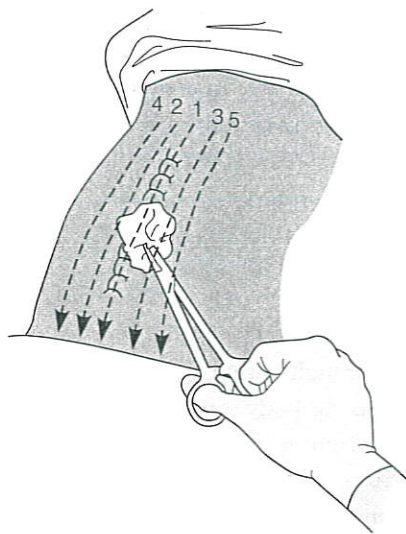


FIGURE 41-20 Cleanse a linear wound by using a new sterile gauze pad for each stroke, beginning next to the wound and working from the top to the bottom of the wound area.

Cleansing a Wound

A wound must be cleaned before a sterile dressing can be applied. The physician will indicate which of the many products available for wound cleansing is preferred. Warm water and soap are used to remove surface dirt from around the wound area.

To clean a wound using a sterile gauze or swab, work from the clean area near the wound outward to less clean areas. This will prevent dragging more microorganisms into the wound. Wipe in one direction and then discard the sterile swab or gauze. Cleanse a linear wound from top to bottom with one stroke per sterile gauze or swab (Figure 41-20). Use a new sterile gauze or swab for each stroke. Work outward from the wound in parallel lines. To cleanse an open wound, such as a pressure ulcer, work in circles, half or full, beginning in the center and working outward (Figure 41-21).

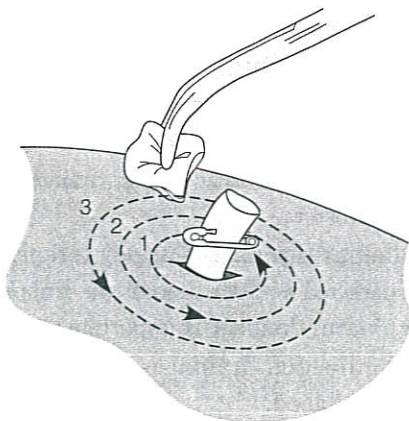


FIGURE 41-21 To cleanse an open wound, begin close to the wound and work outward in full or half circles.



FIGURE 41-22 Wound closure kit.

Always clean at least 1 inch beyond the edge of the dressing to be applied. If no dressing is to be applied, clean 2 inches beyond the edges of the wound. Use a new gauze pad for each circle.

The size and shape of the dressing needed depend on the size, location, and amount of drainage from the wound. Size 4 × 4 gauze pads ("four by fours") are used for most dressings. If drainage is expected from the wound, a prepared dressing, such as Telfa, may be used to prevent the dressing from sticking to the wound. See Figure 41-22 for an example of a wound closure kit.

Each patient should be asked how long it has been since she received a tetanus shot. In the event that the shot was not received within the previous 10 years, the physician should be informed. Procedure 41-7 describes how to perform wound care.

Sutures

As already discussed, a suture is a thread used to sew together body tissues. Sutures used to attach tissues beneath the skin are often made of an absorbable material that disappears in several days. Skin sutures, by contrast, are made of nonabsorbable materials such as silk, cotton, linen, wire, nylon, and Dacron (polyester fiber). Silver wire clips or staples are also available. Sutures or staples are inserted by the surgeon at the end of a procedure to hold tissues in alignment during the healing process. The steps necessary to assist with suturing are given in Procedure 41-8. Sutures generally remain in place five or six days and then have to be removed if they are nonabsorbable. If sutures remain in the body too long, they

PROCEDURE
41-7

Performing Wound Care and Changing a Dressing

Objective ♦ *Cleanse a wound and change a wound dressing using sterile technique.*

EQUIPMENT AND SUPPLIES

Disposable gloves; antiseptic solution; solution container; prepackaged dressing pack; thumb forceps; sterile cotton balls; sterile gloves; sterile dressing; adhesive tape; scissors, if necessary for tape; waste container/plastic bag; biohazard waste container; Mayo stand or side tray

METHOD

1. Perform hand hygiene.
2. Assemble equipment using the Mayo stand.
3. Explain the procedure to the patient.
4. Assist the patient into a comfortable position with the area to be dressed resting on a support, such as an examination table.
5. Apply nonsterile gloves.
6. Prepare the sterile field, using aseptic technique and a prepackaged dressing packet. Employ sterile transfer forceps to place additional sterile items on the sterile field.
7. Remove the dressing from the wound by using gloved hands or forceps to loosen the tape; then pull the dressing from both sides toward the wound (Figure A). Inspect the wound for signs of infection and inflammation. Note any discharge by its type, amount, and color (Figure B).
8. Dispose of the soiled dressing in a biohazard waste container. Be careful not to pass the soiled dressing over the sterile field during this step. The dressing should not touch the outside of the biohazard container or its edges (Figure C).
9. Discard gloves and contaminated forceps properly. Place disposable gloves and forceps in a biohazardous waste

container. Reusable forceps are placed in the basin for later cleaning.

10. Pour the antiseptic onto several cotton balls in a sterile bowl until they are moist but not saturated.
11. Perform handwashing.
12. Open sterile gloves and apply properly.
13. Cleanse the wound by using sterile forceps to hold the cotton while moving from top to bottom of the wound once. Use a new cotton ball with antiseptic for each wipe. Move from the inside of the wound to the outside edges.
14. Pick up the sterile dressing with gloved hands and place over the wound.
15. Discard gloves and forceps.
16. Apply adhesive tape to hold the dressing in place. Do not apply too tightly as to restrict circulation. The strips of tape should be long enough to hold the dressing in place. Do not wrap the tape entirely around an extremity or completely cover the dressing.
17. Instruct the patient on dressing care, and to schedule a follow-up appointment to see the physician.
18. Chart the procedure, including the date, time, location, and condition of the wound and the instructions given to the patient.

CHARTING EXAMPLE

2/14/YY 11:00 A.M. Dressing change on right anterior forearm. Moderate amount of serous drainage with slight erythema surrounding wound. Incision healing well with edges aligned. Cleansed with Betadine. Sterile dressing applied. Pt. instructed on wound care.....M. King, CMA (AAMA)

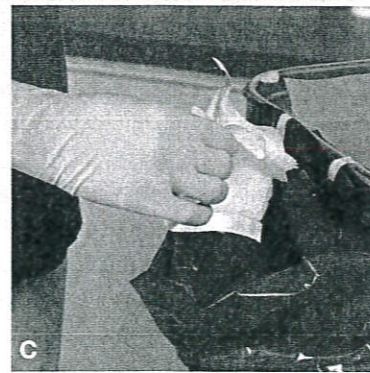
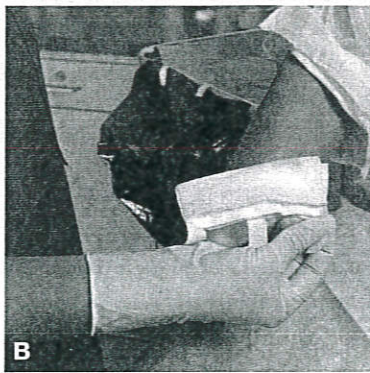
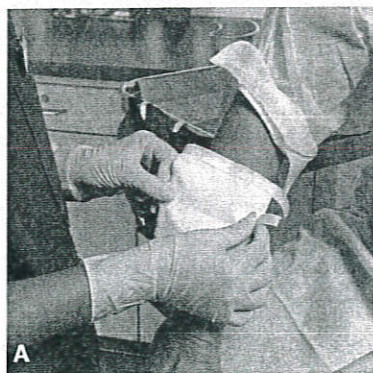


FIGURE A–C Wound dressing (A) removal; (B) inspection; and (C) disposal.

PROCEDURE
41-8

Assisting with Suturing

Objective ♦ Assist with suture repair of an incision or laceration using sterile technique.

EQUIPMENT AND SUPPLIES

Mayo stand; side stand; anesthetic; sterile transfer forceps; sterile saline; waste container/plastic bag; biohazard waste container; sharps container; sterile gloves (two pairs); sterile pack(s) (patient drape, towel pack with four towels, 4 × 4 gauze sponge pack); scalpel blades pack (Nos. 10 and 15); needle and syringe pack; suture and needle pack (according to physician's preference); two sterile basins; suture pack (scalpel handle, needle holder, thumb forceps, two scissors, three hemostats)

METHOD

1. Use a sterile scrub and gloving procedure.
2. Stand across from the physician.
3. Place two sponges ready for the physician near the wound site.
4. Assist by using additional sponges to keep the wound dry.
5. Pass instruments, such as scissors, to the physician using a firm snap of the handle into the physician's hand without letting go until the physician has a firm grasp.
6. The blade is placed into the scalpel using a hemostat.
7. Hand the scalpel to the physician with blade edge down to avoid cutting the physician.
8. Continue to use sponges to keep the wound free of drainage.
9. Pass all instruments to the physician as requested. Try to anticipate the next instruments that the physician may need, such as another hemostat or scissors for cutting a suture.
10. Pass the toothed forceps to the physician if laceration edges need to be grasped.
11. Mount the needle into the needle holder and pass as one unit to the physician, using care to keep the suture within the sterile field. Pass the needle holder with the needle pointing outward. Hold the suture with the other hand, and do not let go of it until the physician sees it.
12. Using the suture scissors, prepare to cut the suture as directed by the physician (usually $\frac{1}{8}$ to $\frac{1}{4}$ inch from the knot).
13. Sponge the closed wound once with a sponge and discard.
14. Repeat this step with each suture.
15. Apply a layer of sterile dressing over the wound, such as a sterile gauze pad. You may use forceps if preferred. The sterile dressing should extend a minimum of 2 inches past all edges of the wound.
16. Apply a second layer of gauze over the wound site.
17. Add a final third layer of wound dressing, such as a SurgiPad.
18. Secure the edges of the dressing with paper tape or similar product. Some physicians prefer the wound be covered with a clear, waterproof membrane such as Telfa. Paper tape is often used because it contains a less intense adhesive, lowering the risk for adverse skin reactions.
19. After they are used, place all soiled instruments on the sterile field if they will be used again; discard others in the instrument basin.
20. When the procedure is complete, remove your gloves and perform hand hygiene before assisting the patient.
21. Allow the patient to rest and recover from the anesthetic. Periodically check the patient's vital signs according to your office policy.
22. Provide clear oral and written postoperative instructions for the patient. Make sure the patient is stable before he leaves the office.
23. Clean, sanitize, and sterilize the instruments. Clean and sanitize the room in preparation for the next patient.
24. Perform hand hygiene.

CHARTING EXAMPLE

2/14/YY 1:00 P.M. Cleansed wound with antiseptic. Assisted physician with suturing wound. Instructed on wound care, signs and symptoms of infection, and given follow-up appointment.....
.....M. King, CMA (AAMA)
The physician will chart the details of the surgical procedure.

can cause skin irritation and infection. The suture acts as a wick to carry bacteria through the skin and into the subcutaneous tissues. Suture removal times differ depending on the site:

- Facial sutures may be removed after only 24 to 48 hours to prevent scarring.
- Head and neck sutures remain in place for three to five days.
- Abdominal sutures remain in place for five to seven days.
- Sutures over weight-bearing joints and large body parts may remain seven to ten days.

The medical assistant prepares the patient for suture or staple removal by taking off the dressing, if one is present. Each edge of the dressing is removed by pulling toward the suture line. If the dressing is adhering to the suture line, then a small amount of sterile saline or hydrogen peroxide can be used to moisten the dressing to ease removal.

In some office practices and in some states, medical assistants are permitted to remove sutures. Explain the procedure to the patient, reminding her that there may be a pulling sensation. Then thoroughly cleanse the skin with an antiseptic such as alcohol or Betadine solution. After opening the sterile suture packet (Figure 41-23) and creating a sterile field with the wrapper, gently pick up the knot of the suture using a thumb forceps. Then cut the suture with suture scissors below the knot as close to the skin as possible. Remove the suture by pulling the long remaining suture out. Never pull suture material that is outside the skin through the skin, which might pull infection-causing microorganisms through the skin along with it. Very little of the suture is actually pulled through the skin. (Procedure 41-9 and Figure A illustrate the steps to remove sutures. Removal of staples is also described.)

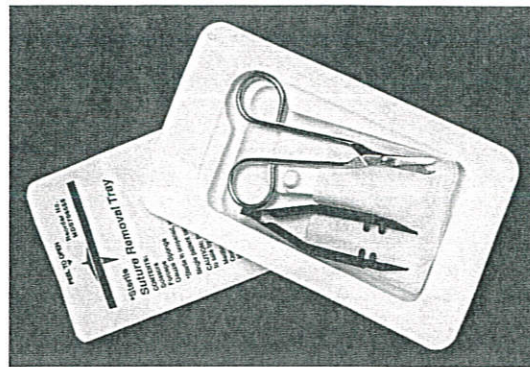


FIGURE 41-23 Disposable suture removal set.

Sterile Dressing

A dressing is the application of a sterile covering over a surgical site or wound using surgical asepsis. A patient who has sustained an injury or undergone a surgical procedure may need to schedule an appointment to remove the old dressing and apply a new sterile dressing. Review Procedure 41-7 and Figures A–C, which demonstrate the steps for changing a sterile dressing.

PROCEDURE 41-9

Removing Sutures and Staples

Objective ♦ Remove sutures and staples using sterile technique, following the physician's order.

EQUIPMENT AND SUPPLIES

Suture removal pack (suture scissors, sterile gauze squares, thumb forceps, skin antiseptic, sterile gloves, bandages, bio-hazard waste container)

METHOD

Removal of sutures

1. Perform hand hygiene.
2. Assemble equipment and check the expiration date on the pack.
3. Identify the patient.
4. Explain the procedure to the patient, and assist the patient into a comfortable position.
5. Perform hand hygiene.
6. Remove the old dressing using the proper technique.
7. Perform hand hygiene.
8. Open a suture or staple removal pack using the proper technique.
9. Apply sterile gloves using the proper technique.

10. Cleanse the wound as needed.
11. Place a gauze square next to the wound for placement of sutures or staples as they are removed.
12. Grasp the knot of the suture with thumb forceps and lift gently (Figure A).
13. Insert the suture scissors and cut the suture at skin level. Pull out the suture.
14. Place the cut suture on the gauze.
15. Repeat these steps until all sutures are removed.
16. Count sutures to make sure that all have been removed.

Removal of staples

- 1–10. Perform steps 1 through 10 above.
11. Place the lower tips of a sterile staple remover under the staple.
12. Squeeze the handles together until they are completely closed. (Pressing the handles together causes the staple to bend in the middle and pulls the edges of the staple out of the skin.) Do not lift the staple remover when squeezing the handles.

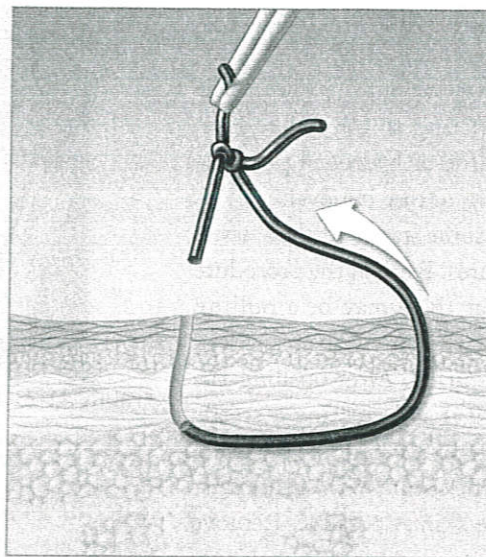
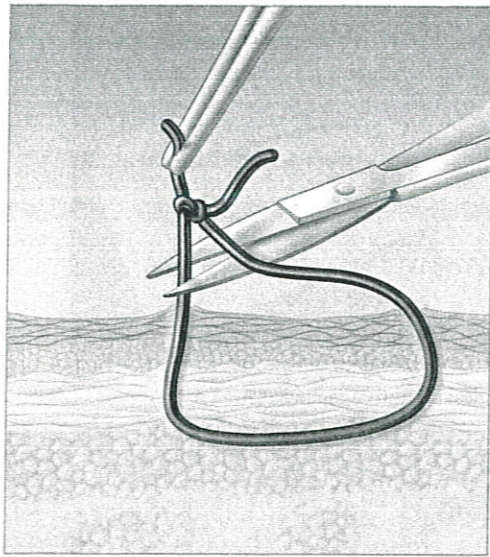


FIGURE A Removal of sutures.

13. When both ends of the staple are visible, gently move the staple away from the incision site.
14. Hold the staple remover over a disposable container, release the staple remover handles, and release the staple.
15. Place the staple on the gauze, repeat these steps until all staples are removed, and count the number of staples to ensure all have been removed.

Closing steps for removal of sutures or staples

16. Clean the wound with antiseptic and allow it dry.
17. Dress the wound as ordered.
18. Properly dispose of equipment and supplies.
19. Remove gloves and perform hand hygiene.
20. Instruct the patient on wound care.
21. Document the procedure, including condition of the wound, number of sutures or staples removed, and patient instructions on wound care.

CHARTING EXAMPLE

2/14/YY 11:00 A.M. Removed sutures and cleansed wound with antiseptic. Wound healing well. Pt. instructed on wound care.....M. King, CMA (AAMA)

Bandaging the Wound

After the wound is dressed, the physician may instruct you to apply a bandage to hold the dressing in place. Bandages

may be gauze, fabric, or elasticized and need not be sterile (Figure 41-24). Bandages are available in various sizes, lengths, and shapes. Some bandages are self-adhering and easier to apply to awkward areas. Elastic bandages are used to support an injured part and reduce swelling. Care must be taken not to bandage too tightly and restrict circulation. Procedure 41-10 and Figures A–C show the steps for applying a bandage to a patient's forearm.

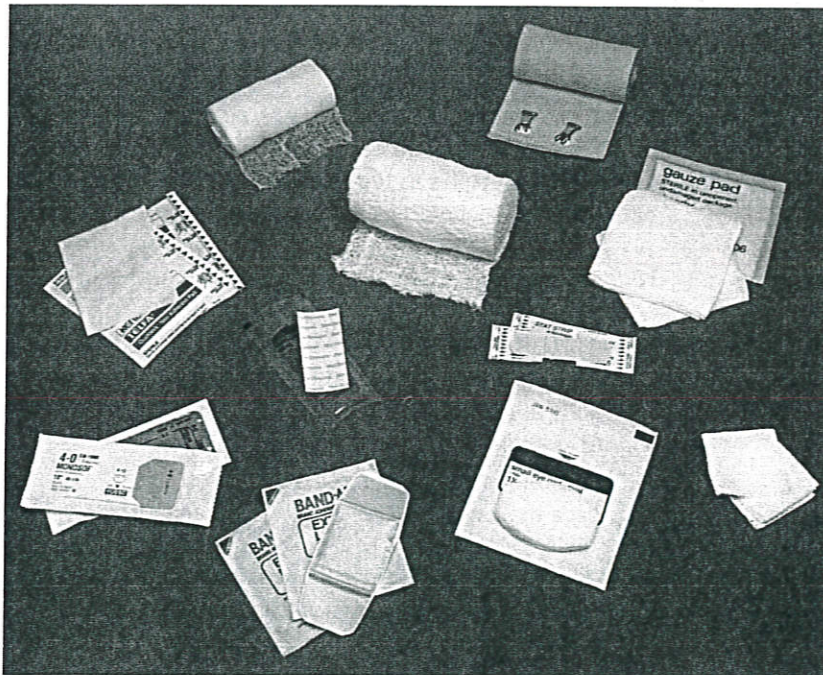


FIGURE 41-24 Various types of bandages.

SURGICAL PROCEDURES PERFORMED IN THE MEDICAL OFFICE

Many minor surgical procedures can be performed efficiently in the physician's office. This saves the patient the time and expense of having to go into an ambulatory surgical facility or a hospital. The basic surgical setup is the standard setup with the addition of specific instruments for each procedure. Some minor procedures performed in the medical office include biopsy, cautery, colposcopy,

PROCEDURE 41-10

Applying a Bandage over a Sterile Dressing

Objective ♦ Apply a bandage to the forearm.

EQUIPMENT AND SUPPLIES

Nonsterile gloves; bandage material prescribed by physician or office procedures; bandage scissors; tape

METHOD

1. Identify the patient.
2. Perform hand hygiene.
3. Apply nonsterile gloves.
4. Explain the procedure.
5. Hold a bandage against the skin with your nondominant hand 1 inch below the dressing.
6. Wrap the bandage around the wrist two to three times to secure (Figure A).
7. Wrap the forearm from distal (part farthest away from the body) to proximal (closest to the body) with overlapping spiral turns (Figure B).

8. Check that the bandage is not restricting blood flow.
9. Continue wrapping to at least 1 inch above the dressing (Figure C).
10. Wrap two more times to secure the bandage; then cut.
11. Tape the cut end to the bandage; do not tape the end to the patient's skin.
12. Check again for any blood flow restriction.
13. Remove gloves.
14. Perform hand hygiene.
15. Explain home care to the patient.
16. Document the procedure accurately.

CHARTING EXAMPLE

1/18/YY 9:30 A.M. Applied bandage to sterile dressing. Pt instructed on home care for dressing.....M. King, CMA (AAMA)

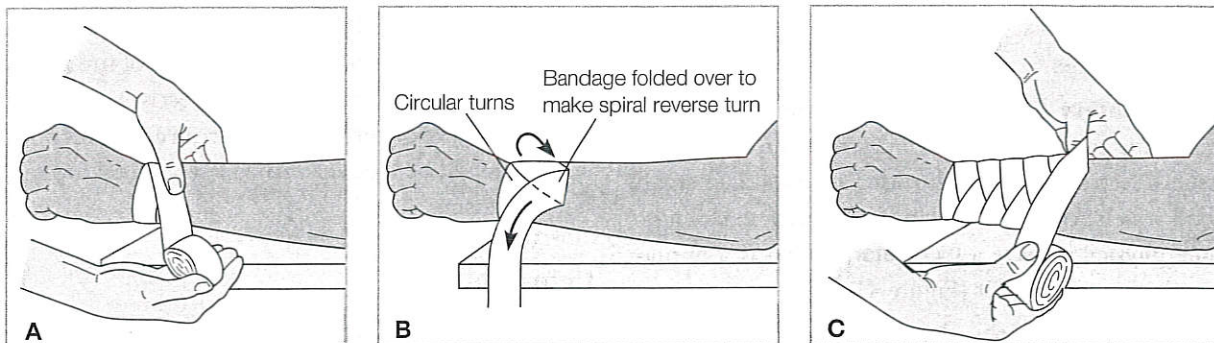


FIGURE A-C Bandaging a forearm.

cryosurgery, laser surgery, endocervical curettage, endoscopic procedures, suture removal, removal of foreign bodies, incision and drainage, vasectomy, and removal of growths and tumors.

The medical assistant does not administer these procedures but must understand them and their effects in order to assist the physician and the patient. A brief description of some procedures follows.

Electrosurgery

Electrosurgery is the application of high-frequency electrical currents. These currents are used to heat tissue to cut,

destroy, or remove it in very specific areas and patterns. Electrosurgery is most often performed in dermatological, gynecological, cardiac, ocular, ENT, and orthopedic surgical procedures. Because of the risk of accidental burning with electrosurgery, it is important to follow strict safety precautions, which include inspecting the equipment before use, using only as the manufacturer directs, ensuring that the equipment is properly working, and avoiding the use of alcohol prep on skin before using electrocautery. Be sure not to touch the cautery device to dry gauze, drapes, or other flammable objects. Ensure fire extinguishers and sprinkler

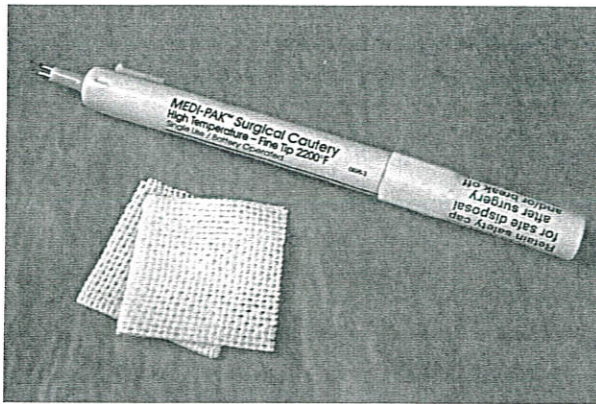


FIGURE 41-25 A disposable cautery unit.

systems are in working order. See Figure 41-25 for a photo of a disposable cautery unit.

Five types of currents are used in electrosurgery:

- **Electrocoagulation**—Destroys tissues and controls bleeding by coagulation.
- **Electrodesiccation**—Destroys tissue by creating a spark gap when the probe is inserted into unwanted tissue.
- **Electrofulguration**—Destroys tissue with a spark emitted from the tip of a probe positioned a short distance away from the unwanted tissue.
- **Electrosection**—Uses electric current to incise and excise the tissue.
- **Electrocautery (or cautery)**—Uses high-frequency, alternating electric current to destroy, cut, or remove tissue. Electrocautery is also used to coagulate small blood vessels, thereby reducing bleeding and cell loss. Some physicians have a **hyfrecator**, which is a miniature electrocautery unit (Figure 41-26).

In some offices, either the electrosurgical unit (ESU) or the ultrasonic surgical unit (USU) is taking the place of

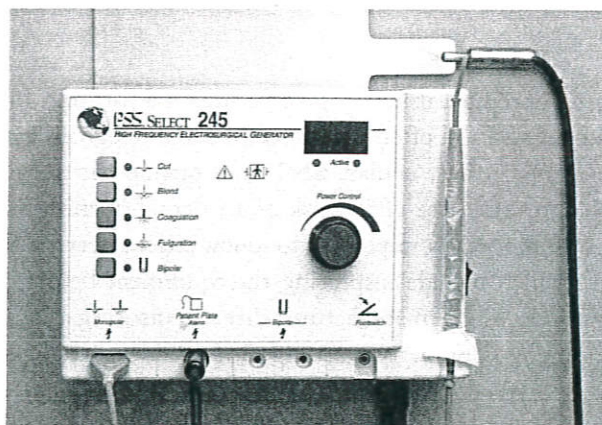


FIGURE 41-26 A hyfrecator, an electrocautery unit.

electrocautery. The ESU is able to provide a more controlled, less damaging form of electric current through the use of a variety of attachments. For example, an incision can be made using ESU with a small electrode blade. The blade cauterizes as it cuts, thus minimizing bleeding. Other attachments can be used to coagulate and suction. The USU uses high-frequency sound waves to break apart calcified or sclerosed tissue that can be removed in small segments. Some models have the ability to suction as they break apart and dissolve body calcifications.

In some forms of electrosurgery, a local anesthetic may be administered.

Laser Surgery

The term *laser* is an acronym for **L**ight **A**mplification by **S**timulated **E**mission of **R**adiation. A laser emits an intense beam of light and originally was used to treat diseases of the retina. Today laser surgery is used to treat a wide variety of diseases and conditions, including vascular, neurological, orthopedic, and dermatologic problems. Laser surgery has the advantage of promoting quick healing and not destroying surrounding tissue. A medical assistant may need extra training to assist with laser surgery. When a room is to be used for laser surgery, it is important to shut out any stray light rays, post OSHA's laser warning sign, and make sure everyone, including the patient, is wearing safety goggles. As with electrocautery, there is some risk of fire as well, so be sure that equipment is working correctly and that flammable objects do not catch fire. After surgery is complete, the wound should be cleaned with antiseptic and dressed with a sterile dressing.

Colposcopy

Colposcopy is an examination of the vagina and cervix performed using a colposcope, a lighted instrument, with the patient in the lithotomy position. The colposcope allows the physician to observe the tissues of this area in great detail through light and magnification. Abnormal areas of tissue or cells can then be removed for biopsy to detect cancer. In some cases, cryosurgery using freezing temperatures to destroy cells is then applied.

Colposcopy is performed in the following cases:

- When an abnormal tissue development is observed by the physician during a routine pelvic examination
- When a Papanicolaou (Pap) smear result is in the abnormal range
- For magnified visualization
- To obtain a biopsy specimen

If the physician is unable to visualize the entire cervical canal during the colposcopy, she may perform an endocervical curettage (ECC) to scrape endocervical cells from inside the cervical canal. These cells are then sent for further testing to determine any abnormality. Abnormal cell growth can be a sign of a precancerous condition that, if untreated, could lead to the development of cancer.

The patient may experience slight bleeding after a colposcopy if a biopsy is taken. In such cases, provide a perineal pad for the patient with instructions for home care. The patient should receive instructions to call the physician if abnormal pain or bleeding is experienced after this procedure.

Endoscopy

An endoscope is an instrument used to look into a hollow organ or body cavity. An endoscope is used to examine the larynx, bladder, colon, sigmoid colon, stomach, abdomen, and some joints. Some attachments are used with some endoscopes, such as a light source, suction, a monitor, and a video recorder. Great care must be taken with these sensitive instruments. In most instances, the patient will need preparation before the examination—for example, fasting, taking a laxative, or administering an enema.

Figure 41-27 is an example of a flexible colonoscope with monitor and video recorder.

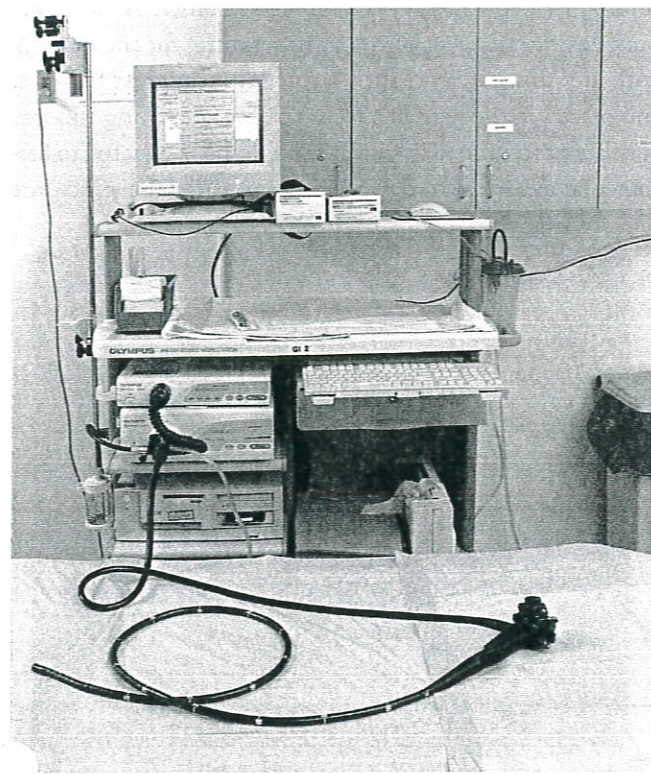


FIGURE 41-27 A flexible colonoscope with monitor and video recorder.

Cryosurgery

Cryosurgery is the use of subfreezing temperatures to destroy tissue. This procedure is also known as cryocautery, rooted in the term *cautery*, which refers to a destruction of tissue.

One example of cryosurgery is the treatment of cervical erosion and chronic cervicitis. With the patient in the lithotomy position, the colposcope is used to magnify the surface of the cervix. Then a probe capable of reaching subfreezing temperatures is placed within the colposcope to destroy abnormal cells. The patient may experience mild cramping and a watery discharge after the procedure. The physician may advise her to take a mild analgesic, such as acetaminophen (Tylenol). The patient should be advised against using a tampon for at least a month because it could irritate sensitive tissues. Additional instruction should include details on reporting any unusual pain or foul discharge, abstaining from sexual intercourse for one month, douching, and scheduling a follow-up visit.

The probe used in cryosurgery must be sterilized according to manufacturer's instructions immediately after use.

Endometrial Biopsy (EMB)

An endometrial biopsy (EMB) consists of using a curette or suction tool to remove uterine tissue for testing. EMB is performed for a variety of reasons:

- To detect precancerous and cancerous conditions of the endometrial lining of the uterus
- To detect inflammatory conditions
- To determine if polyps are present
- To assess abnormal uterine bleeding
- To assess the effects of hormonal therapy
- To screen for early detection of endometrial cancer (particularly if risk factors are present)

An EMB is performed with the patient in the lithotomy position. The physician performs a bimanual examination of the uterus and administers a local anesthetic. A uterine curette is sounded into the uterus, indicating depth and direction, after the anesthetic has taken effect. The specimen is taken by means of a curette or with a suction device to aspirate a specimen. The specimen is sent to the laboratory in a container containing a 10 percent formalin preservative solution.

Provide a perineal pad for the patient with instructions for home care. The patient should receive instructions to call the physician if abnormal pain or bleeding occurs after this procedure. The patient may experience mild cramping for which the physician may advise her to take a mild analgesic. She should be advised against using a tampon, douching, or having sexual intercourse for at least 72 hours.

Incision and Drainage

The incision and drainage (I & D) procedure is performed to relieve the buildup of purulent (pus) material as a result of infection. The purulent discharge may be cultured to determine what microorganism is causing the infection and, thus, what antibiotic would be effective. The procedure is performed using sterile surgical technique, keeping in mind that the purulent material may be highly infectious. All soiled dressings and 4 × 4s immediately should be placed in a plastic waste container and then disposed of properly using OSHA guidelines.

A tray setup for an I & D includes the following:

- Scalpel handle and blades (No. 11)
- Curved iris scissors
- Tissue forceps
- Kelly hemostat
- Retractor
- Thumb dressing forceps
- 4 × 4 gauze squares

Removal of Foreign Bodies and Growths

A foreign body can include a variety of materials from a small splinter or fishhook to a large object, such as an arrow that is embedded in tissue. Splinter forceps are needed on an instrument tray for foreign body removal.

Growths include tumors, warts, moles, and cysts. The most frequent growth removal procedure in the medical office is for cysts, which are enclosed fluid-filled sacs. Some growths are sent to the laboratory for biopsy testing depending on the physician's instructions. The removal of a foreign body or neoplasm (new growth) requires a surgical setup that includes the following:

- Thumb dressing forceps
- Retractor
- Scalpel handle and blades (Nos. 10 and 15)
- Curved tissue scissors
- Tissue forceps
- Hemostats
- Blunt probe
- Splinter forceps
- Needle holder
- Suture materials and needles
- Sterile 4 × 4 gauze

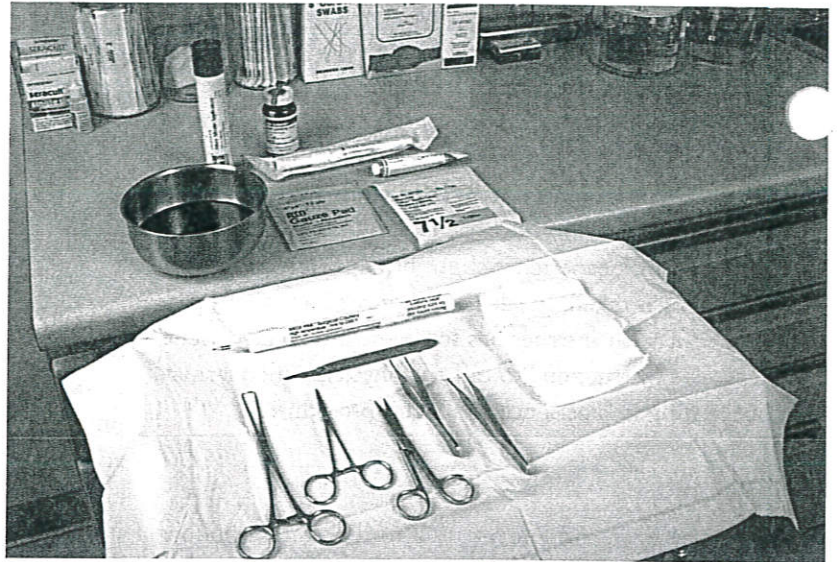


FIGURE 41-28 Surgical tray set up for a biopsy procedure.

Figure 41-28 shows a surgical tray for biopsy removal. Figure 41-29 shows a medical assistant holding a specimen container so the physician can place the biopsy specimen into it without touching the rim or outside of the container and the contaminating tissue.

Vasectomy

The vasectomy procedure, tying and cutting of the vas deferens, on the male patient is a surgical procedure that is now commonly performed in the urologist's office. A vasectomy provides a permanent form of birth control for the male. As with any surgical procedure, a consent form must be signed and placed in the patient's record before beginning this irreversible procedure. The patient should be instructed to have someone available to drive him home after the procedure.

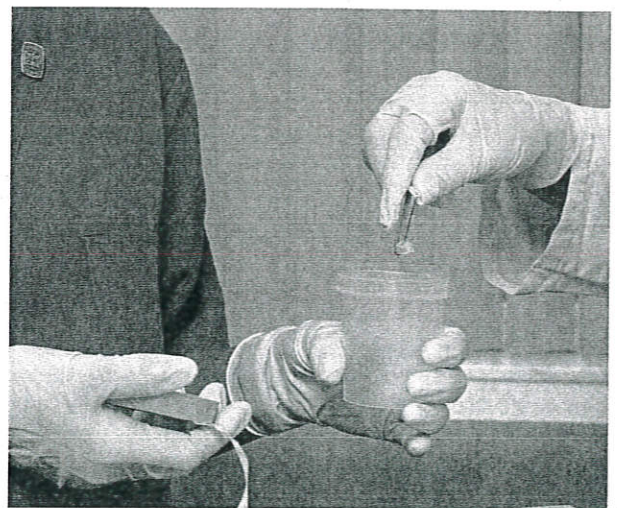


FIGURE 41-29 A medical assistant holds a specimen container to receive a biopsy sample.

Professionalism



If, as a medical assistant, you find assisting with minor surgery fascinating, you may wish to pursue additional training to become a surgical technologist. A surgical technologist, also known as a surgical technician or operating technician, works in an operating room as a member of the surgical team. An operating technician's duties include, but are not limited to, the following:

- Set up the operating room
- Set up surgical instruments and supplies
- Prepare the patient for surgery
- Drape the incision site
- Assist physicians and nurses to don PPE
- Measure vital signs
- Pass instruments
- Operate suction machines and lights
- Prepare specimens for the laboratory
- Dress the patient's wound
- Restock operating room supplies

About 130 programs for surgical technologists are recognized by the Committee on Accreditation of Allied Health Education Programs (CAAHEP). Programs average one to two years in length. After completion of the program, you may take a national certification examination. For further information, contact the Association of Surgical Technologists, 7108-C South Alton Way, Englewood, CO 80112.

The patient will be uncomfortable for a short period of time (two to three days). He should be given detailed instructions on home care including activity level and sexual intercourse. The instructions may vary somewhat from one urologist to another. A typical vasectomy tray includes the following:

- Scalpel handle and blade (No. 15)
- Dressing forceps
- Towel clamp
- Straight and curved mosquito forceps
- Curved tissue scissors
- Tissue forceps
- Retractor
- Needle holder and suture material
- Suture scissors

SUMMARY

Along with a thorough knowledge of gowning, gloving, and surgical hand hygiene, assisting with surgery involves maintaining aseptic technique, setting up sterile instrument trays, passing equipment to the physician, packaging and surgical setup, and preparing the patient for the procedure. Assisting with surgical procedures carries with it a grave responsibility for maintaining absolute sterile technique. The medical assistant incorporates a variety of clinical skills when assisting with a surgical procedure.

41 CHAPTER REVIEW

COMPETENCY REVIEW

1. Define and spell the items for this chapter.
2. Explain the difference between elective surgery and optional surgery.
3. Describe a sterile field, including how one is created and how it could become contaminated.
4. Explain how the size of suture material is measured.
5. Samaria is working as a floating assistant at the outpatient surgical center where she is employed. What are some of her job duties as a floating assistant?
6. Because of an error with a clinical supplies order, Dr. Henderson's practice has run out of suture removal packs. Dr. Henderson's medical assistant, Brad, must gather all the necessary supplies for a suture removal that is being performed on the patient in exam room #1. What items must Brad gather and prepare for this procedure?