

# Care of the Surgical Patient

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## Objectives

Upon completing this chapter, you should be able to:

### Theory

1. Discuss reasons for performing surgery.
2. Identify potential risk factors for complications of surgery.
3. Explain the nurse's role in the various phases of perioperative nursing.
4. Illustrate how robotic surgery has shortened recovery time.
5. Compare the types of anesthesia used for surgery.
6. Verify the safety measures now in place to prevent errors regarding the surgical site.
7. Assist the patient with psychological preparation for surgery.
8. State the nurse's role during the signing of a consent form for surgery.
9. Compare the roles of the scrub person and the circulating nurse.
10. Select interventions to prevent each of the potential postoperative complications.

### Clinical Practice

1. Perform preoperative teaching for the patient and the family.
2. Implement physical preparation of the patient before surgery.
3. Prepare to perform an immediate postoperative assessment when a patient returns to the nursing unit.
4. Promote adequate ventilation of the lungs during recovery from anesthesia.
5. Assess for postoperative pain and provide comfort measures and pain relief.
6. Promote early ambulation and return to independence in activities of daily living.
7. Perform discharge teaching necessary for postoperative home self-care.

## Skill

**Skill 37-1** Applying Antiembolism Stockings

## Key Terms

**anesthesia** (än-ēs-THĒ-zē-ä, p. 736)

**atelectasis** (ä-tē-LĒK-tä-sīs, p. 750)

**autologous transfusion** (äw-tō-lō-gūs tränz-FYŪ-shŭn, p. 738)

**conscious** (KÖN-shŭs, p. 736)

**curative surgery** (KYÜR-ä-tiv, p. 734)

**dehiscence** (dē-HĪS-ēns, p. 754)

**elective** (ē-LĒK-tiv, p. 733)

**embolus** (ĒM-bō-lŭs, p. 754)

**evisceration** (ē-vīs-ēr-Ä-shŭn, p. 754)

**laser** (LÄ-sēr, p. 735)

**palliative surgery** (PÄL-ē-ä-tiv, p. 733)

**paralytic ileus** (pär-ä-LĪT-ik ĪL-ē-ŭs, p. 753)

**perioperative** (pēr-ē-ÖP-ēr-ä-tiv, p. 734)

**pneumonia** (nŭ-MŌ-nē-ä, p. 754)

**prosthesis** (prös-THĒ-sīs, p. 738)

**stasis** (STÄ-sīs, p. 739)

**thrombophlebitis** (thröm-bō-flē-BĪ-tīs, p. 739)

**thrombosis** (thröm-BŌ-sīs, p. 751)

**unconscious** (ün-KÖN-shŭs, p. 736)

## REASONS FOR SURGERY

A procedure may be **elective** (voluntary), such as when a hernia repair is scheduled a week away. **Emergency surgery** is often necessary in trauma cases in which serious consequences will occur if surgery is not done

immediately. **Palliative surgery** (to relieve pain or complications) is performed to make a patient more comfortable. Removing a metastatic tumor from the abdomen that is causing considerable pain is an example. **Diagnostic surgery**, such as a biopsy of a mass, is

done to provide data for a diagnosis of the problem. **Reconstructive surgery**, such as mammoplasty after a mastectomy, is done to restore appearance or function. **Curative surgery** alleviates (cures) a problem, as when a gallbladder that is full of stones, causing blockage or pain, is removed.

### PATIENTS AT HIGHER RISK FOR SURGICAL COMPLICATIONS

The infant and the elderly person are at higher risk for complications of surgery because of either immature body systems or a decline in function of various body systems. Maintaining core body temperature is one concern for these patients. Both age-groups are at risk for dehydration or overhydration. Aging causes changes in the cardiovascular, respiratory, renal, integumentary, neurologic, and metabolic systems. Other types of patients who are at higher risk during and after surgery are those with bleeding disorders, cancer, heart disease, chronic respiratory disease, diabetes, liver disease, immune disorders, chronic pain, upper

respiratory tract infection, fever, or drug abuse issues (Table 37-1). **These patients are subject to a variety of complications and should be carefully assessed during the postoperative period.**

All patients are at risk for surgical site infection. The Institute for Healthcare Improvement launched a campaign in 2007 to reduce incidents of medical harm from surgery (Box 37-1)

### PERIOPERATIVE NURSING

**Perioperative** nursing refers to care of the patient from the time of the decision to have surgery through recovery from the procedure. Learning the terminology for surgical procedures will help in identifying what the surgeon is going to do (Box 37-2). Surgery may be performed as a same-day or outpatient procedure or an inpatient procedure in a hospital or surgery center. Minor surgery is often performed in a physician's office. Patients having same-day surgery are admitted early in the morning and discharged in the afternoon. Preparation for surgery is begun before admission.

**Table 37-1** Surgical Risk Factors

FACTOR	KEY POINTS
Diabetes mellitus and other chronic diseases	Stress of surgery may cause swings in blood glucose levels that are difficult to control. Patient may receive intravenous insulin during and after surgery. Wound healing tends to be delayed in the diabetic patient, making the risk of dehiscence greater. There is a higher incidence of infection in surgical wounds of diabetic patients. Liver and kidney disease makes it more difficult to metabolize and eliminate anesthesia and waste products.
Advanced age with inactivity	Healing is slower in elderly patients. The risk of disuse syndrome, hypostatic pneumonia, and thrombus formation is higher in an inactive elderly person.
Very young age	Infants have difficulty controlling temperature and maintaining normal circulatory blood volume; they are at risk of dehydration.
Malnutrition	Inadequate nutritional stores lead to poor wound healing and skin breakdown.
Dehydration	Reduced circulating volume reduces kidney perfusion and predisposes to a reduced urine output and thrombus formation. Dehydration also alters electrolyte values. The dehydrated patient is at greater risk for problems with pressure areas during surgery.
Obesity	The extremely heavy patient does not breathe as deeply and is at risk of hypostatic pneumonia. Excessive fatty tissue also is a factor in poor wound healing.
Cardiovascular problems	Patients with hypertension, left ventricular hypertrophy, cardiac arrhythmias, or history of congestive heart failure are at a higher risk for myocardial infarction from the stresses of surgery and anesthesia.
Peripheral vascular disease	Poor circulation in the extremities predisposes the patient to possible thrombus formation and pressure sores on the lower legs and feet. Antiembolism stockings or devices are generally prescribed for use during and after surgery.
Substance abuse or alcohol dependence	May alter reaction to anesthetic agents. Alcohol dependence may cause withdrawal symptoms if the use of alcohol is discontinued abruptly.
Smoking	Causes increased lung secretions from anesthesia and predisposes the patient to atelectasis and pneumonia postoperatively. Smokers are more prone to thrombus formation.
Regular use of certain drugs	Aspirin and anticoagulants make the patient more prone to excessive bleeding. Corticosteroids reduce the body's response to infection and delay the healing process.
Excessive fear	Stimulates the sympathetic nervous system and causes the release of hormones, causing swings in the body's chemistry and vital signs. Increased muscle tension makes surgery more difficult. Physical manifestations of fear can interfere with achieving the desired state of anesthesia.

### Box 37-1 Recommended Measures to Prevent Surgical Site Infections

- Administer prophylactic antibiotics just before incision time.
- Do not remove hair at the surgical site. If removal of hair is essential, remove hair with clippers or a depilatory.
- Hair is to be removed, when essential, immediately before surgery.
- A razor should not be used to remove hair, since it causes nicks and abrasions in the skin.
- Glycemic control should be maintained with blood glucose below 200 mg/dL in the first 48 hours postoperatively.
- Body temperature during and after surgery should be maintained at 96.8° to 100.4° F (36° to 38° C), particularly for those patients having colorectal surgery.

From Daniels, S. M. (2007). Improving hospital care for surgical patients. *Nursing* 2007, 37(8), 36-37.

### Box 37-2 Terminology for Surgical Procedures

Suffixes are often attached to a stem word to describe a surgical procedure. For example, *appendectomy* means cutting out the appendix.

**Lysis:** removal or destruction of (lysis of adhesions: removal of adhesions)

**Anastomosis:** joining of two parts, ducts, or blood vessels

**-ectomy:** cutting out or off (colectomy: cutting out a part of the colon)

**-ostomy:** furnishing with a mouth or an outlet (colostomy: creating an outlet from the body for the colon)

**-otomy:** cutting into (thoracotomy: cutting into the chest cavity)

**-plasty:** revision, molding, or repair of tissue (mastoplastic: revision of the breast)

**-pexy:** fixation, anchoring in place (orchipexy: fixation of an undescended testicle in the scrotum)

Diagnostic tests are done in the days just before the scheduled surgery. Teaching for postoperative care must be done efficiently, since time of stay is short to reduce hospitalization costs. Your ability to deliver and reinforce teaching for postoperative and home care is crucial to the patient's well-being and quick recovery.

### Home Care Considerations

#### Home Care for Discharged Postsurgical Patients

Discharge planning begins at the time of admission. Whether the patient is a same-day surgery patient or an inpatient, the same general points need to be covered before discharge.

- The patient must know about each medication to be taken and when to take it.
- Discuss the diet, any restrictions, and guidelines for fluid intake. Alcohol must be avoided for 24 hours after surgery.
- List any restrictions on activity, and provide instructions for use of any special equipment such as crutches, splint, or walker.

- Patients should not drive or make important decisions for 24 hours after anesthesia.
- Explain the type of bath permitted.
- Discuss cleansing and dressing of the wound along with where to obtain supplies.
- Provide a list of signs and symptoms to report to the surgeon, such as temperature above 100° F, increasing malaise, severe pain or swelling, bleeding through the bandage, decreased sensation below the surgical site, or severe nausea and vomiting.
- Instructions on when to make a follow-up appointment with the physician are essential.
- Send written instructions home with the patient for all essential points of care.

## ENHANCEMENTS TO SURGICAL TECHNIQUE

### LASER SURGERY

**Laser** (Light Amplification by the Stimulated Emission of Radiation) surgery is common and is often combined with microscopic, endoscopic, and robotic-enhanced procedures. A laser is a tube that contains a medium such as carbon dioxide or another active gas, which is energized by electricity. Mirrors reflect the energized molecules back and forth, generating a bright light in the form of a beam. The light beam is converted to heat as tissue absorbs it. There are several varieties of lasers for different uses.

### FIBEROPTIC SURGERY

Fiberoptics allows the use of endoscopes with high-resolution video cameras passed through a very small incision for an ever-increasing variety of surgical procedures. Operating microscopes can be combined with an endoscope for microscopic surgery. Small growths and organs can be removed without making a traditional surgical incision. However, two or three other puncture holes are made for the instruments and video camera attachment that provide access and a visual field for the procedure.

### ROBOTIC SURGERY

More surgeons are using remote-controlled robots to perform surgeries. Robotics is seen as a key to less invasive, less traumatic surgeries in the future. The robot is operated from a nearby computer while the surgeon views magnified three-dimensional images of the surgical field on the computer's screen. The robot's tiny camera has multiple lenses that allow magnification up to 12 times that of normal vision. Assistants and a second surgeon are next to the patient, but the main surgeon performs the surgery at the computer. For heart surgery the robot's needlelike "fingers" are introduced through pencil-sized holes in the chest to perform certain techniques. Remote-controlled instruments are inserted through small incisions. Some types of robotics are voice activated by the surgeon.

A big advantage of using the robot is that it has “rock-steady” hands, providing precision that is beyond human dexterity. Because only small incisions are needed, the patient has less pain postoperatively and requires less time to heal. There is less scarring, and fewer infections seem to develop with this new surgical technique.

## ANESTHESIA

**Anesthesia** (the loss of sensory perception) has been in use for surgical procedures since the 1840s. Newer anesthetics and techniques make anesthesia safer than ever, but **there is still a risk any time a patient is anesthetized**. The goals of anesthesia are (1) to prevent pain; (2) to achieve adequate muscle relaxation; and (3) to calm fear, ease anxiety, and induce forgetfulness of an unpleasant experience. Anesthetics are administered in a number of ways to achieve these goals. The choice of anesthetic rests with the anesthesiologist, considering the type of surgery to be performed and the patient’s age and physical condition.

### GENERAL ANESTHESIA

General anesthesia is induced by the administration of an inhalant gas or an intravenous (IV) medication. During general anesthesia the patient is in a deep sleep state with muscle relaxation and is not aware of anything going on in the operating room (OR). General anesthesia has four stages (Box 37-3). When the patient awakens from anesthesia, progression through the stages occurs in reverse. Quiet must be maintained while the patient is in stage II because noise may excite the patient, resulting in instability of vital signs.

#### Box 37-3 The Four Stages of Anesthesia

**Stage I: The stage of analgesia.** Begins with the administration of the anesthetic agent and ends when the patient becomes **unconscious** (incapable of responding to sensory stimuli). Hearing is amplified at the end of this stage.

**Stage II: The excitement phase.** Muscles become tense, but swallowing and vomiting reflexes are still present. Breathing may become irregular or the breath may be held. The environment should be kept quiet during this period.

**Stage III: Surgical anesthesia state.** Begins with the onset of regular breathing again. Vital functions are depressed, eyes are fixed, and reflexes are lost or temporarily depressed. The surgical procedure is begun during this stage.

**Stage IV: Complete respiratory depression.** Spontaneous respirations are absent. The patient is maintained by the anesthesia machine, which supplies oxygen and a set rate of breaths.

## Elder Care Points

- An accurate height and weight of the elderly patient are important for calculation of anesthetic agents and medication dosages.
- Kidney function is declining in the elderly person, and drugs are not eliminated from the body as quickly. Reduced dosages are often needed.

## REGIONAL ANESTHESIA

Regional anesthesia is accomplished by administering a nerve block. It is often more economical than general anesthesia. This may be accomplished by injecting the spinal, epidural, caudal, or peripheral nerve area. The block anesthetizes the local area or the area distal to the block. Spinal or epidural blocks are frequently used for high-risk patients undergoing pelvic or lower extremity surgery; epidural blocks are widely used in obstetric procedures.

## PROCEDURAL (MODERATE) SEDATION ANESTHESIA

A local anesthetic agent at the surgical site plus IV sedation is used to provide systemic analgesia, **conscious** (awareness of one’s surroundings) sedation, and depression of the autonomic nervous system. The technique can be used for any surgery or procedure that can be done with local anesthesia and is being used more and more frequently. The patient is monitored closely for blood pressure changes, oxygen saturation levels, and heart activity.

## LOCAL ANESTHESIA

Local anesthesia is used for minor procedures such as superficial tissue biopsies, surface cyst excision, insertion of a pacemaker, and insertion of vascular access devices. The patient who has had local anesthesia is transferred directly to the nursing unit and does not need care in the postanesthesia care recovery unit (PACU; also called PAR or PARU).

## PREOPERATIVE PROCEDURES

Care of the surgical patient is divided into four phases: preoperative, intraoperative, postanesthesia immediate care, and postoperative care. During the preoperative phase, nonanemic patients may donate their own blood 2 to 4 weeks before surgery to be banked in case of postoperative autologous (related to self) transfusion need. This eliminates any possibility of transfusion with blood contaminated with a blood-borne virus, such as HIV or hepatitis B or C.

## SURGICAL CONSENT

A surgical consent form must be signed before surgery and before preoperative medications are given, that is, before the patient’s mind is affected by the

medications. This is a legal form that must be filled out in ink with the correct spelling of procedures to be done. **The surgeon is responsible for obtaining an informed surgical consent.** The need for the procedure, a description of the procedure to be performed, its risks and benefits, and alternative treatments available and their possible consequences must be explained to the patient in understandable terms, and the explanation (not just the patient's signature) should be witnessed by at least one health care professional. Any questions must be answered. The surgeon often explains the procedure with the nurse present, answers questions, and then asks the nurse to obtain the patient's signature on the form. **If the patient does not understand the procedure or has further questions for the surgeon, refer the matter back to the surgeon.** If the patient is a minor, is confused, or is mentally incompetent, another responsible party such as a parent, spouse, or guardian must be present for the explanation and may need to sign the consent form. The signature of the patient or the responsible party is witnessed by another party, often a staff member. The consent form must show the procedure to be performed and the risks involved, must include the time and date, and must be signed in ink. A witnessed "X" is acceptable if the patient cannot sign with a signature.

If emergency surgery is needed and the patient is not conscious or able to give consent, immediate family is contacted. Telephone permission may be given as long as there are two witnesses on extension lines. If no family can be found, the opinion of a second surgeon regarding the need for surgery is sought, and then the surgery may take place.

All responsible adults are asked to complete advance directives when admitted to the hospital if they do not already have such a document on file; these are discussed in Chapter 3. Advance directives indicate the patient's desires regarding lifesaving or life-preserving measures in the event of a cardiac arrest or other complication that threatens basic function.

### Think Critically

You are taking preoperative vital signs and preparing the patient for surgery when he says, "I've changed my mind. I don't want to have this surgery after all." What would you do?

### SURGICAL SITE IDENTIFICATION

In 2003 a National Patient Safety Goal was instituted to **"Eliminate wrong-site, wrong-patient, wrong-procedure surgery."** A preoperative checklist verification process is used to ensure that appropriate medical records and imaging studies are available. A process must also be implemented to mark the surgical site and involve the patient in the marking process. This should be done before preoperative medications are given so that the patient is alert to

### Box 37-4 Recommended Diagnostic Tests Before Surgery

- Complete blood count (CBC)
- Urinalysis
- Chest x-ray examination
- Electrocardiogram (over age 40)
- Pregnancy test for women of childbearing age
- Electrolytes, blood glucose, liver function, and kidney function tests (SMA-12)
- Prothrombin time (PT), activated partial thromboplastin time (APTT)
- Blood type and crossmatch

participate in this procedure. Before surgery commences, a "time-out" is called and the correct patient, correct site, and correct body part are verified by the operating team via the chart orders, operative permit, and imaging studies.

### PHYSICAL EXAMINATION

The referring physician, the surgeon, or a surgical resident takes a medical history, performs a physical examination, and orders necessary tests (Box 37-4). This may be done in the physician's office. The dictated report must be in the record before the patient goes to surgery. The patient should be in the best possible physical condition, unless it is an emergency procedure. Most surgeons postpone surgery if the patient's hemoglobin level is too low.

## ❖ APPLICATION OF THE NURSING PROCESS

### PREOPERATIVE CARE

During the preoperative period, the patient is prepared physically and psychologically for surgery. If the patient is very ill, a significant other may join in the interview process. Focus completely on the patient in an unhurried manner. Ask open-ended questions and listen attentively.

#### ■ Assessment (Data Collection)

The nursing history and assessment focus on possible factors that indicate the patient is at higher risk for complications from surgery (see Table 37-1). An important part of your assessment is determining what supplements and herbs a patient is using (Table 37-2). The surgeon and anesthesiologist must be aware of what substances are in the patient's body in addition to his normal medications. Besides checking for drug allergies, it is important to determine whether the patient has a latex allergy.

### Clinical Cues

Indications of latex allergy may be reactions to avocados, kiwi-fruit, bananas, chestnuts, potatoes, peaches, or apricots.

**Table 37-2** Herbs and Supplements Affecting Surgical Outcomes

SUBSTANCE	POSSIBLE EFFECT
Echinacea	May cause liver inflammation if used with certain medications
Feverfew	May inhibit platelet aggregation and increase bleeding
Garlic, ginger, ginkgo biloba, ginseng, or valerian	May increase bleeding tendency, particularly if patient is receiving anticoagulants
Goldenseal	May increase blood pressure; may cause increased swelling
Kava	May prolong effects of anesthetics or antiseizure medication; may cause liver damage
Licorice	May alter electrolytes, increase blood pressure, or increase fluid retention
St. John's wort	May prolong the effect of anesthetic agents
Vitamin E, aspirin, or omega-3 fatty acids (fish oil)	May increase bleeding, particularly in conjunction with anticoagulants

Adapted from Lewis, S. L., Dirksen, S. R., Heitkemper, M. M., et al. (2011). *Medical-Surgical Nursing: Assessment and Management of Clinical Problems* (8th ed., p. 338). St. Louis: Elsevier Mosby.

### Communication

#### Preoperative Interaction

Carolyn Silva, age 67, is scheduled for a partial colectomy. She has had several bouts of diverticulitis with considerable pain and malaise. She seems apprehensive about the surgery.

**Nurse:** "Mrs. Silva, do you understand what the surgeon is going to do on Wednesday?"

**Mrs. Silva:** "Yes, but I'm nervous about having this done."

**Nurse:** "The thought of surgery makes you nervous?"

**Mrs. Silva:** "Well, it's more than that. I have several family members who have had colon cancer and I can't help thinking that cancer is what will be found."

**Nurse:** "You are scared you have cancer. As I recall you had a colonoscopy a few weeks ago and it didn't show any lesion suspicious of cancer in the colon."

**Mrs. Silva:** "That's right, but what if the doctor just didn't see it?"

**Nurse:** "There are no guarantees until you get a clean pathology report, but the colonoscopy showed that you had severe inflammation in this one part of the colon and that is what is to be taken out."

**Mrs. Silva:** "Oh, I know. I'm just a worrywart."

**Nurse:** "Perhaps holding positive thoughts about the outcome of this surgery would help reduce your fears. Try to visualize yourself with a healthy colon with the diseased piece gone and no more episodes of severe pain and illness."

**Mrs. Silva:** "I'll try it. It does seem foolish to spend energy worrying until I know something more is wrong."

**Nurse:** "I'll be at the desk charting. If you need me, press the call button."

### **Box 37-5** Preoperative Psychosocial Data Collection

*Inquire regarding feelings and concerns about the following:*

- Body image—scars, loss of body part
- Possible change in role or relationships after surgery
- Specific anxieties or fears about surgery or anesthesia
- Concerns about care after discharge
- Financial concerns
- Effect on lifestyle that surgery may have
- Past experience of surgery or anesthesia and perceived impressions from others
- Knowledge of surgery, recovery, patient role, and impact on life
- Expectation of result of surgery

Psychosocial assessment includes fears, attitudes and concerns about any changes in body image and lifestyle that the surgery may cause (Box 37-5).

The OR is notified if the patient is hard of hearing, is essentially blind when glasses are not in place, or has a **prosthesis** (artificial body part).

### Elder Care Points

One of the greatest fears of the elderly person facing surgery is a loss of independence. It is important to stress the measures that will be taken to return the patient to independence after surgery.

Cultural beliefs and values regarding surgery must be taken into consideration. If the patient does not speak the same language as the surgical team, an interpreter should be enlisted to assist with communication. If a female patient's culture has strict rules for female attire, she needs assurance of sufficient privacy and protection of modesty to allay any fears she might have; such issues and interventions must be conveyed to the OR. If the patient's culture has certain taboos regarding an aspect of the surgery, the surgical team needs to know about them and plan a way to achieve a good outcome without violating such a taboo. It is especially important to know whether the patient will accept a blood transfusion.

### Cultural Considerations

#### Prohibition of a Non-Self Blood Transfusion

Jehovah's Witnesses refuse a blood transfusion because it is prohibited by their religion. In years past, many surgeries could not be performed on these individuals because the chance of death was too great. New bloodless medicine strategies have allowed many surgeries to safely occur that were denied before.

- **Autologous transfusion** (transfusion of one's own blood) is one method, using a cell-saver gathering system for blood lost during surgery or in the 2 days after surgery. These cells

are washed and then reinfused. This procedure is acceptable to Jehovah's Witnesses as long as there is a continuously closed circuit for collection and reinfusion.

- Hemodilution during surgery may be used, in which up to seven units of the patient's blood are removed and replaced with crystalloids or colloids. The cells are usually reinfused later, again via a closed system. The replacement fluids decrease blood viscosity, increase blood flow in tissues, and help maintain oxygen transport and blood pressure.
- The use of lasers, electrocautery, argon beam coagulators, and harmonic scalpels, which cause blood to coagulate after tissue is cut, decreases blood loss.
- If the patient is anemic before surgery, epoetin alfa (Epogen, Procrit) is used along with vitamins B<sub>12</sub> and C to stimulate red blood cell production.

### ? Think Critically

The patient has told you during your assessment that she drinks a glass of wine with dinner each night. Later her husband informs you that she tends to drink three or four glasses of wine each evening. What should you do with this information?

### ■ Nursing Diagnosis

Nursing diagnoses in the preoperative stage include actual and potential problems identified by your data collection and the registered nurse (RN) assessment. Examples of common nursing diagnoses are as follows:

- Anxiety related to the surgical experience and outcome
- Fear related to risk for death, effects of impending surgery, or loss of control due to anesthesia
- Grieving related to impending loss of a body function or body part
- Deficient knowledge related to preoperative and postoperative routines
- Sleep deprivation related to stress or unfamiliar environment
- Ineffective coping related to lack of problem-solving skills or adequate support
- Ineffective role performance related to inability to care for children during hospitalization

### ■ Planning

Expected outcomes are written for the individual nursing diagnoses assigned to each patient. However, **general goals** for all preoperative patients are the same in that the patient will be:

- Prepared for surgery physically and emotionally
- Able to demonstrate deep breathing, coughing, and leg exercises
- Able to verbalize understanding of the procedure and the expectations of him in the postoperative period
- Able to maintain fluid and electrolyte balance throughout the perioperative period



FIGURE 37-1 Teaching postoperative leg exercises.

When preoperative patients are assigned, plan the work for the shift carefully to have the patients ready without neglecting the needs of other assigned patients. At the beginning of the shift, check to see that any ordered preoperative medications are on hand. Check the surgery schedule and estimate the time that the patient will need to be prepared for surgery.

### ■ Implementation

Preoperatively, divide your time between preparing the patient for surgery and teaching about what will happen and how to assist in the recovery period. The same-day surgery patient receives teaching from the physician's office nurse or a surgical intake nurse. Teaching sessions may be scheduled when the patient comes for diagnostic testing. Sending written instructions home with the patient reinforces what has been taught. Give the patient a phone number to call for answers to questions that arise before entering the hospital for surgery.

#### Teaching for Postoperative Exercises

Teaching the patient breathing, coughing, turning, and leg exercises is a high priority during the preoperative period. Venous return is often hampered during the surgical procedure because of the position assumed on the operating table and pooling of blood in the lower extremities. The **stasis** (stoppage of flow) of blood places the patient at risk for **thrombophlebitis** (blood clot causing inflammation of a vessel). Specific leg exercises help prevent this complication (Figure 37-1). Explain the importance of doing the exercises and show the patient how to do each one; ask for a return demonstration.

## Patient Teaching

### Postoperative Foot and Leg Exercises

- Flex and extend the right foot, moving the toes upward and downward, four or five times.
- Repeat with the left foot.
- With the right foot, trace circles to the right five times; repeat with circles to the left.
- Repeat with the left foot.
- Bend the right leg at the knee, sliding the foot back toward the buttocks as far as possible; raise the bent leg off the bed, extend the leg and dorsiflex the foot; extend the foot and lower the leg to the bed.
- Repeat with the left leg and foot.
- Tighten the buttocks muscles for a count of 10 and release to exercise the quadriceps muscles.
- Repeat each exercise four more times.

## Clinical Cues

One way for patients to remember to do the exercises is to perform them whenever a commercial comes on TV. The exercises should be done at least 5 to 10 times every hour while awake after surgery until the patient is up and about normally.

For deep breathing and coughing, it is preferable for the patient to sit up with the back away from the mattress or chair. This allows for full lung expansion. The surgical incision should be splinted with a pillow (Figure 37-2).

## Clinical Cues

A small, firm, coughing pillow can be made by folding a bath towel, putting it in a pillowcase, and folding the pillowcase over and taping it. It is helpful to have a significant other present for these teaching sessions so that coaching and encouragement can later be given to the patient.

Deep breathing and coughing should be performed every 2 hours for 72 hours after general anesthesia. The surgeon may order use of an incentive spirometer. Instruct the patient in its use and supervise until the patient has mastered the technique. Help the same-day surgery patient devise a schedule for doing the exercises.

Show the patient how to turn in bed by flexing the legs to relax the abdominal muscles, grabbing on to the side rail, and slowly turning to the side. This maneuver is also used for getting up out of bed. The patient is also instructed in what to expect before, during, and after surgery.

## Patient Teaching

### Lung Exercises

Postoperatively, you will be asked to deep breathe and cough to open the lungs and clear secretions. Sit up away from the mattress when you do these exercises. The exercises should be performed every 2 hours during waking hours.

### DEEP BREATHING

- Take a deep breath in through the nose, hold for a few seconds, and slowly exhale.
- Repeat twice more.

### FORCED EXHALATION COUGHING

Splint the abdominal or chest incision and:

- Take a deep breath through the nose and cough as you exhale with the mouth open but covered with a tissue.
- If you cannot move secretions with your cough, use a forced exhalation cough.
  - Take a deep breath through the nose and forcibly and quickly exhale, producing a huff-cough.
  - Repeat the process.
  - Repeat again, using three short “huffs” as you exhale to bring the secretions to the mouth where they can be expectorated.

### USING AN INCENTIVE SPIROMETER

- Insert the mouthpiece, covering it completely with the lips.
- Take a slow deep breath and hold it for at least 3 seconds.
- Exhale slowly, keeping the lips puckered.
- Breathe normally for a few breaths.
- Try to increase the inspired volume by at least 100 mL with each breath on the spirometer.
- Once maximal volume is achieved, attempt to inspire this volume 10 times, resting a few breaths in between each attempt.
- Clean the mouthpiece of the spirometer when finished.

### NPO Status

Food and fluids are restricted before surgery, and the patient is placed on NPO (nothing by mouth) status. A light meal such as toast and clear fluids may be allowed up to 6 hours before surgery and a heavier meal 8 hours before surgery. For elective surgery, the American Society of Anesthesiologists revised the



FIGURE 37-2 Teaching deep breathing and coughing.

practice guideline in 1999 for preoperative fasting in healthy patients (American Society of Anesthesiologists, 2011). Clear liquids such as black coffee, tea, apple juice, or carbonated beverages may be consumed up to 2 hours before surgery in some elective cases. Sometimes the surgeon allows an oral blood pressure or heart medication to be given with a sip of water the morning of surgery. **Always check the physician's order before giving anything by mouth in the immediate preoperative period.** The purpose of the restriction is to prevent vomiting and aspiration, which can occur, but is rarely seen with modern anesthesia.

#### Elimination

If the patient is having colon surgery, enemas may be ordered to be given until clear. The patient may be on a special soft or liquid diet for 3 days before surgery to decrease the content of the bowel.

#### Clinical Cues

Ask the patient to empty the bladder, unless a catheter is in place, as you finish the preoperative checklist. Relaxation induced by medications and anesthesia causes the urge to urinate if the bladder is not empty.

#### Expected Tubes and Equipment

If a nasogastric tube will be inserted during surgery for postoperative use, explain its purpose, its care, and what it will feel like to the patient. Give an estimate of how long the tube will remain in the stomach. Explain the function, care, and probable duration of use of other expected tubes such as drains, IV line, oxygen delivery and monitoring devices, chest tube, and urinary catheter.

#### Rest and Sedation

It is desirable for the patient to be as well rested as possible before surgery so the body is not compromised in meeting the stresses of anesthesia and the procedure. A sedative is usually ordered for the night before surgery, but, if in the hospital, the patient often must ask for it. Same-day surgery patients need to be told how early to take the sedative and retire the night before surgery because they will need to arise early to enter the hospital.

#### Pain Control

Many surgeons order a patient-controlled analgesia (PCA) pump for their patients postoperatively. Patients should receive instruction about the pump and how to operate it before surgery. If patients will be receiving injections for pain control, explain that this type of medication is ordered on an as-needed basis every 3 to 4 hours and that they must ask for it.

#### Clinical Cues

Explain that asking for the pain medication before the pain becomes severe makes it easier to control the pain level. The patient will be much more comfortable if pain medication is administered regularly for the first 48 hours after surgery. Effectiveness of medication delivered by the PCA pump must be assessed and the physician consulted if pain is not being well controlled with use of the pump.

#### Skin Preparation

The patient may be asked to shower with a special antibacterial cleanser the night or morning before surgery to remove as many microorganisms from the skin as possible. Removing hair from the operative site may be done just before surgery, but is not generally recommended (see Box 37-1). Explain the process, the area to be prepared, and timing of the prep to the patient. Although this is often done in the OR, it may be part of your job to clip hair or use a depilatory before the patient goes to surgery. (Refer to Skill E37-1: Performing a Surgical Prep on the Evolve website.) If a depilatory is used, perform a skin test for sensitivity close to the surgical site many hours before its use.

#### Elder Care Points

- The elderly patient should be taught needed information in short segments to prevent confusion and increase the patient's comprehension.
- Provide written reminders of the instructions to the patient.

#### Immediate Preoperative Care

Dress the patient in a clean hospital gown, without underwear, for the OR. Hair is covered with a surgical paper cap. Long hair should be dressed so that it will tangle minimally; all hairpins and barrettes must be removed. Jewelry is removed and, along with money and credit cards, is given to a significant other to keep or is secured in a valuables envelope and placed under lock and key. If a wedding band is to be worn to surgery, tape it to the finger without restricting circulation. Dentures are removed, placed in a labeled cup, and kept in a designated place according to hospital policy. Sometimes the anesthesiologist orders the dentures left in place to facilitate the administration of anesthesia by mask.

Check the patient's identification bracelet against the chart for accuracy to avoid any error or mix-up of patients in the OR.

Attend to all items on the preoperative checklist that can be handled ahead of time early in the morning (Figure 37-3). This prevents hurrying, mistakes, and delays in the departure for the OR. If the facility wants the surgical area marked before the patient leaves the room, confer with the patient and appropriately mark the site according to agency policy. Seek feedback from the patient and document that the site is marked properly.



4/10/13 0730 Preop checklist  
complete. Surgical site &  
knee verified with patient  
and marked. - S. Crebs, LPN  
0800 Took via stretcher. S. Crebs, LPN

FIGURE 37-4 Entry in nurse's notes.

Assist in transferring the patient to the stretcher when the transport person comes to take the patient to surgery. Compare the patient's identification bracelet name and numbers with the transport request sheet. Check the chart to make certain that everything ordered has been done and make a final entry in the nurse's notes (Figure 37-4).

**Preoperative Medications.** Most preoperative medications are given intravenously in the surgical holding area rather than on the nursing unit. Preoperative medications are given for the following reasons:

- To reduce anxiety and promote a restful state
- To decrease secretion of mucus and other body fluids
- To counteract nausea and reduce emesis
- To enhance the effects of the anesthetic

### Complementary and Alternative Therapies

#### Use of Acupuncture to Prevent Postoperative Nausea

An acupuncturist may treat the patient in the holding area to prevent postoperative nausea and vomiting. Such treatment has been shown to be effective and is helpful for patients who have difficulty with anesthetics and pain medication side effects (Holly, 2010).

#### Preparation of the Patient Unit

While patients are in surgery, prepare the patient unit for their return. Make the bed with fresh linen, including a drawsheet placed at shoulder height. Place an underpad at the hip area. Fan-fold the top covers to the far side of the bed or to the bottom of the bed. Have the bed in a raised position at the height of the stretcher that will return the patient, and arrange furniture so that the stretcher can be pulled up alongside the bed (Figure 37-5).

Gather an emesis basin, tissues, a frequent vital signs sheet or postoperative record, an intake and output sheet, a small towel and washcloth, and a pencil and place them on the bedside table or console (Figure 37-6). Place an IV pole at the head of the bed. Connect oxygen and suction equipment if their need is anticipated. A thermometer, sphygmomanometer and stethoscope, and pulse oximeter should be close at hand on the



FIGURE 37-5 Postoperative unit prepared for patient.

patient's return to the unit. If a PCA pump, sequential pneumatic compression devices, or a passive range-of-motion machine will be needed, see that they are obtained and ready.

### Elder Care Points

- Kidney function is decreased in the elderly, which makes them less tolerant of normal adult dosages of medications. Watch for medication toxicity.
- Meperidine may cause confusion if used continuously.

### Evaluation

Evaluation is accomplished by determining whether the expected outcomes and goals have been met. If the patient is properly prepared for surgery, is kept NPO, is reasonably calm, and is knowledgeable about the procedure and what is expected of him, then the general goals have been met. If the patient was not ready for transport at the appointed time, then you need to review your steps to see where improvement can occur. Other areas to evaluate are whether the patient's valuables were safely returned after surgery, and whether dentures, glasses, or hearing aids were found and reinserted. If any of these items was misplaced, then procedures need to be changed. Expected outcomes written for individual nursing diagnoses must also be addressed during evaluation (Nursing Care Plan 37-1).

### INTRAOPERATIVE CARE

The patient is transported to a holding room where the circulating nurse verifies the patient's identification and that all preoperative orders have been accomplished. The anesthesiologist or nurse anesthetist starts an IV if one is not already in place. The surgical consent form is checked to ensure that the patient is being prepared for the correct surgery on the correct body part. The surgical site is verified with the patient and marked, if not already done, before medications are given. Any ordered preoperative medications are administered. When the OR is ready, the patient is transferred to the

Text continued on p. 747





## Nursing Care Plan 37-1 Care of the Patient Undergoing a Colon Resection

**SCENARIO** Helen Walters., age 67, has just had a colon resection. She was admitted early this morning, but will stay in the hospital a couple of days. She has a history of diverticulitis (inflammation of pockets in the colon). She is a widow. Her daughter will care for her when she goes home.

**PROBLEM/NURSING DIAGNOSIS** *Fresh surgical incision/Pain* related to surgical incision.

**Supporting Assessment Data:** *Subjective:* Moaning and asking for pain medication on return from postanesthesia care unit (PACU). *Objective:* Abdominal incision for colon resection.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Pain will be controlled by analgesia 30 minutes after administration as noted by patient.	Hook up patient-controlled analgesia (PCA) pump immediately after initial assessment and give bolus dose of morphine as ordered if no contraindication is found.	Ability to self-medicate for pain decreases anxiety, and patient usually needs less medication.	Is pain controlled within 30 minutes? States is more comfortable.
	Remind patient how to work PCA pump.	Patient must know how to work the pump to receive pain medication.	
	Note response to PCA medication and closely monitor respiratory rate.	Morphine can depress the respiratory rate.	
Pain will be controlled by oral analgesia by discharge.			Relaxed body posture.  Is pain controlled by oral analgesia? Not yet.

**PROBLEM/NURSING DIAGNOSIS** *Skin incision/Impaired skin integrity* related to surgical incision.

**Supporting Assessment Data:** *Objective:* Abdominal incision with dressing intact and dry.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Wound will be free of signs of infection.	Keep Hemovac suction functioning properly. Note character and amount of drainage; document.	Hemovac must be compressed to exert suction.	Are there signs of infection present? Wound without signs of infection.
	Assess for signs of infection with dressing changes.	Redness, warmth, swelling, and draining pus indicate infection.	
	Monitor temperature and white blood cell (WBC) count.	WBC will rise in presence of infection.	
	Reinforce dressing as needed. Assess for bleeding q hr × 4 hr, then q 2 hr × 24 hr.	Bleeding indicates a complication.	
Wound will heal completely.	Use aseptic technique for dressing changes.	Asepsis prevents wound infection.	Is wound completely healed? No, but progressing toward outcomes; continue plan.
	Assess for signs of proper healing.	Good approximation of wound edges and decreasing redness indicate proper healing.	

**PROBLEM/NURSING DIAGNOSIS** *Recovering from anesthesia/Risk for ineffective airway clearance* related to effects of anesthesia, immobility, and incisional pain.

**Supporting Assessment Data:** *Subjective:* States has discomfort taking a deep breath or coughing. *Objective:* Under anesthesia for 3 hr; abdominal incision. Resp. 18.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will not have atelectasis.	Remind how to splint incision to cough.	Splinting when coughing reduces pressure on incision during coughing and helps prevent pain and dehiscence.	Does patient have atelectasis? No signs of atelectasis. Splinting adequately. Using incentive spirometer q 2 hr. effectively.
	Have patient deep breathe and cough while sitting on side of bed q 2 hr after fully alert.	Sitting to cough aids in lung expansion and expulsion of secretions.	
	Remind to use the incentive spirometer at least q 2 hr.	Sustained inspiration opens alveoli.	

Continued

### Nursing Care Plan 37-1 Care of the Patient Undergoing a Colon Resection—cont'd

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Lung sounds will be clear.	Auscultate lungs initially and each shift. Encourage ambulation after 8 hr. Monitor temperature and respirations.	Lung sound changes may indicate complications. Ambulation promotes greater lung expansion and deeper breathing. Rising temperature and increased respirations may indicate a complication.	<i>Are lung sounds clear?</i> Lung sounds clear with decreased sound in bases.  Progressing toward outcomes. Continue plan.

**PROBLEM/NURSING DIAGNOSIS** *NPO (nothing by mouth) status/Risk for deficient fluid volume related to surgery and nasogastric suction.*

**Supporting Assessment Data:** *Objective:* Bowel resection; NPO status.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Fluid balance will be within normal limits.	Maintain low intermittent suction on the nasogastric (NG) tube. Irrigate with 30 mL normal saline q 2 hr. Monitor character of drainage. Check for signs of dehydration. Maintain intravenous (IV) fluids at correct flow rate. Monitor for signs of overhydration: auscultate lungs for rales.  Auscultate for return of bowel sounds each shift. Monitor intake and output (I & O).	Suction must be set as ordered.  Normal saline will not alter electrolyte imbalance. Bleeding in drainage could indicate a complication. Removing stomach secretions without replacing fluids sufficiently can cause dehydration. Rales or crackles in the lungs indicate moisture, which can indicate overhydration. NG tube cannot be removed until bowel sounds return. I & O records help monitor for fluid imbalance.	<i>Is fluid balance within normal limits?</i> Not yet. Suction maintained. Irrigated q 2 hr. Secretions clear to light brown. Skin turgor good with moist mucous membranes.  No signs or symptoms of edema.  No bowel sounds detected.  Intake 660 mL; output 485 mL. Progressing toward outcomes. Continue plan.

**PROBLEM/NURSING DIAGNOSIS** *Afraid might have cancer/Anxiety related to outcome of surgery.*

**Supporting Assessment Data:** *Subjective:* "I hope there wasn't any cancer." *Objective:* Concerned expression on face.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Anxiety will dissipate as evidenced by patient's statements.	Reassure patient that surgeon said there was no sign of a mass in the excised portion of colon. Remind patient that her diagnosis was diverticulitis, not cancer.	Reassuring information helps dispel anxiety.  Helps patient focus on the positive.	<i>Do patient's statements indicate anxiety has dissipated?</i> No signs of anxiety.  Progressing toward outcomes. Continue plan.

**PROBLEM/NURSING DIAGNOSIS** *Just had abdominal surgery/Self-care deficit, bathing/hygiene and grooming, related to surgical incision and discomfort.*

**Supporting Assessment Data:** *Subjective:* States it is difficult to move or bend. *Objective:* Abdominal incision.

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will have a daily bath.	Bathing promotes cleanliness and decreases microorganisms on the skin that might lead to a wound infection.	Assist patient with bath, washing feet and back.	<i>Is patient being bathed daily?</i> Yes. Meeting outcomes.

## Nursing Care Plan 37-1 Care of the Patient Undergoing a Colon Resection—cont'd

Goals/Expected Outcomes	Nursing Interventions	Selected Rationale	Evaluation
Patient will receive assistance with hygiene and grooming.	Provide dental care equipment and assist as needed with cleansing of the teeth. Apply skin lotion. Assist into a clean gown.	Assisting with hygiene and grooming conserves energy needed for healing. Prevent patient from overtiring.	<i>Is patient assisted with hygiene and grooming?</i> Yes.

### Critical Thinking Questions

1. What actions would you take if the patient does not seem to be getting sufficient pain relief when using the PCA pump?
2. Would you expect the I & O to be essentially balanced for the first 24 hours on the day of surgery? What about the day after surgery?



FIGURE 37-7 Traditional operating room.



FIGURE 37-8 Preparing the surgical instruments and supplies.

operating table (Figure 37-7). Patient identification is verified again by the circulating nurse. The patient is positioned with padding to prevent injury to nerves and to minimize pressure over bony prominences. Safety straps are secured around the patient.

All personnel who will be entering the OR wear clean scrub outfits, hair covers, shoe covers, and sterile gowns and masks; they perform a surgical scrub before entering the room. **Strict surgical asepsis is mandatory throughout the surgical area.** The circulating nurse or scrub person and OR technician prepare the instruments and sterile supplies (Figure 37-8). As the patient is draped, anesthesia is begun. Further skin preparation is done at this time.

A study found that warming the patient before an operation can reduce the risk of surgical wound infection by 57%. Two different warming systems were used in the study (Hennenberg and Sessler, 2008).

### Role of the Scrub Person and Circulating Nurse

A surgical technician or a specially trained nurse (LPN/LVN or RN) may be the scrub person. A licensed

nurse usually fulfills the duties of the circulating nurse (Box 37-6).

## POSTANESTHESIA IMMEDIATE CARE

### Postanesthesia Care Unit

The period immediately after surgery with general anesthesia or after a major procedure performed with spinal anesthesia is a critical time and requires constant observation by specially trained nurses. The PACU provides care for all basic needs (Figure 37-9). The patient is positioned to prevent aspiration and promote lung expansion. The patient is kept warm by covering with warmed blankets and is reassured that the surgery is over. Vital signs are taken every 5 to 15 minutes until stable. Emergency equipment is on hand. The anesthesia recovery period usually takes 2 to 6 hours. The patient remains in the PACU until the vital signs are stable and he is awake and able to respond to stimuli. A form of the Aldrete scoring system may be used to determine readiness for transfer. Activity, respiration, circulation, consciousness, and skin color are each given a score of 1 to 3. A total score of 9 or 10 usually indicates the patient is ready for transfer. Because patients are coming out of anesthesia through the various stages and are unstable, the environment is kept as

**Box 37-6** Functions of the Circulating Nurse and the Scrub Person**MAJOR FUNCTIONS OF THE CIRCULATING NURSE**

- Coordinates care, oversees the environment, and cares for the patient in the operating room
- Verifies that consent is signed and accurate and that surgical site is marked
- Greets patient and performs patient assessment
- Checks medical record and preoperative forms for completeness
- Sets up the operating room; adjusts lights, stools, and discard buckets; and ensures supplies and diagnostic support are available
- Gathers and checks all equipment that is anticipated to be used, ensuring its safe function
- Opens sterile supplies for scrub nurse
- Provides needed padding and warming or cooling devices for the operating table
- Assists with ties of surgical team's gowns
- Assists with the transfer of the patient to the operating table and positions the patient
- Places electrocautery ground pad under patient if electrocautery is to be used
- Assists the anesthesia induction provider with anesthesia
- May prep the patient's skin before sterile draping occurs
- May insert a Foley catheter
- Handles labeling and disposition of specimens
- Coordinates activities with radiology and pathology departments
- Monitors urine and blood loss during surgery and reports findings to the surgeon

- Observes for breaks in sterile technique and announces them to the team
- Monitors traffic and noise within the operating room
- Communicates information on the surgery's progress to family during long procedures
- Documents care, events, interventions, and findings
- Helps transfer patient to gurney and accompanies patient to recovery area, providing report of the surgery and patient condition to the recovery nurse

**MAJOR FUNCTIONS OF THE SCRUB PERSON**

- Gathers all equipment for the procedure
- Prepares all sterile supplies and instruments using sterile technique
- Gowns and gloves surgeons on entry to operating room
- Assists with sterile draping of the patient
- Maintains sterility within the sterile field during surgery
- Hands instruments and supplies to the operating team during surgery
- Maintains a neat instrument table
- Labels and handles surgical specimens correctly
- Maintains an accurate count of sponges, sharps, and instruments on the sterile field; verifies counts with the circulating nurse before and after surgery
- Monitors for breaks in sterile technique and points them out
- Cleans up after the surgery is over

Adapted from deWit, S. C. (2013). *Medical-Surgical Nursing: Concepts and Practice* (2nd ed.). Philadelphia: Elsevier Saunders.

quiet as possible. Communication among the staff is kept to a minimum and is done in hushed tones. Once the patient is awake, family is sometimes allowed to visit for a few minutes so that they are assured that their loved one is alive and recovering.

#### ■ Postanesthesia Care in the Same-Day Surgery Unit

For many procedures the patient may be transferred from the OR directly back to the same-day surgery unit. Monitor the patient's respiration, circulation,

vital signs, neurologic status, fluid balance, wound drainage and dressings, and comfort level. When the vital signs are stable, the patient is allowed to sit up and then is ambulated. When able to ambulate unassisted, the patient may be discharged if vital signs are stable. Recovery time in the same-day surgery unit takes about 1 to 4 hours. Discharge teaching is begun before the surgery and continues once the patient is again alert. Written instructions are always sent home with the patient.

#### ? Think Critically

What is the number one priority of care for the patient in the PACU?



FIGURE 37-9 Postanesthesia recovery unit.

#### POSTOPERATIVE CARE

##### ■ Assessment (Data Collection)

On receiving the patient from the PACU nurse, check his identity, settle him in bed, and perform an initial postoperative assessment. This provides a baseline for frequent postoperative assessments to prevent or quickly catch signs of complications. Initial postoperative assessment is outlined in Table 37-3. **Vital signs and careful assessment are performed every 15 minutes for the first hour, every 30 minutes for the next 2 hours, every hour for the**

**Table 37-3** Postoperative Assessment

AREA	ASSESSMENT	SCHEDULE
Airway	Lung sounds, depth and quality of air movement, respiratory rate.  Oxygen saturation; oxygen delivery at rate ordered and patent system.	Auscultate lungs initially; respiratory rate q 15 min until fully aroused from anesthesia, then assess quality of respirations with vital signs assessment.  Note per vital signs schedule and whenever in room. Check oxygen delivery system with initial assessment.
Circulation	Auscultate heart; check peripheral pulses and sensation, especially distal to surgical site. Assess skin color.	Initially, q 4 hr × 2, then with vital signs. If surgery was on an extremity, assess each time vital signs are measured.
Mental status	Level of consciousness and orientation.	Initially and then with full vital signs.
Vital signs	Temperature, BP, pulse, and respirations.	Check temperature initially then q 8 hr once stable. Check vital signs q 15 min × 1 hr; q 30 min × 2 hr; q 1 hr × 4; q 4 hr × 24–48 hr; or per agency protocol.
Fluid status and hydration	IV site and flow rate; I & O; skin turgor; oral membranes.	Check IV initially and when in room; I & O each shift; skin turgor and oral membranes initially and each shift.
Surgical site	Check for bleeding; mark drainage on dressing; check wound drainage in containers.	Initially and q 1 hr × 4; then with vital signs.
Gastrointestinal	Auscultate bowel sounds; assess abdomen; check NG drainage color, character, amount.	Initially, then q 8 hr. Check drainage whenever in room.
Tubes	Check for patency and function of each.	Initially; then with vital signs after 1 hr.
Kidney function	Assess urine output from Foley catheter; must void within 8 hr if no Foley in place.	Initially and q 1 hr × 4; then if >30 mL/hr, q 4 hr.
Pain	Use a pain scale and observation of nonverbal behaviors.	Initially and with vital signs; assess at least q 2 hr.
Skin	Pressure areas over bony prominences.	Initially and q 2 hr.

Key: BP, Blood pressure; I & O, intake and output; IV, intravenous; NG, nasogastric.

next 4 hours, and then every 4 hours until the patient is totally recovered from anesthesia and vital signs have returned to normal. Vital signs are taken more frequently if they are unstable according to nursing judgment.

### ■ Nursing Diagnosis

Nursing diagnoses commonly used for postoperative patients who had general anesthesia are as follows:

- Pain related to disruption of tissue
- Risk for infection related to surgical wound
- Impaired gas exchange related to the effect of anesthesia on the lungs
- Ineffective airway clearance related to inability to breathe deeply and cough without discomfort
- Self-care deficit, bathing/hygiene, related to decreased mobility, tubes, and dressings
- Risk for injury related to sedation, decreased level of consciousness, or excessive blood loss
- Ineffective tissue perfusion related to surgery, anesthesia, and positioning on the operating table
- Ineffective coping related to loss of body part or change in body image

For patients who have undergone spinal anesthesia, include the first two diagnoses on the above list plus the following:

- Impaired physical mobility related to effects of spinal anesthesia

- Risk for injury related to decreased sensation and movement in lower extremities

### ■ Planning

The expected outcomes depend on the individual specific nursing diagnoses. General nursing goals are as follows:

- Maintain patent airway and adequate respiratory exchange.
- Maintain adequate tissue perfusion.
- Promote comfort and rest.
- Promote wound healing.
- Promote psychological adjustment to lifestyle or body image changes.
- Prevent complications.

When planning the shift work, allow time for frequent postoperative assessments. Careful planning is essential to care for the early postoperative patient properly and not neglect the needs of other assigned patients.

### ■ Implementation

#### *Protect the Patient from Injury*

**Maintaining an open airway is a priority measure.** The patient must be positioned on the side or with the head turned to the side to prevent aspiration, if not contraindicated, until fully recovered, alert, and with the swallowing reflex intact.

Side rails are kept raised for safety until patients are fully recovered from anesthesia. Reassure the patient who has had spinal anesthesia that it is normal for the legs to feel numb and heavy and that feeling will soon return to normal. Sense of position will return to the legs first, then sensation to deep pressure, then voluntary movement, and finally feeling of superficial pain and temperature. A feeling of “pins and needles” in the legs is common. The patient is prone to hypotension until all effects of the spinal anesthesia are gone. Monitor the patient for a spinal headache, but it is not necessary to stay totally flat for the first 12 hours because this has proven ineffective. If a headache develops, staying flat reduces the pain.



### Clinical Cues

**Encourage the patient to drink a lot of fluids, including those containing caffeine.** The fluids and caffeine raise the vascular pressure at the spinal puncture site and help seal the hole.

Check the surgical site when the patient returns to the unit. The dressing should be dry. If it is stained, outline the area with pen and note the time so that further bleeding can be assessed later. If the bleeding has saturated the dressing, reinforce with more dressing supplies; the dressing is not changed without an order to do so. Check the surgical site each hour for the first 4 hours, then every 2 hours if bleeding has not occurred. Report excessive bleeding to the surgeon. Check the bed linens under the patient as well because sometimes blood runs under the dressing and pools under the patient.

Assess drains for patency when checking the wound, and empty and recompress drainage devices as needed. Record the amount of drainage on the intake and output record (Table 37-4). Position the drainage devices so that there is no pulling on the entry sites. During assessment, check the tubes for kinking and ensure that the patient is not lying on them. Common types of drains left in to help remove fluid from the surgical site are Penrose, Hemovac, and Jackson-Pratt

Table 37-4

Expected Drainage from Tubes and Catheters Postoperatively

TYPE OF DRAINAGE	AMOUNT OF DRAINAGE IN 24 HOURS
Urine	500-700 mL for 1-2 days postoperatively, then 1500-2500 mL thereafter depending on intake
Gastric contents	Up to 1500 mL/day
Wound drainage	Variable with procedure and type of drain
T-tube, bile	Up to 500 mL

Adapted from Lewis, S.L., Dirksen, S.R., Heitkemper, M.M., Bucher, L., and Camera, I.M. (2011). *Medical-Surgical Nursing: Assessment and Management of Clinical Problems* (8th ed., p. 378). St. Louis: Elsevier Mosby.

(J-P) bulb drains; chest tubes; and a T-tube to the common bile duct.

### Promote Respiratory Function

The postoperative patient is at risk for respiratory problems from the effects of anesthesia on the lungs, from being in one position on the OR table for the duration of surgery, and from limited mobility in the immediate postoperative period. The patient may have oxygen per nasal cannula ordered for 24 hours after surgery. Some degree of **atelectasis** (collapse of alveoli in the lungs) exists after anesthesia. A mild hypoxia is usually present for about 48 hours after surgery. Auscultate the lungs carefully for absence of sound or for crackles, indicating retained secretions; assess the rate and depth of breathing, and encourage the patient to deep breathe and cough every 2 hours. This is essential to prevent pneumonia and relieve atelectasis. Hypostatic pneumonia occurs when lack of movement or of position change causes stasis of secretions, which become a breeding ground for bacteria. **Coughing may be contraindicated for patients who have had hernia repair or eye, ear, or brain surgery.** Check the physician's orders.

Coughing moves out secretions. If the patient cannot cough effectively, instruct him to take a deep breath and forcibly exhale with the mouth open; have him repeat the “huff” maneuver again; then ask him to take a deep breath and cough strongly as he exhales to move the secretions out of the airways. Little coughs just clear the throat. Be certain the patient turns every 2 hours as well because this changes the distribution of gas and blood flow in the lungs and helps move secretions.

**Signs of complications are complaints of shortness of breath; pain on inspiration; and extreme fatigue, which is related to hypoxemia.** The use of an incentive spirometer is especially helpful to prevent atelectasis and hypoventilation. The elderly patient may need extra coaching to master the technique.



### Elder Care Points

The risk of hypoventilation is greater in the elderly because lung expansion may be hampered by calcification of costal cartilage and weakened respiratory muscles.

A pulse oximeter may be used to determine blood oxygenation. Monitor the readings periodically and report arterial oxygen saturation (Sao<sub>2</sub>) readings below 92% to the physician. Pulse oximetry is covered in Chapter 28.

### Promote Circulation

When considerable blood is lost during surgery, transfusion may be ordered. Autologous transfusion may be done if the patient donated blood several weeks before surgery or if the patient's blood was collected as

it was lost. This blood is filtered and returned to the patient.

When the procedure involved an extremity or the pelvic area, check the distal or peripheral pulse during each full assessment. Swelling at the surgical site can compress vessels and decrease blood flow distal to the area. The skin should be warm to the touch, and there should be good capillary refill in the fingers or toes.



### Elder Care Points

- Because elderly people have fragile skin and less subcutaneous tissue, check bony prominences carefully for signs of breakdown.
- Joint strains can occur from positioning necessary for certain types of surgery; perform position changes slowly and gently.

Blood pressure and pulse should be compared with preoperative values to determine significant changes. An increase in pulse may indicate that internal bleeding is occurring, but it can also signify incomplete pain

control. Blood pressure falling below normal baseline level may indicate major bleeding.

The use of antiembolism (elastic) stockings increases venous return from the legs and helps prevent stasis of blood in the lower extremities (Skill 37-1). If the patient is at considerable risk of venous **thrombosis** (blood clot), the surgeon will order sequential pneumatic compression devices to be applied to the legs and/or an anticoagulant. These devices alternately compress and release, squeezing the vessels and propelling blood along them (Figure 37-10).

### Maintain Fluid Balance

The urine output is monitored after surgery. **If the patient has an indwelling catheter, the urine in the bag is observed every hour in the early postoperative period.** There should be a urinometer on the drainage bag for this purpose. If the urine flow is less than 5 mL/kg/hr, report it to the charge nurse. If flow is less than 60 mL over a 2-hour period, notify the surgeon. Check the catheter to ensure that it is not kinked and that the connecting tubing is not lying beneath the

## Skill 37-1 Applying Antiembolism Stockings



Many surgeons order some form of antiembolism stockings after major surgery. Patients frequently return from the postanesthesia care unit (PACU) with the stockings already in place. In such cases the preoperative orders include fitting the patient for antiembolism stockings, which are then sent with the patient to the operating room.

### Supplies

- Antiembolism stockings
- Measuring tape
- Powder

Review and carry out the Standard Steps in Appendix D.

### ACTION (RATIONALE)

#### Assessment (Data Collection)

1. Check the orders for the type of stocking to be applied. (*Stockings come in three lengths: knee high, thigh high, and full length.*)

#### Planning

2. Measure the patient's leg length and circumference for the length of stocking ordered. Obtain the correct size stocking. (*Ensures that stocking will fit properly.*)



Step 2

#### Implementation

3. Be certain the patient's legs are clean and dry; apply a light coating of powder to each leg. (*Powder makes stocking application easier and smoother.*)
4. Place your hand in one stocking and turn it inside out, down to the heel. (*Makes it easier to slip the stocking onto the foot without discomfort to the patient.*)

Continued

## Skill 37-1 Applying Antiembolism Stockings—cont'd

5. Stretch open the stocking at the heel, and fit it over the patient's foot. (*Stocking must fit smoothly without wrinkles that might damage the skin's surface.*)



Step 5

6. Grasp the top of the stocking, and fit it over the ankle and calf. (*If knee-high stockings are being used, do not pull over knee or fold the top of the stocking down. The stockings must be the correct length, or they can impair circulation or damage the skin's surface.*)
7. If thigh high, fit the top of the stocking over the knee and thigh. Smooth the entire surface to eliminate any wrinkles. Repeat steps 4 through 7 for the second stocking. Instruct the patient not to cross the legs or ankles when sitting in a bed or chair. (*Crossing the limbs causes pressure points that can hinder circulation.*)



Step 7

### Evaluation

8. Are the stockings at the right height for what was ordered? Are the stockings on smoothly, without any wrinkles? Do the stockings fit properly—not too tight or too loose at any point? (*Answers to these questions indicate whether the correctly fitted stocking is applied properly.*)

### Documentation

9. Document the size, type, and application of the stockings. (*Verifies that ordered stockings are in place and supports charges for the stockings.*)

### Documentation Example

9/7 1330 Legs measured and medium regular thigh-high stockings applied.

\_\_\_\_\_  
(Nurse's signature)

### Special Considerations

- Antiembolism stockings should be removed each shift to check the integrity of the skin on the heels and over the bony prominences. Stockings that are too tight may cause skin breakdown.
- Stockings should be washed when soiled. Obtain a second pair for use while stockings are drying. To wash, use mild soap and warm, not hot, water. Rinse thoroughly, squeeze out excess water, and roll up in a towel to remove further moisture; allow to air dry.
- Stockings should not be off the patient for more than 30 minutes at any one time.

### ? Critical Thinking Questions

1. What would you do if you measured a patient for thigh-high elastic stockings and the supply room did not have a size available that you need?
2. How does applying dusting powder to the legs make applying elastic stockings easier?



FIGURE 37-10 Applying leg sequential compression devices.

patient. If no catheter is present, the patient must void within 8 hours of surgery. If the patient is unable to empty the bladder spontaneously, an order for catheterization is obtained.

The patient usually has an IV infusion running when he returns from surgery. Depending on the type of surgery, IV fluids may be continued for a few days or may be discontinued after the fluid has infused. Check to make certain that the fluid running is the one that the surgeon ordered. **No potassium additive should be given until the urine flow is at least 5 mL/kg/hr.** Potassium may cause hyperkalemia if kidney function is not adequate. Assess the IV site for patency and lack of complications when vital signs are taken. Recheck the IV flow rate as well. Record all IV fluid administered as intake on the intake and output record.

As soon as the patient is conscious and the swallowing reflex has returned, offer the patient a few ice chips or sips of water unless there is an order to maintain NPO status. Record all intake on the intake and output record. At the end of each shift, note the difference between the intake and output. The body initially retains fluid due to the stress reaction from surgery. Postoperatively, the output slowly rises until it is more than the intake; after 2 or 3 days a balance should be reached.

Anesthesia may make the patient nauseated, and vomiting is not uncommon. Keep the emesis basin close at hand, and position the patient on the side to prevent aspiration. The surgeon usually writes an order for medication in the event of excessive nausea or vomiting. It is best to medicate the patient before actual vomiting occurs. After emesis, provide mouth care. If vomiting is uncontrolled with medication, a

nasogastric tube may have to be inserted to suction stomach contents and prevent further fluid and electrolyte loss.

Surgeons often leave in a nasogastric tube after most abdominal procedures because handling of the gastrointestinal tract and general anesthesia cause peristalsis to halt and secretions will not flow through the system properly. When a nasogastric tube is in place, check that the suction is set according to orders and is working properly. Assess the amount of drainage produced every 1 to 2 hours. **If the tubing is kept above the level of the stomach, drainage will occur more easily.** If the drainage turns dark brown and grainy, it should be checked for blood with a special reagent. Report the presence of blood to the surgeon.

#### Elder Care Points

- Fluid and electrolyte shifts may cause confusion in the elderly patient after surgery.
- The skin and vessels are more fragile in the elderly, and the IV site must be assessed frequently for signs of infiltration.
- Adjustment of the body to fluid shifts is more difficult, and the elderly patient is prone to postural hypotension when changing to a standing position. Be certain to adequately support the patient.

#### Promote Gastrointestinal Function

**Eating is not allowed until bowel sounds have returned after surgery and general anesthesia because of the risk of development of paralytic ileus** (failure of forward movement of bowel contents). Listen for bowel sounds at least once per shift. When eating is resumed, clear liquids are usually ordered, followed by full liquids, then a regular diet if the preceding diets have been tolerated. After spinal anesthesia, the patient may be allowed to eat right away.

Once the patient is eating again, he should have a bowel movement within 2 or 3 days. If one does not occur, an order for a suppository may be needed to stimulate a bowel movement. Patients receiving narcotic analgesics may become constipated and require stool softeners or laxatives to produce normal bowel movements.

#### Promote Comfort

If the patient is complaining of pain on return to the unit, check through the notes from the PACU and see if any pain medication was given. Note what preoperative medications were administered.

#### Clinical Cues

When droperidol plus fentanyl (Innovar) is given as a preoperative medication, narcotic pain medication is reduced by half for the 8 hours after the preoperative medication, or the narcotic analgesic will gravely depress respirations.

If respirations are within normal limits and there is no contraindication to doing so, medicate promptly with the ordered analgesic. If it is too soon to give more analgesia, reposition the patient, be certain the bladder is not distended and causing discomfort, check that the patient is warm enough, and use other comfort measures such as distraction and imagery to relieve the pain. Note when analgesia is due and have it ready to administer at the appointed time.

The patient may feel cold and should be kept warm with extra blankets or warmed bath blankets applied under the top covers. Placing socks on the feet may help. Some anesthetic agents may cause tremors as they wear off. If uncontrollable shivering occurs, contact the physician for medication orders.

Check dressings on extremities to be certain that they are not so tight that circulation is cut off. Check the distal pulse and skin temperature. Check with the physician or charge nurse before loosening a dressing.

Abdominal distention and considerable flatus may occur after general anesthesia because the gastrointestinal tract action ceases. This may cause discomfort. Ambulating is helpful in moving and evacuating gas. Taking only small amounts of liquid or food at a time, drinking liquids that are neither very hot nor very cold, and refraining from drinking with a straw helps keep flatus to a minimum. If permitted, the patient can try resting in a slight Trendelenburg position, with the legs and rectum higher than the stomach; this may assist in the evacuation of flatus. Chewing gum, if permitted, may also aid the return of proper gastrointestinal function.

Occasionally continuous hiccups occur after surgery, making the patient quite uncomfortable. Having the patient breathe into a paper bag often relieves the hiccups, but persistent hiccups require more vigorous treatment prescribed by the physician.

### Rest and Activity

The patient needs to sleep after surgery. Keep the room quiet and group nursing activities to avoid waking the patient more than necessary. Every 2 hours the patient must do leg exercises and change position. Orders for ambulation may begin 8 hours after surgery. Raise the head of the bed first and let the body adjust to the position change. Then sit the patient on the side of the bed, allowing the legs to dangle over the side with the feet on the floor. After a few minutes, slowly help the patient stand. Have the patient walk around the room using a gait belt, or for at least a few steps. Have someone assist you if the patient is very weak. Pain medication can be timed so that it is effective but the patient is not too groggy. Emphasize to the patient that exercise is vital to prevent circulatory problems. **Do not rub the legs to promote circulation. Such an action may disrupt a clot that has formed and cause an embolus** (clot that travels and lodges in a vessel) to the lung, the heart, or the brain. Praise the patient for any efforts.

Continue to ambulate on a set schedule until the patient is up and about independently.

If the patient is on bed rest, range-of-motion exercises must be performed at least four times a day. The patient may do active range of motion on most joints, but passive range of motion on joints the patient is unable to exercise must be done unless physical therapy visits have been ordered. See Chapter 18 for directions for range-of-motion exercises.

### Prevent Infection

Aseptic technique must be used when caring for the postoperative patient. Good handwashing is the primary means of preventing infection. Perform dressing changes with strict aseptic technique while the patient is in the hospital; the patient may use clean technique at home. Encouraging fluids to flush the bladder helps prevent a bladder infection for the patient who was catheterized or has an indwelling catheter. Turning, coughing, and deep breathing, plus ambulation, assist in preventing **pneumonia** (inflammation and consolidation of the lung with exudate) from retained secretions and lack of movement.

Inspect the surgical wound site each shift and assess for signs of infection: local pain, increased tenderness, warmth, redness, or drainage of pus. Monitor the blood count for increasing leukocytes (white blood cells), and monitor the temperature for unexpected increase.

### Complications of Surgery

A major nursing responsibility is continuous monitoring for signs of the various complications that may occur as a result of surgery. Table 37-5 summarizes postoperative complications and nursing actions to prevent them. **Dehiscence** (separation of the layers of the surgical wound) and **evisceration** (extrusion of the viscera through the surgical incision) may occur when the patient is coughing, particularly if the abdominal incision is not properly splinted.

### ■ Evaluation

Evaluation is based on whether goals and expected outcomes have been met. Evaluative statements regarding previously stated general goals might be as follows:

- Lungs clear to auscultation; respirations 18
- Pulse 82, BP 136/86, peripheral pulses present
- Pain controlled for 4 hours with analgesia; states pain medication controls pain for about 4 hours
- Incision clean, dry, and without redness
- States is glad he will not have periods of pain and malaise anymore
- No signs of thrombophlebitis or infection

Each nursing care plan is evaluated on whether the individual specific outcomes have been met. Further examples of evaluation are in the nursing care plan for this chapter.

**Table 37-5** Postoperative Complications

PROBLEM	SIGNS AND SYMPTOMS	PREVENTIVE INTERVENTIONS
Atelectasis	Decreased breath sounds over areas not aerating; dyspnea	Deep breathing and coughing; use of incentive spirometer; early ambulation; teaching to cough properly.
Pneumonia: hypostatic, aspiration, or bacterial	Fever, malaise, increased sputum, purulent sputum, cough, flushed skin, dyspnea, pain on inspiration; abnormal breath sounds, crackles, rhonchi	Deep breathing, coughing, and frequent turning; early ambulation; incentive spirometer; range-of-motion exercises if unable to ambulate; medication if bacterial.
Paralytic (adynamic) ileus	No bowel sounds 24-36 hr after surgery or fewer than 5 sounds per minute	Monitor bowel sounds; encourage early ambulation; NPO as ordered. Do not feed until bowel sounds return.
Thrombophlebitis	Pain or warmth in calf of leg, swollen leg, warm area to touch on leg; possible temperature elevation	Encourage leg exercises; keep the patient well hydrated; encourage ambulation; antiembolism stockings or devices.
Urinary retention	Distended bladder; inability to void spontaneously	Palpate bladder; encourage voiding; catheterize if unable to void within 8 hr per order; medicate to increase urinary sphincter tone as ordered.
Urinary tract infection	Dysuria, frequency, foul-smelling urine	Force fluids when allowed; encourage frequent voiding; keep catheter clean and patent; use aseptic technique to empty drainage bag.
Wound infection	Redness, swelling, pain, warmth, drainage, fever, increased leukocytes, rapid pulse and respirations (fever 72 hr after surgery indicates infection in some system or in the wound)	Assess wound characteristics and drainage. Monitor WBC levels and temperature. Use aseptic technique for wound care; encourage adequate nutrition and fluids; encourage activity.
Pulmonary embolus	Shortness of breath, anxiety, chest pain, rapid pulse and respirations, cyanosis, cough, bloody sputum	Antiembolism stockings, adequate fluid intake, frequent turning or ambulation, preventive anticoagulant if ordered.
Hemorrhage and shock	Evidence of copious bleeding; decreased blood pressure, elevated pulse, cold clammy skin, decreased urine output	Give blood or volume expander; stop bleeding. Place in shock position with feet and legs elevated and head flat; administer ordered medications to raise blood pressure; administer oxygen; frequent vital signs measurement.
Wound dehiscence or evisceration	Discharge of serosanguineous drainage from wound and sensation that "something gave"; separation of wound edges with intestines visible through abdominal incision	Teach to splint properly for coughing. Place patient supine; cover wound with sterile saline-soaked gauze or towels; return to OR for repair; monitor for shock.
Fluid imbalance	<b>Signs of overhydration:</b> Crackles in lungs, edema, weight gain <b>Signs of dehydration:</b> Weight loss, diminished pulse, dry mucous membranes, decreased tissue turgor	Control IV flow rate. Monitor intake and output; correct imbalances. Output will be less than intake first 72 hr after surgery with general anesthesia. Auscultate lungs each shift. Monitor weight; check for edema.

Key: IV, Intravenous; NPO, nothing by mouth; OR, operating room; WBC, white blood cell.

## Get Ready for the NCLEX® Examination!

### Key Points

- Surgical procedures may be elective, emergency, palliative, diagnostic, curative, or reconstructive.
- The use of lasers, fiberoptic endoscopes with high-resolution video cameras, operating microscopes, and robotic technology has revolutionized surgery.
- Anesthesia is used to prevent pain; achieve adequate muscle relaxation; and calm fear, allay anxiety, and induce forgetfulness of an unpleasant experience.
- Inhalant gases and IV medications are used to induce general anesthesia, and the patient progresses through four stages to total anesthesia.
- Regional anesthesia, moderate sedation, or local anesthesia is used for many surgical procedures.
- The surgeon must obtain informed consent from the patient before surgery is performed.
- A thorough assessment is performed by the nurse, and any risk factors for surgery are identified.

- The nursing care plan is amended as the patient progresses through preoperative, intraoperative, and postoperative periods.
- Preoperative teaching of exercises to be performed postoperatively is important; the patient is taught leg exercises and breathing and coughing exercises.
- The scrub person and the circulating nurse provide care for the patient while in the OR.
- The PACU monitors patients closely until they are fully aroused from anesthesia.
- Nursing interventions are aimed at providing pain control, comfort, and fluid balance; protecting the patient from injury; maintaining vital functions; and preventing infection.
- The nurse tries to prevent or intervene in the many potential complications of surgery.
- Discharge planning begins at admission and covers all areas of basic needs, wound care, and activity restrictions.
- Written instructions regarding all aspects of postoperative care should be sent home with the patient.

### Additional Learning Resources

**SG** Go to your Study Guide for additional learning activities to help you master this chapter content.

**Evolve** Go to your Evolve website (<http://evolve.elsevier.com/deWit/fundamental>) for the following FREE learning resources:

- Animations
- Answer Guidelines for Think Critically boxes and Critical Thinking Questions and Activities
- Answers and Rationales for Review Questions for the NCLEX® Examination
- Glossary with pronunciations in English and Spanish
- Interactive Review Questions for the NCLEX® Examination and more!

### Review Questions for the NCLEX® Examination

Choose the **best** answer for each question.

1. When witnessing the signing of an informed surgical consent form, the nurse is verifying that:
  1. the correct operation is entered on the form.
  2. the risks and alternatives for the surgical procedure have been explained.
  3. all possible consequences of having or not having the procedure are understood.
  4. the patient noted on the form has signed it.
2. Your patient had an appendectomy 2 days ago. To properly auscultate for bowel sounds, you would:
  1. listen in the lower right quadrant for 2 minutes.
  2. listen in all four quadrants for at least 1 minute each.
  3. listen in each quadrant for 3 minutes.
  4. listen in both lower quadrants for 2 minutes.
3. A similarity of roles for the scrub person and the circulating nurse is that they both:
  1. set up initial sterile instruments and supplies.
  2. position lights and step stools.
  3. are communication links with personnel outside the room.
  4. advise the team of breaks in sterile technique.
4. When a patient arrives in the PACU with a surgical dressing, an intravenous infusion, and a urinary catheter, the priority action of the nurse is assessment of:
  1. urine output.
  2. IV line patency.
  3. airway patency.
  4. wound drainage.
5. As part of a patient's immediate care in the PACU, the nurse would: (*Select all that apply.*)
  1. check vital signs every 15 minutes.
  2. assess adequacy of respirations.
  3. monitor the dressing.
  4. observe the drainage from the NG tube.
  5. note the amount of urine output.
6. A patient returns to his room after surgery. When he arrives, you notice that he is still groggy from anesthesia and that he has an IV running in one arm. As you help settle him in bed, you: (*Select all that apply.*)
  1. assess the IV for patency and correct fluid and rate.
  2. position to prevent aspiration while still groggy.
  3. quickly medicate for pain.
  4. take his vital signs every 15 minutes for 1 hour.
  5. reassure him that the surgery is over.
7. If your fresh postoperative patient has not voided within 8 hours of the end of surgery, you would *first*:
  1. seek an order to catheterize the patient.
  2. assist the patient to attempt to void using measures to encourage voiding.
  3. allow another hour in which the patient might spontaneously void.
  4. obtain catheterization equipment and bring it to the bedside.
8. Since your surgery patient returned to her room, you have assisted her in turning and encouraged her to breathe deeply, to cough, and to move her legs at least every 2 hours. By deep breathing and coughing, the patient will be less likely to develop the postoperative complication of \_\_\_\_\_. (*Fill in the blank.*)
  1. atelectasis
  2. hypoxemia
  3. pneumonia
  4. pulmonary embolism