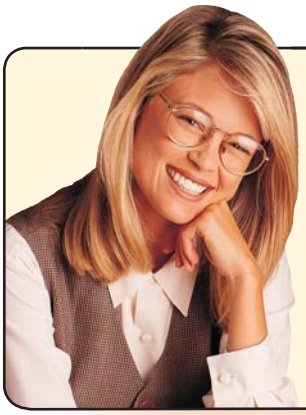
CHAPTER 30

Perioperative Nursing

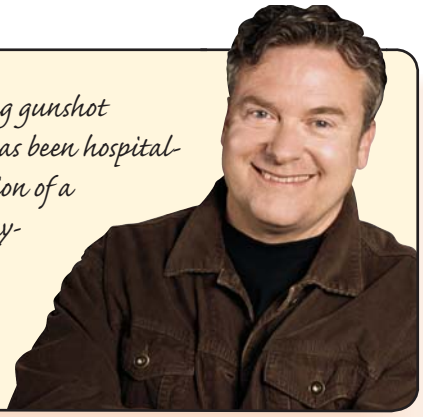


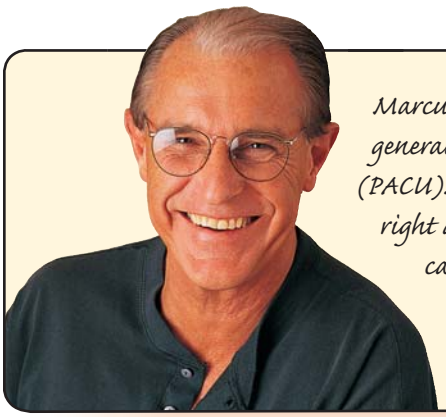
Molly Greenbaum

Molly, a 38-year-old woman who is scheduled for a vaginal hysterectomy later in the day, arrives at the hospital at 6:30 a.m. With tears in her eyes and wringing her hands, she states, "I really didn't sleep very much last night. I kept thinking about the surgery."

Ron Johnson

Ron, a middle-aged man with an extensive medical history, including gunshot wounds, bilateral leg amputations, paraplegia, and several surgeries, has been hospitalized in the past for long periods of time. Yesterday he underwent creation of a urinary diversion and is NPO. He asks, "Why won't anybody give me anything to eat? My doctor said that I would be able to eat the day after surgery. I want some food and I want it now!"





Marcus Benjamin

Marcus, a 73-year-old man, has just had a total hip replacement under general anesthesia and is transferred to the postanesthesia care unit (PACU). His vital signs are stable. He has an intravenous catheter in his right antecubital space, infusing at 125 cc/hr, and an indwelling urinary catheter in place, draining clear yellow urine. The dressing over the surgical site is clean and dry, without any drainage.

Focusing on Blended Skills

The types of blended skills that you'll need to respond to the case scenarios include:

Cognitive Skills

- Basic knowledge of the surgical experience, including perioperative phases, categories of surgery, types of anesthesia, informed consent, and related nursing care
- Ability to integrate the nursing process to develop an individualized plan of care for patients undergoing surgery during each phase of the surgical experience
- Knowledge of the effect of physiologic age-related changes on a patient's risk during the perioperative period
- Knowledge of wound care
- Knowledge of intravenous therapy techniques and rationales for use
- Ability to identify the potential risks common in any surgical procedure
- Ability to identify the common psychological patient responses before and after surgery
- Ability to incorporate knowledge of the topics related to the surgical experience into a patient teaching plan
- Knowledge of physical and psychological preparation necessary for the patient who is to undergo surgery
- Ability to integrate knowledge of potential postoperative complications when developing a patient's postoperative plan of care, including appropriate preventive interventions
- Knowledge of resources to contact when encountering questions about the surgical experience or care with which you are unfamiliar

Technical Skills

- Strong assessment skills to identify risk factors and potential problems that may affect a patient's perioperative experience
- Ability to use equipment correctly and competently when providing perioperative care
- Ability to ask for assistance as necessary when performing new or technologically complex procedures or working with unfamiliar equipment
- Ability to implement techniques for safe and effective nursing care of patients in each perioperative phase
- Incorporation of principles of asepsis and intravenous therapy when providing care to a patient throughout each perioperative phase
- Ability to complete preoperative checklist accurately

Interpersonal Skills

- Ability to communicate to the patient concern about the patient and his or her well-being
- Ability to demonstrate respect for the patient's human dignity when implementing the perioperative plan of care
- Ability to work collaboratively with interdepartmental members of the healthcare team, using clear, accurate, and professional communication skills
- Ability to establish trusting relationships with patients, families, and colleagues as a basis for quality perioperative care
- Ability to identify and respond to the needs of the patient and family during the perioperative period, a naturally stressful situation

Ethical and Legal Skills

- Commitment to implementing the perioperative plan of care safely within the scope of nursing practice
- Ability to participate as a trusted and effective patient advocate, including advocating for the patient who is fearful or demonstrates demanding behavior
- Consistent use of appropriate legal safeguards when implementing the perioperative plan of care
- Demonstration of knowledge of informed consent
- Knowledge of pertinent agency policy for perioperative nursing responsibilities
- Knowledge of the ethical and legal principles that guide decision making about perioperative care measures for any patient, regardless of the type of surgery being performed
- Knowledge of the patient safety goals as they relate to surgery

Learning Objectives

After completing the chapter, you will be able to accomplish the following:

1. Describe the surgical experience, including perioperative phases, classification of surgery, types of anesthesia, informed consent and advance directives, and ambulatory surgery.
2. Conduct a preoperative nursing history and physical assessment to identify patient strengths as well as factors that increase the risks for surgical and postoperative complications.
3. Prepare a patient physically and psychologically for surgery.
4. Identify assessments and interventions specific to the prevention of complications in the immediate and early postoperative phases.
5. Use the nursing process to develop an individualized plan of care for the surgical patient during each phase of the perioperative period.

Key Terms

anesthesia
atelectasis
elective surgery
embolus
emergency surgery
hemorrhage
hypovolemic shock
moderate sedation/analgesia
optional surgery
perioperative nursing
perioperative period
pneumonia
thrombophlebitis
urgent surgery

The treatment of a wide variety of illnesses, injuries, and human conditions includes some type of surgical or procedural intervention. Surgery is an intervention in which the knowledge and skill of multiple care providers are combined for the welfare of the patient. Surgery may be done for a variety of reasons: to cure or minimize disease; to diagnose the specific presence of a disease or condition; to reconstruct or eliminate a defect; to enhance form and function; to prescribe appropriate postoperative treatment and prognosis; to palliate, or offer comfort, when cure is not possible; to follow up or monitor an incurable disease process; and to offer a preventative option when disease is inevitable. Surgery may be planned or unplanned, elective/optional or necessary, major or minor, and may involve any body part or system. Surgery is a stressor that requires physical and psychosocial adaptations for both the patient and the family. The patient's recovery from a surgical procedure requires skillful and knowledgeable nursing care, whether the surgery is done on an outpatient basis or in the hospital. (See the accompanying Reflective Practice display for an example of nursing care for a patient who has undergone surgery.)

Nursing care provided for the patient before, during, and after surgery is called **perioperative nursing.** The perioperative continuum encompasses the preoperative, intraoperative, and postoperative time frames for the patient. This term is used by all members of the surgical and medical team, not just nursing. All phases of the nursing process are used to make assessments and provide interventions to promote the recovery of health, prevent further injury or illness, and facilitate coping with alterations in physical structure and function.

A conceptual model for perioperative nursing care is shown in Figure 30-1. In this model, the patient is at the center of all care activities. The three critical domains for patient care are safety, physiologic responses, and the patient and family behavioral responses. For each of these domains, there are desired outcomes. These, rather than the usual progression of the nursing process, which begins with assessment, are identified first in the model because perioperative nursing is preventive in nature. Therefore, perioperative nurses base their plans of care on already known and recognized desired outcomes. The patient is assessed for the relevance of the outcome, nursing diagnoses are then identified, and interventions are planned. The domain in the model that relates to the health system is intended to represent the structure elements and other system activities that must be present to support safe, effective, high-quality patient care.

The type of surgery scheduled influences the desired outcomes, nursing diagnoses, assessments, and interventions carried out by the nurse. For example, the nurse's role when caring for the patient having ambulatory surgery may involve providing patient care from admission through discharge. The nurse's role for hospital-based surgery is usually specific to one phase. The perioperative nursing practice goal is to promote and assist the patient and family to achieve a level of wellness equal to or greater than what they had prior to the procedure (Association of periOperative Registered Nurses [AORN], 2006c).

Reflective Practice

Challenge to Intellectual Skills

During a recent clinical experience on a level II ICU, I worked with a Ron Johnson, a middle-aged male patient who had an extensive medical history that included gunshot wounds, bilateral leg amputations, paraplegia, and several surgeries. Because of this, he had lengthy hospital stays and was known by the staff as being a difficult and manipulative patient. During my encounter with him, he was first day postop from a urinary diversion surgery. The patient was ordered to be NPO for the first 2 to 3 days following the surgery. However, this patient claimed that his surgeon had told him that he would be able to eat the day after the surgery, and he was demanding that I give him food and fluids. "I want some food and I want it now!" I told the patient that I had to follow the orders in his chart and that it was unlikely that he would be able to have anything by mouth during my shift. He asked me to explain the reasons for being NPO after surgery and I did my best under the time constraints by telling him that the bowel is affected by anesthesia and it is not ready to handle the intake of food and fluids. In all honesty, I did not know the major consequences of eating or drinking after surgery; however, I did not admit this to him. He was obviously not satisfied with my explanation because when I returned from my lunch break, he was sitting in front of a lunch tray with a large glass of fluids. He had talked some of the nursing assistants into getting him the items. He made the decision to act against my instructions and the instructions of his surgeon because I was not able to give him a clear, articulate explanation of his NPO status.

Thinking Outside the Box: Possible Courses of Action

- Tell the patient that I was unable to give him the best explanation of his NPO status, informing him that I would return in 5 to 10 minutes after consulting with a nurse and deciding the best way to articulate to him the consequences of ignoring the order.
- Avoid giving him any explanation at all, assuming that because of his extensive surgical history he knew the reasons why he must not eat or drink.
- Ask another nurse or even the dietitian to explain the NPO order.
- Alert the surgeon that this patient was at risk for being noncompliant and ask him to come to see the patient as soon as possible.

Evaluating a Good Outcome: How Do I Define Success?

- The patient verbalizes an understanding of my explanation and the consequences of his actions.
- The patient complies with the physician's orders and with my instructions.
- The patient remains free of injuries/complications.
- I feel competent in my explanations and actions.
- I am able to take responsibility for the patient's actions.

Personal Learning: Here's to the Future!

This patient taught me a great deal. He taught me that sometimes, rather than giving an inadequate explanation, it would be better to admit that you do not know or that your knowledge is not up to par in a particular area. I should have been honest with Mr. Johnson, admitting that I was unsure about why he wasn't allowed to eat or drink. It would have been more advantageous to consult with someone else before giving him a more thorough explanation. I also should have recognized that Mr. Johnson was exhibiting extreme frustration and depression, placing him at high risk for noncompliance. All he needed was someone to take the extra time with him, offering compassion and support. Unfortunately, the patient did not comply with the order and thus was at risk for developing serious complications such as a bowel obstruction. I alerted the surgeon of the patient's actions, and luckily the surgeon was understanding. In the future, I will make a major effort to gather the appropriate information to give patients a thorough, understandable explanation when they ask for specific information.

Reflection

How would you respond in a similar situation? Why? What does this tell you about yourself and about the adequacy of your skills for professional practice? What cognitive skills did the nursing student use? What cognitive skills were lacking or would have been helpful? How might the patient's past history have influenced the nursing student's actions? Explain. If you were this nursing student, would you have been influenced by his past history? Why or why not? Can you think of other ways to respond? What other skills (cognitive, interpersonal, technical, ethical/legal) would you need to respond well in this situation? Do you agree with the criteria to evaluate a successful outcome? Did this nursing student meet the criteria? Why or why not?

Colleen Kilcullen, Georgetown University

This chapter discusses preparing the patient for surgery, supporting the patient during surgery, and assisting with recovery after surgery. Selected nursing diagnoses and expected outcomes are included for each phase of care of the surgical patient.

THE SURGICAL EXPERIENCE

Regardless of the surgical or interventional procedure required or the setting in which it is performed, all patients progress through specific perioperative phases, require some type of

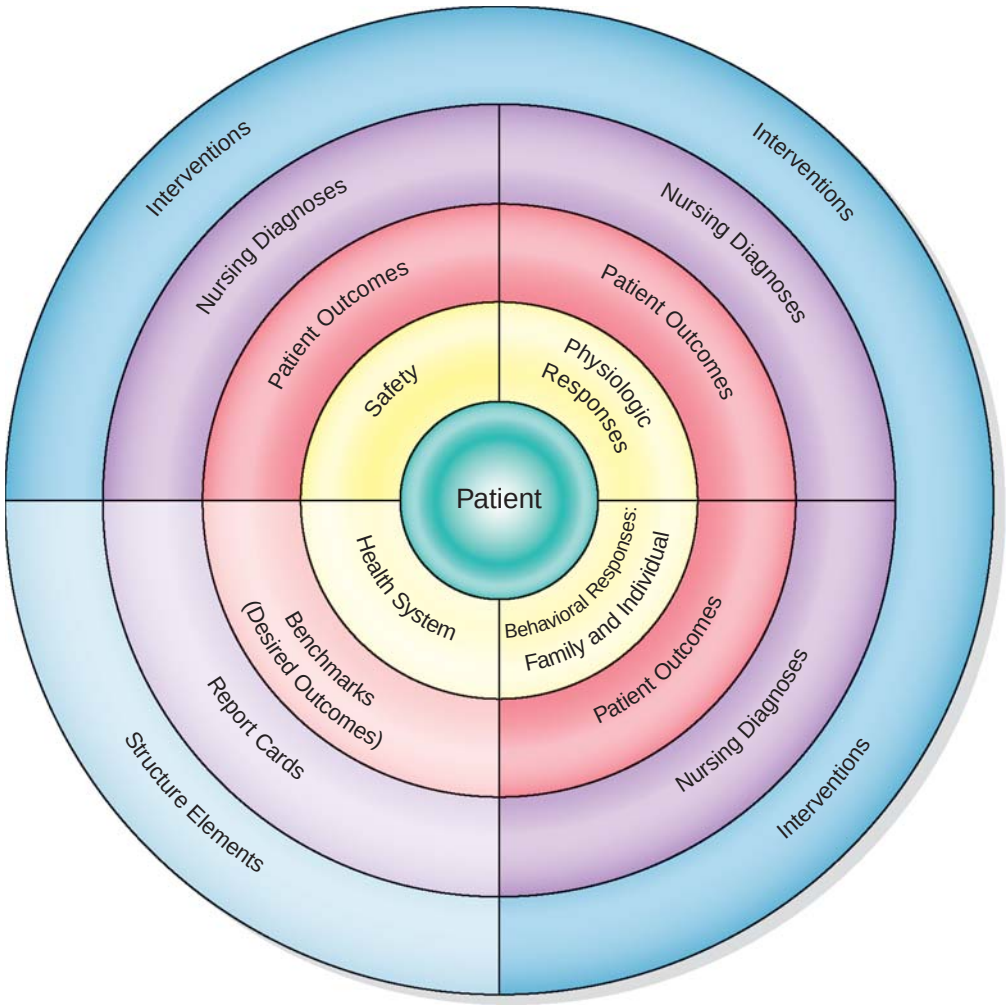


Figure 30-1. Association of periOperative Registered Nurses Perioperative Patient-Focused Model. (Reproduced with permission, AORN Perioperative Patient Focused Model. Copyright © AORN, Inc., 2170 S. Parker Road, Suite 300, Denver, CO 80231.)

anesthesia and monitoring support, and must give their consent for surgery. The following sections describe those components of the surgical experience.

Phases of the Perioperative Period

The patient who is having surgery progresses through several distinct phases, called the **perioperative period.** The three phases of perioperative patient care are:

- the preoperative phase, beginning with the decision, together with the surgeon, that surgery is necessary or wanted and will take place, and lasting until the patient is transferred to the operating room (OR) bed
- the intraoperative phase, which begins when the patient is transferred to the OR bed, also called a table, until transfer to the postoperative recovery area
- the postoperative phase, lasting from admission to the recovery area to complete recovery from surgery

The postoperative phase can further be broken down into phase I (providing patient care from a totally anesthetized state to one requiring less acute nursing interventions), phase II (preparing the patient for self or family care or for care in a phase III extended care environment), and phase III (providing ongoing care for patients requiring extended observation or intervention after transfer or discharge from phase I or II) (American Society of PeriAnesthesia Nurses [ASPAN], 2004).

With an increasing trend toward short-stay or same-day surgical treatment, the nursing interventions in each phase of perioperative nursing care may vary somewhat, but they remain basically the same. The nursing process is used during each phase to meet physical and psychosocial needs and to facilitate the patient's return to health. Each of these phases, with related patient needs and nursing activities, is described in detail in this chapter.

Surgical Procedure Classification

Surgical procedures usually are classified according to urgency, risk, and purpose. Table 30-1 lists each classification, with purposes and examples for each. No matter what the defined degree of risk, any surgical procedure imposes physical and

TABLE 30-1 Classification of Surgical Procedures

Classification	Purpose	Examples
Based on Urgency		
Elective: Delay of surgery has no ill effects; can be scheduled in advance based on patient's choice	• To remove or repair a body part • To restore function • To improve health • To improve self-concept	Tonsillectomy, hernia repair, cataract extraction and lens implantation, hemorrhoidectomy, hip prosthesis, scar revision, facelift, mammoplasty
Urgent: Usually done within 24–48 hours	• To remove or repair a body part • To preserve or restore health • To restore function • To prevent further tissue damage	Removal of gallbladder, coronary artery bypass, surgical removal of a malignant tumor, colon resection, amputation
Emergency: Done immediately	• To preserve life (plus purposes listed above)	Control of hemorrhage; repair of trauma, perforated ulcer, intestinal obstruction; tracheostomy
Based on Degree of Risk		
Major: may be elective, urgent, or emergency	• To preserve life • To remove or repair a body part • To restore function • To improve or maintain health	Carotid endarterectomy, cholecystectomy, nephrectomy, colostomy, hysterectomy, radical mastectomy, amputation, trauma repair
Minor: Primarily elective	• To restore function • To remove skin lesions • To correct deformities	Teeth extraction, removal of warts, skin biopsy, dilation and curettage, laparoscopy, cataract extraction, arthroscopy
Based on Purpose		
Diagnostic	• To make or confirm a diagnosis	Breast biopsy, laparoscopy, bronchoscopy, exploratory laparotomy
Ablative	• To remove a diseased body part	Appendectomy, subtotal thyroidectomy, partial gastrectomy, colon resection, amputation
Palliative	• To relieve or reduce intensity of an illness; is not curative	Colostomy, nerve root resection, débridement of necrotic tissue, balloon angioplasties, arthroscopy
Reconstructive	• To restore function to traumatized or malfunctioning tissue • To improve self-concept	Scar revision, plastic surgery, skin graft, internal fixation of a fracture, breast reconstruction
Transplantation	• To replace organs or structures that are diseased or malfunctioning	Kidney, liver, cornea, heart, joints
Constructive	• To restore function in congenital anomalies	Cleft palate repair, closure of atrial–septal defect

psychological stress and is seldom considered minor by the patient.

Recall Molly Greenbaum, the 38-year-old woman who is to undergo a vaginal hysterectomy. The nurse would incorporate knowledge about the various classifications of surgery to plan appropriate care before and after surgery.

Surgery Based on Urgency

Surgery is also classified into broad categories that cross specialty areas:

- **elective surgery** is a procedure that is preplanned and based on the patient's choice and availability of scheduling for the patient, surgeon, and facility. This is a nonurgent procedure that does not have to be done immediately.
- **emergency surgery** must be done immediately to preserve life, a body part, or function.
- **urgent surgery** must be done within a reasonably short time frame to preserve health but is not an emergency.
- **optional surgery** is not critical to survival or function.

Surgery Based on Degree of Risk

Surgery is classified as minor or major based on the degree of risk for the patient. Minor surgery is almost always performed in settings such as a physician's office, an outpatient clinic, or a same-day, ambulatory surgery setting. This classification

means that the surgical procedure is usually brief, carries a low risk, and results in few complications. In contrast, major surgery may require hospitalization, is usually prolonged, has a higher degree of risk, involves major body organs or life-threatening situations, and has a greater risk for postoperative complications. Advances in the use of laser techniques and minimally invasive approaches involving very small incisions have made major surgery less traumatic, requiring shortened hospital stays. New surgical approaches using minimally invasive techniques continue to evolve. Many surgical procedures, even though they are classified as major, may now be performed on an ambulatory basis or as a 23-hour hospital stay. The major and minor nomenclature is not as descriptive of the actual procedures today because of the remarkable evolution of surgical science and technology. Major-type procedures can be accomplished with minimal anesthesia in short time frames, permitting the patient to return home within the same day, with minimal pain and quick return to normal daily activities.

Surgery Based on Purpose

Some terms used to classify surgical procedures based on purpose include diagnostic, ablative, palliative, reconstructive, transplantation, and constructive (see Table 30-1).

Anesthesia

Anesthesia is a method and technique of making potentially uncomfortable interventions tolerable and safe. Anesthetic agents can be administered systemically, to the whole body, or regionally to block nerve conduction. General, or systemic, anesthesia is a balance of loss of consciousness, analgesia (pain relief), relaxation, and loss of reflexes (temporary paralysis). General anesthesia produces all of these responses, whereas regional anesthesia does not cause narcosis, or sleepiness, but results in analgesia and reflex loss. Anesthesiologists (medical doctors) or certified registered nurse anesthetists (CRNA) administer anesthetic agents while monitoring the patient's physiologic response and maintaining homeostasis throughout the procedure and recovery. Nurse anesthesia is an advanced nursing specialty, with CRNAs administering about 65% of the 26 million anesthetics given to patients in the United States each year (American Association of Nurse Anesthetists, 2003). Both physicians and nurses who administer anesthesia perform preoperative physical assessments, conduct preoperative teaching, administer anesthesia during the surgical procedure, and oversee the patient's postoperative recovery from the anesthetic.

General Anesthesia

General anesthesia involves the administration of drugs by the inhalation, intravenous (IV), rectal, or oral route to produce central nervous system depression. The desired actions of general anesthesia are loss of consciousness, analgesia, relaxed skeletal muscles, and depressed reflexes. Choices of route and type of anesthesia are made primarily by the anesthesia provider after discussion with the patient. Many factors influence these choices, including the type and length of surgery and the physical and psychological status of the patient. Inhalation anesthesia is often used because it has the advantage of rapid excretion and reversal of effects.

The three phases of general anesthesia are induction, maintenance, and emergence. Induction begins with administration of the anesthetic agent and continues until the patient is ready for the incision. Maintenance continues from this point until near the completion of the procedure. Emergence starts as the patient begins to emerge from the anesthesia and usually ends when the patient is ready to leave the operating room; the length of time depends on the depth and length of anesthesia (Rothrock 2007). New anesthetic agents enable patients to emerge from anesthesia and "wake up" in a fraction of the time required in the past. As these agents become more commonly used, patients will frequently bypass the postanesthesia care unit (PACU). This will enable more surgical procedures to be safely done in doctors' offices.

The advantages of general anesthesia are that it can be used for patients of any age and for any surgical procedure, with the patient unaware of the physical trauma of the surgery. There are, however, major associated risks for circulatory and respiratory depression, postoperative nausea and vomiting, and alterations in thermoregulation.

Remember Marcus Benjamin, the 73-year-old man who had a total hip replacement. The nurse would need to incorporate knowledge about the risks associated with general anesthesia along with knowledge of the physiologic changes associated with aging when developing an appropriate plan of care for this patient. Key to this plan of care would be measures that prevent or minimize the patient's risk for complications.

Regional Anesthesia

Regional anesthesia occurs when an anesthetic agent is injected near a nerve or nerve pathway in or around the operative site, inhibiting the transmission of sensory stimuli to central nervous system receptors. The patient receiving regional anesthesia remains awake but loses sensation in a specific area or region of the body. In some instances, reflexes may also be lost. Regional anesthesia may be accomplished through major nerve blocks or through spinal (subarachnoid block), caudal, or epidural blocks.

Nerve Blocks

Nerve blocks are accomplished by injecting a local anesthetic around a nerve trunk supplying the area of surgery, such as the jaw, face, and extremities. Onset and duration of the block depend on the anesthetic drug, its concentration, the amount injected, and the addition of epinephrine, which prolongs the block.

Spinal Anesthesia

Spinal anesthesia is achieved by injecting a local anesthetic into the subarachnoid space through a lumbar puncture,

causing sensory, motor, and autonomic blockage. This type of anesthesia is used for surgery of the lower abdomen, perineum, and legs. Adverse effects of spinal anesthesia may include hypotension, headache, and urine retention.

Caudal and Epidural Anesthesia

Caudal anesthesia is the injection of the local anesthetic into the epidural space through the caudal canal in the sacrum; it may be used for procedures on the lower extremities or perineum.

Epidural anesthesia involves the injection of the anesthetic through the intervertebral spaces, usually in the lumbar region (although it may also be used in the thoracic or cervical regions).

Although regional anesthesia may be selected for numerous types of surgery and patients, research indicates that it is especially useful in reducing postsurgical pain, bowel dysfunction, and length of hospital stay for older adult patients.

Topical and Local Anesthesia

Topical anesthesia is used on mucous membranes, open skin surfaces, wounds, and burns. Cocaine in a 4% to 10% solution is the most commonly used agent; others are lidocaine (Xylocaine) and benzocaine. Topical anesthetics may be sprayed, spread, or applied with a compress of drug-saturated gauze or cotton-tipped applicators.

Local anesthesia is the injection of an anesthetic agent such as lidocaine, bupivacaine, or tetracaine to a specific area of the body. It is administered by the surgeon in minor, short-term surgical or diagnostic procedures such as tissue biopsy. It is injected to bathe the tissue around a targeted nerve or to infiltrate the underlying tissue in the operative area. Epinephrine may be mixed with the local anesthetic to minimize bleeding by local vasoconstriction and to prolong the length of analgesia by trapping the anesthetic in the tissue through slowed absorption from the vasoconstriction of the surrounding vessels. Local anesthesia may also be injected during general anesthetic procedures to prolong pain relief when the general anesthetic wears off.

Moderate Sedation/Analgesia

Moderate sedation/analgesia, also called conscious or procedural sedation, is used for short-term and minimally invasive procedures. The patient maintains cardiorespiratory function and can respond to verbal commands while the IV administration of sedatives and analgesics raises the pain threshold and produces an altered mood with some degree of amnesia (Odom-Forren, 2005). The patient retains the ability to keep his/her airway open and can respond appropriately. This type of anesthesia is often administered by a perioperative, endoscopy, interventional radiology or interventional cardiology nurse with specialized training and competence in administering the medications and monitoring the patient's cardiac rate and rhythm, respiratory rate, oxygen saturation, level of consciousness, level of pain, blood pressure, and skin condition.

Informed Consent and Advance Directives

Informed consent is the patient's voluntary agreement to undergo a particular procedure or treatment (such as surgery) after having received the following information, which should be provided in understandable words (layman's terms) by the physician:

- Description of the procedure or treatment along with potential alternative therapies
- The underlying disease process and its natural course
- Name and qualifications of the person performing the procedure or treatment
- Explanation of the risks involved, including risk for damage, disfigurement, or death, and how often they occur
- Explanation that the patient has the right to refuse treatment and that consent can be withdrawn
- Explanation of expected outcome, recovery and rehabilitation plan and course

Informed consent protects the patient, the physician, and the healthcare institution. The signed form is a legal document as well as an ethical imperative. The responsibility for securing informed consent from the patient lies with the person who will perform the procedure; this is usually the physician. The nurse may sign as a witness, signifying that the patient signed the consent form without coercion and was alert and aware of the act. The patient always has the right to refuse treatment.

Consent forms are not legal if the patient is confused, unconscious, sedated, mentally incompetent, or a minor (as determined by state laws). Consent may be given in those instances by a parent, spouse, next of kin, or legal guardian. Most states have a list prioritizing authorized next of kin in signing operative consents. It is important to know who is authorized to contact the proper person in case a question arises. In emergency situations, the physician may obtain consent over the telephone or by court order. More detailed information about informed consent is included in Chapter 7.

Advance directives, another type of legal document, allow the patient to specify instructions for his or her healthcare treatment should he or she be unable to communicate these wishes postoperatively. This allows the patient to discuss his or her wishes with family members in advance of the surgery. Two common forms of advance directive include living wills and durable power of attorney for healthcare. If the patient should experience a serious, life-threatening complication, such as intraoperative cardiac arrest, the family has previous knowledge of the patient's wishes regarding cessation of treatment, resuscitative efforts, or end-of-life decisions. It is important to discuss and document the exact do-not-resuscitate (DNR) wishes of the patient and family members before surgery.

Ambulatory Surgery

Surgical procedures performed in ambulatory (also referred to as outpatient or same-day) surgical settings have become

common as the healthcare system has reduced the length of hospital stays to lower healthcare costs. These surgical settings may be found as freestanding units, in hospitals, and in physicians' offices. Some freestanding ambulatory surgery centers specialize in selected types of surgery, such as orthopedics or hernia repair. Others perform a wide variety of surgical interventions, including major surgical procedures that formerly required a 3-week stay in a hospital.

By allowing the patient to spend the night before surgery at home and to return to his or her own home to convalesce, much of the stress associated with surgery is eliminated.

Think back to Molly Greenbaum, the 38-year-old woman described at the beginning of the chapter. She arrived at the hospital on the morning of her surgery. Although she is fearful about the surgery, consider what her fear might have been had she spent the night before her surgery in the hospital.

Patients who are older or chronically ill or who do not have support systems or access to resources to provide the care needed after surgery may require additional teaching and referral for home care services.

PREOPERATIVE NURSING CARE

Patients who require surgical intervention and nursing care enter the healthcare setting in a wide variety of situations, ranging from essentially healthy people who have planned elective procedures to emergency admissions for treatment of trauma. Surgical patients may be any age and at any point on the health–illness continuum. It is the nurse's responsibility to identify factors that affect the risk of a surgical procedure. This includes assessing the physical and psychosocial needs of the patient and family and establishing a plan of care, based on appropriate nursing diagnoses. Also included are interventions to meet the patient's needs and facilitate his or her recovery as the patient progresses through the perioperative period.

Consider Ron Johnson, the middle-aged man who has a history of previous surgeries and had urinary diversion surgery 1 day ago. The nurse would need to obtain a thorough history of the patient's previous surgeries and postoperative course to identify the patient's risk for problems with the current surgical procedure. Key to this assessment would be information about the patient's psychosocial needs, especially related to difficult and manipulative behavior.

Some of the desired outcomes of the plan of care for the surgical patient, outlined by the AORN (2006e), are that the patient will meet the following goals:

- Be free from injury and adverse effects related to positioning, retained foreign objects, or chemical, physical, or electrical hazards
- Be free from infection
- Maintain fluid and electrolyte balance and skin integrity
- Demonstrate an understanding of the physiologic and psychological responses to the planned surgery
- Participate in a rehabilitation process following surgery

THE NURSING PROCESS FOR PREOPERATIVE CARE

Assessing

The importance of preoperative assessment cannot be overemphasized. Surgery is a major trauma to the body, and preoperative assessments identify factors that may place the patient at greater risk for complications during and after surgery (see Examples of NIC). Assessment of the surgical patient includes a health history and physical assessment to establish baseline data, identify risk factors, and determine the teaching and psychosocial needs of the patient and family. The assessment is often conducted several days before surgery as part of preoperative laboratory screening and teaching; this is referred to as preadmission testing. It may be conducted in the hospital, a surgical clinic, an office, or even in the patient's home.

Preoperative nursing assessments and teaching are key processes of care for ambulatory surgical patients (Fig. 30-2). Preoperative teaching can often be combined with preoperative screening tests, which are usually done 2 to 5 days before the scheduled surgery. Preoperative teaching for ambulatory surgery includes instructions to the patient and family (Box 30-1).

Health History

The health history identifies risk factors and strengths in the patient's physical and psychosocial status and helps the nurse

Examples of Nursing Interventions Classification (NIC)
RISK IDENTIFICATION

- Review past medical history and documents for evidence of existing or previous medical and nursing diagnoses.
- Identify patients with continuing care needs.
- Determine community support systems.
- Determine financial resources.
- Determine educational status.
- Identify patient's usual coping strategies.
- Determine past and current level of functioning.
- Initiate referrals to healthcare personnel and/or agencies, as appropriate.

McCloskey Dochterman, J. M., & Bulechek, G. M. (2004). *Nursing interventions classification (NIC)* (4th ed, p. 614). St. Louis, MO: Mosby.

PREADMISSION TEACHING/TESTING PERIOPERATIVE ASSESSMENT

Date Of Visit: 7/14/08
Surgical History: (L) Knee arthroscopy x3 (1997 = most recent with little improvement.) (R) inguinal hernia repair 10 years ago.

Anesthesia History: No problems

Systems Review: _____ Allergy: NKA
Dental: N/A - no bridges or crowns
Contact Lens/IOL: N/A
Hearing Aid: N/A

Cardiovascular
Angina: —? Stroke: —?
Rheumatic Fever: —? Murmur: —?
Hypertension: —? Infarction: —?
Date Last EKG: 1997 Pacemaker: —?

Respiratory
Pneumonia: —? Smoke: —?
Asthma: —? Recent URI: —?
Date Last CXR: 1997

Hematology
Bleeding Tendency: On ASA – to D/C 8 days pre-op.

GI
Recent Vomiting: —? Diarrhea: —?
Jaundice: —? Hepatitis: —?

GYN
L.M.P.: N/A Para: _____
Gravida: _____

GU
UTI/Problems: —?

Neuropsych
Syncope: —? Epilepsy: —?

Musculoskeletal
Arthritis: (L) Knee Neck Or Back Inj.: —?
R.O.M.: Limit = (L) Knee only Prothesis: —?
Skin Integrity: No problems noted

Metabolic
Diabetes: —?
Thyroid: —?

Medications (including over-the-counter, herbal):
ASA daily
Lipitor 40 mg (each evening)

B/P 130/82 T. 98° P. 86 R. 20 Wt. 185 Ht. 6'1"
Advance Directive: Done
Escort Name/Phone: Wife (207) 143-4444

Planned Surgery And Date: Arthroscopy, debridement foreign body (L) knee 8/7/08

Lab Ordered:
H & H – results WNL

Abnormal Lab work called to
Dr. _____ on _____ Initials _____

X-ray Chest xray – Normal
AP/Lat (L) knee – Medial joint line spurs, lateral compartment well preserved

Abnormal X-ray called to
Dr. _____ on _____ Initials _____

EKG
NSR – WNL

Abnormal EKG work called to
Dr. _____ on _____ Initials _____

Pre-op Teaching Guidelines

✓ Pre-Op Medications	✓ Skin Prep
✓ Transported to Holding Room	✓ Awake in Postanesthesia Care Unit
✓ Visitors to Waiting Room	✓ Oxygen Delivery
✓ I.V. Fluids	✓ Deep Breaths and Cough
___ Sequential Compressive Device (Appr. Surg.)	✓ Frequent Check BP & P
	✓ Fluid and Food Restrictions
___ Leggings (Cysto or GYN)	✓ Cannot Drive Self Home
✓ Taken to O.R.	✓ Jewelry, Make-up Left Home
✓ Safety Belt	✓ Wear Loose Clothing
✓ BP Cuff, Monitor Pads, Pulse Oximeter	___ Video _____
	✓ Hand-out Packet _____
✓ Electrosurgical Pad	
✓ Use of Pain Scale	

Notes: Scheduled for knee classes

Postanesthesia Care Unit Follow Up: Has voided. Using ice bag on (L) knee. Pain 2 on scale 1 → 10. Has post-op appt made. Reviewed signs? and symptoms that should be called to MD.

Post-Op Follow Up: Will do knee rehab unless contradicted by physician

Phone: (207) 143-4444

Figure 30-2. Example of an ambulatory surgery assessment record.

BOX 30-1 Preoperative Information for Ambulatory Surgery

Provide verbal and written instructions for patients having ambulatory surgery as follows:

- List medications routinely taken, and ask the physician which should be taken or omitted the morning of surgery.
- Notify the surgeon's office if a cold or infection develops before surgery.
- List allergies, and be sure the operating staff is aware of these.
- Remove nail polish and do not wear makeup for the procedure.
- Leave all jewelry and valuables at home.
- Wear clothing that buttons in front; short-sleeved garments are better for surgery on the hands.
- Have someone available for transportation home after recovery from anesthesia.

Inform patient of:

- Limitations on eating or drinking before surgery, with a specific time to begin the limitations
- When and where to arrive for the procedure, as well as the estimated time when the procedure will be performed

to individualize the preoperative assessment. Health history information significant to the surgical experience includes the patient's developmental level; medical history; medications; previous surgeries; perceptions and knowledge of the surgery to be done; nutrition; use of alcohol, illicit drugs, or nicotine; activities of daily living and occupation; coping patterns and support systems; and sociocultural needs.

Remember Ron Johnson, the patient described in the Reflective Practice display. Because the patient has undergone previous surgeries, the nurse might assume that the patient understands the meaning of and rationale for maintaining NPO status. However, the nurse needs to investigate the patient's understanding about this area to ensure compliance with it.

Developmental Considerations

Infants and older adults are at a greater risk from surgery than are children and young or middle-aged adults.

The infant has a lower total blood volume, making even a small loss of blood a serious consideration because of the risk for dehydration and the inability to respond to the need for increased oxygen during surgery. The infant also has difficulty maintaining stable body temperature during surgery because the shivering reflex is not well developed, making hypothermia or hyperthermia more likely. The renal system has a lower glomerular filtration rate and creatinine clearance, leading to a slower metabolism of drugs that require renal biotransformation. Because the liver is immature until after the first year of life, the effects of muscle relaxants and narcotics may be prolonged.

Physiologic changes associated with aging (described in Chap. 20) increase the surgical risk for older patients. These changes, summarized in Focus on the Older Adult, decrease older adults' ability to respond to the stress of surgery, alter the effects of preoperative and postoperative medications and anesthesia, and prolong or alter wound healing processes. With an increasing older adult population, assessing physiologic changes is crucial to providing knowledgeable, safe, holistic nursing care to older surgical patients. Chronic illnesses, more common in the older population, also increase surgical risk and may require usual perioperative procedures to be altered. For example, a patient with congestive heart failure may be more easily fatigued and thus unable to be up and about as rapidly after surgery.

Consider Marcus Benjamin, the 73-year-old man who had a total hip replacement. Due to his age, the nurse would need to be alert to potential complications specifically associated with age-related changes and use of general anesthesia, IV therapy, urinary catheterization, and reduced mobility.

Medical History

The medical history provides information about past and current illnesses. Pathologic changes associated with past and current illnesses increase surgical risk as well as the risk for postoperative complications. Preoperative assessments and documentation are necessary to provide a database for individualized assessments and interventions in the intraoperative and postoperative phases of care. The following sections highlight selected examples and associated risks.

Cardiovascular Diseases

Cardiovascular diseases, such as thrombocytopenia, hemophilia, recent myocardial infarction or cardiac surgery, congestive heart failure, and dysrhythmias, increase the risk for hemorrhage and hypovolemic shock, hypotension, venous stasis, thrombophlebitis, and overhydration with IV fluids.

Respiratory Diseases

Respiratory disorders, such as pneumonia, bronchitis, asthma, emphysema, and chronic obstructive pulmonary diseases, increase the risk for respiratory depression from anesthesia as well as postoperative pneumonia, atelectasis, and alterations in acid–base balance.

Kidney and Liver Diseases

Kidney and liver diseases influence the patient's response to anesthesia, affect fluid and electrolyte as well as acid–base balance, alter the metabolism and excretion of drugs, and impair wound healing.

Endocrine Diseases

Endocrine diseases, especially diabetes mellitus, increase the risk for hypoglycemia or acidosis and slow wound healing

Focus on the Older Adult

Nursing Interventions to Address Age-Related Increased Surgical Risk

Age-Related Changes	Nursing Interventions
Cardiovascular	
Decreased cardiac output, stroke volume and cardiac reserve Decreased peripheral circulation Increased vascular rigidity	• Obtain and record baseline vital signs. • Assess peripheral pulses. • Teach leg exercises, turning, and ambulating. • Document normal activity levels and tolerance of fatigue. • Monitor fluid administration rate. • Allow sufficient time for effects of medications to occur.
Respiratory	
Reduced vital capacity Diminished cough reflex Decreased oxygenation of blood Decreased chest expansion and strength of intercostal muscles and diaphragm	• Obtain and record baseline respiratory depth and rate. • Teach coughing and deep-breathing exercises. • Teach use of incentive spirometer. • Assess color of skin. • Explain use of pulse oximeter for monitoring postoperative oxygenation.
Central Nervous System	
Decreased reaction time and coordination Reduced short-term memory Sensory deficits Decreased thermoregulation ability	• Orient to surroundings. • Institute safety measures, such as keeping environment clear of clutter and using a night light. • Allow additional time for teaching. • Use appropriate measures to conserve body heat.
Renal	
Decreased renal blood flow Reduced bladder capacity	• Monitor amount and times of voiding. • Monitor fluid and electrolyte status. • Maintain and record intake and output.
Gastrointestinal	
Increased gastric pH Prolonged gastric-emptying time Decreased hepatic blood flow, liver mass, and enzyme function	• Obtain baseline weight. • Monitor nutritional status (weight, laboratory data). • Observe for prolonged effects of medications.
Integumentary	
Decreased vascularity Decreased skin moisture and elasticity Decreased subcutaneous fat	• Assess skin status. • Monitor fluid status. • Pad and protect bony prominences. • Monitor skin for pressure areas. • Use minimal amounts of tape on dressings and intravenous sites.

and present an increased risk for postoperative cardiovascular complications.

Medications

The use of prescribed, over-the-counter, or herbal drugs can affect the patient's reaction to and increase the risk from the stress of surgery and the effects of the anesthetic agent. Some herbal products can increase bleeding while others may potentiate the actions of depressant anesthetic drugs. Many medications are canceled before the surgery, but the nurse should know the purposes and actions of the patient's drugs as well as the physician's orders. Specific medications may be given even when the patient is going to surgery (eg, patients with heart or cardiovascular problems or diabetes mellitus). Surgical risk is increased by drugs in the following categories:

- Anticoagulants (may precipitate hemorrhage)
- Diuretics (may cause electrolyte imbalances, with resulting respiratory depression from anesthesia)
- Tranquilizers (may increase the hypotensive effect of anesthetic agents)
- Adrenal steroids (abrupt withdrawal may cause cardiovascular collapse in long-term users)
- Antibiotics in the mycin group (when combined with certain muscle relaxants used during surgery, may cause respiratory paralysis)

Previous Surgery

Data about previous surgeries are important for meeting the patient's physical and psychological needs throughout the perioperative period. Physical implications of previous surgeries are important to the intraoperative and postoperative phases (eg, previous heart or lung surgery may necessitate adaptations in anesthesia and in positioning during surgery). Complications during or after prior surgery, such as malignant hyperthermia, latex sensitivity, pneumonia, thrombophlebitis, or surgical site infection, may necessitate careful postoperative monitoring or alter intraoperative care.

The patient's past experiences with surgery also affect the plan of care established in the preoperative phase, especially if a past experience was negative. When the interview elicits negative feelings about the surgical experience, pain management, or nursing interventions carried out to prevent complications during previous surgeries, teaching and mutual goal setting are even more important.

In addition to experiences with past surgery, the patient's perceptions and knowledge of the surgical procedure to be performed should be assessed. The patient's questions or statements are important for meeting psychological and family needs when preparing the patient for surgery and planning for patient and family teaching and preparation for discharge.

Nutrition

Both malnutrition and obesity increase surgical risk. Surgery increases the body's need for nutrients that are necessary for normal tissue healing and resistance to infection. A patient who is malnourished is at higher risk for alterations in fluid and electrolyte balance, delay in wound healing, and wound infection. Obese patients are at increased risk for respiratory, cardiovascular, and gastrointestinal problems. Overweight patients may have obstructive sleep apnea, putting them at risk for reduced respiratory function. They may also have gastroesophageal reflux disease (GERD), putting them at risk for aspiration of stomach contents. Fatty tissue has a poor blood supply and therefore has less resistance to infection; postoperative complications of delayed wound healing, wound infection, and disruption in the integrity of the wound are more common.

Use of Alcohol, Illicit Drugs, or Nicotine

Patients with a large habitual intake of alcohol require larger doses of anesthetic agents and postoperative analgesics, increasing the risk for drug-related complications. Patients who use illicit drugs are at risk for interactions with anesthetic agents. These are specific to the illicit drug used and should be noted on the medical record for safe anesthetic management.

Patients who smoke are at higher risk for respiratory complications after surgery. All patients retain pulmonary secretions during anesthesia, but smokers, who already have increased mucous secretions and decreased ciliary action in the tracheobronchial tree, have more difficulty clearing the respiratory passages after surgery. In addition, the tracheobronchial mucosa is irritated chronically in people who smoke; anesthesia increases this irritation. Smoking compromises wound healing by constricting blood vessels, impairing blood flow to healing tissues.

Activities of Daily Living and Occupation

Exercise, rest, and sleep habits are important for preventing postoperative complications and facilitating recovery. A patient with a well-established exercise program has improved cardiovascular, respiratory, metabolic, and musculoskeletal function, thereby lowering the risks of surgery. Rest and sleep are essential to physical and emotional adaptation and recovery from the stress of surgery. Information from the health history allows the nurse to individualize interventions to promote rest and sleep.

Many surgical procedures require a delay in returning to a career or occupation or may affect how the patient earns a living. Knowledge of a patient's usual work and concerns about returning to work help the nurse plan necessary teaching and referrals.

Coping Patterns and Support Systems

Assessment of the patient's psychological, sociocultural, and spiritual dimensions is as important as the physical history and examination. Surgery is a major psychological stressor and affects coping patterns, support systems, and individual human needs.

A surgical procedure, whether it is planned or unexpected, major or minor, causes anxiety and fear. While obtaining the health history, the nurse can use cues from the patient's and family's verbal and nonverbal communication to identify fears and concerns and to plan nursing interventions

to provide the information and emotional support necessary to successful recovery from surgery.

Surgery is an unfamiliar experience over which a person has no control; the resulting anxiety may be expressed in many ways, such as anger, withdrawal, apathy, confrontation, or questioning. Therapeutic communication skills are essential for establishing the trusting nurse–patient relationship that is necessary to identify and resolve fear. Patients often fear the unknown, pain or death, and changes in body image and self-concept. The patient has fears about the surgery itself—the anesthesia, the diagnosis, the future, financial and family responsibilities, response to pain, or possible disfigurement or disability. Common fears are that the anesthesia will not "put me to sleep"; that death will occur during surgery; or that the patient will not be able to handle postoperative pain. Surgical procedures often leave the patient with permanent changes in body structure, function, or appearance. Patients commonly fear alterations in physical attractiveness, social relationships, lifestyle, and sexuality.

Recall Molly Greenbaum, the 38-year-old woman who is fearful of surgery. The patient's statements about the inability to sleep, in conjunction with the tears in the patient's eyes and wringing of hands, would be clues to the nurse that the patient is experiencing stress. Exploring the patient's fears, past coping mechanisms, and support systems would be valuable in developing the patient's plan of care, both before and after surgery. Doing so would help to promote a positive perioperative experience for the patient. In addition, the nurse would need to investigate what fears the patient may be experiencing related to a vaginal hysterectomy, such as changes in physical attractiveness, marital relationship, and sexuality.

Encourage the patient to identify and verbalize fears; often simply talking about fears helps to diminish their magnitude. At the same time, incorrect knowledge can be identified and corrected, strengths can be identified, and teaching can be done. The reduction of fear is of major importance in preoperative preparation; emotional stress added to the physical stress of surgery increases the surgical risk. The nursing history should elicit the ways in which a patient provides self-support to reduce stress. These are discussed in Chapter 32 and range from listening to music to practicing active relaxation techniques.

Coping with stress can be facilitated through the support systems identified in the assessment phase of preoperative nursing care. As much as possible, family members or significant others should be part of the initial interview and should be included in discussions of fears and concerns. Encourage family members to provide support before and after surgery.

By identifying the patient's spiritual beliefs in the nursing history, the nurse can support the patient's spiritual needs through acceptance, participation in prayer or other rituals, or referral to a spiritual leader. Faith in a higher being or source of personal strength provides support and helps to reduce fears in many people.

The need for other support systems can also be identified in the initial interview. For example, a patient having a colostomy, heart transplant, or mastectomy may have many questions answered and anxieties reduced by a preoperative visit from a person who has had the same operation and adapted successfully.

Sociocultural Needs

A person's perceptions of and reactions to the surgical experience are influenced by individual factors, including family health beliefs and practices (see Chap. 2), economic factors, and cultural/ethnic background. A patient who requires surgery but has grown up in a family that believes that surgical intervention is the last possible option for treating illness may be hesitant about the surgery or may be convinced that death will result. The resulting anxiety may make this patient even more susceptible to surgical risk. Reactions to teaching, physical care, and pain are also influenced by family values and cultural/ethnic identity. For example, a male patient reared with the belief that it is unmanly to acknowledge pain may demonstrate a stoic acceptance of pain and refuse needed medications postoperatively.

Cultural and ethnic influences also affect the patient's responses to and perceptions of the surgical experience. The patient's cultural background may require that nursing interventions be individualized to meet needs in such areas as language, food preferences, family interactions and participation, personal space, and health beliefs and practices. For example, a patient from a culture that believes that bed rest is the most important treatment for illness or injury may have difficulty accepting the need for postoperative exercises and early ambulation.

Physical Assessment

Assessing the patient's current physical status provides data for interventions to decrease surgical risk and potential postoperative complications. Depending on the situation, the physical assessment is conducted as described in Chapter 25. See the Focused Assessment Guide 30-1.

Presurgical Screening Tests

Various presurgical screening tests provide objective data of normal body function. In cases of abnormalities, such tests provide data for medical interventions to improve the patient's physical status and thus decrease the risks for surgical complications. The nurse's role is to ensure that the tests are explained to the patient, the results are recorded in the patient's record before surgery, and abnormal findings are reported. Additionally, abnormal results are data for determining additional nursing diagnoses and collaborative problems.

Usual presurgical screening tests include chest x-ray, electrocardiography, complete blood count, electrolyte levels, and urinalysis. Normal findings for laboratory tests are found in Appendix B. Significant abnormal findings include

Focused Assessment Guide 30-1

Preoperative Physical Assessment

Factors to Assess	Questions and Approaches
General survey	• Note general state of health. • Note body posture and stature. • Take and record vital signs.
Skin	• Inspect skin for color, characteristics, and location and appearance of lesions. • Assess skin over bony prominences. • Palpate skin turgor.
Chest and lungs	• Observe chest excursion and diameter and shape of thorax. • Auscultate breath sounds. • Palpate for any pain or tenderness.
Cardiovascular system	• Inspect for jugular vein distention. • Auscultate apical rate, rhythm, and character. • Auscultate heart sounds. • Assess for peripheral edema. • Palpate character of peripheral pulses.
Abdomen	• Ask time of last bowel movement. • Inspect abdominal contour. • Auscultate bowel sounds.
Neurologic system	• Note orientation, level of consciousness, awareness, and speech. • Assess reflexes. • Assess motor and sensory ability. • Assess visual and hearing ability.
Musculoskeletal system	• Inspect and note joint range of motion. • Palpate muscle strength. • Assess ability to ambulate.

an elevated white blood cell count (presence of infection), decreased hematocrit and hemoglobin level (presence of bleeding, anemia), hyperkalemia or hypokalemia (increased risk for cardiac problems), elevated blood urea nitrogen or creatinine levels (possible renal failure), and abnormal urine constituents (indicating infection or fluid imbalances).

Diagnosing

Nursing diagnoses for patients in the preoperative phase may be identified for various problems that exist or for which a patient is at risk. These are derived from the analysis of subjective and objective data obtained from the health history and physical examination as well as information from other health team members and screening tests. Many diagnoses reflect assessment of risk and are made to guide interventions for patient needs in the intraoperative and postoperative phases. Nursing care throughout the perioperative period must be consistent and documented; the preoperative nursing diagnoses provide the basis for consistent, holistic care from admission through recovery. See Examples of NANDA Nursing Diagnoses appropriate to the preoperative period.

Outcome Identification and Planning

Preoperative nursing care is affected by the length of the preoperative phase. For patients who enter the hospital through the emergency department needing immediate surgery and those who have ambulatory surgery, there may not be enough time for comprehensive assessments and teaching. There has

Examples of NANDA Nursing Diagnoses: *The Preoperative Patient*

Nursing Diagnoses	Related Factors	Sample Defining Characteristics
Anticipatory Grieving	Any condition that is perceived as a potential loss, such as physical ability and appearance following surgery	• Verbalizations of distress at the potential loss • Denial of the potential loss • Altered eating habits, sleep patterns, activity level, and/or libido
Anxiety	Any condition that is perceived as a threat or danger, such as effects of surgery on ability to carry out family roles and responsibilities Any condition that is perceived as a danger, such as the possibility of dying while under anesthesia	• Restlessness, poor eye contact, fidgeting, quivering voice, hand tremor • Increased pulse and respirations • Abdominal pain, sweating, dry mouth, fatigue, nausea, urinary frequency • Preoccupation, forgetfulness, decreased attention span • Verbalizations of distress, worry, being afraid
Risk for Infection	Any condition that interferes with normal inflammatory healing process	*Risk Factors* • Obesity • Aging • Immunosuppression • Malnutrition

been a tremendous increase in the number of ambulatory and short-stay surgeries, in which patients are admitted early on the morning of surgery. In such cases, the nurse must use standardized preoperative plans and individualize the plans for the particular patient and family. Outcome criteria are standard for all patients having surgery, but nursing interventions are designed to meet the priority needs of individual patients and situations.

Planning for the entire perioperative period is done in the preoperative phase and includes expected outcomes that are discussed and mutually agreed on by the nurse, the patient, and the family. Specific appropriate outcomes are as follows:

- Is physically and emotionally prepared for surgery
- Demonstrates turning, coughing, and deep-breathing exercises
- Verbalizes understanding of postoperative pain management
- Maintains fluid intake and nutritional balance to meet needs

Implementing

Preoperative nursing interventions provide the patient with the necessary psychological and physical preparation for surgery and the postoperative phase. This section discusses implementing the plan of care to meet established patient goals. Skill 30-1, Providing Preoperative Patient Care: Hospitalized Patient, outlines the actions and rationale for preoperative patient care.

Preparing the Patient Psychologically Through Communicating

Surgery is almost always viewed as a life crisis and evokes anxiety and fear. Anxiety can be reduced and recovery facilitated by nursing actions that focus on therapeutic communications and patient and family teaching.

The nurse uses therapeutic communication skills and techniques, as described in Chapter 21, to establish a supportive and trusting nurse–patient relationship and to facilitate psychological safety and security. Nursing interventions to meet the psychological needs of the surgical patient through communication are outlined in Box 30-2.

Each patient is a unique individual and responds to the surgical experience in a unique way. One note of caution: avoid false reassurance. In an attempt to allay anxiety and fear, the nurse may be tempted to reassure the patient that he or she will be fine. Such a response denies the patient's emotional needs, shuts off therapeutic communications and trust, and may not be true.

Preparing the Patient Psychologically Through Teaching

Teaching about postoperative activities is implemented in the preoperative phase and is the nurse's responsibility. Patients and families need to know about surgical events and sensations, how to manage pain, and how to perform the physical activities necessary to decrease the risk for postoperative

BOX 30-2 Nursing Interventions to Meet Psychological Needs of Patients Having Surgery

- Establish and maintain a therapeutic relationship, allowing the patient to verbalize fears and concerns.
- Use active listening skills to identify and validate verbal and nonverbal messages revealing anxiety and fear.
- Use touch, as appropriate, to demonstrate genuine empathy and caring.
- Be prepared to respond to common patient questions about surgery:
  Will I lose control of body functions while I'm having surgery?
  How long will I be in the operating room and PACU?
  Where will my family be?
  Will I have pain when I wake up?
  Will the anesthetic make me sick?
  Will I need a blood transfusion?
  How long will it be before I can eat?
  What kind of scar will I have?
  When will I be able to be sexually active?
  When can I go back to work?

complications and facilitate recovery. The teaching–learning process (see Chap. 22) is individualized to meet common and individual patient needs.

The timing of teaching is a significant consideration: teaching too far in advance of surgery or when the patient is anxious is less effective. In today's healthcare system, patients often enter the hospital the day before or the day of surgery, and teaching must be adapted to this schedule. Many institutions provide teaching sessions before admission to prepare the patient for surgery. Whether done before or after admission, a preoperative teaching checklist gives nurses organized and comprehensive guidelines for instruction. Box 30-3 provides a sample of preoperative teaching with associated surgical events.

Nursing research has indicated that the success of preoperative teaching varies with the timing of the teaching, the individual patient and his or her support systems, the type of surgery, and group versus individual sessions. Preoperative teaching has proved beneficial in decreasing postoperative complications and length of stay as well as positively influencing recovery. Patients who are well prepared with detailed preoperative instruction deal more effectively with their surgery and are better prepared to manage their pain and engage in appropriate self-care activities (Bond et al., 2005; Oetker-Black et al., 2003).

BOX 30-3 Sample Preoperative Teaching: Activities and Events for In-Hospital Surgery

Preoperative Phase

- ☐ Exercises and physical activities
  - ☐ Deep-breathing exercises
  - ☐ Coughing
  - ☐ Incentive spirometry
  - ☐ Coughing
  - ☐ Turning
  - ☐ Leg exercises
- ☐ Pain management
  - ☐ Meaning of PRN orders for medications
  - ☐ Timing for best effect of medications
  - ☐ Splinting incision
  - ☐ Nonpharmacologic pain management options
- ☐ Visit by anesthesiologist
- ☐ Physical preparation
  - ☐ NPO
  - ☐ Sleeping medication the night before
  - ☐ Preoperative checklist (review items)
- ☐ Visitors and waiting room
- ☐ Transported to operating room by stretcher

Intraoperative Phase

- ☐ Holding area
  - ☐ Skin preparation
  - ☐ Intravenous lines and fluids
  - ☐ Medications
- ☐ Operating room
  - ☐ Operating room bed
  - ☐ Lights and common equipment (eg, cardiac monitor, pulse oximeter, warming device, etc.)
  - ☐ Safety belt
  - ☐ Sensations
  - ☐ Staff

Postoperative Phase

- ☐ Postanesthesia care unit
  - ☐ Frequent vital signs, assessments (eg, orientation, movement of extremities, strength of grasp)
  - ☐ Dressings/drains/tubes/catheters
  - ☐ Intravenous lines
  - ☐ Pain medications/comfort measures
  - ☐ Family notification
  - ☐ Sensations
  - ☐ Airway/oxygen therapy/pulse oximetry
  - ☐ Staff
- ☐ Transfer to unit (on stretcher)
  - ☐ Frequent vital signs
  - ☐ Sensations
  - ☐ Pain medications/nonpharmacologic strategies
  - ☐ NPO, diet progression
  - ☐ Exercises
  - ☐ Early ambulation
  - ☐ Family visits

Teaching About Surgical Events and Sensations

Patients and their families need to know when surgery is scheduled; about how long the surgery and postanesthesia care will last; and what will be done before, during, and after surgery (eg, procedures, medications, equipment). If the surgery is elective, a tour of the operating suite, or a video of the preoperative journey to the OR, may be helpful in reducing anxiety and fear of the unknown; although especially helpful for children, this is also useful in preparing adult patients. An explanation of surgical events includes a description of the various members of the healthcare team.

Patients also need to know what sensations they will experience during the perioperative period. Although the sensations differ depending on the type of surgery, teaching should include information about dry mouth and drowsiness from preoperative medications, a sore throat from an endotracheal tube, a gradual return of feeling and movement after spinal anesthesia, and pain from the surgical incision. Patients should also be made aware of the coolness of the environment, hardness of the OR bed, the sounds of multiple care providers wearing surgical masks, and the bright overhead lights. Assure the patient that he or she is the most important person in the room and will be well cared for and comforted.

Teaching About Pain Management

Pain is a normal part of the surgical experience and a major concern for the patient and family. Evidence-based guidelines for the management of acute surgical pain have been established by several professional agencies. The guidelines are based on these principles: (1) the pain reported by the patient is the determining factor of pain control; (2) pain must be assessed as often as every 2 hours after major surgery; and (3) the older patient is at risk for both undertreatment and overtreatment of pain. Continuing or unresolved pain can increase the patient's length of recovery and delay discharge. Unrelieved postoperative pain should be treated as a serious complication of surgery, not as a normal expectation. The nurse is responsible for assessment, implementation, and evaluation of a pain management plan, teaching the patient preoperatively how to communicate and report pain before it is unbearable (Sherwood, McNeill, Starck, & Disnard, 2003).

Teach the patient and family that medications to relieve pain will be ordered by the physician and administered by the nurse. The physician may order pain medications to be given on a regular basis or on an as-needed (p.r.n.) basis. If medication is ordered p.r.n., there is a time restriction between doses (eg, every 2–4 hours). The patient needs to ask for the medication and should do so before the pain becomes severe. If the medication does not control the pain, a different one can be ordered. There is little danger of addiction to pain medications used in the postoperative management of pain. In addition, the use of relaxation techniques (eg, deep breathing, music, and guided imagery) enhances the effects of pain medications.

Alternative methods of pain control, including transcutaneous electrical nerve stimulation (TENS) and patient-controlled analgesia (PCA), may be used after surgery. A discussion of TENS and information about nursing interventions when using PCA are in Chapter 41. Before surgery, teach the patient how to use these methods of pain control. After surgery, assess the effectiveness of the pain relief using these methods. Pain management is further discussed in Chapter 41.

Teaching Physical Activities

The most common causes of postoperative complications are cardiovascular and respiratory alterations, including atelectasis, pneumonia, thrombophlebitis, and emboli. Physical activities to reduce the risk for these complications are deep breathing, coughing, incentive spirometry, leg exercises, and turning in bed. These activities are taught in the preoperative period. The patient should be able to state the purpose and demonstrate the activities before going to surgery. (This section gives the rationale for the activities; postoperative complications are discussed later in the chapter.)

Deep Breathing

During surgery, the cough reflex is suppressed, mucus accumulates in the tracheobronchial passageways, and the lungs do not ventilate fully. After surgery, respirations often are less effective as a result of the anesthesia, pain medications, and pain from the incision. Patients who have thoracic or high abdominal incisions are especially prone to shallow breathing because of incisional pain with deeper respirations. As a result, alveoli do not inflate and may collapse, and secretions are retained, increasing the risk for atelectasis and respiratory infection. Deep-breathing exercises hyperventilate the alveoli and prevent them from collapsing again, improve lung expansion and volume, help to expel anesthetic gases and mucus, and facilitate oxygenation of tissues. See the Guidelines for Nursing Care 30-1 for teaching the patient deep-breathing techniques.

Coughing

Coughing helps remove retained mucus from the respiratory tract and usually is taught in conjunction with deep breathing. Coughing is especially important in patients with an increased risk for respiratory complications. Because coughing is often painful, the patient should be taught how to splint the incision (ie, support the incision with a pillow or folded bath blanket) and to use the period after pain medication has been administered to best advantage. See the Guidelines for Nursing Care 30-2 for teaching the patient how to cough effectively.

Incentive Spirometry

An incentive spirometer is often ordered for patients having surgery, and the proper technique for using it should be practiced preoperatively. This device helps to increase lung volume and inflation of alveoli and facilitates venous return. A gauge on the incentive spirometry device allows the patient to measure his or her progress and provides immediate positive reinforcement for the breathing efforts. See Chapter 45 for more information.

Leg Exercises

During surgery, venous blood return from the legs slows; some surgical positions also decrease venous return. With circulatory stasis of the legs, thrombophlebitis and resultant emboli are potential complications. Leg exercises increase

Guidelines for Nursing Care 30-1

Deep Breathing

- Place the patient in semi-Fowler's position, with the neck and shoulders supported.
- Ask the patient to place the hands over the rib cage, so he or she can feel the chest rise as the lungs expand.
- Ask the patient to:
  - Exhale gently and completely.
  - Inhale through the nose gently and completely.
  - Hold his or her breath for 3 to 5 seconds and mentally count "one, one thousand, two, one thousand," and so forth.
  - Exhale as completely as possible through the mouth with lips pursed (as if whistling).
  - Repeat three times.
- This exercise should be done every 1 to 2 hours while the patient is awake for the first 24 hours after surgery and as necessary thereafter, depending on risk factors and pulmonary status.

venous return through flexion and contraction of the quadriceps and gastrocnemius muscles. Leg exercises must be individualized to patient needs, physical condition, physician preference, and agency protocol. Guidelines for teaching the patient leg exercises are given in Figure 30-3.

Turning in Bed

Turning in bed improves venous return, respiratory function, and gastrointestinal peristalsis and prevents the unrelieved pressure that would occur if the patient were to remain in one position only. Although turning in bed sounds like a simple procedure, incisional pain makes it difficult, and it should be practiced before surgery. To turn in bed, the patient should raise one knee, reach across to grasp the side rail on the side toward which he or she is turning, and roll over while pushing with the bent leg and pulling on the side rail. A small pillow is useful for splinting the incision while turning. The patient should turn and change positions in bed every 2 hours.

Preparing the Patient Physically

The physical preparation of the patient for surgery varies, depending on the patient's physical status and special needs,

Guidelines for Nursing Care 30-2

Effective Coughing

- Place the patient in a semi-Fowler's position, leaning forward.
- Provide a pillow or folded bath blanket to use in splinting the incision.
- Ask the patient to:
  - Inhale and exhale deeply and slowly through the nose three times.
  - Take a deep breath and hold it for 3 seconds.
  - "Hack" out for three short breaths.
  - With mouth open, take a quick breath.
  - Cough deeply once or twice.
  - Take another deep breath.
- Repeat the exercise every 2 hours while awake.

Encouraging patient to "hack" out three short coughs after holding breath.

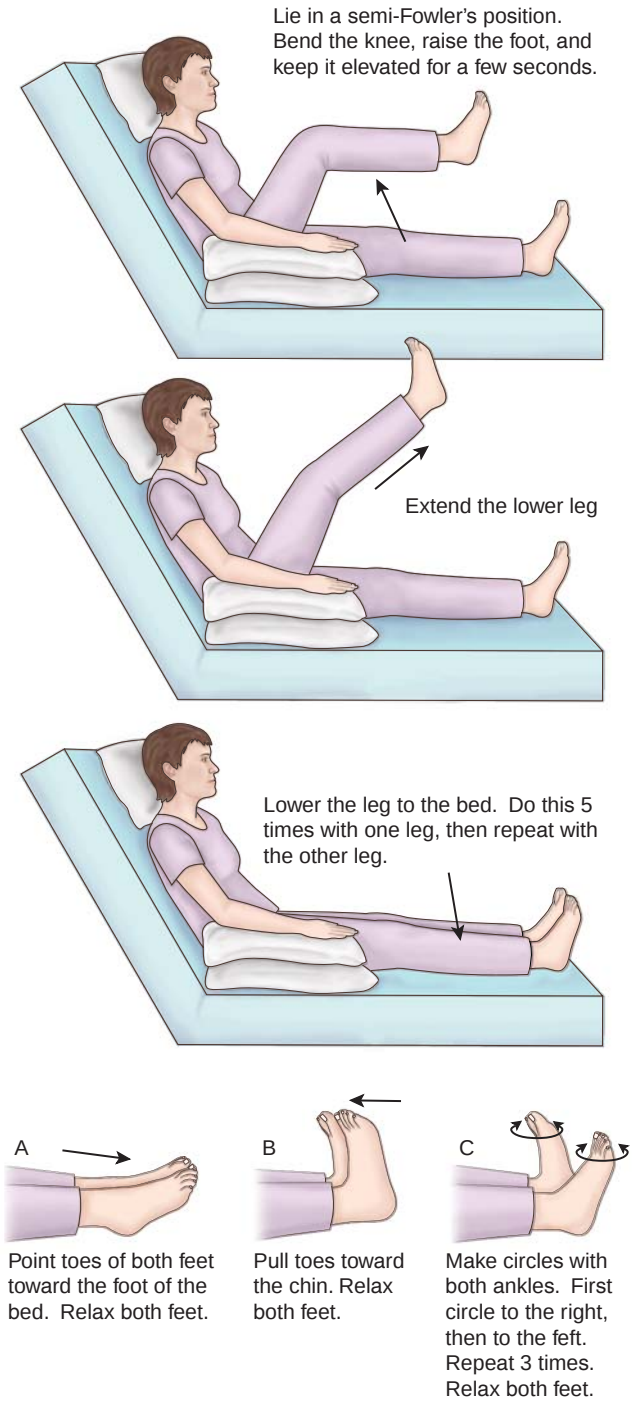


Figure 30-3. Leg exercises to increase venous return.

type of surgery, and physician's orders. Certain nursing interventions are appropriate for all surgical patients in the areas of hygiene and skin preparation, elimination, nutrition and fluids, and rest and sleep. The nurse is also responsible for the preparation and safety of the patient on the day of surgery.

Hygiene and Skin Preparation

Intact skin is the body's first line of defense against microorganisms, and an alteration in skin integrity (eg, the surgical incision) provides a potential source of infection. Therefore, the skin is prepared to minimize skin contamination and decrease the risk for postoperative surgical site infection.

The skin is cleaned at the operative site with an antibacterial soap or solution to remove bacteria. The patient can do this while taking a bath or shower. Ideally, a shower is taken the evening before or the morning of surgery. Shampooing the hair and cleaning the fingernails also help to reduce the number of organisms present on the body.

The incisional area may require removal of hair before surgery. The need for hair removal depends on the amount of hair, the location of the incision, and the type of surgical procedure being performed. This may be done on the unit or in the surgical suite immediately before the operation, usually in the surgical holding area. If hair must be removed, the Centers for Disease Control and Prevention (CDC) recommends depilatory creams or hair clippers, rather than shaving the surgical site, as was done in the past. If the surgeon requires the patient be shaved, it should be done as close to the time of surgery as possible. Agency protocol should be followed for the timing, people responsible, and documentation of the condition of the skin and method of preparation.

Elimination

Emptying the bowel of feces is no longer a routine procedure before surgery, but the nurse should use preoperative assessments to determine the need for an order for bowel elimination. If the patient has not had a bowel movement for several days or has had preoperative barium diagnostic tests, an enema helps to prevent postoperative constipation.

If the patient is scheduled for surgery of the gastrointestinal tract, a prescribed bowel prep and a cleansing enema is usually ordered. Peristalsis does not return for 24 to 48 hours after the bowel is handled, so preoperative cleansing helps to decrease postoperative constipation. An empty bowel also prevents contamination of the surgical area during surgery.

Insertion of an indwelling urinary catheter may be ordered before surgery, especially in patients having pelvic surgery, to prevent bladder distention or accidental injury. If an indwelling catheter is not in place, the patient should void immediately before receiving preoperative medications to ensure an empty bladder during surgery.

Nutrition and Fluids

The diet order for a patient having surgery depends on the type of surgery and type of anesthesia to be used. In the past, most surgical patients could not eat or drink anything for 8 to 12 hours before the surgery. More current practice is to allow patients to drink liquids or eat food up to 2 hours before surgery with the permission of the physician and depending on the type of surgery. If clear liquids are allowed, they should be carefully defined for the patient, and include water, fruit juices without pulp, carbonated beverages, clear tea, and black coffee.

According to the American Society of Anesthesiologists, patients, especially children, may be less anxious, better hydrated, and have fewer headaches and nausea after surgery with these revised practice guidelines for preoperative fast-

ing (Crenshaw & Winslow, 2002). See the accompanying Research in Nursing box. The nurse explains the reason for being NPO to the patient and, at the appropriate time, removes all food and fluids from the bedside and places a sign over the bed so that all health team members and visitors know about the restriction. If the patient eats or drinks, the physician should be notified at once.

Review the patient scenario involving Ron Johnson, described in the Reflective Practice display. Because the patient had undergone previous surgeries, the nurses may have assumed that the patient understood the restrictions associated with being NPO and the reasons why. Knowledge of the patient's history is important. However, it would be just as important to assess the patient's knowledge about food and fluid restrictions to ensure that the patient does have a good understanding of these restrictions.

Patients need to be well nourished and hydrated before surgery to counterbalance fluid, blood, and electrolyte loss during surgery and to facilitate tissue healing after surgery. Preoperative assessments provide a base for physical preparation for surgery, including the need for supplemental nutrition, fluids, or electrolytes. A patient who is undernourished may require parenteral nutrition (see Chap. 42) and IV electrolyte replacements. If the patient's screening tests show a hemoglobin level of less than 10 g/dL and a hematocrit of less than 33%, blood or blood component therapy may be given preoperatively to maintain volume and increase the oxygenation of tissue during surgery.

Rest and Sleep

Rest and sleep are important in reducing the stress before surgery and for healing and recovery after surgery. The nurse can facilitate rest and sleep in the immediate preoperative period by meeting psychological needs, carrying out teaching, providing a quiet environment, encouraging relaxation or comfort measures that are personally effective for the individual patient, or administering the prescribed bedtime sedative medication for hospitalized surgical patients.

Preparing the Patient on the Day of Surgery

The preoperative checklist outlines the nurse's responsibilities on the day of surgery; these activities must be completed before the patient is transported to surgery. An example of a preoperative checklist is provided in Figure 30-4. Some of these activities have already been described (eg, NPO, preoperative teaching, informed consent, skin preparation, screening tests, and bladder elimination).

Research in Nursing: Bridging the Gap to Evidence-Based Practice

Preoperative Fasting

Although having a patient remain NPO after midnight prior to the day of surgery has been a traditional practice, this is now being challenged. The American Society of Anesthesiology (ASA) revised its practice guidelines in 1999 for healthy patients undergoing elective surgery. These recommendations, based on research findings that pulmonary aspiration is rare following surgery with modern anesthesia, allow clear liquids up to 2 hours before elective surgery, a light breakfast (such as tea and toast) 6 hours before surgery, and a heavier meal 8 hours before surgery.

Related Research

Crenshaw, J., & Winslow, E. (2002). Preoperative fasting: Old habits die hard. *American Journal of Nursing, 102*(5), 36–45.

The purpose of this study was to determine if publication of these guidelines had changed preoperative fasting guidelines. The authors interviewed 155 patients in a large hospital about their preoperative fasting, comparing instructed, actual, and recommended fasting times for both solid food and liquids. They found that most of the patients continued to be instructed to have nothing to eat or drink after midnight, regardless if they were scheduled for early or late surgery.

Based on these findings, the conclusion was that in actual practice little has changed in preoperative fasting in answer to the revised ASA guidelines.

Relevance to Nursing Practice

It is important that nurses be knowledgeable about current practice guidelines and related research. Nurses are the healthcare providers who most often provide preoperative teaching. It is important that nurses and physicians collaborate to ensure that agency policy and procedures are congruent with the ASA guidelines and are understandable to patients. In addition, as thirst is a common problem with any length of NPO, nurses should teach patients how to decrease this discomfort by interventions such as brushing teeth, chewing gum, or sucking on hard candy.

For additional research, visit thePoint

Preoperative Checklist

	YES	NO	N/A	INITIALS
Identification band in place	✓			PL
NPO	✓			PL
Pre-op bath or shower completed	✓			PL
Enema/douche given			✓	PL
Hospital gown	✓			PL
Underwear removed	✓			PL
Voided on call/Foley in place voided	✓			PL
Height & weight recorded 68 in Height 151 lbs. Weight				AK
Nail polish removed			✓	AK
Make-up removed			✓	AK
Hair ornaments removed			✓	AK
Jewelry removed (earrings, necklaces, bracelets, rings)	✓			AK
Valuables given to family or placed in safe	✓			AK
Dentures removed, placed/given to _____			✓	AK
Prosthesis removed, placed/given to _____			✓	AK
Contact lenses/glasses, placed/given to family	✓			AK
Operative permit signed	✓			PL
Anesthesia permit signed	✓			PL
Hemeprofile, UA (report in chart/computer)	✓			PL
EKG (report on chart/computer)	✓			PL
Chest X-ray (report on chart/computer)	✓			PL
Computer cards, addressograph plate with chart	✓			PL
Medication record in chart and discontinued	✓			PL
Pre-op teaching completed by P. LeMone, RN (see plan)				PL
Side rails up	✓			AK
Allergy sticker on chart front/allergy bracelet on	✓			AK
Correct operative site marked with an X	✓			PL
If no, was the surgeon notified?				
Oxygen _____ liters per nasal cannula _____% per face mask			✓	PL
History and physical updated with last 7 days	✓			PL
Type and cross match done. Number of units of blood set up 2	✓			PL

Preoperative vital signs: 98.4 - 68 - 16 - 126/78

Allergies: none

Preoperative medications given (time and route) to be given in preop holding

Comments: family will be in surgery waiting room

Transported to OR per: cart Accompanied by wife

Date: 10/02/08 Time: 1300 Signed P. LeMone, RN
(RN or LPN)

Signed A. Koeplin
(transport personnel)

Figure 30-4. Example of a preoperative checklist.

Preoperative medications that might be prescribed are as follows:

- Sedatives, such as diazepam (Valium), midazolam (Versed), or lorazepam (Ativan) to alleviate anxiety and decrease recall of events related to surgery
- Anticholinergics, such as atropine and glycopyrrolate (Robinul), to decrease pulmonary and oral secretions and to prevent laryngospasm
- Narcotic analgesics, such as morphine and meperidine hydrochloride (Demerol), to facilitate patient sedation and relaxation and to decrease the amount of anesthetic agent needed
- Neuroleptanalgesic agents, such as fentanyl citrate-droperidol (Innovar), to cause a general state of calmness and sleepiness
- Histamine receptor antihistaminics, such as cimetidine (Tagamet) and ranitidine (Zantac), to decrease gastric acidity and volume

See Guidelines for Nursing Care 30-3 for further preoperative interventions the day of surgery. **Guide 3**

Evaluating

Evaluating the plan of care for the preoperative phase is based on the expected outcomes. The plan is effective if the patient is physically and emotionally prepared for surgery, can verbalize expected events and sensations of the perioperative period, and can demonstrate postoperative exercises and activities.

INTRAOPERATIVE NURSING CARE

The intraoperative phase of surgery begins with admission of the patient to the surgical area and lasts until the patient is transferred to the PACU. Although the surgeon has a dominant role during this phase, the perioperative nurse has critical responsibilities and roles in collaboratively meeting patient needs. The

Guidelines for Nursing Care 30-3

Providing Preoperative Patient Care: Hospitalized Patient (Day of Surgery)

- Check that preoperative consent forms are signed, witnessed, and correct, that advance directives are in the medical record (as applicable), and that the patient's chart is in order.
- Gather the needed equipment and supplies.
- Perform hand hygiene.
- **Check vital signs.** Notify physician of any pertinent changes (ie, rise or drop in blood pressure, elevated temperature, cough, symptoms of infection).
- Provide hygiene and oral care. Assess for loose teeth. **Remind patient of food and fluid restrictions before surgery.**
- Instruct the patient to remove all personal clothing including underwear and put on a hospital gown.
- Ask patient to remove cosmetics, jewelry including body-piercing, nail polish, and prostheses (eg, contact lenses, false eyelashes, dentures). Some facilities allow a wedding band to be left in place, depending on the type of surgery, provided it is secured to the finger with tape.
- If possible, give valuables to family member or place valuables in an appropriate area, such as the hospital safe if this is not possible.
- **Have patient empty bladder and bowel before surgery.**
- Attend to any special preoperative orders such as starting an IV line.
- Complete preoperative checklist and record of patient's preoperative preparation.
- **Administer preoperative medication as prescribed by physician/anesthesia provider.**
- Raise side rails of bed; place bed in lowest position. Instruct patient to remain in bed or on stretcher. If necessary, a safety belt may be used.
- Help move the patient from the bed to the transport stretcher if necessary. Reconfirm patient identification and ensure that all preoperative events and measures are documented.
- Tell the family of the patient where the patient will be taken after surgery and the location of the waiting area where the surgeon will come to explain the outcome of the surgery.
- After the patient leaves for the operating room, prepare the room and make a postoperative bed for the patient. Anticipate any necessary equipment based on the type of surgery and the patient's history.
- Perform hand hygiene.

nursing process uses the preoperative data and plan as a basis for the intraoperative plan of care.

THE NURSING PROCESS FOR INTRAOPERATIVE CARE

Assessing

The first room the patient enters when transferred to the surgical area is usually the holding area. Nurses in surgical scrub attire identify the surgical patient, assess the patient's emotional and physical status, and verify the information on the preoperative checklist. They may also carry out required immediate preoperative care, including performing skin preparation, starting IV fluids, and giving preoperative medications. The patient's response to the procedures is assessed, and the events of surgery are explained. As during the preoperative phase, some patients experience anxiety; the accompanying Research in Nursing box discusses using music to help alleviate anxiety.

When the operating room is prepared, a perioperative nurse helps transport the patient to the operating room. In the operating room, the patient is positioned on the operating bed, anesthetized, and draped. The perioperative nurse assesses the patient and reviews preoperative data, paying particular attention to factors that increase surgical risk. The nurse also assesses the patient during positioning and monitors supplies used to maintain safety for the patient.

Diagnosing

Patient problems in the intraoperative period may occur in relation to the position of the patient during the procedure, the effects of the anesthesia, equipment used and potential hazards, disruption of tissues during surgery, and the incision. See Examples of NANDA Nursing Diagnoses during the intraoperative period.

Outcome Identification and Planning

The planning phase of the nursing process focuses on identifying actions most effective for preventing complications, resolving patient problems, and ensuring patient safety. Some expected outcomes are that the patient will:

Research in Nursing: Bridging the Gap to Evidence-Based Practice

Effects of Music on Patient Anxiety

Surgical patients usually experience anxiety related to their procedure or other fears such as anesthesia, pain, postoperative results, or recovery. The anxiety can interfere with comfort, response to anesthesia and sedation induction, immune system, and postoperative recovery. Anxiety can affect the comfort and coping of family members and also care providers. Studies on music as a method to relieve stress have reported that it can have a calming influence for people in stressful situations and offer an acceptable distraction while overriding noxious sound stimuli.

Related Research

Mok, E., & Wong, K. Y. (2003). Effects of music on patient anxiety. *AORN Journal, 77*(2), 396–410.

The purpose of this study was to investigate music as a method of decreasing the anxiety of patients having minor surgery under local anesthesia. The researchers measured the patients' vital signs and asked the patients at intervals about their level of anxiety using an anxiety inventory scale. They also asked their patients to describe their perceptions about listening to music during the procedure. The researchers' goal was to determine if music would reduce patient anxiety effectively enough to be considered an alternative nursing intervention. The results of the study indicated that the patients who listened to music during their procedure had much lower anxiety levels, heart rates, and blood pressures compared with the group of patients who did not listen to music. Many patients were able to close their eyes and remain still through the procedure, claiming that it turned an awful experience into a pleasant one.

Relevance to Nursing Practice

Listening to music during a surgical or potentially unpleasant interventional procedure may mask noxious surrounding sounds and offer distraction and relaxation from a stressful event. When patients have the opportunity to select their preferred choice of music, they can relate to a sense of familiarity with the music, which may promote calmness and a temporary psychological escape from their environment. Patients may be invited preoperatively to bring in their own music tapes or CDs or select from various types of music available in the unit. If the procedure approach permits, patients may wear headphones or an in-room music source can be adjusted to fill the room with music.

For additional research, visit thePoint

Examples of NANDA Nursing Diagnoses: *The Intraoperative Patient*

Nursing Diagnoses	Related Factors	Sample Defining Characteristics
Risk for Deficient Fluid Volume	Hemorrhage Failure of regulatory mechanisms	• Increased pulse rate with decreased volume • Decreased blood pressure
Risk for Perioperative Positioning Injury	Any lengthy surgical procedure requiring special intraoperative positioning	*Risk Factors* • Aging • Obesity • Anesthesia, with resulting sensory/perceptual alterations • Emaciation

- Remain free of neuromuscular injury
- Maintain intact skin surfaces
- Have symmetric breathing patterns
- Be free of injury from burns, retained foreign objects (inaccurate count of supplies), and wound contamination
- Maintain normothermia

Implementing

During surgery, nurses function as scrub nurses and circulating nurses, in an expanded role as registered nurse first assistants (RNFAs), or in an advanced practice role as acute care nurse practitioners (APNs). The scrub nurse is a member of the sterile team who maintains surgical asepsis while draping and handling instruments and supplies. The circulating nurse identifies and assesses the patient on admission to the operating room, collaborates in safely positioning the patient on the operating bed, assists with monitoring the patient during surgery, provides additional supplies, maintains environmental safety, and throughout the surgical procedure, counts the number of instruments, needles, and sponges used during the surgery to prevent the accidental loss of an item in the wound. The RNFA actively assists the surgeon by providing exposure, hemostasis, and wound closure. The APN coordinates care activities, collaborates with physicians and nurses in all phases of perioperative and postanesthesia care, and integrates case management, critical paths, and research into care of the surgical patient. Additional educational preparation is required for the roles of the RNFA and the APN.

Positioning

The patient is placed in a specific operative position after anesthesia has produced loss of consciousness and reflexes. Ensure patient safety, comfort, and good body alignment in positioning to prevent alterations in integumentary, respiratory, vascular, and neuromuscular function (Rothrock, 2007). The risk for skin injury is avoided by lifting, rather than rolling or pulling, the patient into the surgical position. Rolling or pulling can cause a shearing force, in which two or more tissue layers slide on each other, stretching subcutaneous blood vessels, obstructing blood flow, and contributing to pressure ulcers.

Although all of the operative positions are not described here, perioperative nurses need to know the position to be used and significant nursing considerations for that position. Two examples are the Trendelenburg position and the lithotomy position. The Trendelenburg position requires lowering the upper torso and raising the feet. It is commonly used in minimally invasive surgery of the lower abdomen or pelvis. The displacement of the abdominal viscera toward the head decreases diaphragm movement and respiratory exchange; blood pools in the upper torso, and blood pressure increases; hypotension can result with return to the supine position. Shearing with resultant tissue damage is also a significant risk in this position. The lithotomy position is used for gynecologic, rectal, and urologic procedures. The placement of legs in stirrups causes pooling of blood in the legs, increasing the risk of thrombophlebitis. Pressure can also damage the peroneal nerve, with resultant footdrop.

Draping

Drapes are used to create and maintain a sterile field around the operative site, preventing the passage of microorganisms, particulate matter, and fluids between sterile and nonsterile areas. The only area left exposed is the incision site. Plastic adhesive drapes may be used to form a complete seal over the skin; with these drapes, skin color is visible, and the incision is made through the impermeable adhesive drape.

Documenting

Throughout surgery, the perioperative nurse documents ongoing patient assessment, item counts (sponges, sharps, instruments), monitoring data (eg, vital signs, urine output, blood loss, pulse oximetry results), positioning, medications, dressings and drains, specimens, and responses to care on the intra-

operative record. This documentation includes planning and implementation of perioperative nursing activities and evaluation of the achievement of patient outcomes.

Transferring to the Postanesthesia Care Unit

After the surgery, the patient is moved carefully from the operating bed to a stretcher or bed. This is a critical time: sudden or rough handling can cause severe hypotension or potentially lethal cardiac or respiratory arrest. The patient is then transported to the PACU, and the nurse verbally communicates relevant preoperative and intraoperative assessments and interventions to the PACU nurses to ensure continuity of care.

Evaluating

Evaluation of the effectiveness of the plan of care for the intraoperative phase is based on the expected outcomes. If met, the plan was effective.

POSTOPERATIVE NURSING CARE

The postoperative phase can be divided into two stages—immediate care (usually provided in the PACU in both in-hospital and ambulatory surgery centers) and ongoing postoperative care (lasting from return to the unit through convalescence). Nursing assessments and interventions are consistent with those in the preoperative and intraoperative phases and are carried out to maintain function, promote recovery, and facilitate coping with alterations in structure or function. See the accompanying Through the Eyes of a Student account. Assessments and nursing interventions are combined in discussing immediate postoperative care; the phases of the nursing process are used to describe ongoing postoperative care.

IMMEDIATE POSTOPERATIVE CARE

Care in the PACU involves assessing the postoperative patient, with emphasis on preventing complications from anesthesia or the surgery. Assessments are continuous, using preoperative and intraoperative data as bases for comparison. The assessments made in the PACU include respiratory status, cardiovascular status, central nervous system status, fluid status, wound status, and general condition. These assessments initially are made every 10 to 15 minutes. The average PACU stay is about 1 hour, but it will vary depending on the type of surgery, length of anesthesia, and patient response.

Mr. Benjamin, the older adult who has had a total hip replacement, will require frequent assessments during his stay in the PACU, specifically vital signs, cardiovascular status, respiratory status, IV therapy, wound status, and urinary elimination.

Respiratory Status

Respiratory function is assessed by monitoring respiratory rate, rhythm, and depth; by auscultating breath sounds; and by noting the oxygen saturation level. During a surgical procedure with general anesthesia, an endotracheal tube may be inserted to administer the anesthetic gases and maintain patent air passages. The airway is not removed until the laryngeal and pharyngeal reflexes return, allowing the patient to control the tongue, cough, and swallow. The airway is assessed for patency, humidified oxygen is administered, and pulse oximetry is initiated. Cardiovascular and mental status assessments provide additional data about oxygenation. Ineffective respiratory function is indicated by restlessness and anxiety; unequal

THROUGH THE EYES OF A STUDENT

The first time I took care of a patient with "multiple tubes," I was horrified at the thought of actually touching the patient. I hadn't really been exposed to that many critically ill patients until my last semester as a student nurse. I remember being assigned a patient in the cardiothoracic intensive care unit in the hospital where I trained. The patient was a "fresh heart"—a cardiopulmonary bypass graft patient who had just been operated on that morning.

I remember walking into the room and thinking, "What do I do with all of these tubes?" and then with horror thinking, "What if one of them falls out?" Needless to say, I was overwhelmed and frightened but at the same time excited at the challenge that faced me. I asked my preceptor what each tube was for and where it was hooked up and whether it would fall out if I touched it. She answered all my questions with patience and understanding and asked me if I wanted to handle the lines. I looked at her as if she were insane, but went ahead and did it. Would you believe that nothing fell out! I must admit that the experience taught me a lot, but it also got me over the fear of tubes.

I now chuckle every time I see a nursing student's face with that same look of horror as I had, and I try to answer every question with the same degree of patience and understanding that my preceptor had for me.

—Lynda L. Ullmer, RN
Gaithersburg, MD

chest expansion with use of accessory muscles; shallow, noisy respirations; cyanosis; and tachycardia.

Respiratory obstruction is the most common PACU emergency. It may occur as a result of secretion accumulation, obstruction by the tongue, laryngospasm (a sudden, violent contraction of the vocal cords), or laryngeal edema. Respiratory obstruction is indicated by assessments of ineffective respiratory function plus observing for wheezing or crowing sounds with respiratory effort. Positioning, administering humidified oxygen, encouraging the patient to take deep breaths, and suctioning may be used to maintain a patent airway and tissue oxygenation.

Cardiovascular Status

Cardiovascular function is assessed by taking vital signs, monitoring electrocardiogram rate and rhythm, and observing skin color and condition. Blood pressure findings are compared with baseline data from the preoperative period; hypotension may be the result of varied factors, including anesthetic agents, preoperative medications, position changes, blood loss, respiratory alterations, and peripheral blood pooling. Transient hypertension can also occur as a result of anesthetic effects, respiratory insufficiency, the surgical procedure, or the excitement phase of recovery from anesthesia. Oxygen administration, deep breathing, leg exercises, verbal stimulation (to help expel anesthetic gases and facilitate increasing level of consciousness), and maintaining accurate IV flow rates can increase low blood pressure.

Patients are at risk for altered body temperature related to the surgical procedure, its length, anesthetic agents, a cool surgical environment, age, and use of cool irrigating or infusion fluids. Inadvertent hypothermia (temperature below 35.5°C [96°F]) can lead to complications of poor wound healing, hemodynamic stress, cardiac disturbances, coagulopathy, delayed emergence from anesthesia, and shivering and its associated discomfort. Measure the patient's body temperature, usually by the oral or tympanic route, and initiate interventions if the patient complains of being cold or is hypothermic. Warmed blankets placed on the patient's body and head and forced warm-air devices are used for rewarming.

Assess all pulses for bilateral equality, rhythm, rate, and character. Of special significance are assessments of abnormal function—an irregular rhythm, absence of pulses, or tachycardia. Tachycardia, an early symptom of shock, must be carefully evaluated. Other related assessments are cyanosis, a cool skin temperature, and a decrease in urine output.

Central Nervous System Status

The return of central nervous system function is assessed through response to stimuli and orientation. Consciousness returns in reverse order, with the usual pattern being: (1) unconsciousness; (2) response to touch and sounds; (3) drowsiness; (4) awake but not oriented; and (5) awake and oriented. Nurses in the PACU verbally reorient the patient by touching and calling him or her by name.

Fluid Status

Fluid imbalance may result from factors such as preoperative fluid restriction, fluid loss during surgery, wound drainage, or the surgical stress response (with retention of sodium and water). Imbalanced fluid volume (deficit or excess) is a risk for all surgical patients but is an especially important one in children and older adults. Assessing fluid status includes skin turgor, vital signs, urine output, wound drainage, and IV fluid intake. IV fluid administration assessments include the type of fluid infused, the rate, location of lines, condition of the IV insertion site, and the security and patency of the tubing.

Wound Status

The nurse in the PACU assesses the wound dressing for amount, consistency, and color of drainage as well as for any tubes or drains and the amount and type of drainage by that route.

Large amounts of bright-red drainage, combined with other abnormal physical status assessments (restlessness, pallor, cold moist skin, decreasing blood pressure, increasing pulse and respiratory rates), may indicate hemorrhage and hypovolemic shock. Report these symptoms immediately.

Pain Management

Pain is both a subjective and an objective experience. Clinical practice guidelines developed by the Agency for Health Care Research and Quality recommend the assessment of pain using a rating scale. The scale may be verbal (ranging from no pain to worst possible pain), numeric (with 10 on a scale of 0 to 10 being the worst possible pain), or a "faces" rating scale, ranging from a smiley face indicating no pain to a face that has frowns and tears for worst possible pain (see Chap. 41). Early administration of analgesia, using nonsteroidal anti-inflammatory drugs and opiates, occurs in the PACU. Opiates may be delivered by PCA, allowing the patient to control the analgesic administration. Nonpharmacologic methods to decrease pain and improve comfort include positioning, verbal reassurance, touch, applications of heat or cold, massage, music therapy, humor therapy, meditation, and guided imagery. Preoperative assessments, noting methods that are personally effective for the patient, assist in effective implementation in the PACU. These should supplement, not substitute for, pharmacologic pain relief.

General Condition

Other assessments and interventions are made to ensure physical and emotional comfort and safety. Constant reorientation and reassurance that the surgery is completed provide psycho-

logical comfort. Careful assessments, proper positioning, and use of side rails and restraints maintain physical safety.

The patient is discharged from the PACU when his or her physical status and level of consciousness are considered stable. The family is notified that the patient is being transferred back to his or her room, and the PACU nurse gives a verbal report to the unit nurse about the assessments and interventions during the intraoperative and immediate postoperative phases.

ONGOING POSTOPERATIVE CARE

Ongoing postoperative care is planned to facilitate recovery from surgery and coping with alterations. The plan of care includes promoting physical and psychological health, preventing complications, and teaching self-care when the patient returns home. Skill 30-2, Providing Postoperative Care When Patient Returns to Room, outlines initial and ongoing postoperative patient care.

THE NURSING PROCESS FOR ONGOING POSTOPERATIVE CARE

Assessing

The nurse on the unit assists PACU personnel in transferring the patient to the bed in the unit room and makes an initial assessment using data from the preoperative and intraoperative phases. A postoperative checklist or flow sheet (Fig. 30-5) may be used. The initial assessment is often combined with the implementation of postoperative physician's orders. See Table 30-2 for focused assessments and interventions.

After assessment, document the time of arrival and all assessment data. Follow agency protocol for assessment routines: common time frames are every 15 minutes until stable, changing to every 1 to 2 hours for the first 24 hours, and every 4 hours thereafter. Although agency protocols are used for guidelines in the immediate postoperative period, the nurse is responsible for adjusting the frequency and priorities of assessment to the specific needs of each patient (see the accompanying Research in Nursing box).

Diagnosing

Nursing diagnoses in the postoperative phase may represent actual problems or those for which the patient is at risk. When making nursing diagnoses, the nurse uses assessment data and plans of care established before and during surgery and includes the family. See Examples of NANDA Nursing Diagnoses appropriate to the postoperative period.

Outcome Identification and Planning

The plan of care in the postoperative phase begins in the preoperative phase, when nursing activities to reduce stress and teach postoperative activities are carried out. From admission, the patient and family are prepared for uneventful recovery and self-care after discharge. Specific expected outcomes are individualized based on risk factors, the surgical procedure, and the patient's unique needs. Examples of desired postoperative outcomes for a patient after major surgery are as follows: The patient will

- Carry out leg exercises every 2 to 4 hours
- Deep breathe and cough effectively every 2 hours
- Verbalize decreasing levels of pain
- Have a balanced intake and output
- Regain normal bowel and bladder elimination
- Have a well-healed surgical incision
- Remain free of infection
- Verbalize any concerns about appearance of wound
- Verbalize and demonstrate wound self-care

Implementing

Many nursing interventions in the postoperative phase have already been discussed in this chapter or are fully discussed in other chapters; therefore, this section focuses on nursing interventions to meet the expected outcomes of the plan of care. Nursing care to prevent complications, promote a return to health, and facilitate coping with alterations is discussed.

Preventing Postoperative Complications

A wide variety of factors increase the risk of postoperative complications. These have been described in the preoperative and intraoperative sections of this chapter and include age, health habits, physical condition, medical history, psychological status, and surgical intervention (eg, anesthesia, positioning, wound). Ongoing postoperative assessments and interventions are implemented to decrease the risk for postoperative complications. If postoperative complications occur, the nurse provides physical assessments and care, provides emotional support to the patient and family, and carries out prescribed treatments.

Preventing Cardiovascular Complications

Nursing interventions to prevent or monitor for cardiovascular complications are listed in Box 30-4. Specific cardiovascular complications include hemorrhage, shock, thrombophlebitis, and pulmonary embolus.

Hemorrhage

Hemorrhage is an excessive internal or external blood loss. Hemorrhage may lead to hypovolemic shock. It may occur from a slipped suture, a dislodged clot in the wound, or stress on the surgical site; it may also be the result of pathophysiologic conditions or certain medications. Common indications of hemorrhage are restlessness, anxiety, and frank bleeding as well as hypotension; cold, clammy skin; a weak, thready, and rapid pulse; cool, mottled extremities; deep, rapid respi-

Name Dale Courtney
M.R. # ?302-59910

POSTOP PROGRESS FLOW RECORD

Date	8/7/08									
Time	10	10^{15}	10^{30}	11	11^{15}	11^{30}	12	12^{30}		
BP	120/80	126/82	128/80	130/80	130/82	130/80	130/82	128/80		
Pulse	90	88	88	90	88	86	86	86		
Respirations	22	24	22	20	20	22	20	20		
Temperature	98^{8}	98^{8}	98^{8}	98^{8}	98^{8}	98^{8}	98^{8}	98^{8}		
I.V.	D/c'd	→							Discharged to home with wife	
Wound	DD&I	→								
Drain(s)	N/A									
LOC	AAA x3	→							Reviewed D/C instructions	
Pain	SPA	→		→	+4 (Iced)	+3	+3	+2	Immobilizer on for D/C	
Nausea	No	→								
Foley/ Other Cath or Voiding	No					Voided 45cc			Voided	
Turn, Cough Deep Breathe	C & DB	→							Ambulated	
Moves All Extremities	+4	→							Returned to baseline	
Initials	JCR	JCR	JCR	JCR	JCR	JCR	JCR			

Key _____ _____
_____ _____

Figure 30-5. Example of a postoperative progress record.

rations; decreased urine output; thirst; and apprehension. The primary purposes of care for the patient having a hemorrhage include stopping the bleeding and replacing blood volume. If bleeding occurs, apply a pressure dressing to the bleeding site and be prepared to have the patient return to the operating room if bleeding cannot be stopped or is massive.

Shock

Shock is the body's reaction to acute peripheral circulatory failure as the result of an alteration in circulatory control or a loss of circulating fluid. The type of shock most commonly seen in postoperative patients is **hypovolemic shock,** which occurs from a decrease in blood volume. Common indications of shock are the same as those for hemorrhage.

The primary purpose of care for a patient in shock is to improve and maintain tissue perfusion by eliminating the cause of the shock. Nursing interventions include establishing and maintaining the airway; placing the patient in a flat position with the legs elevated 30 to 45 degrees; administering oxygen therapy; monitoring vital signs, hematocrit, blood gas results, and general condition; maintaining body warmth with covers; and administering medications. The nurse must

TABLE 30-2 Postoperative Assessments and Interventions on Return to the Unit

Factors to Assess	Assessments and Interventions
Vital signs and oxygen saturation	• Temperature, blood pressure, pulse and respiratory rates; oxygen saturation • Note, report, and document deviations from preoperative and PACU data as well as symptoms of complications.
Color and temperature of skin	• Skin color (pallor, cyanosis), skin temperature, and diaphoresis
Level of consciousness	• Orientation to time, place, and person • Reaction to stimuli and ability to move extremities
Intravenous fluids	• Type and amount of solution, flow rate, security and patency of tubing • Infusion site
Surgical site	• Dressing and dependent areas for drainage (color, amount, and consistency) • Drains and tubes; be sure they are intact, patent, and properly connected to drainage systems.
Other tubes	• Assess indwelling urinary catheter, gastrointestinal suction, and others for drainage, patency, and amount of output. • Be sure dependent drainage bags are hanging properly and suction drainage is attached and functioning. • If oxygen is ordered, ensure placement of ordered application and flow rate.
Comfort	• Assess pain (location, duration, and intensity), and determine whether analgesics were given in the PACU. • Assess for nausea and vomiting. • Cover the patient with a blanket. • Reorient to the room as necessary. • Allow family members to remain with the patient after the initial assessment is completed.
Position and safety	• Place the patient in an ordered position, *or* • If the patient is not fully conscious, place in the side-lying position. • Elevate the side rails and place the bed in low position.

also be prepared to assist with the insertion of IV lines and to administer fluids as well as whole blood or its components.

Thrombophlebitis

Thrombophlebitis is an inflammation of a vein associated with thrombus (blood clot) formation. Thrombophlebitis from venous stasis is most commonly seen in the legs of postoperative patients (Porth, 2004). Indications of thrombophlebitis are pain and cramping in the calf or thigh of the involved extremity, redness and swelling in the affected area, elevated temperature, and an increase in the diameter of the involved extremity.

Care for the patient with thrombophlebitis includes preventing a clot from breaking loose and becoming an embolus that travels to the lungs, heart, or brain and preventing further clot formation. Nursing interventions include administering medications (eg, anti-inflammatory agents, anticoagulants, analgesics), maintaining the patient on bed rest, applying external heat, applying high antiembolic stockings or sequential pneumatic compression devices (Box 30-5), and measuring bilateral calf or thigh circumference every shift. Teach the patient not to massage the legs.

Pulmonary Embolus

An **embolus** is a blood clot or foreign substance that is dislodged and travels through the bloodstream until it lodges in a smaller vessel. In postoperative patients, the embolus is often part of a thrombus that breaks free from a vein wall. If the embolus lodges in the pulmonary vessels, it is called a pulmonary embolus. Indications of a pulmonary embolus include dyspnea, chest pain, cough, cyanosis, rapid respirations, tachycardia, and anxiety. This is a life-threatening condition, and immediate treatment is necessary. The primary goals of care are to stabilize cardiovascular and respiratory function and to prevent further emboli. Nursing interventions include notifying the physician immediately if symptoms occur, maintaining the patient on bed rest in the semi-Fowler's position, assessing vital signs frequently, administering oxygen therapy, administering medications (eg, anticoagulants, analgesics), and instructing the patient to avoid Valsalva's maneuver (forced exhalation against a closed glottis, such as straining to have a bowel movement) to prevent increased intrathoracic pressure and, possibly, increased emboli.

Preventing Respiratory Complications

Nursing interventions to prevent or monitor for respiratory complications include monitoring vital signs, implementing deep breathing, coughing, incentive spirometry, and turning in bed every 2 hours; ambulating; maintaining hydration; avoiding positioning that decreases ventilation; and monitoring responses to narcotic analgesics. Specific respiratory complications include pneumonia and atelectasis.

Research in Nursing: Bridging the Gap to Evidenced-Based Practice

Bowel Sounds

For more than 100 years, nurses have listened to bowel sounds as a measure of recovery of bowel function after abdominal surgery. This practice has continued as a tradition of nursing, largely unquestioned with regard to its effectiveness as a valid measure of gastrointestinal (GI) motility. This assessment tool typically is applied for 5 minutes to each abdominal quadrant, taking at least 20 minutes per patient, several times in the course of the postoperative days. There are no nursing interventions associated with the presence or absence of bowel sounds. The timing of return of motility varies for each patient and is used as a criterion to begin fluid and food intake.

Related Research

Madsen, D., Sebolt, T., & Cullen, L., et al. (2005). Listening to bowel sounds: An evidence-based practice project. *American Journal of Nursing, 105*(12), 40–49.

The nurse researchers looked for studies in the literature that involved the return of GI motility after abdominal surgery and the use of auscultation (listening) for bowel sounds. They found little literature, and what they found was old. They found a predictable sequence and timing of GI motility and function, with small intestine movement usually first in 4 to 24 hours, the stomach in 2 to 4 days, and the colon in 3 to 7 days. Early postoperative bowel sounds most likely do not reflect immediate return of normal function. They discovered that the return of flatus and bowel movement are the primary indicators of return of GI motility and recovery of the colon.

Relevance to Nursing Practice

The traditional assessment of auscultating for bowel sounds is not a valid indicator of return of GI motility after abdominal surgery; other parameters such as flatus and bowel movement are more appropriate in determining positive justification for oral intake. Nurses should understand the physiology of GI motility, paralytic ileus associated with abdominal surgery, and useful and relevant assessments that measure presence and degree of pain, distention, nausea, vomiting, cramping, abdominal fullness, firmness and pain, return of appetite, flatus and bowel movement. This assessment can be applied every 8 hours, with the patient in supine position, until first flatus and bowel movement. This assessment uses interview, inspection, and palpation. These findings are amenable to nursing intervention.

For additional research, visit thePoint

Pneumonia

Pneumonia is an inflammation of the alveoli as the result of an infectious process or the presence of foreign material. Pneumonia may occur postoperatively as a result of aspiration, infection, depressed cough reflex, increased secretions from anesthesia, dehydration, and immobilization. Indications of pneumonia are an elevated temperature, chills, a cough that produces rusty or purulent sputum, crackles and wheezes, dyspnea, and chest pain. The goals of care are to treat the underlying infection, maintain respiratory status, and prevent the spread of microorganisms. Nursing interventions include those used to prevent or monitor for respiratory complications and promoting full aeration of the lungs by positioning the patient in semi-Fowler's or Fowler's position, administering oxygen therapy, administering medications (eg, antibiotics, expectorants, analgesics), providing frequent oral hygiene, and ensuring rest and comfort.

Atelectasis

Atelectasis is the incomplete expansion or collapse of alveoli with retained mucus, involving a portion of lung and resulting in poor gas exchange. Indications of atelectasis include decreased lung sounds over the affected area, dyspnea, cyanosis, crackles, restlessness, and apprehension. The primary goals of care are to ensure oxygenation of tissues, prevent further atelectasis, and expand involved lung tissues. Nursing interventions include those used to prevent or monitor for respiratory complications, and positioning the patient in semi-Fowler's position, administering oxygen therapy, and administering analgesics for pain.

Preventing Surgical Site Complications

The nurse assesses and cares for the surgical site to promote healing and prevent complications. Wound care is discussed in Chapter 38. Nursing interventions to prevent and monitor for complications at the surgical site are monitoring vital signs, especially temperature elevation; maintaining hydration; maintaining nutritional status; encouraging a diet high in proteins, carbohydrates, calories, and vitamins; using proper hand hygiene; and following aseptic technique when changing dressings at the surgical site and exit sites for tubes and drains. Soiled gloves and dressings should be disposed of following standard precautions.

Promoting a Return to Health

Nurses provide interventions during postoperative recovery to promote physical and psychological functioning at as near a normal state as possible. The plan of care to achieve this goal

Examples of NANDA Nursing Diagnoses: *The Postoperative Patient*

Nursing Diagnoses	Related Factors	Sample Defining Characteristics
Risk for Infection	Any condition that interferes with normal inflammatory healing process or provides an entry for infectious agents	*Risk Factors* • Obesity • Aging • Immunosuppression • Malnutrition • Presence of incision • Decreased ability to cough, deep breathe, use incentive spirometer • Presence of drains, tubes, and catheters • Insertion site for intravenous therapy
Disturbed Body Image	Any condition that causes confusion in the mental image of oneself, including surgical incision, removal of body part, and inability to use body as one did before surgery	• Verbalization of altered view of one's body in appearance, structure, or function • Refusal to look at incision or area of surgical treatment • Actual change in one's body from surgery or trauma • Actual missing body part • Verbalizations of negative feelings about body
Acute Pain	Any condition that causes actual tissue damage, such as the surgical incision	• Rating pain as severe on a scale of 1 to 10 (ie, as a 9) • Positioning or guarding self to avoid pain • Inability to sleep • Loss of appetite • Diaphoresis, changes in vital signs, dilated pupils • Moaning, crying, sighing
Urinary Retention	Any condition that causes incomplete emptying of the bladder, such as neurologic effects of anesthesia	• Urine not eliminated for more than 8 hours • Distended, palpable bladder • Small, frequent voiding • Residual urine

BOX 30-4 Nursing Interventions to Prevent or Monitor Postoperative Cardiovascular Complications

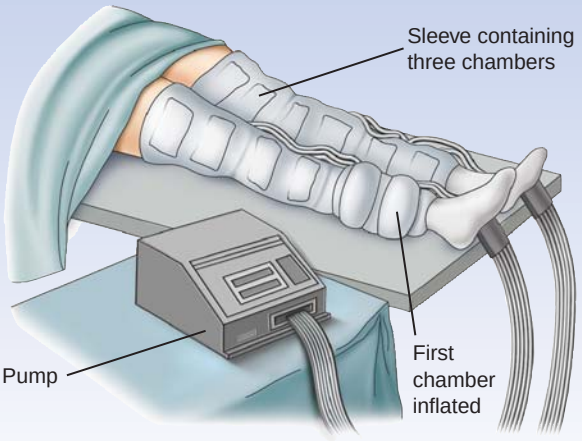
- Assess and document vital signs as ordered and as the patient's status dictates, using preoperative assessments as a baseline.
- Provide covers, forced warm air, or other warming device or techniques as necessary to prevent shivering and hypothermia.
- Maintain fluid balance.
- Maintain accurate intake and output.
- Monitor rate, type, and access site of intravenous fluids.
- Assess skin turgor and hydration of mucous membranes.
- Monitor amount, color, and consistency of wound drainage (dressings and drains or tubes).
- Implement leg exercises and turning in bed every 2 hours.
- Assist with ambulation. Ambulation usually begins the evening of surgery and increases as tolerated; blood pressure and pulse and respiratory rates are used to monitor tolerance.
- Apply and follow protocols for antiembolic stockings or compression devices, if ordered.
- Administer anticoagulant medications, if prescribed.
- Measure bilateral calf and thigh circumference daily.
- Avoid positioning that impedes venous return (eg, do not mechanically raise the knee portion of the bed or place pillows under the knees).

BOX 30-5 Pneumatic Compression Devices

Pneumatic compression devices are composed of an air pump, connecting tubes, and an extremity sleeve. The sleeve may cover the entire leg or may extend from the foot to the knee. A variety of types are available; the accompanying figure provides one example. The devices apply brief pressure to the legs to enhance blood flow and venous return, thereby decreasing the risk for thrombophlebitis after surgery. The devices may apply either intermittent or sequential pressure. Intermittent pneumatic compression devices fit over the entire leg, with inflation and deflation of the sleeve covering the leg alternating from one leg to the other by a preset timer. Sequential pneumatic compression devices are designed so that pressure moves up the leg in increments. They may inflate and deflate by alternating from one leg to the other, or they may do so for both legs at once.

Nursing Care

- Explain the purpose of the device to the patient.
- Apply the device so that two fingers fit between the leg and the sleeve.
- Position the tubing so the patient can move about without interrupting the air flow.
- Remove the sleeves at least once a day for skin care and assessment.
- Assess the extremities for peripheral pulses, edema, changes in sensation, and movement on a regular schedule.
- Ensure that all chambers are inflating in proper sequence once per shift.



includes activities to meet elimination, fluid and electrolyte, nutrition, and rest and comfort needs.

Meeting Elimination Needs

Both urinary and bowel elimination can be altered by anesthesia, manipulation of organs during surgery, inactivity, and altered fluid and food intake during the perioperative period. Assessments and nursing interventions to promote the return of normal bowel and urinary elimination are outlined in Box 30-6.

Meeting Fluid and Nutrition Needs

Nursing assessments and interventions to meet fluid needs are met by monitoring patterns of intake and output, maintaining prescribed IV fluid infusion rates, and assessing skin turgor and mucous membranes for dehydration. Nutrition needs are met by monitoring weight, providing oral hygiene before meals and as needed, monitoring postoperative dietary progression (often from clear to full liquids, then from soft to regular diet), maintaining an environment conducive to appetite (clean, neat, and free of odors), encouraging the patient to sit

BOX 30-6 Nursing Assessments and Interventions to Meet Postoperative Elimination Needs

Bowel Elimination

- Assess for the return of peristalsis by auscultating bowel sounds every 4 hours when the patient is awake.
- Assess abdominal distention, especially if bowel sounds are not audible or are high-pitched (indicative of possible paralytic ileus, which is an absence of intestinal peristalsis).
- Assess ability to pass flatus and stool.
- Assist with movement in bed and ambulation to relieve gas pains, a common postoperative discomfort.
- Encourage food and fluid intake when ordered, especially fruit juices and high-fiber foods.
- Maintain privacy when patient is using the bedpan, urinal, commode, or bathroom.
- Administer suppositories, enemas, or medications, such as stool softeners, as prescribed.

Urinary Elimination

- Monitor patterns of intake and output.
- Assist in assuming normal position to void by using an upright position when on a bedpan and using a bedside commode or bathroom when able, or by assisting the male patient to stand upright to void with a urinal.
- Assess for bladder distention by palpating above the symphysis pubis if the patient has not voided within 8 hours after surgery or if the patient has been voiding frequently in amounts of less than 50 mL; notify the physician of abnormal assessment results.
- Maintain prescribed intravenous fluid infusion rates.
- Encourage oral fluid intake when prescribed.
- Provide privacy when the patient is using bedpan, bedside commode, urinal, or bathroom.
- Initiate urinary catheterization if prescribed.

up in bed or a chair for meals, and encouraging family participation in meals.

Meeting Comfort and Rest Needs

Comfort needs are a priority after surgery. Factors that interfere with comfort include nausea, vomiting, thirst, hiccups, and pain at the surgical site. Nursing interventions that promote rest and comfort by providing relief for these problems are listed in Guidelines for Nursing Care 30-4. Comfort and rest are also promoted by providing personal hygiene, keeping bed linens clean, providing quiet rest periods, and allowing family members to remain with the patient.

Helping the Patient Cope

Surgery may alter the patient's physical appearance as well as his or her physiologic function, leading to the risk for or actual alterations in self-concept and body image. Changes in a person's self-perception can influence all of the human dimensions and areas of human functioning, including self-esteem, relationships with others, sexual identity, spiritual beliefs, sociocultural values, and independent and fulfilling engagement in activities of daily living.

Many surgical patients have the same reaction to loss of a body part as to a death (see Chap. 33). The response and adaptation to it are influenced by multiple factors, including age, cultural values and beliefs, sociocultural background, significance of the body part, visibility of the body part, time to prepare for the change, and support people available. A surgical patient's grief is a normal, appropriate response. It is unique to the person experiencing it, and although there are stages and phases of grief, there is no timetable for it. The nurse must be aware of the patient's needs and provide interventions to meet those needs in coping with change.

Remember Mr. Johnson, who had a urinary diversion. The patient already has experienced changes in body image related to his bilateral amputations and paraplegia. Now the patient must learn to adapt to another alteration, a urinary diversion. The nurse needs to investigate the patient's previous beliefs, values, and coping mechanisms to assist the patient in adapting to this most recent alteration.

The nursing process is used to implement interventions, beginning with the patient's decision to have surgery and continuing through convalescence. Nursing interventions to facilitate coping and adaptation are outlined in Box 30-7.

Providing Ambulatory Surgery Postoperative Care

Evaluating the patient's postoperative status after ambulatory surgery focuses on ensuring that the patient can be safely cared for at home. After surgery and recovery from the anesthetic, the patient is asked to sit up and drink liquids. A patient who is no longer drowsy or dizzy, has stable vital signs, and has voided is allowed to go home accompanied by a responsible adult. The patient is not allowed to drive a car to go

Guidelines for Nursing Care 30-4

Promoting Postoperative Rest and Comfort

Nausea and Vomiting

- Avoid giving the patient a large amount of fluids or food at one time, especially after being NPO.
- Administer prescribed medications.
- Provide oral hygiene as needed.
- Maintain clean environment.
- Avoid use of a straw.
- Avoid strong-smelling food.
- Assess for possible allergy to medications, such as antibiotics or analgesics.
- Maintain bowel elimination.

Thirst

- Offer sips of water or ice chips when NPO (if permitted).
- Maintain oral hygiene.

Hiccups

- Have the patient do the following:
  - Take several swallows of water while holding the breath (if not NPO).
  - Rebreathe into a paper bag.
  - Eat a teaspoon of granulated sugar.

Surgical Pain

- Assess pain frequently; administer prescribed analgesics every 2 to 4 hours on a regular schedule during the first 24 to 36 hours after surgery.
- Reinforce preoperative teaching for pain management.
- Offer nonpharmacologic measures to supplement medications: massage, position changes, relaxation, guided imagery, meditation, music.

BOX 30-7 Nursing Interventions to Facilitate Postoperative Coping and Adaptation

- Accept each patient as a unique individual.
- Identify through verbal and nonverbal cues patients who are at risk for alteration in self-concept. The risk is increased if the patient has little support from others, a visible alteration, or an alteration that will seriously affect functional ability.
- Allow time for patients and families to verbalize their feelings about the alteration, and do not assume that all patients will have problems.
- Identify and support strengths and effective coping mechanisms.
- Encourage the patient and family to be part of goal setting and decision making throughout the surgical experience.
- Provide teaching and honest information to the patient and family about all aspects of care.
- Work collaboratively with other members of the health team to provide referrals and resources as necessary to meet physical, psychological, and spiritual needs.

home. The usual length of time from completion of surgery to discharge is 1 to 3 hours, provided that established criteria have been met. Written and verbal instructions for home care are given to the patient and family.

Evaluating

The achievement of desired outcomes for postoperative recovery and rehabilitation may be evaluated in a number of ways. Because the final resolution of some desired outcomes may not be apparent or measurable at the time of discharge, many institutions use follow-up telephone calls or surveys that are mailed to patients. It may also be possible to work with the physician's office to have a patient complete a survey on the first postoperative visit. Whatever mechanism is selected, important outcomes, such as the absence of surgical site infection, the patient's satisfaction with pain management measures, return to former levels of mobility and activity, and the absence of postoperative nausea and vomiting and other complications for which the patient was at risk, should be included as part of evaluative criteria.

See the accompanying concept map and Nursing Plan of Care for examples of the nursing process for perioperative care.

Nursing Plan of Care 30-1

For Molly Greenbaum

Molly Greenbaum is a 38-year-old woman received in the preoperative admission unit scheduled for a vaginal hysterectomy following a history of excessive bleeding. She is pale and crying softly. She tells the nurse that she didn't sleep at all last night and is extremely nervous. The nurse identifies Molly and begins the assessment, asking her about her fears:

- Molly is pale, fatigued, and feeling weak.
- She is anxious about the surgery and anesthesia, afraid that she will wake up or feel pain during the procedure.
- She is afraid that the surgeon will find inoperable cancer, even though the doctor assured her that she has endometriosis.
- She reports she has a low tolerance for pain.
- She is worried about how she will be after she goes home.

NURSING DIAGNOSIS Anxiety related to impending surgery

EXPECTED OUTCOME 8/9/08—Prior to surgery, patient will:

- **Demonstrate knowledge of physiological and psychological responses to surgery**

(continued)

Nursing Plan of Care 30-1

For Molly Greenbaum *(continued)*

Nursing Interventions	Rationale	Evaluative Statement
Assess patient knowledge base.	Patient may be misinformed or may have forgotten her preop instructions.	8/9/08 Outcome met. Patient understands expectations for surgery. *C. Smith, RN*
Review preop teaching.	Patient may need teaching or reinforcement.	
Clarify understanding of questions.	**This ensures the patient understands.**	

EXPECTED OUTCOME 8/9/08—Prior to surgery, patient will:
Verbalize and/or demonstrate decreased anxiety

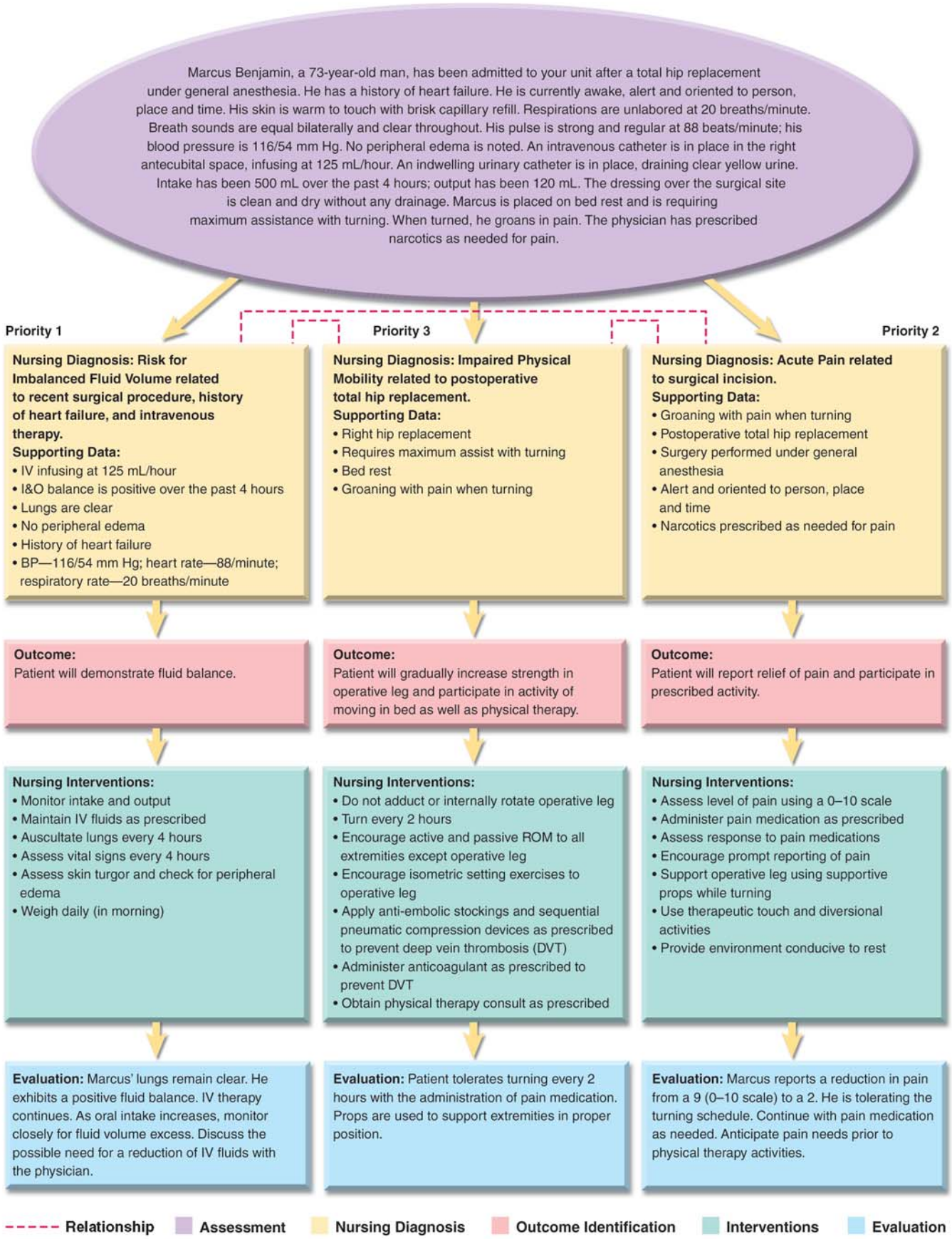
Nursing Interventions	Rationale	Evaluative Statement
Provide appropriate emotional support and calm environment.	Most patients respond positively to compassion and kindness.	8/9/08 Outcome met. Patient is calm and quiet. States she is ready for surgery and says she will be OK. *C. Smith, RN*
Orient to OR environment with time and sensory information.	Information may decrease anxiety.	
Communicate unresolved issues to OR team.	OR team will be able to continue supporting measures.	

EXPECTED OUTCOME 8/9/08—Throughout perioperative period, patient will:
Demonstrate/report adequate pain control

Nursing Interventions	Rationale	Evaluative Statement
Assess for pain and report to physician/anesthesiologist.	Pain is subjective. Caregivers need to be aware of patient's perception.	8/9/08 Outcome met. CRNA gave 2 mg of midazolam IV before transfer to OR. Patient is sleeping quietly.
Implement pain control measures, as needed.	Pain control measures may be necessary to ensure patient's comfort.	

SAMPLE DOCUMENTATION Patient identified on admission to preop holding area. Patient expressed fear of procedure, anesthesia, recovery and pain. Patient made comfortable with warm blankets and assessed for knowledge of impending procedure. Preop teaching reinforced. Assurance given about pain management. Concerns reported to surgeon and anesthesia provider. CRNA gave 2 mg midazolam IV before transfer to OR. Patient calm and sleeping quietly on transfer.

C. Smith, RN



Concept map displaying the nursing process for Marcus Benjamin.

SKILL 30-1

Providing Preoperative Patient Care: Hospitalized Patients

Practice & Learn

EQUIPMENT (WILL VARY DEPENDING ON THE TYPE OF SURGERY)

Blood pressure cuff
Electronic blood pressure machine
Pulse oximeter sensor
IV pump
Antiembolism stockings
Pneumatic compression stockings
Tubes, drains, vascular access tubing
Incentive spirometer
Small pillow

IMPLEMENTATION

ACTION	RATIONALE
1. Check the patient's chart for the type of surgery and review the physician's orders. Review the nursing database, history, and physical examination. Check that the baseline data are recorded; report those that are abnormal.	Ensures that the care will be provided for the right patient and any specific teaching based on the type of surgery will be addressed. Also, review identifies patients who are surgical risks.
2. **Check that diagnostic testing has been completed and results are available; identify and report abnormal results.**	This check may influence the type of surgery performed and anesthetic used, as well as the timing of surgery or the need for additional consultation.
3. Gather needed equipment and supplies.	Adequate preparation ensures efficient time management.
4. Perform hand hygiene.	Hand hygiene deters the spread of microorganisms.
5. Identify the patient.	Identification of the patient ensures that the right patient receives the correct care.
6. Explore the psychological needs of the patient related to the surgery as well as the family. a. Establish the therapeutic relationship encouraging the patient to verbalize concerns or fears. b. Use active learning skills, answering questions and clarifying any misinformation. c. Use touch, as appropriate, to convey genuine empathy.	Meeting the psychological needs of the patient and family prior to surgery can have a beneficial effect on the postoperative course.
d. Offer to contact spiritual counselor (priest, minister, rabbi) to meet spiritual needs.	Spiritual beliefs for some patients and family can provide a source of support over the perioperative course.
7. **Identify learning needs of patient and family.** Ensure that the informed consent of the patient for the surgery has been signed, witnessed and dated. Inquire if the patient has any questions regarding the surgical procedure. Check the patient's record to determine if an advance directive has been completed. If an advance directive has not been completed, discuss with the patient the possibility of completing as appropriate. If patient has had surgery before, ask about this experience.	This enhances surgical recovery and allays anxiety by preparing patients for postoperative convalescence, discharge plans, and self-care. The surgeon is responsible for explaining the details of the surgical procedure and potential risks and complications. The nurse is responsible for clarifying what the surgeon has explained to the patient and contacting the surgeon if the patient does not understand or has further questions. An advance directive provides written communication of the patient's wishes to the healthcare team related to the patient's desire for extraordinary life-sustaining treatments if the patient's condition is deemed unsalvageable. Previous surgical experience may impact preoperative care positively or negatively depending on this past experience.
8. Provide teaching about deep-breathing exercises. (See Guidelines for Nursing Care 30-1 for specific technique.)	Deep-breathing exercises improve lung expansion and volume, help expel anesthetic gases and mucus from the airway, and facilitate the oxygenation of body tissues.
9. Conduct teaching regarding coughing and splinting (providing support to the incision). (See Guidelines for Nursing Care 30-2 for specific technique.)	Coughing helps remove retained mucus from the respiratory tract. Splinting minimizes pain while coughing or moving.
10. Provide teaching regarding incentive spirometer (see Chap. 45 for skill practice).	Incentive spirometry improves lung expansion, helps expel anesthetic gases and mucus from the airway, and facilitates oxygenation of body tissues.
11. Provide teaching regarding leg exercises.	Leg exercises assist in preventing muscle weakness, promote venous return, and decrease complications related to venous stasis.

(continued)

SKILL 30-1

Providing Preoperative Patient Care: Hospitalized Patients *(continued)*

ACTION	RATIONALE
a. Assist or ask the patient to sit up (semi-Fowler's position) and explain to patient that you will first demonstrate, and then coach him/her to exercise one leg at a time.	
b. Straighten the patient's knee, raise the foot, extend the lower leg and hold this position for a few seconds (Figure 1). Lower the entire leg. Practice this exercise with the other leg.	
c. Assist or ask the patient to point the toes of both legs toward the foot of the bed then relax them (Figure 2). Next, flex or pull the toes toward the chin (Figure 3).	
d. Assist or ask the patient to keep legs extended and to make circles with both ankles, first circling to the left and then to the right (Figure 4). Instruct the patient to repeat these exercises 3 times.	

Figure 1. Extending the lower portion of the leg.

Figure 2. Pointing toes of both feet toward the foot of the bed, with both legs extended.

Figure 3. Pulling toes toward chin, as if a string were attached to them.

Figure 4. Having patient make circles with both ankles, first one way and then the other.

12. Assist the patient in putting on antiembolism stockings (see Chap. 37) and demonstrate how the pneumatic compression devices operates (see Box 30-5).	Antiembolism stockings and pneumatic compression devices are used postoperatively for patients who are at risk for a deep vein thrombosis (DVT) and pulmonary embolism.

(continued)

SKILL 30-1

Providing Preoperative Patient Care: Hospitalized Patients *(continued)*

ACTION	RATIONALE
13. Provide teaching regarding turning in the bed.	Turning and repositioning of the patient is important for prevention of postoperative complications and minimizes pain.
a. Instruct the patient to use a pillow or bath blanket to splint where the incision will be. Ask the patient to raise his or her left knee and reach across to grasp the right side rail of the bed when he/she is turning toward his or her right side (Figure 5). If patient is turning to his or her left side, he or she will bend the right knee and grasp the left side rail.	
b. When turning the patient onto his or her right side, ask the patient to push with bent left leg and pull on the right side rail (Figure 6). Explain to the patient that the nurse will place a pillow behind his/her back to provide support and that the call bell will be placed within easy reach (Figure 7).	
c. Explain to the patient that position change is recommended every 2 hours.	

Figure 5. Instructing patient to raise left knee and reach across to grasp the right side rail toward which she will be turning.

Figure 6. Helping patient to roll over to her right side while she pushes with the left bent leg and pulls on the side rail.

Figure 7. After patient is turned, providing support with pillows behind the patient's back.

(continued)

SKILL 30-1

Providing Preoperative Patient Care: Hospitalized Patients *(continued)*

ACTION	RATIONALE
14. Provide teaching about pain management.	Using ordered analgesics to minimize pain helps prevent postoperative complications.
a. Discuss past experiences with pain and interventions that the patient has used to reduce pain.	Past experiences with pain can impact the patient's ability to manage the pain of surgery. Pain is a subjective experience, and individuals vary on what interventions are effective in reducing pain.
b. Discuss the availability of analgesic medication postoperatively.	Depending on the physician's order, the patient may need to request analgesic medication as needed or a PCA (patient-controlled analgesia) or epidural analgesia may be ordered in which patient will need specific instruction in how to use. See Chapter 10.
c. Explore the use of other alternative and nonpharmacological methods to reduce pain, such as position change, massage, relaxation/diversion, guided imagery, and meditation.	These measures may reduce anxiety and may decrease the amount of pain medication that is needed. Analgesic therapy should involve a multimodal approach influenced by age, weight, and comorbidity.
15. Review equipment.	
a. Show the patient the various equipment such as IV pumps, electronic blood pressure cuff, tubes, and surgical drains.	Knowledge can reduce anxiety about equipment. The patient may need a Foley catheter during and after surgery to keep the bladder empty and to monitor urinary output. Drains are frequently used to remove excess fluid around the surgical incision.
16. Provide skin preparation.	
a. **Ask the patient to shower with the antiseptic solution. Remind the patient to carefully clean around the surgical site.**	An antiseptic shower may be ordered 1 or 2 days before surgery and repeated the morning of surgery to begin the process of preparing the skin before surgery and to prevent infection. Recent research advises against hair removal at the surgical site because of the increased potential for infection. The CDC recommends that if shaving is necessary, it should be performed immediately before the surgery using disposable supplies and aseptic technique. Follow agency policy on skin preparation of the surgical patient. Immediately prior to the surgical procedure, the skin of the patient's operative site will be cleansed by a skilled healthcare professional.
b. **For site-specific surgery, such as a leg, ask the patient to mark the correct site with a marker.**	This ensures that the correct site is surgically treated.
17. Provide teaching about and follow dietary/fluid restrictions.	
a. **Explain to the patient that both food and fluid will be restricted prior to surgery to ensure that the stomach contains a minimal amount of gastric secretions. This restriction is important to reduce the risk of aspiration. Emphasize to the patient the importance of avoiding food and fluids during the prescribed time period since failure to adhere may necessitate cancellation of the surgery.**	Common practice in preparation for surgery has included having the patient fast after midnight, nothing by mouth (NPO) the night before surgery. At times, this restriction involved fasting as long as 10 to 12 hours when surgery was performed in the later part of the next day. Recent research on both adults and children is challenging this NPO standard or fasting practice prior to surgery, claiming that a less restricted fluid intake of clear fluids could be safely taken up to 6 hours before surgery for individuals who are considered low risk for aspiration or regurgitation. **Follow agency policy regarding the time period when this restriction will need to be followed.**
18. Provide intestinal preparation. In certain situations, the bowel will need to be prepared through the administering of enemas or laxatives to evacuate the bowel and to reduce the intestinal bacteria.	This preparation will be needed when major abdominal, perineal, perianal, or pelvic surgery is planned.

(continued)

SKILL 30-1

Providing Preoperative Patient Care: Hospitalized Patients *(continued)*

ACTION	RATIONALE
a. As needed, provide explanation of the purpose of enemas or laxatives prior to surgery. If the patient will be administering an enema, clarify the steps as needed.	Enemas can be stressful, especially when repeated enemas are required to obtain a clear fluid return. Repeated enemas may cause fluid and electrolyte imbalance, orthostatic hypotension, and weakness. Follow safety precautions to guard against patient falls. Anesthetic agents and abdominal surgery can interfere with normal elimination function during the initial postoperative period. Refer to Chapter 44 to review skill for enema administration.
19. **Check administration of regularly scheduled medications.** Review with patient routine medications, over-the-counter, and other herbal supplements that are taken regularly. Check the physician's orders and review with the patient which medications he/she will be permitted to take the day of surgery.	Many patients take medications for a variety of chronic medical conditions. Adjustments in taking these medications may be needed prior to surgery. Certain medications such as aspirin are stopped days before surgery due to its anticoagulant effect. Certain cardiac and respiratory drugs may be taken the day of surgery per physician's order. If the patient is diabetic and takes insulin, the insulin dosage may be reduced.
20. Perform hand hygiene.	Hand hygiene reduces transmission of microorganisms.

Unexpected Situations and Associated Interventions

A patient's laboratory results are noted to be abnormal: Notify physician. Some abnormalities, such as an elevated INR or abnormalities in the CBC may postpone the surgery.

A patient says to you, "I'm not sure I really want this surgery": Discuss with the patient why he or she feels this way. Notify physician. Patients should not undergo surgery until they are sure that surgery is what they want.

General Considerations

Obese patients are at greater risk of surgical complications and death than are optimal weight patients. In taking the patient's history, the nurse needs to be alert for other medical conditions, such as diabetes, hypertension, and sleep apnea.

Infant and Child Considerations

Children have special needs related to their overall health, age, and size. Easing preoperative anxiety of the child is crucial and includes using simple and concrete terms when providing information. Also, the nurse needs to be sensitive to the anxiety level of the parent and provide support, explanations, and patient teaching as needed. Accurate weights are essential for correct medication dosages. Historically, pediatric patients, at times, have been undertreated for pain. Developmentally appropriate pain assessment and therapy need to be provided. Concerning the older adolescent, ask the patient in private when the parent is not in the room if he/she uses any substances such as anabolic steroids.

Older Adult Considerations

Age-related changes and pre-existing chronic conditions can affect the postoperative course of the geriatric patient. The nurse may encounter resistance from the older patient during the informed consent process, so a nonjudgmental attitude by the nurse is important if the patient decides not to agree to the surgery. Also, concerning preoperative teaching, it is important to present information slowly with reinforcement because processing of information can be slower. Due to communication barriers and the comorbidity of many geriatric patients who may respond differently to pain medication, pain assessment and therapy may be suboptimal. Therefore, careful and individualized attention is required in this more vulnerable age group.

SKILL 30-2

Providing Postoperative Care When Patient Returns to Room

EQUIPMENT (WILL VARY DEPENDING UPON THE SURGERY)

Electronic blood pressure machine
Blood pressure cuff
Electronic thermometer
Pulse oximeter sensors
IV pump, IV solutions
Antiembolism stockings
Pneumatic compression boots
Tubes, drains, vascular access tubing
Incentive spirometer
Blankets as needed

IMPLEMENTATION

ACTION	RATIONALE
Immediate Care	
1. When patient returns from the PACU, obtain a report from the PACU nurse and review the operating room and PACU data.	Obtaining report ensures accurate communication and promotes continuity of care.
2. Perform hand hygiene.	Hand hygiene deters the spread of microorganisms.
3. Identify the patient.	Identification of the patient ensures that the right patient receives the correct care.
4. **Place patient in safe position (semi- or high Fowler's or side-lying) (Figure 1). Note level of consciousness.**	A sitting position facilitates deep breathing; the side-lying position with neck slightly extended prevents aspiration and airway obstruction.
5. **Obtain vital signs** (Figure 2). **Monitor and record vital signs frequently.** Assessment order may vary, but usual frequency includes taking vital signs every 15 minutes the first hour, every 30 minutes the next 2 hours, every hour for 4 hours, and finally every 4 hours.	Comparison with baseline preoperative vital signs may indicate impending shock or hemorrhage. Some institutions use a paper or computer flow sheet to record initial postoperative data.

Figure 1. Placing the patient in a safe position (high Fowler's or side-lying).

Figure 2. Obtaining postoperative vital signs.

6. Provide for warmth, using heated blankets as necessary. Assess skin color and condition (Figure 3).	The operating room is a cold environment. Hypothermia is uncomfortable and may lead to cardiac arrhythmias and impaired wound healing.
7. **Check dressings for color, odor, presence of drains, and amount of drainage (Figure 4). Mark the drainage on the dressing by circulating the amount and include the time. Assess under the patient for bleeding from the surgical site.**	Hemorrhage and shock are life-threatening complications of surgery, and early recognition is essential.
8. **Verify that all tubes and drains are patent and equipment is operative; note amount of drainage in collection device. If Foley catheter is in place, note urinary output.**	This ensures maintenance of vital functions.
9. Maintain IV infusion at the correct rate.	This replaces fluid loss and prevents dehydration and electrolyte imbalances.

(continued)

SKILL 30-2

Providing Postoperative Care When Patient Returns to Room *(continued)*

ACTION

Figure 3. Providing comfort and warmth to the patient.

RATIONALE

Figure 4. Checking the dressings for color, odor, and amount of drainage.

10. Provide for a safe environment. Keep bed in low position with side rails up. Have call bell within patient's reach.	This prevents accidental injury. Easy access to call light permits patient to call for nurse when necessary.
11. Assess for and relieve pain by administering medications ordered by the physician. If the patient has been instructed in the use of PCA for pain management, review use. Check record to verify if analgesic medication was administered in the PACU.	Observe for nonverbal behavior that may indicate pain, such as grimacing, crying, and restlessness. Analgesics and other nonpharmacologic pain strategies are used for relief of postoperative pain.
12. Record assessments and interventions on chart.	This provides for accurate documentation.
Ongoing Care	
13. Promote optimal respiratory function.	Anesthetic agents may depress respiratory function. Patients who have existing respiratory or cardiovascular disease; have abdominal or chest incisions; or are obese, elderly, or in a poor state of nutrition are at greater risk for respiratory complications.
a. Assess respiratory rate, depth, quality, color, and capillary refill. Ask if patient is experiencing any difficulty breathing.	Postoperative analgesic medication can reduce the rate and quality of the respiratory effort.
b. Assist with coughing and deep-breathing exercises.	
c. Assist with incentive spirometry.	
d. Assist with early ambulation.	
e. Provide frequent position change.	
f. Administer oxygen as ordered.	
g. Monitor pulse oximetry.	
14. Promote optimal cardiovascular function:	Preventive measures can improve venous return and circulatory status.
a. Assess apical rate, rhythm, and quality and compare to peripheral pulses, color, and blood pressure. Ask if the patient has any chest pains or shortness of breath.	
b. Provide frequent position changes.	
c. Assist with early ambulation.	
d. Apply antiembolism stockings or pneumatic compression devices, if ordered by physician.	
e. Provide leg and range-of-motion exercises if not contraindicated.	

(continued)

SKILL 30-2

Providing Postoperative Care When Patient Returns to Room *(continued)*

ACTION	RATIONALE
15. Promote optimal neurological function:	
a. Assess level of consciousness, motor function, and sensation.	
b. Determine the level of orientation to person, place, and time.	Older patients will take longer to return to their level of orientation before surgery. Drug and anesthetics will delay this return.
c. Test motor ability by asking the patient to move each extremity.	Anesthesia alters motor and sensory function.
d. Evaluate sensation by asking the patient if he/she can feel your touch on an extremity.	
16. **Promote optimal renal and urinary function and fluid and electrolyte status. Assess intake and output, for urinary retention and serum electrolytes.**	Anesthetic agents and surgical manipulation in the area may temporarily depress bladder tone and response causing urinary retention.
a. Promote voiding by offering bedpan at regular intervals noting the frequency, amount, and if any burning or urgency symptoms.	Urine output is close to the total intake for a 24-hour period.
b. Monitor urinary catheter drainage if present.	The physician needs to be notified if the urinary output is less than 30 mL/hr or 240 mL/8-hour period.
c. Measure intake and output.	
17. Promote optimal gastrointestinal function and meet nutritional needs:	Anesthetic agents and narcotics depress peristalsis and normal functioning of the gastrointestinal tract. Flatus indicates return of peristalsis.
a. Assess abdomen for distention, firmness. Ask if patient feels nauseated, has any vomiting, or is passing flatus.	
b. Auscultate for bowel sounds.	The presence of bowel sounds indicates return of peristalsis.
c. Assist with diet progression.	Patients may experience nausea after surgery and are encouraged to resume diet slowly, starting with clear liquids and advancing as tolerated. Antiemetics are frequently ordered to alleviate nausea.
d. Encourage fluid intake.	
e. Monitor intake.	
f. Medicate for nausea and vomiting as ordered by physician.	
18. Promote optimal wound healing.	Alterations in nutritional, circulatory, and metabolic status may predispose the patient to infection and delayed healing.
a. Assess condition of wound, for presence of drains and any drainage.	
b. Use surgical asepsis for dressing changes.	
c. Inspect all skin surfaces for beginning signs of pressure ulcer development and utilize pressure-relieving supports to minimize potential skin breakdown.	Lying on the operating room table in the same position can predispose some patients to pressure ulcer formation, especially patients who have undergone surgery lasting more than 4 hours.
19. Promote optimal comfort and relief from pain.	
a. Assess for pain (location, intensity using scale).	
b. Provide for rest and comfort.	This shortens the recovery period and facilitates return to normal function. Provide extra blankets as needed for warmth.
c. Administer pain medications as needed or other nonpharmacologic methods.	
20. Promote optimal meeting of psychosocial needs:	This facilitates individualized care and patient's return to normal health.
a. Provide emotional support to patient and family as needed.	
b. Explain procedures and offer explanations regarding post-operative recovery, as needed, to both patient and family members.	

(continued)

SKILL 30-2

Providing Postoperative Care When Patient Returns to Room *(continued)*

Unexpected Situations and Associated Interventions

Vital signs are progressively increasing or decreasing from baseline: Notify physician. A continued decrease in blood pressure or an increase in heart rate could indicate internal bleeding.

Dressing was clean before but now has large amount of fresh blood: Do not remove dressing. Reinforce dressing with more bandages. Removing the bandage could dislodge any clot that is forming and lead to further blood loss. Notify physician.

Patient reports pain that is not relieved by ordered medication: After fully assessing pain (location, description, alleviating factors, and causal factors), notify physician. Pain can be a clue to other problems, such as hemorrhage.

Patient is febrile within 12 hours of surgery: Assist patient with coughing and deep breathing. If ordered, begin incentive spirometry. Continue to monitor vital signs and CBC laboratory values.

Adult patient has a urine output of less than 30 mL per hour: Unless this is expected, notify physician. Urine output is a good indicator of tissue perfusion. Patient may need more fluid or may need medication to increase blood pressure if it is low.

Family members are anxious and want to be with patient: Allow family members to visit patient briefly. Stress the need for the patient's continued rest.

Special Considerations

For patients undergoing throat surgery, such as a tonsillectomy, evaluate swallowing pattern. A patient who has had throat surgery and swallows frequently may be bleeding from the incision site.

In the obese patient, medications may not perform as expected related to the lack of serum proteins that are needed to bind with drugs to support their effectiveness. Additionally, due to the larger kidney mass of the obese patient, renal elimination rates of certain drugs are increased, reducing the effectiveness of these drugs. Check to make sure that the mattress for the obese patient is of high quality because this patient is at greater risk for skin breakdown due to the poor vascular supply of adipose tissue.

Written postoperative instructions specific to the patient and follow-up appointments with the surgeon or other healthcare professionals are provided to each patient upon discharge from the hospital or outpatient center. Patients are required to have a responsible individual accompany them home, and a contact telephone number in case of emergency is to be provided. The patient should be alert and oriented or mental status should be at the patient's baseline. The vital signs of the patient should be stable. Information such as signs and symptoms to report to the physician as well as restrictions in activity and diet need to be addressed.

Infant and Child Considerations

After receiving general anesthesia, premature infants are at greater risk for apnea. Infants and children are at great risk for temperature-related complications because their body temperature can change rapidly. It is essential to have available warmed blankets and other warming equipment to avoid this complication.

Older Adult Considerations

In the elderly patient, postoperative pneumonia can be a very serious complication resulting in death. Therefore, it is especially important to encourage and assist the patient in using the incentive spirometer and with deep-breathing exercises.

The Taylor Suite offers these additional resources to enhance learning and facilitate understanding of this chapter:

- thePoint online resource, http://thepoint.lww.com/Taylor6E
- Student CD-ROM included with the book
- Study Guide to Accompany Taylor's Fundamentals of Nursing
- Skills Checklist Accompany Taylor's Fundamentals of Nursing
- Taylor's Video Guide to Clinical Nursing Skills: *Perioperative Nursing Care*
- Taylor's Interactive Nursing Skills: *Perioperative Nursing Care*

Developing Critical Thinking Skills

1. You are providing the immediate preoperative care for a woman scheduled for surgery to remove a brain tumor. She tells you she does not want the surgery because she knows she is dying and just wants to go home to be with her husband and children. She also knows that her husband cannot accept the fact that she is dying and wants her to have the surgery. What do you do?
2. You are assigned to discharge a woman from your same-day surgery unit to her home. You strongly believe that she is not ready to go home, and there is no caregiver in her home. When you voice your concern to the surgeon, you are told that this is not your problem and that there is nothing anyone can do about the situation because her insurer will not approve hospitalization. How do you respond?

Practicing for NCLEX

1. Mrs. Ogg requires surgery for treatment of a ruptured spleen as the result of an automobile crash. This type of surgery belongs in which of the following categories?
   a. Minor, diagnostic
   b. Minor, elective
   c. Major, emergency
   d. Major, palliative
2. A general anesthetic is given for specific purposes during a surgical procedure. Which one of the following purposes is **not** included?
   a. Loss of consciousness
   b. Relaxation of skeletal muscles
   c. Reduction of reflex action
   d. Localized loss of sensation
3. You have been asked to witness a patient signature on an informed consent form for surgery. You recognize that the document is valid for which one of these patients?
   a. A 92-year-old patient who is severely confused
   b. A 45-year-old patient who is oriented and alert
   c. A 10-year-old patient who is oriented and alert
   d. A 36-year-old patient who has had a narcotic premedication
4. Although surgical patients may be taking any number of medications before surgery, which of the following categories of drugs would be most likely to increase surgical risk?
   a. Anticoagulants
   b. Antacids
   c. Laxatives
   d. Sedatives
5. An obese patient who has surgery is at risk for which of the following postoperative complications?
   a. Hunger
   b. Impaired wound healing
   c. Hemorrhage
   d. Gas pains
6. Which of these teaching methods would be most effective in preoperative teaching for ambulatory surgery?
   a. Lecture with video
   b. Discussion
   c. Audiovisuals
   d. Written instructions
7. Mr. Ying is scheduled for surgery. He says to you, "I am so frightened—what if I don't wake up?" What would be your best response?
   a. "You have a wonderful doctor."
   b. "Let's talk about how you are feeling."
   c. "Everyone wakes up from surgery!"
   d. "Don't worry, you will be just fine."
8. A PCA pump allows postoperative patients to:
   a. Be totally pain free
   b. Take unlimited amounts of medication
   c. Choose the type of pain medication
   d. Administer their own analgesic
9. Mr. Moreno has had a surgical procedure that necessitated a thoracic incision. You anticipate that he will have a higher risk for postoperative complications involving which body system?
   a. Respiratory system
   b. Circulatory system
   c. Digestive system
   d. Nervous system
10. While assessing a patient in the PACU, the perianesthesia nurse notes increased wound drainage, restlessness, a decreasing blood pressure, and an increase in the pulse rate. The most probable cause for these findings is:
    a. Thrombophlebitis
    b. Atelectasis
    c. Infection
    d. Hemorrhage
11. Your patient tells you she is having pain in her right lower leg. You assess the presence of thrombophlebitis by:
    a. Palpating the skin over the tibia and fibula
    b. Measuring and documenting calf circumference daily
    c. Taking and recording vital signs four times a day
    d. Noting difficulty with ambulation
12. Gas pains are a common postoperative discomfort. Which of the following nursing actions implemented in the plan of care would be most likely to relieve gas pains?
    a. Cough and deep breathe every 2 hours.
    b. Maintain NPO status for 48 hours.
    c. Encourage frequent ambulation.
    d. Take vital signs every 4 hours.
13. Which of the following surgical patients is at a greater risk for alterations in body image?
    a. Female, aged 19 years, large facial laceration
    b. Female, aged 42 years, gallbladder surgery
    c. Male, aged 14 years, fractured clavicle
    d. Male, aged 52 years, hernia repair
14. Older adults often have reduced vital capacity as a normal physiologic change. Which nursing action would be most important for the postoperative care of an older surgical patient specific to this change?
    a. Take and record vital signs every shift.
    b. Turn, cough, and deep breathe every 4 hours.
    c. Encourage increased intake of oral fluids.
    d. Assess bowel sounds daily.
15. The rationale for the use of leg exercises after surgery is that leg exercises:
    a. Promote respiratory function
    b. Maintain functional abilities
    c. Provide diversional activities
    d. Increase venous return

Answers With Rationale

1. The correct answer is *c*. This surgery would involve a major body organ, has the potential for postoperative complications, requires hospitalization, and must be done immediately to save the patient's life.
2. The correct answer is *d*. Whereas *a*, *b*, and *c* are all purposes of a general anesthetic, a localized loss of sensation occurs with a regional anesthetic.
3. The correct answer is *b*. A consent form is not legal if the patient signing the form is confused, sedated, or a minor.
4. The correct answer is *a*. Anticoagulant drug therapy would increase the risk for hemorrhage during surgery. The other categories of drugs normally would not increase surgical risk.
5. The correct answer is *b*. Fatty tissue is less vascular and therefore less resistant to infection and more prone to delayed wound healing.
6. The correct answer is *d*. Although all of the answers might be useful in teaching patients and families before

ambulatory surgery, written instructions are most effective in providing information.

7. The correct answer is *b.* This answer allows the patient to talk about his feelings and fears and is therapeutic. The other answers give false reassurance.
8. The correct answer is *d.* A PCA pump allows the patient to administer his or her own analgesic. Use of this device does not allow the patient to take unlimited amounts of medication, choose the type of pain medication, or be totally pain free.
9. The correct answer is *a.* A thoracic incision makes it more painful for the patient to take deep breaths or cough. Shallow respirations and ineffective coughing increase the risk for respiratory complications.
10. The correct answer is *d.* Increased wound drainage, restlessness, decreasing blood pressure, and increasing pulse rate are assessment findings that indicate hemorrhage.
11. The correct answer is *b.* Inflammation from thrombophlebitis increases the size of the affected extremity and can be assessed by measuring circumference on a regular basis.
12. The correct answer is *c.* Frequent ambulation stimulates peristalsis and relieves gas pains. The other answers are incorrect in this situation.
13. The correct answer is *a.* The reaction of the patient to an accidental or intentional incision is influenced by age, time to prepare for the change, and visibility of the trauma. Large facial wounds increase the risk for an alteration in body image.
14. The correct answer is *b.* Reduced vital capacity in older adults increases the risk for respiratory complications, including pneumonia and atelectasis. Having the patient turn, cough, and deep breathe every 4 hours maintains respiratory function and helps to prevent complications.
15. The correct answer is *d.* Leg exercises in the postoperative period do increase venous return. As a result, the patient has a decreased risk for thrombophlebitis and emboli.

Bibliography

Allen, G. (2002). Malnutrition and its effect on wound healing. *AORN Journal, 76*(5), 893.

American Association of Nurse Anesthetists (AANA). (2003). *CRNA.* Available at http://www.aana.com/crna/careerqna.asp.

American Society of PeriAnesthesia Nurses (ASPAN). (2004). *Standards of perianesthesia nursing practice.* Thorofare, NJ: Author.

Arnstein, P. (2002). Optimizing perioperative pain management. *AORN Journal, 76*(5), 812–818.

Association of periOperative Registered Nurses (AORN). (2006a). AORN guidance statement: Postoperative patient care in the ambulatory surgery setting. In *Standards, recommended practices, and guidelines* (pp. 171–176). Denver, CO: Author.

Association of periOperative Registered Nurses (AORN). (2006b). *AORN's age-specific competency series.* Denver, CO: Author.

Association of periOperative Registered Nurses (AORN). (2006c). Perioperative patient focused model. In *Standards, recommended practices, and guidelines.* Denver, CO: Author.

Association of periOperative Registered Nurses (AORN). (2006d). Perioperative patient outcomes. In *Standards, recommended practices, and guidelines* (pp. 267–275). Denver, CO: Author.

Association of periOperative Registered Nurses (AORN). (2006e). *Standards, recommended practices, and guidelines.* Denver, CO: Author.

Barash, P. G., Cullen, B. F., & Stoelting, R. K. (2006). *Clinical anesthesia* (5th ed.). Philadelphia: Lippincott Williams & Wilkins.

Bond, L. M., Flickinger, D., Aytes, L., Bateman, B., Chalk, M. B., & Aysse, P. (2005). Effects of preoperative teaching of the use of a pain scale with patients in the PACU. *Journal of PeriAnesthesia Nursing, 20*(5), 333–340.

Carpenito-Moyet, L. J. (2004). *Nursing diagnosis: Application to clinical practice* (10th ed.). Philadelphia: Lippincott Williams & Wilkins.

Collins, N. (2003). Obesity and wound healing. *Advances in Skin & Wound Care: The Journal for Prevention and Healing, 16*(1), 45–47.

Crenshaw, J., & Winslow, E. (2002). Preoperative fasting: Old habits die hard. *American Journal of Nursing, 102*(5), 36–45.

Fetzer, S. J., Hand, M. A., Bouchard, P. A., Smith, H. B., & Jenkins, M. B. (2005). Self-care activities for postdischarge nausea and vomiting. *Journal of PeriAnesthesia Nursing, 20*(4), 249–254.

Golembieuski, J. A. (2004). Pharmacology facts: Antibiotic prophylaxis for preventing surgical site infection. *Journal of PeriAnesthesia Nursing, 19*(2), 111–113.

Gordon, S. (2006). What do nurses really do? *Topics in Advanced Practice Nursing eJournal, 6*(1). Posted February 2, 2006. Available at http://www.medscape.com/viewarticle/520714_print. Accessed February 8, 2006.

Madsen, D., Sebolt, T., & Cullen, L., Folkedahl, B., Mueller, T., Richardson, C., & Titler, M. (2005). Listening to bowel sounds: An evidence-based practice project. *American Journal of Nursing, 105*(12), 40–49.

McCloskey Dochterman, J., & Bulechek, G. M. (2004). *Nursing interventions classification (NIC)* (4th ed.). St. Louis, MO: Mosby.

Miaskowski, C. (2005). Patient-controlled modalities for acute postoperative pain management. *Journal of PeriAnesthesia Nursing, 20*(4), 255–267.

Mok, E., & Wong, K. Y. (2003). Effects of music on patient anxiety. *AORN Journal, 77*(2), 396–410.

Odom-Forren, J. (2005). The evolution of nurse-monitored sedation. *Journal of PeriAnesthesia Nursing, 20*(6), 385–398.

Oetker-Black, S. L., Jones, S., Estok, P., Ryan, M., Gale, N., & Parker, C. (2003). Preoperative teaching and hysterectomy outcomes. *AORN Journal, 77*(6), 1215–1228.

Pessagno, J. J. (2002). Recommended practices for managing the patient receiving local anesthesia. *AORN Journal, 75*(4), 849–852.

Porth, C. M. (2004). *Pathophysiology: Concepts of altered health states* (5th ed.). Philadelphia: Lippincott Williams & Wilkins.

Rothrock, J. (2007). *Alexander's care of the patient in surgery* (13th ed.). St. Louis, MO: Mosby.

Sherwood, G. D., McNeill, J. A., Starck, P. L., & Disnard, G. (2003). Changing acute pain management outcomes in surgical patients. *AORN Journal, 77*(2), 374–393.