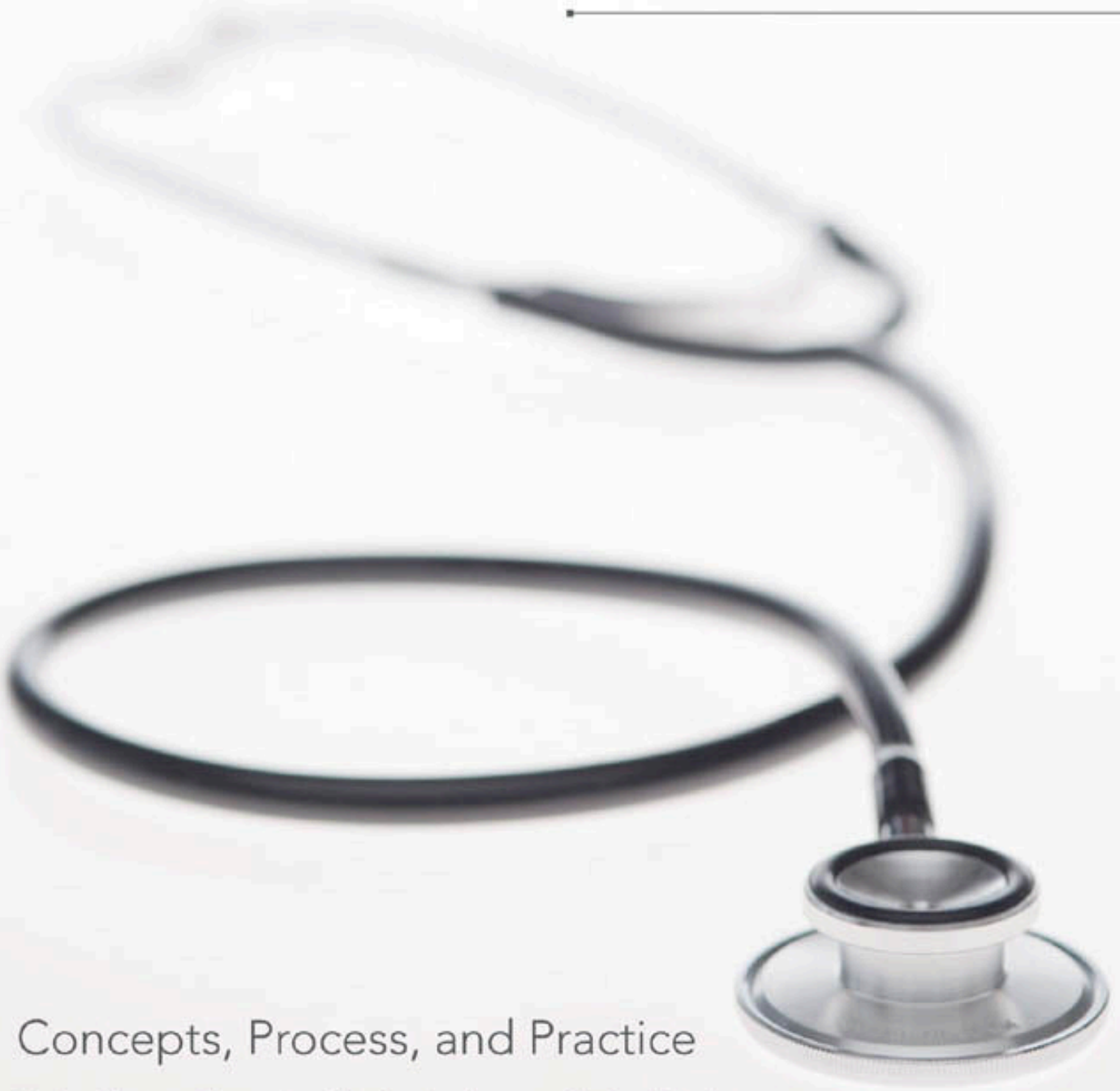
Arab World Edition

Fundamentals of Nursing



Concepts, Process, and Practice

Barbara Kozier Glenora Lea Erb Audrey Berman Shirlee J. Snyder
Maysoon S. Abdalrahim Fathieh Abu-Moghli Mohammad Y. N. Saleh

ALWAYS LEARNING

PEARSON

FUNDAMENTALS OF NURSING

CRITICAL REFLECTION

Let us return to Mrs Maha Alfadi's case at the start of this chapter. Now that you have read this chapter, reflect on how you would assess Mrs Alfadi and help the nurse in charge to perform the physical assessment. In addition, you have read how to help in collecting the needed specimens for accurate diagnosis and management. What are the three phases of diagnostic testing? And what are the most commonly used blood tests in the hospital setting?

CHAPTER HIGHLIGHTS

- The health examination is conducted to assess the function and integrity of the client's body parts.
- The health assessment is conducted in a systematic manner that requires the fewest position changes for the client.
- Nursing history data help the nurse focus on specific aspects of the physical health examination.
- Data obtained in the physical health examination help the nurse establish nursing diagnoses, plan the client's care, and evaluate the outcomes of nursing care.
- Initial assessment findings provide baseline data about the client's functional abilities against which subsequent assessment findings are compared.
- Skills in inspection, palpation, percussion, and auscultation are required for the physical health examination.
- Knowledge of the normal structure and function of body parts and systems is an essential requisite to conducting physical assessment.
- Diagnostic testing involves three phases. Client preparation is the focus during the pretest phase. During the intratest phase, the nurse performs or assists with the diagnostic test and collects the specimen. Providing nursing care of the client and follow-up activities and observations are the role of the nurse during the post-test phase.
- Blood tests are one of the most commonly used diagnostic tests. Routinely ordered blood tests can include complete blood count (CBC) and serum electrolytes.
- A capillary blood glucose is a frequent test performed by nurses and clients.
- Nurses collect urine specimens for a number of tests. A clean voided specimen is used for routine examination. A midstream voided specimen is collected when a urine culture is ordered to identify microorganisms. Timed urine specimens are collected for a variety of tests, depending on the client's health problem.
- Nurses collect stool specimens to detect the presence of blood, ova, parasites, or bacteria.
- Sputum and throat culture specimens help determine the presence of disease-producing organisms.

TEST YOUR KNOWLEDGE

1. Which of the following indicates a normal finding on auscultation of the lungs?
   1. Tympany over the right upper lobe
   2. Resonance over the left upper lobe
   3. Hyperresonance over the left lower lobe
   4. Dullness above the left 10th intercostal space

2. After auscultating the abdomen, the nurse should report which of the following to the primary care provider?
   1. Bruit over the aorta
   2. Absence of bowel sounds for 60 seconds
   3. Continuous bowel sounds over the ileocecal valve
   4. A completely irregular pattern of bowel sounds

3. If the client reports loss of short-term memory, the nurse would assess this using which one of the following?
   1. Have the client repeat a series of three numbers, increasing to eight if possible.
   2. Have the client describe his or her childhood illnesses.
   3. Ask the client to describe how he or she arrived at this location.
   4. Ask the client to count backwards from 100 subtracting seven each time.

4. In order to palpate lymph nodes, the nurse uses which of the following techniques?
   1. Use the flat of all four fingers in a vertical and then side-to-side motion.
   2. Use the back of the hand and feel for temperature variation between the right and left sides.
   3. Use the pads of two fingers in a circular motion.
   4. Compress the nodes between the index fingers of both hands.

5. Which of the following is the correct order to perform abdominal physical assessment?
   1. Inspection, palpation, percussion, auscultation
   2. Inspection, percussion, palpation, auscultation
   3. Inspection, auscultation, palpation, percussion
   4. Inspection, auscultation, percussion, palpation

6. The nurse would call the physician immediately for which of the following lab results?
   1. Hgb = 16 g/dL for male client
   2. Hct = 22% for female client
   3. WBC = $9 \times 10^3/mm^3$
   4. Platelets = $300 \times 10^3/mm^3$

7. Mr Hamed, 78, needs to complete a 24-hour urine specimen. In planning his care, which of the following measures is most important?
   1. At the beginning of the test, instruct him to empty his bladder and save this voiding to start the collection.
   2. Use a sterile container to collect the urine.
   3. Place a sign stating "Save All Urine" in the bathroom.
   4. Keep the urine specimen in the refrigerator.

8. The client is supposed to have a fecal occult blood test done on a stool sample. The nurse is going to use the Hemoccult test. Which of the following indicates that the nurse is using the correct procedure? Select all that apply.
   1. Mixes the substance with the stool sample before applying to the card
   2. Collects a sample from two different areas of the stool specimen
   3. Assesses for a blue color change
   4. Asks a colleague to verify the pink color results
   5. Asks the client if he has taken vitamin C in the past few days

See Answers to Test Your Knowledge in Appendix A ∞ .

REFERENCES

Corbett, J. V. (2004). *Laboratory tests and diagnostic procedures with nursing diagnoses* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Davis, K. (2004). Need urine from a catheter system? Forget the needle! *Nursing*, *34*(12), 64.

Fischbach, F. (2004). Philadelphia, *A Manual of Laboratory & Diagnostic Tests* (7th ed.), PA: Lippincott Williams & Wilkins.

Saghir, N., Khalil, M., Eid, T., Kinge, A., Charafeddine, M., Geara, F., Seoud, M., & Shamseddine, A (2007). Trends in epidemiology and management of breast cancer in developing Arab countries: a literature and registry analysis. *International Journal of Surgery*, *5*(4), 225–233.

CHAPTER 9

Safety and Infection Control

LEARNING OUTCOMES

After completing this chapter, you will be able to:

1. Discuss factors that affect people's ability to protect themselves from injury.
2. Explain measures to prevent falls.
3. Discuss implementation of seizure precautions.
4. Describe alternatives to restraints.
5. Identify types of microorganisms causing infections.
6. Identify signs of localized and systemic infections.
7. Identify risks for nosocomial infections.
8. Describe the chain of infection.
9. Identify anatomic and physiologic barriers that defend the body against microorganisms.
10. Identify factors increasing susceptibility to infection.
11. Identify relevant nursing management applied to those patients who have had infections and/or who are at risk for infection using nursing process as a framework.
12. Compare and contrast category-specific, disease-specific, universal, body substance, standard, and transmission-based isolation precaution systems.
13. Correctly implement aseptic practices, including hand washing; donning and removing a facemask, gown, and disposable gloves; managing equipment used for isolation clients; and maintaining a sterile field.

KEY TERMS

acquired immunity, *217*
active immunity, *217*
acute infection, *214*
airborne precautions, *224*
antibodies, *217*
antigen, *217*
antiseptics, *222*
asepsis, *213*
autoantigen, *217*
bacteremia, *214*
bacteria, *213*
bioterrorism, *206*
bloodborne pathogens, *223*
body substance isolation (BSI), *223*
carrier, *215*
cell-mediated defenses, *217*
cellular immunity, *217*
chemical restraints, *209*
chronic infections, *214*
circulating immunity, *217*
clean, *213*
colonization, *213*
communicable disease, *213*
compromised host, *216*
contact precautions, *224*
contamination, *213*
dirty, *213*
disease, *212*
disinfectants, *222*
droplet nuclei, *216*
droplet precautions, *224*
endogenous, *214*
exogenous, *214*
fungi, *213*
humoral immunity, *217*
iatrogenic infections, *214*
immunity, *217*
immunoglobulins, *217*
infection, *212*
inflammation, *217*
isolation, *223*
leukocytosis, *217*
local infection, *214*
medical asepsis, *213*
nonspecific defenses, *216*
nosocomial infections, *214*
opportunistic pathogen, *213*
parasites, *213*
passive immunity, *217*
pathogenicity, *213*
phagocytes, *216*
physical restraints, *209*
reservoir, *215*
resident flora, *212*
restraints, *209*
safety monitoring device, *207*
seizure, *208*
seizure precautions, *208*
sepsis, *213*
septicemia, *214*
specific (immune) defenses, *216*
sterile field, *229*
sterile technique, *213*
sterilization, *223*
surgical asepsis, *213*
susceptibility, *222*
systemic infection, *214*
universal precautions (UP), *223*
virulence, *213*
viruses, *213*

CASE STUDY

Mrs Alia, a 43-year-old housewife, had Appendectomy surgery. Two days following the surgery, Mrs Alia developed a low-grade fever. She also experienced abdominal pain, nausea, and vomiting. You checked the operation site and found that the incision became red, tender and swollen. You reported this to the nurse who confirmed that this is a postoperative wound infection, and emphysized that all health care providers should use aspetic techniques while providing care for the client. The surgeon responsible for Mrs Alia ordered antibiotic medication to be adminitered intravenoulty for the client every 6 hours. After reading this chapter you will be familiar with various safety and infection control measures, and will be able to identify risks of nosocomial infection. You will also be able to implement aseptic practices and nursing interventions applied to prevent and treat client's infection.

A fundamental concern of nurses, which extends from the bedside to the home to the community, is prevention of accidents and injury, as well as assisting the injured. Motor vehicle accidents, falls, drowning, fire and burns, poisoning, inhalation and ingestion of foreign objects, and firearm use are major causes of accidental injury and death.

Nurses need to be aware of the components of a safe environment for a particular client in hospital and at home and in community settings. Accidents are often caused by human conduct and may be prevented.

Nurses are also directly involved in providing a biologically safe environment for clients, which includes ensuring that client's food and water is not accidentally contaminated, and keeping vulnerable areas of the body such as the skin, mouth, and upper respiratory tract free from harmful microorganisms.

FACTORS AFFECTING SAFETY

The ability of people to protect themselves from injury is affected by such factors as age and development, lifestyle, mobility and health status, sensory-perceptual alterations, cognitive awareness, psychosocial state, ability to communicate, safety awareness, and environmental factors. Nurses

need to assess each of these factors when they plan care or teach clients to protect themselves. Skills 9-1, 9-2, and 9-3, later in the chapter, describe preventive measures for preventing such risks.

Age and Development

Through knowledge and accurate assessment of the environment, people learn to protect themselves from many injuries. Children walking to school learn to stop before crossing the street and wait for oncoming traffic. They also learn not to touch a hot stove. For the very young, learning about the environment is essential. Only through knowledge and experience do children learn what is potentially harmful.

Among elderly, potential causes of falls may be prevented. Such causes include hypotension, unsteady gait, altered mental responsiveness (such as from medications), poor vision, foot pathology, cognitive changes, and fear. In the home or community setting, potential environmental causes of falls are:

- *Lighting:* Inadequate amount, inaccessible or inconvenient switches
- *Floors:* Presence of electrical cords, loose rugs, clutter, slippery surfaces
- *Stairs:* Absent or unsteady railings, uneven step height or surfaces
- *Furniture:* Unsteady base, lack of armrests, cabinets too high or too low
- *Bathroom:* Inappropriate toilet height, slippery floors or bath, absence of grab bars.

In the home, the nurse may teach the family to consider alternatives to a hospital or a regular bed if the client is extremely prone to falling out of bed:

- Place the mattress directly onto the floor.
- Place padding (pillows and or blankets may be used) on floor next to bed or between the client and side rails.

Elders can have difficulty with movement and diminished sensation that contributes to the likelihood of injury. Specific age-related potential hazards and preventive measures are discussed later in this chapter. Box 9-1 summarizes selected hazards for each age group.

Lifestyle

Lifestyle factors that place people at risk include unsafe work environments; insufficient income to buy safety equipment or make necessary repairs; and access to illegal drugs, which may also be contaminated by harmful additives. Risk-taking behavior is a factor in some accidents.

Mobility and Health Status

People who have impaired mobility due to paralysis, muscle weakness, and poor balance or coordination are obviously prone to injury. Clients with spinal cord injury and paralysis of both legs may be unable to move even when they perceive discomfort. Hemiplegic clients or clients with leg casts often have poor balance and fall easily. Clients weakened by illness or surgery are not always fully aware of their condition.

BOX 9-1 Selected Safety Hazards Throughout the Life Span

- *Developing fetus:* Exposure to maternal smoking, alcohol consumption, addictive drugs, x-rays (first trimester), and certain pesticides.
- *Newborns and infants:* Falling, suffocation in crib, choking from aspirated milk or ingested objects, burns from hot water or other spilled hot liquids, automobile accidents, crib or playpen injuries, electric shock, poisoning.
- *Toddlers:* Physical trauma from falling (Figure 9-1 ■), banging into objects, or getting cut by sharp objects; automobile accidents; burns; poisoning; drowning; and electric shock.
- *Preschoolers:* Injury from traffic, playground equipment, and other objects; choking, suffocation, and obstruction of airway or ear canal by foreign objects; poisoning; drowning; fire and burns; harm from other people or animals.
- *Adolescents:* Vehicular (automobile, bicycle) accidents, recreational accidents, substance and physical abuse.
- *Older adults:* Falling, burns, and pedestrian and automobile accidents.

Figure 9-1 ■ Promoting safety (e.g., preventing falls) is required to keep children from injury.

Sensory-Perceptual Alterations

Accurate sensory perception of environmental stimuli is vital to safety. People with impaired touch perception, hearing, taste, smell, and vision are highly susceptible to injury. A person who does not see well may trip over a toy or not see an electric cord. Deaf people do not hear car horns in traffic, and people with impaired olfactory sense may not smell burning food or the sulfur aroma of escaping gas.

Cognitive Awareness

Awareness is the ability to perceive environmental stimuli and body reactions and to respond appropriately through thought and action. Clients with impaired awareness include people lacking sleep; unconscious or semiconscious persons; disoriented people who may not understand where they are or what to do to help themselves; people who perceive stimuli that do not exist; and people whose judgment is altered by disease or medications, such as narcotics, tranquilizers, hypnotics, and sedatives. Mildly confused clients may momentarily forget where they are, wander from their rooms, misplace personal belongings, and so forth.

Emotional State

Extreme emotional states can alter the ability to perceive environmental hazards. Stressful situations can reduce a person's level of concentration, cause errors of judgment, and decrease awareness of external stimuli. People with depression may think and react to environmental stimuli more slowly than usual.

Ability to Communicate

Individuals with diminished ability to receive and convey information are at risk of injury. They include aphasic clients, people with language barriers, and those unable to read. For example, the person unable to interpret the sign 'No smoking—oxygen in use' could cause a fire.

Safety Awareness

Information is crucial to safety. Clients in unfamiliar environments frequently need specific safety information. Lack of knowledge about unfamiliar equipment, such as oxygen outlets, intravenous tubing, bathing, and hot packs, is a potential hazard. Healthy clients need information about water safety, car safety, fire prevention, ways to prevent the ingestion of harmful substances, and many preventive measures related to specific age-related hazards (Figure 9-2 ■).

Environmental Factors

Depending on the client situation, the nurse may need to assess the environment of the hospital, home, workplace, or community. Client safety is affected by the health care setting.

Figure 9-2 ■ Nurses need to teach clients about safety and how to prevent accidents; such as by using smoke detectors, safety covers for electrical outlets, childproof locks on drawers and cabinets, and infant car seats.

Home

A safe home requires well-maintained flooring and carpets, a nonskid bath or shower surface, functioning smoke alarms that are strategically placed, and knowledge of fire escape routes. Outdoor areas, such as swimming pools, need to be safely secured and maintained. Adequate lighting, both inside and out, will minimize the potential for accidents.

Workplace

In the workplace, machinery, industrial belts and pulleys, and chemicals may create danger. Worker fatigue, noise and air pollution, or working at great heights or in subterranean areas may also create occupational hazards. The work environment of the nurse may also be unsafe. Health care workers need to maintain an awareness of the potential risks of their work environment.

Community

Adequate street lighting, safe water and sewage treatment, and regulation of sanitation in food buying and handling all contribute to a healthy, hazard-free community. A safe and secure community strives to be free of excess noise, air and water pollution, crime, traffic congestion, poor housing, or unprotected streams and landfills.

Health Care Setting

The 2000 Institute of Medicine (IOM) report *To Err Is Human: Building a Safer Health System* estimated that 44,000 to 98,000 people die in the United States each year due to medical errors in hospitals. This means that more people die in a given year as a result of medical errors than from motor vehicle accidents, breast cancer, or AIDS (Kohn, Corrigan, & Donaldson, 2000, p. 1). In the Arab world there are no reliable statistics about deaths due to medical errors. Al-Kurdi (2011) has estimated that if health care in Arab countries (that is, 350 million people) is as good as in the United States then 255,000 die every year due to medical errors. But he estimates, using maternal, perinatal, and infant mortality and other indices, that health care in Arab countries is at least five times worse, so estimates that the number of Arabs who die due to medical errors each year is in excess of