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## CHAPTER 13

# Provision of a Safe Environment

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<http://evolve.elsevier.com/Silvestri/comprehensiveRN/>

## Priority Concepts

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Infection, Safety

### I. Environmental Safety



#### A. Fire safety (see [Priority Nursing Actions](#))

1. Keep open spaces free of clutter.
2. Clearly mark fire exits.
3. Know the locations of all fire alarms, exits, and extinguishers ([Table 13-1](#); also see [Priority Nursing Actions](#)).



## Priority Nursing Actions

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### Event of a Fire

#### Race

1. Rescue clients who are in immediate danger.
2. Activate the fire alarm.
3. Confine the fire.
4. Extinguish the fire.

#### Pass

5. Obtain the fire extinguisher.
6. Pull the pin on the fire extinguisher.
7. Aim at the base of the fire.
8. Squeeze the extinguisher handle.
9. Sweep the extinguisher from side to side to coat the area of the fire evenly.

## Reference

Potter et al. (2017), pp. 392-393.

4. Know the telephone number for reporting fires.
5. Know the fire drill and evacuation plan of the agency.
6. Never use the elevator in the event of a fire.
7. Turn off oxygen and appliances in the vicinity of the fire.
8. In the event of a fire, if a client is on life support,

maintain respiratory status manually with an Ambu bag (resuscitation bag) until the client is moved away from the threat of the fire and can be placed back on life support.

9. In the event of a fire, ambulatory clients can be directed to walk by themselves to a safe area and, in some cases, may be able to assist in moving clients in wheelchairs.
10. Bedridden clients generally are moved from the scene of a fire by stretcher, their bed, or wheelchair.
11. If a client must be carried from the area of a fire, appropriate transfer techniques need to be used.
12. If fire department personnel are at the scene of the fire, they will help evacuate clients.



*Remember the mnemonic RACE (Rescue clients, Activate the fire alarm, Confine the fire, Extinguish the fire) to set priorities in the event of a fire and the mnemonic PASS (Pull the pin, Aim at the base of the fire, Squeeze the handle, Sweep from side to side) to use a fire extinguisher.*

## B. Electrical safety



*Any electrical equipment that the client brings into the health care facility must be inspected for safety before use.*

1. Electrical equipment must be maintained in good working order and should be grounded; otherwise, it presents a **physical hazard**; remove equipment that is not in proper working order and notify appropriate staff.
2. Use a 3-pronged electrical cord.
3. In a 3-pronged electrical cord, the third, longer prong of the cord is the ground; the other 2 prongs carry the power to the piece of electrical equipment.
4. Check electrical cords and outlets for exposed, frayed, or damaged wires.
5. Avoid overloading any circuit.
6. Read warning labels on all equipment; never operate unfamiliar equipment.
7. Use safety extension cords only when absolutely necessary, and tape them to the floor with electrical tape.
8. Never run electrical wiring under carpets.
9. Never pull a plug by using the cord; always grasp the plug itself.



10. Never use electrical appliances near sinks, bathtubs, or other water sources.

11. Always disconnect a plug from the outlet before cleaning equipment or appliances.



12. If a client receives an electrical shock, turn off the electricity before touching the client.

C. Radiation safety (Refer to [Chapter 44](#) for additional radiation safety measures)

1. Know the protocols and guidelines of the health care agency.

2. Label potentially radioactive material.



3. To reduce exposure to radiation, do the following.

a. Limit the time spent near the source.

b. Make the distance from the source as great as possible.

c. Use a shielding device such as a lead apron.

4. Monitor radiation exposure with a film (dosimeter) badge.

5. Place the client who has a radiation implant in a private room.

6. Never touch dislodged radiation implants.

7. Keep all linens in the client's room until the implant is removed.



D. Disposal of infectious wastes

1. Handle all infectious materials as a hazard.

2. Dispose of waste in designated areas only, using proper containers for disposal.

3. Ensure that infectious material is labeled properly.

4. Dispose of all sharps immediately after use in closed, puncture-resistant disposal containers that are leak-proof and labeled or color-coded.



*Needles (sharps) should not be recapped, bent, or broken*

*because of the risk of accidental injury (needle stick).*

E. Physiological changes in the older client that increase the risk of accidents ([Box 13-1](#))



F. Risk for falls assessment

1. Should be client-centered and include the use of a fall

- risk scale per agency procedures
2. Include the client's own perceptions of their risk factors for falls and their method to adapt to these factors. Areas of concern may include gait stability, muscle strength and coordination, balance, and vision.
  3. Assess for any previous accidents.
  4. Assess with the client any concerns about their immediate environment, including stairs, use of throw rugs, grab bars, a raised toilet seat, or environmental lighting.
  5. Review/analyze the medications, both prescription and nonprescription, that the client is taking that could have side/adverse effects that could place the client at risk for a fall.
  6. Determine any scheduled procedures that pose risks to the client.

G. Measures to prevent falls (Box 13-2)

H. Measures to promote safety in ambulation for the client

1. Gait belt may be used to keep the center of gravity midline.
  - a. Place the belt on the client prior to ambulation.
  - b. Encircle the client's waist with the belt.
  - c. Hold on to the side or back of the belt so that the client does not lean to one side.
  - d. Return the client to bed or a nearby chair if the client develops dizziness or becomes unsteady.
  - e. When finished safely ambulating the client, remove belt and replace it in its appropriate storage area.

I. The Joint Commission: National Patient Safety Goals 2018

1. See Box 13-3 for a list of the National Patient Safety Goals
2. Refer to the following website for detailed information on these goals  
[https://www.jointcommission.org/assets/1/6/NPSG\\_Cl](https://www.jointcommission.org/assets/1/6/NPSG_Cl)



J. Steps to prevent injury to the health care worker (Box 13-4)



K. Restraints (safety devices)

1. Restraints (safety devices) are protective devices used to limit the physical activity of a client or to immobilize a client or an extremity.
  - a. The agency policy should be checked

- and followed when using side rails.
- b. The use of side rails is not considered a restraint when they are used to prevent a sedated client from falling out of bed.
  - c. The client must be able to exit the bed easily in case of an emergency when using side rails. Only the top two side rails should be used.
  - d. The bed must be kept in the lowest position.
2. *Physical restraints* restrict client movement through the application of a device.
  3. *Chemical restraints* are medications given to inhibit a specific behavior or movement.
  4. Interventions
    - a. Use alternative devices, such as pressure-sensitive beds or chair pads with alarms or other types of bed or chair alarms, whenever possible.
    - b. If restraints are necessary, the primary health care provider's (PHCP's) prescriptions should state the type of restraint, identify specific client behaviors for which restraints are to be used, and identify a limited time frame for use.
    - c. The PHCP's prescriptions for restraints should be renewed within a specific time frame according to agency policy.
    - d. Restraints are not to be prescribed PRN (as needed).
    - e. The reason for the safety device should be given to the client and the family, and their permission should be sought and documented.
    - f. Restraints should not interfere with any treatments or affect the client's health problem.
    - g. Use a half-bow, a safety knot (quick release tie), or a restraint with a quick release buckle to secure the device to the bed frame or chair, not to a movable part of bed (including the side rails).
    - h. Ensure that there is enough slack on the straps to allow some movement of the body part.

- i. Assess skin integrity and neurovascular and circulatory status every 30 minutes and remove the safety device at least every 2 hours to permit muscle exercise and to promote circulation (follow agency policies).
- j. Continually assess and document the need for safety devices (Box 13-5).
- k. Offer fluids if clinically indicated at least every 2 hours.
- l. Offer bedpan or toileting every 2 hours.



*An PHCP's prescription for use of a safety*

*device (restraint) is needed. Alternative measures for safety devices should always be used first.*

#### 5. Alternatives to safety devices for a client with confusion

- a. Orient the client and family to the surroundings with every interaction and identify the client by their name.
- b. Explain all procedures and treatments to the client and family.
- c. Encourage family and friends to stay with the client, and use sitters for clients who need supervision.
- d. Assign confused and disoriented clients to rooms near the nurses' station.
- e. Provide appropriate visual and auditory stimuli, such as a night light, clocks, calendars, television, and a radio, to the client; leave the client's room door open.
- f. Place familiar items, such as family pictures, near the client's bedside.
- g. Maintain toileting routines.
- h. Eliminate bothersome treatments, such as nasogastric tube feedings, as soon as possible.
- i. Evaluate all medications that the client is receiving.
- j. Use relaxation techniques with the client.
- k. Institute exercise and ambulation schedules as the client's condition allows.
- l. Collaborate with the PHCP to evaluate oxygenation status, vital signs,

electrolyte/laboratory values, and other pertinent assessment findings that may provide information about the cause of the client's confusion.

## L. Poisons

1. A poison is any substance that impairs health or destroys life when ingested, inhaled, or otherwise absorbed by the body.
2. Specific antidotes or treatments are available only for some types of poisons.
3. The capacity of body tissue to recover from a poison determines the reversibility of the effect.
4. Poison can impair the respiratory, circulatory, central nervous, hepatic, gastrointestinal, and renal systems of the body.



5. The infant, toddler, the preschooler, and the young school-age child must be protected from accidental poisoning.



6. In older adults, diminished eyesight and impaired memory may result in accidental ingestion of poisonous substances or an overdose of prescribed medications.



7. A Poison Control Center phone number should be visible on the telephone in homes with small children; in all cases of suspected poisoning, the number should be called immediately.



### 8. Interventions

- a. Remove any obvious materials from the mouth, eyes, or body area immediately.
- b. Identify the type and amount of substance ingested.
- c. Call the Poison Control Center before attempting an intervention.
- d. If the victim vomits or vomiting is induced, save the vomitus if requested to do so, and deliver it to the Poison Control Center.
- e. If instructed by the Poison Control Center to take the person to the emergency department, call an ambulance.
- f. Never induce vomiting following

- ingestion of lye, household cleaners, grease, or petroleum products.
- g. Never induce vomiting in an unconscious victim.



The Poison Control Center should be

called first before attempting an intervention.

## II. Health Care–Associated (Nosocomial) Infections

- A. Health care–associated (nosocomial) infections also are referred to as *hospital-acquired infections*.
- B. These infections are acquired in a hospital or other health care facility and were not present or incubating at the time of a client’s admission.



- C. *Clostridium difficile* is spread mainly by hand-to-hand contact in a health care setting. Clients taking multiple antibiotics for a prolonged period are most at risk.
- D. Common drug-resistant infections: Vancomycin-resistant enterococci (VRE), methicillin-resistant *Staphylococcus aureus* (MRSA), multidrug-resistant tuberculosis, carbapenem-resistant *Enterobacteriaceae* (CRE)
- E. Illness and some medications such as immunosuppressants impair the normal defense mechanisms.
- F. The hospital environment provides exposure to a variety of virulent organisms that the client has not been exposed to in the past; therefore, the client has not developed resistance to these organisms.
- G. Infections can be transmitted by health care personnel who fail to practice proper standard precautions (i.e., hand-washing procedures or failing to change gloves between client contacts).
- H. At many health care agencies, dispensers containing an alcohol-based solution for hand sanitization are mounted at the entrance to each client’s room; it is important to note that alcohol-based sanitizers are not effective against some infectious agents such as *Clostridium difficile* spores; therefore, handwashing is necessary.

## III. Standard Precautions

### A. Description

1. Nurses must practice standard precautions with all clients in any setting, regardless of the diagnosis or presumed infectiveness.
2. Standard precautions include hand washing and the use of gloves, as well as washing hands after gloves are removed. Additionally, standard precautions include the use of masks, eye protection, and gowns, when appropriate, for client contact.
3. These precautions apply to blood, all body fluids



(whether or not they contain blood), secretions and excretions, nonintact skin, and mucous membranes.



## B. Interventions

1. Wash hands between client contacts; after contact with blood, body fluids, secretions or excretions, nonintact skin, or mucous membranes; after contact with equipment or contaminated articles; and immediately after removing gloves.
2. Wear gloves when touching blood, body fluids, secretions, excretions, nonintact skin, mucous membranes, or contaminated items; remove gloves and wash hands between client care contacts.
3. For routine decontamination of hands, use alcohol-based hand rubs when hands are not visibly soiled. For more information on hand hygiene from the Centers for Disease Control and Prevention (CDC), see [www.cdc.gov/handhygiene/](http://www.cdc.gov/handhygiene/)
4. Wear masks and eye protection, or face shields, if client care activities may generate splashes or sprays of blood or body fluid.
5. Wear gowns if soiling of clothing is likely from blood or body fluid; wash hands after removing a gown.
6. Steps for donning and removing personal protective equipment (PPE) ([Table 13-2](#))
7. Clean and reprocess client care equipment properly and discard single-use items.
8. Place contaminated linens in leak-proof bags and limit handling to prevent skin and mucous membrane exposure. Dispose according to agency policy.
9. Use needleless devices or special needle safety devices whenever possible to reduce the risk of needle sticks and sharps injuries to health care workers.
10. Discard all sharp instruments and needles in a puncture-resistant container; dispose of needles uncapped or engage the safety mechanism on the needle if available.
11. Clean spills of blood or body fluids with a solution of bleach and water (diluted 1:10) or agency-approved disinfectant.



*Handle all blood and body fluids from all clients as if they were contaminated.*

## IV. Transmission-Based Precautions

A. Transmission-based precautions include airborne, droplet, and contact precautions.

## B. Airborne precautions

### 1. Diseases

- a. Measles
- b. Chickenpox (varicella)
- c. Disseminated varicella zoster
- d. Pulmonary or laryngeal tuberculosis



### 2. Barrier protection

- a. Used for clients known or suspected to be infected with pathogens transmitted by the airborne route.
- b. Single room is maintained under negative pressure; door remains closed except upon entering and exiting.
- c. Negative airflow pressure is used in the room, with a minimum of 6 to 12 air exchanges per hour via high-efficiency particulate air (HEPA) filtration mask or according to agency protocol.
- d. Ultraviolet germicide irradiation or HEPA filter is used in the room.
- e. Health care workers wear a respiratory mask (N95 or higher level). A surgical mask is placed on the client when the client needs to leave the room; the client leaves the room only if necessary.

## C. Droplet precautions

### 1. Diseases

- a. Adenovirus
- b. Diphtheria (pharyngeal)
- c. Epiglottitis
- d. Influenza (flu)
- e. Meningitis
- f. Mumps
- g. Mycoplasmal pneumonia or meningococcal pneumonia
- h. Parvovirus B19
- i. Pertussis
- j. Pneumonia
- k. Rubella
- l. Scarlet fever
- m. Sepsis
- n. Streptococcal pharyngitis



### 2. Barrier protection

- a. Used for clients with known or

suspected infection with pathogens transmitted by respiratory droplets, generated when coughing, sneezing, or talking.

- b. Private room or cohort client (a client whose body cultures contain the same organism)
- c. Wear a surgical mask when within 3 feet of a client; place a mask on the client when the client needs to leave the room.

#### D. Contact precautions

##### 1. Diseases

- a. Colonization or infection with a multidrug-resistant organism
- b. Enteric infections, such as *Clostridium difficile*
- c. Respiratory infections, such as respiratory syncytial virus
- d. Influenza: Infection can occur by touching something with flu viruses on it and then touching the mouth or nose.
- e. Wound infections
- f. Skin infections, such as cutaneous diphtheria, herpes simplex, impetigo, pediculosis, scabies, staphylococci, and varicella zoster
- g. Eye infections, such as conjunctivitis
- h. Indirect contact transmission may occur when contaminated object or instrument, or hands, are encountered.



##### 2. Barrier protection

- a. Private room or cohort client
- b. Use gloves and a gown whenever entering the client's room.

#### V. Emergency Response Plan and Disasters

- A. Know the emergency response plan of the agency.
- B. *Internal disasters* are those that occur within the health care facility.
- C. *External disasters* occur in the community, and victims are brought to the health care facility for care.



- D. When the health care facility is notified of a disaster, the nurse should follow the guidelines specified in the emergency response plan of the facility.
- E. See [Chapter 7](#) for additional information on disaster planning.



*In the event of a disaster, the emergency response plan is activated*

*immediately.*

## VI. Biological Warfare Agents

A. A warfare agent is a biological or chemical substance that can cause mass destruction or fatality.

B. Anthrax (Fig. 13-1)

1. The disease is caused by *Bacillus anthracis* and can be contracted through the digestive system, abrasions in the skin, or inhalation through the lungs.



2. Anthrax is transmitted by direct contact with

bacteria and spores; spores are dormant encapsulated bacteria that become active when they enter a living host (no person-to-person spread) (Box 13-6).

3. The infection is carried to the lymph nodes and then spreads to the rest of the body by way of the blood and lymph systems; high levels of toxins lead to shock and death.

4. In the lungs, anthrax can cause buildup of fluid, tissue decay, and death (fatal if untreated).

5. A blood test is available to detect anthrax (detects and amplifies *Bacillus anthracis* DNA if present in the blood sample).

6. Anthrax is usually treated with antibiotics such as ciprofloxacin, doxycycline, or penicillin.

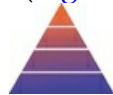
7. The vaccine for anthrax has limited availability.



*Anthrax is transmitted by direct contact with bacteria and spores and can be*

*contracted through the digestive system, abrasions in the skin, or inhalation through the lungs.*

C. Smallpox (Fig. 13-2)



1. Smallpox is transmitted in air droplets and by

handling contaminated materials and is highly contagious.

2. Symptoms begin 7 to 17 days after exposure and include fever, back pain, vomiting, malaise, and headache.

3. Papules develop 2 days after symptoms develop and progress to pustular vesicles that are abundant on the face and extremities initially.

4. A vaccine is available to those at risk for exposure to smallpox.

D. Botulism

1. Botulism is a serious paralytic illness caused by a nerve toxin produced by the bacterium *Clostridium botulinum* (death can occur within 24 hours).



2. Its spores are found in the soil and can spread through the air or food (improperly canned food) or via a contaminated wound.



3. Botulism cannot be spread from person to person.

4. Symptoms include abdominal cramps, diarrhea, nausea and vomiting, double vision, blurred vision, drooping eyelids, difficulty swallowing or speaking, dry mouth, and muscle weakness.

5. Neurological symptoms begin 12 to 36 hours after ingestion of food-borne botulism and 24 to 72 hours after inhalation and can progress to paralysis of the arms, legs, trunk, or respiratory muscles (mechanical ventilation is necessary).

6. If diagnosed early, food-borne and wound botulism can be treated with an antitoxin that blocks the action of toxin circulating in the blood.

7. For wound botulism, surgical removal of the source of the toxin-producing bacteria may be done; antibiotics may be prescribed.

8. No vaccine is available.

#### E. Plague

1. Plague is caused by *Yersinia pestis*, a bacteria found in rodents and fleas.



2. Plague is contracted by being bitten by a rodent or flea that is carrying the plague bacterium, by the ingestion of contaminated meat, or by handling an animal infected with the bacteria.



3. Transmission is by direct person-to-person spread.

4. Forms include bubonic (most common), pneumonic, and septicemic (most deadly).

5. Symptoms usually begin within 1 to 3 days and include fever, chest pain, lymph node swelling, and a productive cough (hemoptysis).

6. The disease rapidly progresses to dyspnea, stridor, and cyanosis; death occurs from respiratory failure, shock, and bleeding.

7. Antibiotics are effective only if administered immediately; the usual medications of choice include

streptomycin or gentamicin.

8. A vaccine is available.

#### F. Tularemia

1. Tularemia (also called *deer fly fever* or *rabbit fever*) is an infectious disease of animals caused by the bacillus *Francisella tularensis*.



2. The disease is transmitted by ticks, deer flies, or contact with an infected animal.

3. Symptoms include fever, headache, and an ulcerated skin lesion with localized lymph node enlargement, eye infections, gastrointestinal ulcerations, or pneumonia.

4. Treatment is with antibiotics such as streptomycin, gentamicin, doxycycline, and ciprofloxacin.

5. Recovery produces lifelong immunity (a vaccine is available).

#### G. Hemorrhagic fever

1. Hemorrhagic fever is caused by several viruses, including Marburg, Lassa, Junin, and Ebola.



2. The virus is carried by rodents and mosquitoes.



3. The disease can be transmitted directly by person-to-person spread via body fluids.

4. Manifestations include fever, headache, malaise, conjunctivitis, nausea, vomiting, hypotension, hemorrhage of tissues and organs, and organ failure.

5. No known specific treatment is available; treatment is symptomatic.

#### H. Ebola Virus Disease (EVD)

1. Previously known as Ebola hemorrhagic fever

2. Caused by infection with a virus of the family *Filoviridae*, genus *Ebolavirus*

3. First discovered in 1976 in the Democratic Republic of the Congo. Outbreaks have appeared in Africa and in several other countries in the world.

4. The natural reservoir host of *Ebolavirus* remains unknown. It is believed that the virus is animal-borne and that bats are the most likely reservoir.

5. Spread of the virus is through contact with objects (such as clothes, bedding, needles, syringes/sharps, or medical equipment) that have been contaminated with the virus.

6. Symptoms similar to hemorrhagic fever may appear from 2 to 21 days after exposure.

7. Assessment: Ask the client if he or she traveled to an area with EVD such as Guinea, Nigeria, or Sierra Leone within the last 21 days or if he or she has had contact with someone with EVD and had any of the following symptoms:
  - a. Fever at home or a current temperature of 38° C (100.4° F) or greater
  - b. Severe headache
  - c. Muscle pain
  - d. Weakness
  - e. Fatigue
  - f. Diarrhea
  - g. Vomiting
  - h. Abdominal pain
  - i. Unexplained bleeding or bruising
8. Interventions
  - a. If the assessment indicates possible infection with EVD, the client needs to be isolated in a private room with a private bathroom or a covered bedside commode with the door closed.
  - b. Health care workers need to wear the proper personal protective equipment (PPE) and follow updated procedures designated by the Centers for Disease Control and Prevention for donning (putting on) and removing PPE. Refer to the following Web site for updated information:  
<http://www.cdc.gov/vhf/ebola/healthcare-us/ppe/guidance.html>
  - c. The number of health care workers entering the room should be limited, and a log of everyone who enters and leaves the room should be kept.
  - d. Only necessary tests and procedures should be performed, and aerosol-generating procedures should be avoided.
  - e. Refer to the CDC guidelines for cleaning, disinfecting, and managing waste ([www.cdc.gov/vhf/ebola/healthcare-us/cleaning/hospitals.html](http://www.cdc.gov/vhf/ebola/healthcare-us/cleaning/hospitals.html)).
  - f. The agency's infection control program should be notified, as well as state and local public health authorities.

## VII. Chemical Warfare Agents

A. Sarin

1. Sarin is a highly toxic nerve gas that can cause death within minutes of exposure.
2. It enters the body through the eyes and skin and acts by paralyzing the respiratory muscles.

B. Phosgene is a colorless gas normally used in chemical manufacturing that if inhaled at high concentrations for a long enough period will lead to severe respiratory distress, pulmonary edema, and death.

C. Mustard gas is yellow to brown and has a garlic-like odor that irritates the eyes and causes skin burns and blisters.



D. Nuclear warfare

1. Acute radiation exposure develops after a substantial exposure to radiation and is referred to as *nuclear warfare*.
2. Exposure can occur from external radiation or internal absorption.
3. Symptoms depend on the amount of exposure to the radiation and range from nausea and vomiting, diarrhea, fever, electrolyte imbalances, and neurological and cardiovascular impairment to leukopenia, purpura, hemorrhage, and death.



VIII. Nurse's Role in Exposure to Warfare Agents

- A. Be aware that, initially, a bioterrorism attack may resemble a naturally occurring outbreak of an infectious disease.
- B. Nurses and other health care workers must be prepared to assess and determine what type of event occurred, the number of clients who may be affected, and how and when clients will be expected to arrive at the health care agency.
- C. It is essential to be aware that changes in the microorganism can occur that may increase its virulence or make it resistant to conventional antibiotics or vaccines.
- D. See [Chapter 7](#) for additional information on disasters and emergency response planning.

**Table 13-1**

**Types of Fire Extinguishers**

Type	Class of Fire
A	Wood, cloth, upholstery, paper, rubbish, plastic
B	Flammable liquids or gases, grease, tar, oil-based paint
C	Electrical equipment



## **Box 13-1**

# **Physiological Changes in Older Clients That Increase the Risk of Accidents**

## **Musculoskeletal Changes**

Strength and function of muscles decrease.  
Joints become less mobile and bones become brittle.  
Postural changes and limited range of motion occur.

## **Nervous System Changes**

Voluntary and autonomic reflexes become slower.  
Decreased ability to respond to multiple stimuli occurs.  
Decreased sensitivity to touch occurs.

## **Sensory Changes**

Decreased vision and lens accommodation and cataracts develop.  
Delayed transmission of hot and cold impulses occurs.  
Impaired hearing develops, with high-frequency tones less perceptible.

## **Genitourinary Changes**

Increased nocturia and occurrences of incontinence may occur.

Adapted from Potter A, Perry P, Stockert P, Hall A: *Fundamentals of nursing*, ed 8, St. Louis, 2013, Mosby; and Touhy T, Jett K: *Ebersole and Hess' toward healthy aging*, ed 8, St. Louis, 2012, Mosby.

## **Box 13-2**

# **Measures to Prevent Falls**

- Assess the client's risk for falling; use agency fall risk assessment scale.
- Assign the client at risk for falling to a room near the nurses' station.
- Alert all personnel to the client's risk for falling; use agency fall risk alert procedures and methods as necessary.
- Assess the client frequently.
- Orient the client to physical surroundings.
- Instruct the client to seek assistance when getting up.
- Explain the use of the nurse call system.

- Use safety devices such as floor pads, and bed or chair alarms that alert health care personnel of the person getting out of bed or a chair.
- Keep the bed in the low position with side rails adjusted to a safe position (follow agency policy).
- Lock all beds, wheelchairs, and stretchers.
- Keep clients' personal items within their reach.
- Eliminate clutter and obstacles in the client's room.
- Provide adequate lighting.
- Reduce bathroom hazards.
- Maintain the client's toileting schedule throughout the day.

### **Box 13-3**

## **The Joint Commission: 2018 National Patient Safety Goals**

- Improve the accuracy of client identification.
- Improve the effectiveness of communication among caregivers
- Improve the safety of using medications
- Focus on the risk points related to medication reconciliation
- Reduce the harm associated with clinical alarm systems
- Reduce the risk of health care–associated infections
- Identify client safety risks
- Prevent mistakes in surgery

[https://www.jointcommission.org/assets/1/6/NPSG\\_Chapter\\_HAP\\_Jan2018.pdf](https://www.jointcommission.org/assets/1/6/NPSG_Chapter_HAP_Jan2018.pdf)[https://www.jointcommission.org/assets/1/6/NPSG\\_Chapter\\_HAP\\_Jan2018.pdf](https://www.jointcommission.org/assets/1/6/NPSG_Chapter_HAP_Jan2018.pdf)

### **Box 13-4**

## **Steps to Prevent Injury to the Health Care Worker When Moving a Client**

- Use available safety equipment.
- Keep the weight to be lifted as close to the body as possible.
- Bend at the knees.
- Tighten abdominal muscles and tuck the pelvis.
- Maintain the trunk erect and knees bent so that multiple muscle groups work together in a coordinated manner.

Adapted from Potter A, Perry P, Stockert P, Hall A: *Fundamentals of nursing*, ed 8, St.

**Box 13-5**

**Documentation Points With Use of a Safety Device (Restraint)**

- Reason for safety device
- Method of use for safety device
- Date and time of application of safety device
- Duration of use of safety device and client’s response
- Release from safety device with periodic exercise and circulatory, neurovascular, and skin assessment
- Assessment of continued need for safety device
- Evaluation of client’s response

**Table 13-2**

**Steps for Donning and Removing Personal Protective Equipment (PPE)**

Donning of PPE	Removal of PPE*
Gown	Gloves
Fully cover front of body from neck to knees and upper arms to end of wrist. Fasten in the back at neck and waist, wrap around the back.	Grasp outside of glove with opposite hand with glove still on and peel off. Hold on to removed glove in gloved hand. Slide fingers of ungloved hand under clean side of remaining glove at wrist and peel off.
Mask or Respirator	Goggles/Face Shield
Secure ties or elastic band at neck and middle of head. Fit snug to face and below chin. Fit to nose bridge. Respirator fit should be checked per agency policy.	Remove by touching clean band or inner part.
Goggles/Face Shield	Gown
Adjust to fit according to agency policy.	Unfasten at neck, then at waist. Remove using a peeling motion, pulling gown from each shoulder toward the hands. Allow gown to fall forward, and roll into a bundle to discard.
Gloves	Mask or Respirator
Select appropriate size and extend to cover wrists of gown.	Grasp bottom ties then top ties to remove.

\* Note: All equipment is considered contaminated on the outside.



**FIG. 13-1** Anthrax. (From Swartz, 2010.)

## **Box 13-6**

### **Anthrax: Transmission and Symptoms**

#### **Skin**

Spores enter the skin through cuts and abrasions and are contracted by handling contaminated animal skin products. Infection starts with an itchy bump like a mosquito bite that progresses to a small liquid-filled sac. The sac becomes a painless ulcer with an area of black, dead tissue in the middle. Toxins destroy surrounding tissue.

#### **Gastrointestinal**

Infection occurs following the ingestion of contaminated undercooked meat. Symptoms begin with nausea, loss of appetite, and vomiting. The disease progresses to severe abdominal pain, vomiting of blood, and severe diarrhea.

#### **Inhalation**

Infection is caused by the inhalation of bacterial spores, which multiply in the alveoli.

The disease begins with the same symptoms as the flu, including fever, muscle aches, and fatigue.

Symptoms suddenly become more severe with the development of breathing problems and shock.

Toxins cause hemorrhage and destruction of lung tissue.



**FIG. 13-2** Smallpox. (Courtesy Centers for Disease Control and Prevention [CDC]: *Evaluating patients for smallpox*. Atlanta, 2002, CDC.)

## Practice Questions

100. The nurse is preparing to initiate an intravenous (IV) line containing a high dose of potassium chloride using an IV infusion pump. While preparing to plug the pump cord into the wall, the nurse finds that no receptacle is available in the wall socket. The nurse should take which action?
1. Initiate the IV line without the use of a pump.
  2. Contact the electrical maintenance department for assistance.
  3. Plug in the pump cord in the available plug above the room sink.
  4. Use an extension cord from the nurses' lounge for the pump plug.
101. The nurse obtains a prescription from a primary health care provider to restrain a client and instructs an assistive personnel (AP) to apply the safety device to the client. Which observation of unsafe application of the safety device would indicate that **further instruction is required** for the AP?
1. Placing a safety knot in the safety device straps
  2. Safely securing the safety device straps to the side rails
  3. Applying safety device straps that do not tighten when force is applied against them
  4. Securing so that 2 fingers can slide easily between the safety device and the client's skin
102. The community health nurse is providing a teaching session about anthrax to

members of the community and asks the participants about the methods of transmission. Which answers by the participants would indicate that teaching was **effective**? **Select all that apply.**

- 1. Bites from ticks or deer flies
- 2. Inhalation of bacterial spores
- 3. Through a cut or abrasion in the skin
- 4. Direct contact with an infected individual
- 5. Sexual contact with an infected individual
- 6. Ingestion of contaminated undercooked meat

103. The nurse is giving report to an assistive personnel (AP) who will be caring for a client in hand restraints (safety devices). How frequently should the nurse instruct the AP to check the tightness of the restrained hands?
- 1. Every 2 hours
  - 2. Every 3 hours
  - 3. Every 4 hours
  - 4. Every 30 minutes
104. The nurse is reviewing a plan of care for a client with an internal radiation implant. Which intervention, if noted in the plan, **indicates the need for revision** of the plan?
- 1. Wearing gloves when emptying the client's bedpan
  - 2. Keeping all linens in the room until the implant is removed
  - 3. Wearing a lead apron when providing direct care to the client
  - 4. Placing the client in a semiprivate room at the end of the hallway
105. Contact precautions are initiated for a client with a health care-associated (nosocomial) infection caused by methicillin-resistant *Staphylococcus aureus* (MRSA). The nurse prepares to provide colostomy care and should obtain which protective items to perform this procedure?
- 1. Gloves and gown
  - 2. Gloves and goggles
  - 3. Gloves, gown, and shoe protectors
  - 4. Gloves, gown, goggles, and a mask or face shield
106. The nurse enters a client's room and finds that the wastebasket is on fire. The nurse immediately assists the client out of the room. What is the **next** nursing action?
- 1. Call for help.
  - 2. Extinguish the fire.
  - 3. Activate the fire alarm.
  - 4. Confine the fire by closing the room door.
107. A mother calls a neighbor who is a nurse and tells the nurse that her 3-year-old child has just ingested liquid furniture polish. The nurse would direct the mother to take which **immediate** action?
- 1. Induce vomiting.
  - 2. Call an ambulance.
  - 3. Call the Poison Control Center.

4. Bring the child to the emergency department.
108. The emergency department (ED) nurse receives a telephone call and is informed that a tornado has hit a local residential area and that numerous casualties have occurred. The victims will be brought to the ED. The nurse should take which **initial** action?
1. Prepare the triage rooms.
  2. Activate the emergency response plan specific to the facility.
  3. Obtain additional supplies from the central supply department.
  4. Obtain additional nursing staff to assist in treating the casualties.
109. The nurse is caring for a client with meningitis and implements which transmission-based precaution for this client?
1. Private room or cohort client
  2. Personal respiratory protection device
  3. Private room with negative airflow pressure
  4. Mask worn by staff when the client needs to leave the room
110. The nurse working in the emergency department (ED) is assessing a client who recently returned from Nigeria and presented complaining of a fever at home, fatigue, muscle pain, and abdominal pain. Which action should the nurse take **next**?
1. Check the client's temperature.
  2. Isolate the client in a private room.
  3. Check a complete set of vital signs.
  4. Contact the primary health care provider.

## Answers

100. *Answer:* 2

**Rationale:** Electrical equipment must be maintained in good working order and should be grounded; otherwise, it presents a physical hazard. An IV line that contains a dose of potassium chloride should be administered by an infusion pump. The nurse needs to use hospital resources for assistance. A regular extension cord should not be used because it poses a risk for fire. Use of electrical appliances near a sink also presents a hazard.

**Test-Taking Strategy:** Note the **subject**, electrical safety. Recalling safety issues will direct you to the correct option. Contacting the maintenance department is the only correct option, since the other options are not considered safe practice when implementing electrical actions. In addition, since potassium chloride is in the IV solution, a pump must be used.

**Level of Cognitive Ability:** Applying

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Foundations of Care: Safety

**Health Problem:** N/A

**Priority Concepts:** Clinical Judgment; Safety

**Reference:** Potter et al. (2017), pp. 389, 393.

101. *Answer: 2*

**Rationale:** The safety device straps are secured to the bed frame and never to the side rails to avoid accidental injury in the event that the side rails are released. A half-bow or safety knot or device with a quick release buckle should be used to apply a safety device because it does not tighten when force is applied against it and it allows quick and easy removal of the safety device in case of an emergency. The safety device should be secure, and 1 or 2 fingers should slide easily between the safety device and the client's skin.

**Test-Taking Strategy:** Focus on the **subject**, the unsafe intervention. Also note the **strategic words**, *further instruction is required*. These words indicate a **negative event query** and the need to select the incorrect option. Read each option carefully. The words *securing the safety device straps to the side rails* in option 2 should direct your attention to this as an incorrect and unsafe action.

**Level of Cognitive Ability:** Evaluating

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Teaching and Learning

**Content Area:** Foundations of Care: Safety

**Health Problem:** N/A

**Priority Concepts:** Health Care Quality; Safety

**Reference:** Potter et al. (2017), pp. 400-401.

102. *Answer: 2, 3, 6*

**Rationale:** Anthrax is caused by *Bacillus anthracis* and can be contracted through the digestive system or abrasions in the skin, or inhaled through the lungs. It cannot be spread from person to person, and it is not contracted via bites from ticks or deer flies.

**Test-Taking Strategy:** Focus on the **subject**, routes of transmission of anthrax, and note the **strategic word**, *effective*. Knowledge regarding the methods of contracting anthrax is needed to answer this question. Remember that it is not spread by person-to-person contact or contracted via tick or deer fly bites.

**Level of Cognitive Ability:** Evaluating

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Teaching and Learning

**Content Area:** Foundations of Care: Infection Control

**Health Problem:** Adult Health: Immune: Infections

**Priority Concepts:** Client Teaching; Infection

**Reference:** Ignatavicius, Workman, Rebar (2018), p. 429.

103. *Answer: 4*

**Rationale:** The nurse should instruct the AP to check safety devices for tightness every 30 minutes. The neurovascular and circulatory status of the extremity should also be checked by the registered nurse every 30 minutes. In addition, the safety device should be removed at least every 2 hours to permit muscle exercise and to promote circulation. Agency guidelines regarding the use of safety devices should



always be followed.

**Test-Taking Strategy:** Focus on the **subject**, checking the tightness of a safety devices. In this situation, selecting the option that identifies the most frequent time frame is best.

**Level of Cognitive Ability:** Applying

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Teaching and Learning

**Content Area:** Leadership/Management: Delegating

**Health Problem:** N/A

**Priority Concepts:** Health Care Quality; Safety

**Reference:** Potter et al. (2017), p. 402.

104. *Answer:* 4

**Rationale:** A private room with a private bath is essential if a client has an internal radiation implant. This is necessary to prevent accidental exposure of other clients to radiation. The remaining options identify accurate interventions for a client with an internal radiation implant and protect the nurse from exposure.

**Test-Taking Strategy:** Note the **strategic words**, *indicates the need for revision*. These words indicate a **negative event query** and the need to select the incorrect nursing intervention. Remember that the client with an internal radiation implant needs to be placed in a private room.

**Level of Cognitive Ability:** Applying

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Nursing Process—Planning

**Content Area:** Foundations of Care: Safety

**Health Problem:** N/A

**Priority Concepts:** Health Care Quality; Safety

**Reference:** Ignatavicius, Workman, Rebar (2018), p. 389.

105. *Answer:* 4

**Rationale:** Splashes of body secretions can occur when providing colostomy care. Goggles and a mask or face shield are worn to protect the face and mucous membranes of the eyes during interventions that may produce splashes of blood, body fluids, secretions, or excretions. In addition, contact precautions require the use of gloves, and a gown should be worn if direct client contact is anticipated. Shoe protectors are not necessary.

**Test-Taking Strategy:** Focus on the **subject**, protective items needed to perform colostomy care. Also, note the words *contact precautions*. Visualize care for this client to determine the necessary items required for self-protection. This will direct you to the correct option.

**Level of Cognitive Ability:** Applying

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Foundations of Care: Infection Control

**Health Problem:** Adult Health: Immune: Infections

**Priority Concepts:** Clinical Judgment; Safety  
**Reference:** Ignatavicius, Workman, Rebar (2018), p. 419.

106. **Answer:** 3

**Rationale:** The order of priority in the event of a fire is to rescue the clients who are in immediate danger. The next step is to activate the fire alarm. The fire then is confined by closing all doors and, finally, the fire is extinguished.

**Test-Taking Strategy:** Note the **strategic word**, *next*. Remember the mnemonic RACE to prioritize in the event of a fire. *R* is rescue clients in immediate danger, *A* is alarm (sound the alarm), *C* is confine the fire by closing all doors, and *E* is extinguish or evacuate.

**Level of Cognitive Ability:** Applying

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Foundations of Care: Safety

**Health Problem:** N/A

**Priority Concepts:** Clinical Judgment; Safety

**Reference:** Potter et al. (2017), pp. 392-393.

107. **Answer:** 3

**Rationale:** If a poisoning occurs, the Poison Control Center should be contacted immediately. Vomiting should not be induced if the victim is unconscious or if the substance ingested is a strong corrosive or petroleum product. Bringing the child to the emergency department or calling an ambulance would not be the initial action because this would delay treatment. The Poison Control Center may advise the mother to bring the child to the emergency department; if this is the case, the mother should call an ambulance.

**Test-Taking Strategy:** Note the **strategic word**, *immediate*. Calling the Poison Control Center is the first action, since it will direct the mother on the next step to take based on the type of poisoning. The other options are unsafe or could cause a delay in treatment.

**Level of Cognitive Ability:** Applying

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Foundations of Care: Safety

**Health Problem:** Pediatric-Specific: Poisoning

**Priority Concepts:** Clinical Judgment; Safety

**Reference:** Potter et al. (2017), p. 375.

108. **Answer:** 2

**Rationale:** In an external disaster (a disaster that occurs outside of the institution or agency), many victims may be brought to the ED for treatment. The initial nursing action must be to activate the emergency response plan specific to the facility. Once the emergency response plan is activated, the actions in the other options will occur.

**Test-Taking Strategy:** Note the **strategic word**, *initial*, and determine the priority action. Note that the correct option is the **umbrella option**. The emergency response plan includes all of the other options.

**Level of Cognitive Ability:** Applying

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Foundations of Care: Safety

**Health Problem:** N/A

**Priority Concepts:** Clinical Judgment; Safety

**Reference:** Ignatavicius, Workman, Rebar (2018), pp. 153-154.

109. **Answer:** 1

**Rationale:** Meningitis is transmitted by droplet infection. Precautions for this disease include a private room or cohort client and use of a standard precaution mask. Private negative airflow pressure rooms and personal respiratory protection devices are required for clients with airborne disease such as tuberculosis. When appropriate, a mask must be worn by the client and not the staff when the client leaves the room.

**Test-Taking Strategy:** Focus on the **subject**, the correct precaution needs for a client with meningitis. Recalling that meningitis is transmitted by droplets will direct you to the correct option.

**Level of Cognitive Ability:** Applying

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Foundations of Care: Infection Control

**Health Problem:** Adult Health: Neurological: Inflammation/Infections

**Priority Concepts:** Infection; Safety

**Reference:** Ignatavicius, Workman, Rebar (2018), p. 419-420.

110. **Answer:** 2

**Rationale:** The nurse should suspect the potential for Ebola virus disease (EVD) because of the client's recent travel to Nigeria. The nurse needs to consider the symptoms that the client is reporting, and clients who meet the exposure criteria should be isolated in a private room before other treatment measures are taken. Exposure criteria include a fever reported at home or in the ED of 38.0° C (100.4° F) or headache, fatigue, weakness, muscle pain, vomiting, diarrhea, abdominal pain, or signs of bleeding. This client is reporting a fever and is showing other signs of EVD, and therefore should be isolated. After isolating the client, it would be acceptable to then collect further data and notify the primary health care provider and other state and local authorities of the client's signs and symptoms.

**Test-Taking Strategy:** Note the **strategic word**, *next*. This indicates that some or all of the other options may be partially or totally correct, but the nurse needs to prioritize. Eliminate options 1 and 3 first because they are **comparable or alike**. Next note that the client recently traveled to Nigeria. Recall that isolation to prevent transmission of an infection is the immediate priority in the care of a client with

suspected EVD.

**Level of Cognitive Ability:** Analyzing

**Client Needs:** Safe and Effective Care Environment

**Integrated Process:** Nursing Process—Implementation

**Content Area:** Foundations of Care: Infection Control

**Health Problem:** Adult Health: Immune: Infections

**Priority Concepts:** Clinical Judgment; Safety

**Reference:** Ignatavicius, Workman, Rebar (2018), p.

427. [www.cdc.gov/vhf/ebola/healthcare-us/emergency-services/emergency-departments.html](http://www.cdc.gov/vhf/ebola/healthcare-us/emergency-services/emergency-departments.html)