

Chapter 2: Infection Prevention and Occupational Risks

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. During a hospital orientation, a newly hired nurse learns that infectious waste must be incinerated as mandated by the Environmental Protection Agency (EPA). The nurse understands that the main focus of the EPA is on:
- risk-assessment strategies.
 - performance-improvement strategies.
 - quality management.
 - occupational safety.
- _____ 2. A healthy individual comes in contact with a rhinovirus while out in the community. Which actions constitute the first line of nonspecific defense mechanisms against the invading infection?
- Phagocytosis and a complement cascade
 - Leukocytes and proteins
 - Physical and chemical barriers
 - Immune system and phagocytes
- _____ 3. A nurse is teaching a client who is immunosuppressed about ways to help the client to avoid infections. The nurse teaches the client that the purpose of the immune system is to provide:
- the body with antigens.
 - a way to inhibit the formation of antibodies to antigens.
 - a way for the organism to move from the source to the host.
 - the body with a way to recognize and destroy invading antigens.
- _____ 4. A nurse is caring for a hospitalized client who has a health-care–associated infection. The nurse understands that the links in the chain of infection consist of:
- organism, inflammation, and infection.
 - disease, the organism, and the host.
 - agent, the host, and transmission.
 - host, signs, and symptoms.
- _____ 5. A hospitalized client has acquired an infusion-related infection. Which is the most appropriate intervention for a nurse to implement when caring for a client who has an infusion-related infection?
- Monitoring for signs and symptoms of sepsis
 - Monitoring for dysrhythmias
 - Use of full-barrier protection
 - Educating the client on good hand hygiene techniques
- _____ 6. A client with active tuberculosis (TB) is admitted to a hospital. A nurse implements transmission-based precautions when caring for the client because the nurse is concerned about the dissemination of the disease. Which statement best describes dissemination?
- The movement of an organism from source to the host
 - Produced within or caused by factors within the organism
 - The replication of organisms in the tissue of the host
 - The movement of microorganisms from an individual into the immediate

environment

- _____ 7. A nurse on an intensive care unit is caring for a febrile client with a central venous catheter whose blood pressure is steadily dropping. The nurse suspects septicemia. Which microorganism is responsible for most cases of septicemia related to infusion?
- Mycobacterium
 - Yersinia
 - Coagulase-negative staphylococci
 - Salmonella

Multiple Response

Identify one or more choices that best complete the statement or answer the question.

- _____ 1. A nurse teaches a client newly diagnosed with HIV about the immune system. Which organs should the nurse include when discussing the client's immune system? SELECT ALL THAT APPLY.
- Thymus
 - Bone marrow
 - Heart
 - Lungs
- _____ 2. A new client diagnosed with AIDS is being seen in a hospital clinic. Which characteristics should a nurse anticipate when assessing a client with immunosuppression? SELECT ALL THAT APPLY.
- Frequent infections
 - Infections that are more severe than usual
 - Incomplete response to treatment
 - Leukocyte count of 5,000 to 10,000
- _____ 3. A nurse is caring for a client who has an I.V. access. With which sources of contamination should the nurse be concerned when attempting to reduce the client's risk of infection? SELECT ALL THAT APPLY.
- Skin
 - Air
 - Entry ports
 - Mucous membranes
- _____ 4. A nurse is preparing to initiate I.V. therapy on a client admitted with dehydration. Which precannulation antiseptic agents are acceptable for the nurse to use, according to the Infusion Nurses Society's Standards of Practice, to cleanse the client's skin? SELECT ALL THAT APPLY.
- 70% isopropyl alcohol
 - Povidone-iodine
 - 2% chlorhexidine gluconate
 - Hydrogen peroxide
- _____ 5. A new client, diagnosed with AIDS, is being seen in a hospital clinic. Which characteristics should a nurse anticipate when taking the health history of a client with immunosuppression? SELECT ALL THAT APPLY.
- Frequent infections
 - Infections that are more severe than usual

- c. Incomplete response to treatment
 - d. Infections that are usually from common sources
- _____ 6. A nurse teaches a client, newly diagnosed with HIV, about the immune system. Which organs should the nurse include when discussing the client's immune system? SELECT ALL THAT APPLY.
- a. Thymus
 - b. Bone marrow
 - c. Heart
 - d. Lungs
- _____ 7. A physician writes an order for a nurse to begin administering I.V. fluids to a client diagnosed with hepatitis A. While implementing this order, to which occupational risks is the nurse exposed? SELECT ALL THAT APPLY.
- a. Latex allergy
 - b. Chemical exposure
 - c. Needlestick injuries
 - d. Back injury
- _____ 8. A nurse is preparing to administer I.V. chemotherapy for a client diagnosed with cancer. Which are potential occupational risks associated with I.V. therapy? SELECT ALL THAT APPLY.
- a. Falls
 - b. Latex allergy
 - c. Chemical exposure
 - d. Needlestick injuries
- _____ 9. A home-care nurse provides education regarding basic infection control to the parents of a child with HIV infection. Which instructions should be included in the nurse's education? SELECT ALL THAT APPLY.
- a. Carefully wash all fresh fruits and vegetables.
 - b. Wash bottles, nipples, and pacifiers in the dishwasher.
 - c. Immediately discard any unused food and formula.
 - d. Cleanse the inside of the nipple of the bottle with salt and rinse well if it becomes slimy.

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Answer Section

MULTIPLE CHOICE

1. ANS: A

The EPA is one agency that performs risk assessment. Risk assessment takes different approaches depending on what information is available. Some assessments look back to try to assess effects after an event. Other assessments look forward to anticipate effects before a new product is approved for use.

Reference: U.S. Environmental Protection Agency. (2009). *Hospital/medical/infectious waste incinerators*. Retrieved from www.epa.gov/ttn/atw/129/hmiwi/rihmiwi.html, March 10, 2013.

PTS: 1 KEY: Cognitive Level: Application

2. ANS: C

The first lines of defense for healthy human hosts, to protect themselves from environmental microbes, are the physical (skin, mucous membrane, epiglottis, respiratory tract cilia, and sphincter) and chemical barriers (tears, gastric acidity, and vaginal secretions). Mechanical barriers also provide a line of defense.

PTS: 1 KEY: Cognitive Level: Application

3. ANS: D

Appropriate immune response occurs when the immune system recognizes and destroys invading antigens.

PTS: 1 KEY: Cognitive Level: Application

4. ANS: C

The nurse understands that the client's infection results from interaction between an infectious agent and a susceptible host. This interaction, called *transmission*, occurs by means of contact between the agent and the host. Three interrelated factors—the agent, the host, and transmission—represent the chain of infection.

Reference: Siegel, J. D., Rhinehart, E., Jackson, M., et al. (2007). *Guideline for isolation precautions: Preventing transmission of infectious agents in healthcare settings*. Retrieved from www.cdc.gov/ncidod/dhq/pdf/isolation2007.pdf

PTS: 1 KEY: Cognitive Level: Application

5. ANS: A

Sepsis is a serious complication of infusion therapy. Signs and symptoms, such as fluctuating fever, profuse sweating, nausea and vomiting, abdominal pain, tachycardia, and hypotension, should be reported immediately to the physician.

PTS: 1 KEY: Cognitive Level: Application

6. ANS: D

Dissemination is a shedding of microorganisms. Cultures of air samples, surfaces, and objects reveal dissemination or shedding of microorganisms.

PTS: 1 KEY: Cognitive Level: Application

7. ANS: C

Infusion-related septicemia and fungemia are more likely than cannula-related infections to culminate in frank shock and are often unrecognized. Most infusion-related septicemia is by gram-negative bacilli introduced by intrinsic or extrinsic contamination. Yersinia and Salmonella can occur in contaminated blood products, and Mycobacterium has been found in infections related to central venous catheters.

PTS: 1

KEY: Cognitive Level: Application

MULTIPLE RESPONSE

1. ANS: A, B, D

The nurse should include the thymus, bone marrow, and lungs when teaching the client about his or her immune system. The thymus and bone marrow are primary organs of the immune system. The lungs are a secondary organ of the immune system. The heart does not contribute to the immune response.

PTS: 1

KEY: Cognitive Level: Application

2. ANS: A, B, C

The nurse should anticipate that the client experiences frequent infections, has infections that are more severe than usual, and usually has an incomplete response to therapy. The normal white cell count is 5,000 to 10,000. The nurse should expect to see an increased white cell count in an immunocompromised client with an infection.

PTS: 1

KEY: Cognitive Level: Application

3. ANS: A, B, C

Microorganisms gain entry via the skin, via air entering into the closed system, and via entry points into the administration set, such as the junction between the administration set and the catheter hub. Mucous membranes would not be a source of contamination during I.V. therapy.

Reference: O'Grady, N. P., Alexander, M., Burns, L. A., et al; Healthcare Practices Advisory Committee. (2011). Guidelines for prevention of intravascular catheter related infections, 2011. *American Journal of Infection Control*, 39(4 Suppl.), S1–S34.

PTS: 1

KEY: Cognitive Level: Knowledge

4. ANS: A, B, C

Cleansing the insertion site reduces the potential for infection by minimizing the amount of microorganisms on the skin. The Centers for Disease Control and Prevention (2009) now recommends 2% chlorhexidine gluconate as the solution of choice for infusion therapy preparation.

Reference: O'Grady, N. P., Alexander, M., Burns, L. A., et al; Healthcare Practices Advisory Committee. (2011). Guidelines for prevention of intravascular catheter related infections, 2011. *American Journal of Infection Control*, 39(4 Suppl.), S1–S34.

PTS: 1

KEY: Cognitive Level: Application

5. ANS: A, B, C

The nurse should anticipate a history of frequent infections, infections that are more severe than usual, and incomplete response to treatments. These clients often present with unusual infections or infections with opportunistic infectious agents.

Reference: Phillips, L. D., & Gorski, L. (2014). Infusion-related infection control and occupational risks. In *Manual of I.V. therapeutics: Evidence-based infusion therapy* (6th ed.). Philadelphia, PA: F.A. Davis.

PTS: 1 KEY: Cognitive Level: Application

6. ANS: A, B, D

The nurse should discuss the thymus, bone marrow, and lungs when teaching the client about his or her immune system. The organs and cells involved in the immune system form a complex when antigens and immune system cells are constantly moving through the lymphatic system and organs and blood circulation. The heart is not an organ directly responsible for immune function. Both the thymus and bone marrow are primary immune organs, whereas the lungs are secondary immune organs.

Reference: Phillips, L. D., & Gorski, L. (2014). Infusion-related infection control and occupational risks. In *Manual of I.V. therapeutics: Evidence-based infusion therapy* (6th ed.). Philadelphia, PA: F.A. Davis.

PTS: 1 KEY: Cognitive Level: Application

7. ANS: A, B, C

Latex allergy, chemical exposure, and needlestick injuries are directly related to the initiation of infusion therapy. Back injuries are associated with lifting and moving clients and with poor body mechanics.

Reference: Phillips, L. D., & Gorski, L. (2014). Infusion-related infection control and occupational risks. In *Manual of I.V. therapeutics: Evidence-based infusion therapy* (6th ed.). Philadelphia, PA: F.A. Davis.

PTS: 1 KEY: Cognitive Level: Application

8. ANS: B, C, D

The nurse providing infusion therapy is at risk for latex and chemical exposure in the process of delivering infusion therapy. Needlestick injury risk is highest with the hollow-bore needles, such as with over-the-needle catheters. Falls are a risk for clients.

Reference: Phillips, L. D., & Gorski, L. (2014). Infusion-related infection control and occupational risks. In *Manual of I.V. therapeutics: Evidence-based infusion therapy* (6th ed.). Philadelphia, PA: F.A. Davis.

PTS: 1 KEY: Cognitive Level: Application

9. ANS: A, B, D

The parents should be instructed to carefully wash all fruits and vegetables; wash bottles, nipples, and pacifiers in the dishwasher; and cleanse the inside of the bottle nipple with salt if it becomes slimy. The parents should also be instructed to cover and refrigerate unused food and formula, and to discard unused refrigerated food or formula *after 24 hours*.

Reference: Phillips, L. D., & Gorski, L. (2014). Infusion-related infection control and occupational risks. In *Manual of I.V. therapeutics: Evidence-based infusion therapy* (6th ed.). Philadelphia, PA: F.A. Davis.

PTS: 1 KEY: Cognitive Level: Application