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 infection prevention and health-care worker safety follows set standards or guidelines from various organizations. The nurse interprets that the main focus of the Association for Professionals in Infection Control and Epidemiology, Inc. (APIC) is on:
   A. preventing and promoting zero tolerance for health-care associated infections.
   B. establishing guidelines for infection control practices.
   C. providing a framework for infusion policies and procedures.
   D. improving safety and quality through innovation.

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?
   A. Phagocytosis and a complement cascade
   B. Leukocytes and proteins
   C. Physical and chemical barriers
   D. 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:
   A. the body with antigens.
   B. a way to inhibit the formation of antibodies to antigens.
   C. a way for the organism to move from the source to the host.
   D. 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 (HAI). The nurse determines that which links in the chain of infection could have been responsible for the client’s infection?
   A. Organism, inflammation, and infection.
   B. Disease, the organism, and the host.
   C. Agent, the host, and transmission.
   D. 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?

A. Monitoring for signs and symptoms of sepsis
B. Monitoring for dysrhythmias
C. Use of full-barrier protection
D. 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?
A. The movement of an organism from source to the host
B. Produced within or caused by factors within the organism
C. The replication of organisms in the tissue of the host
D. The movement of an organism from individual to 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?
A. Mycobacterium tuberculosis
B. Clostridium difficile
C. Coagulase-negative staphylococci
D. Bordetella Pertussis

8. When comparing intrinsic versus extrinsic causes of bloodstream infections (BSIs), the most important way to prevent contamination includes which measure?
A. Inspecting all protective coverings and seals (intrinsic)
B. Inspecting solutions for clarity and expiration dates (intrinsic)
C. Examining solution for proper refrigeration techniques (extrinsic)
D. Using stringent asepsis during preparation of admixtures (extrinsic)

9. The nurse is about to draw blood for lab work from a three-way stopcock on the client’s CVAD per healthcare provider orders. What is the most important technique the nurse must perform in order to prevent a BSI?
A. Notify the healthcare provider that the stopcock is not appropriate for drawing blood.
B. Place a red cap on the port to let other nurses know to use that port only for blood.
C. Use aseptic technique to access and a sterile cap on the ports to provide a closed system.
D. Administer a heparin flush before and after use to prevent clotting.

10. In 2008, a survey sponsored by the American Nurses Association (ANA, 2008) identified three main causes of needle-stick injury. Which cause of needle-stick injury was assessed as being the most prevalent?

A. Before activating the needles safety feature
B. After leaving a needle on any surface
C. While activating the safety features
D. In responding to an action by a co-worker

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

1. A nurse is taking care of a client newly diagnosed with HIV. Because the client's immune system is compromised, which organs is the nurse concerned about during her assessment? (Select all that apply.)
A. Thymus
B. Bone marrow
C. Heart
D. Lungs
E. Gallbladder

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.)
A. Frequent infections
B. Infections are more severe than usual
C. Incomplete response to treatment
D. Leukocyte count of 5,000 to 10,000
E. Neutrophil count of 55-70%

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.)
A. Skin
B. Air
C. Entry points
D. Mucous membranes
E. Catheter hub

4. A nurse is preparing to initiate I.V. therapy on a client admitted with dehydration. Which antiseptic agents are acceptable, for the nurse to use prior to cannulation, according to the Infusion Nurses Society's Standards of Practice, to cleanse the client's skin? (Select all that apply.)
A. 70% isopropyl alcohol
B. Povidone-iodine
C. Chlorhexidine/alcohol
D. Hydrogen peroxide
E. Sterile water

5. A new client, diagnosed with AIDS, is being seen in a hospital clinic. Which characteristics should a nurse anticipate as contributing to the interference of immunological responses? (Select all that apply.)
A. Opportunistic infections
B. Type of medication
C. Severity of infections
D. Secondary disease process
E. Developing antigens

6. A nurse is planning care for a client, newly diagnosed with HIV, addressing the immune system. Which types of immunity should the nurse consider specific to the client's immune system? (Select all that apply.)
A. Innate
B. Specific
C. Reservoir
D. Intrinsic
E. Colonized

7. A physician writes an order for a nurse to begin administering I.V. fluids to a client diagnosed with hepatitis. 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
E. Biological exposure

8. A nurse is preparing to administer I.V. chemotherapy for a client diagnosed with cancer. Which strategies should be used to prevent or treat possible infection? (Select all that apply.)
A. Catheter stabilization
B. Aseptic technique
C. Hand hygiene
D. Assess latex allergy
E. Culture blood prior to administration

9. A home-care nurse provides education regarding basic infection control to the parents of a child with latex allergy with a venous access device (VAD). Which concepts should be included in the nurse's teaching? (Select all that apply.)
A. Hand hygiene

B. Concept of dirty, clean, and sterile
C. Emergency procedures
D. Chemotherapy spill kit information
E. Use of sharps containers

10. When assessing a client receiving chemotherapy, the nurse finds the client has another VAD in the opposite arm. Which components of the central line bundle are most appropriate for the nurse at this time?
A. Removing the line if not being utilized
B. Inserting a femoral site access to avoid clotting
C. Flushing the line of the unused VAD
D. Cleaning of site and surrounding skin to maintain asepsis
E. Washing hands prior to catheter insertion

Chapter 2: Infection Prevention and Occupational Risks

Multiple Choice

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1. During a hospital orientation, a newly hired nurse learns that infection prevention and health-care worker safety follows set standards or guidelines from various organizations. The nurse interprets that the main focus of the Association for Professionals in Infection Control and Epidemiology, Inc. (APIC) is on:

A. preventing and promoting zero tolerance for health-care associated infections.
B. establishing guidelines for infection control practices.
C. providing a framework for infusion policies and procedures.
D. improving safety and quality through innovation.

ANS: A
Page: 42

	Feedback
A.	The Association for Professionals in Infection Control and Epidemiology, Inc. (APIC) emphasizes prevention and promotion of zero tolerance for health-care–associated infections (HAIs) and adverse events.
B.	The Centers for Disease Control and Prevention (CDC) establishes guidelines for infection control practices.
C.	The Infusion Nurses Society (INS) sets national and global standards for infusion practice and provides a framework for the development of infusion policies and procedures in all practice settings.
D.	The Institute for Healthcare Improvement (IHI) is an independent not-for-profit organization that focuses on helping health-care organizations innovate and improve safety and quality.

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?

A. Phagocytosis and a complement cascade
B. Leukocytes and proteins
C. Physical and chemical barriers
D. Immune system and phagocytes

ANS: C
Page: 44

	Feedback
A.	One of the body's first line of defense is through phagocytosis; however, the complement cascade is a part of the innate immune system, the second line of defense when the first line fails.

B.	Leukocytes are a part of the innate immune system (inflammation), as are proteins (complement cascade).
C.	The first line of defense of the innate system is the presence of physical and chemical barriers that limit entry of microorganisms into the body.
D.	The immune system is made up of innate (nonspecific) and adaptive immunity; phagocytes are a part of the innate immune system.

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:
A. the body with antigens.
B. a way to inhibit the formation of antibodies to antigens.
C. a way for the organism to move from the source to the host.
D. the body with a way to recognize and destroy invading antigens.

ANS: D
Page: 87

	Feedback
A.	An antigen is any foreign substance that induces an immune system response.
B.	The immune system inhibits the formation of antigens to antibodies
C.	The goal of immunity is to keep organisms away from the host.
D.	The goal of the immune system is to recognize and destroy invading antigens.

4. A nurse is caring for a hospitalized client who has a health-care–associated infection (HAI). The nurse determines that which links in the chain of infection could have been responsible for the client’s infection?
A. Organism, inflammation, and infection.
B. Disease, the organism, and the host.
C. Agent, the host, and transmission.
D. Host, signs, and symptoms.

ANS: C
Page: 87

	Feedback
A.	Inflammation is a response to infection caused by an organism.
B.	Disease is not a link in the chain of infection.
C.	There are six links in the chain of infection: causative agent (organism), reservoir, portal of exit from the reservoir, mode of transmission, portal of entry into a host, and susceptibility of host.
D.	Signs and symptoms do not make up the links in the chain of infection.

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?

A. Monitoring for signs and symptoms of sepsis
B. Monitoring for dysrhythmias
C. Use of full-barrier protection
D. Educating the client on good hand hygiene techniques

ANS: A
Page: 76

	Feedback
A.	A key nursing intervention for sepsis is monitoring for signs and symptoms of infection, such as fever, hypotension, positive blood cultures, and fluctuations in oxygen saturation.
B.	Monitoring for dysrhythmias is not required for the client with an infusion-related infection.
C.	Aseptic technique is required with all infusion-related procedures, not full-barrier protection.
D.	Educating the client on good hand hygiene technique is a good practice, but is not an appropriate intervention for the nurse

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?

A. The movement of an organism from source to the host
B. Produced within or caused by factors within the organism
C. The replication of organisms in the tissue of the host
D. The movement of an organism from individual to environment

ANS: D
Page: 49

	Feedback
A.	The movement of an organism from source to the host indicates mode of transmission.
B.	Endogenous is caused by factors within the body.
C.	The reservoir is where an organism maintains its presence, metabolizes, and replicates.
D.	Dissemination is a shedding of microorganisms from an individual into the immediate environment or movement of microorganisms from a confined site.

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?

A. Mycobacterium tuberculosis
B. Clostridium difficile
C. Coagulase-negative staphylococci
D. Bordetella Pertussis

ANS: C
Page: 59

	Feedback
A.	Mycobacterium tuberculosis is an airborne transmission responsible for tuberculosis.
B.	Clostridium difficile is transmitted through environmental contamination.
C.	Coagulase-negative staphylococci are one of the most commonly reported gram-positive organisms related to central vascular access devices.
D.	Bordetella pertussis is a microorganism transmitted by droplets.

8. When comparing intrinsic versus extrinsic causes of bloodstream infections (BSIs), the most important way to prevent contamination includes which measure?

A. Inspecting all protective coverings and seals (intrinsic)
B. Inspecting solutions for clarity and expiration dates (intrinsic)
C. Examining solution for proper refrigeration techniques (extrinsic)
D. Using stringent asepsis during preparation of admixtures (extrinsic)

ANS: D
Page: 57

	Feedback
A.	This answer is not correct. Intrinsic contamination is considered rare but can occur during the manufacturing and sterilization process; therefore, all protective coverings and seals should be inspected prior to use.
B.	This answer is not correct. While intrinsic contamination (manufacturing and sterilization process) is rare, inspection for clarity and expiration dates should be completed prior to use.
C.	This answer is not correct. Extrinsic contamination (during preparation or administration) can be prevented; therefore, proper refrigeration techniques should be examined prior to use.
D.	The most important measures to prevent BSIs from contaminated in-use (extrinsic) infusate are stringent asepsis during the preparation and compounding of admixtures.

9. The nurse is about to draw blood for lab work from a three-way stopcock on the client's CVAD per healthcare provider orders. What is the most important technique the nurse must perform in order to prevent a BSI?
A. Notify the healthcare provider that the stopcock is not appropriate for drawing blood.
B. Place a red cap on the port to let other nurses know to use that port only for blood.
C. Use aseptic technique to access and a sterile cap on the ports to provide a closed system.
D. Administer a heparin flush before and after use to prevent clotting.

ANS: C
Page: 57

	Feedback
A.	The INS states that use of stopcocks is not recommended; however, if they are used, sterile caps should be placed on the ports to provide a closed system and aseptic technique utilized during access.
B.	A red cap may be used to distinguish blood draws only, but this is not the most important technique.
C.	Sterile caps should be placed on the ports to provide a closed system. As with all infusion-related procedures, aseptic technique is vital when accessing the ports.
D.	Heparin flushes are only used with an order and if necessary according to the type of CVAD; this is not the most important technique at this time.

10. In 2008, a survey sponsored by the American Nurses Association (ANA, 2008) identified three main causes of needle-stick injury. Which cause of needle-stick injury was assessed as being the most prevalent?
A. Before activating the needles safety feature
B. After leaving a needle on any surface
C. While activating the safety features
D. In responding to an action by a co-worker

ANS: A
Page: 76

	Feedback
A.	A survey sponsored by the American Nurses Association (ANA, 2008) identified three main causes of needle-stick injury accounting for two thirds of the problem: while giving an injection, before activating the safety feature, and during disposal of a non-safety device.
B.	A less common cause of needle-stick injury includes after a coworker left a sharp on a surface.
C.	A less common cause of needle-stick injury includes while activating a safety feature.
D.	A less common cause of needle-stick injury includes in response to an action by a co-worker.

Multiple Response

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

1. A nurse is taking care of a client newly diagnosed with HIV. Because the client's immune system is compromised, which organs is the nurse concerned about during her assessment? (Select all that apply.)

A. Thymus
B. Bone marrow
C. Heart
D. Lungs
E. Gallbladder

ANS: A, B, D
Page: 87

	Feedback
A.	The thymus is one of the primary organs of the immune system.
B.	The bone marrow is one of the primary organs of the immune system.
C.	The heart does not contribute to the immune response.
D.	The lungs are a secondary organ of the immune system.
E.	The gallbladder does not contribute to the immune response.

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.)

A. Frequent infections
B. Infections are more severe than usual
C. Incomplete response to treatment
D. Leukocyte count of 5,000 to 10,000
E. Neutrophil count of 55-70%

ANS: A, B, C
Page: 48

	Feedback
A.	Patients with immune dysfunction will generally exhibit frequently occurring infections.
B.	The nurse should anticipate that the client experiences more severe infections than usual.
C.	Immune dysfunction in patients usually results in an incomplete response to treatment without complete elimination of the infecting agent.
D.	Normal white cell count is 5,000 to 10,000.
E.	Normal neutrophil count is 55-70%.

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.)

A. Skin
B. Air
C. Entry points
D. Mucous membranes
E. Catheter hub

ANS: A, B, C
Page: 55-56

	Feedback
A.	Microorganisms gain entry via the skin.
B.	Microorganisms gain access when air enters the bottles.
C.	Microorganisms gain entry from entry points into the administration set.
D.	Mucous membranes would not be a source of contamination during I.V. therapy.
E.	Microorganisms can gain access through the junction of the IV device between the administration set and the catheter hub.

4. A nurse is preparing to initiate I.V. therapy on a client admitted with dehydration. Which antiseptic agents are acceptable, for the nurse to use prior to cannulation, according to the Infusion Nurses Society's Standards of Practice, to cleanse the client's skin? (Select all that apply.)

A. 70% isopropyl alcohol
B. Povidone-iodine
C. Chlorhexidine/alcohol
D. Hydrogen peroxide
E. Sterile water

ANS: A, B, C
Page: 57

	Feedback
A.	An acceptable antiseptic for skin antisepsis is 70% isopropyl alcohol.
B.	Povidone-iodine is considered an acceptable disinfectant for clients who are sensitive or allergic to chlorhexidine or alcohol.
C.	The Infusion Nurse Society (INS) recommends a chlorhexidine/alcohol solution as the standard of practice. It is the preferred antiseptic agent.
D.	Hydrogen peroxide is not an acceptable antiseptic for use prior to cannulation.
E.	Sterile water is used to remove povidone–iodine and prevent absorption of the product through the skin.

5. A new client, diagnosed with AIDS, is being seen in a hospital clinic. Which characteristics should a nurse anticipate as contributing to the interference of immunological responses? (Select all that apply.)

A. Opportunistic infections
B. Type of medication
C. Severity of infections
D. Secondary disease process
E. Developing antigens

ANS: A, B, C, D
Page: 48–49

	Feedback
A.	Interference with the development of immunological responses may result from opportunistic infectious agents.
B.	Medications may sometimes cause or inhibit immunosuppression, thus interfering with the development of immunological responses.
C.	Infection that is more severe than usual may interfere with immune response.
D.	AIDS is a secondary immunodeficiency that arises from the disease process or therapy that decreases immune function.
E.	Immunological response develops after exposure to antigens.

6. A nurse is planning care for a client, newly diagnosed with HIV, about the immune system. Which types of immunity should the nurse consider specific to the client's immune system? (Select all that apply.)
A. Innate
B. Specific
C. Reservoir
D. Intrinsic
E. Colonized

ANS: A, B
Page: 43

	Feedback
A.	Innate or nonspecific immunity is immune response present before exposure to antigens.
B.	Adaptive or specific immunity is immune response that develops after exposure to antigens.
C.	A reservoir is living or nonliving material in or on which an infectious agent multiplies and develops.
D.	Intrinsic refers to contamination that originates prior to use of a drug and does not refer to immunity.
E.	Colonized refers to the growth of microorganisms in a host without symptoms or detected immune reaction.

7. A physician writes an order for a nurse to begin administering I.V. fluids to a client diagnosed with hepatitis. 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
E. Biological exposure

ANS: A, B, C, E
Page: 42

	Feedback
A.	Latex allergy injuries are directly related to the initiation of infusion therapy.
B.	Chemical exposures are related to the initiation of infusion therapy.
C.	Needlestick injuries are occupational risks that are directly related to the initiation of infusion therapy.
D.	Back injuries are associated with lifting and moving clients and with poor body mechanics, not with infusion therapy.
E.	Biological exposure to bloodborne pathogens is an occupational risk associated with infusion therapy.

8. A nurse is preparing to administer I.V. chemotherapy for a client diagnosed with cancer. Which strategies should be used to prevent or treat possible infection? (Select all that apply.)

A. Catheter stabilization
B. Aseptic technique
C. Hand hygiene
D. Assess latex allergy
E. Culture blood prior to administration

ANS: A. B, C
Page: 66–67, 72

	Feedback
A.	Catheter movement in and out of the insertion site allows pathogens on the skin to migrate into the catheter tract. Catheter stabilization may decrease the risk for infection.
B.	Adhering to aseptic technique is a strategy used to prevent/treat infection.
C.	Hand hygiene is the number one strategy used to prevent/treat infection
D.	Assessing latex allergy is not a strategy used to prevent or treat infection, but to identify occupational risk associated with infusion therapy.
E.	Culturing blood prior to administration of a therapy is not a recommended strategy used to prevent or treat possible infection.

9. A home-care nurse provides education regarding basic infection control to the parents of a child with latex allergy with a venous access device (VAD). Which concepts should be included in the nurse's teaching? (Select all that apply.)

A. Hand hygiene
B. Concept of dirty, clean, and sterile
C. Emergency procedures
D. Chemotherapy spill kit information
E. Use of sharps containers

ANS: A, B, D
Page: 74, 81

	Feedback
A.	Basic infection control information includes appropriate hand hygiene.
B.	Parents should be taught the concepts of dirty, clean, and sterile when teaching about basic infection control.
C.	Information regarding emergency procedures regarding latex allergy and VAD is not included in basic infection control teaching.
D.	Chemotherapy spill kit information does not relate to latex allergy.
E.	The use of sharps containers does not relate to latex allergy.

10. When assessing a client receiving chemotherapy, the nurse finds the client has another VAD in the opposite arm. Which components of the central line bundle are most appropriate for the nurse at this time?

A. Removing the line if not being utilized
B. Inserting a femoral site access to avoid clotting
C. Flushing the line of the unused VAD
D. Cleaning of site and surrounding skin to maintain asepsis
E. Washing hands prior to catheter insertion

ANS: A, E
Page: 74

	Feedback
A.	Daily review of line necessity with prompt removal of unnecessary lines is warranted at this time.
B.	The femoral site should always be avoided when inserting VADs.
C.	If the line is unused, the most appropriate component is prompt removal of the VAD.
D.	Cleaning of the site and surrounding skin is not warranted at this time.
E.	Hand hygiene prior to catheter insertion is a component of the central line bundle.