

TRANSMISSION-BASED PRECAUTIONS



2001

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STUDY GUIDE

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Transmission-Based Precautions

TABLE OF CONTENTS

LEARNING OUTCOME	4
EDUCATIONAL OUTCOMES	4
INTRODUCTION	5
BLOODBORNE PATHOGENS STANDARD	5
STANDARD PRECAUTIONS	5
Hand Hygiene.....	5
Respiratory Hygiene and Cough Etiquette.....	6
Safe Injection Practices	6
Reusable Equipment.....	6
Personal Protective Equipment	6
Removal of Personal Protective Equipment	8
Additional Precautions	9
CONTACT PRECAUTIONS	9
DROPLET PRECAUTIONS.....	10
AIRBORNE PRECAUTIONS	10
REPORTING EXPOSURES	11
TUBERCULOSIS SCREENING AND VACCINATIONS.....	11
PERIOPERATIVE TEAM MEMBERS WITH INFECTIONS	12
EDUCATION AND TRAINING.....	12
SUMMARY	12
REFERENCES	13
POST-TEST	14
POST-TEST ANSWERS	16

LEARNING OUTCOME

After completing this study guide and viewing the accompanying video, perioperative registered nurses (RNs) and other perioperative team members will have increased their knowledge of transmission-based precautions. The perioperative RN will be able to apply these precautions in the clinical setting to help minimize the risk for transmission of infections and to promote patient safety.

EDUCATIONAL OUTCOMES

The participant will be able to

- follow the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogens standard when caring for patients,
- discuss the elements of standard precautions,
- implement contact, droplet, and airborne precautions for applicable diseases and conditions,
- select appropriate personal protective equipment (PPE), and
- instruct visitors on the proper use of PPE.

INTRODUCTION

Many infectious microorganisms are becoming increasingly resistant to antibiotics and other therapeutic modalities. Protecting patients and health care personnel from transmission of potentially infectious agents is a primary focus for perioperative RNs and other perioperative team members. Prevention and control of multidrug-resistant organisms requires coordinated efforts from the entire health care team.¹

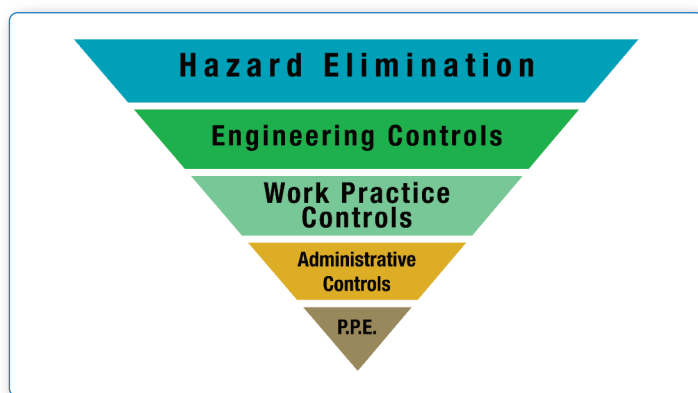
This study guide and the accompanying video provide guidance to perioperative RNs and other team members for following the OSHA Bloodborne Pathogens standard and implementing transmission-based precautions.

Transmission-based precautions include standard precautions, contact precautions, droplet precautions, and airborne precautions.¹ By implementing the practices outlined in this guide, perioperative RNs can help reduce the risk for transmission of infections to themselves, their patients, and other health care personnel.

BLOODBORNE PATHOGENS STANDARD

Perioperative team members must follow the OSHA Bloodborne Pathogens standard whenever there is a risk for exposure to blood, body fluids, and other potentially infectious materials. This is a regulatory mandate from OSHA.^{1,2}

Methods for following the Bloodborne Pathogens standard and preventing exposure to bloodborne pathogens include implementing a hierarchy of controls. The hierarchy includes eliminating the hazard, implementing engineering and work practice controls, establishing and following an exposure control plan, and using PPE.^{1,3}



The first element in the hierarchy is elimination of the hazard.³ Eliminating a hazard when possible is usually the most effective method for reducing the risk of exposure.³ One example is to use a skin stapler instead of sutures to close an incision, potentially reducing the risk of a sharps-related injury.

Engineering controls are designed to remove or minimize a hazard before it comes into contact with health care personnel.³ Examples of engineering controls include safety-engineered devices (eg, needless IV systems, self-sheathing needles).¹

Work practice controls reduce the likelihood of exposure to hazards by changing the method by which a task is performed.¹ Use of the “hands-free technique” when passing sharps is one example.

Each health care organization must establish a written exposure control plan, make it accessible to employees, and review and update it at least annually. The plan must be consistent with federal, state, and local rules and regulations regarding occupational exposure to bloodborne pathogens.¹

Perioperative personnel should wear PPE when exposure to blood, body fluids, or other infectious material is anticipated.¹ The specific PPE required for standard, contact, droplet, and airborne precautions is discussed in the corresponding sections of this study guide.

Do not take food or drinks into the semi-restricted or restricted areas of the perioperative suite. Do not store food or drinks in work spaces where blood or other potentially infectious materials are present, including refrigerators, freezers, cabinets, shelves, or countertops.¹

Do not apply cosmetics or lip balm, and do not handle contact lenses in semi-restricted or restricted areas.¹

STANDARD PRECAUTIONS

“Standard precautions are the foundation for disease transmission prevention.”¹ They are based on the principle that all blood, body fluids, secretions, excretions (except sweat), nonintact skin, and mucous membranes may harbor infectious agents.⁴ Use standard precautions when caring for any patient in any health care setting and when handling blood, body fluids, or any other material that might carry infectious pathogens regardless of suspected or confirmed infection.^{1,4} Components of standard precautions include hand hygiene, respiratory hygiene and cough etiquette, safe injection practices, maintaining a clean environment, cleaning reusable equipment, and wearing personal protective equipment.¹

Hand Hygiene

Hand hygiene is one of the most effective ways to prevent transmission of disease and to control infections in health care settings.^{1,4,5} All health care personnel should follow established hand hygiene practices.¹ Hand hygiene can be defined as any activity related to cleansing and maintaining



the condition of the hands.⁵ Options for hand cleansing include alcohol-based rubs and washing with soap and water.⁵ Use soap and water if your hands are visibly soiled or have been exposed to blood or other body fluids, after using the restroom, or when caring for patients with spore-forming organisms or norovirus.⁵ Alcohol-based rubs dry the skin less than soap and water, and evidence indicates rubs may have superior antimicrobial activity and better efficacy at removing some viruses.^{6,7} Use alcohol-based rubs when hands are not visibly soiled or dirty.^{5,6} Remember that wearing gloves does not replace the need for hand hygiene.^{1,5} More detailed information about hand hygiene can be found in the Guideline for Hand Hygiene, published by AORN as part of the *Guidelines for Perioperative Practice*.⁵

Respiratory Hygiene and Cough Etiquette

All persons who enter a health care facility should practice respiratory hygiene and cough etiquette to minimize the risk of transmitting respiratory infections. Separate patients with respiratory symptoms from other patients and visitors as soon as possible. Promote compliance with respiratory hygiene and cough etiquette among team members, patients, and visitors. Cover your mouth with a tissue or sleeve instead of your hand when coughing or sneezing. Quickly dispose of used tissues. Perform hand hygiene after contacting your own or someone else's respiratory secretions. Wear a mask and stay at least 3 to 6 feet away from others in common areas if you exhibit any signs of respiratory infection.¹



Safe Injection Practices

Use safe injection practices when administering medications.^{1,8} Do not use single-dose vials or single-use dispensing devices for more than one patient.⁸ Do not use multidose vials for more than one patient if the medication is prepared at the point of care.⁸ Use a new sterile needle and new sterile syringe every time medication is withdrawn from the vial.⁸ Syringes should not be reused even if the needle is changed.⁹ Use each needle and syringe only once, and discard them after giving medication to a single patient.⁸ More detailed information about safe injection practices can be found in the Guideline for Medication Safety, published by AORN as part of the *Guidelines for Perioperative Practice*.⁸

Reusable Equipment

Clean and disinfect or sterilize reusable equipment (eg, blood glucose meters, blood pressure cuffs, pulse oximeter probes, surgical instruments, endoscopes) after every use on a patient or if soiled, to minimize the risk of cross contamination and disease transmission between patients. Always follow the manufacturer's instructions for use (IFU).¹

Personal Protective Equipment

Wear PPE whenever there is a possibility for exposure to blood, body fluids, or other potentially infectious materials. PPE protects the skin, mucus membranes, airway, and clothing from infectious material.¹



Wear gloves when contact with blood or body fluids is reasonably likely, including when touching mucous membranes or nonintact skin, gaining vascular access, or touching contaminated patient care items or environmental surfaces. Vinyl and polyvinyl gloves have a higher failure rate than nitrile or latex gloves, so use of vinyl or polyvinyl gloves should be limited to low-risk exposures. Perform hand hygiene before putting on gloves. Inspect the gloves for damage when putting them on and during use.¹

Wear a gown when it is reasonably likely that your arms or your clothing will come into contact with blood, body fluids, or other infectious materials, including potentially contaminated equipment or environmental surfaces. Gowns come in different types (eg, surgical, isolation) and with different levels of barrier protection. Select the type of gown and barrier level most appropriate for the planned task and amount of expected exposure. The gown should cover the entire torso from neck to knees, cover the arms to the end of the wrists, and wrap around the back. It should be secured at the neck and waist to protect your skin and clothes from exposure. Cover the cuffs of the gown with gloves to protect your wrists from exposure.¹

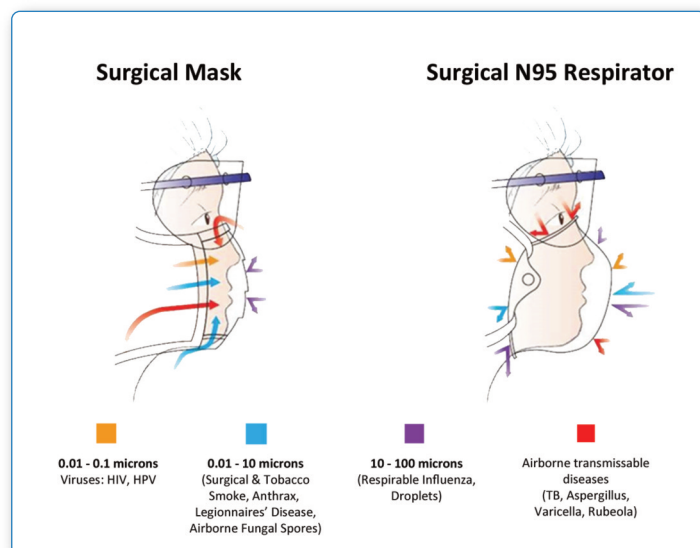


Wear eye protection (eg, goggles, glasses with solid side shields, a surgical mask with an attached eye shield, a chin-length face shield) when splashes, spray, blood droplets or other potentially infectious materials may be generated and eye contamination can be reasonably expected. Personal eyeglasses do not provide the same level of protection and may not have protection at the sides. Wear eye protection during procedures that generate aerosols, including bronchoscopy, endotracheal intubation, and suctioning the respiratory tract, to minimize the risk for exposure to aerosolized infectious material.¹



Wear a mask when your nose or mouth might be exposed to splashes, blood droplets, or other infectious materials, including during bronchoscopy, intubation, or suctioning the respiratory tract. Masks are intended to protect the wearer's nose, face, and mouth from contamination. Select the type of mask and barrier level most appropriate for the planned task and expected degree of exposure. The mask should completely cover the mouth, nose, and chin and should fit snugly. There should be no gaps at the sides of the mask. Use a clean, new mask for every procedure. Discard and replace the mask if it becomes wet or soiled. Do not wear a used mask hanging around your neck. Used masks are considered contaminated and might cross contaminate your clothes.¹

Use mouth pieces, bags, or other devices to ventilate the patient during resuscitation. These devices allow team members to perform cardiopulmonary resuscitation while minimizing the risk for exposure to the patient's oral fluids and respiratory droplets.¹



When respiratory protection is needed, wear a surgical N95 or higher-level respirator approved by the National Institute

for Occupational Safety and Health (NIOSH). A NIOSH-approved N95 respirator removes 95% of airborne particles under worst-case testing. A surgical mask is not considered respiratory protection. It is loose-fitting and designed to protect the environment from potential contaminants released by the wearer. It does not provide a reliable level of protection from inhaled airborne particles. The Centers for Disease Control and Prevention (CDC) recommends that health care personnel wear fit-tested N95 or higher respiratory protection when caring for patients with airborne transmissible infections. Always follow the manufacturer's IFU when putting on a respirator and perform a seal check for each use. When worn in combination with other PPE (eg, gloves, gown, eye protection), the respirator should be removed last.¹



The use of powered air-purifying respirators, or PAPRs, may be indicated for respiratory protection against certain airborne-transmissible diseases. However, use of PAPRs may present a risk of contaminating the surgical field. PAPRs use battery-powered blowers that filter air intake to protect the team member wearing the device, and exhaled air is not filtered. Unfiltered exhaust from the PAPR may contribute to increased levels of air contamination in the OR and might increase the risk for surgical site infections. The health care organization should determine whether PAPRs may be used when a sterile field is present, in accordance with state and federal regulations and the PAPR manufacturer's IFU.¹

When gross contamination can be reasonably expected (eg, during orthopedic surgery), wear a fluid-resistant surgical hood and shoe covers or boots.¹

Removal of Personal Protective Equipment

Remove PPE as soon as possible after exposure to blood, body fluids, or other potentially infectious material, and remove all PPE before leaving the work area.¹

The CDC provides two examples of sequences for removal of PPE. Regardless of the method, the outer surface of gloves,



the outer surface of goggles and face shields, the front and sleeves of gowns, and the front of masks and respirators are considered contaminated. Team members should immediately perform hand hygiene if hands come into contact with a contaminated area during removal of PPE.¹⁰

In the first example, the gloves are removed first.

1. Grasp the gloved hand with the opposite gloved hand and peel off the first glove.
2. Discard the glove into an appropriate waste receptacle or hold the removed glove in the gloved hand.
3. Slide the fingers of the ungloved hand under the remaining glove at the wrist and peel off the second glove over the first glove.
4. Discard the gloves in a waste container.
5. Remove the goggles or face shield from the back by lifting the head band or earpieces.
6. If the item is reusable, place it in a designated receptacle for reprocessing. If it is not reusable, discard it in a waste container.
7. Unfasten the gown ties, making sure that your sleeves do not contact your body.
8. Pull the gown away from your neck and shoulders, making sure to touch only the inside of the gown.
9. Turn the gown inside out.
10. Fold the gown or roll it into a bundle and discard it in a waste container.
11. Grasp or untie the ties or elastics of the mask or respirator, then grasp the opposite elastics or ties.
12. Remove the mask or respirator without touching the front.
13. Discard the mask or respirator in a waste container.
14. Perform hand hygiene after removing PPE.¹⁰

In the second example, the gloves and gown are removed together.

1. Grasp the gown in front and pull it away from your body, pulling hard enough to break the ties. Be sure to touch the outside of the gown with only your gloved hands.
2. Remove the gown, folding or rolling it inside out into a bundle.
3. Peel off the gloves as you remove the gown. Be sure to touch only the inside of the gloves and gown with your bare hands.
4. Place the gown and gloves into a waste container.
5. Remove goggles or a face shield from the back by lifting the head band. Be sure to avoid touching the front of the goggles or face shield.
6. If the item is reusable, place it in a designated receptacle for reprocessing. If it is not reusable, discard it in a waste container.
7. Grasp or untie the ties or elastics of the mask or respirator, then grasp the opposite ties or elastics.
8. Remove the mask or respirator without touching the front.
9. Discard the mask or respirator in a waste container.
10. Perform hand hygiene after removing PPE.¹⁰

Additional Precautions

Transmission-based precautions in addition to standard precautions are recommended for patients with certain diseases. See the following table.

Table 1: Additional Transmission-Based Precautions^{1,4}

Type of Precaution	Applicable Type of Organism or Disease
Contact Precautions	<ul style="list-style-type: none"> • Draining abscesses • Infectious wounds • <i>Clostridioides difficile</i> • Acute viral infection • Methicillin-resistant <i>Staphylococcus aureus</i> • Vancomycin-resistant enterococci • Vancomycin-intermediate/resistant <i>S. aureus</i> • Extended-spectrum beta-lactamase • Multidrug-resistant organism
Droplet Precautions	<ul style="list-style-type: none"> • Diphtheria • <i>Haemophilus influenzae</i> type B • Seasonal influenza • Meningococcal disease • Mumps • <i>Mycoplasma pneumoniae</i> • Group A Streptococcus • Pertussis • Adenovirus • Rubella

Airborne Precautions	<ul style="list-style-type: none"> • <i>Mycobacterium tuberculosis</i> • Disseminated herpes zoster • Rubeola • Monkeypox • Smallpox • Varicella zoster • Chickenpox
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CONTACT PRECAUTIONS

Use contact precautions when caring for patients known or suspected to be infected or colonized with pathogens that are transmitted by direct or indirect contact.¹

Wear a gown and gloves when coming into contact with a patient known to be infected or colonized with pathogens transmitted by contact or with equipment or environmental surfaces in close proximity to the patient. Put on the gown and gloves when entering the patient’s room and discard them before exiting.¹



Before transporting a patient under contact precautions, the transporting team should

1. notify the receiving team members that the patient is coming and what precautions are needed
2. perform hand hygiene
3. don a gown and gloves
4. contain and cover the infected or colonized areas of the patient’s body
5. remove and dispose of contaminated PPE
6. perform hand hygiene again¹
7. don gloves and clean and disinfect the bed rails and any controls that team members will touch during transport
8. remove the gloves and perform hand hygiene¹

Wear PPE during transport when contact with the patient is necessary (eg, for an intubated patient). Do not touch doors, elevator buttons, identification badges, or environmental

surfaces during transport while wearing contaminated PPE.¹

The receiving team should

- don gowns and gloves at the transport destination before coming into contact with the patient¹ and
- place the patient under contact precautions in a single-patient room before and after surgery whenever possible. If there is no available single-patient room, consult with an infection preventionist to determine optimal pre- and postoperative placement. Maintain a distance of at least 3 to 6 feet between patients who require contact precautions and other patients.¹

Perform enhanced environmental cleaning after caring for patients known to be infected or colonized with multidrug-resistant organisms. Use an Environmental Protection Agency-registered disinfectant effective against *Clostridioides difficile* spores after caring for patients known or suspected to have a *C difficile* infection.¹

Clean and disinfect noncritical equipment (eg, IV pumps, ventilators, computers) between uses for patient care and handle them in such a way as to prevent personal exposure or environmental contact with potentially infectious material.¹

Instruct the patient's visitors to wear gowns and gloves in the patient's room and to perform hand hygiene when entering or exiting the room. Patients' visitors have frequent contact with other visitors and patients in common areas. Observing contact precautions and performing hand hygiene may reduce the risk for transmission of pathogens.¹

DROPLET PRECAUTIONS



Use droplet precautions when caring for patients known or suspected to have infections transmitted by respiratory droplets that can be generated by coughing, sneezing, or talking.¹

Put on a mask when entering the room of a patient who requires droplet precautions. Masks can prevent the transmission of large droplets and can protect team members in close proximity to the patient. Wear a NIOSH-approved, fit-tested surgical N95 or higher respirator when performing procedures that generate aerosols (eg, bronchoscopy, endotracheal intubation, suctioning the respiratory tract).¹

Before transporting a patient under droplet precautions, the transporting team should

- notify the receiving team that the patient is coming and that droplet precautions are required and
- have the patient wear a mask and follow respiratory hygiene and cough etiquette during transport when possible.

Perioperative team members are not required to wear masks during transport.¹

The receiving team should place patients under droplet precautions into single-patient rooms before and after surgery when possible to minimize the risk for transmitting the infection to other patients.

If there is no available single-patient room, consult with an infection preventionist to determine optimal placement, and maintain a distance of at least 3 to 6 feet between patients requiring droplet precautions and other patients. Close the door or curtain to the patient's room whenever possible.¹

Special air handling and ventilation are not required. Use routine cleaning methods to clean environmental surfaces and equipment after caring for a patient under droplet precautions.¹

Instruct the patient's visitors to wear masks in the patient's room and to perform hand hygiene upon entering or exiting the room. Visitors may be exempted from wearing a mask if they have had significant exposure to the patient and are not ill themselves.¹

Patients often require a combination of both contact and droplet precautions. For these patients, observe all the interventions required for both sets of precautions.¹

AIRBORNE PRECAUTIONS

Elective surgery should be postponed for a patient with suspected or confirmed airborne-transmissible disease until the patient is no longer infectious. If surgery cannot be postponed, it should be scheduled when a minimum number of perioperative team members are present and at the end of the day whenever possible. Scheduling the patient at the end of the day allows more time for removal of airborne contamination from the OR.¹

Use airborne precautions when caring for patients known or suspected to be infected with airborne-transmitted pathogens.¹

Put on a NIOSH-approved, fit-tested, surgical N95 or higher respirator before entering the room of a patient under airborne precautions.¹

Before transporting a patient under airborne precautions, the transporting team should notify the receiving team that the patient is coming and that airborne precautions are required. If a patient has skin lesions associated with varicella or draining skin lesions caused by *M tuberculosis*, cover the affected areas before transport. Have the patient wear a mask and follow respiratory hygiene and cough etiquette during transport if possible. If a patient in an airborne infection isolation room (AIIR) requires a surgical procedure, transport the patient directly to the OR and bypass the preoperative area.¹

After the procedure, transfer the patient directly to an AIIR in the postanesthesia care unit or in another inpatient unit. Perioperative team members are not required to wear a mask or respiratory protection during transport if the patient is wearing a mask.¹

If an AIIR is available, a patient under airborne precautions should be placed in it preoperatively, intraoperatively, and during postoperative recovery. The door to the AIIR should be kept closed, and traffic into and out of the room should be kept to a minimum.¹

Requirements of an AIIR include

- monitored negative pressure relative to the surrounding area,
- 6 air exchanges per hour for existing facilities,
- 12 air exchanges per hour for new construction and renovation, and
- air that is exhausted directly to the outside or recirculated through a high-efficiency particulate air (HEPA) filter before returning.⁴

If cough-inducing procedures (eg, intubation, extubation, bronchoscopy) are performed in an OR on a patient under airborne precautions, access to the OR should be restricted until 99% of airborne particles have been removed. The amount of time required to remove 99% of particles will vary depending on the ventilation system. Team members who must enter the room before 99% of particles have been removed should wear respiratory protection.¹

Instruct the patient's visitors to wear masks while in the patient's room and to perform hand hygiene when entering and exiting the room. The visitor may wear an N95 respirator.



However, the respirator is most effective when the mask is fit tested and the wearer is trained in respirator use. Visitors may be exempted if they have significant documented exposure (eg, household contact) to the symptomatic patient and are not ill themselves.¹

REPORTING EXPOSURES

Report all exposures, including needle sticks and exposures to blood, as soon as they occur. Follow the policies of your health care organization when reporting exposures.¹

Wash your hands and skin with soap and water or flush your mucous membranes with water as soon as possible, preferably immediately, after coming into direct contact with blood, body fluids, or other infectious materials.¹

Exposure to blood, body fluids, or other infectious materials must be documented. Follow the documentation guidelines outlined by OSHA when providing information regarding specific details of the injury or illness being recorded.²

TUBERCULOSIS SCREENING AND VACCINATIONS

Perioperative team members should receive baseline screening for tuberculosis (TB) upon hire. Follow-up testing should be performed in cases of exposure to TB. Records and results of screening should be maintained in each team member's health record.¹

The CDC recommends that health care personnel receive immunizations if they come in contact with patients that put them at risk for exposure to, and possible transmission of, vaccine-preventable diseases. Employers must make the hepatitis B vaccination series available to all perioperative team members whose work involves a reasonable risk for exposure to blood, body fluids, or other potentially infectious materials. Employers must provide postexposure evaluation and follow-up to all team members who have an exposure incident.¹

PERIOPERATIVE TEAM MEMBERS WITH INFECTIONS

Activities of perioperative team members with infections, exudative lesions, and nonintact skin should be restricted when these activities pose a risk for transmitting infections to patients and other team members. Restricting activities can reduce the risk for transmission between providers and patients, depending on the mode of transmission of the disease.¹

Team members should be assessed by an employee health nurse, infection preventionist, or physician before returning to clinical duties that involve direct patient care or handling medical devices used in operative or other invasive procedures.¹

Examples of conditions experienced by team members that may require a restriction of duties include

- acute gastrointestinal illness (eg, vomiting, diarrhea, abdominal pain),
- exudative lesions that cannot be contained (eg, eczema, impetigo),
- herpes simplex infections on the fingers or hands,
- keratoconjunctivitis or purulent conjunctivitis,
- meningococcal infections, and
- viral respiratory infections (eg, influenza, respiratory syncytial virus).¹

EDUCATION AND TRAINING

The health care organization must provide perioperative team members with training before assignment to tasks involving potential occupational exposure to blood, body fluids, or other infectious materials. Training should be provided at least annually and whenever procedures or tasks related to occupational exposure are changed.¹

Education should include

- an explanation of the modes of transmission of bloodborne pathogens,
- an explanation of the health care organization's exposure control plan,
- an explanation of the use and limitations of methods for reducing exposure, and
- information on the hepatitis B vaccine, its efficacy and safety, the methods of administration, and benefits.¹

SUMMARY

Taking appropriate precautions to prevent transmission of infectious organisms is one of the many ways perioperative team members ensure the safety of their patients. Team members must follow the OSHA Bloodborne Pathogens standard and use standard precautions for every patient. Additional precautions (eg, contact, droplet, airborne) should be implemented as needed when caring for patients with indicated diseases. Team members should wear appropriate PPE, perform hand hygiene, and promptly report any exposure to infectious material. Conscientious attention to performing transmission-based precautions is critical for protecting patients and team members.

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POST-TEST
TRANSMISSION-BASED PRECAUTIONS

Multiple choice. Please choose the word or phrase that best completes the following statements.

1. Which of the following elements of the hierarchy of controls is generally the most effective for reducing the risk of exposure to bloodborne pathogens?
 - a. Administrative controls
 - b. Eliminating the hazard
 - c. Engineering controls
 - d. Personal protective equipment
 - e. Work practice controls
2. Ten-year-old Amy is scheduled for an emergent open reduction internal fixation of a fractured right wrist. Her mother tells the perioperative RN, "Amy's little brother has chicken pox and Amy has a rash on her stomach and is probably coming down with it too." What type of precautions should the team use for Amy?
 - a. Airborne
 - b. Contact
 - c. Droplet
 - d. Universal
3. Which of the following health care scenarios requires perioperative team members to follow standard precautions?
 - a. Applying an allergy band on a patient with a skin condition
 - b. Drawing blood from a healthy patient
 - c. Handling bodily fluids of a patient showing no signs of infection
 - d. Performing resuscitation measures
 - e. All of the above
4. Which of the following injection practices is considered acceptable?
 - a. Reusing needles and syringes to withdraw medications from different single-use vials for the same patient
 - b. Reusing the same syringe to withdraw medication from a vial as long as a new sterile needle is used each time medication is withdrawn
 - c. Using a multidose vial for more than one patient if the medication is prepared in a location separated from patient care areas
 - d. Using a single-dose vial for more than one patient if a new syringe and needle is used every time medication is withdrawn
5. Which of the following statements about gloves is correct?
 - a. Gloves should cover the cuffs of the sleeves when worn with a gown.
 - b. Hand hygiene is not necessary when gloves are worn.
 - c. Latex gloves have a higher failure rate than vinyl gloves.
 - d. Nitrile gloves have a higher failure rate than polyvinyl gloves.
6. Which statement related to a perioperative team member's use of a surgical mask and eye protection is accurate?
 - a. A surgical mask and eye protection should be worn during endotracheal intubation.
 - b. A surgical mask is adequate for providing respiratory protection.
 - c. A surgical mask may be worn during care of multiple patients as long as it is not soiled.
 - d. Personal eyeglasses provide adequate eye protection during a surgical procedure.

7. When removing personal protective equipment, which of the following surfaces is considered contaminated?
 - a. The outer surface of gloves
 - b. The outer surface of goggles
 - c. The front of the gown
 - d. The front of the mask
 - e. All of the above

8. Which of the following items of personal protective equipment is required when caring for a patient placed on contact precautions?
 - a. Mask
 - b. Eye protection
 - c. Gown and gloves
 - d. Respiratory protection
 - e. All of the above

9. What is the minimum distance that should be maintained between a patient who is placed on droplet precautions and other patients?
 - a. 3 feet
 - b. 6 feet
 - c. 9 feet
 - d. 12 feet
 - e. 15 feet

10. If a cough-inducing procedure is performed in the OR on a patient who has been placed on droplet precautions, access to the OR should be restricted until what percentage of airborne particles has been removed?
 - a. 50%
 - b. 65%
 - c. 75%
 - d. 99%

POST-TEST ANSWERS
TRANSMISSION-BASED PRECAUTIONS

- 10. d*
- 9. b*
- 8. c*
- 7. e*
- 6. a*
- 5. a*
- 4. c*
- 3. e*
- 2. a*
- 1. b*