



General Orientation AY 2023-2024

Infection Control and Blood Borne Pathogens in the Healthcare Setting

The healthcare setting can be a dangerous place. Patients, families, and healthcare workers may bring the infections into the healthcare setting, or patients may develop infections based upon their immunocompromised status or care delivery practices. Anyone working in the healthcare environment can potentially come in contact with infectious diseases, blood or other body fluids. It is important that you know how to keep yourself, patients, and those around you safe.

Learning Outcomes:

During this component of General Orientation, you will review content that will prepare you to:

1. Apply basic strategies to control infections such as required immunizations and hand hygiene practices in the healthcare environment.
2. Review common infections found in the community & healthcare settings including Tuberculosis and bloodborne pathogens.
3. Explore the use of Standard Precautions and transmission precautions.
4. All Clinical Healthcare Roles: Distinguish appropriate practices related to the Healthcare Associated Infection (HAI) guidelines.

Documenting Completion ... The learning outcomes will be the basis of the General Orientation QUIZ if your role is required to complete a quiz. If your role only requires ATTESTATION, you will not be asked specific questions from this content. BUT you are responsible for reviewing and understanding the content for application in the healthcare setting.

Unsure of YOUR requirements, check the handout that was provided to you for accessing the online orientation.

Immunizations:

The first line of defense for infection control in the healthcare environment is to make sure that all healthcare workers have been immunized against a variety of diseases. These mandates are designed to protect you, the staff, and the patients within the healthcare facility. The Centers for Disease Control (CDC) requires all individuals working in the healthcare setting to have immunizations related to the following:

Hepatitis B	Rubella	Tetanus
Measles	Varicella	Diphtheria
Mumps	Pertussis	Yearly Influenza

Annual TB screening and education is required. Meningococcal vaccine may also be required. COVID-19 - this requirement is discussed later in this module!

Controlling Infections:

Whether patients develop with infection in the community and are then hospitalized, or develop an infection while in the healthcare setting, they must be cared for using strict procedures to minimize the infection's impact. Many infections are spread through contact. This may be through direct contact with someone with an infection, or through

contact with items they have touched. Microorganisms can live on surfaces for extended periods of time. The use of hand hygiene can protect both the patient and you.

Importance of Hand Hygiene

According to the CDC, hand hygiene is the single most important procedure for preventing the spread of infection! The prevention of infections is the responsibility of everyone in the healthcare environment! As you work in the healthcare environment, you touch many people and objects that can carry microorganisms.

When to Wash Your Hands

To protect yourself and others, always wash your hands:

- When visibly dirty or contaminated.
- Before direct patient contact.
- Before putting on gloves in preparation for an invasive procedure.
- Before eating.
- After direct patient contact with skin or body fluids.
- After contact with any objects within the patient's care area.
- After removing gloves.
- After using the restroom.

Handwashing Technique

- Consider the sink and faucet as contaminated - avoid touching them if possible. Many sinks in the healthcare environment will have sensors that automatically start the water when activated or have foot controls.
- Wet your hands with clean, running water (warm or cold) and apply soap.
- Rub your hands together to make a lather and scrub them well; be sure to scrub the backs of your hands, between your fingers, and under your nails.
- Continue rubbing your hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song from beginning to end twice.
- Rinse your hands well under running water. Point fingers down so water and contamination flow into the sink. Turn the water off using a clean, dry towel if sensors are not available.
- Dry your hands using a clean towel or air dry them.

The most commonly neglected areas of the hand when washing are the tips of the fingers, between the fingers, and the thumb. Pay close attention to these areas when washing your hands!

Using Hand Sanitizers:

Throughout healthcare settings, hand sanitizer stations are readily available to everyone. These alcohol-based hand sanitizers can quickly reduce the number of germs on hands in most situations. Many facilities will have a policy that requires anyone entering a patient care area to use the sanitizer upon going into and leaving the area. Using these sanitizers is quick and easy to do!

- Use enough gel - about the size of a quarter.
- Rub both of your hands thoroughly, including nails, until your hands feel dry.
- If your hands feel dry after rubbing together for 10–15 seconds, it is likely that an insufficient volume was applied.

Unfortunately, hand sanitizer is not as effective if hands are visibly dirty and should not be used exclusively in place of soap and water. Sanitizers also do not eliminate all types of microorganisms such as Clostridium difficile (C-diff) and potentially the Norovirus. Exposure to these organisms requires soap and water.

Hand & Nail Care

Hand & Nail Care are BOTH important for healthcare professionals. Frequent hand hygiene and the extended use of gloves can tend to dry out or chap some healthcare professionals' skin. And since fingernails can be a reservoir for microorganisms, the CDC recommends some specific guidelines related to nails!

Hand Care

Frequent hand washing and use of hand sanitizer can be hard on your hands. Inspect your hands often for cracks, cuts, and abrasions. Be sure to cover these with a waterproof dressing or covering and use gloves for patient care delivery.

The use of lotion following handwashing may prevent or lessen this chapping but can damage latex and nitrile gloves. For this reason, the CDC recommends that only water-based lotions be used in the healthcare environment as some lotions can cause glove failure and decrease the effectiveness of some cleansers.

To ensure compliance, most healthcare facilities have adopted strict policies related to hand lotions and provide hand lotion for staff that must routinely use gloves. **Hand lotion brought from home is not permitted in healthcare facilities.**

Nail Care

Pay close attention to your nails since they have the potential to trap and transfer microorganisms.

- Nail length should be no more than 1/4 inch from the fingertip.
- Artificial fingernails and nail jewelry will NOT be permitted for personnel involved in the delivery of direct patient care, food service, and central sterile supply.
- Nail polish may be worn if the polish is in good condition (not chipped or cracked), unless prohibited by dress code policies.
- Check with your supervisor to determine if, and what type, of rings are allowed in your assigned facility. Remember that the height of a ring may also impact your ability to safely wear gloves!

Common Infections from the Community

Viral infections such as Influenza, Rotavirus, Norovirus and RSV are particularly hard on the young, the elderly, and the immunocompromised. These viral diseases can be introduced to the healthcare environment via patients, visitors, or healthcare staff. **IF you are experiencing symptoms of a viral infection, stay home!**

Viral outbreaks in the community or a residential healthcare facility generally occur in the winter months but can be present at any time. Patients, residents, and staff are susceptible to these highly contagious viruses unless strict precautions are taken. The CDC provides the following information about these viral infections.

Flu

The flu is caused by influenza viruses. It can cause mild to severe illness, and at times can lead to death. Some people, such as the elderly, young children, and people with compromising health conditions, are at high risk for serious flu complications.

- Flu seasons are unpredictable in several ways. Although flu epidemics happen every year, the timing, severity, and length of the season varies from one year to another. Flu viruses are constantly changing, so it's not unusual for new flu virus strains to appear each year.
- A yearly flu vaccine for everyone six months of age and older is recommended as the first and most important step in protecting against this serious disease. These vaccines are required for all healthcare professionals or masks must be worn continuously while in the healthcare setting.
- Handwashing, cough etiquette, and droplet precautions are recommended for healthcare workers to minimize spread of the flu.

Rotavirus

Rotavirus can cause severe watery diarrhea in infants and young children, accompanied by fever, vomiting, and abdominal pain. This can lead to severe dehydration, hospitalization, and even death.

- Rotavirus is the leading cause of severe diarrhea in infants and young children worldwide. It causes more than half a million deaths each year in children younger than five years old. Rotavirus was also the leading cause of severe diarrhea in U.S. infants and young children before the vaccine was introduced for U.S. infants in 2006.
- Children are most likely to get rotavirus in the winter and spring. Rotavirus infections can also cause diarrhea in adults who care for children, in older adults, and in adults who are traveling.
- Handwashing is a primary preventative measure but not enough to control the spread of the disease.

Norovirus

Norovirus is the most common virus in adults, where the rotavirus is most common in young children and infants - although anyone can become ill from either.

- Noroviruses are a group of viruses that affect the stomach and intestines, causing gastroenteritis. Symptoms start suddenly and most commonly include stomach cramps, vomiting, and diarrhea.
- Noroviruses are the most common cause of gastroenteritis in the United States. The CDC estimates that more than 20 million cases of acute gastroenteritis are caused by noroviruses each year, resulting in over 70,000 hospitalizations and 800 deaths related to extreme dehydration.
- Strict handwashing with soap and water is needed to protect you from this virus.

Respiratory Syncytial Virus (RSV)

Respiratory Syncytial Virus (RSV) is a virus that can cause upper respiratory infections (such as colds) and lower respiratory tract infections (such as bronchiolitis and pneumonia).

- In children under one year of age, RSV is the most common cause of bronchiolitis. Almost all children will have had an RSV infection by their 2nd birthday. Infant immunization is available to lessen the severity of the illness.
- The elderly and adults who are immunocompromised or have chronic heart or lung disease remain at high risk for developing severe RSV disease that usually results in pneumonia.
- Handwashing and the disinfection of contaminated surfaces is critical to protecting yourself and others.

Tuberculosis

Healthcare professionals are at higher risk of TB exposure due to their interaction with patients. While the United States has one of the lowest TB case rates in the world, it is still possible to be exposed to TB while working in the various healthcare settings.

The Centers for Disease Control (CDC) and state health departments require all healthcare facilities have a TB control plan as a component of their infection control policies and procedures. This plan must have specified TB screenings and related testing for all healthcare professionals. In addition, the CDC also requires annual TB education for all healthcare professionals.

All about TB

What is TB: TB is caused by a bacterium called *Mycobacterium tuberculosis*. While TB is usually found in the lungs, it can also be found in the brain, kidneys, or even the spine. Not everyone infected with TB bacteria will become sick. There are two types of TB: Latent TB and actual TB disease. If left untreated, TB Disease can be fatal.

Type of TB: Latent TB occurs when an individual has TB Bacteria within their body but does not exhibit symptoms. Individuals with a latent TB infection:

- Will have no symptoms
- Cannot spread TB bacteria to others
- Will typically have a positive TB skin or TB blood test; a chest Xray is typically normal
- May or may not develop TB disease

TB Disease occurs when the TB bacteria are actively multiplying and overwhelm the individual's immune system. Individuals with TB disease are sick and able to spread the bacteria to others. They will also typically have a positive TB skin and blood test. They will also frequently have an abnormal chest Xray.

How TB Spreads: The TB bacteria spread through the air from one person to another through coughing, sneezing, speaking, or singing. Breathing in the TB bacteria causes it to settle in the respiratory system where it begins actively growing. MOST cases of TB are in the respiratory system and infectious to others. Typically, the bacteria spread to other individuals that are in close contact with the infected person as they breathe in the TB bacteria into their lungs.

In some instances, the bacteria travel to other parts of the body via the bloodstream. TB infections in the kidney, spine, or brain are not considered infectious or at risk for transmission to others.

TB does NOT spread by contact. Activities such as shaking hands, sharing glasses or eating utensils, touching clothing or bed linens, or any other common surface does not spread the bacteria from one person to another.

TB Risk Factors: There are two categories of individuals that are at high risk of developing TB disease: Those recently infected with the TB bacteria – AND - Those with weakened immune systems. According to the CDC, 5-10% of infected persons with normal immune systems who do not receive treatment for TB will develop TB Disease. Individuals with low body weight or those with weakened immune systems as seen in those with HIV infections, diabetes, kidney disease, post-organ transplants, and cancer are also considered high risk. Substance abusers are also more prone to develop TB disease.

TB Exposure: When exposed to the TB bacteria from someone with TB Disease, some people will develop TB Disease within a few weeks; some may not get sick until years later when their immune system may be diminished. Others may never develop TB Disease. If you have been exposed to someone with TB Disease, you will need to be screened for the TB bacteria through a skin or blood test. If you are caring for a patient with TB you will follow Airborne Transmission Precautions to protect you and others from the TB bacteria. You'll learn more about these precautions later in this module.

TB Symptoms: Individuals with TB disease typically have the following symptoms:

- a bad cough that lasts 3 weeks or longer
- pain in the chest
- coughing up blood or sputum (phlegm from deep inside the lungs)
- weakness or fatigue
- no appetite with weight loss
- chills & fever
- sweating at night

Symptoms of TB disease in other parts of the body depend on the area affected.

TB Testing: To identify the presence of TB Bacteria, there are two types of screening tests: Skin Tests and Blood or IGRA Tests. Only one form of the test is needed. The selection of the test type is often determined by test availability, cost, and the reason for the screening. Positive tests indicate that the individual has TB bacteria in their body. A chest Xray and sputum samples are required to identify if the individual has active TB disease.

Skin Tests may be done as a single test, or as a 2-step test. The 2-step is the preferred test for healthcare professional testing since it is more accurate in identifying a potential long-standing latent TB infection. Both tests require second appointments following each test to have the results read by a healthcare provider. A positive test indicates that additional screening should be done to determine if the individual is infected with the TB bacteria.

Blood Tests require a blood sample and only require a single trip to a healthcare provider. Currently, there are two approved tests: the QFT-Plus and the T-Spot. Like the skin test, a positive test indicates that additional screening should be done.

TB Treatment: While individuals with **Latent TB** are not sick and cannot spread the infection, treatment should be done to avoid the development of TB Disease in the future. Several TB medications can be used for 3-9 months to clear the TB bacteria from the individual's body. For those with **TB Disease**, it can also be treated with TB medications over 6-9 months to eradicate the bacteria. Additional treatment to support symptoms may also be indicated. Failure to complete the TB medication regime may result in the individual becoming sick again with TB Disease.

TB Vaccine: The BCG vaccine against TB is not widely used in the United States but is frequently given to children in other countries where TB is common. Individuals who were previously vaccinated with BCG may have a positive TB skin test due to the vaccination. TB Blood tests are not affected by prior BCG vaccination and should be used for these individuals when screening for TB.

TB Healthcare Professional Screening for TB: Pre-employment screening is required whenever the healthcare professional changes employers throughout their career. Screening is also required for students that go into the healthcare setting as a component of their studies. Baseline screening should include a risk assessment, TB symptom

evaluation, and a TB test (skin or blood). Subsequent annual testing is not recommended unless there is a known exposure or an increased occupational risk for exposure such as with Respiratory Therapists, Pulmonologists, and those healthcare professionals that work in an emergency or other high-risk setting.

Subsequent screening for TB symptoms should be done annually with all healthcare professionals. Testing should be done with any healthcare professional with a non-treated latent infection or if TB symptoms are present. Additional screening is required for healthcare professionals that have been exposed to an individual with TB.

Infectious Disease Emergencies

Infectious disease emergencies have been recorded all throughout history. Cholera, Measles, Polio, Smallpox, Influenza and HIV/AIDS represent examples from the 1900s. The 21st century brought us new infections: SARs (SARS-CoV) in 2003, H1N1 influenza in 2009, and MERS (MERS-CoV) in 2014. Fall 2014 also brought the Ebola virus to the United States and created an acute awareness that most hospitals were not equipped to deal with a wide-reaching infectious disease outbreak. In 2015, the Zika virus epidemic impacted many countries in North and South America. In late 2019, the SARS-Cov2 virus was identified in China and began to infect millions with the COVID-19 disease.

COVID-19 Pandemic

In 2020, the world faced the COVID-19 pandemic. This pandemic tested the readiness of our country to manage a major infection control emergency. Globally, millions of people were infected, and billions of dollars spent to provide healthcare to patients with COVID-19.

Throughout our country, businesses closed, and "Safer at Home" sent most citizens to their homes to shelter in place against the virus. While many individuals had minimal symptoms, others experienced acute respiratory failure. Some areas of the United States exceeded their healthcare capacity creating the need for portable hospitals to be deployed to care for the patient surge.

Healthcare professionals all over the country were impacted – either in providing care to overwhelming numbers of critically ill patients or furloughed due to low patient numbers related to the postponement of all non-emergent procedures and surgeries.

Worldwide, millions have died of COVID-19, including many healthcare professionals who cared for these patients. COVID-19 patients in varying numbers continue to be with us, although the impact on daily lives and numbers of patients have decreased significantly.

COVID-19 Vaccinations

While there is still a presence of the COVID-19 virus, the overall disruption has lessened throughout the US and the world. Vaccines have proven to be effective for most individuals as they are now widely available to the general population. Breakthrough infections are still being reported, but these are generally from mutated strains of the original virus and present with milder symptoms and fewer side effects, and long-term complications.

Healthcare organizations across the US require that all healthcare professionals must be fully vaccinated or have a medical/religious exemption on file. This includes employees, students, faculty, healthcare professional travelers, and any contractors that enter the healthcare environment.

If you have questions about YOUR vaccination or exemption status, please discuss this with your school or the facility's HR department for additional clarification of the current mandates and how they have been implemented in your specific facility.

Protecting Yourself & Others

While you've already learned about the importance of Hand Hygiene, Standard & Transmission Precautions and Personal Protective Equipment (PPE) are additional critical skills for all healthcare professionals anytime, but particularly in an infectious disease emergency. These will be reviewed in subsequent slides.

You will be given specific instructions by facility leadership and infection control professionals related to any infectious disease emergency. Depending upon your role, you may or may not be allowed to care for COVID-19 or other highly infectious patients.

For COVID-19 patients, expect to utilize masks, gloves, face shields, and other protective equipment. Frequent handwashing is also required to minimize the spread of this potent virus to others.

During infectious outbreaks, most facilities will screen healthcare professionals are also screened for symptoms when entering work areas for their assigned shift. If you have any questions about how and when to utilize PPE when interacting with infectious patients, always check with your supervisor!

Blood Borne Pathogens

According to the OSHA, "bloodborne pathogens are infectious microorganisms in human blood and/or body fluid that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV). You can be exposed to bloodborne pathogens in the healthcare setting through needlesticks and other sharps-related injuries. Transmission may also occur through eye, nose, or mouth contact; or through contact with an infected patient's blood or body fluid (through non-intact skin) in any setting. Although most exposures to healthcare workers do not result in an infection, it can happen! OSHA mandates create a safer place to work and to care for patients!

Blood OSHA's Blood Borne Pathogen Requirements

The Occupational Safety & Health Administration (OSHA) monitors exposure of healthcare workers to blood borne pathogens and has issued standards to protect healthcare workers in all settings from the risk of exposure to blood and other potentially infectious material. OSHA requires that all healthcare organizations must:

- Require the use of Standard Precautions to minimize exposure to blood borne pathogens.
- Provide Personal Protective Equipment (PPE).
- Use sharps disposal containers, needle-less systems, and other devices that promote safe practices.
- Identify policies and procedures that reduce the risk of exposure.
- Use labels and signs to communicate hazards.
- Provide information and training to workers.
- Establish a written exposure plan that addresses specific procedures to follow when exposure occurs. This plan must also address ongoing monitoring of exposures, including trending and analysis, and be reviewed and/or updated yearly.

Standard Precautions

Standard Precautions are based on the idea that all blood, bodily fluids, secretions, excretions other than sweat, non-intact skin, and mucous membranes may contain transmissible infectious agents. These precautions apply to all patients, regardless of suspected or confirmed infection status. **Always be cautious when there is a chance of contacting a patient's bodily fluids or waste, or sharps that have been used during patient care.**

In addition to hand hygiene, standard precautions include six other prevention strategies to protect you and patients in the healthcare setting! These other components of the CDC's Standard Precautions include:

1. Sharps safety
2. Respiratory Hygiene or Cough Etiquette
3. Safe handling contaminated items and environmental surfaces
4. Use of personal protective equipment (PPE)
5. Safe injection practices (using aseptic technique for parenteral medications)
6. Medication storage and handling

Sharps Safety

Sharps in the healthcare environment include needles, knife blades, and any other medical device that could puncture or break the skin. Used sharps are considered contaminated and should be handled with extreme care to prevent exposure to blood borne pathogens. Safe disposal of these devices is critical!

- Sharps containers are located throughout a clinical facility to provide easy access to a safe place for discarding needles and other sharps related to patient care delivery.
- To reduce the likelihood of an accidental needlestick or cut, contaminated sharps should not be transported from one area to another.
- Care should be taken when inserting objects into a sharps container. Containers that have lids that will not close or have sharps protruding from the top should be immediately sealed and discarded.

Respiratory Hygiene

According to the CDC, Respiratory Hygiene or "Cough Etiquette" is targeted at any person with signs of respiratory illness - especially in a healthcare facility.

Practices include:

- Covering coughs and sneezes with your sleeve rather than your hands.
- Using tissues to contain respiratory secretions and disposing of them in the nearest waste receptacle after use.
- Performing hand hygiene after having contact with respiratory secretions or contaminated objects.
- Offering masks to persons who are coughing.
- Encouraging coughing persons to remain at least three feet away from others when possible.

Safe Handling of Contaminated Items

Equipment or items in the patient environment likely to have been contaminated with blood or bodily fluids must be handled appropriately to prevent transmission of infectious agents.

- Use gloves for direct contact with personal articles.
- Disinfect or sterilize reusable equipment.
- Use special biohazard bags to contain heavily soiled items.
- Treat these bags and containers cautiously and discard them as medical waste.

In keeping with Standard Precautions, all linen - once it enters a patient room - is treated as contaminated. Linen should be bagged, not placed in a chair, on the floor, or carried next to your body. Be sure to check with your supervisor for specific policies related to linen disposal in your assigned clinical facility. Always use care in handling soiled linen and linen bags.

Personal Protective Equipment (PPE)

Personal Protective Equipment should be used to provide barrier protection in patient care areas where the risk for contamination is present. PPE includes the following protective equipment listed below. Depending upon the situation, you may be required to wear all components or just selected equipment appropriate for the situation.

****If you are a non-clinical healthcare professional, you may or may not need to utilize PPE in your interactions with patients or in your assigned work role. The most used PPE that you may need to use would be gloves. ****

Gloves – Gloves are the most used PPE! Gloves are worn for three important reasons in healthcare environments:

1. To provide a protective barrier and prevent gross contamination when touching blood, body fluids, secretions, excretions, mucous membranes, and non-intact skin;
2. To reduce the transfer of microorganisms on the hands of healthcare providers to patients during invasive or other patient-care procedures; and
3. To reduce the spread of microorganisms from one patient to another.

Gloves must be changed between patients and should ***not*** be used in place of handwashing. You should wash your hands or use hand sanitizer after gloves are removed. Do not wear gloves for extended periods when not providing direct patient care. The moisture that builds up underneath gloves can facilitate growth of microorganisms. Gloves should be removed with care, turning them inside out during removal to avoid touching the outside of the gloves.

Hair Covers - Hair covers are used during procedures and patient-care activities likely to generate splashes of blood, bodily fluids, secretions, or excretions. They are also used during surgical or sterile procedures to protect the patient.

Face Shield – Various types of masks, goggles, and face shields are worn alone, or in combination, during procedures and patient-care activities that are likely to generate splashes or sprays of blood, bodily fluids, secretions, or excretions.

Mask – Two types of masks are used to protect your mouth and nose:

1. The surgical mask fits loosely over your nose and mouth and is held in place by loops over your ears or ties.
2. The N95 respirator mask is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles, as well as protect the wearer from splashes. The N95 respirator requires a proper fit to your face which should be validated with your supervisor.

Gown – Gowns or aprons are used to protect your clothing from contamination from splashes or when coming in contact with potentially contaminated articles such as linens or other patient items. Make sure the gown fits snugly around your wrist.

Shoe Covers – Shoe covers are indicated when there is a chance of infectious material being tracked via shoes either into or from an area in the healthcare setting. They are used in the surgical suite or as directed when a patient is in isolation.

Disposing of PPE

When removing PPE, you should do so in the following order:

1. Gloves, turning them wrong side out as you remove them.
2. Face Shield, goggles, hair cover
3. Gown - again turning it inside out as it is removed.
4. Mask
5. Shoe covers

Always perform hand hygiene immediately after removing PPE!

Dispose of your contaminated PPE in **red** or biohazard garbage containers or bags located throughout the facility. Contaminated materials such as specimens of blood, body fluids, or potentially infectious materials (e.g., dressing materials, IV cannulas, etc.) should also be disposed of in secure containers marked with the red biohazard symbol.

Uncontaminated PPE may be disposed of in the regular trash **only** if the PPE is dry and has no visible soiling.

Glove Types & Related Allergies

Healthcare workers are at risk for developing Latex allergies due to frequent use of gloves and other patient care equipment. Check with your supervisor if you need to identify appropriate support resources for a glove allergy.

Latex Allergies – Latex gloves are used widely in the healthcare environment since they offer superior comfort and dexterity for high-risk contact with infectious material. These gloves may be worn for an extended period of time.

Individuals with a tendency for multiple allergies are at increased risk for developing a latex allergy. Latex allergies have been associated with allergies to certain foods, especially avocado, potato, banana, tomato, chestnut, kiwi, and papaya. Latex allergies often present as localized skin effects and systemic effects such as coughing, sneezing, and rashes on the face. In addition to gloves, other products in the healthcare environment MAY contain latex. If you are allergic to latex, alert your supervisor.

Vinyl Allergies – Vinyl gloves are a popular choice for food service workers and situations where high levels of durability and protection are less of a priority. These gloves have a much looser fit and can be used for short-term, low-risk tasks. Vinyl gloves are prone to leakage after being used for about an hour and are the most prone to punctures and tears. Allergic reactions to vinyl gloves are rare. Usually, the problem is contact urticaria, which is a simple skin irritation caused by perspiration and lack of ventilation inside the glove. If a skin reaction occurs, it is important to determine if the reaction is to vinyl gloves or potential leakage.

Nitrile Allergies – Nitrile gloves mold well and offer a high level of sensitivity. They last for extended periods of time and are the most puncture-resistant gloves. These gloves provide protection in high-risk situations with infectious materials. Allergic reactions to nitrile gloves are less common than reactions to natural latex. Symptoms often present as chronic dermatitis on the wrists and back of hands. If you have a latex allergy you should choose Nitrile gloves when you need PPE.

Transmission Precautions

Transmission Precautions as identified by the CDC are used when the route of infectious transmission is not completely interrupted using Standard Precautions alone. There are three types of infection control transmission precautions:

Contact (for diseases spread by direct or indirect contact), Droplet (for diseases spread by large particles in the air), and Airborne (for diseases spread by small particles in the air).

Standard Precautions should be strictly used for any patient with additional Transmission Precautions. Always ASK if you are unsure about how to use Transmission Precautions.



Role-Specific Information:

As a non-clinical healthcare professional, if a precautions sign instructs you to use additional PPE, always seek guidance from a clinical care provider. Non-Clinical Health Care Professionals skip to the “Typical BBP Policies”

All other Healthcare Professionals, please review each of the Precautions below.

Contact Precautions

- Used with patients that have an infection that can be spread by contact with the person’s skin, mucous membranes, feces, vomit, urine, wound drainage, or other body fluids; or by contact with equipment or environmental surfaces that may be contaminated by the patient or their secretions and excretions.
- Examples of infections or conditions requiring contact precautions: VRE, RSV, diarrheal diseases, C Diff, MRSA, pressure ulcers.
- Required PPE: At a minimum, wear a gown and gloves. Additional PPE may be indicated and will be noted on the transmission precaution signage.
- Use disposable, single-use or patient-dedicated, noncritical care equipment such as thermometers, stethoscopes, and blood pressure cuffs.

Airborne Precautions

- Used for patients having an infection that can be spread over long distances when suspended in the air. These disease particles are very small and require special respiratory protection and room ventilation.
- Examples of infections or conditions that require airborne precautions: chickenpox, measles, and tuberculosis.
- Required PPE: Wear an N95 mask and gloves.
- Place patient in an airborne infection isolation room – a single-person room that is equipped with special air handling and ventilation capacity.

Droplet Precautions

- Used for patients with infections that can spread through close respiratory or mucous membrane contact with respiratory secretions.
- Examples of infections or conditions that require droplet precautions: influenza, meningococcal meningitis (not viral or pneumococcal), pertussis (“whooping cough”), and rhinovirus (the “common cold”).
- Required PPE: Wear a mask and gloves.
- A single patient room is preferred. If not available, spatial separation of more than three feet and drawing the curtain between beds is especially important.
- Patients on droplet precautions who must be transported outside of the room should wear a mask and follow respiratory hygiene and cough etiquette.

Typical BBP Policies

All healthcare organizations will have policies that prevent eating, drinking, applying cosmetics or lip balm, and handling of contact lenses in patient and work areas that are designed to protect both patients and healthcare workers. In addition, dress codes are established to protect healthcare providers who may encounter blood and/or body fluids. Examples include requirements for closed-toe shoes and lab coats in certain areas. Be sure and review these policies as they apply to your healthcare role!

Needlestick Injuries

Most reported needlestick injuries involve nursing staff - but EMS, laboratory staff, physicians, sterile processing, housekeepers, and laundry processors are all at risk for this type of injury and potential exposure to blood-borne pathogens.

The most frequent injuries are related to:

- Needles attached to disposable syringes & butterfly-type intravenous needles
- Recapping of needles
- Transferring body fluids between containers
- Improper disposal of used needles in a non-puncture-resistant container.

If you get stuck by a sharp, immediately wash punctures and cuts with soap and water. If you are splashed with a bodily fluid in the nose, mouth, or on the skin, flush with water. If the body fluid splashes in your eyes, irrigate them with clean water, saline, or another sterile irrigant.

After washing or flushing the exposure area, contact your supervisor IMMEDIATELY! Additional actions will be taken for your protection. You will also need to complete an incident or accident report concerning your exposure.

Dealing with Blood & Body Fluid Spills

No matter how careful you are with blood and body fluids, spills can and do happen. Most spills are blood-related, but all body fluid spills require immediate action! If your role is not responsible for cleaning spills, always alert the clinical staff if you find a spill!

Small Spills - If you encounter a small spill, clean it up quickly to prevent further contamination. Follow these guidelines:

- Apply gloves.
- Use something to soak up the blood/liquid, like paper towels.
- Discard fluid soaked material in a red biohazard bag.
- Disinfect the area with facility-approved disinfectant.
- Remove gloves and discard in red bag.
- Wash hands.

For Large Blood Spills –

- Contain the spill as much as possible.
- Notify your supervisor. They will be able to assist you in notifying the appropriate person or department that a blood or body fluid spill has occurred and needs to be cleaned.

Exposure to Blood/Body Fluids

Following any blood or body fluid exposure, all facilities require that a paper or electronic incident/accident report be completed to document the exposure. Be sure to check with your supervisor for specific instructions. Typical information that will be reported can include, but not limited to:

- Names and roles of all individuals involved
- Type and brand of device involved or causing the exposure
- Location where the exposure occurred
- Explanation of how the exposure occurred
- Route of exposure (skin, eyes, mouth, etc.)
- Work practices and PPE used at the time of the exposure



Role-Specific Information:

Non-Clinical Health Care Professionals skip to the “Conclusion” on the last page of this document.

All other Healthcare Professionals, please continue with Safe Preparation & Administration of Medications below.

Safe Preparation and Administration of Medications

Strict rules apply to medications that are designed to be injected into a patient. These parenteral medications are generally stored as single-dose and multi-dose vials, ampoules, bags or bottles of intravenous fluids. If your role includes the administration of these medications, be sure and review the facility policies and procedure with your supervisor prior to preparing or administering medications.

Safe Injection Practices & Needleless Systems

Reducing the risk of needlesticks for healthcare professionals is a critical component of Standard Precautions. Manufacturers of needles used in the healthcare setting now are required to provide devices that do not require recapping of needles. Seen in needles used for intramuscular and intravenous access, these devices include a system that recaps the needle after use without requiring the provider to thread the needle into a needle cover. In addition, needleless devices are used throughout the healthcare setting that allow for the collection of body fluids or supply fluids to a patient after initial venous or arterial access is established.

Preventing Infections in the Healthcare Setting

According to the CDC, on any given day about one in 31 hospital patients has at least one healthcare-associated infection. These infections, known as HAIs, are acquired while patients are receiving healthcare treatment for other conditions. HAIs are related to care delivery and can be devastating or even deadly. The CDC reports that, "The most common HAIs are urinary tract infections, surgical site infections, pneumonias, and bloodstream infections.

These infections generally occur when patients are in a compromised state from underlying medical conditions, surgery, or have indwelling medical devices such as urinary and IV catheters. While these infections can be serious in all patients, they can carry potentially lethal outcomes for immunocompromised patients."

Controlling HAIs

HAIs are taken very seriously in the healthcare environment. The CDC and The Joint Commission's National Patient Safety Goals both focus on preventing these infections. Specific initiatives and guidelines for the prevention of the following HAIs are required in the various healthcare settings.

- Catheter-Associated Urinary Tract Infection (CAUTI) Guideline Summary
 - Use indwelling catheters only for appropriate indications and leave in place only as long as needed. Catheters should not be used for the management of incontinence.
 - Catheters should be inserted using aseptic technique and with sterile equipment.
 - Maintain a closed drainage system, using standard precautions, for any manipulation of the catheter or collection system.
 - Maintain unobstructed urine flow.
- Central Line-Associated Bloodstream Infection (CLABSI) Guideline Summary
 - Occurs when bacteria or viruses enter the bloodstream through a central IV line such as a subclavian IV, portacath, PICC line, or umbilical catheter.
 - Healthcare providers should use sterile technique when inserting and caring for central lines.
 - Each healthcare organization has specific guidelines for the dressing and routine care of central line catheters. Be sure to follow these guidelines if you are caring for a patient with a central line catheter.
- Multi-Drug Resistant Organisms (MDRO) Guideline Summary
 - Prevention of antimicrobial resistance depends on clinical practices related to optimal management of vascular and urinary catheters, prevention of lower respiratory tract infection in intubated patients, accurate diagnosis of infectious etiologies, and judicious antimicrobial selection and utilization.
 - Some of the deadliest MDROs include:
 - Vancomycin-Resistant Enterococci (VRE)
 - Methicillin-resistant Staphylococcus Aureus (MRSA)
 - Multi-Site Resistant Gram-Negative Bacilli (GNB)
 - Use Contact and Standard Precautions with all patients infected with MDROs.

Not familiar with these infections? According to the CDC ...

VRE:

- Enterococci are bacteria normally present in the human intestines and the female genital tract that are often found in the environment. These bacteria can sometimes cause infections.
- Vancomycin is an antibiotic that has been used extensively to treat some other drug-resistant infections caused by enterococci. In some instances, enterococci now have become resistant to this drug and are called vancomycin-resistant enterococci (VRE).
- Most VRE infections occur in hospitals and are found as infections of the urinary tract, the bloodstream, or of wounds associated with catheters or surgical procedures.

MRSA:

- Methicillin-resistant Staphylococcus aureus, or MRSA (pronounced "mersa"), is a type of staph bacteria that is resistant to methicillin and other more common antibiotics such as oxacillin, penicillin, and amoxicillin.
- In the community, most MRSA infections are skin infections.

- MRSA in healthcare settings usually causes more severe and potentially life-threatening infections, such as bloodstream infections, surgical site infections, or pneumonia. The signs and symptoms will vary by the type and stage of the infection.

GNB:

- Some types of gram-negative bacilli are becoming resistant to all, or nearly all, antibiotics. This means that patients with infections from these bacteria might have few or no treatment options.
- Two types of these resistant bacteria are carbapenem-resistant Enterobacteriaceae (“CRE”) and multidrug-resistant (MDR) Acinetobacter.
- Infections from CRE and MDR Acinetobacter occur in patients in healthcare settings and have high death rates.

Conclusion

As you have learned, infection control and protecting yourself and others from infection and blood-borne pathogens is extremely important in the healthcare environment.

You are responsible and can put your patients, other staff, and yourself at risk if you do not follow the practices outlined in this module and any supplemental information provided by the facility. If you have any specific questions, please talk with your supervisor! Always use caution when dealing with blood and body fluids. If you are unsure – **Ask!**

Remember that there will be content from this material and opportunities to apply what you've learned in the General Orientation Quiz if your role requires a quiz to document completion!