INFECTION PREVENTION AND CONTROL FOR CLINICAL STAFF

Compliance Series

INFECTION PREVENTION AND CONTROL FOR CLINICAL STAFF

Expanded Course

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Minute Mandatories®

Click here to take the shorter course

Course Introduction

Course Introduction_1 of 37

Disease can potentially spread from person to person in health care facilities. To stop this spread, infection prevention and control measures are put into place, guided by the recommendations of the Centers for Disease Control and Prevention (CDC) and the Occupational Safety and Health Administration (OSHA).

Designed for clinical staff, this course describes the role of this facility in infection prevention and control, the precautions used in this facility, and the protective

measures that are available to workers of this facility.

Are you familiar with this?
If you just need a refresher, the Minute Mandatory lesson summarizes the main points of the course and can be accessed by clicking the Minute Mandatories button at the top of this page.

Expanded Course

Course Learning Objective_2

After completing this course, you should be able to describe basic infection prevention and control in health care facilities and explain your role in infection prevention and control.

Responsibility: A Reminder_3

Knowledge of infection prevention and control measures is very important. In the end,

though, this knowledge will protect you only if you are committed to applying this knowledge in your day-to-day work. It is the responsibility of each team member to understand his or her risk of exposure to infectious materials and how to protect himself or herself.

Review of Key Terms_4

Before you begin this lesson, please review some frequently used terminology:

Airborne Infection Isolation Room (AIIR)
Formerly, negative pressure isolation room, an AIIR is a single-occupancy patient-care room used to isolate persons with a suspected or confirmed airborne infectious disease.

Centers for Disease Control and Prevention (CDC)
Recognized as the leading federal agency for protecting the health and safety of people at home and abroad, providing credible information to enhance health decisions, and promoting health through strong partnerships.

Centers for Medicare & Medicaid Services (CMS)
The Centers for Medicare & Medicaid Services (CMS) is an agency within the U.S. Department of Health & Human Services responsible for administration of several key federal health care programs. In addition to Medicare (the federal health insurance program for seniors, people with end-stage renal disease, and those with disabilities) and Medicaid (the federal needs-based program), CMS oversees the Children's Health Insurance Program (CHIP), the Health Insurance Portability and Accountability Act (HIPAA), and the Clinical Laboratory Improvement Amendments (CLIA), among other services.

engineering controls
Control measures that isolate or remove a hazard from the workplace (e.g., sharps disposal containers).

health care-associated infections
Infections that a patient contracts while receiving care, treatment, and services in a health care facility; also referred to as health care-acquired infections.

Occupational Safety and Health Administration (OSHA)
Established under the Occupational Safety and Health Act of 1970, OSHA functions within the U.S. Department of Labor to set and enforce workplace safety and health standards.

other potentially infectious materials (OPIM)
Materials that may carry pathogens that can potentially cause serious diseases. These materials include human body fluids (e.g., semen, vaginal secretions, cerebrospinal fluid, synovial fluid, and any body fluid that is visibly contaminated with blood), unfixed tissue or organs, and HIV/HBV/HCV-containing cell or tissue cultures.

pathogen
An agent that can cause disease.

personal protective equipment (PPE)
Special clothing and equipment meant to protect against contact with bloodborne pathogens and other potentially infectious material (OPIM).

powered air-purifying respirator (PAPR)
A motorized system powered by a battery pack that draws air through a filter or cartridge to provide respiratory protection to the wearer.

sharps
Any object that can cut, puncture, or go through the skin. For instance, needles, scalpels, broken glass, knives, and blades are all sharps.

standard precautions
Expand the concept of universal precautions to include other communicable diseases besides bloodborne pathogens. Standard precautions assume that certain areas of the body carry disease-causing pathogens, which, if spread to others, could cause disease. These areas include mucous membranes, moist areas of the body, broken skin, anything wet coming from the body, and any medical devices that drain fluids from the body. Standard precautions are used for all patient care. They are based on a risk assessment and make use of commonsense practices and personal protective equipment that protect health care providers from infection and prevent the spread of infection from patient to patient.

transmissible infections
Infections caused by pathogens that are easily spread to and from health care workers.

transmission-based precautions
Used when patients are infected with or are suspected to be infected with a disease whose pathogens easily spread from person to person. Precautions beyond standard precautions are needed to stop this spread in health care facilities. There are three types of transmission-based precautions: airborne precautions, contact precautions, and droplet precautions.

tuberculosis (TB)
A disease that can be passed from one person to another; caused by a germ called *Mycobacterium tuberculosis*. As a rule, it affects the lungs, but it may also affect other parts of the body, such as the brain, kidneys, or spine. The TB germ in the lungs and the body's response to it cause tissue damage and the signs and symptoms of TB, such as cough, weight loss, or fever. It may also cause the phlegm that is coughed up to be bloody.

universal precautions
An approach used in infection prevention and control. Universal precautions treat all blood and other potentially infectious materials as if they are known to be infected with bloodborne diseases.

work practice controls
Practices to isolate or decrease the risk of exposure to infection in the workplace. These include procedures used with standard and transmission-based precautions, hand hygiene, safe disposal of contaminated materials, and housekeeping practices.

Lesson 1: The Basics of Infection Prevention and Control in Health Care Facilities

Topic 1: The Role of the Facility in Infection Prevention and Control

Topic 1 Learning Objective_5

After completing this topic, you should be able to identify issues related to the role of the facility in infection prevention and control, including basics of infection prevention and control, facility infection prevention and control policies and procedures, engineering controls, regulated waste, and work practice controls.

The Basics of Infection Prevention and Control_5

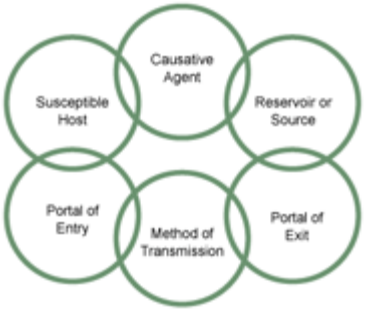


Figure 1. The Chain of Infection: If one link of the chain is broken, infection cannot be transmitted.

In order for a disease to go from person to person:

- The pathogen causing the disease must have a way to get out of the sick person.
- The second person must then come in contact with the pathogen.
- Finally, the pathogen must find a way into the second person.

When this happens in a health care facility, it is called a health care-associated infection. Infection prevention and control measures stop this chain of events. There are many efforts on the part of the facility to address infection prevention and control issues.

Figure 1 shows the chain of infection. Click on the image to view it.

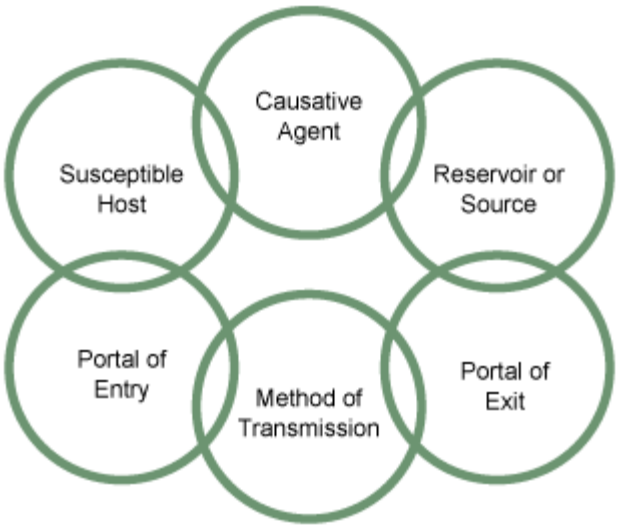


Figure 1. The Chain of Infection: If one link of the chain is broken, infection cannot be transmitted.

Facility Infection Prevention and Control Efforts_6

Health care facilities have a major role to play in infection prevention and control. This facility keeps track of infections among staff and patients. If there is an outbreak of disease, they take action to control this outbreak. This facility also puts infection prevention and control programs into place as needed. For instance, they provide training to health care workers, as well as screening, vaccines, and treatment programs to address diseases that can be spread from person to person.

Policies and Procedures_6

This facility also provides written policies and procedures for infection prevention and control. All health care workers have access to these policies and procedures, which clearly explain the infection prevention and control methods used by this facility. If you are ever unsure about how to protect yourself, you may consult these policies and procedures. You may also ask your supervisor for guidance.

Engineering Controls_6

As part of its infection prevention and control responsibilities, this facility also provides engineering controls. Engineering controls work to remove a hazard from the workplace. Engineering controls may be as simple as the use of a sharps container for used needles to protect workers and others from disease spread through contact with blood. They may also be complex, such as negative pressure-venting systems for isolation rooms. Whether simple or complex, engineering controls stop the spread of infection by making the workplace safer.

Regulated Waste_7

An important issue in infection prevention and control is dealing with regulated waste. Regulated waste refers to contaminated items that could release blood or OPIM when you handle them. It also refers to contaminated sharps, pathological wastes (such as human tissues), and microbiological wastes (such as cultures and culture dishes) that contain blood or OPIM.

Dealing with Regulated Waste_7

Regulated wastes must be bagged in leakproof plastic bags that are printed with the biohazard symbol. This bagging system prevents the wastes from coming into contact with patients, workers, and visitors. Used sharps are to be placed in puncture-resistant containers.

The biohazard symbol is a universal symbol placed on any container or area that may contain regulated waste. Biohazard signs are always red or orange and include the biohazard symbol.

Work Practice Controls: Workplace Issues_8

Work practice controls isolate or decrease the risk of exposure to infection in the workplace. General housekeeping is an important work practice control. When considering general housekeeping, cleaning schedules vary according to:

- The area of the facility
- The type of surface to be cleaned
- The type of soil present

Be sure to follow the cleaning schedule put into place by your facility.

The cleaning and disinfection of *all* patient care areas is important. In particular, frequently touched surfaces are most likely to be contaminated, especially those located close to the patient, such as bed rails, bedside tables, commodes, doorknobs, sinks, and equipment. If you have questions about general housekeeping, ask your supervisor.

Figure 2. Suggested Times to Change Gloves

Remember to use appropriate hand hygiene before applying and after removing gloves. Never touch environmental surfaces with a contaminated glove.
Change gloves:
• Before giving any client care
• After giving any client care
• Immediately before touching mucous membranes
• Immediately before touching nonintact skin
• Immediately after touching secretions or excretions
• Immediately after touching blood or bodily fluids
• After touching equipment or environmental surfaces that are potentially contaminated
• Any time your gloves are torn
• If your gloves become visibly soiled

You will decrease your risk of contact with disease-causing pathogens if you contain, remove, and disinfect all blood or body fluid spills as quickly and effectively as possible. Be sure to use gloves and other proper personal protective equipment (PPE).

Figure 2 shows suggested times to change gloves. Click on the image to view it.

Figure 2. Suggested Times to Change Gloves

Remember to use appropriate hand hygiene before applying and after removing gloves. Never touch environmental surfaces with a contaminated glove.
Change gloves:
• Before giving any client care
• After giving any client care
• Immediately before touching mucous membranes
• Immediately before touching nonintact skin
• Immediately after touching secretions or excretions
• Immediately after touching blood or bodily fluids
• After touching equipment or environmental surfaces that are potentially contaminated
• Any time your gloves are torn
• If your gloves become visibly soiled

Work Practice Controls: Worker Issues_9

In workplace settings where contact with disease-causing pathogens is likely, do not apply cosmetics, lip balm, or contact lenses. Do not eat, drink, or put objects in your mouth while you are in such settings.

Food and drinks must be stored separately from blood or OPIM.

Work Practice Controls: Needles and Other Sharps_9

Injuries due to needles and other sharps have been associated with the transmission of the hepatitis B virus, hepatitis C virus, and HIV/AIDS to health care personnel. Do not recap, bend, break, or hand-manipulate used needles. Use safe sharps whenever possible and activate the safety device immediately after use. Dispose of used sharps in a puncture-resistant container, and remember to never overfill sharps disposal containers.

Topic 2: Precautions Used for Infection Prevention and Control in Health Care Facilities

Topic 2 Learning Objective_10

After completing this topic, you should be able to define the roles of standard and transmission-based precautions in infection prevention and control and give examples

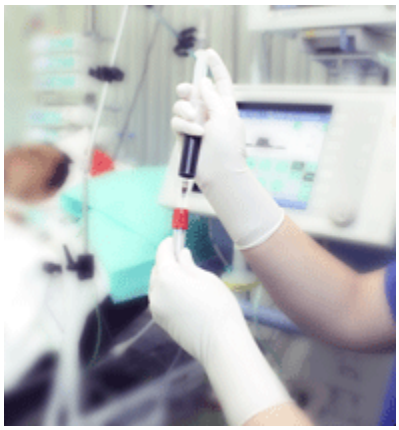
of each type of precaution.

Standard and Transmission-Based Precautions_10

Another way this facility protects workers and others from the spread of infection is through the use of standard and transmission-based precautions. These precautions help workers to avoid contact with blood and OPIM that may carry pathogens that cause disease.

Standard precautions are used by all health care workers with all patients. Standard precautions expand the concept of universal precautions to include other diseases that are spread from person to person besides those spread by contact with the pathogens in blood. The intent of standard precautions is to protect the health care worker and all patients from pathogens that cause disease.

Standard Precautions: Protecting Yourself and Others_11



Using personal protective equipment (PPE) is important in stopping the spread of infection. If health care workers are at risk of coming into contact with blood, body

fluid, secretions, and excretions (except sweat), non-intact skin, or mucous membranes, they should wear PPE. PPE includes gloves, masks, eye protection, and face shields that protect workers' mucous membranes. PPE also includes gowns that protect workers' skin and clothing from becoming soiled. PPE is further discussed in Lesson 2.

Standard Precautions: Areas of Protection_11

Standard precautions have now been revised to include three new areas of protection:

- Respiratory hygiene and cough etiquette
- Safe injection practices
- Infection prevention and control practices for special lumbar puncture procedures

These areas are further explained on the following screens.

Respiratory Hygiene and Cough Etiquette_12

The elements of respiratory hygiene and cough etiquette include the education of health care facility staff, patients, and visitors. Also, signs that provide instructions for patients and their visitors should be posted and be available in languages appropriate to the population served. The following source control measures are part of the etiquette as well:

- Covering the mouth and nose with a tissue when coughing
- Disposal of used tissues
- Use of surgical masks on the coughing person as appropriate
- Hand hygiene after contact with respiratory secretions
- Spatial separation of more than 3 feet from persons with respiratory infections, which can be accomplished through such measures in common waiting areas for persons with respiratory infections (for pandemic diseases and other airborne-transmitted viruses, the safe distance is considered to be 6 feet)

Safe Injection Practices_13

The elements of safe injection practices include the use of a sterile, single-use, disposable needle and syringe for each injection given and the prevention of the contamination of injection equipment and medication. Single-dose vials are preferred over multiple-dose vials, when possible, especially when medications will be administered to multiple patients. It is important for all health care workers to understand and adhere to these recommended practices and to the basic principles of infection prevention and control and aseptic technique.

Infection Prevention and Control Practices for Special Lumbar Puncture Procedures_13

The additional protection of a face mask for individuals who perform special lumbar puncture procedures is now recommended. Health care workers should use masks for all procedures that involve the insertion of catheters or injection of material into spinal or epidural spaces via lumbar puncture procedures. Examples of these procedures are myelograms and spinal or epidural anesthesia.

Remember, standard precautions should be used by all health care workers with all patients. These steps can protect you and the patient from germs that can cause disease.

Transmission-Based Precautions_14

Transmission-based precautions are used when patients have or are suspected to have infections or growths of pathogens that spread easily from person to person. Measures beyond standard precautions are needed to stop these infections or growths from spreading to others. Transmission-based precautions include airborne, droplet, and contact precautions and are always used in addition to standard precautions.

Transmission-Based Precautions: Patient Needs_14

Patients with highly infectious conditions may be placed on transmission-based precautions, also referred to as isolation, as appropriate. It is important to remember that it is the pathogen and not the patient that is being isolated. The patient continues to have basic needs that must be met. Think about these needs when providing care. Organize your workload so you will be able to spend time with the patient during daily care. Encourage the patient who is in isolation to contact friends and family by phone.

If family members visit patients in isolation, teach them how to use the precaution measures that are in place and explain how these measures stop the spread of disease.

Use of Airborne Precautions_15

Airborne precautions are an example of transmission-based precautions. They are used in addition to standard precautions when a patient's sickness is caused by a pathogen that can make its way out of the sick person when air is forced out of his or her lungs. For instance, if a person with tuberculosis coughs, sneezes, or simply talks, the pathogen that causes tuberculosis may come out into the air. Such pathogens

remain in the air and can travel through the air for a long distance. In some circumstances, airborne precautions would require the use of goggles or a face shield to prevent pathogen transmission into the eyes.

Airborne Precautions: Airborne Infection Isolation Rooms_15

Airborne infection isolation rooms (AIIR), formerly referred to as negative pressure rooms, are vital to stopping the spread of airborne pathogens. An AIIR is a single-occupancy patient-care room used to isolate persons with a suspected or confirmed airborne infectious disease. The pressure in these rooms must be less than the pressure outside of the room. This ensures that air flows into but not out of the room, keeping the pathogens in. The air from an AIIR is vented to the outside of the facility or is recirculated through a high-efficiency particulate air (HEPA) filter before returning to circulation. The door to an AIIR is to be kept closed at all times.

Airborne Precautions: Protecting Yourself and Others_15

To protect yourself and others from the spread of infection when you enter an AIIR, you must wear a fit-tested N95 or higher particulate-filtering respirator mask certified by the National Institute for Occupational Safety and Health (NIOSH) or a powered air-purifying respirator (PAPR) hood. Please follow your facility's guidelines for fit testing. Particulate respirators will be further discussed in Lesson 2 in the PPE section.

If the patient must be transported out of the room, you should place a surgical mask on him or her, if possible.

Use of Droplet Precautions_16

Droplet precautions are another example of transmission-based precautions. They are used when a patient's sickness is caused by a pathogen that can make its way out of the sick person when air is forced out of his or her lungs. Again, if the patient coughs, sneezes, or even simply talks, the pathogen may come out into the air.

The difference between airborne and droplet precautions is that droplets contained by droplet precautions are larger and therefore unable to remain in the air or travel through air for a long distance. In fact, they generally travel only 3 feet or less. However, for pandemic diseases, such as the flu and novel coronaviruses, the safe distance is considered to be 6 feet. Because these pathogens do not travel, a room with negative pressure and outside venting is not needed.

Droplet Precautions: Protecting Yourself and Others_16

To protect yourself and others from the spread of infection when working with a patient who is under droplet precautions, you must:

- Apply standard precautions.
- Wear a mask whenever you are working within 3 feet of the patient.
- For pandemic diseases such as the flu and COVID-19, wear a minimum of an N95 mask or better.

If the patient must be transported, you should provide him or her with a mask if possible.

Using Contact Precautions_17

Contact precautions are another example of transmission-based precautions. They are used in addition to standard precautions if a patient has an infection or has a growth of pathogens that can be spread through contact.

Contact may be direct, as when the skin of the patient touches the skin of the worker, or it may be indirect, as when a worker comes in contact with a patient care item that has been contaminated with pathogens.

Contact Precautions: Protecting Yourself and Others_17

To protect yourself and others from the spread of infection when working with a patient who is under contact precautions, you must:

- Apply standard precautions.
- Wear a gown and gloves to enter the room.
- Always use dedicated patient equipment (e.g., a disposable thermometer).
- Remove your gloves and gown and perform appropriate hand hygiene before leaving the room.

Multidrug-Resistant Organisms_18

Standard and transmission-based precautions protect health care workers, patients, and others from many types of pathogens, including pathogens that are multidrug resistant. An example of a multidrug-resistant organism (MDRO) is methicillin-resistant *Staphylococcus aureus*. You may have heard of it as MRSA. Another example of an MDRO is vancomycin-resistant enterococcus, or VRE.

C. difficile, sometimes referred to as *C. diff* by health care workers, is a spore-forming gram-positive anaerobic bacillus that has been commonly identified as the causative agent of antibiotic-associated diarrhea. This same pathogen is a major cause of health care-associated diarrhea. Prevention of the transmission of *C. difficile* focuses on the use of contact precautions for patients with excessive diarrhea; rigorous cleaning of patient rooms, often using a bleach solution; and consistent hand hygiene.

It is very important to use soap-and-water hand hygiene for patients who have been diagnosed with *C. difficile,* instead of using alcohol-based hand rubs. Since *C. difficile* is spore-forming, soap and water is the recommended method for the mechanical removal of spores from the hands. It is important to remind patients and their visitors of the need to perform soap-and-water hand hygiene.

Multidrug-resistant organisms do not respond to usual treatment. Health care workers can become infected by or become carriers of these pathogens. Workers who are infected show the signs and symptoms of the disease, but carriers do not. Both those who are infected and carriers can spread the disease from person to person. If this facility's infection prevention and control staff sees an increase in infections caused by multidrug-resistant organisms, additional precautions specific to a particular patient may be taken.

Topic 3: Hand Hygiene: The Basis of Infection Prevention and Control

Topic 3 Learning Objective_19

After completing this topic, you should be able to define *hand hygiene* and describe the proper techniques to use with soap and water and with alcohol-based hand rubs.

Hand Hygiene_19

Health care workers must practice good hand hygiene because clean hands are the single most important factor in preventing the spread of pathogens and antibiotic resistance in health care settings. Wearing gloves does not replace hand hygiene.

For proper hand hygiene:

- Workers must perform appropriate hand hygiene after touching blood, body fluids, secretions, excretions, and items that have been contaminated by these fluids.

- If gloves were worn, workers must perform appropriate hand hygiene before they don their gloves and right after they remove their gloves.
- Workers must also perform appropriate hand hygiene when going from one patient to the next.

Guidelines for Hand Hygiene_20

Because hand hygiene is so important to infection prevention and control, health care workers must be familiar with these basic guidelines:

- Both soap and water or alcohol-based hand rubs may be used for hand hygiene.
- If you can see that your hands are soiled, you should always wash your hands with soap and water.
- You may use an alcohol-based hand rub when your hands are not visibly soiled.

Soap and Water_20

Washing with soap and water is a basic element of hand hygiene. Wash your hands with soap and water if they are visibly soiled or if you do not have access to an alcohol-based hand rub.

When washing your hands with soap and water, use the following technique:

- Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
- Lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
- Scrub your hands for at least 20 seconds. Need a timer? Hum the “Happy Birthday” song from beginning to end twice.
- If your hands were contaminated, wash at least 1 inch above this area.
- Rinse your hands well under clean, running water.
- Dry your hands using a clean towel or air dry them.

Alcohol-Based Hand Rubs_21

It is often appropriate to use alcohol-based hand rubs as part of proper hand hygiene. When using approved alcohol-based hand rubs:

- Apply the product to the palm of one hand (using the volume recommended by the manufacturer), and rub your hands together.
- Be sure that you cover all the surfaces of your hands and fingers.
- Rub your hands together until they are dry.

Be aware that alcohol is flammable; store hand rub away from fire or flames.

Other Hand Hygiene Issues_21

To maintain good hand hygiene, health care workers should be aware of the following:

- Keep natural nails short.
- The CDC recommends that artificial nails should not be allowed in high-risk patient areas, such as surgical services or intensive care units. Most health care facilities do not allow the use of artificial nails in any patient care areas. Please check with your facility's policy regarding the use of artificial nails.
- When you are preparing to give patient care, you should gather all equipment after performing hand hygiene and before touching the patient.

Lesson 2: Protection for Health Care Workers

Review of Key Terms_22

Before you begin this lesson, please review some frequently used terminology:

exposure control plan (ECP)
A plan required of employers by OSHA that outlines the steps employers must take to provide protection against bloodborne pathogens. The ECP includes exposure determination; procedures for protecting workers (standard precautions, vaccines for workers, PPE, hazard communications, workplace practices); medical follow-up and evaluation when workers are exposed to bloodborne diseases; and means by which employers receive input from workers about effective engineering controls, including safer medical devices. Ask your supervisor for access to this facility's ECP.

fit testing
Testing of a respirator for proper fit. Fit testing is required prior to initial use, whenever a different respirator face piece is used, and at least annually thereafter. Additional fit test is required whenever the worker reports, or the supervisor makes visual observations of, changes in the worker's physical condition that could affect respirator fit (e.g., facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight).

postexposure evaluation
An evaluation that tests both the source and the worker after an exposure has occurred. Counseling and treatment are offered for positive test results.

tuberculosis (TB)
A disease that can be passed from one person to another; caused by a pathogen called *Mycobacterium tuberculosis*. As a rule, TB affects the lungs, but it may also affect other parts of the body such as the brain, kidneys, or spine. The TB pathogen in the lungs and the body's response to it causes tissue damage and the signs and symptoms of TB such as cough, weight loss, or fever. It may also cause the matter that is coughed up to be bloody.

Topic 1 Learning Objective_23

After completing this topic, you should be able to define personal protective equipment (PPE), and describe the proper use of gowns, masks, respirators, face shields, and gloves.

Personal Protective Equipment (PPE) _23

Personal protective equipment (PPE) is provided based on an assessment of the hazards of exposure to pathogens in each work area.

In order to protect areas of the body, you must always check your PPE for damage each time you use it.

In order to control the spread of infection, the areas of the worker that need to be protected are the hands, face, and body or garments. If disposable PPE is damaged, dispose of it. If reusable PPE is damaged, follow your facility policy in reporting this damage and replacing the PPE.

Enhanced PPE (full-body coverage) is required when caring for patients with viral hemorrhagic fevers, such as Ebola. Other viruses, such as COVID-19, require the use of an N95 mask or greater as well as a face shield or goggles in addition to other standard PPE. Consult the policies and procedures of your health care facility for guidance in donning and removing PPE. Check with your supervisor if you have questions about the proper use of PPE.

Coronavirus (COVID-19) Outbreak: Precautions_24

Health care workers are among the first who might be exposed to COVID-19. Facilities should have guidelines in place to manage individuals with known or suspected COVID-19 infection.

COVID-19 is highly contagious and is believed to transmit mostly through respiratory droplets, but there is uncertainty as to whether the virus can be transmitted by touching a surface or an item that is contaminated. A thorough understanding of the routes of virus transmission will be essential for patients' and health care professionals' safety.

Droplets have the greatest risk of transmission within 3 feet (91.44 cm), but they may travel up to 6 feet (183 cm) from their source. Limit the transportation of patients with COVID-19 whenever possible. If a patient needs to be transported, he or she should wear a surgical mask during transport along with following current CDC recommendations.

Donning and Removing PPE_25

According to the CDC, certain sequences should be followed when donning and removing PPE. When using more than one piece of PPE, don the equipment in the following order: (1) gown, (2) mask or respirator, (3) goggles or face shield, and (4) gloves.

When removing PPE, remove the equipment in the following order: (1) gloves, (2) goggles or face shield, (3) gown, and (4) mask or respirator.

Additionally, be sure to:

- Keep the hands away from the face.
- Work from clean to dirty.
- Limit the surfaces touched.
- Change gown or gloves when torn or heavily contaminated.
- Perform hand hygiene.

Click here to view the correct donning of PPE.

Donning PPE–Step 2

Tie the gown at neck and waist.

Donning PPE–Step 3

Place the mask or respirator over your face. Tie the mask or respirator at the middle back of your head and neck.

Donning PPE–Step 4

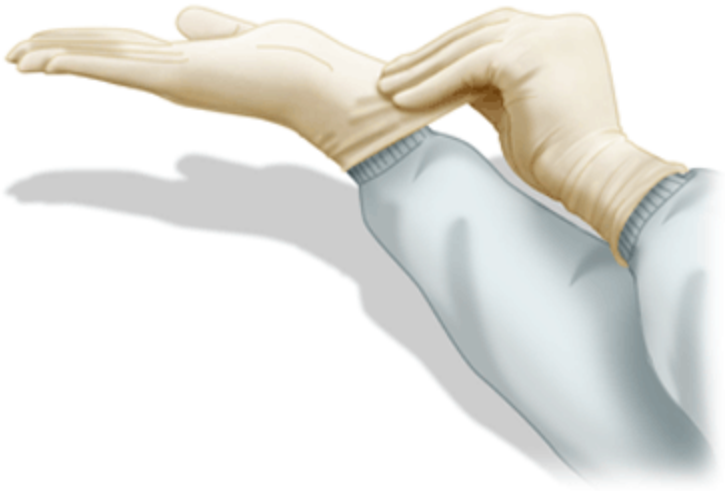
Be sure the mask or respirator fits snugly over the bridge of your nose.

Donning PPE–Step 5

Place the goggles or face shield over your eyes and adjust to fit.

Donning PPE–Step 6

Don the gloves. If wearing a gown, be sure the gloves cover the wrists of the gown.



Gowns_26

As part of your infection prevention and control responsibility, wear a gown when your clothing could be soiled with blood or other potentially infectious material (OPIM). Be sure to choose the correct gown that meets your needs. For instance, you may need to have a gown that is fluid resistant if you are likely to come in contact with a large amount of blood or OPIM or splashes or sprays of blood or OPIM.

Gowns may be worn to keep pathogens from being spread from a patient's room to another part of the facility. For instance, you may need to have a gown that is fluid resistant if you are likely to come into contact with blood or OPIM.

Removing a Gown_26

When you use a gown, it is essential to remove it without contaminating yourself or your clothing. The outside of the gown is considered to be unclean. Therefore, when you remove the gown, be sure to contain the pathogens by folding it so that the inside of the gown (which was against your body) is on the outside of the removed gown.

1. Remove gloves. (Remember that the gown front and sleeves are contaminated.)
2. Unfasten waist and neck ties of gown.
3. Pull gown away from neck and shoulders, only touching the inside of the gown.
4. Turn gown inside out.
5. Fold or roll gown into a bundle and discard. (Remember to always keep hands inside the gown.)
6. Perform hand hygiene.

Click here to view correct gown removal.

Removing a Gown–Step 1

Remove gloves.

Removing a Gown–Step 2

Unfasten waist and neck ties of gown.

Removing a Gown–Step 3

Pull gown away from neck and shoulders, only touching the inside of the gown.

Removing a Gown–Step 4

Turn gown inside out.

Removing a Gown–Step 5

Fold or roll gown into a bundle and discard.
Remember to always keep hands inside the gown.

Removing a Gown–Step 6

Perform hand hygiene.

As part of your infection prevention and control effort, it may be necessary to wear a mask and goggles or face shield. Wear a mask that covers your nose and mouth as well as goggles or a face shield if you are at risk of coming into contact with splashes or sprays of blood or OPIM.

If you perform cardiopulmonary resuscitation (CPR), use a CPR mask to protect the patient and yourself. Remember to use a mouthpiece resuscitation bag or another ventilation device to prevent contact with mouth or oral secretions.

Surgical masks can protect workers from many diseases, but they do not protect workers from tuberculosis (TB). A patient with TB will be placed in an airborne isolation room. OSHA requires that you don a fit-tested respirator or PAPR hood before you enter an airborne isolation room.

Respiratory Protection_28

Respiratory protection requires the use of a respirator with N95 or higher filtration or a PAPR hood to prevent inhalation of infectious particles. OSHA requires all U.S. employers in all employment settings to implement a program to protect employees from inhalation of toxic materials. The basic components of a respiratory protection program include medical clearance to wear a respirator; provision and use of appropriate respirators, which includes fit-tested, NIOSH-certified N95 or higher particulate-filtering respirators; education on respirator use; and periodic reevaluation of the respiratory protection program.

Fit Testing Respirators_28

Fit-tested respirators are essential for preventing the spread of airborne pathogens such as TB. OSHA requires annual fit testing of respirators. This facility will fit check the appropriate respirator on each worker.

During the fit check, each worker must know how to:

- Don and remove the respirator correctly.
- Perform fit checks, also known as user-seal checks, prior to each use.
- Correctly store the respirator between uses.

When using a PAPR hood, fit testing is not required.

Fit Testing Respirators and the Employee Health Department_29

This facility's Employee Health Department has many responsibilities in regard to fit testing respirators. Members of the Employee Health Department:

- Conduct fit testing of workers so workers will be equipped with respirators that fit properly.
- Instruct workers on how to perform fit checks.
- Assist workers with respirator selection and use.
- Teach workers about the hazards, risks, and limitations of respirators.
- Maintain records listing which respirator a worker is approved to use.

Before you enter the room of a patient in airborne isolation, you must don a fit-tested respirator or a PAPR hood.

Disposable Respirators_29

Consider the following in regard to proper use of disposable respirators:

- You may reuse a disposable respirator unless the respirator is damaged or soiled or has been contaminated with blood or body fluids, but for no longer than one shift.
- At the end of the shift, all disposable respirators must be discarded.
- Health care workers must not share respirators.
- Prior to each use, you must always check to make sure the fit is not compromised by a change in shape.
- Check with your supervisor if you have questions about this facility's specific guidelines for using, managing, and disposing of respirators.

Gloves_30

Gloves are an essential element of infection prevention and control. It is critical to be aware of the following considerations:

- Wear gloves any time you are at risk of coming into contact with blood or OPIM.
- Your gloves should cover your wrists, and if you have donned a gown, the gloves should cover the cuffs of your isolation gown.
- Gloves are made for one-time use and must be properly removed and disposed of after a single use.

Using Gloves_30

When using gloves, follow these procedures:

- Perform hand hygiene before putting gloves on.
- When performing more than one invasive procedure on the same patient, change your gloves between each procedure to prevent contaminating another body part, piece of equipment, or environmental surface.

Removing Gloves_31

To protect yourself and others, you must remove gloves so that the inside part of the glove is turned toward the outside. This is because the outside of the glove is soiled, and taking the gloves off inside out will keep the pathogens contained within the gloves.

Be sure to dispose of the gloves properly; immediately afterward, perform hand hygiene.

Keep in mind that wearing gloves does not replace hand hygiene, the most basic factor in infection prevention and control. During use, your gloves may develop small holes that you cannot see; pathogens may then grow quickly on your gloved hands.

Topic 2: Exposure Control Plan

Topic 2 Learning Objective_32

After completing this topic, you should be able to define *exposure control plan*, state the role of vaccines in the exposure control plan, and describe how to respond to bloodborne exposure and respiratory disease exposure.

OSHA and the Exposure Control Plan_32

OSHA requires employers to develop an exposure control plan. This plan provides protection for all health care workers who might be exposed to pathogens that cause disease in the workplace.

Your facility's exposure control plan and employee health policies explain how to report an exposure and the kinds of medical follow-up that are available.

OSHA requires that a health care worker be told about the postexposure evaluation and the follow-up actions taken.

Vaccines_33

Because health care workers may be exposed to pathogens in the normal course of their work, one infection prevention measure is the use of vaccines. There are several different types of vaccines. Each type is designed to teach your immune system how to fight off certain kinds of germs and the serious diseases they cause. This means that if you come in contact with a microbe that you have been immunized against, you are protected from that microbe.

For instance, the hepatitis B vaccine protects workers from the virus that causes hepatitis B. OSHA requires that the hepatitis B vaccine be available at no cost to all health care workers who may be exposed to blood or OPIM.

A blood test may need to be done after completion of the hepatitis B vaccine series to check for the presence of hepatitis B antibodies, which confirms immunity.

Hepatitis B Vaccine_34

The hepatitis B vaccine is important to the protection of health care workers. Hepatitis B is a disease caused by a virus that harms the liver. This virus is spread not only through blood, but through sexual contact as well.

The hepatitis B vaccine is offered at no charge to health care workers. You cannot contract hepatitis B from the vaccine. If you elect to take the vaccine, you will be given three injections. The CDC recommends the second and third injections be given 1 and 5 months after the first injection.

Accepting the Hepatitis B Vaccine_34

You will be offered the hepatitis vaccine series upon beginning work in an area of the facility in which you risk coming into contact with the hepatitis B virus. You may elect not to receive this vaccine; however, you may request it at any time.

Other vaccines are available for other diseases. For example, immunization against influenza and COVID-19 is offered to all staff and licensed independent practitioners. Check with your supervisor for this facility's policy on preventive vaccines for health care workers.

Immediate Response to Bloodborne Exposure_35

When you have contact with blood or OPIM, you must cleanse the area right away. Use soap and water to wash exposed skin. Flush mucous membranes with water as soon as possible.

Report the exposure incident to your supervisor right away. Be sure that you know the specific steps of this facility's exposure control plan. It is important that you go through the evaluation and follow-up for the exposure. This may include a confidential medical evaluation, testing for disease, postexposure treatment to prevent disease, counseling, and evaluation of reported illness. Following an exposure, OSHA requires that a health care worker be told whether or not the source patient was infected with HIV or HBV.

Immediate Response to Respiratory Disease Exposure_35

If you are exposed to TB, your facility will have a policy in place for postexposure evaluation procedures. Employees with a previous negative TB test result should be tested immediately and retested 8 to 10 weeks after the last known exposure.

It is important that you follow the recommendations from your facility and have any required treatments and follow-up procedures.

Summary_36

Infection prevention and control is vital in keeping workers and others in health care facilities safe from the spread of disease. While the facility provides the equipment, policies, and procedures, the individual health care worker must use these on a day-to-day basis in his or her work setting.

Next Steps_36

We hope this course has been both informative and helpful. For more information, you may want to consult the sources used to prepare this course. The final screen of the course contains the bibliography.

Click the Test link or button when you are ready to complete the requirements for this course. Upon completion of the test, you can view your test results, which will give you a summary of your performance.

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Minute Mandatories®

Topic 1: Considering Sandy, Sarah, and Henry: Actions and Answers

Topic 1 Learning Objective_1

After completing this topic, you should be able to correctly identify measures that clinical health care workers need to take to address infection prevention and control in this facility.

Considering Sandy, Sarah, and Henry_1

This facility has infection prevention and control measures put into place to protect workers from diseases that spread from person to person. This course follows Sandy (a registered nurse) and Sarah (a patient care aide) as they deal with issues related to infection prevention and control. These measures must be used on a daily basis if workers are to stay safe.

How can Sandy, a registered nurse, and Sarah, a patient care aide, use these measures to stay safe while they provide care to Henry, a 55-year-old male in droplet isolation? Please answer the following questions in regard to infection prevention and control during Sandy's and Sarah's day-to-day duties.

Question 1_2

Sandy has just admitted Henry, a 55-year-old male, to the medical unit. Henry is being placed in a room with droplet precautions. Which of the following is true when considering Henry's droplet precautions?

a. All who enter Henry's room will need to wear a respirator.

b. Henry will need to be in a negative pressure isolation room.

c. Sandy will need to wear a mask if she is working within 3 feet of Henry.

d. Standard precautions are not necessary for Henry.

Incorrect. Sandy will need to wear a mask if she is working within 3 feet of Henry.

Incorrect. Sandy will need to wear a mask if she is working within 3 feet of Henry.

Correct. Sandy will need to wear a mask if she is working within 3 feet of Henry.

Incorrect. Sandy will need to wear a mask if she is working within 3 feet of Henry.

Question 2_3

Sandy has asked Sarah to assist with Henry's care. Sarah asks, "I don't understand droplet precautions. Before we go in, can you explain to me how droplet precautions differ from airborne precautions?" Which of the following is a correct response for Sarah?

a. “Droplet precautions are used for adults and older adults. Respiratory precautions are used for infants and children.”

b. “Droplet precautions are used for patients who are at risk of frequent vomiting and diarrhea, whereas respiratory precautions are for respiratory disease.”

c. “There are no differences between the two. You use the same precaution measures with both.”

d. “Unlike airborne precautions, droplet precautions are used with a pathogen that does not remain in the air and does not travel through the air for a long distance.”

Incorrect. Unlike airborne precautions, droplet precautions are used with a pathogen that does not remain in the air and does not travel through the air for a long distance.

Incorrect. Unlike airborne precautions, droplet precautions are used with a pathogen that does not remain in the air and does not travel through the air for a long distance.

Incorrect. Unlike airborne precautions, droplet precautions are used with a pathogen that does not remain in the air and does not travel through the air for a long distance.

Correct. Unlike airborne precautions, droplet precautions are used with a pathogen that does not remain in the air and does not travel through the air for a long distance.

Question 3_4

Henry put his call light on to report that he vomited in his bed. He states that he feels better now but he needs his bed cleaned. Sandy and Sarah are entering the room to provide care to Henry. Which of the following lists the correct PPE that Sandy and Sarah should wear?

a. a mask only

b. a respirator only

c. at least a mask, a gown, and gloves

d. at least a respirator, a gown, and gloves

Incorrect. Transmission-based precautions are in addition to standard precautions. If there is a risk that Sandy and Sarah will have splashes or sprays of blood or OPIM, they should also include goggles or face shields.

Incorrect. Transmission-based precautions are in addition to standard precautions. If there is a risk that Sandy and Sarah will have splashes or sprays of blood or OPIM, they should also include goggles or face shields.

Correct. Transmission-based precautions are in addition to standard precautions. If there is a risk that Sandy and Sarah will have splashes or sprays of blood or OPIM, they should also include goggles or face shields.

Incorrect. Transmission-based precautions are in addition to standard precautions. If there is a risk that Sandy and Sarah will have splashes or sprays of blood or OPIM, they should also include goggles or face shields.

Question 4_5

After providing care, Sarah states, "I've got a hole in my glove. I'm glad that it was only emesis. And it's a good thing I didn't see any blood when we were cleaning it up. At least I don't have to worry about contracting a disease." What is wrong with Sarah's statement?

a. Blood does not need to be seen in body fluids for these fluids to transmit disease.

b. Gloves purchased for infection prevention and control will not puncture.

c. There is never blood in emesis.

d. There is nothing wrong with Sarah's statement.

Correct. Blood does not need to be seen in body fluids for these fluids to transmit disease.

Incorrect. Blood does not need to be seen in body fluids for these fluids to transmit disease.

Incorrect. Blood does not need to be seen in body fluids for these fluids to transmit disease.

Incorrect. Blood does not need to be seen in body fluids for these fluids to transmit disease.

Topic 2 Learning Objective_6

After completing this topic, you should be able to summarize the major infection prevention and control practices used in health care facilities.

The Role of the Facility in Infection Prevention and Control_6

The health care facility plays a large role in infection prevention and control through the policies and procedures, engineering controls, and work practice controls that it has put into place.

Precautions Used for Infection Prevention and Control in Health Care Facilities_7

There are two levels of precautions used in this facility. Standard precautions are used by all health care workers for all patients. Additional transmission-based precautions are used, considering the way a disease spreads from person to person.

Transmission precautions are in addition to standard precautions and include:

- Airborne precautions
- Droplet precautions
- Contact precautions

Health care workers must follow standard and transmission-based precautions in order to protect themselves and others. PPE must be used to comply with precautions. Disposable thermometers and blood pressure cuffs should be left in the

patient's room. Masks must be used for airborne and droplet precautions. Enhanced PPE (full-body coverage) is required when caring for patients with viral hemorrhagic fevers, such as Ebola. Other viruses, such as COVID-19, require the use of an N95 mask or greater as well as a face shield or goggles in addition to other standard PPE. It is important to remember that patients in transmission-based precautions continue to have basic needs that must be met.

Hand Hygiene: The Basis of Infection Prevention and Control_8

Hand hygiene is vital to infection prevention and control. Health care workers may wash their hands with soap and water or with an alcohol-based hand rub unless hands are visibly soiled. If hands are visibly soiled, soap and water must be used.

When washing your hands with soap and water, you must rub your lathered hands together for 20 seconds. When using alcohol-based hand rubs, rub until your hands are dry.

Health care workers must perform hand hygiene after removing gloves and when going from one patient to the next. When you are preparing to give patient care, gather all equipment after performing hand hygiene and before touching the patient.

Coronavirus (COVID-19) Outbreak: Precautions_9

Health care workers are among the first who might be exposed to COVID-19. Facilities should have guidelines in place to manage individuals with known or suspected COVID-19 infection.

The novel COVID-19 is highly contagious and is believed to transmit mostly through respiratory droplets, but there is uncertainty as to whether the virus can be transmitted by touching a surface or an item that is contaminated. A thorough understanding of

the routes of virus transmission will be essential for patients' and health care professionals' safety.

Droplets have the greatest risk of transmission within 3 feet (91.44 cm), but they may travel up to 6 feet (183 cm) from their source. Limit the transportation of patients with COVID-19 whenever possible. If a patient needs to be transported, he or she should wear a surgical mask during transport along with following current CDC recommendations.

PPE: Gloves and Gowns_10

PPE is important in keeping health care workers safe. Click on the image to view a slideshow about donning PPE. Other considerations include:

- Gloves must be worn any time you are at risk of coming into contact with blood or other body fluids.
- When performing more than one invasive procedure on the same patient, you must change your gloves between each procedure to prevent contaminating another body part, piece of equipment, or environmental surface.
- Gowns should be worn if you are at risk of soiling your clothing with blood or other body fluids. Click here to view correct donning of PPE.
- Use caution when removing PPE to avoid contaminating yourself or others. Click here to view correct gown removal.

Donning PPE–Step 1

Hold the gown open in front of you. Slip your arms into the sleeves.

Donning PPE–Step 2

Tie the gown at neck and waist.

Donning PPE–Step 3

Place the mask or respirator over your face. Tie the mask or respirator at the middle back of your head and neck.

Donning PPE–Step 4

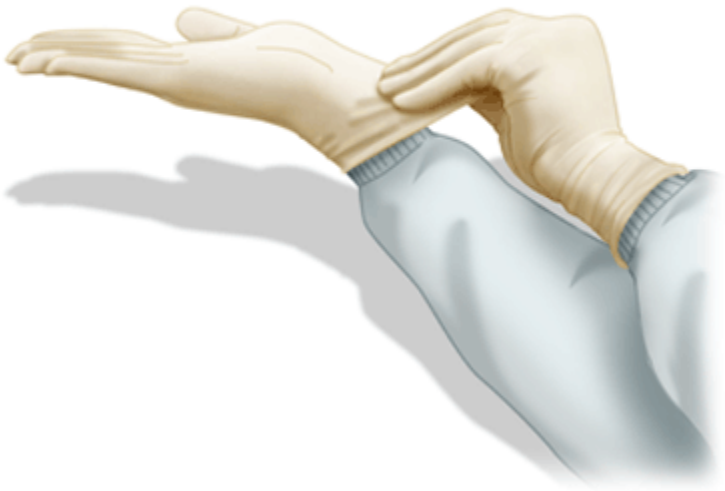
Be sure the mask or respirator fits snugly over the bridge of your nose.

Donning PPE–Step 5

Place the goggles or face shield over your eyes and adjust to fit.

Donning PPE–Step 6

Don the gloves. If wearing a gown, be sure the gloves cover the wrists of the gown.



Removing a Gown–Step 1

Remove gloves.

Removing a Gown–Step 2

Unfasten waist and neck ties of gown.

Removing a Gown–Step 3

Pull gown away from neck and shoulders, only touching the inside of the gown.

Removing a Gown–Step 4

Turn gown inside out.

Removing a Gown–Step 5

Fold or roll gown into a bundle and discard.
Remember to always keep hands inside the gown.

Removing a Gown–Step 6

Perform hand hygiene.

PPE: Masks and Respirators_11

PPE is important in keeping health care workers safe:

- Masks and goggles or a face shield must be worn if you are at risk of coming into contact with splashes or sprays of blood or other body fluids.
- Before you enter the room of a patient in airborne isolation, you must don a fit-tested respirator or a PAPR hood.
- For pandemic diseases such as COVID-19, wear a minimum of an N95 mask or better.

Exposure Control Plan_12

This facility has an exposure control plan in place. Health care workers are protected in many ways. For instance, health care workers may access the hepatitis B vaccine free of charge if they are at risk of coming into contact with blood and other body fluids.

There are specific actions you must take if you come in contact with blood or OPIM or other diseases. Be sure you know these actions and that you follow through with the

recommendations of this facility.

Summary_13

Infection prevention and control is vital in keeping workers and others in health care facilities safe from the spread of disease. While the facility provides the equipment, policies, and procedures, the individual health care worker must use these on a day-to-day basis in his or her work setting.

Next Steps_13

We hope this course has been both informative and helpful. For more information, you can review the Expanded Course path at the beginning of this course and consult the sources in the bibliography that follows.

Click the Test link or button when you are ready to complete the requirements for this course. Upon completion of the test, you can view your test results, which will give you a summary of your performance.

