



Infection control and bloodborne pathogens

Infection control remains one of the most important initiatives in any SNF. Residents must be protected from dangerous bacteria and viruses that could make them ill and even lead to death.

Three of the most difficult-to-treat bacteria in long-term care settings are methicillin-resistant *Staphylococcus aureus* (**MRSA**), vancomycin-resistant *Enterococci* (**VRE**), and *Clostridium difficile* (*C. difficile*), informally called “*C. diff.*” CNAs play a very important role in preventing the spread of these bacteria in nursing homes.

This issue will cover the **transmission methods**, **symptoms**, and **health dangers** posed by MRSA, VRE, and *C. difficile*. It will also list the best **prevention** methods and provide instructions for proper **hand washing techniques** as a frontline staff member. In addition, **bloodborne pathogens**, such as **hepatitis** and **HIV**, will be discussed in the lesson.

Have a good day of training, and stay tuned for next month’s issue of **CNA Training Advisor**, which will cover wandering and elopement.

A full 15 seconds

The transmission of dangerous bacteria in healthcare settings often occurs through physical contact—for example, when a CNA interacts with an infected resident, then assists another resident without thoroughly washing his or her hands. As a frontline caregiver, there is a lot of rushing around throughout the day, but make sure you’re washing your hands the right way: for at least 15 seconds.

Quiz answer key

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

PROGRAM PREP

Program time

Approximately 30 minutes

Learning objectives

Participants in this activity will learn how to:

- Identify the symptoms of MRSA, VRE, and *C. difficile*
- Reduce the occurrence of bacterial infections
- Properly wash their hands
- Recognize the transmission modalities of bloodborne pathogens

Preparation

- Review the material on pp. 2–4
- Duplicate the **CNA Professor** insert for participants
- Gather equipment for participants (e.g., an attendance sheet, pencils, etc.)

Method

1. Place a copy of **CNA Professor** and a pencil at each participant’s seat
2. Conduct the questionnaire as a pretest or, if participants’ reading skills are limited, as an oral posttest
3. Present the program material
4. Review the questionnaire
5. Discuss the answers

Your shortcut to compliant documentation

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INFECTION CONTROL AND BLOODBORNE PATHOGENS

MRSA and VRE are resistant to treatment with preferred antibiotics. This resistance is due in part to the excessive use and misuse of antibiotics. Once bacteria become resistant, they can quickly spread throughout a healthcare setting, such as a nursing home, where many residents are susceptible to illness.

Bacteria, fungi, and viruses can all become resistant to antibiotics, but MRSA and VRE are the most likely of this group to cause problems in the healthcare setting. While *C. difficile* is not antibiotic resistant, it is often discussed with MRSA and VRE because it is a common infection control (IC) problem in long-term care settings.

The more frequently an antibiotic is used, the more likely the bacteria it fights will become resistant. Therefore, the Centers for Disease Control and Prevention (CDC) developed recommendations to ensure that antibiotics are prescribed only when necessary.

The CDC emphasizes the following four steps in its campaign to prevent antimicrobial resistance in healthcare settings:

1. Prevent infection in the first place
2. Diagnose and treat infections when they do occur
3. Prevent transmission of the bacteria that cause infection
4. Use antibiotics wisely

Although these infections are generally treatable, they pose a danger to vulnerable populations, such as the elderly and those already ill, and they can sometimes cause death in residents whose health is already compromised.

CNAs play a big part in breaking the chain of bacteria transmission by ensuring that they keep their hands as free of bacteria as possible. Healthcare workers can spread infections from resident to resident when they fail to take proper precautions.

When a person carries bacteria but does not become ill, it is called colonization. When the bacteria infect an individual, that means the bacteria are present and making the person sick. In other words, you cannot assume you will not be infected by a person who appears healthy—or, likewise, that you can't transmit an infection to a resident without knowing it.

In the case of MRSA, VRE, and *C. difficile*, you can allow infected or colonized residents to socialize with others as long as wounds are covered, bodily fluids are contained, and proper hygiene is observed.

However, the CDC recommends that *C. difficile* residents with diarrhea be placed in private rooms so they have their own toilets. If this is not possible, place these residents in rooms with others who are similarly infected. Residents with MRSA and VRE should also be in private rooms, if possible, or with other residents with the same infection, according to the CDC.

MRSA

MRSA refers to those strains of *Staphylococcus* (often referred to as “staph”) bacteria that have become resistant to commonly used antibiotics such as oxacillin and methicillin. Staph can infect the skin or mucous membranes.

As many as 30% of healthy people carry staph bacteria on their skin or in their noses, but they are at little risk of getting sick from MRSA. These people, however, can spread the bacteria to others who are more vulnerable. Staph bacteria are most likely to affect the elderly, people who are very sick, or people who have a tube entering their bodies (e.g., a urinary or IV catheter).

Staph infections can be minor, but they may also be serious—possibly spreading to the bloodstream and leading to death.

MRSA is most often spread by physical contact, often via the hands of healthcare workers. The symptoms of MRSA include fever, a wound or skin infection, pneumonia, or other respiratory illness.

VRE

Enterococci are bacteria that live in everyone's intestines but usually do not cause illness. Some *Enterococci* have become resistant to an antibiotic called vancomycin. This makes infections caused by *Enterococci* more difficult to treat.

These bacteria cause disease when they enter the urinary tract, bloodstream, or wounds. VRE infections may be minor, marked by redness, swelling, or drainage of a small wound on the skin. Or they may be serious, spreading to the blood and possibly causing death.

Healthy people are at little risk of getting sick from VRE, but they can carry the bacteria and transmit the disease if they do not observe good hygiene practices. A VRE infection usually develops in elderly residents, those who are very sick, or those who have an open wound or tube going into the body.

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INFECTION CONTROL AND BLOODBORNE PATHOGENS

Transmission begins with direct contact with surfaces or equipment contaminated by the feces (bowel waste or stool) of an infected person. The bacteria must then be ingested orally. VRE has been found on healthcare workers' hands after five seconds of hand washing. The symptoms of VRE include fever, wound or skin infection, urinary tract infection, or other signs of infection at different sites in the body.

C. difficile

C. difficile has become a very common IC problem in healthcare facilities. When a resident takes an antibiotic, it kills bacteria in his or her intestine, which allows the *C. difficile* a chance to multiply. As the use of antibiotics has become more common, so has the presence of *C. difficile*. Infection nearly always occurs in residents on prior antibiotic therapy.

C. difficile is hardy and can survive outside the body for weeks, even months, on a variety of surfaces, such as bed rails, commodes, thermometers, and bathtubs.

Transmission begins with contact with environmental surfaces contaminated with fecal material that contains *C. difficile*—for example, bed rails, commodes, or floors. The transmission is complete when the fecal material is ingested orally. Transmission may occur from a colonized individual, such as a healthcare worker, who has cared for a colonized or infected resident and has not properly washed his or her hands before treating other residents.

Symptoms of *C. difficile* include watery diarrhea, cramping, fever, nausea, and loss of appetite.

How to control MRSA, VRE, and C. difficile

CNAs can significantly reduce occurrence rates of these infections by taking the following steps:

- Wear disposable gloves if you will have contact with bodily fluids. In the case of *C. difficile*, wear gloves while in the resident's room or when in contact with items that may be contaminated, such as clothing, bedding, and other surfaces.
- Remove and discard your gloves after caring for the resident.
- Wash your hands for at least 15 seconds with antibacterial soap when you remove gloves and after giving resident care. In the case of VRE, wash your hands for at least 20 seconds after any physical contact with an infected resident.
- Use disposable towels for turning off the water, drying your hands, and opening the bathroom door.
- Wash your hands before eating or preparing food.
- Always use utensils when eating.
- Wash an infected resident's linens frequently.
- Use a disinfectant such as diluted bleach to disinfect potentially contaminated surfaces, including bedside tables, handrails, call buttons, window sills, bedpans, and toilets.

- Wear a protective gown if you have direct contact with the resident, including during bathing or lifting, or when coming in contact with environmental surfaces that are likely to be contaminated.
- Remove your gown and discard it before leaving the resident's room.
- If the resident cannot wash his or her own hands, wash them for him or her.

Elements of infection transmission

Six elements must be present for an infection to spread. By eliminating any one of these links in the chain, you can stop the infection in its tracks:

1. An infectious agent, such as bacteria
2. A host, including a person, animal, or any item that permits organisms to grow
3. A means out of the host, such as coughing, sneezing, draining wounds, or any other outflow of blood or bodily fluids
4. A way for the organism to travel, such as in airborne droplets or on the hands of healthcare workers
5. A way into the new host, such as through the nose, mouth, or a break in the skin
6. A susceptible new host—for example, a person who lacks the ability to resist the infection

There are other factors involved in the development of an infection in a new host, including those listed below:

- A large number of bacteria are more likely to cause an infection than a small number

Infection control begins with proper hand washing

The following are some tips on hand washing:

- It is not necessary to use hot water. Comfortably warm water is just as effective.
- Soap and rub hands together for 15 seconds.
- Scrubbing excessively or using harsh cleansers can cause small breaks in the skin, which allow infectious organisms to enter the body.
- Even after washing your hands for 15 seconds and rinsing them thoroughly, they will not be completely free from infectious organisms. However, the number will be so significantly reduced that those remaining are unlikely to cause an infection if passed to another person.
- Remove your rings and other jewelry while at work and keep your fingernails short. Organisms can become trapped under them and be released later.

INFECTION CONTROL AND BLOODBORNE PATHOGENS

- Some bacteria are stronger and cause infection more easily than others
- The condition of the body's natural barrier, such as broken skin, can make the host more susceptible
- The longer an infectious agent is in contact with the new host, the more likely it will cause illness

Transmission-based precautions

In addition to the use of standard precautions to prevent the spread of infection, it may be necessary to use further measures, called transmission-based precautions. These precautions are commonly referred to as isolation and are used with highly transmissible or very severe infections.

There are three forms of transmission-based precautions: airborne, droplet, and contact. Airborne precautions are used when highly contagious organisms can be spread over a wide distance by air currents. Droplet precautions are used when coughing, sneezing, and talking spread infectious organisms. Droplets usually do not spread more than 2–3 feet from the infected resident. Masks should be worn when working within 3 feet of the resident. Contact precautions are used when the infectious organisms can be spread by contact with equipment or people. With contact precautions, gloves are worn whenever the staff member is in contact with the resident, the equipment, and the immediate surroundings. A gown should also be worn if contact with the resident is anticipated. Sometimes it is necessary to combine two forms of special precautions. For instance, it might be necessary to combine droplet and contact precautions if the resident has influenza where both droplets and secretions are possible sources of infection.

Bloodborne pathogens

A pathogen is an organism that can cause disease. A bloodborne

pathogen is a disease-causing organism that is passed through the blood of one infected person to another, such as hepatitis or HIV.

Blood that is infected with pathogens can be transmitted from one person to another through the use of infected drug paraphernalia, sexual activity (when there are even minor openings in the mucous membrane), or direct contact with an open skin area.

Hepatitis viruses cause the liver to become inflamed. The inflammation interferes with the liver's ability to function properly. The liver weighs between 3 and 4 pounds and performs over 500 different functions, including:

- Processing most of the nutrients absorbed from the intestines
- Storing blood and filtering out some harmful substances, such as drugs and alcohol
- Manufacturing nutrients, Vitamin A, certain proteins, cholesterol, and blood-clotting chemicals
- Creating bile, which is stored in the gallbladder to help in the digestion of fats

Chronic cases of hepatitis can cause scarring of the liver—a condition called cirrhosis. Chronic hepatitis can also lead to liver cancer or liver failure. It is the primary cause of the need for liver transplants in the United States.

Treatment choices for hepatitis are limited. If a resident has been exposed to hepatitis B, an injection of the hepatitis B immune globulin within 24 hours of exposure may prevent the individual from contracting the disease. A series of hepatitis B vaccines may also be recommended.

HIV attacks the body's immune system. The damage it causes to the immune system leaves the body highly susceptible to a large number of viral, bacterial, fungal, and parasitic infections. Development of certain types of cancer is also common. ■

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Mark the correct response.

Name: _____

Date: _____

1. The more frequently an antibiotic is used, the more likely the bacteria it fights will become resistant.
 - a. True
 - b. False
2. When a person carries bacteria but does not become ill, it is called _____.
 - a. replication
 - b. dormancy
 - c. inhabitation
 - d. colonization
3. Methicillin-resistant *Staphylococcus aureus* (MRSA) is most often spread by _____.
 - a. soiled linens
 - b. sharing drinks or utensils
 - c. physical contact
 - d. rodents
4. All of the following are symptoms of vancomycin-resistant *Enterococci* (VRE), except _____.
 - a. fever
 - b. diarrhea
 - c. wound or skin infection
 - d. urinary tract infection
5. *Clostridium difficile* (*C. difficile*) can only survive outside the body for 24 hours.
 - a. True
 - b. False
6. To help reduce occurrence rates of MRSA, VRE, and *C. difficile*, CNAs should _____.
 - a. wear disposable gloves if in contact with bodily fluids
 - b. wash their hands for at least 15 seconds with antibacterial soap
 - c. use a disinfectant such as diluted bleach to disinfect potentially contaminated surfaces
 - d. all of the above
7. When washing your hands, scrubbing excessively or using harsh cleansers can cause small breaks in the skin, which allow infectious organisms to enter the body.
 - a. True
 - b. False
8. Which of the following is not one of the six elements of infectious transmission?
 - a. A host, including a person, animal, or any item that permits organisms to grow
 - b. A way for the organism to travel, such as in airborne droplets or on the hands of healthcare workers
 - c. A way for the organism to survive for a certain duration outside of a host
 - d. A way into a new host, such as through the nose, mouth, or a break in the skin
9. Bloodborne pathogens are _____.
 - a. naturally occurring organisms that live in all animals' bloodstreams
 - b. found only in healthcare settings
 - c. lethal microscopic organisms
 - d. organisms that can cause disease and are passed through the blood of one infected person to another
10. Hepatitis viruses cause the _____ to become inflamed.
 - a. brain
 - b. heart
 - c. liver
 - d. stomach