

Transmission-Based Precautions

Section 1: Introduction

About This Course

This course presents the principles of transmission-based precautions and strategies to apply them in daily practice. It differentiates between transmission-based precautions and standard precautions, and identifies when and how to implement the appropriate precautions. All information is in accordance with the Centers for Disease Control and Prevention, or CDC (2007), and the Centers for Medicare & Medicaid Services, or CMS (2016) guidelines regarding infection control and prevention. Your organization will have specific policies and procedures regarding how these types of precautions are implemented, so be sure you are familiar with your organization's specific guidelines, as well.

Learning Objectives

After taking this course, you should be able to:

- Differentiate between the three types of transmission-based precautions.
- Demonstrate appropriate steps to maintain compliance with each type of transmission-based precaution.

Section 2: Standard vs. Transmission-Based Precautions

Welcome text: In this section you will learn about standard precautions and transmission-based precautions, in order to be able to differentiate between the two.

Meet Rosie

Rosie is a 54-year-old woman who has multiple sclerosis. Rosie is usually quite pleasant and cheerful, but today she seems to be very quiet. You notice that Rosie is back in bed after eating breakfast and seems to be shivering. She sneezes once and asks you to get a tissue for her. You hand her one, and after she wipes her nose, she reaches out with the tissue to hand it back to you. What should you do?

- a. Take the tissue and throw it away.

[Feedback: Actually, doing so violates the principles of standard precautions. Rather, you should ask Rosie to wait just a short moment while you grab some gloves for your hands. You should put on the gloves, take the tissue, throw it away, and then perform hand hygiene after removing your gloves before doing anything else.]

- b. Take the tissue after putting on gloves.

[Feedback: And of course don't forget to perform hand hygiene after removing your gloves before doing anything else.]

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Infection Control and Prevention

The use of standard and transmission-based precautions is a crucial element to your organization's infection control and prevention program. The purpose of using such precautions is to prevent the transmission of disease. They protect all individuals, visitors, and staff from contact with infectious agents.

Standard precautions are protective interventions that are applied to *all residents regardless of whether an infection is suspected or confirmed*. You should use standard precautions every time you think you may come into contact with:

- Blood
- Body fluids
- Secretions
- Excretions, except sweat
- Non-intact skin
- Mucous membranes of the mouth, nose, and eyes

They should also be used when you may come into contact with equipment, linen, or environmental surfaces that may be contaminated with blood, body fluids, secretions, or excretions.

Transmission-based precautions are protective interventions that are applied when an individual has a known or suspected disease caused by certain types of infectious organisms. The type of precaution applied depends on the way the organism is transmitted. Transmission-based precautions start with standard precautions as the base and then branch from there into three categories. Those categories are:

- Contact precautions
- Droplet precautions
- Airborne precautions

Before you learn about each of these three types of precautions, let's review the components of standard precautions which must also be applied when using transmission-based precautions.

They include:

- Performing hand hygiene
- Using personal protective equipment, or PPE
- Handling care equipment, linen, and sharps appropriately
- Cleaning of environmental surfaces
- Respiratory hygiene and cough etiquette

Hand Hygiene

The first component of standard precautions is hand hygiene. This includes handwashing with soap and water or using an alcohol-based hand rub, or ABHR. Hand hygiene is required:

- When you arrive for work and when you leave for the day.

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- Before touching your mouth, nose, or eyes.
- After blowing or wiping your nose.
- Before and after direct contact with someone.
- Before applying and after removing PPE.
- Before and after providing any type of care or handling an invasive medical device.
- After touching blood, body fluids, non-intact skin, and contaminated surfaces or items.
- During direct care when moving from a contaminated area of the body to a clean area.
- Before and after entering care areas identified as under isolation precautions.

There are certain situations in which you **MUST** perform handwashing with soap and water rather than using an ABHR, including:

- When your hands are visibly dirty or contaminated with blood or other potentially infectious materials.
- Before eating, preparing, handling, or serving food.
- After using the restroom or assisting another person with using the restroom.
- After performing your own personal hygiene.
- After providing care to a person with infectious diarrhea, including norovirus, salmonella, shigella, and *Clostridium difficile*, or *C. diff*.

Personal Protective Equipment

The use of personal protective equipment is another component of standard precautions. Using PPE provides an additional barrier between you and potentially infectious material. It is **NOT** a substitute for proper hand hygiene. You must always perform hand hygiene before applying and after removing PPE.

Change your PPE between tasks and procedures involving the same individual and before providing care to another person. Immediately change PPE if it becomes soiled or torn. Remove your PPE before touching non-contaminated surfaces. Dispose of PPE in the proper container according to your organization's policy.

Gloves

Gloves are used to protect your hands. Use this type of PPE when you touch or have the potential to touch blood and body fluids, mucous membranes, and non-intact skin or potentially contaminated equipment, linen, or environmental surfaces.

Facial Protection

Masks, goggles, and face shields are used to protect your eyes, nose, and mouth. Use this type of PPE in the event a splash or spray of body fluids during a task or procedure is possible.

Gown

Disposable gowns protect your arms and clothing. Use this type of PPE if there is potential for a splash or spray of body fluids during a task or procedure.

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Other Components

Sharps Injury Prevention

Caution must be used when handling needles and other sharps, such as razors, broken glass, or anything else that can break the skin. These items should be disposed of in a sharps container.

Respiratory Hygiene and Cough Etiquette

You should provide instruction to residents to cover their nose and mouth with a tissue when sneezing and coughing, and to perform hand hygiene after touching respiratory secretions. Tissues should be disposed of in a trash receptacle. Your organization may provide hand hygiene stations in common areas that contain masks, tissues, a trash receptacle, and an ABHR.

Environmental Cleaning

Contaminated environmental surfaces and care equipment can lead to the transmission of infectious organisms. These items must be decontaminated regularly, especially those that are visibly contaminated and/or frequently touched. This will include using specified cleaning agents or wipes.

Linens

You must handle, transport, and process all contaminated linens in a manner that prevents the spread of infectious organisms to another individual or surface. This will include preventing contact between your skin, mucous membranes, and clothing and contaminated linens.

Waste Disposal

You must recognize that blood, body fluids, human tissue, and single-use equipment that is contaminated by blood and body fluids is clinical waste and can harbor infectious organisms. Dispose of this waste in the proper container according to organizational policy.

Review

Let's see if you can distinguish between standard and transmission-based precautions.

Standard Precautions

Used for all residents.

Transmission-Based Precautions

Used for certain types of infectious organisms with some residents.

Summary

The purpose of using standard and transmission-based precautions is to reduce the transmission of infectious organisms to residents, visitors, and staff. Standard precautions are protective interventions that are applied to *all residents*. Transmission-based precautions are protective interventions that are applied when an individual has a known or suspected disease involving certain types of infectious organisms.

Section 3: Strategies for Practice

Welcome text: In this section you will learn about the three types of transmission-based precautions and explore strategies for implementing them into your practice.

Contact Precautions

Contact precautions are used to prevent the transmission of illnesses easily spread through contact with the resident or contaminated items in their environment. Direct contact is skin-to-skin contact that occurs when performing resident-care activities in which your hands come in contact with a resident's skin. Indirect contact occurs when you touch objects in the resident's environment, such as thermometers, telephones, and light switches that the resident has used. It also includes objects another employee has touched after being in direct contact with the resident.

Illnesses that require contact precautions include:

- Multi-drug resistant organisms such as MRSA and VRE
- Herpes simplex virus
- Scabies and lice
- diff and rotavirus

Additionally, other infectious organisms may require the use of contact precautions depending on individual resident characteristics. For example, individuals that are incontinent of bowel may need contact precautions for hepatitis A and norovirus. Remember, your organization will decide when a resident requires transmission-based precautions and communicate this information to you.

When a resident is on contact precautions, you will be required to put on gloves and a gown upon entering the room. Remove your gloves and gown and perform hand hygiene before exiting the individual's room. Be sure to then avoid touching any surfaces upon exiting the room. Remember, additional PPE may be required depending on the type of care you will be performing.

Droplet Precautions

Droplet precautions are used for illnesses that are spread through large droplets from the respiratory tract that float in the air, especially after that individual coughs or sneezes. These droplets can then land on another person's mucous membranes such as the eyes, nose, or mouth. Illnesses that require droplet precautions include serious diseases such as influenza, mumps, German measles, or rubella, and whooping cough., Additionally, diseases such as meningitis and pneumonia may require the use of droplet precautions depending on the specific organism causing the infection.

When a resident is on droplet precautions, you will be required to put on a mask upon entering the room if you will be within 10 feet of the individual. It is important for you to remember that

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additional PPE such as gloves and a gown may be required depending on the type of care you will be performing. Remove all PPE including your mask before leaving the room. Be sure to then avoid touching any surfaces upon exiting the room.

Airborne Precautions

Airborne precautions are implemented when an individual has or is suspected to have an illness that is spread through the air. These organisms can remain airborne for a prolonged period of time, over long distances, and are very contagious. Common illnesses that require airborne precautions include measles, chicken pox, shingles, and tuberculosis.

Residents on airborne precautions will require a private room that has special air pressure controls, called negative air pressure, that control the circulation of the air in the room and keep it out of the systemic, central air circulation. This is often called an airborne infection isolation room. Care must be taken to keep doors and windows to these rooms closed.

You will be required to put on an N-95 or higher respirator BEFORE entering the individual's room. Be sure you have followed your organization's procedure for fit testing of these types of respirators. Also don't forget that additional PPE such as gloves and a gown may be required depending on the type of care you will be performing. Do not remove your respirator until you have left the room.

Remember Rosie

Do you remember Rosie from earlier? You observe that her cheeks seem to be flushed. She tells you she would love to have another blanket placed on top of her because she is "freezing." Rosie winces in discomfort when she sits up in bed, and admits she feels achy all over. You hear someone mention that Rosie is suspected to have influenza, also known as "the flu." She has been placed on the transmission-based precaution of droplet precautions. Given this information, what type of precautions would you need to use for Rosie?.

- a. You are only required to put on gloves and a gown before entering the room.

[Feedback: Actually, you are REQUIRED to put on a mask upon entering the room if you will be within 10 feet of Rosie, in accordance with droplet precautions. Gloves and a gown may be indicated, as well as other PPE, depending on the type of care you will be performing.]

- b. You are required to put on a mask upon entering the room if you will be within 10 feet of Rosie.**

[Feedback: Don't forget you may be required to apply other types of PPE depending on the care you will be performing.]

It is important for you to remember that your organization will determine when transmission-based precautions need to be used as well as the specific type of precaution. This information will be communicated verbally and a sign will be placed on the resident's door indicating all precautions that must be taken before entering including directions to visit the nurse before

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entering.

Applying and Removing PPE

Using PPE appropriately is important for compliance with transmission-based precautions. Part of your responsibility in using PPE is applying and removing it according to accepted practices for infection control.

- 1) Perform hand hygiene.
- 2) Upon entering the care area, apply all necessary PPE in the following order: gown, mask, goggles or face shield, then gloves. Ensure your gloves cover the cuffs of the gown. If you are required to wear a respirator this MUST be applied BEFORE entering the care area.
- 3) Before leaving the care area, remove your contaminated gloves by grabbing the outside of one glove with your other gloved hand. Remove the glove and hold it in your gloved hand. Slide the fingers of your ungloved hand underneath the cuff of the other glove, peel it from your hand over the first glove, and then discard both.
- 4) Remove your goggles or face shield by holding the earpieces and pulling away from your face, then discard. Do not touch the outside surface as this area is contaminated.
- 5) Remove your gown by unfastening the neck ties first, then the back ties, pulling the gown away from your neck and shoulders and being careful to touch the inside of the gown only. Turn the gown inside out as you remove it, roll it into a ball, and discard it.
- 6) Remove the bottom elastic strap or ties of the mask, then the top strap or ties. Pull the mask away from your face. Do not touch the outside surface. Discard the mask. If you are required to wear a respirator, do not remove this until you have left the room and closed the door.
- 7) Perform hand hygiene.

Special Considerations

When applying the concepts of transmission-based precautions, it is necessary to consider other aspects of care than just the type of PPE required.

Room Placement

When on contact and droplet precautions, consideration must be given to room placement. Preferably, residents on these types of precautions will be placed in a private room with a private bathroom. When this is not possible, your organization may choose to cohort residents. This means that residents with the same infection are placed together. As a last resort, the decision may be made to have the resident share a room with another resident who has limited risk factors such as someone without any indwelling devices or open wounds. Steps must be taken to limit the potential transmission of the infection such as keeping the curtain between the beds pulled or providing a bedside commode.

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Use of Public Areas

Residents on transmission-based precautions must take special precautions to prevent the spread of infection when in public areas. Ensure the infected areas of the person's body are covered if the individual is on contact precautions. If the individual is on airborne or droplet precautions, have them wear a mask, follow respiratory hygiene and cough etiquette guidelines, and avoid close contact with others. When transporting the resident, remove and dispose of contaminated PPE and perform hand hygiene prior to transport. Apply clean PPE to handle the individual at the destination.

Equipment and Instruments

Use disposable or single-person non-critical equipment when possible. Limit the non-disposable equipment that enters the care area and be sure to clean and disinfect it prior to removing from the care area. Place contaminated reusable items in a plastic bag to transport for cleaning.

Environmental Precautions

Frequently clean and disinfect environmental surfaces within the care area. Focus cleaning on frequently touched surfaces, such as tables, bedside commodes, bathroom surfaces, doorknobs, and equipment. Use cleaning agents specifically designed for the pathogens you are trying to disinfect according to organizational policy.

Discontinuing Precautions

Residents on transmission-based precautions have the potential for social isolation and other negative effects. Therefore, it is important that these precautions be discontinued as soon as possible once the infection resolves or the resident is no longer able to spread the infection to others. Your organization will notify you once these precautions can be stopped. But remember you must still continue to use standard precautions!

Review

Rosie has tested positive for influenza and is now on droplet precautions. She is not coughing but needs to be transported to another private room.

Appropriate

- Put on a mask and gloves before entering her room.
- Have Rosie wear a mask while in the hallway.
- Places a droplet precautions sign on Rosie's door.

Not Necessary or Inappropriate

- Wear a gown and mask with face shield
- Have visitors wear a N95 respirator

Summary

The three types of transmission-based precautions are airborne, droplet, and contact precautions. Each carries specific guidelines for practice, and you must follow them in addition to standard precautions. You must not only be mindful of considerations for the individual, but for their visitors, transportation, equipment and instruments, environmental surfaces, and linens.

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Section 4: Conclusion

Summary

Now that you have finished reviewing the course content, you should have learned the following:

This course presented the principles of transmission-based precautions and strategies to apply them in daily practice. It differentiated between transmission-based precautions and standard precautions, and identified when and how to implement the appropriate precautions. Your organization has specific policies and procedures regarding how these types of precautions are to be implemented, and you are now equipped to maintain compliance with them.

Course Contributor

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Resources

CDC 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

<https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>

CMS State Operations Manual, Appendix PP - Guidance to Surveyors for Long Term Care Facilities

https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltcf.pdf

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