

INFECTION CONTROL

Chain reaction

Introduction

Everyone who works in healthcare needs to be concerned about infection control — whether you have direct contact with patients and their body fluids and specimens, or brief, casual contact with patients and the things they use. Every day, you and your patients can be exposed to infectious materials. The goal is to follow precautions and develop work habits that protect both patients and healthcare workers from infection

This booklet explains:

- How infections are spread
- Standard Precautions
- Transmission-Based Precautions
- Immunizations, placement evaluations and work restrictions
- What to do if you are exposed
- The most common mistakes made by healthcare workers and how you can avoid them.

How Infections Are Spread

All infections occur when an infectious agent is transmitted to a susceptible person, called a host.

Infectious agents can be:

- Viruses
- Bacteria
- Fungi.

They can be found in or on the following:

- Blood
- Body fluids
- Feces
- Body surfaces
- Contaminated items
- Contaminated surfaces.

Some important points about spreading infection:

- You do not have to look sick to spread an infection
- You may be exposed without becoming a host if you are immune or able to resist infection
- You become sick only when a large enough dose enters your body and overcomes its defense system.

The Chain of Transmission

The method by which infection moves is called the route of transmission. If you prevent an infectious agent from reaching a susceptible host, you break the chain of transmission and prevent the infection from spreading. In healthcare settings, infections usually spread by droplet, airborne or contact transmission.

Those most susceptible are:

- Elderly people
- Newborns
- The chronically ill
- Those with compromised immune systems
- People with surgical incisions, catheters and other pathways that allow easy entry into the body.

Healthcare personnel can prevent transmission by following Standard Precautions with all patients regardless of their specific diagnosis or infection status.

Standard Precautions

Standard Precautions are specific behaviors that healthcare workers follow to protect both themselves and patients from infection. They incorporate features of both universal precautions and body substance isolation practices.

Standard Precautions:

- Apply to blood, all body fluids, excretions and secretions except sweat, plus non-intact skin and mucous membranes
- Protect against bloodborne pathogens such as HIV, hepatitis B and hepatitis C
- Protect against pathogens from moist body substances.

Healthcare workers must follow Standard Precautions with all patients and in all healthcare settings. Standard Precautions require that you:

- Wear gloves when touching blood, body fluids, secretions, excretions and contaminated surfaces
- Wash your hands after contact with body substances even if you wear gloves

- Wash your hands and change gloves between patients and between touching clean and dirty sites on the same patient
- Wear a mask, eye protection and a gown if splashes or spatters are possible
- Know where to find respiratory-assistive devices such as ventilators
- Be sure reusable equipment is cleaned and disinfected before you use it on another patient
- Handle all patient care equipment to prevent exposure to other patients, visitors and healthcare workers
- Keep used patient care equipment — including soiled linens — away from your skin, mucous membranes and clothing
- Don't let used equipment or linens contaminate surfaces or clean items
- Never bend, recap or break used needles unless the procedure requires it
- Place used sharps in a designated disposal container immediately after use.

Note:

Eighty percent of exposures are related to sharps. Handle sharps with care. Use needle safety devices whenever appropriate.

Transmission-Based Precautions

When a patient has an infection that spreads very easily, you must add a second level of infection control, called Transmission-Based Precautions. Transmission-Based Precautions are based on how the infection is spread and are followed along with Standard Precautions.

Transmission-Based Precautions used in healthcare include:

- Droplet Precautions
- Airborne Precautions
- Contact Precautions

Droplet Precautions — used with patients whose illnesses are transmitted when large droplets are propelled a short distance through sneezing, coughing or suctioning and land in another person's eyes, nose or mouth. Examples are mumps, rubella, and some strep infections. You must:

- Isolate or separate the patient from others by at least three feet; or segregate with patients who have the same infection
- Wear a mask when working within three feet of the patient
- Limit the patient's movement
- Mask the patient during transport.

Airborne Precautions — used with patients with tuberculosis, measles, chickenpox, zoster, and other infections that are transmitted by airborne droplet nuclei which travel and stay in the air for long periods of time. You must:

- Isolate the patient in a closed room with negative air pressure; the room must be either private or shared by patients who have the same infection
- Wear a special respirator while in the room
- Limit movement of the patient
- Mask the patient during transport.

Contact Precautions — used with infections that are easily transmitted by direct patient contact or by contact with a contaminated object or surface. Examples include two highly infectious drug-resistant organisms, MRSA (methicillin-resistant staphylococcus aureus) and VRE (vancomycin-resistant enterococcus), and infections such as zoster, scabies and impetigo. You must:

- Put on gloves before entering the room
- Wash your hands with a special antimicrobial cleaner before leaving the room
- Wear a gown in some patient-care situations
- Avoid unprotected contact with items touched by or used on the patient
- Dedicate equipment to that patient whenever possible.

Other Actions You Can Take

Get Immunized against infections. The Centers for Disease Control and Prevention recommend you be immunized against influenza, measles, mumps, rubella, chickenpox, and hepatitis B. Your supervisor can help you determine the immunizations you need.

Complete Health Inventory Forms to identify your immunization status and health history. These help make sure you are not placed in a job that puts you at undue risk for infection. The information also helps identify the proper treatment should you have an occupational exposure.

Follow Work Restrictions that exclude employees from some types of work because of a medical condition or other health issue.

A few points to remember about work restrictions:

- Pregnant employees do not have an increased risk for acquiring infections in the workplace and are not routinely excluded from working with patients with infections
- Use common sense and don't come to work sick
- Report exposures and illnesses to your infectious disease personnel.

Be Aware of Latex Sensitivity

Allergic reactions to natural rubber latex have increased among healthcare workers. Report any hand irritations or allergy-like symptoms involving your eyes, nose or respiratory tract to your supervisor.

If you are allergic to latex, don't use latex products and avoid areas where latex becomes airborne due to use of powdered gloves. Talk with your supervisor if your hands become irritated or you experience allergy-like symptoms.

If You Are Exposed

If you contact infectious materials such as body substances or contaminated items:

- Don't panic
- Wash the affected area immediately with plenty of soap and warm water
- Flush eyes or mucous membranes with large amounts of running water
- Don't use bleach or abrasive soaps on your skin; they can cause breaks in the skin that could increase your risk of exposure
- Report the exposure to your supervisor immediately so that post-exposure counseling and management can begin
- Act immediately, with some infections, treatments work best when started right away.

Handwashing

Washing your hands frequently and properly is the single most important action you can take to prevent the spread of infection. According to APIC (the Association for Professionals in Infection Control and Epidemiology), healthcare workers wash their hands only half as often as they should.

You should wash your hands:

- After contacting any potentially infectious substance, whether or not you are wearing gloves
- When you remove your gloves (there may be a tiny defect or a pinhole that you can't see)
- Between touching clean and dirty areas on the same patient
- Before you eat, drink, handle contact lenses or apply makeup or lip balm.

To wash your hands properly, you should:

- Use soap and running water
- Rub vigorously over all surfaces
- Rinse
- Dry with a clean disposable towel

- Use a dry towel to turn off the water
- Avoid antimicrobial soaps for routine handwashing because they remove your skin's natural protective defenses.

What You Can Do

In addition to careful handwashing, healthcare workers can help prevent the spread of infection by avoiding common mistakes. You should:

- Provide a complete health history and keep your immunizations current
- Follow your facility's policies on work restrictions and reporting exposures
- Follow safety measures during procedures and when handling used sharps; use needle safety devices properly
- Use aseptic technique when performing invasive procedures; for example, when starting IVs, always palpate for the vein before you prep the site
- Always wear gloves when handling patients' body fluids
- Don't touch the outside of your gloves when you remove them
- Wash your hands with soap and water when you take off your gloves, even if you are immediately putting on another pair
- Follow isolation procedures to prevent infections from spreading among patients
- Be aware that latex allergy is increasingly common among both patients and healthcare workers; ask patients if they are allergic, look for a latex allergy flag on patient charts and document potential allergies immediately
- Guard against improper use of antibiotics. Medical staff should always check culture results and prescribe the least-powerful antibiotic that will do the job.

Summary

You can break the chain of infection transmission and protect your patients, your co-workers and yourself if you:

- Follow Standard Precautions all the time and Transmission-Based Precautions whenever required
- Get immunized
- Report any infectious exposures immediately
- Observe work restrictions.

Quiz

1. True False Bacteria cause all infections that spread in a hospital setting.
2. True False You cannot spread an infection when you do not feel sick.
3. True False Infectious organisms can be found in blood, body fluids, feces, body surfaces and on contaminated items and surfaces.
4. True False When you break the chain of transmission, you keep an infection from spreading.
5. True False Standard Precautions incorporate features of both universal precautions and body substance isolation practices.
6. True False Standard Precautions require healthcare workers to wear gloves when touching blood, body fluids, secretions, excretions and contaminated surfaces.
7. True False It is not necessary to wash your hands after contact with a patient's body substances if you wore gloves during the procedure.
8. True False Among healthcare workers, eighty percent of infectious exposures are related to sharps injuries.
9. True False When a patient has an infection that spreads easily you must follow Standard Precautions and a second level of precautions, called Transmission-Based Precautions.
10. True False Patients with illnesses that are spread by large droplets must be separated from others by at least three feet.
11. True False You must wear a special respirator when you enter the room of a patient with tuberculosis who is on Airborne Precautions.
12. True False When a patient has an infection that is spread by contact, you must wear gloves and use an antimicrobial cleaner to wash your hands before leaving the room.
13. True False Infections that are spread by contact never live longer than 20 minutes on hands or hospital surfaces.
14. True False Because pregnant workers are more susceptible to infections, they are routinely excluded from certain jobs.
15. True False If you are exposed to an infectious organism, the first thing you should do is notify your supervisor.
16. True False You should wash your hands when you remove your gloves.
17. True False You should avoid antimicrobial soaps for routine handwashing because they remove your skin's natural protective defenses.
18. True False When starting an IV, always palpate for the vein before you prep the site.
19. True False Latex allergy is increasingly common among both patients and healthcare workers.
20. True False Medical staff should always check culture results and prescribe the least-powerful antibiotic that will do the job.

ACKNOWLEDGEMENT OF TRAINING

I have read and understand the training handbook, *Infection Control: Chain Reaction*. I have also completed and passed the comprehensive quiz at the conclusion of this handbook.

Employee's Signature

Date

Trainer's Name

Date

NOTE: This record may be included in the employee's personnel or training file.

INFECTION CONTROL: CHAIN REACTION

Answers to Quiz

1. False. Infections are caused by bacteria, viruses and fungi.
2. False. You do not have to feel or look sick to spread an infection.
3. True.
4. True.
5. True.
6. True.
7. False. You should wash your hands when you remove gloves because there may be a defect in the gloves.
8. True.
9. True.
10. True.
11. True.
12. True.
13. False. Some organisms live for hours on hands and for days on contaminated surfaces.
14. False. Pregnant workers are not more susceptible to infections and are not routinely excluded from jobs that could expose them to infections.
15. False. The first thing you should do is wash the affected area thoroughly. Then notify your supervisor.
16. True.
17. True.
18. True.
19. True.
20. True.