

Chapter 9

INFECTION CONTROL

What You Will Learn

- How organisms grow
- Ways bacteria and viruses are spread
- Symptoms of infection
- Other harmful microorganisms
- How microorganisms enter and leave the body
- Who is considered a susceptible host
- Body substance precautions
- When hand washing should be done
- Control measures that prevent the spread of infection

Demonstration:

- Washing hands according to proper procedure
- How to put on and remove non sterile gloves

How Organisms Grow

Bacteria and viruses are the most common cause of communicable diseases. Microorganisms grow best in a warm, dark, moist environment with an adequate supply of food. Microorganisms are found everywhere including things we use in daily living such as food, water, objects we touch, and on things used by others.

Bacteria are small microorganisms that can cause infection. Major bacterial infections include:

- Staphylococcus (staph)
- Streptococcus (strep)
- Mycobacterium tuberculosis (TB)
- Syphilis
- Escherichia coli (E. coli)
- Gonococcus (GC)



- Clostridium difficile (C. diff)
- Methicillin-resistant Staphylococcus aureus (MRSA)
- Vancomycin - resistant Staphylococcus aureus (VRSA)

Viruses are tiny microorganisms, much smaller than bacteria that can cause infection. Major viral infections include:

- Hepatitis
- Herpes
- Human immunodeficiency virus (HIV)
- Influenza
- Common Cold
- Measles
- Herpes zoster (chicken pox/shingles)

How Bacteria and Viruses Are Spread

Bacteria and viruses are spread in many different ways. Direct contact (Figure 9.1) occurs when you touch the client or touch secretions, urine, or stool from a client.

Figure 9.1: Direct Contact



Indirect contact occurs when you touch objects that are covered with bacteria or viruses. Dishes, linens, clothing, and bedpans are examples of objects that can spread disease (Figure 9.2).

Figure 9.2: Indirect Contact



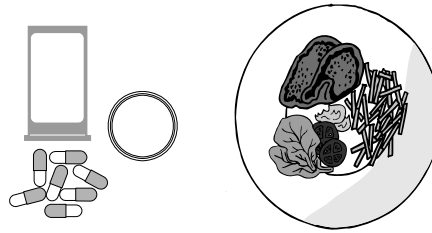
Droplet transmission occurs when sneezing, coughing or blowing bubbles with gum and popping them spreads microorganisms within three feet (Figure 9.3).

Figure 9.3: Droplet Spread



Vehicle contamination is a result of microorganisms in food, drugs, or water (Figure 9.4).

Figure 9.4: Vehicle Contamination



Airborne transmission is the spread of microorganisms on dust particles or moisture in the air.

Symptoms of Infection

Symptoms of infection include:

- Drainage from wound, eyes, ears, or nose
- Reddened or inflamed area
- Increased heat in an area
- Pain
- Swelling
- Fever
- Confusion - especially in elderly clients

Other Harmful Microorganisms

A yeast infection (*Candida albicans*) can affect mouth, genital tract, or skin. Scabies, head and body lice are transmitted by direct or indirect contact. They may affect head and body, especially genitals, hands, and feet. Fungal infections may also affect the skin.

How Microorganisms Enter and Leave the Body

Microorganisms can enter the body through any opening in the skin or mucous membrane. Even openings too small to be seen can permit an organism such as *Staphylococci* to infect you. The respiratory tract can be infected through organisms such as the common cold. Syphilis and AIDS can enter through the genitourinary tract. *Salmonella* and hepatitis are examples of infections that enter through the gastrointestinal tract. Meningitis and malaria enter through the circulatory system.

Many microorganisms leave the body through excretions. Excretions from the respiratory and genital tracts are examples. Semen and vaginal secretions can spread sexually transmitted diseases. Urine, feces, blood, emesis and saliva can all carry infectious organisms. Drainage from wounds is another way that microorganisms can leave the body.

The Susceptible Host

The susceptible host is a person with low resistance or poor immunity. The elderly or very ill client is a susceptible host. Due to the aging process, the immune system is not as effective at fighting off infection. Some diseases and conditions predispose the client to infection including:

- Diabetes mellitus
- Congestive heart failure
- Dehydration
- Malnutrition
- Immobility
- Hospitalization
- Diminished pain sensitivity symptoms
- Decreased mental ability (unable to describe illness)
- Tumors
- Some Drugs
- Physical or emotional stress

Body Substance Precautions (see HO 1)

Body Substance Precautions (BSP) are measures used by all health care providers to minimize the risk of exposure to disease through contact with body fluids. Body substance precautions include good handwashing and appropriate use of personal protective equipment (PPE).

Hands should be washed before and after contact with a client, even if gloves were worn. If your hands come into contact with blood or body fluids containing blood remember to thoroughly wash your hands and report the incident to your nurse/ supervisor. Finally, wash hands before leaving for the day.

NOTE: LONG NAILS, ARTIFICIAL NAILS, CHIPPED NAIL POLISH, AND HAND JEWELRY CAN HARBOR HARMFUL MICROORGANISMS.

Use personal protective equipment (PPE) when necessary. PPE includes gloves, aprons or gowns, goggles, and masks.



Gloves should be worn when contact is likely with blood, body fluids, mucous membranes, open skin, body openings and used dressings or tissues.

Gowns or plastic aprons should be worn if blood splattering might occur. Gowns must completely cover your uniform. If wearing a uniform with long sleeves, roll sleeves above the elbows before gowning.

Goggles and masks are worn when it is likely that the eyes or mucous membranes will be splashed with blood or body fluids. Discard masks after use and place reusable goggles/face shields in a specified container for cleaning.

NOTE: BLOOD SPILLS SHOULD BE CLEANED UP ACCORDING TO THE IN-HOME PROVIDER POLICY.

Infection Control Guidelines

The Centers for Disease Control and Prevention (CDC) located in Atlanta, Georgia, and the Missouri Department of Health issue guidelines to protect people and prevent the spread of infection.

It is important to control infection at the source. Maintain your health. Have illness and infections treated. Report all open lesions or weeping skin rashes to the supervisor/nurse before having contact with clients (HO 2). Notify the supervisor if you are ill or have an infection. Use correct handwashing techniques. Follow the in-home provider policies for disinfections.

Keep your work area neat and clean. Handle clean and dirty linens properly. Dispose of soiled disposable articles properly according to in-home provider policy.

Control infection at the transmission level by washing hands before and after caring for each client. Follow body substance precautions and wear gloves to wipe up any blood spills per in-home provider policies. Follow proper procedure for catheter care per in-home provider policies.

Control infection at the client level. Know the client and report any abnormal change in behavior or symptoms. Follow the principle of cleaning and giving care from clean to dirty. Observe clients who are receiving antibiotics for side effects and report those immediately (e.g., nausea, vomiting, diarrhea, rashes, yeast infections, thrush). Prevent pressure ulcers by giving good skin care. Work toward maintaining nutrition and activity of the client. Use gloves when doing mouth care, perineal care, skin care, and other procedures involving body fluids. Wear masks, gloves, goggles, and gown as per in-home provider's policy when caring for the client who might cough or spray mucus discharge.

Specific Control Measures

Handwashing is the single most important means of preventing the spread of infection. Our hands carry germs. Good handwashing techniques prevent spread of germs. Hands should be washed for at least 15 seconds. Hands should be washed:

- When first coming on duty and before going home
- Before and after contact with each client
- Before and after glove use
- After contact with any waste or contaminated material



- Before any contact with food
- Before and after going to the bathroom, breaks or smoking
- After coughing, sneezing, or blowing nose

Wash the client's hands before meals and at other appropriate times such as after going to the bathroom to prevent the spread of infection. Use soap from a dispenser rather than bar soap. Bar soap in a dish is a good medium for germ growth. If there is no soap available, hand sanitizer, dishwashing liquid or warm water, and friction can be substituted. The water faucet is considered contaminated or dirty. Turn the faucet off with a clean, dry paper towel when possible. When washing hands, hold hands below elbows to allow water to run down the fingertips so germs do not contaminate your arms and uniform.

When handling dirty linens, keep the linens away from your uniform. Avoid shaking or fluffing linens that can cause germs to become airborne. Place used linen in a plastic bag or laundry basket at the side of the bed. NEVER put linen directly on the floor. Change linens any time they are soiled.

Transfer belts should be kept clean and washed weekly and whenever necessary. When cleaning an item or part of the body; start with the cleanest area and work toward the dirtiest area.

Important Factors

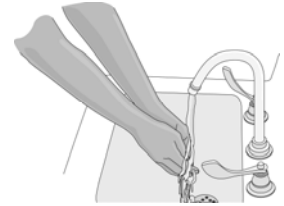
Always organize your work before going into the room. Gather all supplies and linens needed. Remember to wash hands before and after contact with the client! This is the single most important means of preventing the spread of infection. Gloves do not eliminate the need to wash your hands; they just provide a barrier between you and potentially infectious microorganisms. Never touch unnecessary articles in the room or one's face, hair, contact lens, or glasses when wearing gloves. Always wear gloves when handling or picking up any medication patch. Remove gloves BEFORE leaving the client's home. Utility gloves used for housekeeping chores should remain in the client's home and not be used for another assignment. Understanding germs and the importance of controlling them is essential for controlling infection. Handwashing is so simple but often neglected. Take time to protect everyone; yourself, your family, coworkers, and the clients.

Chapter 9

INFECTION CONTROL

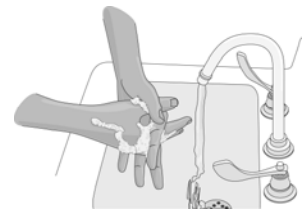
PROCEDURE FOR WASHING HANDS:

1. Remove wristwatch and/or rings if necessary. Roll up your sleeves. Wash wrist-watch and rings if they come into contact with contaminated material.



2. Turn on water and adjust temperature so it is comfortable for you.

3. Wet hands thoroughly, including two to three inches above wrists. Hold hands with wrists lower than elbows and fingertips pointed downward.



4. Apply a generous amount of soap to hands.

5. Scrub hands for at least 15 seconds.

- a. Wash palms and back of hands with at least 10 circular motions.

- b. Wash fingers and between fingers with at least 10 circular motions.

- c. Wash wrists with at least 10 circular motions.

- d. Wash around and under fingernails.



6. Rinse wrists and hands well. Keep wrists lower than elbows.



7. Dry hands well with paper towel or fresh clean towel, using one for each hand if possible.

8. Turn off faucet with clean, dry paper towel if possible.

9. Discard paper towel. Be careful not to touch the part of the towel that touched the faucet.



Chapter 9

INFECTION CONTROL

PROCEDURE FOR PUTTING ON AND REMOVING NON-STERILE GLOVES:

Putting on gloves:

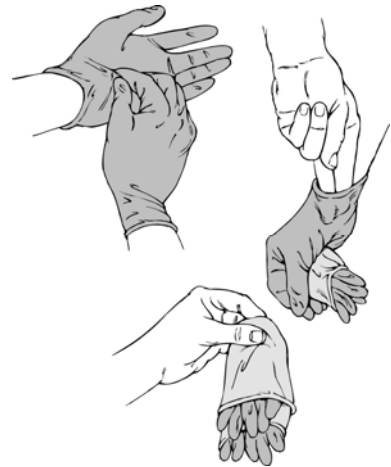
- A. Wash and dry hands according to procedure.
- B. Remove gloves from box, one at a time.
- C. Place hand through opening and pull the glove up to the wrist.
- D. Repeat with second glove.
- E. Adjust gloves to cover wrists or cuffs of gown.

CAUTION: DO NOT TOUCH ANY PART OF YOUR BODY WITH GLOVED HANDS.

- F. Complete client care.

Removing gloves:

- A. Grasp one glove on the inside of wrist at $\frac{1}{2}$ inch below band of dirty side of glove without touching the skin.
- B. Pull down glove, turning it inside out, and pull hand. Hold the glove with the still-gloved hand.
- C. Insert fingers of ungloved hand under the cuff of the glove on the other hand (on inside of cuff).
- D. Pull down glove until it is inside out, drawing it over the first glove.
- E. Discard both gloves by dropping them in appropriate trash container.
- F. Wash hands.



Chapter Review

1. In what environment do organisms grow?
2. How are bacteria and viruses spread?
3. What are the symptoms of infection?
4. Besides bacteria and viruses what are other harmful microorganisms?
5. How do microorganisms enter and leave the body?
6. Who is considered a susceptible host?
7. What are Body Substance Precautions?
8. When should handwashing be done?
9. What control measures prevent the spread of infection?

Student Exercise

Circle the letter of the correct answer.

1. In what conditions do microorganisms grow best?
 - a. At a cold, dry temperature with available food and air
 - b. Where there is a lot of sunlight, warmth, air, and water
 - c. Where there is no moisture or sunlight, with food and air
 - d. In a warm, dark, moist environment with available food

2. What is a method of entry for microorganisms?
 - a. Secretions from the reproductive tract
 - b. Breaks in the skin or mucus membrane
 - c. In the client's bloodstream
 - d. Through drainage from wounds

3. Microorganisms leave the body through _____.
 - a. excessive perspiration
 - b. the circulatory system
 - c. saliva and blood
 - d. the endocrine system

4. The elderly client is considered a susceptible host for diseases because _____.
 - a. the client is constantly exposed to the In-Home Aide
 - b. infections in the elderly are more severe and cause pain
 - c. the client has a greater sensitivity to pain
 - d. the immune system is not as effective at fighting off infections

5. The best way to prevent the spread of infection is _____.
 - a. sterilize disposable items with chemicals
 - b. wash your hands after contact with each client
 - c. shake and fluff linens before placing them in a bag
 - d. use the client's bar soap to wash your hands

Complete the following short-answer questions:

6. List three occasions when the In-Home Aide's hands should be washed.
 - a.
 - b.
 - c.

7. List five ways bacteria and viruses are spread.
 - a.
 - b.
 - c.
 - d.
 - e.
8. Identify two harmful microorganisms other than bacteria or viruses.
 - a.
 - b.
9. List two important factors in infection control.
 - a.
 - b.

BODY SUBSTANCE PRECAUTIONS

A system of infection prevention and control currently in use is called Body Substance Precautions (BSP). This system focuses on keeping all moist body substances (blood, feces, urine, wound drainage, tissues, oral secretions, and other body fluids) from the hands of personnel. This is done primarily by increased glove usage and handwashing. The Body Substance Precautions system is consistent with recommendations from the Centers for Disease Control and Prevention (CDC), the American Hospital Association, and Occupational Safety and Health Administration (OSHA) that point out the need to consider ALL blood and ALL body fluids as potentially contagious regardless of the client's diagnosis. In order to comply with the CDC policies, the following recommendations should be used. The need to use barriers must focus on the caregivers' (In-Home Aides) routine contact with the clients.

Because a medical history and examination cannot reliably identify all persons with infectious diseases, we treat ALL blood and body substances as potentially infectious rather than focus precautions only on the clients who are diagnosed with infectious diseases.

Implementing the Body Substance Precautions System includes the following elements and should be followed by ALL personnel at all times, regardless of the client's diagnosis.

Body Substance Precautions

1. Wear gloves when it is likely that hands will be in contact with mucous membranes, nonintact skin, and/or any moist body substance (blood, urine, feces, wound drainage, oral secretions, sputum, vomitus, or items/surfaces soiled with these substances). Gloves should be changed and hands washed between contacts with clients. If a glove is torn or a needle stick or other injury occurs, the glove should be removed, discarded in appropriate container, hands washed, and a new glove used promptly as client safety permits.

REMEMBER: Gloves are not a cure-all. They reduce the likelihood of contaminating the hands, but hands should be washed after removing the gloves.

- a. Use non-sterile/disposable gloves for procedures involving contact with mucous membranes unless otherwise indicated and for other client care procedures.
- b. Change gloves and wash hands between contacts with clients.
- c. Do NOT wash or disinfect examination gloves for reuse.
- d. General-purpose utility gloves (e.g., rubber household gloves) may be used for housekeeping. These utility gloves may be decontaminated and reused but should be discarded if they are peeling, cracked, discolored, or if they have punctures, tears, or other evidence of deterioration. Utility gloves should remain in the client's home.

BODY SUBSTANCE PRECAUTIONS (*continued*)

2. Wash hands often - always between clients'/clients' care and after any contact with body substances or contaminated materials. Focus on the areas around and under fingernails and between fingers. Always keep your hands away from your face or you may give yourself (inoculate with) the infectious microorganisms.
3. Wear masks and/or eye protection when it is likely that eyes or mucous membranes will be splashed with body substances (your supervisor/nurse will give you further directions).
4. Protect your clothing with a plastic apron or gown when it is likely that clothing will be soiled with body substances.
5. Health care workers with draining lesions or weeping dermatitis must refrain from all direct client care and from handling client care equipment until cleared by a physician. These conditions put the employee and the client at risk of infection.
6. Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a reasonable likelihood of occupational exposure.

Some Examples of Situations Using the Body Substance Precautions System

1. Follow Body Substance Precautions when caring for clients with bowel and/or bladder problems.

It is difficult to clean a client who is incontinent without getting urine and/or stool on the hands. Gloves should be worn routinely and for helping clients with toileting activities. One major risk is getting germs underneath the caregiver's fingernails. Gloves reduce this risk and make handwashing after completing the task easier and more efficient. A plastic gown may also be needed for cleaning clients/ clients who are incontinent and for changing their clothes and the bed linen. Obtain the plastic apron before beginning the tasks.

2. Wearing gloves when emptying catheter bags is a wise practice because it is difficult not to get urine on your hands.
3. When a client has a rash or skin lesions on his/her body, it could be due to any number of causes. The lesions may be due to varicella (chicken pox or zoster), herpes simplex, scabies, syphilis, impetigo, a drug reaction, or other causes. Prompt recognition of the rash, identification of the cause, prompt appropriate intervention, and proper use of gloves and handwashing can prevent transmission of microorganisms to others.

INFECTION CONTROL

Every in-home provider has an infection control policy. When an employee has a serious infection that may be contagious, the employee should be excluded from patient care duties to prevent the spread of infection to clients.

The nurse/supervisor should be notified anytime the following are present:

1. Temperature greater than 101° Fahrenheit (F)
2. Nausea/vomiting
3. Productive cough
4. Diarrhea
5. Sore throat
6. Chills
7. Skin eruption/rash
8. Draining wound that cannot be covered
9. Known exposure to an infectious disease that could be transmitted during the incubation period
10. Known infectious disease
11. Conjunctivitis (pink eye)

It is important that the In-Home Aide be familiar with the in-home provider policy regarding employee illnesses and follows it.