

Infection Control

An infection is a disease state resulting from the invasion and growth of germs in the body and is a major safety and health hazard. Some infections are minor and cause short illnesses while others are serious and can cause death. Infections can be especially serious for vulnerable infants and older persons. Caregivers and medical professionals have an important role in protecting patients, residents, visitors, and themselves from infection.

Germs are small (micro) plants or animals (organisms) that can be seen only with a microscope. Germs are everywhere – in the air, food, soil, water; and in the mouth, nose, respiratory tract, stomach, intestines, and skin of humans and animals. They require an environment (host) to live and grow. Germs must get water, oxygen, and nourishment from their host.

Some germs cause infections and are harmful. These are called pathogens. Non-pathogens are germs that usually do not cause an infection. When a non-pathogen is transmitted from one system to another it becomes a pathogen. Most germs grow best at body temperature and are destroyed by high heat and ultraviolet light.

For example, *Escherichia coli* (*E. coli*) is normally found in the large intestine. Feces (bowel movements) contain *E. coli*. After bowel movements, wiping from front to back will prevent *E. coli* from entering the urinary system and causing an infection. When hands are not washed after going to the bathroom or if the hand washing is poor, *E. coli* can also spread to anything those hands touch, i.e., door handles, food, etc.

There are three types of germs:

- **Bacteria:** microscopic, one-cell organisms that multiply rapidly. Bacteria can cause infection in all parts of the body.
- **Fungi:** organisms that live on other plants or animals. Mushrooms, yeasts and molds are common fungi. In humans, fungi can infect the mouth, vagina, skin, feet, and other body areas.
- **Viruses:** very small microscopic organisms that grow in living cells. They cause many diseases including the common cold, herpes, diarrhea, acquired immunodeficiency syndrome (AIDS), and hepatitis.

Infections

An infection is a disease state resulting from the invasion and growth of germs in the body. A *local infection* is in a body part. A *systemic infection* involves the whole body.

Pathogens do not always cause infection. The development of an infection depends on the following conditions being present:

- germ (source)
- growth-producing environment
- exit point
- method of transmission
- entry point
- a susceptible host

Although there may not be any signs or symptoms of infection, humans and animals may be carriers and can pass germs to others. Where the germ leaves the host environment is called the exit point.

Exit points include the respiratory, gastrointestinal, urinary, and reproductive tracts; breaks in the skin, the blood, and body fluid secretions.

When a germ leaves the host, it must be transmitted to another host.

Methods of transmission can be, but are not limited to:

- Through contaminated food, water, animals, personal care items, and
- By direct contact with blood and body fluids, wound dressings, “droplets” in the air from coughing or sneezing.

The germ must enter the body through an entry point. Points of entry and exit are the same. A susceptible host (a person at risk for infection) is needed for germs to grow and multiply.

The human body can protect itself from infection. A person’s ability to resist infection is affected by their age, nutritional status, stress, fatigue, general health, medications, and the presence of disease or injury. Vaccinations also help to protect the body from certain infections.

Some of the signs and symptoms of infection are:

- fever
- fast breathing or fast heart beat
- pain or tenderness (can be specific to the infected area or generalized for systemic infections)
- loss of energy
- loss of appetite
- nausea
- vomiting
- diarrhea
- rash
- sores on mucus membranes
- redness and swelling of a body part
- discharge or drainage from the infected area

Not all people will experience all of these symptoms of an infection and some will experience these in varying degrees. Care providers need to know their consumer's baseline health status and be able to recognize any of these signs and symptoms.

Asepsis (a sep sis)

Asepsis is the process of removing disease-producing germs. Since germs are everywhere, certain practices are necessary to create asepsis. Medical asepsis, also known as clean technique, is the practice used to remove or destroy germs and to prevent their spread from one person or place to another.

In medical asepsis, an item or area is clean when it is free of germs and is contaminated if germs are present. Germs must not be present during surgery or when instruments are inserted into the body (e.g. a catheter). Open wounds (cuts, burns, surgical incisions) can provide entry points for germs.

Aseptic practices break the chain of infection. The spread of germs can be prevented by adopting the following practices:

1. Washing hands after urination or bowel movements. Also washing hands after changing tampons or sanitary pads, children's diapers, or adult incontinence pads.
2. Washing hands after contact with blood, body fluids, secretions or excretions. These include saliva, vomitus, urine, feces, vaginal discharge, mucus, semen, wound drainage, pus, and respiratory secretions.

3. Providing all persons with their own toothbrush, drinking glass, towels, wash cloths, and other personal care items.
4. Covering the nose and mouth when coughing, sneezing, or blowing the nose.
5. Bathing, washing hair, and brushing teeth regularly.
6. Washing hands before and after handling, preparing, or eating food.
7. Washing fruits and raw vegetable before eating or serving them.
8. Washing, cooking and eating utensils with soap and water after use, including cutting boards, counters, and anything touched by raw meat.
9. Using gloves when handling obviously soiled material and performing good handwashing when finished.

Standard Precautions

The Centers for Disease Control and Prevention (CDC) have updated their guidelines for protecting health care workers from exposure to infectious diseases.

The first and most important tier contains those precautions designed to decrease the risk of transmission of disease to the health care worker through body fluids. This tier is called “Standard Precautions.” Standard precautions are used when caring for any person, regardless of the person’s diagnosis and whether the person is known to have an infectious disease.

Standard precautions apply to situations when caregivers are in contact with:

1. Blood
 2. All body fluids – secretions and excretions – except sweat, regardless of whether they contain visible blood
 3. Broken skin (open sores, cuts, etc.)
 4. Mucus membranes
- **Gloves:** Must be worn when in contact with blood, all body fluids, secretions and excretions (except sweat) regardless of whether they contain visible blood, broken skin, and mucous membranes.
 - **Gowns or aprons:** Must be worn during procedures or situations when substantial soiling is anticipated: exposure to body fluids, blood, draining wounds or mucus membranes.
 - **Mask and protective eyewear:** Must be worn during procedures that are likely to generate droplets of body fluids or blood or when the person is coughing excessively. Must be worn within three feet of potential exposure to the anticipated droplets.

- **Handwashing:** Hands must be washed before gloving and after gloves are removed. Hands and other skin surfaces must be washed immediately and thoroughly if contaminated with body fluids or blood and after all consumer care activities. Caregivers who have open cuts, sores or dermatitis on their hands must wear gloves for all consumer contact or be removed from consumer contact until the hands are healed. Alcohol hand rinses may be used if the hands are not visibly soiled or if a sink is not readily available.
- **Transportation:** When transporting any consumer, ensure that precautions are maintained to minimize the risk of transmission of microbes to other consumers, the general public, and contamination of environmental surfaces or equipment. Usually gloves, gowns and masks are not needed.

Health care professionals, including caregivers, are at an increased risk of transmitting and hosting infections. These risks can be greatly minimized or even eliminated by understanding simple infection control concepts.