

# INFECTION CONTROL



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## **Introduction**

Every health care worker must be concerned about infection control. It is the most basic and important topic within the healthcare industry and will help to determine the quality of care that is provided to clients. All facilities have policies that address infection control and procedures when understood and performed will help to decrease the incidence and spread of microorganisms. It is important to understand infection control in order to protect yourself, your co-workers, patients, and the community.

## **What is a Microorganism?**

Microorganisms are living things (organisms) so tiny that they can not be seen with the naked eye. They must be viewed using a microscope.

Microorganisms, also called microbes, or more commonly, germs. They number in the billions, and are found on our skin, in the food we eat, the air we breathe, and things we touch. Microbes are always present in the environment and on our bodies. These microbes (germs) can cause disease. The microorganisms that cause disease are called pathogens. Not all microorganisms however are bad. Some are good for us and allow us to make certain foods like cheese and cider. Microorganisms can serve both good and harmful purposes.

## **Types of Microorganisms and Their Characteristics**

The most common types of microorganisms that cause disease are:

- Bacteria
- Fungi
- Viruses
- Protozoa

When healthcare workers understand the different types of microorganisms and how they attack the body, they can be proactive in keeping pathogens from spreading.

Certain pathogens are especially dangerous when found in the healthcare facility. They are Staphylococcus (staph) bacteria and Streptococcus (strep) bacteria. Staph bacteria can cause infections in any area where the skin integrity has been compromised. Example: an open wound. An open wound in the facility can be the result of anything from surgeries to bed sores or even minor scrapes. Strep causes strep throat and certain kinds of pneumonia. Surgical patients who are bed bound or unable to get up and move around after surgery are particularly susceptible to pneumonia.

Bacteria require and thrive in a certain environment such as:

1. Food



- a. Bacteria grow well in the remains of food that is left sitting

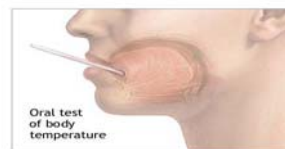
in the patient's room. Therefore it is very important that trays be removed or arrangements be made to refrigerate what is left over if the patient wants to eat the food later.

2. Moisture

- a. Bacteria grow best in moist places. Areas like under the bar of soap in the shower or the rim of the water glass. Also bacteria look for areas of moisture on the body like in the pelvic area or under the fold of the breast.

3. Temperature

- a. Bacteria can be killed at temperatures of 170 degree or higher. Most disease-causing bacterial grow rapidly between 50-110 degree. Normal human body temperature of 98.6F provides a bed for bacteria to thrive. Low temperatures of 32 degree or lower do not kill bacteria but only retard their activity and growth rate.



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4. Oxygen – two types

- a. Aerobic bacteria require oxygen to live. Anaerobic bacteria do not need oxygen to survive.

5. Light

- a. Bacteria love the dark and will become very active and multiply quickly in this environment. Light, however, seems to be bacteria's worst enemy. When bacteria are exposed to light, they become very sluggish and die rapidly.

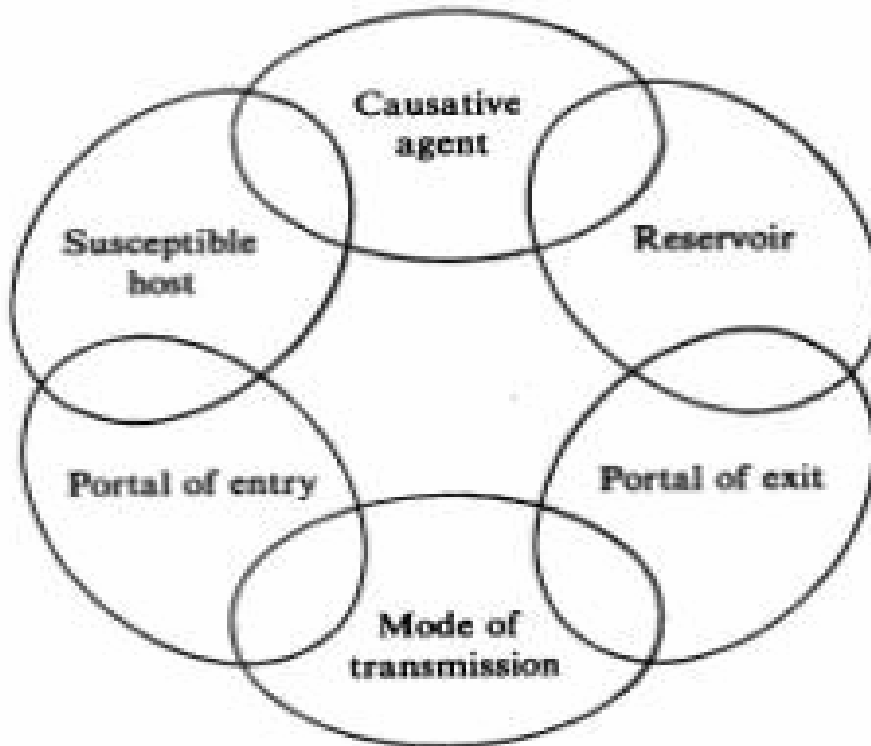


6. Dead and living matter – two types of bacteria

- a. Saprophytes are bacteria that live on dead matter or tissue.  
Parasites are bacteria that live on living matter or tissue.

## **The Infectious Disease Process**

The process by which an infectious disease is transmitted to and develops in a person's body is called chain of infection. That means there are certain conditions that have to be in place for disease to spread.



First there is a pathogen or causative agent that causes the infection or disease. These agents are the bacteria, virus, fungi, or protozoa. As was discussed previously, these pathogens live and reproduce themselves. Where they live is called the reservoir. The most common reservoirs are:

- Humans with any active disease with signs and symptoms of disease.
- Humans who are carriers, who have the disease and can pass it on to someone else but not display any signs and symptoms
- Animals
- Fomite, which is any object that is contaminated with pathogens and can transmit disease.
- The environment

Second is the portal of exit. This means the route by which the pathogens leave the reservoir. Pathogens can leave the body through secretions like urine, feces, saliva, tears, drainage from wounds, blood, or excretions from the respiratory or genital tracts.

Third, there is the route of transmission. This is the way the pathogen is transmitted from the reservoir to the new host's body. The pathogen passes through the portal of entry. Common portals are

- Cuts or breaks in the skin or mucous membrane
- Respiratory tract
- Gastrointestinal tract
- Genital or urinary tracts
- Circulatory system
- Passage from mother to fetus

Finally, the susceptible host is the individual who harbors the pathogen. A susceptible host is someone who has a compromised immune system. Individuals whose immune systems may be compromised could include the elderly, patients in hospitals or nursing homes, the very young, someone with a chronic disease, as well as others. A person's immune system does not have to be completely impaired for a pathogen to enter through a portal of entry, they can just be "run down" as a result of stress, poor nutrition and generalized fatigue. Once the pathogen is inside, it will reproduce and cause infection.

## **Routes of Transmission**

Because it is not always possible to control the agent or host, the best way to prevent disease is to interrupt the transfer by controlling the route of transmission. The transmission happens in five main routes:

- Contact transmission
  - This is the most important and frequent route of transmission. It can be divided into two subgroups:
    - Direct-contact: This involves direct body-surface-to-body-surface contact. Examples: turning a patient or giving a patient a bath.

- Indirect-contact: This occurs through use of instruments, needles, or hands that are not properly washed and gloves that have not been changed between patients.
- Droplet transmission
  - This occurs when a person sneezes or coughs. Droplets of microorganisms are sent through the air and enter the eyes, mouth, or nose of another person.
- Airborne transmission
  - When air currents pick up and move microorganisms through the air and are inhaled by individuals. Room purifiers and air filtering systems help or special ventilation is required to reduce this from happening.
- Contaminated items
  - This is very common. Microorganisms are transmitted through improperly handling of meats, vegetables, fruits, and through our water supply. Improper handling of medications can cause the medication to become contaminated which then can cause microorganisms to be passed on to the patient.



Although health care facilities try to prevent infectious diseases from spreading, diseases still prevail. One of the most common infections that are acquired as a result of being a patient in a facility is nosocomial infections. These types of infection can be very dangerous to an individual whose body's immune system is already comprised by illness or disease.

## Medical Asepsis

Medical asepsis is practices and procedures to maintain a clean environment by removing or destroying disease-causing organisms. The role of any healthcare worker is to do their part in promoting medical asepsis. Ways to do that follows:

- Always wash your hand before you touch the patient and then after you touch the patient.

- Always wash your hands before you glove and after you remove your gloves.
- Always wash your hands after using the bathroom or blowing your nose.
- Always practice good personal hygiene
- Always cover your nose or mouth before coughing or sneezing.
- Always clean open cuts and breaks in skin with soap and water, then cover with bandage.
- Always clean all reusable equipment immediately after use per facility policy.
- Always follow safety rules and medical waste rules as it relates to sharps or other contaminated waste per policy.
- Always clean up spills immediately according to facility policy.
- Always hold patient food, water, linens, equipment and supplies away from your uniform.
- Always avoid sitting on the patient bed.
- Always dispose of contaminated linens and trash before entering another patients' room.



Pathogens (bad disease. Policies and available in every worker in methods and

and their patients. Healthcare workers have the capability to make the greatest impact on those with illnesses and diseases through their direct hands-on care; however they also have the greatest ability to become carriers of other illnesses and diseases that could negatively impact the patient as well as themselves. Using personal protective equipment such as gloves, masks, and gowns can help to ensure patient and worker safety, but practicing good hand washing is the number one way of preventing spread of diseases.

microorganisms) cause procedures are written and healthcare setting to assist the ways to protect themselves



