

INFECTION CONTROL: YOUR ROLE IN STOPPING DISEASE TRANSMISSION

After completing this section, you should be able to:

1. Name the six links in the chain of infection and describe your role in stopping disease transmission;
 2. Explain Standard and Transmission-Based Precautions
 3. Demonstrate proper handwashing and the use of PPE for Standard Precautions
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SIX LINKS IN THE CHAIN OF INFECTION:

1. **Causative Agent** (pathogens or microorganism that causes disease): bacteria, viruses, fungi, protozoa
2. **Reservoir** (place in the body where the pathogen lives and grows): the lungs, blood, large intestine, etc.
3. **Portal of Exit** (a body opening on infected person that allows pathogens to leave): nose, mouth, eyes, other mucous membranes, cut in skin
4. **Mode of Transmission** (how the pathogen travels from one person to the next): through the air, getting on hands (direct contact) or other surfaces (indirect contact)
5. **Portal of Entry** (any body opening on uninfected person that allows pathogens to enter): nose, mouth, eyes, other mucous membranes, cut in skin or dry/cracked skin
6. **Susceptible Host** (uninfected person who could get sick): refers to you, your co-workers, and anyone in your care who is not already infected with that disease

Note:

- If one of the links in the chain of infection is broken, then the spread of infection is stopped. By using infection control practices such as washing your hands, you will be able to help stop the pathogens from traveling (Link 4) and getting on your hands, nose, eyes, mouth, skin, etc... (Link 5).
- Following infection control practices can also reduce your chances of getting sick also called susceptibility. It is also wise to take advantage of immunizations (Link 6) for diseases such as Hepatitis B, and Influenza

STANDARD PRECAUTIONS & TRANSMISSION BASED PRECAUTIONS

Standard Precautions and Transmission-Based Precautions provide a way to stop the spread of infection by disrupting (not stopping) the mode of transmission. These guidelines do not stop an infected person from giving off germs, but by following these guidelines you can help prevent those pathogens from infecting you or other persons in your care:

STANDARD PRECAUTIONS: A system of infection control which is designed to prevent the transmission of diseases that can be transmitted through all body fluids and body substances, with the exception of sweat, such as HIV (Human Immunodeficiency Virus), HBV (Hepatitis-B), HCV (Hepatitis-C) and other bloodborne pathogens. Standard precautions should **ALWAYS** be practiced regardless for whom you are caring.

The body substances covered under Standard Precautions are:

- Blood and blood products
- All body fluids
- Secretions,
- Excretions except sweat (regardless of whether or not they contain visible blood)
- Non-intact skin (including acne and open sores)
- Mucous Membranes (membranes that line body cavities such as the mouth or nose)

Standard precautions are used on all residents/clients regardless of their infection status. **These precautions are followed because you cannot tell if a person has a bloodborne disease by look at him or her or even by reading his or her chart.** When used properly, they reduce the risk of bloodborne pathogen transmission and the risk of transmission from body substances.

TRANSMISSION-BASED PRECAUTIONS: This deals with infectious diseases that require special precautions **IN ADDITION** to the Standard Precautions. These precautions should be used for residents/clients infected or suspected of being infected with a highly transmittable and harmful pathogen for which additional precautions beyond Standard Precautions are required

THREE TYPES OF TRANSMISSION-BASED PRECAUTIONS:

- **Airborne Precautions**—used when caring for residents/clients with an airborne disease. These diseases are small enough to slip through the pores of regular surgical masks, and therefore, special precautions must be taken to isolate an infected person and prevent anyone else from contracting an airborne disease, including **YOU**. Airborne precautions reduce but do not eliminate, the risk of airborne transmission of infectious agents. (i.e. pulmonary tuberculosis (TB); Measles, Chicken Pox,



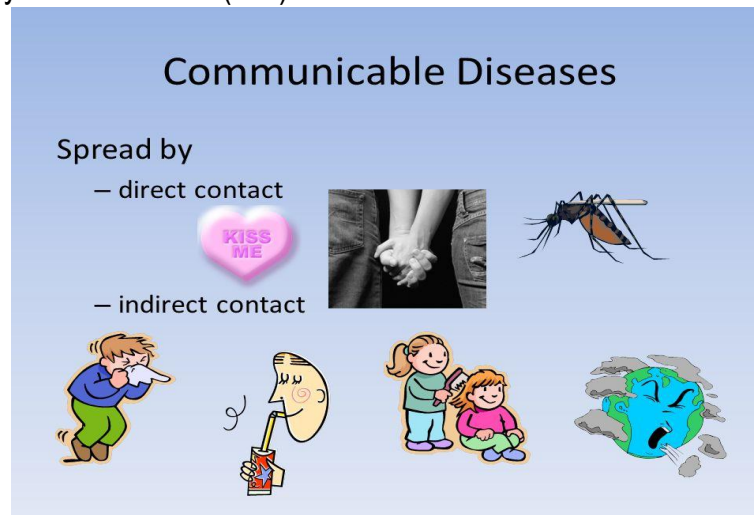
- Airborne precautions for caring for infected persons:
 - Place resident/client in private room if possible; if not possible, place with another person who has the same infection and no other infections.
 - Negative air pressure the room—means air flows into the room from the outside. Air inside is changed at least six times per hour. Keep the door to the room closed; if the door has to be opened, do so slowly to keep air from flowing or going out of the room to other areas.
 - Wear a mask or face covering when entering the room and should remain on while in the room with infected person(s)
 - Do not go into a room of persons suspected or known to have measles or chicken pox if you have not had these diseases
 - If you must take an infected person outside the room, make sure he or she wear a mask covering (not a respirator, as respirators only filter inhaled air, not exhaled air.)

- **Droplets Precautions**—used when caring for residents/clients with a disease whose microbes are expelled from the lungs in drops that fall to the floor usually within three feet of the infected person. Droplets come from coughing, sneezing, talking, laughing, singing, and during the performance of certain procedures such as suctioning and bronchoscopy. Special precautions must be taken to isolate an infected person and prevent anyone else from contracting a droplet disease, including **YOU**. Droplet precautions reduce, but do not eliminate the risk of droplet transmission of infectious agents (i.e., Influenza, Pneumonia, Mumps, Common cold, Bronchitis)



- Droplets precautions for caring for infected persons:
 - Place resident/client in private room if possible; if not possible, place with another person who has the same infection and no other infections.
 - Maintain a distance of at least three feet or more of the person
 - Wear a mask or face covering when entering the room and should remain on while in the room with infected person(s)
 - If you must take an infected person outside the room, make sure he or she wear a mask covering (not a respirator, as respirators only filter inhaled air, not exhaled air.)

- **Contact Precautions**—used when caring for a resident/client with a contact disease. This type of disease contains microbes that are spread through direct or indirect contact. Direct contact involves touching an infected person (turning a person, bathing, providing other personal care). Indirect contact involves touching an object that has been contaminated, such as care of equipment, or contaminated hands or gloves, and then transmitting the disease to oneself or another person. Special precautions must be taken to isolate an infected person and prevent anyone else from contracting a contact disease, including **YOU**. Contact precautions reduce, but do not eliminate, the risk of contact transmission of infectious agents. Most contact diseases are spread through indirect contact!
 - Examples of contact diseases:
 - MRSA (Methicilin-Resistant Staph Aureus)
 - VRE (Vancomycin-Resistant Enterococci)
 - Skin and wound infections
 - Pressure sores
 - Chicken Pox (also requires airborne precautions)
 - Shingles
 - Scabies and lice
 - Urinary Tract Infection (UTI)



- **Contact precautions for caring for infected persons:**
 - Isolate the disease. Private room if possible. If not possible, place the person with another person who has the same infection and no other infections
 - Transport for essential purposes only. This is important in restricting the spread of diseases because it is difficult to keep up with everything that a person comes into contact with when outside of his/her room
 - Wash hands. Wash hands if contaminated with infectious material. Use an antimicrobial soap if available. Make sure ungloved hands do not touch potentially contaminated environmental surfaces or items in the room

- Wear gloves if contact with infectious material is anticipated. Remove gloves before leaving the person's room and wash your hands. Change gloves after having contact with infectious material. Be certain gloved hands do not contaminate objects that ungloved hands will touch, like the doorknob to the room.
- Wear gowns if contact is anticipated. Wear gowns, aprons, or bibs if you anticipate your clothing will have substantial contact with infectious material. Wear gloves especially if the person in your care is incontinent, has diarrhea, an ileostomy, colostomy, or wound drainage not contained by a dressing. Remove gowns before leaving the person's room. Be certain your clothing does not touch a potentially contaminated environmental surface or item in the person's room. Never turn your back to a contaminated area. You may inadvertently contaminate the back of your gown. Step back three feet, then turn around, and move away.
- Avoid sharing non-critical patient care items between infected persons. If unavoidable, then adequately clean and disinfect after each use.

DEMONSTRATE PROPER HANDWASHING AND THE USE OF PPE FOR STANDARD PRECAUTIONS

Washing your hands is the single most important thing you can do to prevent the spread of disease to yourself and others! Healthcare workers must wash their hands countless times during the day even when caring for one person. Because of this constant washing, hands can become dry and cracked. Use lotion frequently to prevent cracking or skin irritation. Dry, cracked skin is more susceptible to infection than normal skin. If you wear rings, consider removing them during working hours, as rings attract bacteria which becomes difficult to wash off.

- **Always wash hands:**
 - Upon arriving at work or the client's home
 - Before and after all resident/client contacts
 - After touching any type of body substance or fluid
 - After handling contaminated items
 - Before putting on gloves and immediately after removing gloves
 - Before and after preparing or handling food
 - Before and after all meals and breaks
 - Before leaving work or the client's home



- **Always wear gloves:**
 - When touching body substances
 - When touching mucous membranes
 - When touching non-intact skin
 - **Change gloves:**
 - Immediately before contact with mucous membranes or non-intact person
 - If gloves become contaminated or soiled
 - If gloves become worn or damaged
 - **Remove gloves:**
 - Promptly after use and wash hands
 - Before caring for another person
 - Before touching non-contaminated items or environmental surfaces

Clean, non-sterile gloves are adequate. They may be vinyl or latex. Always make your supervisor aware if you have dry, cracked, or otherwise non-intact skin. Remember to wash hands before and after wearing gloves!



- **Wear Mask, Eye Protection, Face Shields:**

- To protect mucous membranes during procedures and resident/client care activities that are likely to generate splashes or sprays



- **Wear Gowns, Aprons, Bibs:**

- During a procedure or resident/client care activity that is likely to cause body fluid splashes or sprays
- That are appropriate for the procedure or activity and amount of body fluid likely to be encountered
- Remove gowns as soon as possible and wash your hands



Clean non-sterile gowns are adequate to protect your exposed skin and prevent soiling your clothing.

- **Equipment:**

- Handle all equipment in a manner that prevents
 - Skin/mucous membrane contact
 - Contamination of your clothing with the equipment
 - Transfer of disease to other residents or environments from the equipment
- Do not use “reusable” equipment again until it is properly cleaned and reprocessed. Dispose of all “single-use” equipment properly
- Clean and disinfect:
 - All environmental surfaces
 - Beds, bedrails, bedside equipment
 - All frequently touched surfaces (such as door knobs)

- **Linen Handling**
 - Handle, transport, and process soiled linens in a manner that prevents:
 - Skin and mucous membrane exposure
 - Contamination of clothing
 - Transfer of disease to other residents/clients and environments
- **Resident/Client Patient Placement**
 - Use private rooms or cohort if possible. To cohort means to place two or more persons who have the same disease in the same room

COVID-19 AND OTHER CORONAVIRUS OR INFECTIOUS VIRAL DISEASES

What is COVID-19? COVID-19 is a respiratory disease caused by coronavirus that can spread from person to person. COVID-19 is short for “coronavirus disease 2019”

The virus is thought to spread mainly between people who are in close contact with one another (less than 6 feet) and through respiratory droplets produced.

- **Three Important Ways to Slow the Spread**
 - Wear a mask to protect yourself and others and stop the spread of COVID-19
 - Stay at least 6 feet (**about 2 arm lengths**) from others who don't live with you
 - Avoid crowds. The more people you are in contact with, the more likely you are to be exposed to COVID-19.
- **How to Protect Yourself When Going Out**
 - Wear a mask that covers your nose and mouth to help protect yourself and others
 - Stay 6 feet apart from others who don't live with you
 - Avoid crowds
 - Avoid poorly ventilated indoor spaces
 - Wash your hands often with soap and water. Use hand sanitizer (**60% or better alcohol based**) if soap and water aren't available
- **If You are at Risk for Getting Very Sick**
 - People of any age can get COVID-19, even healthy young adults and children
 - People who are older or have certain underlying health medical conditions are at a higher risk of getting very sick from COVID-19
 - Other groups may be at a higher risk for getting COVID-19 or having more severe illnesses
- **What to Do if You are Sick**
 - Stay home except to get medical care
 - Isolate yourself from other members of your family to prevent spread to them and the people that they may have contact with, like grandparents
 - Even if you don't feel sick, you can spread COVID-19 to others
 - Get care immediately if you are having emergency warning signs like trouble breathing, pain or pressure in chest

- **How to Get a Test for Current Infection**

- Visit your state or local health department's website to look for the latest local information on testing
- If you have symptoms of COVID-19 and want to get tested, call your healthcare provider first
- If you have symptoms of COVID-19 and choose to not get tested, it is important to stay home. If you have a fever cough or other symptoms, you might have COVID-19. Most people have mild illness and are able to recover at home. If you think you may have been exposed to COVID-19, contact your health provider and:
 - Keep track of your symptoms
 - If you have an emergency warning sign (including trouble breathing), get emergency medical care
 - The most common symptoms to watch for:
 - ✓ Fever
 - ✓ Cough
 - ✓ Headaches
 - ✓ Fatigue
 - ✓ Muscle or body aches
 - ✓ Loss of taste or smell
 - ✓ Sore throat
 - ✓ Nausea
 - ✓ Diarrhea

- **When to Quarantine**

- CDC currently recommends a quarantine period of 14 days. However, based on local circumstances and resources, the following options to shorten quarantine are acceptable alternatives
 - Quarantine can end after Day 10 without testing and if no symptoms have been reported during daily monitoring
 - When diagnostic testing resources are sufficient and available then quarantine can end after Day 7 if the diagnostic specimen tests **negative** and if no symptoms were reported during daily monitoring. The specimen may be collected and tested within 48 hours before the time of planned quarantine discontinuation, but quarantine cannot be discontinued earlier than after Day 7
 - In both cases, continued symptom monitoring and masking through Day 14 must be met

- **Caring for Someone with COVID-19 in Their Home**
 - **Before entering the resident's/client's home, you should**
 - Wearing a face covering (mask and face shield or just a mask over your nose and mouth)
 - **Once in the resident's/client's home**
 - Immediately wash hands for 20 seconds with soap and water, then dry hands thoroughly
 - Use PPE (Personal Protective Equipment) while covering a shift. Ex. gloves, mask, hand sanitizer, etc.
 - Make sure the person who is sick is wearing a mask or face shield when around you or other people to help prevent
 - **Provide Support**
 - Help the person who is sick with daily activities of living such as grocery shopping, preparing meals and ensuring drinking of lots of fluids as well as taking medications as prescribed, sanitizing all surfaces, doing laundry and other household cleaning chores.
 - **Watch for Warning Signs to Seek Medical Attention**
 - Have the doctor's phone number on hand to call the doctor if the person keeps getting sicker
 - Call 911 if doctor is unavailable and report to the dispatcher that the person has or might have COVID-19
 - Emergency warning signs for COVID-19 may include but are not all possible symptoms
 - ✓ Trouble breathing
 - ✓ Persistent pain or pressure in the chest
 - ✓ New confusion
 - ✓ Inability to wake or stay awake
 - ✓ Bluish lips or face
 - ✓ Fever
 - ✓ Cough
 - ✓ Headaches
 - ✓ Fatigue
 - ✓ Muscle or body aches
 - ✓ Loss of taste or smell
 - ✓ Sore throat
 - ✓ Nausea
 - ✓ Diarrhea
 - Document in progress notes if any signs/symptoms observed at end of shift.

REFERENCES

Airborne Disease Images:

https://www.google.com/search?q=images+of+airborne+diseases&rlz=1C1CHBF_enUS818US818&sxsrf=ALeKk01MNgmNHYvwtB28eQ7zKDkGzPrdIq:1611511622918&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiniNfOILXuAhXIQs0KHVf7CocQ_AUoAXoECAgQAw&biw=1366&bih=625#imgsrc=BsLkVGUY0o5UAM

Droplet Disease Images:

https://www.google.com/search?q=images+of+droplet+diseases&tbm=isch&ved=2ahUKEwiVwuvRILXuAhUXNa0KHbqZDigQ2-cCegQIABAA&oq=images+of+droplet+diseases&gs_lcp=CgNpbWcQAzoGCAAQBxAeOgYIABAIEB46CAgAEAgQBxAeOgIADoICAAQBxAFEB5QuLfQAliq1NACYLfb0AJaAHAAeACAAAsBiAG9CplBBDE0LjGYAQCgAQGgAQtd3Mtd2I6LWltZ8ABAQ&sclient=img&ei=TbcNYNXnlJfqtAW6s7rAAg&bih=625&biw=1366&rlz=1C1CHBF_enUS818US818#imgsrc=EczhFoeBdAsCUM&imgdii=w4uQJCwmOk9ExM

Direct/Indirect Contact Disease Images:

https://www.google.com/search?q=images+of+direct+contact+diseases&rlz=1C1CHBF_enUS818US818&sxsrf=ALeKk00KEJN1tTzX1xT_e07pCCyhWiJ3gw:1611676329468&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiakvGY-rnuAhWRjVkkHSx-AwUQ_AUoAXoECBAQAw&biw=1366&bih=625#imgsrc=3bgr9pcs6jGKUM

Wash Hands Images:

https://www.google.com/search?q=images+of+washing+hands&tbm=isch&ved=2ahUKEwilubWc-rnuAhWD0VMKHVr2DlcQ2cCegQIABAA&oq=images+of+washing+hands&gs_lcp=CgNpbWcQAziCCAAyAggAMgIADICCAyAggAMgYIABAFEB4yBggAEAUQHjIGCAAQBRAeMgYIABAIEB4yBggAEAgQHjoFCAAQsQNQItOMAViP4owBYJrnjAFoAHAAeACAAUWIAcQGkgECMTOYAQCgAQGgAQtd3Mtd2I6LWltZ8ABAQ&sclient=img&ei=sDoQYliHNYOjzwLa7LO4CA&bih=625&biw=1366&rlz=1C1CHBF_enUS818US818#imgsrc=GB8KgrdWDK-oZM

Wearing & Removing Gloves Images:

https://www.google.com/search?q=images+of+removing+gloves&tbm=isch&ved=2ahUKEwiFslDpgrruAhUHQFMKHaY7BS4Q2-cCegQIABAA&oq=images+of+removing+gloves&gs_lcp=CgNpbWcQAzoECAAQQzoCCAA6BQgAELEDOgYIABAIEB46BAgAEBhQo_tzWO-XdGDspXRoAHAAeACAAWIlAY8lkqEEMTQuMZgBAKABAaoBC2d3cy13aXotaW1nwAEB&sclient=img&ei=tEMQYIWGO4eAzQKm95TwAg&bih=625&biw=1366&rlz=1C1CHBF_enUS818US818#imgsrc=8xpGaY8xAvs5uM

COVID-19 (Coronavirus)

<https://www.cdc.gov/coronavirus/2019-ncov/your-health/need-to-know.html>

<https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html>

<https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-options-to-reduce-quarantine.html>

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/i-wear-a-mask-because.html>

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