

**Community Mental Health & Substance
Abuse Services of St Joseph County**

**Infection Control/
Bloodborne
Pathogens**

Communicable Diseases

Communicable diseases are diseases that are caused by bacteria, virus, fungus, or parasites. They are spread from person to person, or animal to person, through direct or indirect contact.

Pathogens

A pathogen is an infection causing agent (germ). Pathogens are the cause of communicable diseases. Bacteria, viruses, fungus, and parasites can all be pathogens. The most common pathogens are bacteria and viruses.

Examples of Diseases Caused by Bacteria:

- Staph infection (including MRSA)
- Strep throat
- Tonsillitis
- Tuberculosis
- Gastroenteritis
- Impetigo
- Bacterial meningitis

Examples of Diseases Caused by Virus:

- Common cold
- Flu
- Polio
- Hepatitis
- Chicken pox
- Shingles
- Viral meningitis
- Herpes simplex
- HIV/AIDS

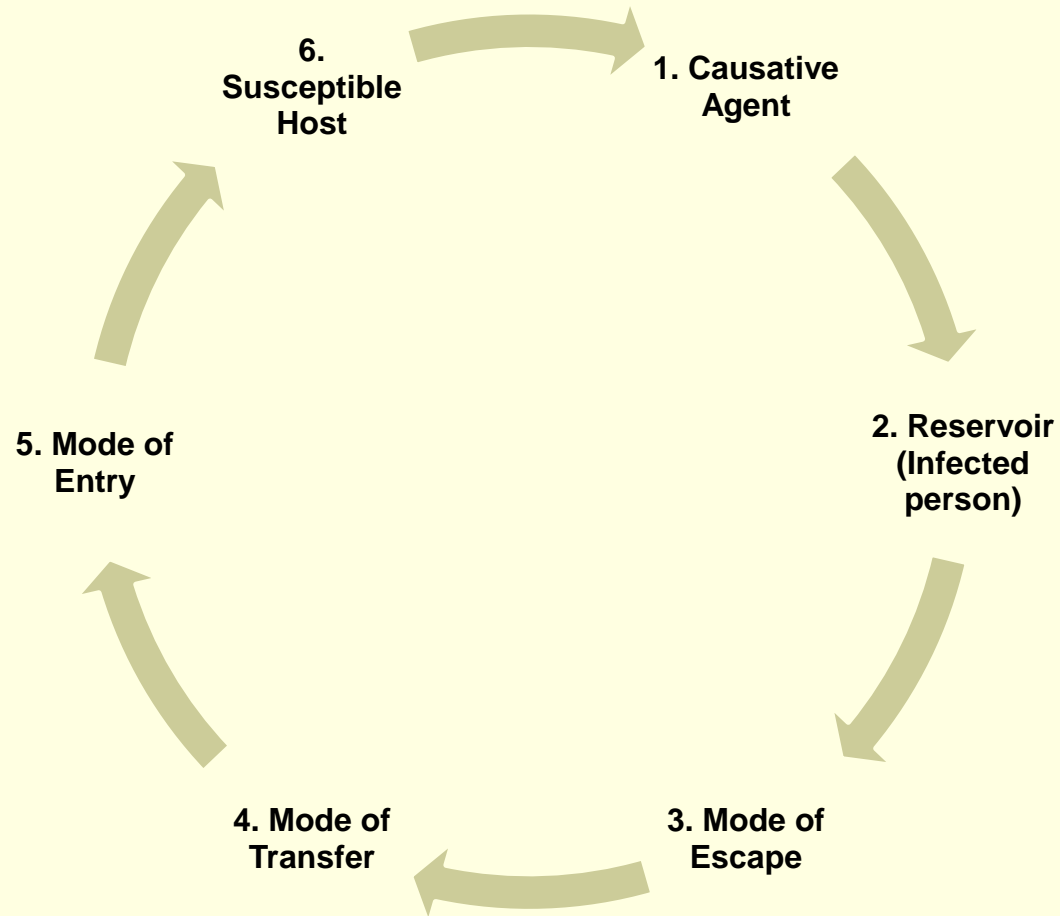
Examples of Disease Caused by Fungus:

- Yeast infection
- Athlete's foot
- Ringworm

Examples of Diseases Caused by Parasites:

- Lice
- Scabies
- Malaria

Chain of Infection



Chain of Infection

- Causative agent- This is the disease causing agent (bacteria, virus, fungus, parasite).
- Reservoir- This is the initial infected person, where the causative agent lives.
- Mode of escape- This is how the causative agent gets out of the reservoir. Sneezing or coughing are examples of mode of escape.
- Mode of transfer- This is how a disease transfer after it has escaped (contaminated hands, polluted water or food, etc.)
- Mode of entry- This is how the disease enters the new host (break in skin, mucus membrane, etc.)
- Susceptible host- People, animals, insects, birds, plants

Methods of Disease Transmission

- Direct contact transmission: occurs when infected blood or body fluid from one person enters another person's body (blood splash to the eye).
- Indirect contact transmission: occurs when a person touches an object that contains the blood or body fluid of an infected person.

Methods of Disease Transmission

- Droplet contact transmission: Occurs when droplets of fluid generated by coughing, sneezing, etc. come into contact with the eyes, nose, or mouth of another person. These droplets are relatively heavy, and cannot stay suspended in the air for long.
- Airborne transmission: This is similar to droplet transmission. During airborne transmission, however, the particles that transmit disease are lighter, and capable of staying airborne for longer periods of time.

Methods of Disease Transmission

- Oral-fecal transmission: Occurs when food, water, or an object contaminated by the feces of a human or an animal comes into contact with the mouth of another person.
- Vector transmission: Occurs when the bite of an animal, such as a mosquito, transmits disease.

Signs/Symptoms of Possible Communicable Disease:

- Red or runny eyes
- Sneezing/nasal discharge
- Cough
- Sores
- Rash
- Swelling or tenderness of glands, face, neck, or genital area
- Fever
- Nausea/vomiting
- Headache/stiffness of neck
- Diarrhea/abdominal pain
- Sudden or drastic change of behavior

Tuberculosis

Tuberculosis is a serious communicable disease that is caused by *Mycobacterium tuberculosis*. It can be detected through skin tests, chest X-rays, signs and symptoms, sputum cultures, and CT or MR scans. It is very important that direct support professionals be tested (usually a skin test). This can minimize the spread of tuberculosis.

Signs and Symptoms of Tuberculosis

- Coughing up thick mucous (sometimes bloody)
- Weakness
- Night sweats
- Weight loss
- Loss of appetite
- Fever
- Hoarseness

MRSA (Methicillin-Resistant *Staphylococcus aureus*)

MRSA is a type of staph bacteria that does not react to certain antibiotics. It typically causes skin infections, but can also cause other infection, including pneumonia. MRSA does not usually, but can lead to death. It is spread by skin-to-skin contact, touching a personal item that touched the infected person, or touching a surface that touched the infected person.

What Does a MRSA Infection Look Like?

Signs include a bump or infected skin area that is:

- Red, swollen, and painful
- Warm to the touch
- Full of pus or other drainage
- Accompanied by a fever

Meningitis

- Meningitis is a disease caused by inflammation of the membranes surrounding the spine and brain.
- It can be caused by either a virus or bacteria.
- Bacterial meningitis is spread through contact with the respiratory or throat secretions of an infected person.
- Viral meningitis is typically spread through contact with the fecal matter of an infected person.

Signs and Symptoms of Meningitis

- Headache
- Fever
- Stiff neck
- Nausea/vomiting
- Sensitivity to light
- Altered mental status

Examples of Diseases Spread Through Food/Water

- Botulism
- Salmonella
- E. coli
- Campylobacter
- Calicivirus
- Giardia Lamblia
- Cryptosporidia

Symptoms of Food-Borne Illness

- Abdominal cramps
- Diarrhea
- Nausea
- Vomiting
- Double vision
- Swallowing/breathing problems
- Paralysis

Preventing Food-Borne Illness

- Handle food safely
- Wash hands regularly
- Do not eat or drink anything that smells, tastes, or looks spoiled
- Do not eat from bulging cans
- Do not drink or swim in contaminated water

Bloodborne Pathogens

A blood borne pathogen is a microorganism that is present in human blood and can cause disease in humans. These pathogens are spread through contact with infectious body fluids, such as blood, semen, or vaginal secretions. They are not spread by coughing, sneezing, or casual contact.

Three Bloodborne Pathogens That Cause Serious Disease

- HIV (the virus that causes AIDS)
- Hepatitis B
- Hepatitis C

HIV (Human Immunodeficiency Virus)

- This is the virus that causes AIDS (Acquired Immunodeficiency Syndrome).
- AIDS is an illness characterized by the failure of the immune system to defend against other diseases. This leads to severe infection by opportunistic pathogens.
- While there are medications that can help a person infected with AIDS, there is no cure.

Hepatitis B

- Hepatitis B is an infection of the liver that is caused by the Hepatitis B virus.
- There are medications that can help a person infected with Hepatitis B, as well as a vaccination series that can prevent a person from becoming infected. There is, however, no cure.

Hepatitis C

- Hepatitis C is an infection of the liver caused by the Hepatitis C virus.
- There is no vaccination for Hepatitis C.
- While there is no real cure, the medication interferon has shown to be very effective at treating Hepatitis C in some cases.

Materials Potentially Infected with Bloodborne Pathogens

- Blood
- Semen
- Vaginal secretions
- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Amniotic fluid
- Saliva is only considered infectious during dental procedures (potential presence of blood)

Keep in Mind....

While feces, mucus, etc. are not considered to be potentially infectious material for bloodborne pathogens; these materials can transmit other forms of disease.

Universal Precautions

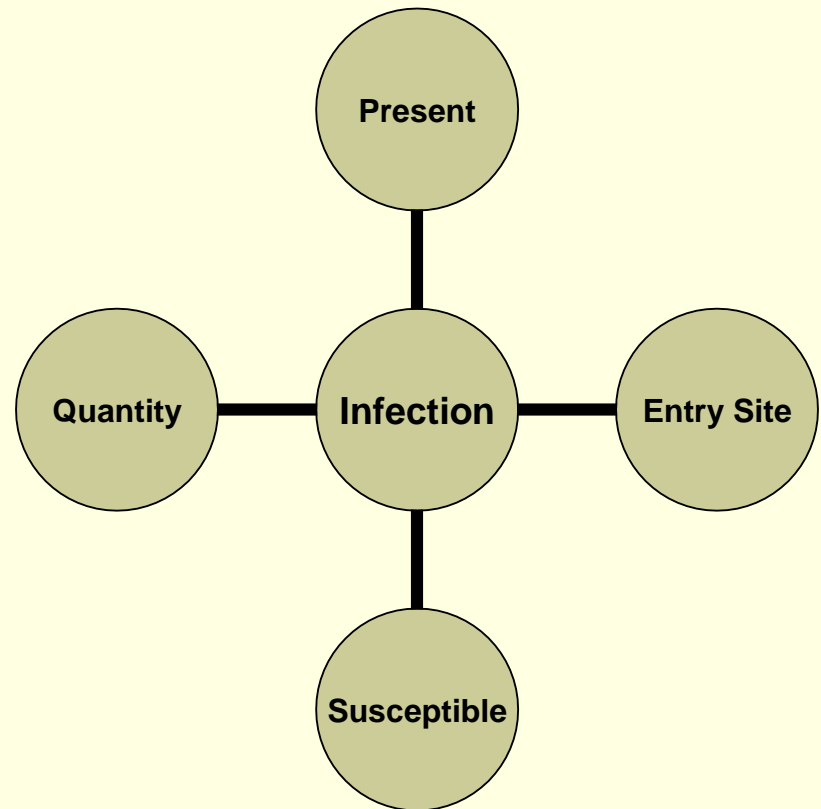
- Treat any potentially infectious material as if it were infected.
- Use appropriate protective practices (such as hand washing), and appropriate protective equipment (such as gloves, masks, gowns, or breathing barriers)

OSHA

- The Occupational Safety and Health Administration (OSHA) requires practices of infection control to protect employees from occupational exposure to potentially infectious materials (blood, body fluids).

Four Conditions Needed for Disease Transmission to Occur

- A pathogen must be present.
- There must be a sufficient quantity.
- The pathogen must have an entry site.
- The person must be susceptible to the pathogen.



Prevention

- Always use universal precautions when there is potential for exposure.
- Regular cleaning and disinfecting of household surfaces, as well as hands, can reduce the quantity and presence of pathogens.
- Using barrier devices, such as gloves and breathing barriers, can block the entry of pathogens.
- Vaccinations can reduce the susceptibility of an individual to specific diseases.

The Exposure/Infection Control Plan

- The exposure control plan is the document that outlines the protective practices that your employer will follow to minimize employee exposure.

Personal Precautions: Hand-Washing

1. Wet hands with water.
2. Apply soap.
3. Scrub hands vigorously for 15-20 seconds (make sure to get all surfaces).
4. Rinse hands with water.
5. Dry hands (preferably with paper towel)
6. Turn off faucet with paper towel.
7. Wash hands frequently.

Personal Protective Equipment: Breathing Barriers

- Always use an approved breathing barrier when performing the rescue breathing step of CPR.



Personal Protective Equipment: Gloves

- Always wear disposable gloves when you suspect potential for exposure.
- Never reuse disposable gloves.
- Do not contaminate your hands when removing gloves.
- Do not contaminate other surfaces (pens, tables, your face) by touching them with soiled gloves.

Personal Protective Equipment: Gloves



1. Grip the glove of one hand in the center of the palm with you other gloved hand. Do not touch contaminated parts of the gloves to your hands.

Personal Protective Equipment: Gloves



2. Peel the glove off, inside-out, without contaminating your hands, or any other surface.

Personal Protective Equipment: Gloves



3. Slide the finger of your ungloved hand under the lip of the glove. Do not touch outside surfaces of the glove with your ungloved hand.

Personal Protective Equipment: Gloves



4. Peel the second glove off, inside-out, creating a packet with the first glove inside the second. Do not contaminate your hands.

Personal Protective Equipment: Gloves



5. Dispose of the gloves in a labeled biohazard container, and wash your hands.

Personal Protective Equipment: Gowns, Eye Shields

- Use any time when blood or fluids are expected to be spurting or splashing.

Biohazard Labeling

- Always dispose of potentially infectious material in a labeled biohazard container.



Dealing with Contaminated Sharps

- If objects are sharp, dispose in an approved sharps container.



Spill Clean-up (Use Spill Kit if Available)

1. Wear protective equipment (gloves).
2. Clean up spill as soon as possible.
3. Do not touch any sharp objects with your hands (use tongs, or broom & dustpan)
4. Use absorbent materials to soak up the blood or fluids (paper towel).
5. Flood the area with an approved disinfectant solution for 10 minutes. OSHA recommends a solution of 1 part bleach to 10 parts water. **Do not mix bleach with ammonia, vinegar, any acid, or any product that says on the label to not mix with bleach!**
6. Use absorbent materials to soak up the disinfectant, and dispose of in biohazard container.

Vaccination

- Employers are required to provide the hepatitis B vaccination series to any employee who has the potential for occupational exposure to blood or other potentially infectious material.

Exposure Incidents: Immediate Care

- Wash needle-stick injuries, or skin exposure with soap and water as soon as possible.
- Flush exposures of the mouth or nose with large amounts of water as soon as possible.
- Irrigate exposed eyes with clean water or sterile saline solution as soon as possible.

Exposure Incidents: Follow-up

- Report any exposure incident immediately to your supervisor.
- Document the incident in accordance with your employer's exposure plan.
- Receive a follow up medical evaluation from a health care professional.

Resources:

- Bloodborne Pathogens Training: Preventing Disease Transmission. American Red Cross, 2003
- Providing Residential Services in Community Settings: A Training Guide. Michigan Department of Community Health, 1995
- http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10051
- http://www.state.nj.us/health/eoh/cehsweb/bleach_fs.pdf

Copy and paste the links into your web browser to access

Resources:

- http://www.cdc.gov/ncidod/dhqp/ar_mrsa.html
- <http://microbiology.mtsinai.on.ca/faq/transmission.shtml>
- CDC Hepatitis C Fact Sheet, 2005
- <http://www.cdc.gov/meningitis/index.html>
- http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodborneinfections_g.htm#mostcommon

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