

NC Department of Health and Human Services NC Nurse Aide I Curriculum

Module B Infection Prevention

July 1, 2024

Objectives

1. Relate the chain of infection to the work of a nurse aide in long-term care facilities
2. Explain the concept of breaking the chain of infection and its importance to infection prevention
3. Compare Standard Precautions and Transmission-based Precautions
4. Discuss the use of Personal Protective Equipment by the nurse aide
5. Explain why residents in long-term care facilities are at risk for infection

Infection Prevention

Perform Hand Hygiene



Use Personal Protective Equipment (PPE)



Infection

- A disease or a condition that occurs when harmful germs get into the body and grow in number
 - Urinary tract infection (UTI)
 - Skin infection
 - Respiratory infection
 - Gastrointestinal infection (GI)
- Two types of infection
 - Localized
 - Systemic

Localized Infection

- One body part with limited symptoms
- Symptoms
 - Painful
 - Red
 - Hot to touch
 - Puffy
 - Drainage



Systemic Infection

- Entire body part or system
- Symptoms
 - Fever
 - Chills
 - Fatigue
 - Nausea
 - Vomiting



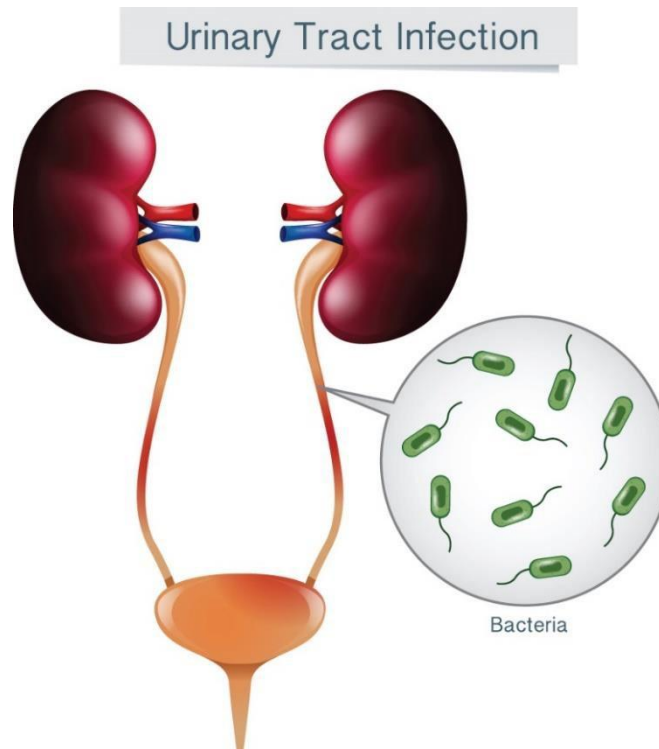
Respiratory Infection Symptoms

- How do you feel when:
 - someone coughs or sneezes on you?
 - someone hands you a moist, crumpled up, used tissue with yellow, thick, slimy globs of mucus on it?
 - you sit next to someone having fever and chills?



Bladder Infection

- What kind of symptoms do you think a female resident would have if she had a bladder infection?



Bladder Infection Symptoms

- Fever and chills
- Pain during urination
- Urine that has a bad or strong odor
- Urine that appears to contain blood
- “My urine smells bad and it hurts when I use the bathroom”

Stomach Infection

What kind of symptoms do you think a resident with a stomach infection will experience?



Have you ever had someone vomit on you?

- Have you ever had to clean up after someone has vomited?
- How did you feel if you got the vomited liquid on your hand?
- What did you do?



Microorganisms

- Also called germs
- Live almost everywhere
- Are sometimes helpful and sometimes harmful
- What do they need to survive?

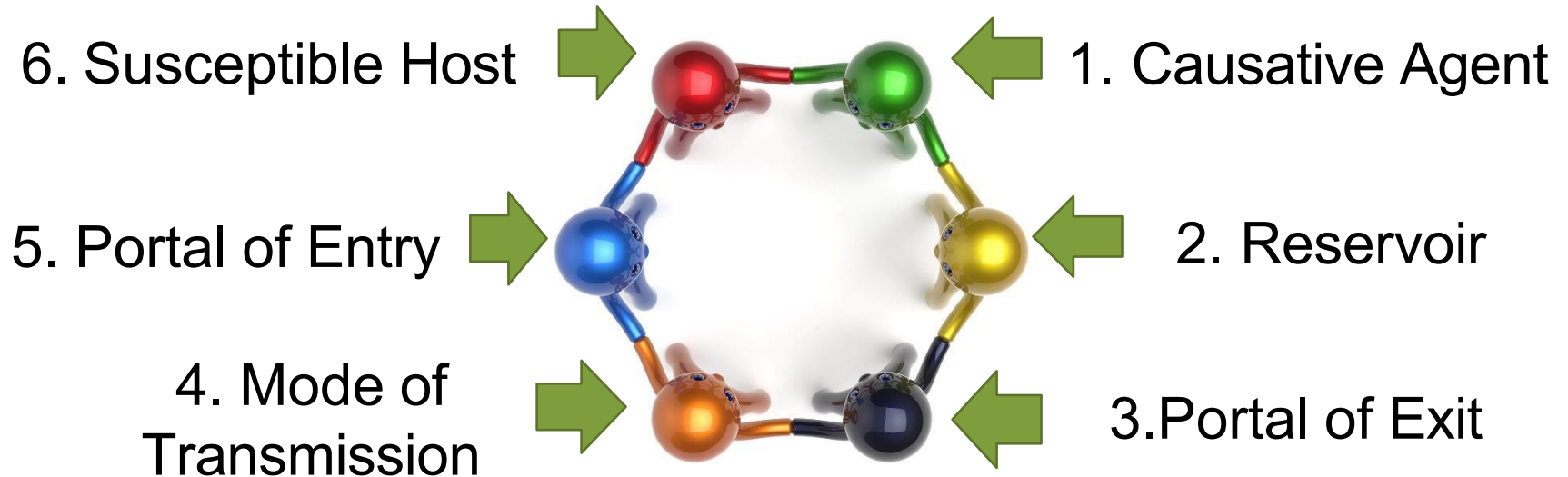


Medical Asepsis

- Also called clean technique
- Used to remove or destroy microorganisms and prevent the spread of infection



Chain of Infection



1st Link – Causative Agent

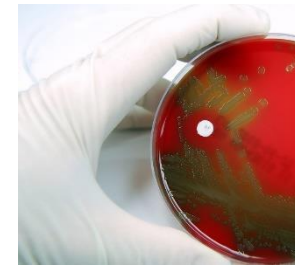
- A harmful germ that causes an infection
- Can be a bacteria, a virus, a fungus, or a parasite



**Viruses such
as COVID - 19**



**Staphylococcus
from skin smear of
unwashed hands**



**Streptococcus is
the leading cause
of pneumonia**

2nd Link – Reservoir

When reservoir is a person, harmful germs may live and multiply in the

- Blood
- Skin
- Digestive tract
- Respiratory tract

Can you look at a person and always tell if the individual has an infection?

2nd Link – Reservoir (2)

People as reservoirs for harmful germs

- 1st group – people who are not infected
- 2nd group – people who are infected and show symptoms
- 3rd group – people who are carriers; are not showing symptoms, but can still infect you

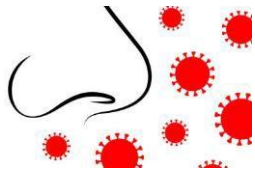
2nd Link – Reservoir (3)

- The key to preventing you, your co-workers, and your residents from becoming infected, is to treat everyone – as possible reservoirs or hiding places for harmful germs
- Treat all body fluids as infectious germs

3rd Link – Portal of Exit

Ways harmful germs escape from the reservoir include:

- Nose and mouth
- Gastrointestinal tract
- Skin



4th Link – Mode of Transportation

Germs travel around
from place to place by
our hands



4th Link – Mode of Transportation (2)

Harmful germs travel by direct contact with body fluids where germs live

- Blood
- Sputum
- Pus or wound fluid
- Saliva
- Stool
- Vomit (emesis)

4th Link – Mode of Transportation (3)

Harmful germs also travel by indirect contact, through an object that has touched body fluids from an infected person



4th Link – Mode of Transportation (4)

- Other ways that germs travel are through infected animals
 - The virus is in the saliva, such as rabies
 - The virus enters the body of humans through broken skin or through the eyes, nose or mouth
- Insect bites
- Food
- Water

5th Link – Portal of Entry

- Any opening on a person's body that allows harmful germs to enter
- Examples include:
 - Nose and mouth
 - Gastrointestinal tract
 - Skin
- Portals of entry are also portals of exit

6th Link – Susceptible Host

- A person who does not have an infection now, but is at risk for becoming infected from harmful germs
- Reasons why a person's body cannot fight off infection include the following:
 - Age
 - Chronic illness
 - Fatigue
 - Open cuts/skin breakdown
 - Poor nutrition
 - Stress

Residents living in long-term care facilities are more likely to get an infection than other people who live in our community.



Chain of Infection (2)

- The nurse aide has a huge responsibility to protect self, family and residents from harmful or potentially deadly infections
- If any link in the chain of infection is broken, the chance of new infection can be prevented



Breaking the Chain of Infection

If YOU can break any link in the chain, YOU can prevent a new infection

- Break the 1st link, the infectious agent, by getting an immunization against flu
- Break the 2nd link, the reservoir, by staying home from work when you are sick
- Break the 3rd link, the portal of exit, by covering your mouth and nose when you sneeze



Breaking the Chain of Infection (2)

- Break 4th link, the mode of transmission, by washing your hands
- Break 5th link, the portal of entry, by covering an open sore with a bandage
- Break 6th link, the susceptible host, by eating a proper diet



Health Care-Associated Infection (HAI)

- Infection acquired while in a hospital (also called nosocomial infection)
- Infection can also be acquired in other health care facilities



Centers for Disease Control and Prevention (CDC)

- Agency of the federal government
- In charge of control/prevention of disease
- Designed as a two-level way to protect the public
 - Standard Precautions
 - Transmission-based Precautions

Standard Precautions

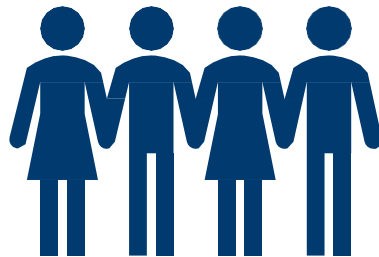
- 1st level is to prevent and control infections
- Basic tasks that health care workers must do when caring for each and every resident in order to prevent and control the spread of infection
- All body fluids, non-intact skin and mucous membranes are treated as if infected

Review of Terms

- Body fluids
 - Blood, saliva, tears, urine, stool, emesis
- Non-intact skin
 - Cuts, scratches, sores
 - Portal of exit and portal of entry
- Mucus membranes
 - Linings of the body such as eyes, nose, mouth, rectum

Importance of Standard Precautions

- Why must Standard Precautions be used with each and every resident?
- Following Standard Precaution Rules prevents self, visitors, family, co-workers, residents and other members of the health team from getting infections





Hand Hygiene



- The Centers for Disease Control and Prevention (CDC) defines hand hygiene as washing your hands with:
 - Soap and water, which is the best way to remove all types of germs and chemicals
 - If soap and water are not available, use an alcohol-based hand sanitizer (hand rub) with at least 60% alcohol

Performing Hand Hygiene

- Handwashing is the #1 way to stop the transmission of infection!
- Performing hand hygiene correctly is the single most important thing the nurse aide can do to prevent the spread of infection



Hand Hygiene – Where?



Nurse aides must perform hand hygiene at the point of care

Hand Hygiene – CDC Recommendations

Wash hands with alcohol-based hand rub or soap & water:

- Immediately before touching a resident
- Before performing aseptic task or handling invasive medical devices
- Before moving from work on soiled body site to clean body site on the same resident
- After touching a resident or their environment
- After contact with blood, body fluids, or contaminated surfaces
- Immediately after glove removal

Perform Hand Hygiene

- Arrival at work
- After using restroom
- Before and after eating
- Before and after gloving
- Before touching clean linen
- When your hands are soiled
- After handling trash
- Touching objects/people

Perform Hand Hygiene (2)

- After cleaning up blood or body fluids
- Before and after using shared medical equipment
- Leaving work
- Returning home
- Blowing nose or sneezing
- Touching hair or body parts
- After handling trash

Hand Wash or Hand Rub?

Use Hand Rub

- Before and after eating
- Before and after handling food
- Before and after routine resident care

Use Hand Wash

- If hands are visibly dirty
- After using restroom
- After blowing nose
- After sneezing in hands

Personal Protective Equipment (PPE)

- A group of items used to block harmful germs from getting on skin and clothes
- Used to keep blood, urine, stool, saliva, and other body liquids off the skin and clothes
- Type of PPE nurse aide wears depends on:
 - What is being done
 - What kind of contact there will be with blood, body fluids, non-intact skin, and mucus membranes

Personal Protective Equipment (PPE) (2)

Gloves should be worn when there is the possibility of:

- Contact with blood and body fluids
- Non-intact skin, such as sores, cuts
- Mucus membranes such as eyes, mouth, nose, rectum

Always wear gloves during mouth care, wiping a resident's nose, doing perineal care, caring for a sore, and shaving a resident



Personal Protective Equipment (PPE) (3)

- Gown should be worn when there is the possibility of contact with blood and body fluids, beyond the gloved hand
- Wear a gown when changing and disposing of soiled bed linen, gown, pads, or bandages that may come into contact with your skin beyond the gloved area or your clothes



Personal Protective Equipment (PPE) (4)

Mask should be worn when there is the possibility of breathing in harmful germs through the nose and mouth

Wear a mask to protect self when a resident has an illness that is transmitted by droplets and when you have a cough or cold symptoms



Sharps

Sharps are items that have corners, edges, or projections that can cut or pierce the skin

- Wear gloves and be careful
- Do no jab self when using sharps



Sharps (2)

NEVER, EVER re-cap a needle or other sharp object



Sharps (3)

NEVER, EVER put anything sharp in a regular trashcan



Disposal of Sharp Items

ALWAYS put anything sharp in a sharps container



Spills on the floor...what do I do now?

- Put on gloves
- Absorb spill
- Clean area
- Discard waste in appropriate container
- Apply disinfectant to area
- Place a warning cone or sign in area



Spills on Floor

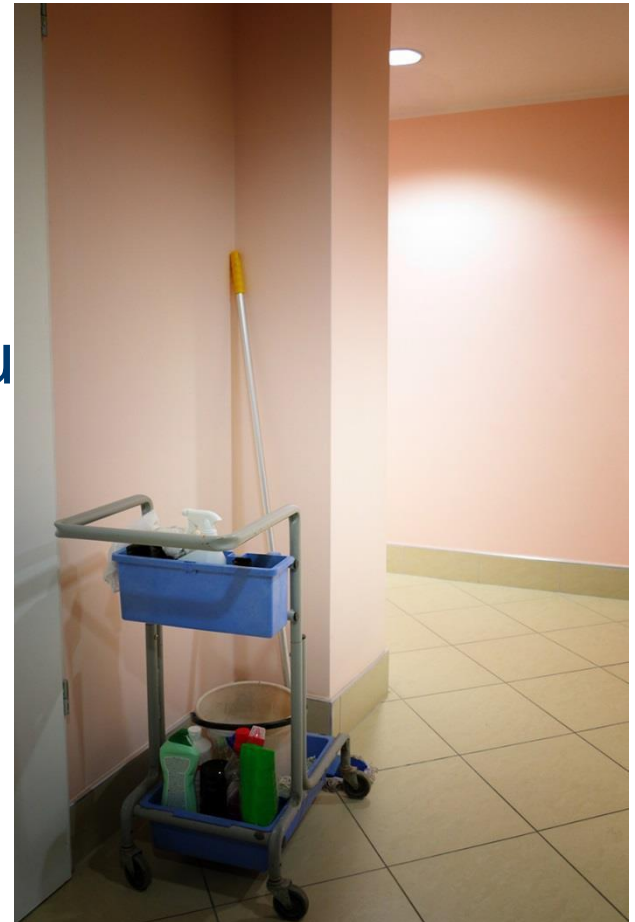
Why are spills on the floor involving body fluids especially dangerous in a long-term care facility?



Spills on Surfaces

Clean, clean, clean...

- Any time blood or body fluids get on any surface
- Use products available where you work
- Follow facility procedures and product instructions



Transmission-based Precautions

- 2nd level to prevent and control infections
- Specific tasks and measures must be taken for specific types of infections
- 3 Types:
 - Contact Precautions
 - Droplet Precautions
 - Airborne Precautions



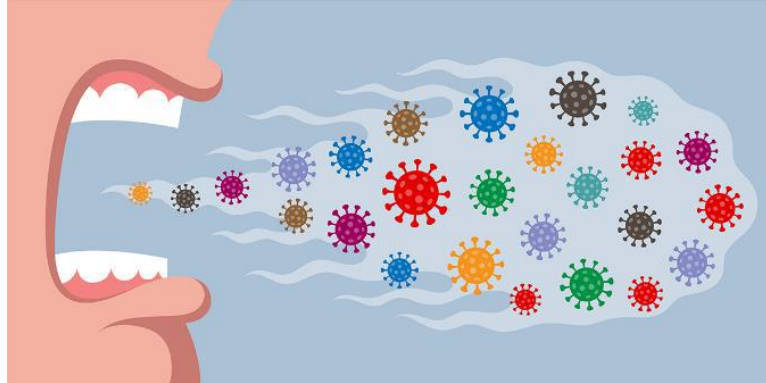
Contact Precautions

- Purpose is to prevent spread of harmful germs spread by direct contact
- PPE = Standard Precautions + Gown + Gloves
- Examples
 - Methicillin-resistant *Staphylococcus aureus* (MRSA)
 - Norovirus



Droplet Precautions

Purpose is to prevent spread of harmful germs that travel by air



Airborne Precautions

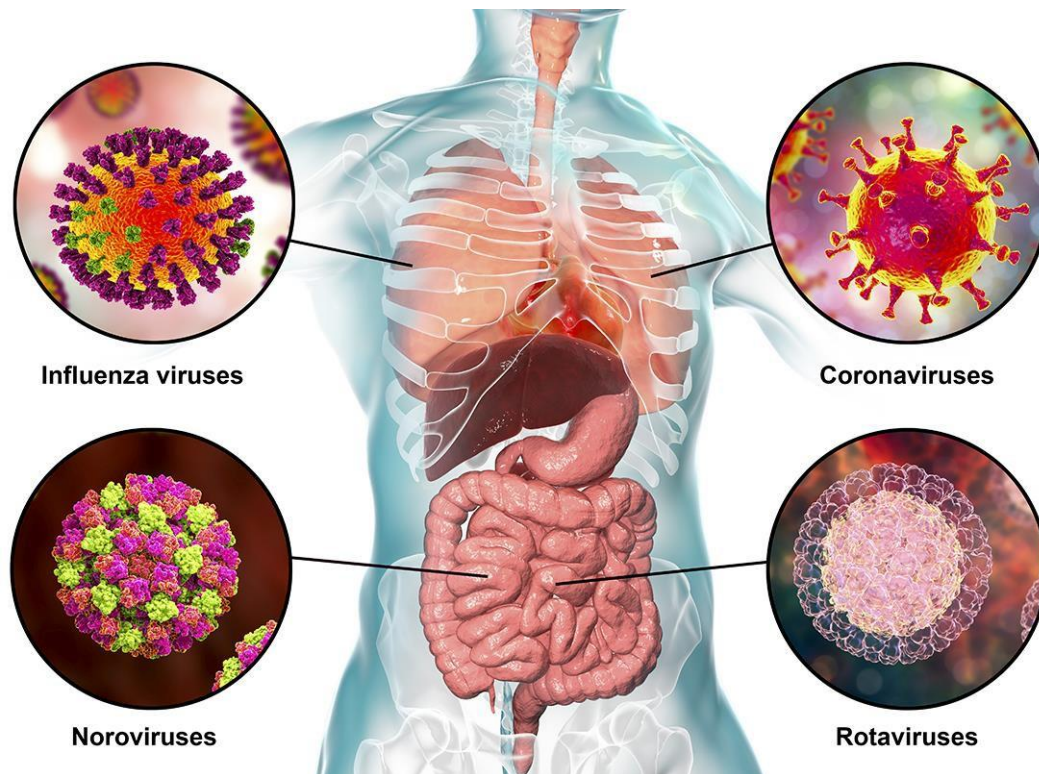
- Purpose is to prevent spread of harmful germs that travel in the air at a distance
- Harmful germs can float around for a while and can be carried by moisture, air currents, and dust
- PPE = Standard Precautions + Respirator (depending on disease)

Outbreaks

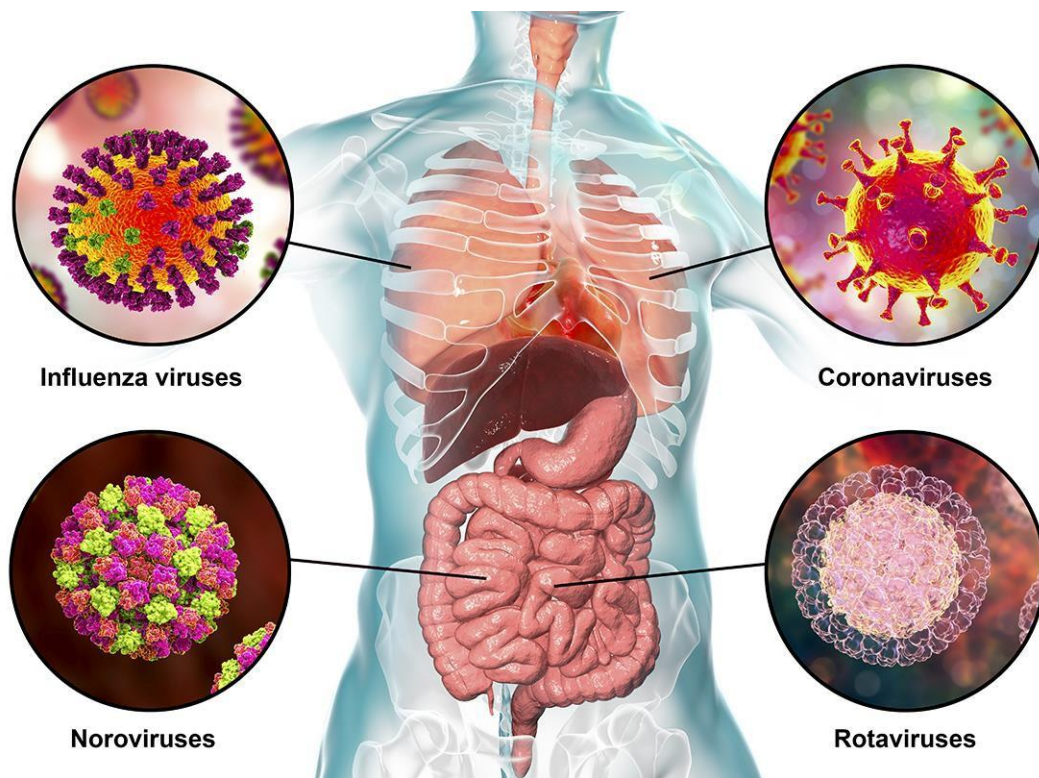
Influenza and norovirus are dangerous for people aged 65 and older



Influenza (Flu)



Norovirus



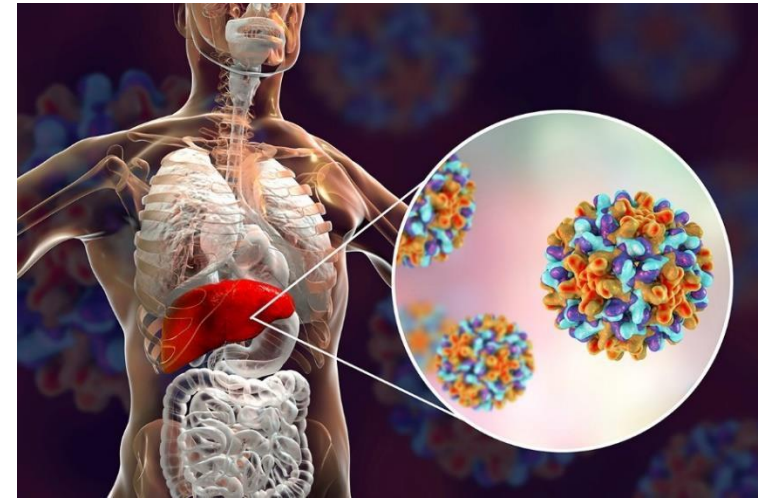
Bloodborne Infections

- Hepatitis B (HBV)
- Hepatitis C (HBC)
- Human Immunodeficiency Virus (HIV)
- Infection comes from bloodborne pathogens through accidental puncture wounds from needles or sharp objects and direct contact with infected blood

Bloodborne Pathogens

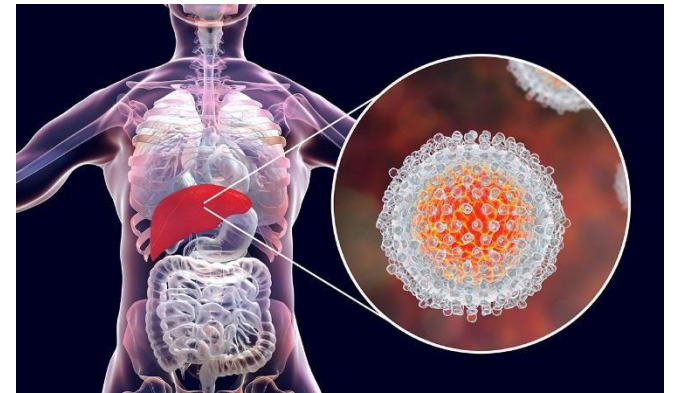
Hepatitis B Virus (HBV)

- A disease of the liver
- About 1/3 of people infected with HBV do not show symptoms
- Can live outside body on equipment or on surfaces for 7 days and infect during that time



Bloodborne Pathogens (2)

- Hepatitis C (HCV) is also transmitted through blood or body fluids
- There is no vaccine for Hepatitis C



Protect Yourself and Others

- Always wear gloves when there is a chance of exposure to blood
- Handle used sharps carefully and discard appropriately
- Follow facility's exposure plan if any part of body is exposed to blood or stuck with contaminated sharp
- Post-exposure

What Is Wrong With the Following Pictures?

What Is Wrong With This Picture?



What Is Wrong With This Picture? (2)



What Is Wrong With This Picture? (3)



What Is Wrong With This Picture? (4)



The End