

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

**Module B
Infection Prevention**

July 1, 2024

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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

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Infection Prevention

<p>Perform Hand Hygiene</p> 	<p>Use Personal Protective Equipment (PPE)</p> 
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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

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Localized Infection

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

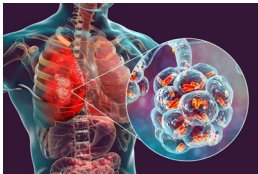


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Systemic Infection

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



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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?



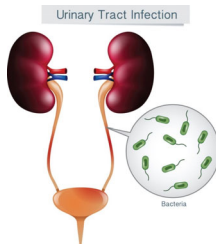
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Bladder Infection

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



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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”

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Stomach Infection

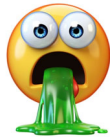
What kind of symptoms do you think a resident with a stomach infection will experience?



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Have you ever had someone vomit on you?

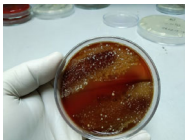
- Have you ever had to clean up after someone has vomited?
- How did you feel if you got the vomited liquid on your hand?
- What did you do?



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Microorganisms

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



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Medical Asepsis

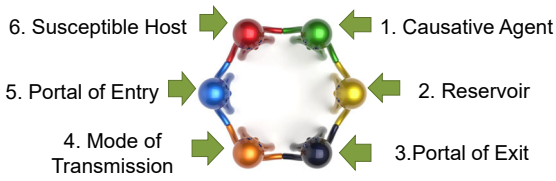
- Also called clean technique
- Used to remove or destroy microorganisms and prevent the spread of infection



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Chain of Infection



6. Susceptible Host → 1. Causative Agent

5. Portal of Entry → 2. Reservoir


4. Mode of Transmission → 3. Portal of Exit

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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

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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?

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2nd Link – Reservoir

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

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2nd Link – Reservoir

- 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




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3rd Link – Portal of Exit

Ways harmful germs escape from the reservoir include:

- Nose and mouth
- Gastrointestinal tract
- Skin

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4th Link – Mode of Transportation

Germs travel around from place to place by our hands



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4th Link – Mode of Transportation

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


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

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4th Link – Mode of Transportation

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



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4th Link – Mode of Transportation

- 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

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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

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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

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




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Chain of Infection

- 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




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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




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Breaking the Chain of Infection

- 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




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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



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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

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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

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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

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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




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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

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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



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Hand Hygiene – Where?



Nurse aides must perform hand hygiene at the point of care

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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

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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

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Perform Hand Hygiene

- 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

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Hand Wash or Hand Rub?

<p><u>Use Hand Rub</u></p> <ul style="list-style-type: none"> • Before and after eating • Before and after handling food • Before and after routine resident care 	<p><u>Use Hand Wash</u></p> <ul style="list-style-type: none"> • If hands are visibly dirty • After using restroom • After blowing nose • After sneezing in hands
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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

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Personal Protective Equipment (PPE)

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, nose, genitals, rectum

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




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Personal Protective Equipment (PPE)

- 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




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Personal Protective Equipment (PPE)

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




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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




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Sharps

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



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Sharps

NEVER, EVER put anything sharp in a regular trashcan




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Disposal of Sharp Items

ALWAYS put anything sharp in a sharps container



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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




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Spills on Floor

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



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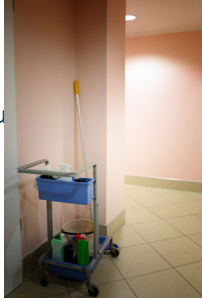
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Spills on Surfaces

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




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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




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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




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Droplet Precautions

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



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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)

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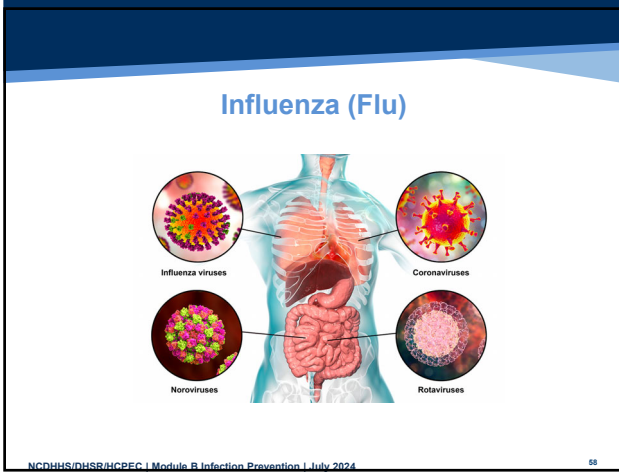
Outbreaks

Influenza and norovirus are dangerous for people aged 65 and older

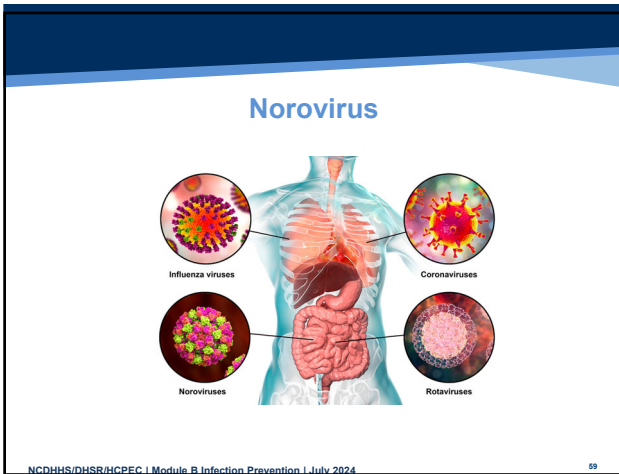


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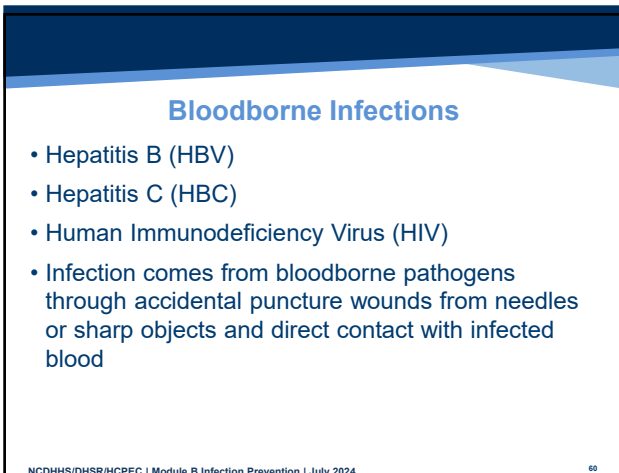
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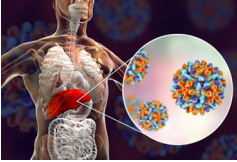


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Bloodborne Pathogens

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

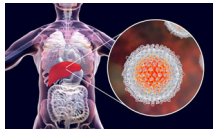


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Bloodborne Pathogens

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



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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

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What Is Wrong With the Following Pictures?

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What Is Wrong With This Picture?



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What Is Wrong With This Picture?



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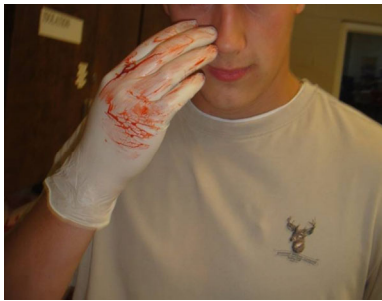


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What Is Wrong With This Picture?



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The End

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