

Infection Control – 2024

Types of Pathogens:

Bacteria

- E. Coli, Staphylococcus, Streptococcus

Viruses

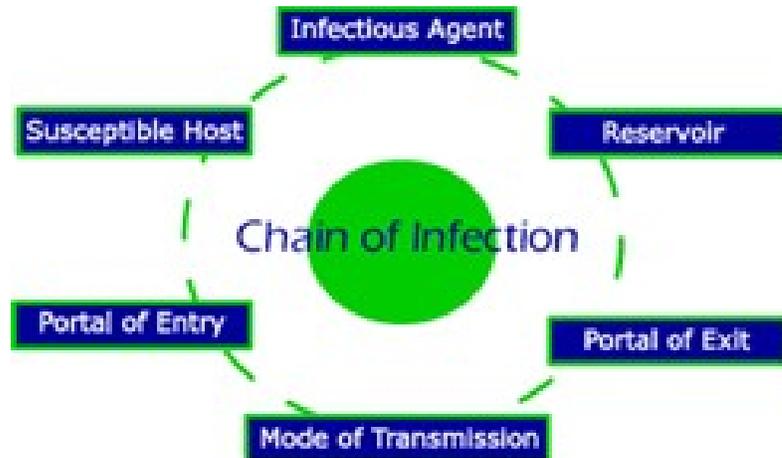
- HIV, hepatitis, herpes zoster

Fungi

- Molds, yeasts

Parasites

- Protozoa (malaria), worms



Chain of Infection:

- Causative Agent – microorganism (MO)
- Reservoir – where microorganism lives
 - Inside humans, animals, soil, water, surfaces, insects, etc.
- Portal of Exit – way microorganism leaves host
 - Respiratory tract (sneezing, coughing, talking)
 - GI tract (emesis or feces)
 - GU tract (urine)
 - Tissue (drainage from wound)
 - Blood (open wound, needle stick)
- Mode of Transmission- how MO travels to new host
 - Contact
 - Direct contact (Person to person)
 - Indirect contact (Object to a person)
 - Fecal-oral (using the BR without hand hygiene)
 - Droplet- can occur if source and host are within 3 ft of each other
 - Airborne- Transportation via droplets or dust particles remain in the air
 - Vector-borne- animal or flying insect that are carriers
- Portal of Entry – how the microorganism gets into new host
 - Any breaks in body's line of defense
 - Open wound, respiratory tract, urinary catheter, IV lines, etc.
- Susceptible Host – person with compromised defense mechanisms
 - Infants, elderly, decreased immune function

Can We Break the Chain of Infection?

A hospitalized elderly patient is on bedrest and requires assistance with ADLs. The patient has frequent uncontrolled diarrhea which contains E. coli. You, as the nurse, provide excellent care to maintain cleanliness and comfort. Following one episode of cleaning the patient, you immediately go into another patient's room to provide care. You forget to wash your hands...

Complete the Chain of Infection for This Scenario

Infectious agent:

Reservoir:

Portal of Exit:

Mode of transmission:

Portal of Entry (into new patient):

Susceptible host:

Healthcare Associated Infections (HAIs):

- Infections acquired while receiving care in healthcare setting
- Can come from source outside of client or from inside of client (when normal flora is altered)
- **Most common:**
 - Catheter associated urinary tract infections (CAUTI)
 - Surgical site infection (SSI)
 - Bloodstream infection (Bacteremia)
 - IV /Central line catheter infection (CLABSI)
 - Pneumonia (ventilator associated)
 - Clostridium difficile (C. diff)

Expected Findings of Infection

Clinical Manifestations

- Fever, chills
- Increased HR, RR
- Fatigue
- Anorexia, nausea/vomiting
- Enlarged lymph nodes
- Other findings depend upon site of infection:
 - Green sputum, hematuria/pyuria, purulent wound drainage, change in level of consciousness, etc.

Laboratory Tests

- Elevated WBCs
- Increases in specific types of WBCs (differential)
- Elevated erythrocyte sedimentation rate (ESR)
- Positive cultures (blood, sputum, urine, wound drainage, etc.)

Nursing Interventions to Prevent Healthcare Associated Infections

- Hand hygiene before & after care!!!
- Immunizations
- Aseptic technique & proper PPE
- Prevent spread of infection

When to Perform Hand Hygiene?

- Before and after patient contact
- After removing gloves
- After touching items or surfaces in the patient care environment even if didn't touch patient
- Whenever hands are visibly soiled
- After using the bathroom
- Before and after eating

Alcohol Gel vs Soap & Water

- Alcohol-based gel recommended unless hand visibly soiled or contaminated with blood/body fluids
- Soap & water ONLY:
 - Visibly Soiled
 - Clients with *C. diff*
 - Before eating
 - After using the bathroom
 - After contact with chemicals

Isolation Precautions

- Prevent transmission of microorganisms
- Protect patient(s) and/or protect staff
- Standard Precautions vs Transmission-based Precautions

Standard (Universal) Precautions

- **Applies to all clients**
- All body fluids (except sweat), non-intact skin, and mucous membranes are potentially infectious
- Prevents contamination to self as well
- Includes:
 - Hand hygiene
 - Use of PPE
 - Safe injection practices
 - Safe handling of contaminated equipment
 - Respiratory hygiene/cough etiquette

Categories of Transmission-Based Isolation

- **Contact** – MRSA, *C. diff*
PPE Required: Private room, gloves, gown. *C. diff*-Brown dot on signage and wash hands with soap and water
- **Special Contact** – VRE, ESBL
PPE Required: Private room with door closed, gloves, gown
- **Droplet** – Influenza, COVID-19
PPE Required: Private room with door closed, gloves, surgical mask, COVID-19 (gown)
- **Airborne** – TB, measles, chickenpox
PPE Required: Negative Pressured private room, gloves, gown, N95 Mask
- **Level III** – Scabies
PPE Required: Private room door closed, gloves, gown, pants, head, and shoe coverings
- **Protective Care** – “Reverse isolation” You are protecting the patient from yourself.
PPE Required: Private room with door closed, strict handwashing, no one sick to enter room.

COVID-19 General Considerations

- Surgical Masks worn when caring for COVID-19 clients, rule-out COVID-19 clients, or any time a client requests you wear one. Eye Protection only required to be worn for rule out COVID-19 clients and confirmed diagnosed COVID-19 clients.

- Masks = “extension of your face” and are changed b/t COVID-19 patients
- Eye protection must have side shields
 - Should be disinfected at end of use
 - Disinfectant wipes or soap/water
- Avoid touching front of mask/eyewear
 - Hand hygiene immediately after touching

Transmission-based precautions (i.e. contact, droplet, special contact, etc.)

- Adhere to *general guidelines* AND PPE as required for that particular category (i.e. gown, gloves)
- Will remove everything **except** mask/eye protection prior to leaving room

COVID-19 suspect (PUI) or confirmed positive COVID-19

- Surgical mask, goggles/face shield, gown, gloves (not receiving aerosol generating procedures)
- N95 mask, goggles/face shield, gown, gloves, negative pressure room (when receiving aerosol generating procedures) -such as nebulizer treatment.

