

# Infection Control – 2021

## 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
- 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)
- 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)
- 687,000 HAIs in U.S. hospital in 2015 – 72,000 died during hospitalization
- Most common:
  - Catheter associated urinary tract infections (CAUTI)
  - Surgical site infection

- o Bloodstream infection
- o Pneumonia (ventilator associated)
- o 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:
  - o 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

### **Alcohol Gel vs Soap & Water**

- Alcohol-based gel recommended unless hand visibly soiled or contaminated with blood/body fluids
- Soap & water
  - o Visibly soiled
  - o Patients with C. diff

### **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 patients
- All body fluids (except sweat), non-intact skin, and mucous membranes are potentially infectious
- Prevents contamination to self as well
- Includes:
  - o Hand hygiene
  - o Use of PPE
  - o Safe injection practices

- o Safe handling of contaminated equipment
- o 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 Considerations**

#### *General Guidelines*

- Surgical Masks & Eye Protection worn (correctly) at all times in patient care areas (regardless of pt. diagnosis)
- Masks = “extension of your face” and do not need to be changed b/t patients
- Masks worn for 1 day & discarded at end of day
- Change back into SON mask when leaving the unit
- If removed for any reason, masks stored in paper bag labeled w/ name & date
- Eye protection must have side shields
  - o Should be disinfected at end of day
    - Disinfectant wipes or soap/water
- Avoid touching front of mask/eyewear
  - o 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)