

## Transmission Of Disease

### 1. Contact Transmission

- Direct transmission of microbes by physical contact from person to person  
Example: MRSA, VRE, Strep

**\*\*\*SINGLE MOST IMPORTANT WAY TO PREVENT THE TRANSMISSION OF MICROBES VIA THE CONTACT ROUTE OF TRANSMISSION\*\*\***

1. 30 second scrub most common protocol  
Done:
  - Between patients
  - Before preparing medications
  - Before and after eating
  - After smoking
  - After use of restroom facilities
  - After contact with contaminated equipment
  - ANY time the hands come in contact with body secretions
2. 10 minute scrub
  - Done before entering surgery, NICU, burn unit, nursery
3. 3 minute scrub
  - Done when arriving to and leaving from the hospital

### 2. Airborne Transmission

- Spread of microbes via droplet nuclei or dust particles of more than 1 meter from reservoir to host  
Example: Histoplasmosis, Coccidiomycosis, TB

### 3. Vehicle Transmission

- Spread of microbes via inanimate objects
- Stethoscopes, food, water  
Example: Botulism, Cholera, Salmonellosis

### 4. Vector Transmission

- Spread of microbes from one host to another
- Hosts not necessarily of same species  
Example: Malaria (mosquito), Lyme Disease (DeerTick), Bubonic Plague (Fleas)

### **Standard (Universal) Precautions**

1. HANDWASHING
2. Use of gloves, mask, eye protection (or face shield), and gown
3. Handling of patient care equipment, patient's linens, sharps, and mouth to mask ventilation devices
4. Patient placement

### **Use of Gloves**

1. Advised when possibility of contact with blood, body fluids, secretions, excretions, contaminated objects, before contact with broken or non-intact skin, mucous membranes
2. NEVER put gloved hands near your face
3. Change gloves when soiled
4. Gloves do NOT eliminate the need to wash hands between patients! Remove gloves, and then wash hands.

### **Use of mask, eye protection or face shields**

1. Advised when there is a possibility of being splashed or sprayed by blood, body fluids, secretions, or excretions
2. Situations in RT include:
  - Bronchoscopy
  - Trauma
  - Resuscitation (Code Blue)
  - Airway aspiration (suctioning)
  - Ventilator circuit changes

### **Use of Cover Gown**

1. Advised when possibility of splashing/spraying of skin and clothing by blood, body fluids, secretions, and excretions
2. Situations in Respiratory same as above
3. If soiled with blood, body fluids, secretions, excretions use same precautions as patient care situations where you may come into contact with these.
4. Gloves are REQUIRED.
5. Mask, eye protection, face shield if possibility of getting splashed.
6. Decontaminate all permanent, reusable equipment before use on another patient
7. Discard disposable circuits BEFORE removing equipment from the isolation area
8. Disposable equipment should be properly disposed of and handled with other contaminated wastes.

## **Handling of patient care equipments**

1. Handle in a way that prevents contact with your skin, mucous membranes, and clothing.
2. Requires the use of gloves.
3. May require use of cover gown, mask, eye protection, face shield
4. Sharps
5. Needles
6. Scalpels
7. Razors/Disposable suture scissors
8. ANY sharp instrument
9. NEVER recap any needle!!!  
(This is the most common cause of needle sticks)
10. Dispose in provided special puncture resistant containers
11. NEVER attempt to remove discarded needles or syringes from sharps containers.
12. NEVER attempt to force a needle or sharp instrument into a full sharps container.

## **Use of mask to mouth ventilation device**

1. Availability of such devices is warranted in ANY area where resuscitation may be predicted or warranted
2. Prevents direct contact with patient's mucous membranes during CPR
3. Provides barrier between the patient and the caregiver

## **Specific Transmission Precautions:**

### **Airborne Precautions**

- Diseases like TB, Varicella, Measles
- Transmission of microbes via small aerosolized particles of 5 microns or smaller in size
- Negative Pressure room with 6 – 12 air changes per hour
- May ONLY be placed with another patient if BOTH patients are infected with same organism
- HEPA (NIOSH N-95) respirators/masks required for caregivers
- HEPA mask not required for caregivers immune to varicella or measles
- If transporting patient through hospital, patient MUST wear a simple surgical mask  
\*\*Transporting patient through hospital should be avoided, if at all possible\*\*

### **Droplet Precautions**

- Diseases such as Pertussis, RSV
- Transmission of microbes via droplets larger than 5 microns
- Generated by coughing, sneezing, talking, bronchs, suctioning, vent circuit changes
- Private room with door closed
- Patients infected with same organism (and no other infections) may share a room
- Mask required when working within 3 feet of patient
  - Some facilities require wearing of mask at all times whenever the caregiver is in patient's room
- Simple surgical mask MUST be placed on patient when transporting through the hospital to prevent transmission of droplets
  - Transportation of patients in droplet precautions should be avoided, if at all possible

## **Contact Precautions**

- Diseases such as MRSA, VRE, C-Diff
- Transmission via direct patient contact, environmental surfaces, or patient care items in patient's room
- Private room
  - Two patients may share room if they are infected with the same organism and have no other infections
- Use of gloves required upon entry to room
  - Change gloves between procedures on same patient
  - Change gloves when soiled
  - Remove gloves before leaving room
- Thorough hand washing required when entering, leaving patient room
  - Soap & Water
  - Alcohol based waterless antiseptic agent advised
- Wear gown if you may soil clothing or have substantial contact with patient, patient care equipment, or soiled environment
  - Dispose of gown before leaving patient room
- Limit intra-hospital transport to essential purposes only, limiting contact with visitors, personnel, other patients, or environmental surfaces
- Permanent equipment must be properly disinfected before using on other patients
  - Avoid sharing equipment between patients

## **Enteric Precautions**

- Precautions specifically involving gastrointestinal organisms
- Diseases such as:
  - Cholera
  - Enteropathogenic E. Coli Gastroenteritis
  - Infectious Viral Hepatitis A
  - Salmonellosis
  - Shingellosis

## **Neutropenic Precautions**

- Also known as “Reverse Isolation” or “Protective Isolation”
- Designed to protect the patient from visitors, staff, etc.
- Requires gowns, gloves, caps, masks, booties – the “full garb”
- Patient population includes:
  - Chemotherapy patients
  - Burn patients
  - Immunosuppressed patients
  - Transplant patients

## **Hand Washing Review**

- Remove jewelry, watch
- Never contact the sink with hands or body
  - *Pseudomonas* has been frequently cultured from sinks
- Adjust water flow and temperature
- Wet forearms, wrists, hands
- Liberally apply soap
- Wash palms with strong friction
- Wash between fingers
- Wash wrists with a rotary motion
- Scrub under nails and around cuticles \*\*
- Rinse hands without touching the sink
- Obtain towels aseptically
- Dry hands, from forearms towards fingertips. Use clean towel for each hand
- Turn off water with clean, dry towel

### **Asseptic Removal of Isolation Attire**

1. Remove cap and mask
2. Remove gown, turning inside out
3. Remove eye protection when there is no risk of splashing eyes
4. Wash hands

### ***APPLY COMMON SENSE!***

Prevent yourself from becoming infected. Think about what you are doing ... and the consequences that may accompany your actions.