Infection Prevention and Control - General Orientation

Isolation Precautions - CDC
Medical Waste - OSHA
Environmental Cleaning - CDC
Safe Injection Practices - CDC
Bloodborne Pathogens - OSHA
Respiratory Protection - OSHA
Infection Prevention and Control

- Essential shared activity
- Provide a safe environment for everyone
- Identify and correct unsafe practices
- Reduce and prevent the transmission of communicable diseases, drug-resistant organisms, healthcare-associated infections, and control outbreaks and endemic infections
Father of Infection Control

- Used epidemiologic approach with puerperal sepsis
- Developed and tested hypothesis (hand washing) in 1847
- Shared results but did not publish
- Called a crackpot and avoided by peers
- Spent last years in asylum and subsequently died of infection
Infection Prevention

Chain of Infection

- Infectious Agent
- Susceptible Host
- Reservoir
- Portal of Entry
- Portal of Exit
- Mode of Transmission
Infection

Infections occur when an organism enters a person’s body growing, multiplying and causing noticeable symptoms

- Persons at high risk for infection
  - Elderly/very young
  - Chronic diseases
  - Immunocompromised (patients receiving steroids, chemotherapy, organ transplants)
  - Post invasive procedures and hospitalization

- Infection risk (how likely the person gets sick)
  - Route of entry of germ into the person
  - How capable the germ is of causing sickness by overwhelming a person’s immune system
  - Quantity of germs in the initial exposure
  - Immune status of host
What are some examples of how infections are spread?

- Contact: Direct or indirect contact: touching the patient or environment with unwashed hands, contaminated medications, and/or equipment

- Droplet: sneeze or cough producing large droplets

- Airborne: talking, laughing or breathing spreading small aerosolized (droplet-nuclei) particles

- A person’s own germs

- Break in aseptic technique during procedures
Hand Hygiene

- Upon arrival at work, leaving, and returning to work area
- Before and after any patient, environment, or equipment contact
- After caring for patients with *Clostridium difficile* / active diarrhea
- Between dirty and clean patient care tasks
- When hands are visibly soiled or contaminated
- Prior to invasive procedures
- After personal use of the toilet
- Before and after eating, drinking, or smoking
- Before and after gloves are used
Hand Hygiene

Alcohol Based Hand Rub

✓ Primary hand hygiene agent
✓ Use multiple times between washing with soap and water
✓ Located throughout the facility

Soap and Water MUST be used:

✓ When your hands are visibly soiled (or contaminated with blood or body fluids)
✓ When caring for a patient with *C. diff* or diarrhea
✓ After personal use of toilet.
Cultures

Medical Records

Physician

Nurse
Hand Hygiene with Alcohol Hand Rub:

- Apply nickel size amount to palm of hand

- Rub hands together to coat all surfaces of both hands; including between fingers, finger tips and nails, back of both hands until dry

- DO NOT WIPE OFF ON ANY MATERIAL or wave hands in the air to air dry
Hand Hygiene with Soap and Water

- Turn on warm water
- Apply soap to hands
- Rub hands together covering all surfaces
- 15-20 seconds – Sing “Happy Birthday” twice
- Rinse hands
- Dry hands completely with a paper towel
- Use paper towel to turn off faucet
Non-oil or petroleum based hand lotions or creams may be used by healthcare providers to minimize the occurrence of skin irritation.

- Use facility provided hand lotion.
- Keep natural nail tips neatly groomed and trimmed to 1/4 inch in length.
- No artificial nails
Gloves

✓ **Perform hand hygiene. Gloves are not a substitute for hand hygiene.**

✓ Gloves should be changed or removed after patient care activities or procedures.

✓ Change gloves during patient care if moving from a contaminated body site to a clean body site. Perform hand hygiene.

✓ Hands should be cleaned or decontaminated when gloves are removed and the hand-contaminating activity is completed.

✓ Disposable gloves are used only once and should **not** be washed for reuse.
Multiple drug resistant organisms (MDROs) are emerging!
Multidrug-Resistant Organisms (MDRO)

- MDROs: organisms that are resistant to one or more classes of antibiotics
- Extremely limited options for treatment.
- MDRO infections increase the mortality, lengths of stay and costs for patients
Isolation Precautions

Standard Precautions

✓ Everyone is considered infectious regardless of their diagnosis or suspected status
✓ Purpose of Standard Precautions is to prevent the spread of bacteria to others

Transmission-Based Precautions

✓ Implemented in addition to Standard Precautions
✓ Implemented for patients documented or suspected to be infected or colonized with organisms spread by contact, droplets or through the air

Infected Patients

Colonized Patients
Standard Precautions

- Perform hand hygiene
- **Dispose of medical waste** in the proper container
- Use **sharps safety** products and work practice controls to prevent bloodborne pathogens exposures
- Use **Personal Protective Equipment (PPE)** whenever there is a possibility of exposure to blood and/or body fluids
- **Clean** all patient care areas regularly
- **Clean** all spills immediately
- Handle **soiled linen** as little as possible and place in covered hamper

- **Report all exposures immediately**
Transmission-Based Precautions

✓ Use in addition to Standard Precautions

✓ Requirement determined by diagnosis and or clinical signs and symptoms of documented or suspected infection
  ✓ Contact
  ✓ Droplet
  ✓ Airborne

✓ Other special/specific precautions as determined by facility.
Transmission-Based Precautions

✔ Use dedicated equipment when possible.
✔ Limit the movement of the patient, performing procedures in their room when possible.
✔ Teach the patient and family about hygiene and frequent hand washing.
✔ Communicate the need for transmission-based precautions to all departments/staff and to receiving facilities once discharged.
✔ Frequently clean the room and patient care equipment using the hospital disinfectant.
✔ Once discharged, please leave sign on door. EVS will remove once room has been cleaned.
The Inanimate Environment Can Facilitate Transmission


X represents Multidrug resistant organism culture positive sites

~ Contaminated surfaces increase cross-transmission ~
Cleaning and Disinfection of the Inanimate Environment

- Cleaning: mechanical removal of dirt or foreign materials (lower numbers of microbes)
- Disinfection: elimination or destruction of almost everything on a surface or item
- Clean all reusable equipment between each use and when visibly soiled
- Use EPA registered disinfectants; maintain contact based on the kill time on the product label
- Terminally clean all procedure rooms at least one time per 24 hours of use
✔ Store sterile and clean items appropriately: clean with clean
✔ Follow manufacturer’s recommendations for maintaining and cleaning equipment and instruments
✔ Clean visible blood or body fluids immediately

✔ Steps for Cleaning
  – Wear appropriate PPE
  – Use friction to remove visible dirt, grime and materials from surfaces
  – Use clean cloth or mop head to disinfect after cleaning
  – Allow appropriate contact time (kill time listed on container) for disinfectant to do its job
Personal Protective Equipment (PPE)

- Gloves
- Gown
- Mask (surgical), N-95 respirator (for Airborne), PAPR
- Goggles or safety glasses
- Face shields
- Other PPE for specific jobs include hard hats, special shoes, aprons
Contact Precautions

✓ Prevents direct and indirect contact transmission

✓ Physical transfer (direct or indirect) of organisms can occur
  ❖ During patient contact (turning, bathing, etc.)
  ❖ Contact with the environment.
Droplet Precautions

✓ Prevents transmission via droplets from the patient when they cough, sneeze, talk and/or undergo certain procedures.

✓ Droplets can contain organisms that are propelled through the air and can travel approximately 3 to 6 feet from the source.

✓ Requires private area with door preferred

✓ Wear a traditional surgical mask

✓ Eye protection/gowns per facility policy

✓ Place a surgical mask on patients or give them tissues to cover their mouth when traveling outside of their room.
Airborne Precautions

- Prevents transmission through airborne particles
- Place the patient in negative pressure room immediately
- Check monitor on wall & keep the door closed.
- Wear a fit-tested N-95 respirator prior to entering the room
- When transport is necessary, place surgical mask on patient.
- Communicate airborne precautions
Respiratory Protection Standard requires:

- Respiratory Assessment based on hazardous chemicals in environment and communicable airborne diseases risk
- Availability of appropriate respiratory protection (PPE)
  - Respirators, Masks, Powered Air Purifying Respirator (PAPR)
  - Annual fit testing for N-95 mask
- Facility annual risk assessment for pulmonary Tuberculosis
Occupational Safety and Health Administration (OSHA)

Blood-borne Pathogens Standard requires:

- Personal Protective Equipment (PPE)
- Sharps safety products
- Appropriate handling of medical waste and sharps containers
- Provide Hepatitis B immunizations
- Education and bloodborne pathogens exposure control plan to minimize or eliminate workers’ exposure to blood or other potentially infectious materials

OSHA exposure logs and Employee Health Records

- Confidential records maintained in secure location for duration of employment plus 30 years
Safe Injection Practices

✓ Use aseptic technique when handling medications
✓ Syringes and needles are sterile, single-patient use items
✓ Do not administer medications from a syringe to multiple patients even if the needle is changed
✓ Administer topical, spray or drops in a manner to prevent cross-contamination
✓ Open ampule, vial or prefilled syringe at time of use
Sharps Safety

Use sharp safety products with a built in safety device
- Activate the safety device after use
- Dispose of in a puncture resistant-labeled sharps container

Use work practice controls
- Do not bend or break needles or sharp items
- Do not eat, drink, apply cosmetics or lip balm, or handle contact lenses in any area where there is a possibility of blood or body fluid exposure

Use proper sharps container for your area
- Do not remove needles from a sharps container
- Do not overfill sharps container
- Change container when it is 2/3 full
Infectious Medical Waste

Infectious medical waste is any item that is saturated or caked with blood or other potentially infectious materials and must be placed in biohazard containers

- Infectious medical waste containers are labeled: red bags, biohazard signs or labels
- Infectious Medical Waste is covered and transported separately from other waste streams
- Infectious medical waste is secured in storage locations
- Used needles, scalpels and other sharp items are placed in labeled, hard sided sharps containers
Linen

✓ Soiled linen is handled as little as possible
✓ Soiled linen is placed in designated containers with lids or bags that are properly tied
✓ Soiled linen is never placed on the floor
✓ Soiled linen is stored separately from clean linen
✓ Cover clean linen during storage and transport
Bloodborne Pathogens

✔ Exposure control plan designed to protect all employees from exposure to bloodborne pathogens

✔ Employees are required to read and follow the plan

✔ Copies may be received from Employee Health or found online

✔ Exposure risks can occur when unprotected contact is made with some human body fluids.
Potentially infectious body fluids include:

- Blood
- Amniotic fluid
- Vaginal secretions
- Pleural fluid
- Pericardial fluid
- Cerebrospinal fluid
- Synovial fluid
- Peritoneal fluid
Bloodborne Pathogens

Hepatitis B virus (HBV), Hepatitis C virus (HCV) and Human immunodeficiency virus (HIV)

• Transmission
  ✓ Activities that involve percutaneous (i.e., puncture through the skin, non intact skin), mucosal contact, unprotected sex with infectious blood or body fluids (i.e., semen, saliva)

• Signs and Symptoms
  ✓ Varies by age. Most children and adults are asymptomatic
  ✓ When present, signs and symptoms may include: fever, fatigue, nausea, vomiting, joint pain, jaundice (with Hepatitis), night sweats (with HIV)
If you have any exposure such as a needle stick, use **WIN**:  

✅ Wash the exposed area immediately with soap and water.  
✅ Identify the source of the exposure.  
✅ Notify your supervisor immediately.  

**DO NOT WAIT!**

**Know your risk**  

HBV positive needle stick exposure: 6-30%  
HCV positive needle stick exposure: approximately 1.8%  
HIV exposure from a needle stick: 0.3% or 1 in 300
Immunizations and certain tests are offered FREE

- Hepatitis B vaccine
- Measles, Mumps and Rubella (MMR)
- Varicella (chickenpox) screening
- Influenza
- Tdap
- 2-step Tuberculosis skin test (TST) or T-SPOT
References

• CDC Guidelines for Hand Hygiene
• OSHA Bloodborne Pathogens Standard
• CDC Management of Multidrug-Resistant Organisms in Healthcare Settings
• OSHA Respiratory Protection Standard
• CDC Guidelines for Medication Handling and Injection Practices
• CDC Guidelines for Environmental Infection Control in Health-Care Facilities