

Unit Four - Safe and Sound

Infection Control - Lecture Notes

Infection Control

- The presence of microorganisms does not automatically mean that an infection will result.
- Infection only results if pathogens increase in number and alter the functioning of normal tissues.
- After invading the tissue, pathogens compete for space and nutrients.
- After gaining control, pathogens continue to replicate and get stronger.
- Some infections can spread to other people and are described as being contagious.

Breaking the Chain of Infection

- An important way to break the chain of infection is to use aseptic techniques while providing health care.
- Asepsis is defined as the absence of disease-producing microorganisms or pathogens.
- Aseptic techniques are directed toward maintaining cleanliness and preventing contamination.
- Medical asepsis
 - Called “clean technique”.
 - Includes hand washing, personal protective barriers, and routine cleaning of the environment.
- Surgical asepsis
 - Called “sterile technique”.
 - Only sterile objects can come in contact with sterile objects. Otherwise, they must be considered contaminated.

Methods That Destroy Microorganisms

- Cleaning – cleaning removes soil, food, or other matter from a surface.
 - Examples – soap and water.
- Antiseptics – solutions applied directly to the skin that prevent or inhibit the growth of pathogens.
 - Examples – Betadine, Alcohol.
- Disinfection – using strong chemicals, such as bleach to destroy pathogens, usually on objects, not skin.
 - Examples – Bleach solutions, Zephirin.
- Sterilization – the most effective way to destroy all microorganisms.
 - Steam under pressure, gas, radiation, and chemicals can be used. (Autoclave)
- FYI: skin and hair cannot be sterilized because any solutions or procedures that kill microorganisms are harmful to skin/scalp.

Handwashing

- A basic task required in any health occupation.
- Handwashing is the most important method used to practice aseptic technique and the most effective way to prevent the spread of infection.

- Wash your hands frequently!
 - When you arrive at the facility and immediately before leaving the facility.
 - Before and after every patient contact.
 - Any time hands become contaminated during a procedure.
 - Before and after any contact with your mouth or mucous membranes.
 - Before applying and after removing gloves.
 - Before and after handling specimens.
 - After contact with soiled or contaminated items.
 - After picking up any item off the floor.
 - After personal use of the bathroom.
 - After you cough, sneeze, or use a tissue.
- Use soap – aids in the removal of germs through its sudsy action and alkali content.
 - Pathogens are trapped in the soapsuds and rinsed away.
 - Use liquid soap (bars can contain microbes).
- Use warm water – creates a better lather with soap, less damaging to the skin than hot water.
- Friction – helps rub off pathogens from the surface of the skin.
- All surfaces on the hands must be cleaned.
 - Palms, backs/tops, areas between fingers.
- Fingertips must be pointed downward so water doesn't get on forearms and then run back down to contaminate the hands.
- Dry paper towels should be used to turn the faucet on and off.
- Fingernails – keep short, clean underneath.

Managing a Personal Exposure Incident

- An occupational exposure incident can be defined as a
 - Percutaneous injury – needlestick or cut with a sharp object.
 - Contact of mucous membrane or non-intact skin with blood, saliva, tissue, or other body fluids that are potentially infectious.
- Exposure incidents place health care workers at risk for infections.

Managing a Personal Exposure Incident

- Personal exposure incidents should be immediately reported to your supervisor, according to OSHA standards. Complete the designated incident reporting forms.
- All exposure incidents should be treated as a medical emergency and tended to immediately.
 - Wounds and skin sites should be washed with soap and water.
 - Mucous membranes should be flushed with water.
- Follow all instructions for immediate medical evaluation and follow-up care.

Standard Precautions

- ALL blood and body fluids are considered contaminated.
- ALL patients must be considered potential sources of infection.

- Guidelines established by OSHA (1991).
 - Hand washing is vital.
 - Personal protective equipment is necessary.
- Equipment and procedures depend upon the disease and how it is spread.

Standard Precautions

- Wash hands before and after contact with any patient.
- Personal protective equipment
 - Gloves: wear when in contact with any body fluids or non-intact skin; wear when you have a rash, open sores, or chapped skin.
 - Nonpermeable gowns: wear during procedures that are likely to expose you to any body fluids.
 - Mask, protective eyewear, face shield: wear when splashes or droplets are likely (i.e. patient coughing continuously).
- To avoid accidental cuts or punctures, extreme care must be taken while handling sharp objects.
- All sharp instruments and needles must be disposed of in a puncture-resistant sharps container.
- Use safe needles or needle-less devices whenever possible.
- Never re-cap a needle.
- Spills or splashes of body fluids must be wiped up immediately.
 - Gloves must be worn while wiping up the area with disposable cleaning cloths.
 - Area must then be cleaned with a disinfecting solution.
- Mouthpieces or resuscitation devices should be used to avoid the need for mouth-to-mouth resuscitation.
- Infectious wastes – must be placed in biohazardous material bags according to law.
 - Gloves must be worn while handling any contaminated linen, and any bag containing waste materials.
- Any cut, injury, needle stick, or splashing of body fluids must be reported immediately.

Transmission-Based Precautions

- In health occupations, you will deal with many different diseases.
- Communicable Disease – caused by a pathogenic organism that can be easily transmitted to others.
- Transmission-based isolation precautions are a method of caring for patients who have communicable diseases.
 - Examples: Tuberculosis, wound infections, and pertussis (whooping cough).
- Communicable diseases are spread in many ways.
 - Direct contact with the patient.
 - Contact with body fluids.
 - Indirect contact with linens, equipment, etc.
 - Discharges from wounds.
- Type of isolation depends on the causative organism of the disease, the way it is transmitted, and whether or not it is affected by antibiotics.
- Three types of transmission-based precautions:

Health Occupations Professional Essentials

- Airborne – used for diseases such as tuberculosis, measles & chicken pox, which are spread by airborne droplets.
 - Use standard precautions plus - - private room, door kept closed, filtered air, respiratory protection (mask), patient wears a surgical mask when outside the room.
- Droplet – used for diseases such as whooping cough, which is spread by a coughing, sneezing, laughing, or talking (pneumonia, meningitis).
 - Use standard precautions plus - - private room, respiratory protection (mask), patient wears a surgical mask when outside the room.
- Contact – used for skin and wound infections, which are transmitted by direct or indirect contact (Hepatitis A, conjunctivitis, impetigo, scabies).
 - Use standard precautions plus - - private room, gloves whenever in the room, gown, respiratory protection (mask), patient wears a surgical mask when outside the room.
 - Gloves and gown must be removed before leaving the room.
 - Room must receive daily cleaning and disinfecting as needed.

Summary

- Understanding the basic principles of infection control is essential.
- Disease is caused by a wide variety of pathogens, or germs.
- An understanding of the types of pathogens, methods of transmission, and the chain of infection allows health care workers to take precautions to prevent the spread of disease.
- Infection control must be followed when performing any and every health care procedure.
- Protect yourself, your patient, and others!