

Sterile Technique

Course
Health Science

Unit VII
Infection Control

Essential Question
How can health care workers keep infection from spreading?

TEKS
130.204(c)
8(I), 11(A), 12(A)

Prior Student Learning
Basic Asepsis

Estimated time
1-2 hours

Rationale

To minimize nosocomial infections health care workers must know and practice sterile technique.

Objectives

Upon completion of this lesson, the student will be able to:

- Explain the general concept of aseptic technique for prevention of infection during clinical procedures
- Apply the rules of sterile technique during the application of sterile gloves, the creation of a sterile field, and the addition of sterile items to a sterile field

Engage

Sarah was so excited about starting rotations next week. As Mrs. Sanborn handed out her rotation schedule for the month, Sarah began to get nervous. Her first assignment was in a rotation through the OR. Sarah's older friends had told her about how strict everyone was in the OR, what if she accidentally touched something she should not, what if they asked her to help, what if

Key Points

- I. Surgical Asepsis
 - A. Involves keeping the clinical setting and objects as free from microorganisms as possible.
 - B. Used in operating rooms and in other conditions that are similar to surgical procedures.
 - C. Involves the use of physical barriers
 1. gowns
 2. gloves
 3. masks
 4. drapes
 - D. Involves extraordinary control measures so contamination does not occur.
 - E. Involves use of autoclave to kill microorganisms from objects.
- II. Procedures with high risk for infection
 - A. All surgeries
 - B. Insertion of urinary and other catheters

- C. Dressing of wounds
- D. Caring for patients at great risk for infection
 - 1. burns
 - 2. transplants
 - 3. newborns
 - 4. those with suppressed immune systems (e.g. cancer victims, elderly, patients with some autoimmune diseases, transplant patients, victims of AIDS, etc.)
- III. Process of sterilization
 - A. Steam under pressure
 - B. Gas autoclave for heat sensitive items
 - C. Includes the use of special tape that changes color when sterilization is complete
- IV. Sterile Field
 - A. Any area that is used when doing a sterile procedure
 - B. Materials used in the procedure are placed within the sterile field
 - C. Area where the sterile field is placed must be clean and dry
 - D. The area of sterility is covered by a sterile drape
- V. Rules when dealing with a sterile field
 - A. All sterile equipment is double wrapped.
 - B. If tape used to close the sterile package has not changed color after autoclaving, it should be considered contaminated.
 - C. All sterile packages must bear an expiration date.
 - D. When opening a sterile package, only clean hands can touch the outside of the package.
 - E. The inside of sterile packages can be touched only with sterile gloves. Only sterile surfaces may contact sterile surfaces.
 - F. Commercially prepared sterile packages will be sealed. If the package is in poor condition, consider the items to be non-sterile.
 - G. When opening a sterile package, never reach across the sterile area. Open by walking around the sterile area.
 - H. Barriers must be used to keep field sterile once opened, i.e. sterile gloves, gowns, drapes, and masks.
 - I. Your hands must be always kept in front and above the waist. Below the waist is considered contaminated.
 - J. Do not cough or sneeze over sterile field.

- K. Sterile fields must remain dry, if wet it is no longer sterile.
 - L. Never leave the sterile field unless it is first covered with a sterile drape.
 - M. Consider 1-½ inches around the edge of a sterile field to be contaminated. DO NOT PLACE ANYTHING STERILE IN THAT AREA.
 - N. Special rooms might be used to reduce contamination.
 - O. Transfer forceps are like sterile fingers. Do not tilt tip upward, keep downward and touch sterile items only with the tip.
 - P. Never turn your back on a sterile field.
- VI. Preparing a patient
- A. Sterile drapes may be used, depending on the procedure.
 - B. Antiseptic agents might be used to prepare the patient's skin.
 - C. Removal of hair might also be done.
- VI. Basic concepts to keep in mind when determining the correct procedures to follow
- A. Sterile to Sterile = Sterile
 - B. Sterile to Unsterile = Unsterile
 - C. Sterile to Unsure = Contaminated
 - D. If during a procedure, sterile technique is breached by breaking one of the rules, tell the person(s) involved. A patient's health and well being is at stake.
 - E. The health care provider must be aware of all needles and sharps during procedure. Account for them at the finish.
 - F. Wear gloves when cleaning after procedure; dispose of needles and sharp items in proper containers.

Activity

- I. Apply sterile gloves

Teacher Note: The students are given one large sheet of white paper and a pair of clean latex gloves. Have each student fold the paper towel in the manner of the paper for sterile gloves – fold the middle and making “grab edges” on the sides of the piece of paper. Then have the students fold the edges of the latex gloves and place inside the paper towel like sterile gloves. Then demonstrate the application of sterile gloves and have the students return the demonstration.

- II. Create a sterile field and correctly add a variety of items to the field.

Teacher Note: Initially, tell the students that you will be violating sterile technique three times during the exercise. They are to watch carefully and will be asked at the end to give the three violations. Then give each of the students one item to add to the sterile field. Some can add gauze; some an instrument, both by dropping on to the field and by using the wrapping as a glove and handing to the instructor; some can drop a syringe on the field; pour liquid into a cup on the sterile field without spilling; draw up solution from an ampoule; and finally draw a solution from a vial. The instructor should open the sterile field according to accepted technique. Then the instructor should don sterile gloves. Next, the instructor should ask that the students add different supplies and equipment to the sterile field. Finally the instructor will ask for the student(s) with the ampules and vials to assist with drawing the solution into a syringe. While conducting the exercise, the instructor will violate sterile technique three times. After the completion of the exercise, the instructor will ask the class to identify the violations and discuss them.

Assessment

Quiz: Infection Control/Sterile Technique

Materials

Key Quiz: Infection Control/Sterile Technique

www.cdc.gov for students to research current issues on infection control

Large double-wrapped tray to be used to establish sterile field, containing a small cup for liquids

Individually wrapped items, i.e. forceps and scissors

Sterile gauze in unopened paper

Unopened, paper wrapped syringes

An ampule with liquid

A vial with liquid

Alcohol or Hydrogen peroxide (or similar liquid)

Sterile forceps in a container

1 package Sterile gloves

Paper towels

Latex gloves

Table to place the sterile field

Accommodations for Learning Differences

For reinforcement: The students will divide into groups of four, set up their own sterile fields, and add items to the field using the rules of sterile technique. They will use the rules for sterile technique to evaluate themselves and each other.

For enrichment: The student will research Joseph Lister and Dr. Ignaz

Semelweis, focusing on their contribution to the advancement of sterile procedures and cross-contamination. Write and present a skit. See Project Rubric for evaluation tool.

National and State Education Standards

HLC06.01

Health care workers will understand the existing and potential hazards to clients, co-workers, and self. They will prevent injury or illness through safe work practices and follow health and safety policies and procedures.

HLC06.02

Health care workers will understand the fundamentals of wellness and the prevention of disease processes. They will practice preventive health behaviors among their clients

HLC08.01

Health care workers will understand the legal responsibilities, limitations, and implications of their actions within the health care delivery setting.

TEKS

130.204(c)(8)(I) perform skills specific to a health science professional such as medical assistant, dental assistant, emergency medical technician-basic, phlebotomy technician, and pharmacy technician;

130.204(c)(11)(A) conform to governmental regulations and guidelines from entities such as the World Health Organization, Center for Disease Control, Occupational Safety and Health Administration, Food and Drug Administration, and National Institute for Occupational Safety and Health; and

130.204(c)(12)(A) research wellness strategies for the prevention of disease.

Texas College and Career Readiness Standards

Science Standards I A1- Utilize skepticism, logic and professional ethics in science

QUIZ: INFECTION CONTROL/STERILE TECHNIQUE

NAME: _____

DATE: _____

For each of the following questions, write the word(s) that best answers the questions in the space provided.

1. When setting up a sterile field, the first thing the health care provider would do is:
 - A. wash hands
 - B. apply clean gloves
 - C. open sterile towel handling only 1" of the border
 - D. apply sterile gloves

2. Sterile technique would be necessary in all of the following procedures EXCEPT
 - A. an injection of morphine
 - B. catheterization for urine
 - C. insertion of an IV
 - D. insertion of a feeding tube

3. When opening a sterile package, the last flap opened should be
 - A. the left side flap
 - B. the right side flap
 - C. the top flap
 - D. the innermost flap

4. When starting to put on sterile gloves, the health care provider can touch with her hands
 - A. the inside cuff of the first glove to be worn
 - B. the underneath part of the first glove to be worn
 - C. the inside of the wrapper only
 - D. the inside cuff of the second glove to be worn

5. While placing sterile dressings on a sterile field, the health care provider notes that the sterile towel is wet. The provider
- A. knows his/her supplies would be contaminated because the towel is wet
 - B. would avoid using the dressings that touched the wet towel
 - C. would use the dressing to pack the wound since it was already wet
 - D. knows the supplies would be sterile since they were on a sterile towel
6. **True/False** If a person reaches over a sterile field, the field is considered contaminated.
7. **True/False** If a tape has not turned color during sterilization, it is safe to use the contents in a sterile procedure.
8. **True/False** One of the rules of working with a sterile field is that hands must be held above the waist and kept in front of the person.
9. **True/False** If something is spilled on a sterile field, the field is considered to be contaminated.
10. **True/False** The 3" border edge of a sterile field is considered not sterile.

KEY: QUIZ ON INFECTION CONTROL/STERILE TECHNIQUE

1. A
2. D
3. D
4. A
5. A
6. True
7. False
8. True
9. True
10. False