

CIC Review

Aseptic Technique. Cleaning, Sterilization, and disinfection.
Antimicrobial Stewardship

Question #1

Sterile gloves should be worn to perform which of the following procedures (check all that apply)

- A. Central line dressing change
- B. Dressing change with enzymatic debridement
- C. Tracheal suctioning with an inline suction catheter
- D. Bedside surgical debridement

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Central line dressing changes actually require donning sterile gloves at the start of the procedure and then again after the old dressing has been removed. Sterile gloves are also needed for surgical debridement as it involves cutting into sterile tissue.

Clean gloves may be worn for enzymatic wound debridement and inline tracheal suctioning that is contained within a sheath.

Question #2

What is recommended for surgical incision dressing changes?

- A. Use sterile technique for all surgical dressing changes
- B. Use clean technique for all surgical dressing changes
- C. Use sterile technique for the first 24 hours and then clean technique
- D. Do not change surgical dressings within 24 hrs of surgery, then use clean technique for dressing changes.

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Dressing changes within the first 24 hrs of surgery are not always necessary, but sterile technique should be utilized when they are performed. After 24 hrs, it is appropriate to switch to clean technique

Question #3

Alcohol based hand sanitizer is considered what type of agent?

- A. An antiseptic agent
- B. A disinfecting agent
- C. An antibiotic agent
- D. A sterilizing agent

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Antiseptic agents are used to reduce or inhibit pathogens in or on the body> Because they are designed to be used on humans, they are regulated by the FDA. Disinfectants are designed for environmental use and regulated by the EPA.

Question #4

Which of the following is not a component of aseptic technique (check all that apply)

- A. Use of gloves and other PPE
- B. Hand hygiene
- C. Preoperative antibiotic prophylaxis
- D. Environmental cleaning and disinfection

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Aseptic technique deals with **reducing the risk that pathogens will be introduced** to the patient. Gloves and PPE accomplish this by creating a barrier between the patient and potential sources of contamination. Hand hygiene and environmental cleaning/disinfection accomplish this by reducing the number of microorganisms on the hands of the healthcare worker and environmental surfaces. Prophylactic antibiotics attack bacteria that **have already been introduced** to the patient or surgical site.

Question #5

What is the role of the enzymes in an enzymatic cleaner?

- A. The enzymes act as surfactants to allow easier removal of soil
- B. The enzymes break down proteins and other organic material
- C. The enzymes attack bacterial cell walls
- D. The enzymes break down all types of soil and thus eliminate the need to rinse instruments after cleaning

Question #5

What is the role of the enzymes in an enzymatic cleaner?

- A. The enzymes act as surfactants to allow easier removal of soil (**this is the action of detergent cleaners**)
- B. **The enzymes break down proteins and other organic material**
- C. The enzymes attack bacterial cell walls (**enzymes may kill some microorganisms, but their primary purpose is removal of soil/debris**)
- D. The enzymes break down all types of soil and thus eliminate the need to rinse instruments after cleaning (**It is necessary to thoroughly rinse objects after cleaning to remove the cleaning agent. Both detergent and enzymatic cleaners can cause harmful reactions if residue is left on instrumentation.**)

Question #6

Which of the following is the least preferred method for sterilizing critical items?

- A. Gas sterilization with vaporized hydrogen peroxide
- B. Liquid sterilization with glutaraldehyde
- C. Steam sterilization
- D. Gas sterilization with ethylene oxide (ETO)

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Steam sterilization is the preferred method for sterilizing instruments, but gas sterilization is an acceptable alternative for instruments unable to tolerate high temperatures. Liquid sterilization should only be used for items unable to be sterilized any other way due to the inability to wrap items during processing.

Question #7

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- B. TB syringes
- C. Laparoscopes
- D. Bronchoscopes

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Critical items are anything that enters or comes into contact with sterile tissues, the vascular system or bone. Semicritical items are those that come into contact with mucous membranes or non-intact skin. Bronchoscopes are semicritical items as they come into contact with the mucous membranes of the respiratory tract, but do not enter any sterile tissue.

Question #8

Advantages of centralized reprocessing areas include all except:

- A. Specialized reprocessing equipment
- B. Faster instrument turnaround time
- C. Dedicated, highly trained reprocessing staff
- D. More cost effective

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Centralized instrument reprocessing centers are able to utilize equipment too large and/or costly to be practical when sterilization is performed locally. The staff are also highly trained, often as certified instrument reprocessing technicians. It is also more cost-effective than equipping and staffing several smaller reprocessing areas. However, localized reprocessing usually is faster and results in few lost instruments than centralized reprocessing.

Question #9

A 71 y.o. male underwent cataract surgery in his Rt eye 24 hrs ago. Today he presents with blurred vision, eye redness, ocular pain, and inflammation of the anterior chamber of the eye. Which condition do you suspect?

- A. Toxic Anterior Segment Syndrome (TASS)
- B. Postoperative conjunctivitis
- C. Infectious keratitis
- D. Acute closed-angle glaucoma

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- B. Postoperative conjunctivitis
- C. Infectious keratitis
- D. Acute closed-angle glaucoma

Toxic Anterior Segment Syndrome (TASS) occurs when foreign contaminants are introduced to the anterior chamber of the eye during or after cataract surgery. Sometimes improperly reprocessed equipment is to blame. Contaminants may include detergent residue, ophthalmic ointments, talc from cloths, or impurities from autoclave steam. TASS requires immediate intervention with steroids to prevent permanent vision loss.

Question #10

The hospital you work for is considering utilizing ultraviolet irradiation (UV) to assist with certain types of decontamination. Considerations for UV decontamination include all except:

- A. UV contamination does not eliminate the need for thorough cleaning
- B. All furniture and equipment must be moved away from walls
- C. It is effective against *C. difficile*
- D. HVAC system must be disabled and any door gaps sealed prior to use

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Hydrogen peroxide systems use hydrogen peroxide vapor or aerosolized mist and require the room to be entirely sealed off and the HVAC system to be disabled prior to use to prevent toxic fumes from escaping. The room must be cleared of people before performing UV disinfection, but does not pose a risk to air handling systems.

Question #11

What is the preferred metric to track antimicrobial use?

- A. Days of therapy (DOT)
- B. Doses per 1,000 patient days
- C. Defined daily dose (DDD)
- D. Length of therapy (LOT)

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All of these metrics have certain uses, but days of therapy (DOT) is generally the most accurate indication of overall use. DOT looks at the total number of days antibiotics were given, regardless of how many doses per day were received.

Question #12

Which of the following is not a core element of antimicrobial stewardship as defined by the CDC?

- A. Accountability
- B. Communication
- C. Tracking
- D. Action

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Communication is an important component of any stewardship program, but is not one of the 7 core elements of stewardship.

Core Elements of Hospital Antibiotic Stewardship Programs



Hospital Leadership Commitment

Dedicate necessary human, financial, and information technology resources.



Accountability

Appoint a leader or co-leaders, such as a physician and pharmacist, responsible for program management and outcomes.



Pharmacy Expertise (previously "Drug Expertise"):

Appoint a pharmacist, ideally as the co-leader of the stewardship program, to help lead implementation efforts to improve antibiotic use.



Action

Implement interventions, such as prospective audit and feedback or preauthorization, to improve antibiotic use.



Tracking

Monitor antibiotic prescribing, impact of interventions, and other important outcomes, like *C. difficile* infections and resistance patterns.



Reporting

Regularly report information on antibiotic use and resistance to prescribers, pharmacists, nurses, and hospital leadership.



Education

Educate prescribers, pharmacists, nurses, and patients about adverse reactions from antibiotics, antibiotic resistance, and optimal prescribing.

Question #13

Which of the following are recommended interventions for antimicrobial stewardship programs (Check all that apply)

- A. Avoid treating asymptomatic infections with antimicrobials
- B. Require preauthorization for certain antimicrobials
- C. Use of rapid diagnostic testing
- D. Implementation of disease-specific protocols

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- C. Use of rapid diagnostic testing**
- D. Implementation of disease-specific protocols**

There are many times when it is not recommended to treat asymptomatic individuals with antibiotics, such as patients colonized with certain bacteria, including multidrug-resistant organisms. However, many infections necessitate treatment, regardless of symptoms (e.g. Chlamydia).

Question #14

True or false:

Antimicrobial stewardship programs are designed to optimize overall antibiotic use patterns rather than improve individual patient outcomes

- A. True
- B. False

Question #14

True or false:

Antimicrobial stewardship programs (ASPs) are designed to optimize overall antibiotic use patterns rather than improve individual patient outcomes

- A. True
- B. False**

ASPs are designed to optimize both systemic and individual outcomes. Ensuring antibiotics are utilized correctly improves individual patient safety through fewer adverse events (C. difficile infections, allergic reactions, nephrotoxicity, etc).